ICAR-NBSS&LUP Sujala MWS Publ.309

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LAND RESOURCE INVENTORY AND SOCIO-ECONOMIC STATUS OF FARM HOUSEHOLDS FOR WATERSHED PLANNING AND DEVELOPMENT

TURK MADHAWAR-1 (4D2D6M1c) MICROWATERSHED

Balichakra & Konkala Hobli, Yadgir Taluk and District, Karnataka

Karnataka Watershed Development Project – II

SUJALA – III

World Bank funded Project

The World Bank

ICAR – NATIONAL BUREAU OF SOIL SURVEY AND LAND USE PLANNING

ICAR - NBSS & LUP

WATERSHED DEVELOPMENT DEPARTMENT
GOVT. OF KARNATAKA, BANGALORE

About ICAR - NBSS&LUP

The ICAR-National Bureau of Soil Survey and Land Use Planning (ICAR-NBSS&LUP), Nagpur, a premier Institute of the Indian Council of Agricultural Research (ICAR), was set up during 1976 with the objective to prepare soil resource maps at national, state and district levels and to provide research inputs in soil resource mapping and its applications, land evaluation, land use planning, land resource management, and database management using GIS for optimising land use on different kinds of soils in the country.

The Bureau has been engaged in carrying out soil resource survey, agro-ecological and soil degradation mapping at the country, state and district levels for qualitative assessment and monitoring the soil health towards viable land use planning. The research activities have resulted in identifying the soil potentials and problems, and the various applications of the soil surveys with the ultimate objective of sustainable agricultural development. The Bureau has the mandate to correlate and classify soils of the country and maintain a National Register of all the established soil series. The Institute is also imparting in-service training to staff of the soil survey agencies in the area of soil survey, land evaluation and soil survey interpretations for land use planning. The Bureau in collaboration with Panjabrao Krishi Vidyapeeth, Akola is running post-graduate teaching and research programme in land resource management, leading to M.Sc. and Ph.D. degrees.

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PREFACE

In Karnataka, as in other Indian States, the livelihoods of rural people are intertwined with farming pursuits. The challenges in agriculture are seriously threatening the livelihood of a large number of farmers as they have been practicing farming in contextual factors beyond their control. Climatic factors are the most important ones and have become much more significant in recent times due to rapid climate changes induced by intensive anthropogenic activities affecting our ecosystem in multiple ways. Climate change has become the reality, it is happening and efforts to evolve and demonstrate climate resilient technologies have become essential. Due to the already over stressed scenario of agrarian sector, the climate change is resulting in manifold increase in the complexities, pushing the rural mass to face more and more unpredictable situations. The rising temperatures and unpredictable rainfall patterns are going to test seriously the informed decisions farmers have to make in order to survive in farming and sustain their livelihood.

It is generally recognized that impacts of climate change shall not be uniform across the globe. It is said that impact of climate change is more severe in South Asia. Based on the analysis of meteorological data, it is predicted that in India, there will be upward trend in mean temperature, downward trend in relative humidity, annual rainfall and number of wet days in a year. Also, in general, phenomena like erratic monsoon, spread of tropical diseases, rise in sea levels, changes in availability of fresh water, frequent floods, droughts, heat waves, storms and hurricanes are predicted. Each one of these adverse situations are already being experienced in various parts of India and also at the global level. Decline in agricultural productivity of small and marginal farmers becoming more vulnerable is already witnessed.

In Karnataka, more than 60 per cent of the population live in rural areas and depend on agriculture and allied activities for their livelihood. Though the state has achieved significant progress in increasing the yield of many crops, there is tremendous pressure on the land resources due to the growing and competing demands of various land uses. This is reflected in the alarming rate of land degradation observed. Already more than 50 per cent of the area is affected by various forms of degradation. If this trend continues, the sustainability of the fragile ecosystem will be badly affected. The adverse effects of change in the climatic factors are putting additional stress on the land resources and the farmers dependent on this.

The natural resources (land, water and vegetation) of the state need adequate and constant care and management, backed by site-specific technological interventions and investments particularly by the government. Detailed database pertaining to the nature of the land resources, their constraints, inherent potentials and suitability for various land

based rural enterprises, crops and other uses is a prerequisite for preparing location-specific action plans, which are in tune with the inherent capability of the resources. Any effort to evolve climate resilient technologies has to be based on the baseline scientific database. Then only one can expect effective implementation of climate resilient technologies, monitor the progress, make essential review of the strategy, and finally evaluate the effectiveness of the implemented programs. The information available at present on the land resources of the state are of general nature and useful only for general purpose planning. Since the need of the hour is to have site-specific information suitable for farm level planning and detailed characterization and delineation of the existing land resources of an area into similar management units is the only option.

ICAR-NBSS&LUP, Regional Centre, Bangalore has taken up a project sponsored by the Karnataka Watershed Development Project-II, (Sujala-III), Government of Karnataka funded by the World Bank under Component-1 Land Resource Inventry. This study was taken up to demonstrate the utility of such a database in reviewing, monitoring and evaluating all the land based watershed development programs on a scientific footing. To meet the requirements of various land use planners at grassroots level, the present study on "Land Resource Inventory and Socio-Economic Status of Farm Households for Watershed Planning and Development of Turk Madhawar 1 Microwatershed, Yadgir Taluk and District, Karnataka" for integrated development was taken up in collaboration with the State Agricutural Universities, IISC, KSRSAC, KSNDMC as Consortia partners. The project provides detailed land resource information at cadastral level (1:7920 scale) for all the plots and socio-economic status of farm households covering thirty per cent farmers randomely selected representing landed and landless class of farmers in the micro-watershed. The project report with the accompanying maps for the Microwatershed will provide required detailed database for evolving effective land use plan, alternative land use options and conservation plans for the planners, administrators, agricutural extention personnel, KVK officials, developmental departments and other land users to manage the land resources in a sustainable manner.

It is hoped that this database will be useful to the planners, administrators and developmental agencies working in the area in not only for formulating location specific developmental schemes but also for their effective monitoring at the village/watershed level.

Nagpur
Date: 14-08-2019

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PART-A

LAND RESOURCE INVENTORY

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EXECUTIVE SUMMARY

The land resource inventory of Turk Madhawar-1 Microwatershed was conducted using village cadastral maps and IRS satellite imagery on 1:7920 scale. The false colour composites of IRS imagery were interpreted for physiography and the physiographic delineations were used as base for mapping soils. The soils were studied in several transects and a soil map was prepared with phases of soil series as mapping units. Random checks were made all over the area outside the transects to confirm and validate the soil map unit boundaries. The soil map shows the geographic distribution and extent, characteristics, classification, behavior and use potentials of the soils in the microwatershed.

The present study covers an area of 748 ha in Yadgir taluk & district, Karnataka. The climate is semiarid and categorized as drought-prone with an average annual rainfall of 866 mm, of which about 652 mm is received during south-west monsoon, 138 mm during north-east and the remaining 76 mm during the rest of the year. An area of 694 ha in the microwatershed is covered by soils and 53 ha by others (habitation and water body). The salient findings from the land resource inventory are summarized briefly below.

- *The soils belong to 11 soil series and 16 soil phases (management units) and 9 land management units.*
- *The length of crop growing period is about 120-150 days starting from 1st week of June to 4th week of October.*
- *From the master soil map, several interpretative and thematic maps like land capability, soil depth, surface soil texture, soil gravelliness, available water capacity, soil slope and soil erosion were generated.*
- *Soil fertility status maps for macro and micronutrients were generated based on the surface soil samples collected at every 320 m grid interval.*
- *Land suitability for growing 29 major agricultural and horticultural crops was assessed and maps showing the degree of suitability along with constraints were generated.*
- *Entire area in the microwatershed is suitable for agriculture.*
- *About 28 per cent area are moderately shallow (50-75 cm), 16 per cent area of the microwatershed has soils that are moderately deep (75-100 cm) and 49 per cent area are deep to very deep (100 to >150 cm).*
- *About 5 per cent area in the microwatershed has sandy, 26 per cent area in loamy and 62 per cent clayey soils at the surface.*
- *Maximum of 88 per cent area in the microwatershed is non gravelly (<15%) and 5 per cent is gravelly (15-35%).*
- *About 49 per cent area of the microwatershed is very high (>200 mm/m) in available water capacity, 6 per cent area medium (101-150 mm/m), 33 per cent area low (51-100 mm/m) and 5 per cent area very low (<50 mm/m) in available water capacity.*
- *Entire area in the microwatershed is very gently sloping (1-3% slope) land.*
- *Entire area in the microwatershed is moderately (e2) eroded land.*

- *An area of about 25 per cent is slightly alkaline (pH 7.3-7.8) and 68 per cent soils is moderately alkaline (pH 7.8-8.4).*
- *The Electrical Conductivity (EC) of entire soils of the microwatershed is dominantly <2 dsm^{-1} indicating that the soils are non-saline.*
- *About 83 per cent of the soils are medium (0.5-0.75%) in organic carbon and low (<0.5%) in 10 per cent area.*
- *Available phosphorus is medium (23-57 kg/ha) in the entire area of the microwatershed.*
- *Available potassium is medium (145-337 kg/ha) in the entire area of the microwatershed.*
- *Available sulphur is low (<10 ppm) in an area of about 11 per cent and medium (10 - 20 ppm) in 82 per cent.*
- *Available boron is medium (0.5-1.0 ppm) in the entire area of the microwatershed.*
- *Available iron is sufficient (>4.5 ppm) in the entire area of the microwatershed.*
- *Available manganese and copper are sufficient in all the soils of the microwatershed.*
- *Available zinc is deficient (<0.6 ppm) in the entire area of the microwatershed.*
- *The land suitability for 29 major crops grown in the microwatershed were assessed and the areas that are highly suitable (S1) and moderately suitable (S2) are given below. It is however to be noted that a given soil may be suitable for various crops but what specific crop to be grown may be decided by the farmer looking to his capacity to invest on various inputs, marketing infrastructure, market price and finally the demand and supply position.*

Land suitability for various crops in the Microwatershed

Crop	Suitability Area in ha (%)			Crop	Suitability Area in ha (%)	
	Highly suitable (S1)	Moderately suitable (S2)			Highly suitable (S1)	Moderately suitable (S2)
Sorghum	*149(20)*	*333(45)*		*Guava*	-	*74(10)*
Maize	*40(5)*	*485(65)*		*Sapota*	-	*74(10)*
Bajra	*40(5)*	*442(59)*		*Pomegranate*	-	*310(42)*
Groundnut	-	*178(24)*		*Musambi*	*236(32)*	*74(10)*
Sunflower	*109(15)*	*201(27)*		*Lime*	*236(32)*	*74(10)*
Redgram	-	*310(42)*		*Amla*	*149(20)*	*333(45)*
Bengal gram	*236(32)*	*246(37)*		*Cashew*	-	*40(5)*
Cotton	*127(17)*	*354(48)*		*Jackfruit*	-	*74(10)*
Chilli	-	*464(62)*		*Jamun*	-	*236(32)*
Tomato	*40(5)*	*315(42)*		*Custard apple*	*310(42)*	*172(23)*
Brinjal	*40(5)*	*443(59)*		*Tamarind*	-	*236(32)*
Onion	-	*464(62)*		*Mulberry*	-	*74(10)*
Bhendi	*109(15)*	*373(50)*		*Marigold*	-	*483(65)*
Drumstick	-	*310(42)*		*Chrysanthemum*	-	*483(65)*
Mango	-	-				

- *Apart from the individual crop suitability, a proposed crop plan has been prepared for the identified LMUs by considering only the highly and moderately suitable lands for different crops and cropping systems with food, fodder, fibre and other horticulture crops.*
- *Maintaining soil-health is vital for crop production and conserve soil and land resource base for maintaining ecological balance and to mitigate climate change. For this, several ameliorative measures have been suggested for these problematic soils like saline/alkali, highly eroded, sandy soils etc.,*
- *Soil and water conservation treatment plan has been prepared that would help in identifying the sites to be treated and also the type of structures required.*
- *As part of the greening programme, several tree species have been suggested to be planted in marginal and submarginal lands, field bunds and also in the hillocks, mounds and ridges. This would help in not only supplementing the farm income but also provide fodder and fuel and generate lot of biomass which would help in maintaining an ecological balance and also contribute to mitigating the climate change.*

Chapter 1

INTRODUCTION

Land is a scarce resource and basic unit for any material production. It can support the needs of the growing population, provided they use the land in a rational and judicious manner. But what is happening in many areas of the state is a cause for concern to everyone involved in the management of land resources at the grassroots level. The area available for agriculture is about 51 per cent of the total geographical area and more than 60 per cent of the people are still dependant on agriculture for their livelihood. The limited land area is under severe stress and strain due to increasing population pressure and competing demands of various land uses. Due to this, every year there is significant diversion of farm lands and water resources for non-agricultural purposes. Apart from this, due to lack of interest in farmers for farming, large tracts of cultivable lands are turning into fallows in many areas and this trend is continuing at an alarming rate.

Further, land degradation has emerged as a serious problem which has already affected about 38 lakh ha of cultivated area in the state. Soil erosion alone has degraded about 35 lakh ha. Almost all the uncultivated areas are facing various degrees of degradation, particularly soil erosion. Salinity and alkalinity has emerged as a major problem in more than 3.5 lakh ha in the irrigated areas of the state. Nutrient depletion and declining factor productivity is common in both rainfed and irrigated areas. The degradation is continuing at an alarming rate and there appears to be no systematic effort among the stakeholders to contain this process. In recent times, an aberration of weather due to climate change phenomenon has added another dimension leading to unpredictable situations to be tackled by the farmers.

In this critical juncture, the challenge before us is not only to increase the productivity per unit area which is steadily declining and showing a fatigue syndrome, but also to prevent or at least reduce the severity of degradation. If the situation is not reversed at the earliest, then the sustainability of the already fragile crop production system and the overall ecosystem will be badly affected in the state. The continued neglect and unscientific use of the resources for a long time has led to the situation observed at present in the state. It is a known fact and established beyond doubt by many studies in the past that the cause for all kinds of degradation is the neglect and irrational use of the land resources. Hence, there is an urgent need to generate a detailed site-specific farm level database on various land resources for all the villages/watersheds in a time bound manner that would help to protect the valuable soil and land resources and also to stabilize the farm production.

Therefore, the land resource inventory required for farm level planning is the one which investigates not only the surface but also consider the other parameters which are critical for productivity *viz.*, soils, climate, water, minerals and rocks, topography, geology, hydrology, vegetation, crops, land use pattern, animal population, socio-

economic conditions, infrastructure, marketing facilities and various schemes and developmental works of the government etc. From the data collected at farm level, the specific problems and potentials of the area can be identified and highlighted, conservation measures required for the area can be planned on a scientific footing, suitability of the area for various uses can be worked out and finally viable and sustainable land use options suitable for each and every land holding can be prescribed.

The Land Resource Inventory is basically done for identifying the potential and problem areas, developing sustainable land use plans, estimation of surface run off and water harvesting potential, preparation of soil and water conservation plans, land degradation/desertification etc. The Bureau is presently engaged in developing an LRI methodology using high resolution satellite remote sensing data and Digital Elevation Model (DEM) data to prepare Landscape Ecological Units (LEU) map representing agro-ecosystem as a whole. The LEU is preferred over landform as the base map for LRI. LEU is the assemblage of landform, slope and land use. An attempt has already been made to upscale the soil resource information from 1:250000 and 1:50000 scale to the LEU map in Goa and other states.

The land resource inventory aims to provide site-specific database for Turk Madhawar 1 microwatershed in Yadgir Taluk & District, Karnataka State for the Karnataka Watershed Development Department. The database was generated by using cadastral map of the village as a base along with high resolution IRS LISS IV and Cartosat-1 merged satellite imagery. Later, an attempt will be made to uplink this LRI data generated at 1:7920 scale under Sujala-III Project to the proposed Landscape Ecological Units (LEUs) map.

The study was organized and executed by the ICAR- National Bureau of Soil Survey and Land Use Planning, Regional Centre, Bangalore under Generation of Land Resource Inventory Data Base Component-1 of the Sujala-III Project funded by the World Bank.

Chapter 2

GEOGRAPHICAL SETTING

2.1 Location and Extent

The Turk Madhawar 1 microwatershed is located in the northern part of Karnataka in Yadgir Taluk and District, Karnataka State (Fig.2.1). It comprises part of Yalasatti, Madhwara and Thoranathippa villages. It lies between 16^0 38' – $16^0$40' North latitudes and $77^0$19' – $77^0$21'east longitudes, covering an area of about 747.66 ha. It is about 38 km southeast of Yadgir town and is surrounded by Yalasatti on the north, Thoranathippa on the northeast and Madhwara village on the west and southern side.

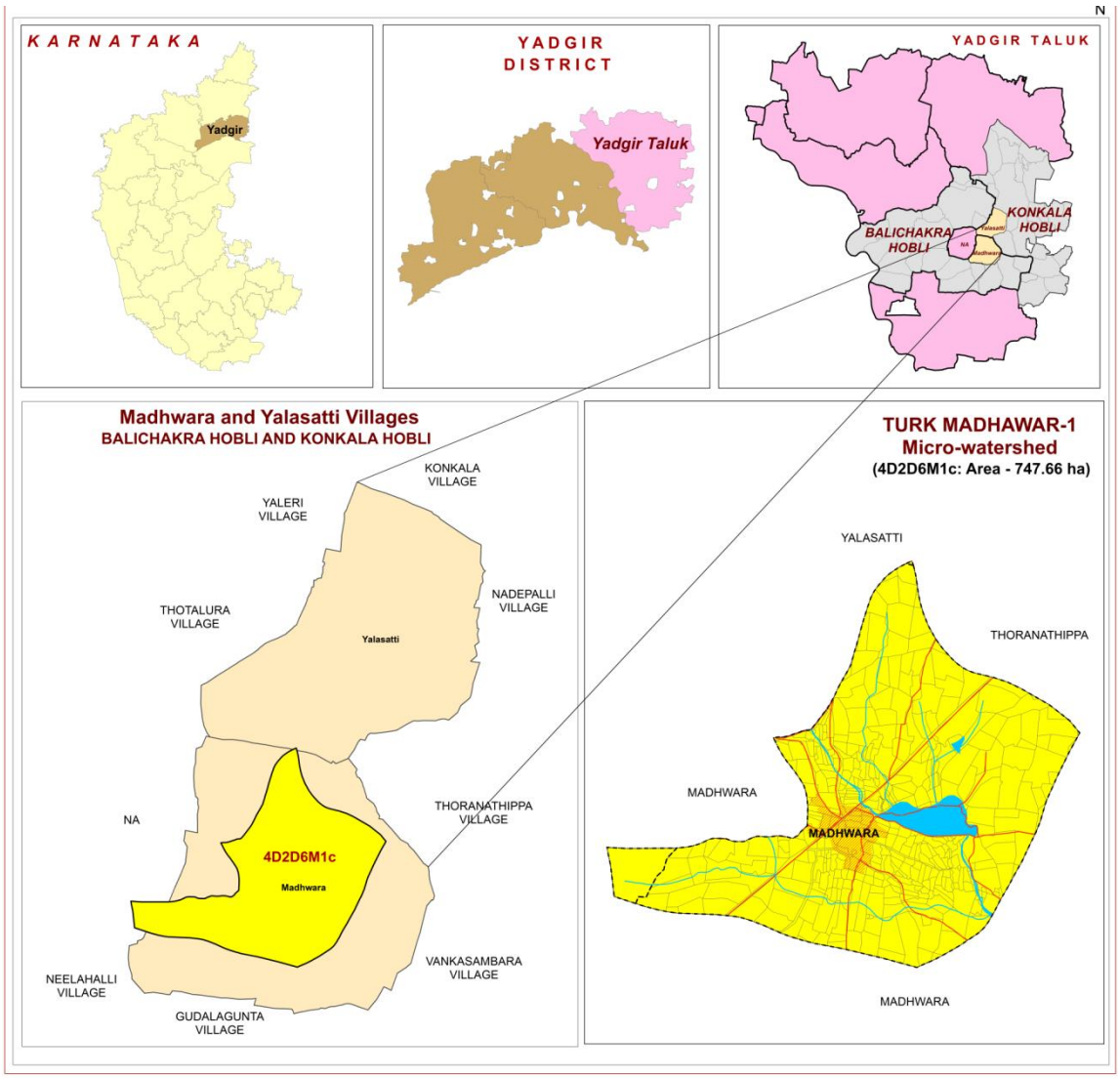


Fig.2.1 Location map of Turk Madhawar 1 microwatershed

2.2 Geology

Major rock formations observed in the microwatershed are granite gneiss and alluvium (Figs.2.2a and b). Granite gneisses are essentially pink to gray and are coarse to medium grained. They consist primarily of quartz, feldspar, biotite and hornblende. The gray granite gneisses are highly weathered, fractured and fissured upto a depth of about

10 m. Dolerite dykes and quartz veins are common with variable width and found to occur in Turk Madhawar 1 microwatershed. The most widespread and characteristic development of alluvium in the watershed region lying between the rivers Krishna and Bhima is a wide belt, the underlying formation is gneiss and alluvial soils occur over gneiss, limestone and shale. The soil thickness of the alluvium generally is limited to less than a meter, except in river valleys where it is very deep extending to tens of meters. Such soils are transported and represent palaeo black soils originally formed at higher elevation, but now occupying river valleys.

Fig.2.2 Granite and granite gneiss rocks formation

Fig. 2.2b Alluvium

2.3 Physiography

Physiographically, the area has been identified as granite gneiss and alluvial landscapes based on geology. The area has been further subdivided into five landforms, *viz;* mounds/ridges, summits, side slopes and very gently sloping uplands, plains and valleys based on slope and its relief features. The elevation ranges from 395-416 m above MSL. The mounds and ridges are mostly covered by rock outcrops.

2.4 Drainage

The area is drained by several parallel streams like Bori, Amerja and Kanga which finally join the river Bhima along its course. Though, they are not perennial, during rainy season they carry large quantities of rain water. The microwatershed has only few small tanks which are not capable of storing the water that flows during the rainy season. Due to this, the ground water recharge is very much affected. This is reflected in the failure of many bore wells in the villages. If the available rain water is properly harnessed by constructing new tanks and recharge structures at appropriate places in the villages, then the drinking and irrigation needs of the area can be easily met. The drainage network is parallel to sub parallel and dendritic.

2.5 Climate

The Yadgir district lies in the northern plains of Karnataka and falls under semiarid tract of the state and is categorized as drought- prone with total annual rainfall of 866 mm (Table 2.1). Of the total rainfall, maximum of 652 mm is received during the south–west monsoon period from June to September, the north-east monsoon from October to early December contributes about 138 mm and the remaining 76 mm during the rest of the year. The summer season starts during the middle of February and continues up to the first week of June. The period from December to the middle of February is the coldest season. December is the coldest month with mean daily maximum and minimum temperatures being 29.5^0C and 10^0C respectively. During peak summer, temperature shoots up to 45^0C. Relative humidity varies from 26% in summer to 62% in winter. Rainfall distribution is shown in Figure 2.3. The average Potential Evapo-Transpiration (PET) is 141 mm and varies from a low of 81 mm in December to 199 mm in the month of May. The PET is always higher than precipitation in all the months except end of June to end of September. Generally, the Length of crop Growing Period (LGP) is 120-150 days and starts from 1st week of June to 4th week of October.

Table 2.1 Mean Monthly Rainfall, PET, 1/2 PET at Yadgir Taluk, Yadgir District

Sl. No.	Months	Rainfall	PET	1/2 PET
1	January	4.30	86.0	43.0
2	February	2.30	125.5	62.7
3	March	15.10	166.0	83.0
4	April	18.50	179.8	89.9
5	May	36.0	198.8	97.9
6	June	118.0	175.1	87.5
7	July	171.80	156.3	78.1
8	August	182.9	150.3	75.1
9	September	179.7	142.0	71.0
10	October	105.3	138.5	69.2
11	November	26.4	97.60	48.6
12	December	6.0	80.90	40.4
Total		**866.3**		

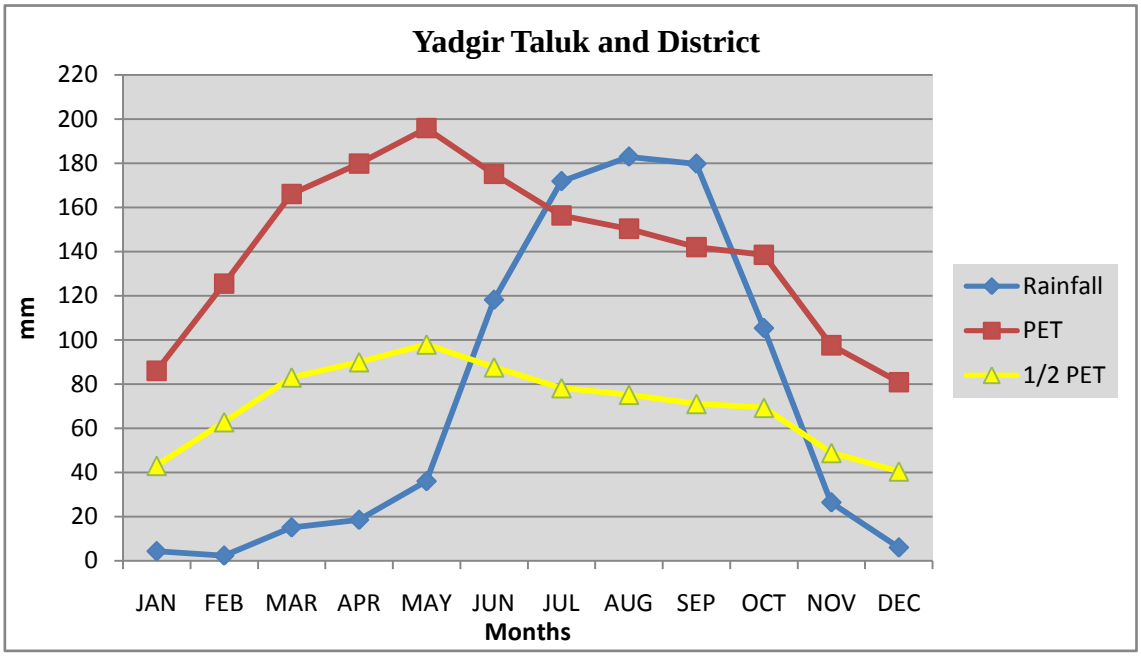


Fig 2.3 Rainfall distribution in Yadgir Taluk and District

2.6 Natural Vegetation

The natural vegetation is sparse comprising few tree species, shrubs and herbs. The mounds, ridges and boulders occupy very sizeable area which is under thin to moderately thick forest vegetation. Still, there are some remnants of the past forest cover which can be seen in patches in some ridges and hillocks in the microwatershed (Fig 2.4).

Apart from the continuing deforestation, the presence of large population of goats, sheep and other cattle in the microwatershed is causing vegetative degradation of whatever little vegetation left in the area. The uncontrolled grazing has left no time for the regeneration of the vegetative cover. This leads to the accelerated rate of erosion on the hill slopes resulting in the formation of deep gullies in the foot slopes that eventually result in the heavy siltation of tanks and reservoirs in the microwatershed.

Fig 2.4 Natural vegetation of Turk Madhawar 1 microwatershed

2.7 Land Utilization

About 72 per cent area (Table 2.2) in Yadgir district is cultivated at present. An area of about 2 per cent is permanently under pasture, 20 per cent under current fallows and 6 per cent under non-agricultural land and 5 per cent under currently barren. Forests occupy an area of about 7 per cent and the tree cover is in a very poor state. Most of the mounds, ridges and bouldery areas have very poor vegetative cover. Major crops grown in the area are sorghum, maize, cotton, sunflower, groundnut, red gram, mango, pomegranate, marigold and sapota. While carrying out land resource inventory, the land use/land cover particulars are collected from all the survey numbers and a current land use map of the microwatershed is prepared. The current land use map prepared shows the arable and non-arable lands, other land uses and different types of crops grown in the area. The current land use map of Turk Madhawar 1 microwatershed is presented in Fig.2.5. The different crops and cropping systems adopted in the microwatershed is presented in Figures 2.6 a & b. The occurrence and distribution of wells in Turk Madhawar 1 microwatershed is shown in figure 2.7

Table 2.2 Land Utilization in Yadgir District

Sl. No.	Agricultural land use	Area (ha)	Per cent
1	Total geographical area	516088	-
2	Total cultivated area	373617	72.4
3	Area sown more than once	74081	14.3
4	Cropping intensity	-	119.8
5	Trees and grooves	737	0.14
6	Forest	33773	6.54
7	Cultivable wasteland	2385	0.46
8	Permanent Pasture land	11755	2.28
9	Barren land	27954	5.41
10	Non- Agriculture land	29623	5.73
11	Current Fallows	105212	20.4

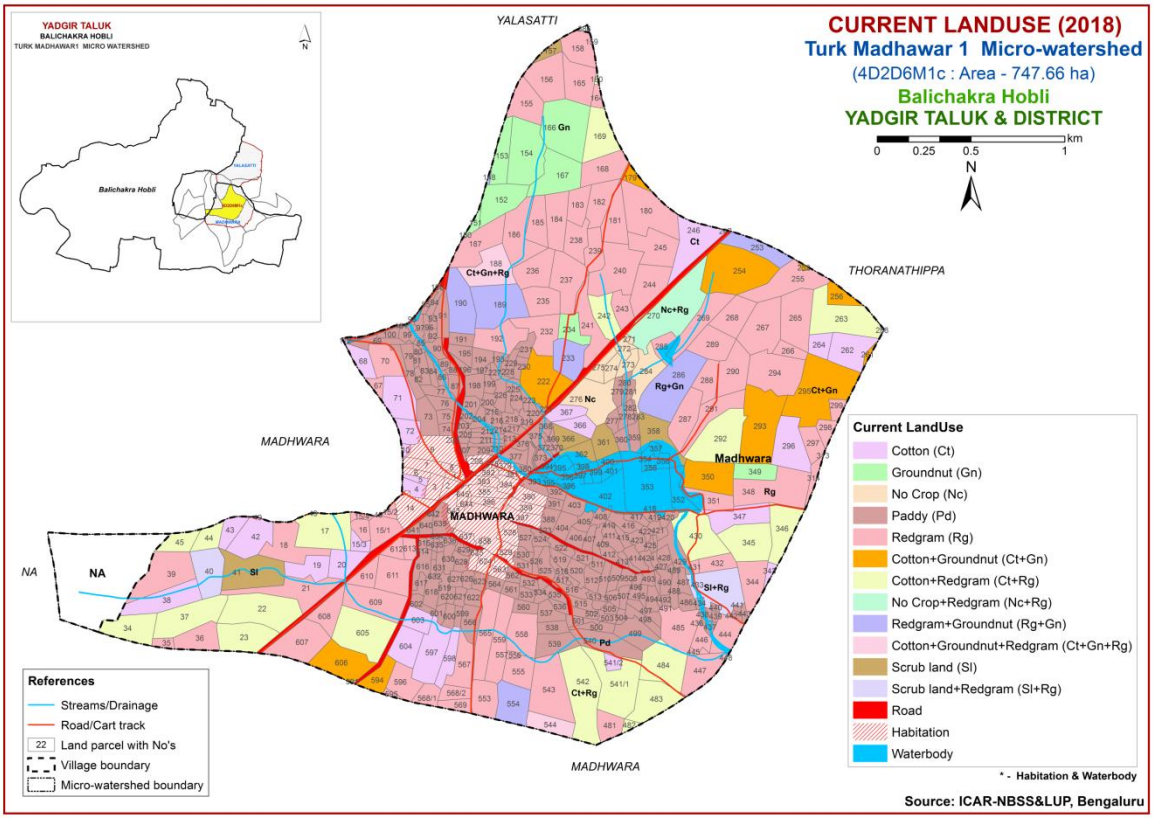


Fig.2.5 Current Land Use map of Turk Madhawar 1 microwatershed

Fig. 2.6 a. Different Crops and Cropping Systems in Turk Madhawar 1 microwatershed

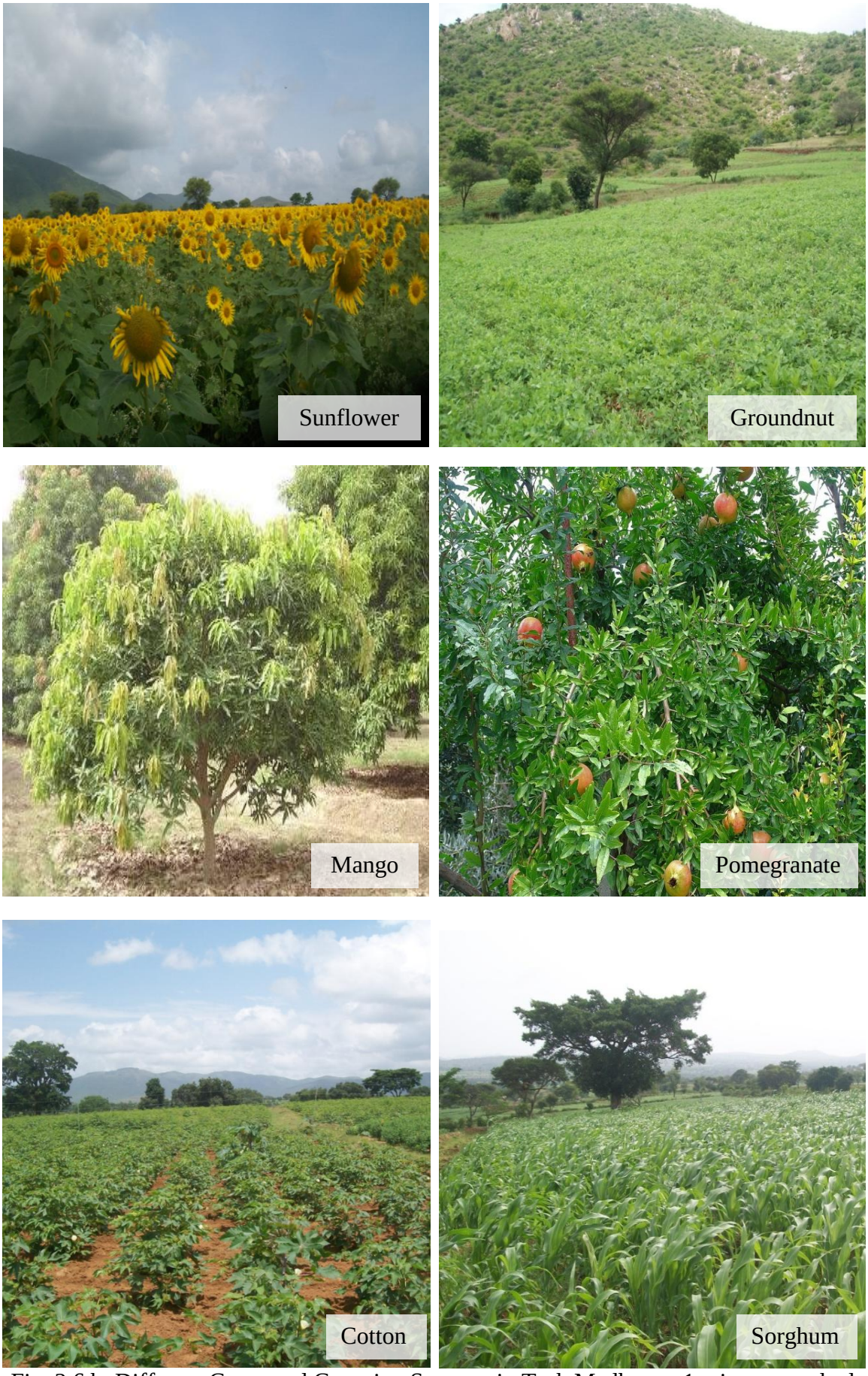


Fig. 2.6 b. Different Crops and Cropping Systems in Turk Madhawar 1 microwatershed

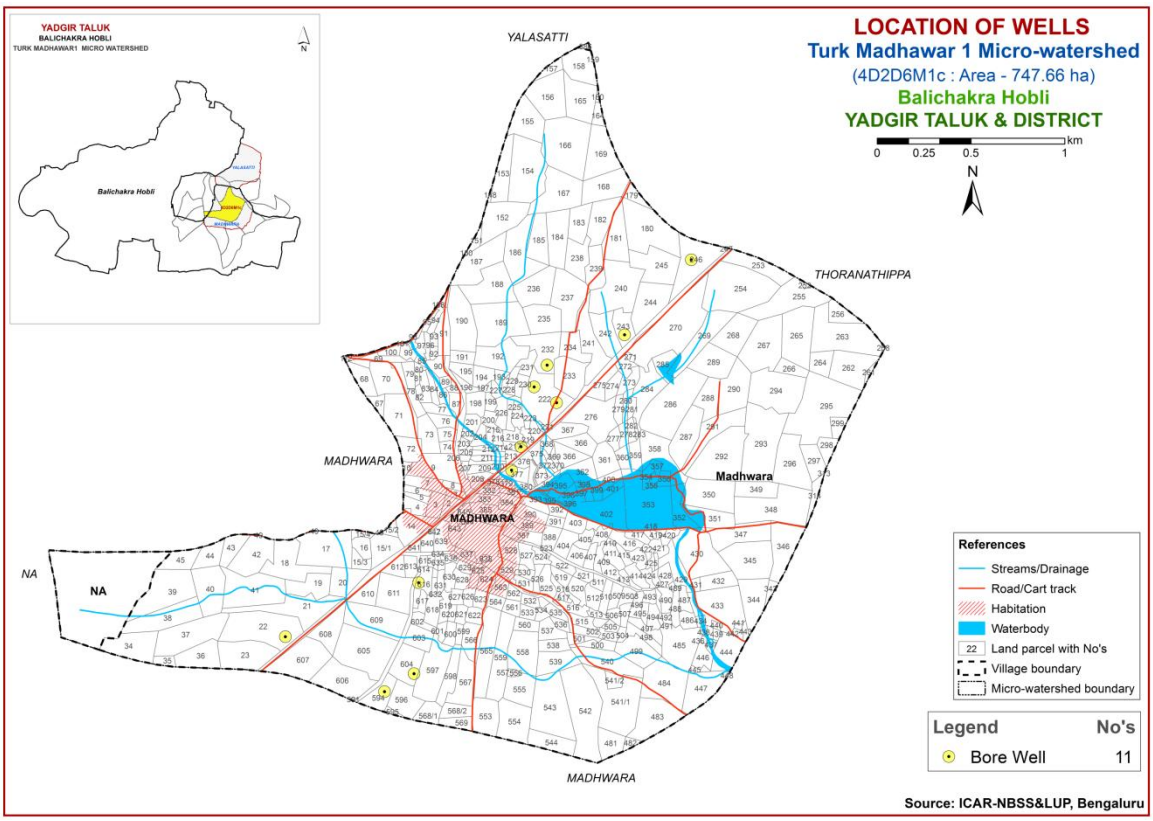


Fig. 2.7 Location of wells in Turk Madhawar 1 microwatershed

Chapter 3

SURVEY METHODOLOGY

The purpose of land resource inventory is to delineate similar areas (soil series and phases), which respond or expected to respond similarly to a given level of management. This was achieved in Turk Madhawar 1 microwatershed by the detailed study of all the soil characteristics (depth, texture, colour, structure, consistence, coarse fragments, porosity, soil reaction, soil horizons etc.) and site characteristics (slope of the land, erosion, drainage, occurrence of rock fragments etc.) followed by grouping of similar areas based on soil-site characteristics into homogeneous (management units) units, and showing the area extent and their geographic distribution on the microwatershed cadastral map. The detailed survey at 1:7920 scale was carried out in an area of 748 ha. The methodology followed for carrying out land resource inventory was as per the guidelines given in Soil Survey Manual (IARI, 1971; Soil Survey Staff, 2006; Natarajan *et al.,* 2015) which is briefly described below.

3.1 Base Maps

The detailed survey of the land resources occurring in the microwatershed was carried out by using digitized cadastral map and IRS satellite imagery as base supplied by KSRSAC. The cadastral map shows field boundaries with their survey numbers, location of tanks, streams and other permanent features of the area (Fig. 3.1). Apart from the cadastral map, remote sensing data products from Cartosat-1 and LISS IV merged at the scale of 1:7920 were used in conjunction with the cadastral map to identify the landscapes, landforms and other surface features. The imagery helped in the identification and delineation of boundaries between hills, uplands and lowlands, water bodies, forest and vegetated areas, roads, habitations and other cultural features of the area (Fig. 3.2). The cadastral map was overlaid on the satellite imagery (Fig. 3.3) that helps to identify the parcel boundaries and other permanent features. Apart from cadastral maps and images, toposheets of the area (1:50,000 scale) were also used for initial traversing, identification of geology and landforms, drainage features, present land use and also for selection of transects in the microwatershed.

3.2 Image Interpretation for Physiography

False Colour Composites (FCCs) of Cartosat-I and LISS-IV merged satellite data covering microwatershed area was visually interpreted using image interpretation elements and all the available collateral data with local knowledge. The delineated physiographic boundaries were transferred on to a cadastral map overlaid on satellite imagery. Physiographically, the area has been identified as granite gneiss and alluvial landscapes. It was divided into five landforms, *viz;* ridges and mounds, gently and very gently sloping uplands and lowlands based on slope and image characteristics. They were further subdivided into physiographic/image interpretation units based on image characteristics. The image interpretation legend for physiography is given below.

Image Interpretation Legend for Physiography

G- Granite Gneiss Landscape

- G1 Hills/ Ridges/ Mounds
  - G11 Summits
  - G12 Side slopes
    - G121 Side slopes with dark grey tones
- G2 Uplands
  - G21 Summits
  - G22 Gently sloping uplands
    - G221 Gently sloping uplands, yellowish green (eroded)
    - G222 Gently sloping uplands, yellowish white (severely eroded)
  - G23 Very gently sloping uplands
    - G231 Very gently sloping uplands, yellowish green
    - G232 Very gently sloping uplands, medium green and pink
    - G233 Very gently sloping uplands, pink and green (scrub land)
    - G234 Very gently sloping uplands, medium greenish grey
    - G235 Very gently sloping uplands, yellowish white (eroded)
    - G236 Very gently sloping uplands, dark green
    - G237 Very gently sloping uplands, medium pink (coconut garden)
    - G238 Very gently sloping uplands, pink and bluish white (eroded)
  - G24 Valleys/ lowlands
    - G241 Valleys, pink tones
    - G242 Valleys gray mixed with pink tones

DSe – Alluvial landscape

DSe1 – Summit

- DSe11 –
- DSe12 –

DSe2 – Very genetly sloping

- DSe21 – Very gently sloping, dark gray tone
- DSe22 – Very gently sloping, medium gray tone
- DSe23 – Very gently sloping, yellowish grey tone
- DSe24 – Very gently sloping, whitish grey tone
- DSe25 – Very gently sloping, whitish/ eroded/ calcareous tone
- DSe 26 –Very gently sloping, medium pink

DSe3 – Valley/ Lowland

- DSe31 – Whitish gray/Calcareous
- DSe32 – Gray with pink patches
- DSe 33 – Medium gray tone
- DSe 34 – Lightishgray tone
- DSe 35 – Dark gray tone

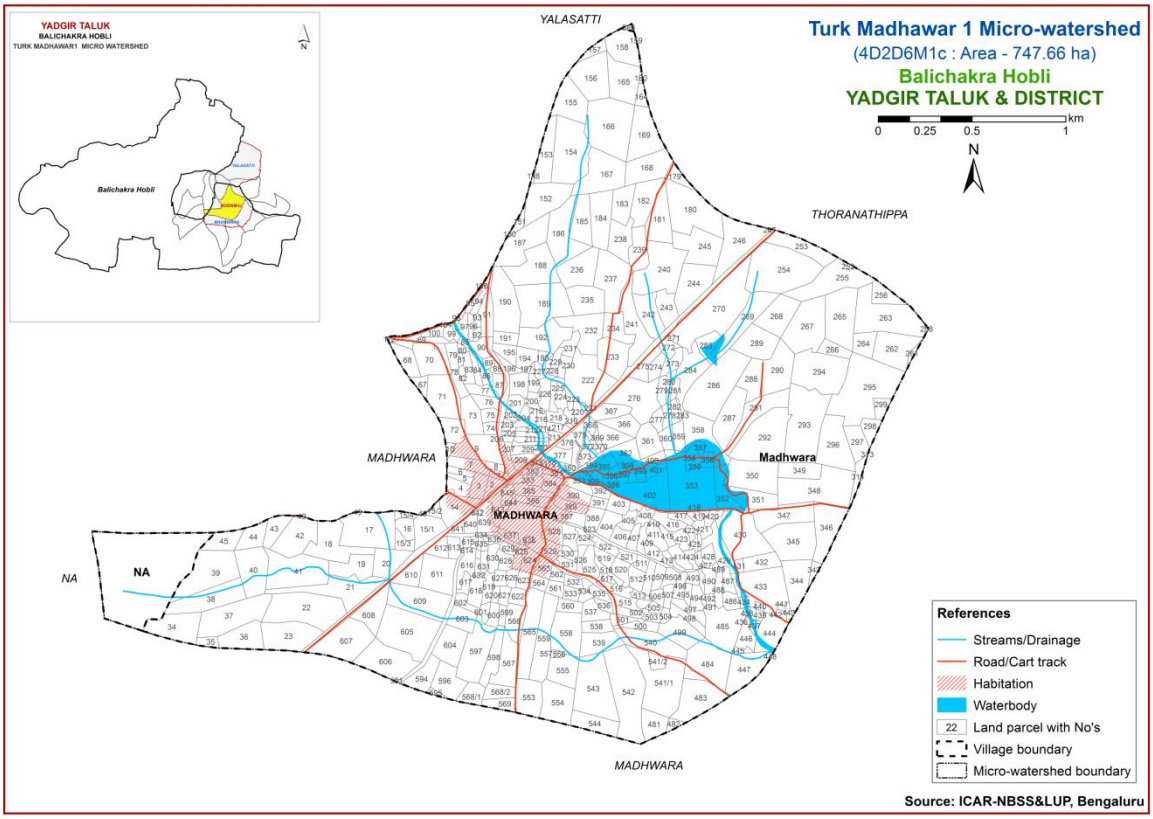


Fig 3.1 Scanned and Digitized Cadastral map of Turk Madhawar 1 microwatershed

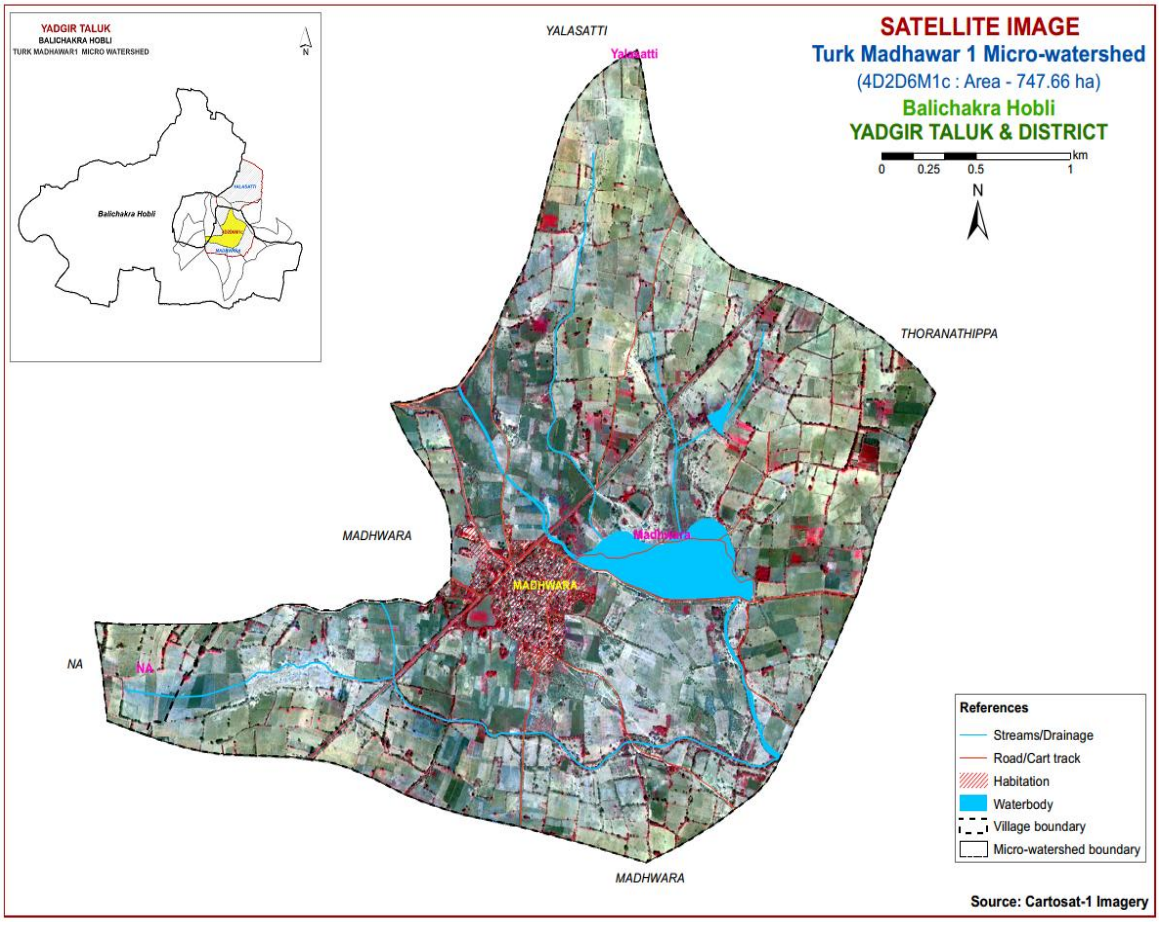


Fig.3.2 Satellite Image of Turk Madhawar 1 microwatershed

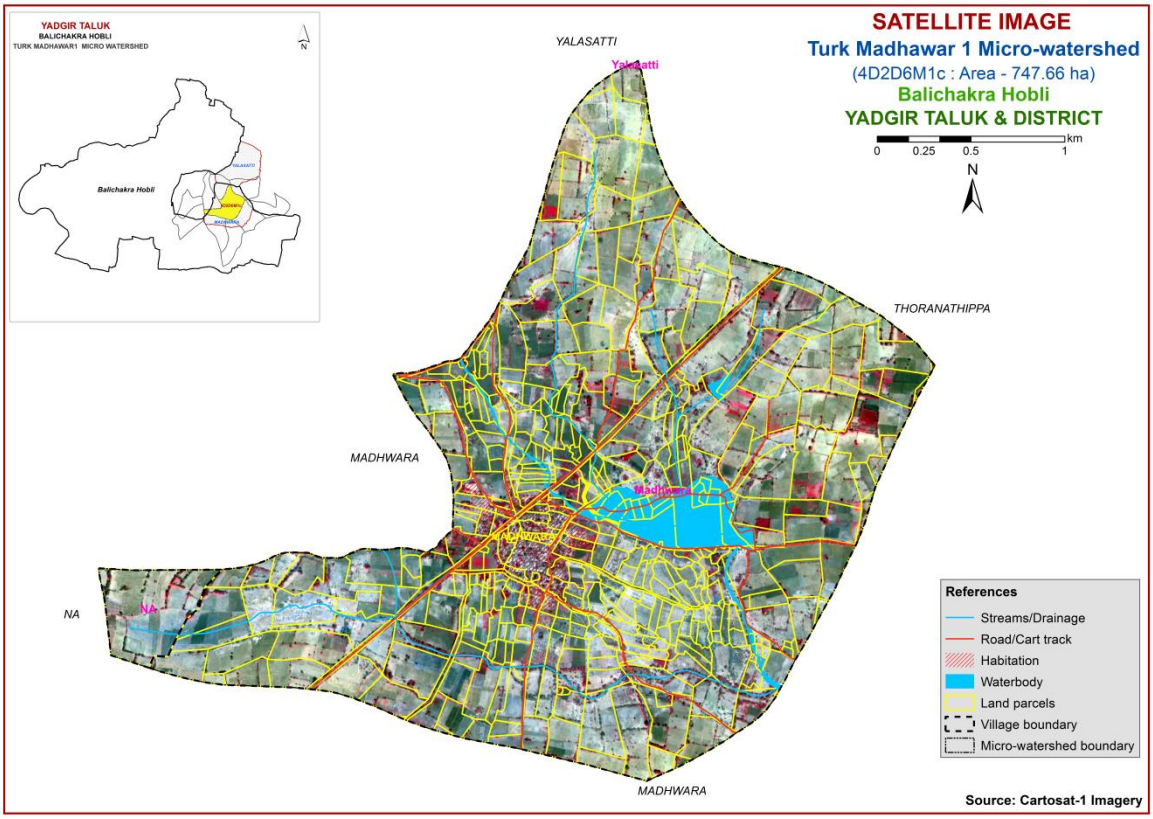


Fig.3.3 Cadastral map overlaid on IRS PAN+LISS IV merged imagery of Turk Madhawar 1 microwatershed

3.3 Field Investigation

The field boundaries and survey numbers given on the cadastral sheet were located on the ground by following permanent features like roads, cart tracks, *nallas*, streams, tanks etc., and wherever changes were noticed, they were incorporated on the microwatershed cadastral map. Preliminary traverse of the microwatershed was carried out with the help of cadastral map, imagery and toposheets. While traversing, landforms and physiographic units identified were checked and preliminary soil legend was prepared by studying soils at few selected places. Then, intensive traversing of each physiographic unit like hills, ridges, uplands and valleys was carried out. Based on the variability observed on the surface, transects (Fig. 3.4) were selected across the slope covering all the landform units in the microwatershed (Natarajan and Dipak Sarkar, 2010).

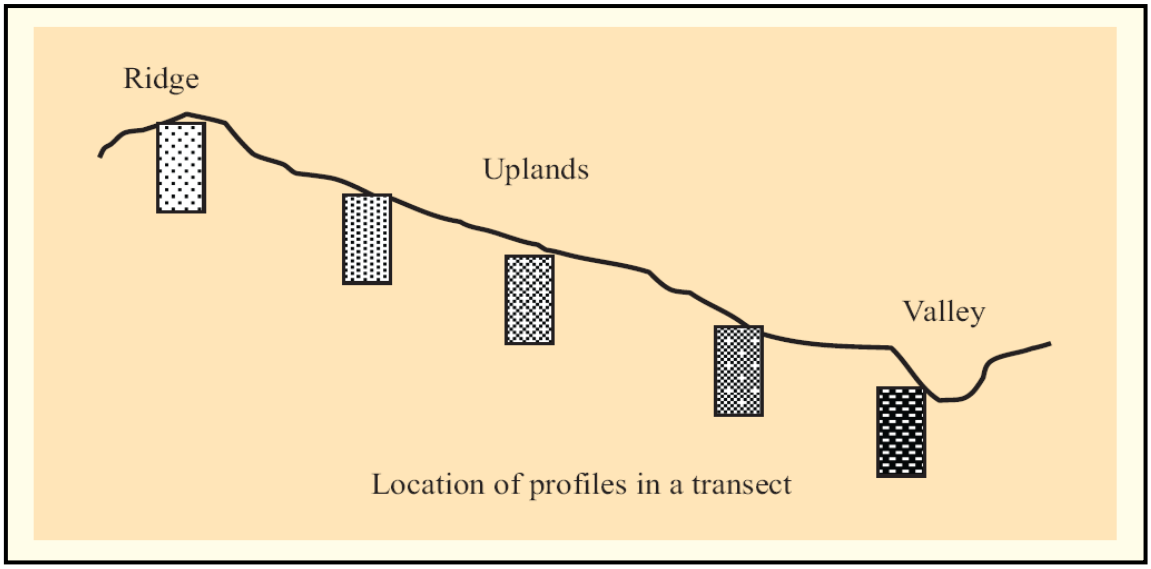


Fig: 3.4. Location of profiles in a transect

In the selected transect, soil profiles were located (Fig. 3.4) at closely spaced intervals to take care of any change in the land features like break in slope, erosion, gravel, stones etc. In the selected sites, profiles (vertical cut showing the soil layers from surface to the rock) were opened upto 200 cm or to the depth limited by rock or hard substratum and studied in detail for all their morphological and physical characteristics. The soil and site characteristics were recorded for all profile sites on a standard proforma as per the guidelines given in USDA Soil Survey Manual (Soil Survey Staff, 2012). Apart from the transect study, profiles were also studied at random, almost like in a grid pattern, outside the transect areas.

Based on the soil characteristics, the soils were grouped into different soil series. Soil series is the most homogeneous unit having similar horizons and properties and behaves similarly for a given level of management. Soil depth, texture, colour, kind of horizon and horizon sequence, calcareousness, amount and nature of gravel present, nature of substratum *etc*, were used as the major differentiating characteristics for identifying soil series occurring in the area. The differentiating characteristics used for identifying the soil series are given in Table 3.1. Based on the above characteristics, 11 soil series were identified in the Turk Madhawar 1 microwatershed.

Table 3.1 Differentiating Characteristics used for identifying soil Series

(Characteristics are of Series Control Section)

Soils of Granite gneiss Landscape							
Sl. no	**Soil Series**	**Depth (cm)**	**Colour (moist)**	**Texture**	**Gravel (%)**	**Horizon sequence**	**Calcareous-ness**
1	SBR (Sambara)	50-75	10YR7/1, 7.5YR 7/4	ls	-	Ap-Ac	-
2	JNK (Jinkera)	50-75	10YR 3/1,3/2 7.5YR3/4	scl	-	Ap-Bw	e
3	YLR (Yalleri)	50-75	2.5YR 3/4,4/4 5YR3/4 7.5YR4/4	sc	15-35	Ap-Bt	-
4	HSL (Hosalli)	75-100	10YR 5/4, 4/4 4/6	sc	-	Ap-Bw	e
5	GWD (Gowdagera)	75-100	10YR 3/1,3/2, 4/2	scl	-	Ap-Bw	es
6	PGP (Poglapur)	75-100	5YR 4/6,3/3 7.5YR 4/4	sc	-	Ap-Bt	-
7	NGP (Nagalapur)	100-150	10YR3/2,3/1,2/1	c	-	Ap-Bss	es
8	MDR (Madhwara)	>150	10YR 3/1, 3/2, 2/1, 2/2	scl	-	Ap-Bw	e
9	TMK (Thumakur)	>150	10YR 3/1, 3/2, 3/3, 4/3	c	-	Ap-Bw	e
10	SGR (Sagwar)	>150	10YR 3/1, 4/1	c	-	Ap-Bss	es
Soils of Alluvial Landscape							
11	KDR (Kudlura)	100-150	10YR 3/1, 3/2,4/1, 5/2	c	-	Ap-Bw	es

3.4 Soil Mapping

The area under each soil series was further separated into soil phases and their boundaries delineated on the cadastral map based on the variations observed in the texture of the surface soil, slope, erosion, presence of gravel, stoniness etc. A soil phase is a subdivision of soil series based mostly on surface features that affect its use and management. The soil mapping units are shown on the map (Fig.3.5) in the form of symbols. During the survey many profile pits, few minipits and a few auger bores representing different landforms occurring in the microwatershed were studied. In addition to the profile study, spot observations in the form of minipits, road cuts, terrace cuts etc., were studied to validate the soil boundaries on the soil map.

The soil map shows the geographic distribution of 16 mapping units representing 11 soil series occurring in the microwatershed. The soil map unit (soil legend) description is presented in Table 3.2. The soil phase map (management units) shows the distribution of 16 soil phases mapped in the microwatershed. Each mapping unit (soil phase) delineated on the map has similar soil and site characteristics. In other words, all the

farms or survey numbers included in one phase will have similar management needs and have to be treated accordingly.

3.5 Land Management Units

The 16 soil phases identified and mapped in the microwatershed were grouped into 9 Land Management Units (LMU's) for the purpose of preparing a Proposed Crop Plan for sustained development of the microwatershed. The database (soil phases) generated under LRI was utilized for identifying Land Management Units (LMU's) based on the management needs. One or more than one soil site characteristic having influence on the management have been chosen for identification and delineation of LMUs. For Turk Madhawar 1 microwatershed, five soil and site characteristics, namely soil depth, soil texture, slope, erosion and gravel content have been considered for defining LMUs. The Land Management Units are expected to behave similarly for a given level of management.

3.6 Laboratory Characterization

Soil samples were collected from representative master profiles for laboratory characterization by following the methods outlined in the Laboratory Manual (Sarma *et al*, 1987). Surface soil samples collected from farmer's fields (74 samples) for fertility status (major and micronutrients) at 320 m grid interval in the year 2018 were analyzed in the laboratory (Katyal and Rattan, 2003). By linking the soil fertility data to the survey numbers through GIS, soil fertility maps were generated by using Kriging method for the microwatershed.

Table 3.2 Soil map unit description of Turk Madhawar 1 microwatershed

*Soil map unit No.	Soil Series	Soil Phase	Mapping Unit Description	Area in ha(%)
Soils of Granite and Granite Gneiss Landscape				
	SBR		Sambara soils are moderately shallow (50-75 cm), somewhat excessively drained, have light gray to pink, loamy sand soils occurring on very gently to gently sloping uplands under cultivation	**36 (4.87)**
11		SBRcB2	Sandy loam surface, slope 1-3%, moderate erosion	36 (4.87)
	JNK		Jinkera soils are moderately shallow (50-75 cm), well drained, have dark brown to very dark grayish brown, slightly calcareous sandy clay loam soils occurring on very gently sloping uplands under cultivation	**68 (9.03)**
22		JNKiB2	Sandy clay surface, slope 1-3%, moderate erosion	68 (9.03)
	YLR		Yalleri soils are moderately shallow (50-75 cm), well drained, have brown to reddish brown and dark reddish brown, clay red soils occurring on very gently to gently sloping uplands under cultivation	**104 (13.95)**

*Soil map unit No.	Soil Series	Soil Phase	Mapping Unit Description	Area in ha(%)
27		YLRbB2	Loamy sand surface, slope 1-3%, moderate erosion	38 (5.02)
29		YLRcB2g1	Sandy loam surface, slope 1-3%, moderate erosion, gravelly (15-35%)	34 (4.59)
31		YLRiB2	Sandy clay surface, slope 1-3%, moderate erosion	32 (4.34)
	HSL	Hosalli soils are moderately deep (75-100 cm), moderately well drained, have yellowish brown to dark yellowish brown, slightly calcareous sandy clay soils occurring on very gently sloping uplands under cultivation		**34 (4.6)**
33		HSLiB2	Sandy clay surface, slope 1-3%, moderate erosion	34 (4.6)
	GWD	Gowdagera soils are moderately deep (75-100 cm), moderately well drained, have dark grayish brown to very dark grayish brown, sodic, sandy clay loam soils occurring on very gently sloping uplands under cultivation		**44 (5.90)**
34		GWDcB2	Sandy loam surface, slope 1-3%, moderate erosion	1 (0.19)
35		GWDiB2	Sandy clay surface, slope 1-3%, moderate erosion	43 (5.71)
	PGP	Poglapur soils are moderately deep (75-100 cm), well drained, have dark brown to dark reddish brown and yellowish red sandy clay soils occurring on very gently sloping uplands under cultivation		**40 (5.32)**
40		PGPcB2	Sandy loam surface, slope 1-3%, moderate erosion	28 (3.74)
41		PGPiB2	Sandy clay surface, slope 1-3%, moderate erosion	12 (1.58)
	NGP	Nagalapur soils are deep (100-150 cm), moderately well drained, have very dark gray to very dark grayish brown, black calcareous cracking clay soils occurring on very gently sloping uplands under cultivation		**18 (2.35)**
49		NGPmB2	Clay surface, slope 1-3%, moderate erosion	18 (2.35)
	MDR	Madhwara soils are very deep (>150 cm), moderately well drained, have very dark gray to very dark brown, slightly calcareous sandy clay loam soils occurring on nearly level to very gently sloping uplands under cultivation		**109 (14.62)**
61		MDRmB2	Clay surface, slope 1-3%, moderate erosion	109 (14.62)
	TMK	Thumakur soils are very deep (>150 cm), moderately well drained, have brown to very dark grayish brown, slightly calcareous, sodic clay black soils occurring on nearly level to very gently sloping lowlands under cultivation		**51 (6.83)**
104		TMKiB2	Sandy clay surface, slope 1-3%, moderate erosion	51 (6.83)
	SGR	Sangwar soils are very deep (>150 cm), moderately well		**81**

*Soil map unit No.	Soil Series	Soil Phase	Mapping Unit Description	Area in ha(%)
		drained, have dark gray to very dark gray, calcareous, sodic cracking clay black soils occurring on very gently sloping lowlands under cultivation		**(10.82)**
106		SGRmB2	Clay surface, slope 1-3%, moderate erosion	81 (10.82)
Soils of Alluvial Landscape				
	KDR	Kudlura soils are deep (100-150 cm), moderately well drained, have dark gray to very dark grayish brown, calcareous cracking clay soils occurring on nearly level to very gently sloping plains under cultivation		**109 (14.65)**
84		KDRcB2	Sandy loam surface, slope 1-3%, moderate erosion	94 (12.59)
89		KDRmB2	Clay surface, slope 1-3%, moderate erosion	15 (2.06)
1000	Others		Habitation, and Waterbody	**53 (7.07)**

* Soil map unit numbers are continuous for the taluk, not for the microwatershed

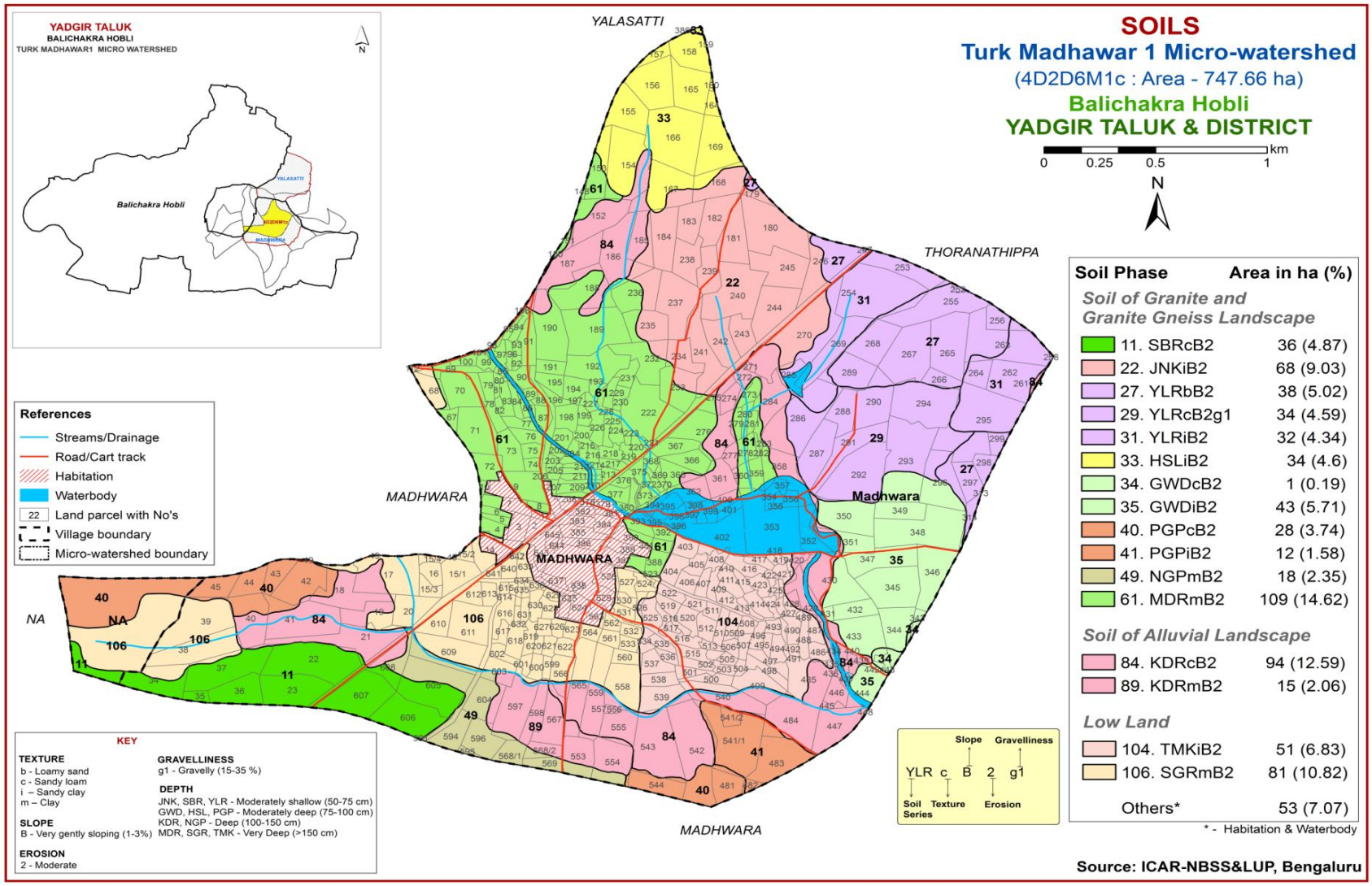


Fig 3.5 Soil phase or Management Units - Turk Madhawar 1 microwatershed

Chapter 4

THE SOILS

Detailed information pertaining to the nature, extent and their distribution of different kinds of soils occurring in Turk Madhawar 1 microwatershed is provided in this chapter. The microwatershed area has been identified as granite gneiss and alluvial landscapes based on geology. In all, 11 soil series are identified. Soil formation is the result of the combined effect of environmental and terrain factors that are reflected in soil morphology. In the granite gneiss landscape, it is by parent material, relief and climate and in alluvial landscape it is by parent material and time.

A brief description of each of the 11 soil series identified followed by 16 soil phases (management units) mapped under each series are furnished below. The physical and chemical characteristics of soil series identified in Turk Madhawar 1 microwatershed are given in Table 4.1 along with soil classification. The soils in any one map unit differ from place to place in their depth, texture, slope, gravelliness, erosion or any other site characteristic that affect management. The soil phase map can be used for identifying the suitability of areas for growing specific crops or for other alternative uses and also for deciding the type of conservation structures needed. The detailed information on soil and site-characteristics like soil depth, surface soil texture, slope, erosion, gravelliness, AWC, LCC etc, with respect to each of the soil phase identified is given village/survey number wise for the microwatershed in Appendix-I.

4.1 Soils of granite gneiss landscape

In this landscape, 10 soil series are identified and mapped. Of these, MDR series occupies maximum area of 109 ha (15%) followed by YLR 104 ha (14%), SGR 81 ha (11%), JNK 68 ha (9%), TMK 51 ha (7%), GWD 44 ha (6%), PGP 40 ha (5%), SBR 36 ha (5), HSL 34 ha (5%) and NGP 18 ha (2). Brief description of each series identified and number of soil phases mapped is given below.

4.1.1 Sambara (SBR) Series: Sambara soils are moderately shallow (50-75 cm), somewhat excessively drained, have light grey to reddish yellow, loamy sand soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands under cultivation. The Sambara series has been classified as a member of the mixed, isohyperthermic family of Typic Ustipsamments.

The thickness of the soil ranges from 52-75 cm. Thickness of A horizon ranges from 8 to 23 cm. Its colour is in hue 10 YR and 7.5 YR with value 3 and chroma 1 to 4. The texture varies from loamy sand to sandy loam. The thickness of subsurface horizons ranges from 41 to 66 cm. Its colour is in 10 YR and 7.5 YR hue with value 3 to 5 and chroma 1 to 4. The texture is loamy sand. The available water capacity is very low (<50 mm/m). Only one phase was identified and mapped.

Landscape and Soil Profile characteristics of Sambara (SBR) Series

4.1.2 Jinkera (JNK) Series: Jinkera soils are moderately shallow (50-75 cm), well drained, have very dark gray to very dark grayish brown and dark brown, slightly calcareous sandy clay loam soils. They are developed from weathered granite gneiss and occur on very gently sloping uplands under cultivation. The Jinkera series has been classified as a member of the fine-loamy, mixed, isohyperthermic family of Typic Haplustepts.

The thickness of the solum ranges from 51-75 cm. Thickness of A horizon ranges from 6 to 11 cm. Its colour is in hue 10 YR and 7.5 YR with value and chroma of 3 to 4. The texture varies from sandy loam to sandy clay. The thickness of B horizon ranges from 53 to 66 cm. Its colour is in 10 YR and 7.5 YR hue with value and chroma of 2 to 4. The texture varies from sandy clay loam to sandy clay and is slightly calcareous. The available water capacity is low (51-100 mm/m). Only one phase was identified and mapped.

Landscape and Soil Profile characteristics of Jinkera (JNK) Series

4.1.3 Yalleri (YLR) Series: Yalleri soils are moderately shallow (50-75 cm), well drained, have very dark reddish brown to dark brown, gravelly sandy clay soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands under cultivation. The Yalleri series has been classified as a member of the fine, mixed, isohyperthermic family of Typic Paleustalfs.

The thickness of the solum ranges from 50 to 74 cm. The thickness of A horizon ranges from 10 to 13 cm. Its colour is in 7.5 YR and 5 YR hue with value and chroma 2 to 4. The texture is sandy loam, loamy sand, and sandy clay loam. The thickness of B horizon ranges from 45 to 64 cm. Its colour is in 10 YR, 7.5 YR and 5 YR hue with value 2 to 4 and chroma 2 to 4. Its texture is clay with gravel content of 15-35 per cent. The available water capacity is low (51-100 mm/m). Three phases were identified and mapped.

Landscape and Soil Profile characteristics of Yalleri (YLR) Series

4.1.4 Hosalli (HSL) Series: Hosalli soils are moderately deep (75-100 cm), moderately well drained, have dark yellowish brown to yellowish brown, slightly calcareous sandy clay soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands under cultivation. The Hosalli series has been classified as a member of the fine, mixed, isohyperthermic family of Typic Haplustepts.

The thickness of the solum ranges from 76 to 100 cm. The thickness of A horizon ranges from 6 to 15 cm. Its colour is in hue 10 YR and 7.5 YR with value 3 to 5 and chroma 2 to 4. Its texture varies from loamy sand to sandy loam and sandy clay loam. The thickness of B horizon ranges from 62 to 93 cm. Its colour is in hue 10 YR with value 3 to 4 and chroma 2 to 4. Its texture varies from sandy clay loam to sandy clay and clay and is slightly calcareous. The available water capacity is medium (101-150 mm/m). Only one phase was identified and mapped.

Landscape and Soil Profile characteristics of Hosalli (HSL) Series

4.1.5 Gowdagera (GWD) Series: Gowdagera soils are moderately deep (75-100 cm), well drained have very dark gray to dark grayish brown, calcareous sodic sandy clay loam soils. They are developed from weathered granite gneiss and occur on very gently sloping uplands under cultivation. The Gowdagera series has been classified as a member of the fine-loamy, mixed (calcareous), isohyperthermic family of Typic Haplustepts.

The thickness of the solum ranges from 76 to 100 cm. The thickness of A horizon ranges from 8 to 16 cm. Its colour is in hue 10 YR with value 3 to 4 and chroma 2 to 4. Its texture varies from sandy loam to sandy clay loam. The thickness of B horizon ranges from 61 to 91 cm. Its colour is in hue 10 YR with value 2 to 4 and chroma 1 to 4. Its texture is sandy clay loam to sandy clay and is calcareous sodic soils. The available water capacity is medium (101-150 mm/m). Two phases were identified and mapped.

Landscape and Soil Profile characteristics of Gowdagera (GWD) Series

4.1.6 Poglapur (PGP) Series: Poglapur soils are moderately deep (75-100 cm), well drained, have dark brown to dark reddish brown and yellowish red sandy clay red soils. They have developed from weathered granite gneiss and occur on very gently sloping uplands under cultivation. The Poglapur series has been classified as a member of the fine, mixed, isohyperthermic family of Rhodic Paleustalfs.

The thickness of the solum ranges from 78 to 100 cm. The thickness of A horizon ranges from 8 to 17 cm. Its colour is in 7.5 YR hue with value 3 and chroma 3 to 4. Its texture varies from loamy sand to sandy clay loam and sandy clay. The thickness of B horizon ranges from 65 to 92 cm. Its colour is in 2.5 YR, 5 YR and 7.5 YR hue with value 2 to 4 and chroma 2 to 4. Its texture is sandy clay and clay. The available water capacity is medium (101-150 mm/m). Two phases were identified and mapped.

Landscape and Soil Profile characteristics of Poglapur (PGP) Series

4.1.7 Naglapur (NGP) Series: Naglapur soils are deep (100-150 cm), moderately well drained, have black to very dark grayish brown, calcareous cracking clay soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands under cultivation. The Naglapur series has been classified as a member of the very fine, smectitic (calcareous), isohyperthermic family of Typic Haplusterts.

The thickness of the solum ranges from 110 to 150 cm. The thickness of A horizon ranges from 6 to 25 cm. Its colour is in 10 YR hue with value 3 to 5 and chroma 1 to 3. The texture varies from sandy loam to sandy clay and clay. The thickness of B horizon ranges from 110 to 141 cm. Its colour is in 10 YR hue with value 2 to 3 and chroma 1 to 2. Texture is clay and is calcareous. The available water capacity is very high (>200 mm/m). Only one phase was identified and mapped.

Landscape and Soil Profile characteristics of Naglapur (NGP) Series

4.1.8 Madhwara (MDR) Series: Madhwara soils are very deep (>150 cm), well drained, have black to very dark brown and very dark gray to very dark grayish brown, slightly calcareous sandy clay loam soils. They are developed from weathered granite gneiss and occur on nearly level to very gently sloping uplands under cultivation. The Madhwara series has been classified as a member of the fine-loamy, mixed, isohyperthermic family of Fluventic Haplustepts.

The thickness of the solum is more than150 cm. The thickness of A horizon ranges from 10 to 16 cm. Its colour is in 10 YR hue with value 3 to 5 and chroma 2 to 3. Texture varies from sandy clay and clay. The thickness of B horizon is >150 cm. Its colour is in 10 YR hue with value 3 to 5 and chroma 1 to 3. Texture varies from sandy clay loam to sandy clay and is slightly calcareous. The available water capacity is very high (>200 mm/m). Only one phase was identified and mapped.


Landscape and Soil Profile characteristics of Madhwara (MDR) Series

4.1.9 Thumakur (TMK) Series: Thumakur soils are very deep (>150 cm), moderately well drained, have very dark gray to dark brown, slightly calcareous, sodic clay soils. They are developed from weathered granite gneiss and occur on nearly level to very gently sloping low lands under cultivation. The Thumakur series has been classified as a member of the fine, mixed, isohyperthermic family of Typic Haplustepts.

The thickness of the solum ranges from 150-200 cm. The thickness of A horizon ranges from 7 to 14 cm. Its colour is in 10 YR hue with value 3 to 5 and chroma 1 to 3. Texture varies from sandy loam to sandy clay and clay. The thickness of B horizon is >150 cm. Its colour is in 10 YR hue with value 3 to 5 and chroma 1 to 3. Texture varies from sandy clay to clay and is slightly calcareous sodic soils. The available water capacity is very high (>200 mm/m). Only one phase was identified and mapped.

Landscape and Soil Profile characteristics of Thumakur (TMK) Series

4.1.10 Sangwar (SGR) Series: Sangwar soils are very deep (>150 cm), moderately well drained, have very dark gray to dark gray, sodic, calcareous cracking clay soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping lowlands under cultivation. The Sangwar series has been classified as a member of the fine, mixed (calcareous), isohyperthermic family of Sodic Haplusterts.

The thickness of the solum is more than 150 cm. The thickness of A horizon ranges from 9 to 20 cm. Its colour is in 10 YR hue with value 3 to 5 and chroma 1 to 2 with sandy clay loam to sandy clay and clay texture. The thickness of B horizon ranges from 157 to 174 cm. Its colour is in 10 YR hue with value 3 to 4 and chroma 1 to 2. Its texture varies from sandy clay to clay and is calcareous sodic soils. They are sodic with ESP ranging from 29 - 65%. The available water capacity is very high (>200 mm/m). Only one phase was identified and mapped.

Landscape and Soil Profile characteristics of Sangwar (SGR) Series

4.2 Soils of Alluvial landscape

In this landscape only one soil series was identified and mapped. KDR series occupies an area of 109 ha (15%). Brief description of this series identified and soil phases mapped is given below.

4.2.1 Kudlura (KDR) Series: Kudlura soils are deep (100-150 cm), moderately well drained, have very dark gray to grayish brown, calcareous cracking clay soils. They have developed from alluvium and occur on nearly level to very gently sloping plains under cultivation. The Kudlura series has been classified as a member of the fine, mixed, (calcareous), isohyperthermic family of Fluventic Haplustepts.

The thickness of the solum ranges from 110 to 149 cm. The thickness of A horizon ranges from 6 to 22 cm. Its colour is in 10 YR hue with value 3 to 4 and chroma 1 to 2. The texture ranges from sandy loam, sandy clay loam, sandy clay and clay. The thickness of B horizon ranges from 115 to 143 cm. Its colour is in 10 YR hue with value 3 to 4 and chroma 1 to 3. Texture is sandy clay loam, sandy clay to clay and is calcareous soils. The available water capacity is very high (>200 mm/m). Two phases were identified and mapped.

Landscape and Soil Profile characteristics of Kudlura (KDR) Series

Table 7.1 Soil-Site Characteristics of Turk Madhawar 1 Microwatershed

Soil Series: Sambara (SBR) **Pedon:** R-10

Location: $16^0$42'04.5"N $77^0$14'35.3"E, Jinatera village, Balichakra hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Mixed, isohyperthermic Typic Ustipsamments

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-9	Ap	81.90	8.22	9.88	23.76	14.05	23.76	10.62	9.71	-	ls	9.45	2.69
9-17	C1	84.08	6.59	9.33	21.30	20.69	17.65	17.65	6.80	-	ls	7.84	2.65
17-60	C2	86.86	6.17	6.98	11.53	21.54	25.08	23.46	5.26	-	ls	5.48	2.62
60-78	C3	87.27	6.92	5.81	15.05	20.91	26.36	19.29	5.66	-	ls	5.19	2.81

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-9	8.24	-	-	0.145	0.61	0.91	-	-	0.12	0.09	-	7.50	0.76	100	1.15
9-17	8.21	-	-	0.068	0.57	0.39	-	-	0.06	0.12	-	6.70	0.72	100	1.82
17-60	8.47	-	-	0.080	0.38	0.48	-	-	0.03	0.17	-	2.70	0.39	100	6.34
60-78	8.50	-	-	0.081	0.30	0.52	-	-	0.03	0.17	-	2.70	0.46	100	6.43

Contd…

Soil Series: Jinkera **(**JNK) **Pedon:** R-1

Location: $16^0$45'13.5"N $77^0$10'59.8"E, Varkanahalli village, Yadgir hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Fine-loamy, mixed, isohyperthermic Typic Haplustepts

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-15	Ap	66.84	13.62	19.54	12.15	21.22	11.23	12.56	9.68	10	sl	14.42	7.70
15-38	Bw1	59.08	12.11	28.81	12.53	12.42	17.85	8.77	7.52	20	scl	18.21	12.23
38-50	Bw2	68.21	11.68	20.11	17.90	21.81	10.60	10.80	7.10	10	scl	14.54	8.96

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-15	8.42	-	-	0.148	0.70	0.65	-	-	0.15	0.03	-	14.50	0.74	100	0.18
15-38	8.38	-	-	0.226	0.31	2.21	-	-	0.09	0.23	-	21.70	0.75	100	1.05
38-50	8.40	-	-	0.195	0.25	1.17	-	-	0.07	0.19	-	15.90	0.79	100	1.23

Contd…

Soil Series: Yalleri (YLR) **Pedon:** R-16

Location: $16^0$32'54.3"N $77^0$22'71.2"E, Duppalli village, Sydhapura hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Fine, mixed, isohyperthermic Typic Paleustalfs

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-5	Ap	81.69	5.44	12.87	6.10	8.65	33.88	21.57	11.50	-	sl	8.60	3.37
5-34	Bt1	38.78	6.73	54.49	3.38	9.91	12.42	8.93	4.14	-	c	25.33	15.82
34-75	Bt2	40.35	2.90	56.75	12.91	6.83	10.30	7.48	2.82	35-60	c	24.49	16.20

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-5	6.91	-	-	0.069	0.70	0.00	5.29	1.37	0.28	0.03	6.96	6.90	0.54	100	0.45
5-34	7.05	-	-	0.053	0.62	0.00	16.43	3.89	0.26	0.09	20.67	21.60	0.40	96	0.42
34-75	7.25	-	-	0.058	0.59	0.00	15.22	3.46	0.25	0.14	19.06	19.90	0.35	96	0.69

Contd…

Soil Series: Hosalli (HSL) **Pedon:** R-3

Location: $16^0$46'60.3"N $77^0$05'47.6"E, Mudhanala village, Yadgir hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Fine, mixed, isohyperthermic Typic Haplustepts

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-10	Ap	88.43	5.15	6.42	5.69	6.40	36.04	27.31	12.99	-	s	7.40	2.74
10-30	Bw1	58.47	7.24	34.29	4.26	9.37	19.91	19.28	5.64	-	scl	19.07	11.57
30-50	Bw2	51.43	12.67	35.90	3.49	8.89	16.72	15.87	6.46	<15	sc	21.64	12.44
50-90	Bw3	49.89	13.64	36.47	2.43	2.96	20.61	16.17	7.72	<15	sc	21.12	12.95

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-10	7.16	-	-	0.117	0.48	0.00	2.83	1.50	0.15	0.29	4.76	4.90	0.76	97	5.94
10-30	6.91	-	-	0.040	0.36	0.00	10.64	5.43	0.10	0.26	16.43	17.80	0.52	92	1.47
30-50	8.17	-	-	0.182	0.24	1.43	-	-	0.12	0.22	-	19.90	0.55	100	1.08
50-90	8.60	-	-	0.148	0.20	4.29	-	-	0.13	0.16	-	19.70	0.54	100	0.81

Contd…

Soil Series: Gowdagera (GWD) **Pedon:** R-13

Location: $16^0$38'24.4"N $77^0$21'24.0"E, Madhawara village, Balichakara hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru , **Classification:** Fine-loamy, mixed (calcareous), isohyperthermic Typic Haplustepts

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-18	Ap	79.61	13.94	6.45	14.17	17.53	23.65	17.02	7.24	-	ls	11.36	3.86
18-42	BW1	69.09	10.58	21.06	10.54	16.58	22.01	14.43	5.53	-	scl	31.62	12.30
42-81	Bw2	51.37	13.51	35.60	7.59	10.55	16.24	11.60	5.38	-	sc	67.57	26.89

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-18	9.89	-	-	0.74	0.66	1.20	-	-	0.18	3.63	-	8.35	1.29	100	17.40
18-42	10.82	-	-	1.60	0.27	5.76	-	-	0.19	19.23	-	15.84	0.75	100	40.17
42-81	10.83	-	-	2.30	0.27	7.80	-	-	0.40	26.71	-	26.54	0.75	100	40.27

Contd…

Soil Series: Poglapur (PGP) **Pedon:** R-6

Location: $16^0$34'45.2"N $77^0$10'96.4"E, Anura B village, Sydhapura hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Fine, mixed, isohyperthermic Rhodic Paleustalfs

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-15	Ap	91.81	4.70	3.49	17.80	30.23	15.57	20.93	7.28	-	s	4.94	2.29
15-50	Bt1	46.83	4.99	48.17	11.92	16.22	8.59	6.77	3.33	10	sc	24.59	17.37
50-90	Bt2	45.81	4.73	49.46	17.10	14.09	6.45	5.16	3.01	15	sc	24.44	16.57
90-125	Bt3	58.92	5.86	35.22	28.51	10.45	10.98	5.49	3.48	15	sc	21.73	10.30

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-15	6.83	-	-	0.210	0.76	0.00	1.79	0.88	0.41	0.09	3.16	3.15	0.90	100	2.83
15-50	6.20	-	-	0.105	0.48	0.00	12.27	4.45	0.30	0.39	17.40	17.54	0.36	99	2.22
50-90	6.23	-	-	0.080	0.40	0.00	11.51	3.92	0.28	0.37	16.09	17.33	0.35	93	2.16
90-125	6.49	-	-	0.068	0.20	0.00	11.19	3.62	0.27	0.40	15.49	17.43	0.49	89	2.29

Contd…

Soil Series: Naglapur (NGP) **Pedon:** R-8

Location: $16^0$52'84.1"N $77^0$22'99.4"E, Gurumitkal village, Gurumitkal hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Very fine, smectitic (calcareous), isohyperthermic Typic Haplusterts

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-10	Ap	7.53	19.88	72.59	1.00	0.78	0.89	2.10	2.77	-	c	44.31	32.79
10-35	Bss1	6.55	18.76	74.68	0.80	0.92	0.80	1.72	2.30	-	c	43.09	31.62
35-60	Bss2	6.58	21.05	72.37	0.69	0.46	1.04	1.50	2.89	-	c	46.52	32.52
60-102	Bss3	7.48	19.74	72.78	1.61	1.38	0.69	1.61	2.19	-	c	51.12	35.62

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-10	7.42	-	-	0.24	0.84	1.30	-	-	0.84	0.15	-	67.10	0.92	100	0.22
10-35	8.52	-	-	0.291	0.64	2.86	-	-	0.17	0.29	-	65.20	0.87	100	0.45
35-60	7.89	-	-	0.134	0.62	4.55	-	-	0.15	0.20	-	65.00	0.90	100	0.30
60-102	8.68	-	-	0.213	0.54	8.32	-	-	0.17	0.15	-	64.10	0.88	100	0.24

Contd…

Soil Series: Madhawara (MDR) **Pedon:** T_2 P_2

Location: $16^0$43'48.9"N $77^0$18'38.3"E, Yaleri village, Balichakra hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Fine-loamy, mixed, isohyperthermic Fluventic Haplustepts

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-11	Ap	58.94	20.74	20.32	5.41	7.28	13.31	20.89	12.06	-	scl	16.47	8.85
11-30	Bw1	55.52	19.32	25.16	5.00	7.19	13.12	19.69	10.52	-	scl	18.25	10.18
30-58	Bw2	53.95	19.15	26.90	4.68	7.48	12.58	19.65	9.56	-	scl	26.99	14.02
58-117	Bw3	52.68	19.51	27.81	2.84	5.47	14.72	20.82	8.83	-	scl	37.86	17.40
117-160	Bw4	49.95	17.27	32.79	2.11	5.07	14.15	20.49	8.13	-	scl	44.15	20.38

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-11	8.31	-	-	0.33	0.46	2.76	-	-	0.45	0.47	-	20.57	1.01	100	0.90
11-30	9.25	-	-	0.20	0.31	4.20	-	-	0.19	1.40	-	23.98	0.95	100	2.34
30-58	9.78	-	-	0.40	0.19	5.76	-	-	0.16	1.53	-	24.53	0.91	100	2.49
58-117	9.94	-	-	0.88	0.23	4.80	-	-	0.18	9.09	-	24.31	0.87	100	14.96
117-160	9.98	-	-	0.93	0.15	3.00	-	-	0.24	11.09	-	28.27	0.86	100	15.69

Contd…

Soil Series: Thumakuru (TMK) **Pedon:** R-10

Location: $16^0$38'01.3"N $77^0$16'49.8"E, Kilankera village, Balichakra hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Fine, mixed, isohyperthermic Typic Haplustepts

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-12	Ap	62.92	15.76	21.32	5.56	9.37	21.83	18.33	7.83	-	scl	17.98	6.60
12-29	Bw1	45.91	18.53	35.56	6.08	8.18	15.41	11.43	4.82	-	sc	33.40	11.79
29-74	Bw2	48.47	16.24	35.29	5.93	9.84	16.40	11.75	4.55	-	sc	28.66	11.19
74-132	Bw3	38.25	20.59	41.16	3.21	8.23	14.64	8.97	3.21	-	c	38.85	14.72
132-158	Bw4	36.87	19.99	43.14	3.54	7.61	13.08	8.57	4.07	-	c	44.36	15.75

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-12	9.60	-	-	0.35	0.48	1.44	-	-	0.23	3.62	-	21.83	1.02	100	6.63
12-29	9.72	-	-	1.27	0.50	1.44	-	-	0.59	20.88	-	30.50	0.86	100	27.39
29-74	9.16	-	-	3.44	0.31	3.72	-	-	0.38	25.84	-	28.68	0.81	100	36.04
74-132	9.33	-	-	2.52	0.23	4.92	-	-	0.82	20.25	-	34.99	0.85	100	23.148
132-158	9.23	-	-	2.07	0.31	3.48	-	-	0.70	21.03	-	34.24	0.79	100	24.564

Contd…

Soil Series: Sangwar **(**SGR) **Pedon:** R-4

Location: $16^0$32'25.9"N $77^0$12'52.6"E, Bheemanahalli village, Sydhapura hobli, Yadgir taluka and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Fine, mixed, (calcareous) isohyperthermic Sodic Haplusterts

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-8	Ap	37.30	18.18	44.52	4.91	6.76	12.10	4.80	8.72	-	c	32.36	23.18
8-30	BA	42.04	17.77	40.19	8.28	16.34	7.42	6.13	3.87	-	c	29.89	20.87
30-70	Bss1	33.77	18.63	47.60	5.45	11.66	6.21	6.75	3.70	-	c	37.04	26.13
70-100	Bss2	26.95	18.65	54.40	5.39	9.79	4.95	4.07	2.75	-	c	43.07	32.05
100-150	Bss3	14.35	17.32	68.33	2.69	4.15	2.35	2.69	2.47	-	c	55.74	38.19

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-8	8.3	-	-	6.49	1.48	6.69	-	-	1.32	10.09	-	34.77	0.78	100	11.61
8-30	9.09	-	-	2.54	0.64	6.76	-	-	0.75	10.00	-	33.76	0.84	100	11.85
30-70	9.23	-	-	2.6	0.28	6.63	-	-	0.42	11.55	-	38.98	0.82	100	11.86
70-100	9.39	-	-	3.01	0.36	6.89	-	-	0.73	27.73	-	42.46	0.78	100	26.132
100-150	9.28	-	-	4	0.24	7.15	-	-	0.80	27.78	-	47.67	0.70	100	23.308

Contd…

Soil Series: Kudlura (KDR) **Pedon:** T_1/P_2

Location: $16^0$34'03.1"N $77^0$14'71.7"E, Kyathanala village, Sydhapura Hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Fine, mixed (calcareous), isohyperthermic Fluventic Haplustepts

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-6	Ap	49.52	14.58	35.90	5.71	7.41	14.81	15.66	5.93	-	sc	26.86	12.10
6-26	BA	50.79	13.31	35.90	7.41	9.10	15.56	13.12	5.61	-	sc	25.65	12.24
26-67	Bw1	43.49	15.97	40.54	5.86	7.38	13.56	10.85	5.86	-	c	31.22	16.48
67-115	Bw2	37.42	18.93	43.66	6.51	6.83	10.95	8.68	4.45	-	c	36.13	22.34
115-144	Bw3	39.74	18.88	41.38	8.16	7.84	10.63	8.70	4.40	-	c	35.83	20.57

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-6	8.34	-	-	0.15	0.72	3.55	-	-	0.42	0.07	-	33.20	0.92	100	0.09
6-26	8.55	-	-	0.11	0.85	4.90	-	-	0.33	0.25	-	32.70	0.91	100	0.30
26-67	9.08	-	-	0.17	0.60	5.02	-	-	0.18	1.34	-	36.20	0.89	100	1.48
67-115	9.44	-	-	0.37	0.52	6.61	-	-	0.25	6.72	-	39.30	0.90	100	6.836
115-144	9.53	-	-	0.43	0.56	6.10	-	-	0.26	7.85	-	33.70	0.81	100	9.316

Chapter 5

INTERPRETATION FOR LAND RESOURCE MANAGEMENT

The most important soil and site characteristics that affect the land use and conservation needs of an area are land capability, soil depth, soil texture, coarse fragments, available water capacity, soil slope, soil erosion, soil reaction etc. These are interpreted from the data base generated through land resource inventory and several thematic maps are generated. These would help in identifying the areas suitable for growing crops and, soil and water conservation measures and structures needed thus helping to maintain good soil health for sustained crop production. The various interpretative and thematic maps generated are described below.

5.1 Land Capability Classification

Land capability classification is an interpretative grouping of soil map units (soil phases) mainly based on inherent soil characteristics, external land features and environmental factors that limit the use of land for agriculture, pasture, forestry, or other uses on a sustained basis (IARI, 1971). The land and soil characteristics used to group the land resources in an area into various land capability classes, subclasses and units are

Soil Characteristics: Depth, texture, gravelliness, calcareousness.

Land characteristics: Slope, erosion, drainage, rock outcrops.

Climate: Total rainfall and its distribution, and length of crop growing period.

The Land capability classification system is divided into land capability classes, subclasses and units based on the level of information available. Eight land capability classes are recognized. They are

Class I: They are very good lands that have no limitations or very few limitations that restrict their use.

Class II: They are good lands that have minor limitations and require moderate conservation practices.

Class III: They are moderately good lands that have moderate limitations that reduce the choice of crops or that require special conservation practices.

Class IV: They are fairly good lands that have very severe limitations that reduce the choice of crops or that require very careful management.

Class V: Soils in these lands are not likely to erode, but have other limitations like wetness that are impractical to remove and as such not suitable for agriculture, but suitable for pasture or forestry with minor limitations.

Class VI: The lands have severe limitations that make them generally unsuitable for cultivation, but suitable for pasture or forestry with moderate limitations.

Class VII: The lands have very severe limitations that make them unsuitable for cultivation, but suitable for pasture or forestry with major limitations.

Class VIII: Soil and other miscellaneous areas (rock lands) that have very severe limitations that nearly preclude their use for any crop production, but suitable for wildlife, recreation and installation of wind mills.

The land capability subclasses are recognised based on the dominant limitations observed within a given land capability class. The subclasses are designated by adding a lower case letter like 'e', 'w', 's', or 'c' to the class numeral. The subclass "e" indicates that the main hazard is risk of erosion, "w" indicates drainage or wetness as a limitation for plant growth, "s" indicates shallow soil depth, coarse or heavy textures, calcareousness, salinity/alkalinity or gravelliness and "c" indicates limitation due to climate.

The land capability subclasses have been further subdivided into land capability units based on the kinds of limitations present in each subclass. Ten land capability units are used in grouping the soil map units. They are stony or rocky (0), erosion hazard (slope, erosion) (1), coarse texture (sand, loamy sand, sandy loam) (2), fine texture (cracking clay, silty clay) (3), slowly permeable subsoil (4), coarse underlying material (5), salinity/alkali (6), stagnation, overflow, high ground water table (7), soil depth (8) and fertility problems (9). The capability units thus identified have similar soil and land characteristics that respond similarly to a given level of management. The soils of the microwatershed have been classified upto land capability subclass level.

The 16 soil map units identified in the Turk Madhawar 1 microwatershed are grouped under 2 land capability classes and 3 subclasses. Entire area in the microwatershed is suitable for agriculture (Fig. 5.1).

Good lands (Class II) cover a maximum area of about 88 per cent and are distributed in the major part of the microwatershed with minor problems of soil, erosion and excess of water. Fairly good lands (Class IV) covers an area of about 5 per cent and is distributed in the southwestern part of the microwatershed with severe problem of soil.

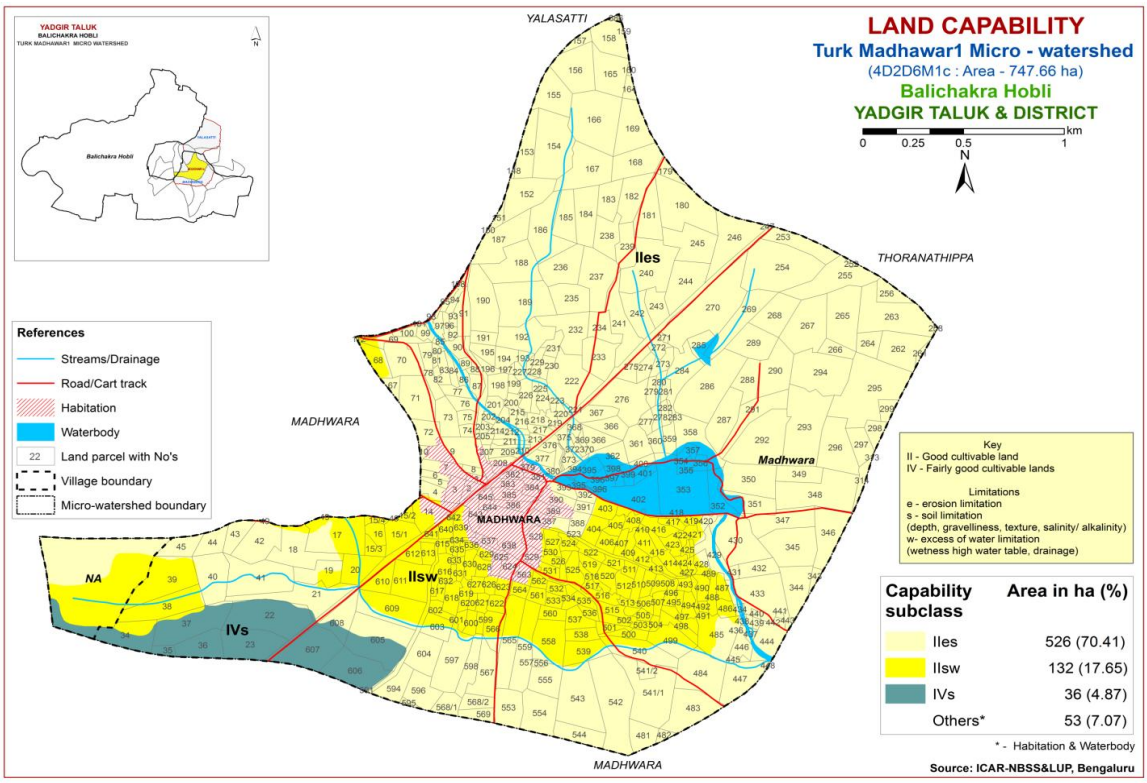


Fig. 5.1 Land Capability Classification map of Turk Madhawar 1 microwatershed

5.2 Soil Depth

Soil depth refers to the depth of the soil occurring above the parent material or hard rock. The depth of the soil determines the effective rooting depth for plants and in accordance with soil texture, mineralogy and gravel content, the capacity of the soil column to hold water and nutrient availability. Soil depth is one of the most important soil characteristic that is used in differentiating soils into different soil series. The soil depth classes used in identifying soils in the field are very shallow (<25 cm), shallow (25-50 cm), moderately shallow (50-75 cm), moderately deep (75-100 cm), deep (100-150 cm) and very deep (>150 cm). They were used to classify the soils into different depth classes and a soil depth map was generated. The area extent and their geographical distribution in the microwatershed is given in Fig. 5.2.

Moderately shallow to moderately deep (50-100 cm) soils occupy an area of 326 ha (44%) and are distributed in the northern, eastern, northeastern, southern and southwestern part of the microwatershed. Deep to very deep (100 to >150 cm) soils occupy a maximum area of 368 ha (49%) and are distributed in the major part of the microwatershed.

The most productive lands 368 ha (48%) with respect to soil rooting depth where all climatically adapted annual and perennial crops can be grown are deep to very deep (100 to >150 cm depth) soils occurring in the eastern, western and southeastern part of the microwatershed.

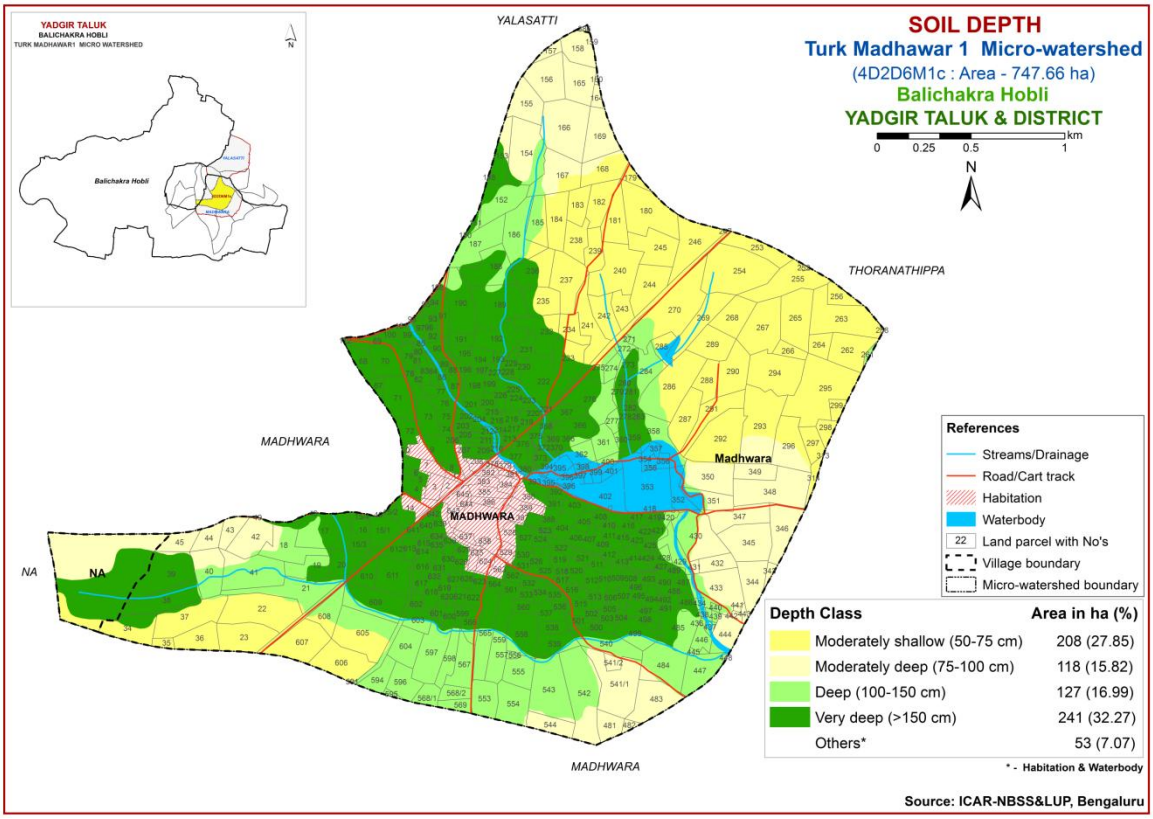


Fig. 5.2 Soil depth map of Turk Madhawar 1 microwatershed

5.3 Surface Soil Texture

Texture is an expression to indicate the coarseness or fineness of the soil as determined by the relative proportion of primary particles of sand, silt and clay. It has a direct bearing on the structure, porosity, adhesion and consistence. The surface layer of a soil to a depth of about 25 cm is the layer that is most used by crops and plants. The surface soil textural class provides a guide to understanding soil-water retention and availability, nutrient holding capacity, infiltration, workability, drainage, physical and chemical behaviour, microbial activity and crop suitability. The textural classes used for LRI were used to classify and a surface soil texture map was generated. The area extent and their geographical distribution in the microwatershed is shown in Figure 5.3.

Maximum area of about 463 ha (62%) of the microwatershed has clayey soils at the surface and are distributed in the major part of the microwatershed. An area of 194 ha (26%) has soils that are loamy and are distributed in the northwestern, central, southern and southwestern part of the microwatershed. An area of 38 ha (5%) has soils that are sandy and are distributed in the northeastern part of the microwatershed. Clayey and loamy soils (88%) have high potential for soil-water retention and availability, and nutrient retention and availability, but clayey soils have more problems of drainage, infiltration, work ability and other physical problems. The sandy soils (5%) are also productive for root and tuber crops, but these soils have the major limitations of moisture and nutrient retention capacity,

hence frequent and shallow irrigation with balanced fertilizer application is to be followed in order to get better crop yields.

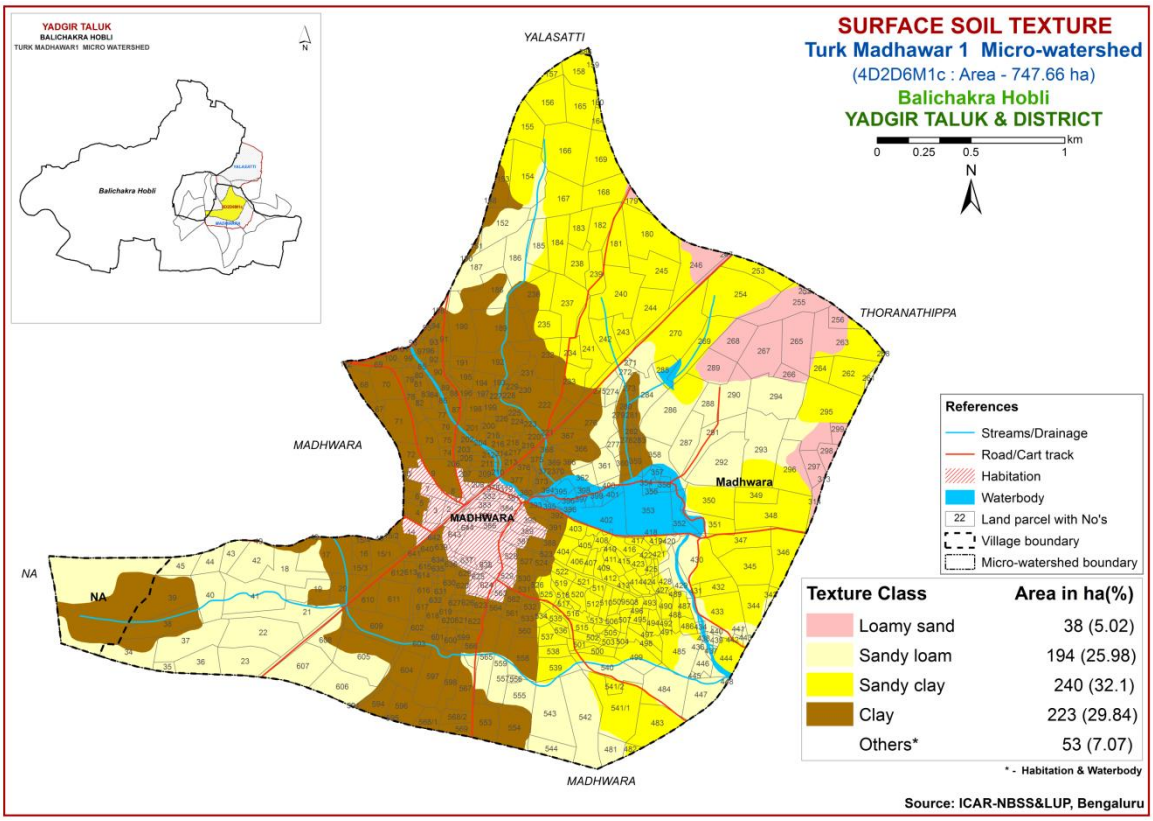


Fig. 5.3 Surface soil texture map of Turk Madhawar 1 microwatershed

5.4 Soil Gravelliness

Gravel is the term used for describing coarse fragments between 2 mm and 7.5 cm diameter and stones for those between 7.5 cm and 25 cm. The presence of gravel and stones in soil reduces the volume of soil responsible for moisture and nutrient storage, drainage, infiltration and runoff, and hinders plant growth by impeding root growth and seedling emergence, intercultural operations and farm mechanization. The gravelliness classes used in LRI were used to classify the soils and using these classes a gravelliness map was generated. The area extent and their geographic distribution in the microwatershed is shown in Figure 5.4.

Non gravelly (<15%) soils cover maximum area of about 660 ha (88%) and are distributed in the major part of the microwatershed. An area of about 34 ha (5%) is gravelly (15-35%) and are distributed in the northeastern part of the microwatershed.

The problem soils (5%) that are gravelly (15-35%), where only short or medium duration crops can be grown. The most productive soils (88%) that are non gravelly (<15%), where all climatically adapted long duration crops can be grown.

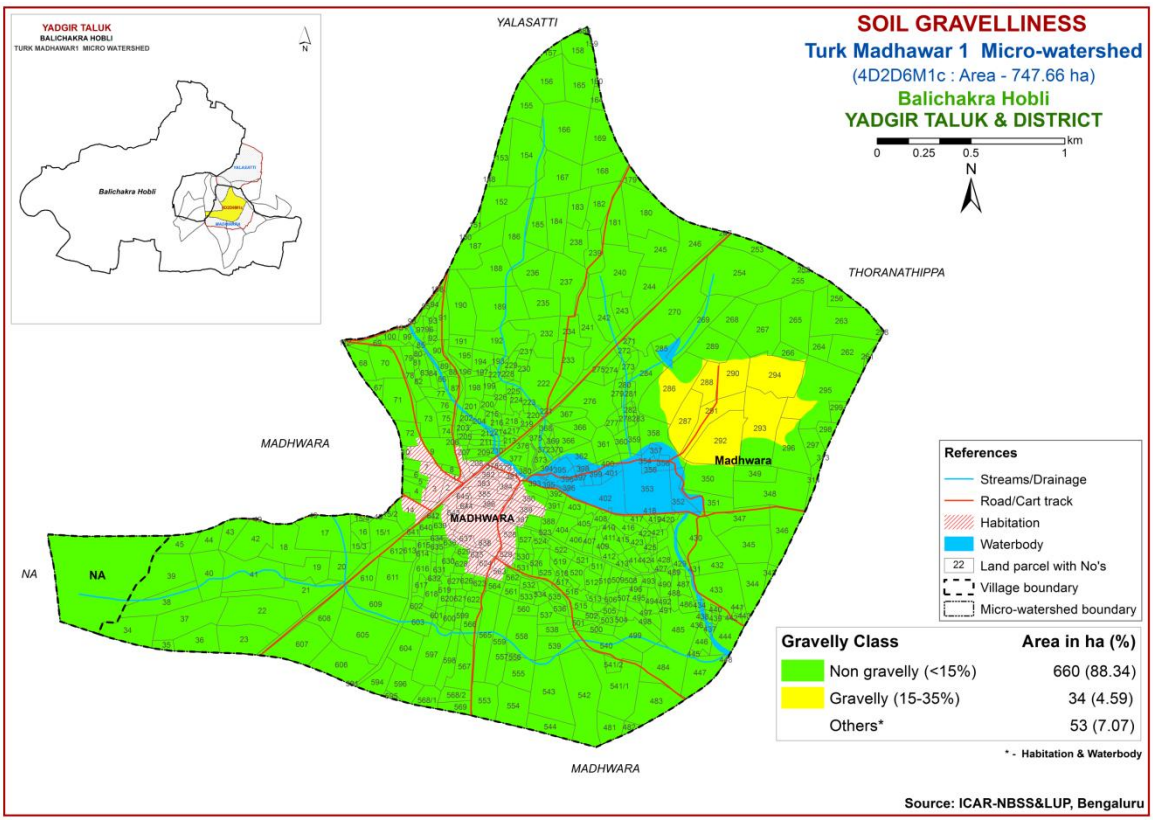


Fig. 5.4 Soil gravelliness map of Turk Madhawar 1 microwatershed

5.5 Available Water Capacity

The soil available water capacity (AWC) is estimated based on the ability of the soil column to retain water between the tensions of 0.33 and 15 bar in a depth of 100 cm or the entire solum if the soil is shallower. The AWC of the soils (soil series) as estimated by considering the soil texture, mineralogy, soil depth and gravel content (Sehgal *et al.*, 1990) and accordingly the soil map units were grouped into five AWC classes *viz*, very low (<50 mm/m), low (50-100 mm/m), medium (100-150 mm/m), high (150-200 mm/m) and very high (>200 mm/m) and using these values, an AWC map was generated. The area extent and their geographic distribution of different AWC classes in the microwatershed is given in Figure 5.5.

An area of about 282 ha (38%) in the microwatershed have soils that are very low to low (<50 to 100 mm/m) in available water capacity and are distributed in the southern, eastern, northern, southwestern and northeastern part of the microwatershed. An area of about 44 ha (6%) is medium (101 - 150 mm/m) in available water capacity and are distributed in the southeastern part of the microwatershed. Maximum area of about 368 ha (49%) is very high (>200 mm/m) in available water capacity and are distributed in the major part of the microwatershed.

An area of 282 ha (38%) area in the microwatershed has soils that are problematic with regard to available water capacity. Here, only short duration crops can be grown and the probability of crop failure is very high. These areas are best put to other alternative

uses. Maximum area of 368 ha (49%) are potential areas with regard to AWC where all climatically adapted annual and perennial crops can be grown.

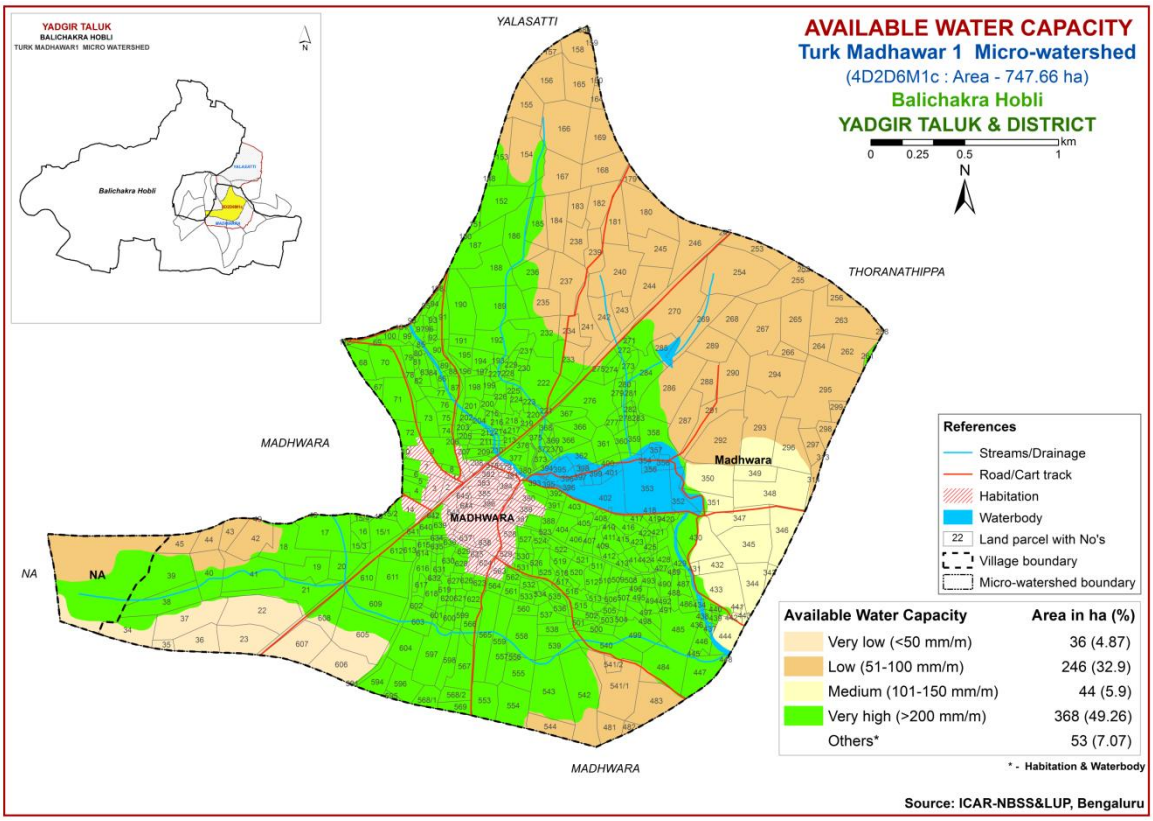


Fig. 5.5 Soil available water capacity map of Turk Madhawar 1 microwatershed

5.6 Soil Slope

Soil slope refers to the inclination of the surface of the land. It is defined by gradient, shape and length, and is an integral feature of any soil as a natural body. Slope is considered important in soil genesis, land use and land development. The length and gradient of slope influences the rate of runoff, infiltration, erosion and deposition. The soil map units were grouped into two slope classes and a slope map was generated showing the area extent and their geographic distribution in the microwatershed (Fig. 5.6).

Entire area of the microwatershed falls under very gently sloping (1-3% slope) lands.

Entire area in the microwatershed has soils that have high potential in respect of soil slopes. In these areas, all climatically adapted annual and perennial crops can be grown without much soil and water conservation and other land development measures.

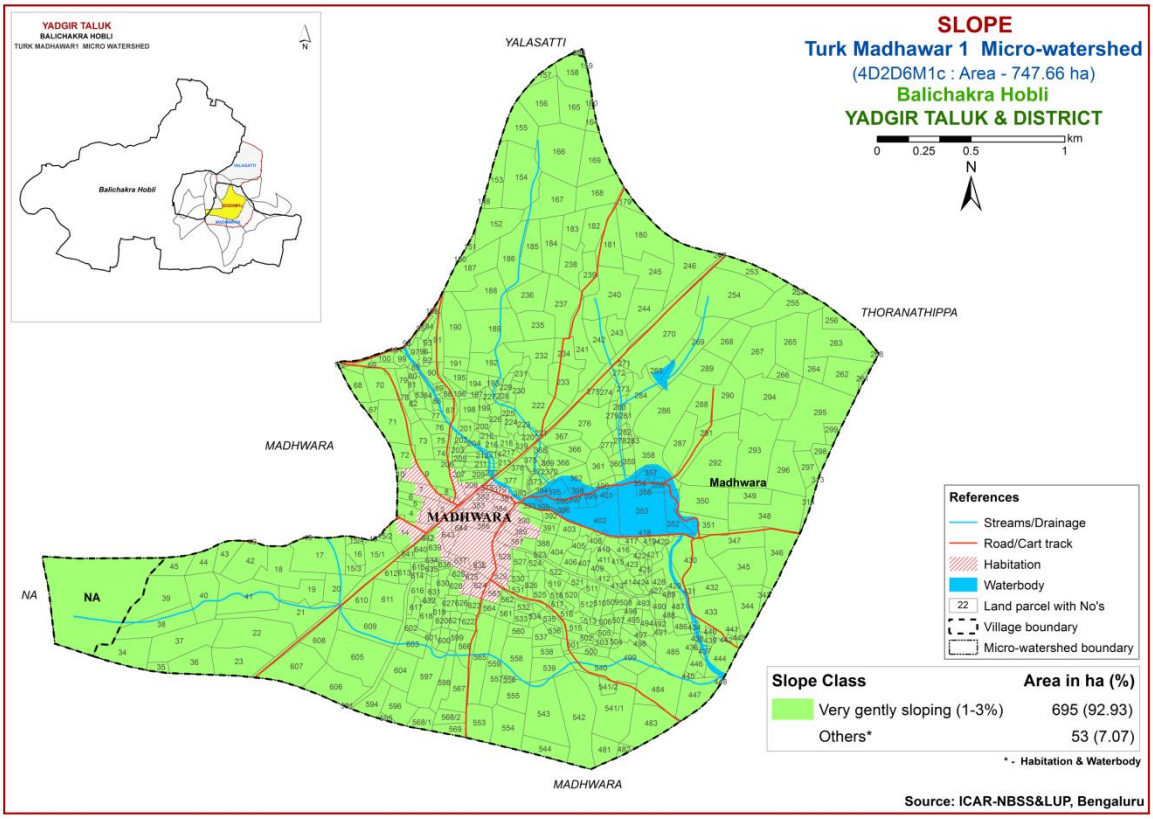


Fig. 5.6 Soil slope map of Turk Madhawar 1 microwatershed

5.7 Soil Erosion

Soil erosion refers to the wearing away of the earth's surface by the forces of water, wind and ice involving detachment and transport of soil by raindrop impact. It is used for accelerated soil erosion resulting from disturbance of the natural landscape by burning, excessive grazing and indiscriminate felling of forest trees and tillage, all usually by man. The erosion classes showing an estimate of the current erosion status as judged from field observations in the form of rills, gullies or a carpet of gravel on the surface are recorded. Four erosion classes, viz, slight erosion (e1), moderate erosion (e2), severe erosion (e3) and very severe erosion (e4) are recognized. The soil map units were grouped into different erosion classes and a soil erosion map generated. The area extent and their spatial distribution in the microwatershed is given in Figure 5.7.

Entire area of the microwatershed falls under moderate erosion (e2).

Entire area in the microwatershed is problematic because of moderate erosion. For these areas, taking up of soil and water conservation and other land development measures are needed.

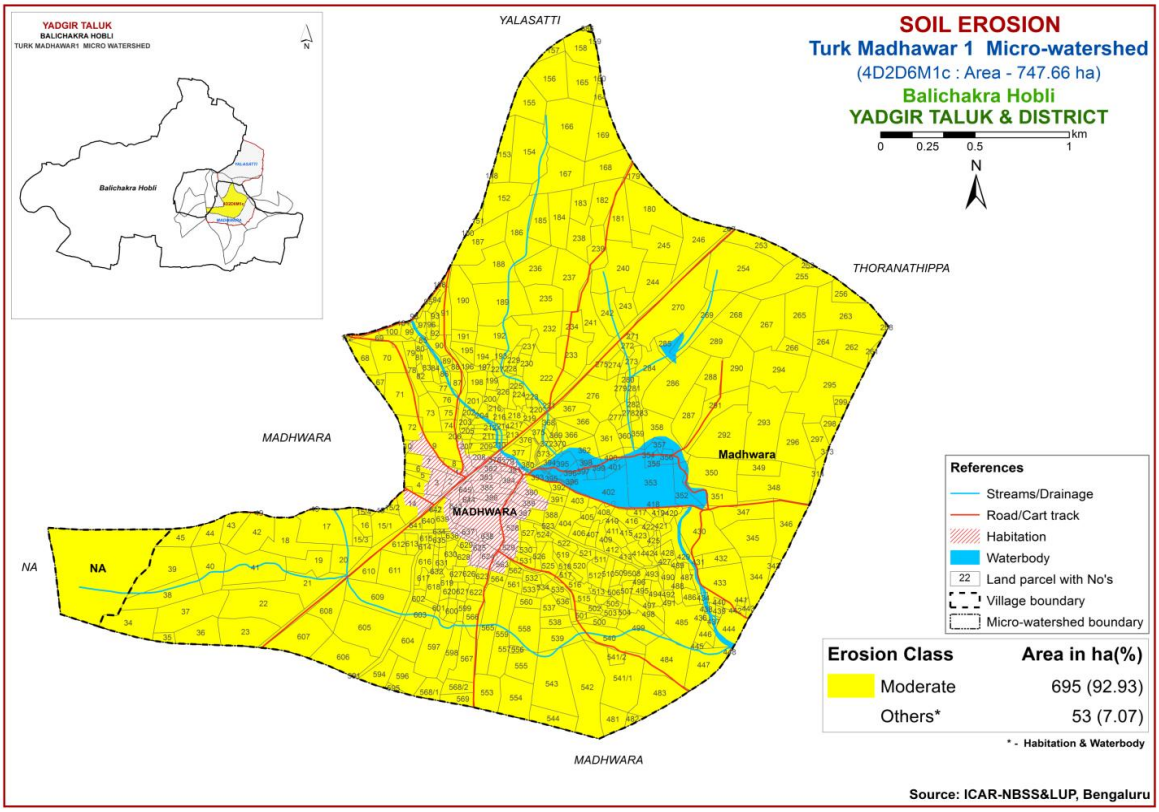


Fig. 5.7 Soil erosion map of Turk Madhawar 1 microwatershed

Chapter 6

FERTILITY STATUS

Soil fertility plays an important role in increasing crop yield. The adoption of high yielding varieties that require high amounts of nutrients has resulted in deficiency symptoms in crops and plants due to imbalanced fertilization and poor inherent fertility status as these areas are characterised by low rainfall and high temperatures. Hence, it is necessary to know the fertility (macro and micro nutrients) status of the soils of the watersheds for assessing the kind and amount of fertilizers required for each of the crop intended to be grown. For this purpose, the surface soil samples collected from the grid points (one soil sample at every 320 m interval) all over the microwatershed through land resource inventory in the year 2017 were analysed for pH, EC, organic carbon, available phosphorus and potassium, and for micronutrients like zinc, boron, copper, iron manganese and secondary nutrient sulphur.

Soil fertility data generated has been assessed and individual maps for all the nutrients for the microwatershed have been generated using Kriging method under GIS. The village/survey number wise fertility data for the microwatershed is given in Appendix-II.

6.1 Soil Reaction (pH)

The soil analysis of the Turk Madhawar 1 microwatershed for soil reaction (pH) showed that an area of about 188 ha (25%) is slightly alkaline (pH 7.3-7.8) and are distributed in the northern, eastern and southern part of the microwatershed. Maximum area of about 507 ha (68%) is moderately alkaline (pH 7.8 -8.4) and are distributed in the major part of the microwatershed (Fig.6.1). Entire area of the microwatershed is alkaline.

6.2 Electrical Conductivity (EC)

The electrical conductivity of the soils of the entire microwatershed area is <2 dS m^{-1} (Fig 6.2) and as such the soils are non-saline.

6.3 Organic Carbon

Organic carbon content is medium (0.5-0.75 %) in a maximum area of about 618 ha (83%) and are distributed in the major area of the microwatershed. An area of 77 ha (10%) is low (<0.5 %) and are distributed in the northern part of the microwatershed (Fig. 6.3).

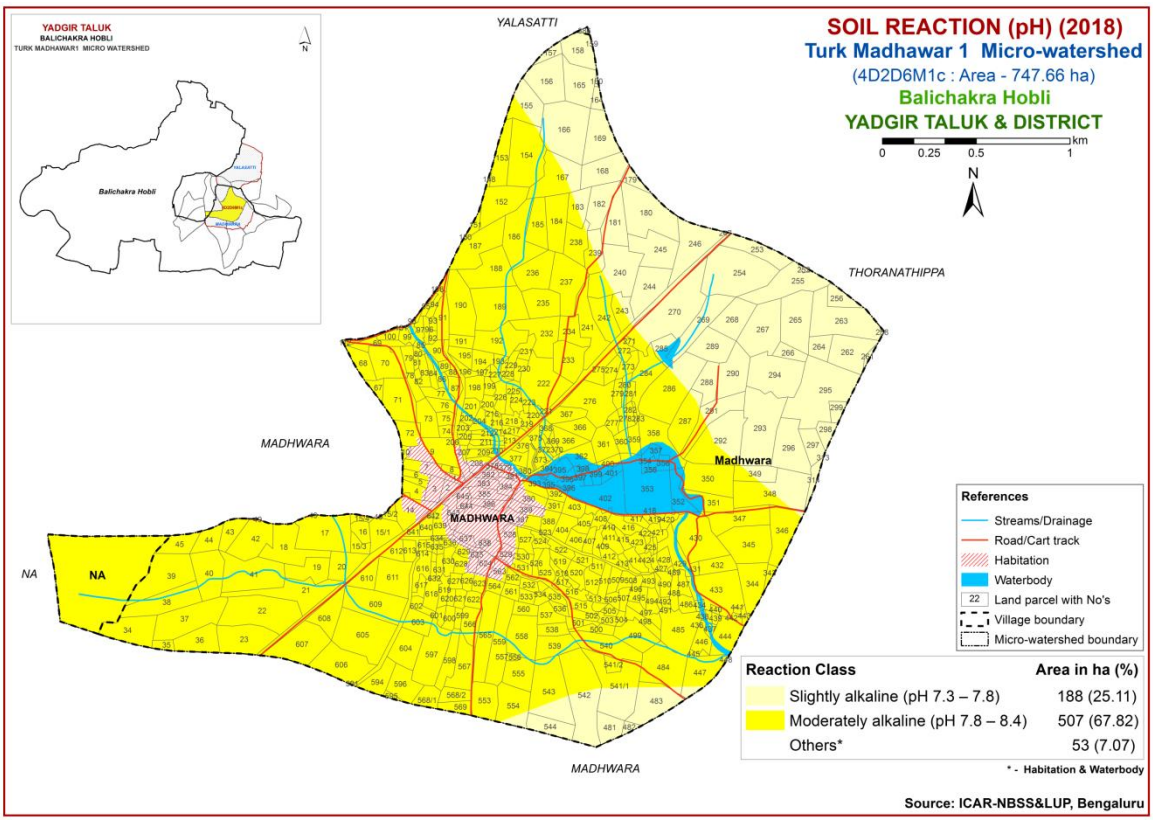


Fig.6.1 Soil reaction (pH) map of Turk Madhawar 1 microwatershed

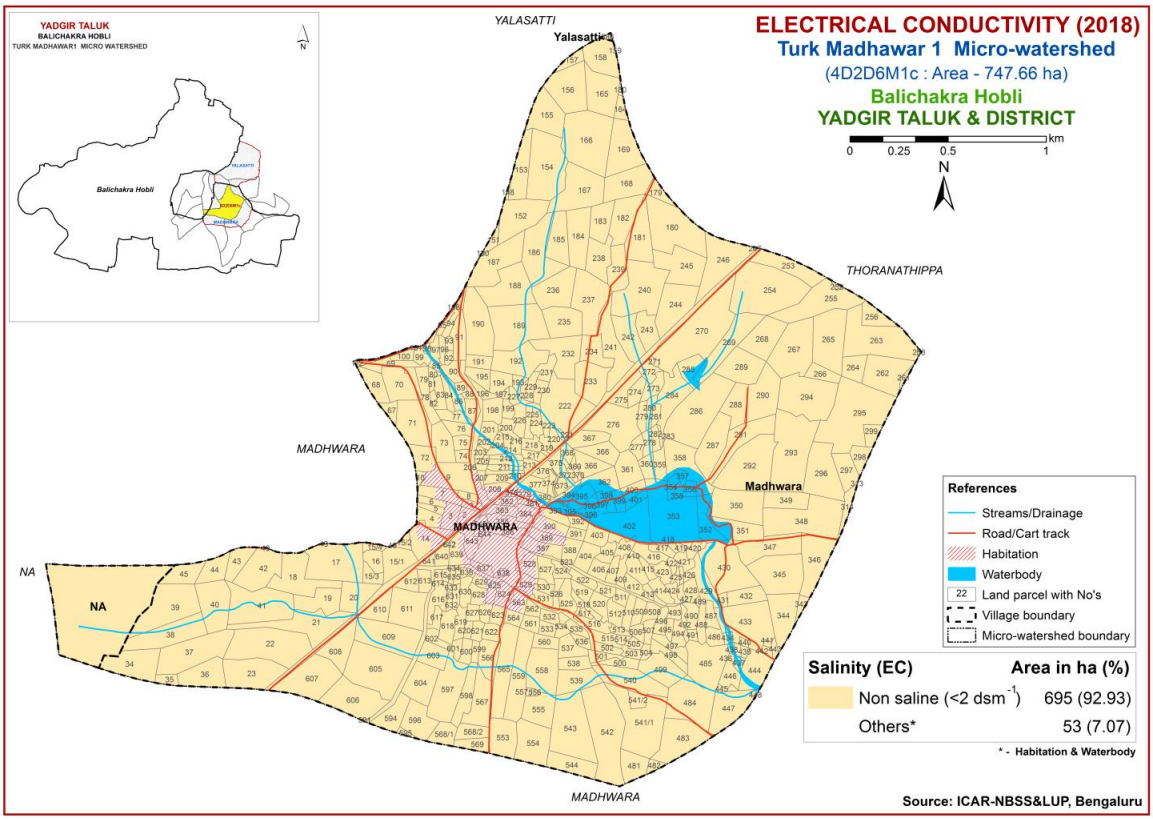


Fig.6.2 Electrical conductivity (EC) map of Turk Madhawar 1 microwatershed

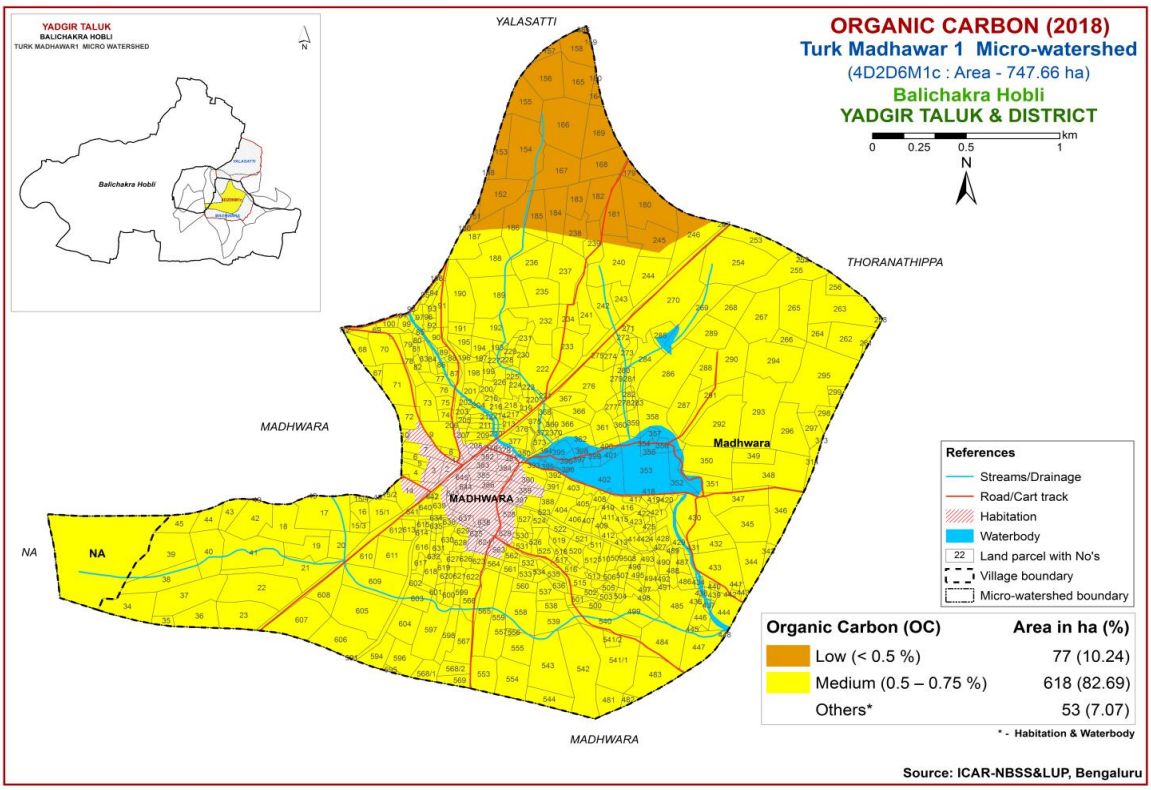


Fig.6.3 Soil organic carbon map of Turk Madhawar 1 microwatershed

6.4 Available Phosphorus

Entire area of the microwatershed is under medium (23-57 kg/ha) in available phosphorus (Fig. 6.4).

6.5 Available Potassium

Entire area of the microwatershed is under medium (145 - 337 kg/ha) in available potassium (Fig. 6.5).

6.6 Available Sulphur

Maximum area of about 613 ha (82%) is medium (10-20 ppm) in available sulphur content and are distributed in the major part of the microwatershed. Low (<10 ppm) in an area of about 82 ha (11%) and is distributed in the northern part of the microwatershed (Fig. 6.6).

6.7 Available Boron

Available boron content is medium (0.5 – 1.0 ppm) in the entire microwatershed area (Fig. 6.7).

6.8 Available Iron

Available iron content is sufficient (>4.5 ppm) in the entire microwatershed area (Fig 6.8).

6.9 Available Manganese

Available manganese content is sufficient (>1.0 ppm) in the entire microwatershed area (Fig 6.9).

6.10 Available Copper

Available copper content is sufficient (>0.2 ppm) in the entire microwatershed area (Fig 6.10).

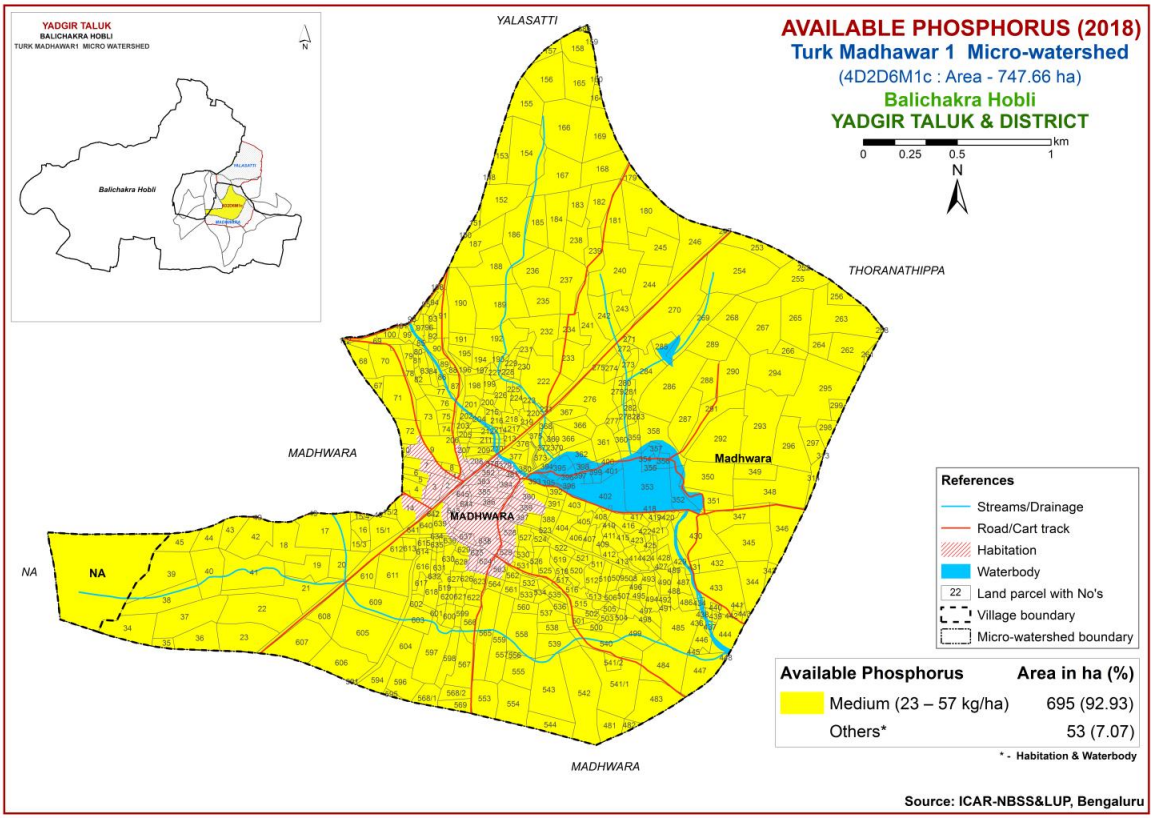


Fig.6.4 Soil available phosphorus map of Turk Madhawar 1 microwatershed

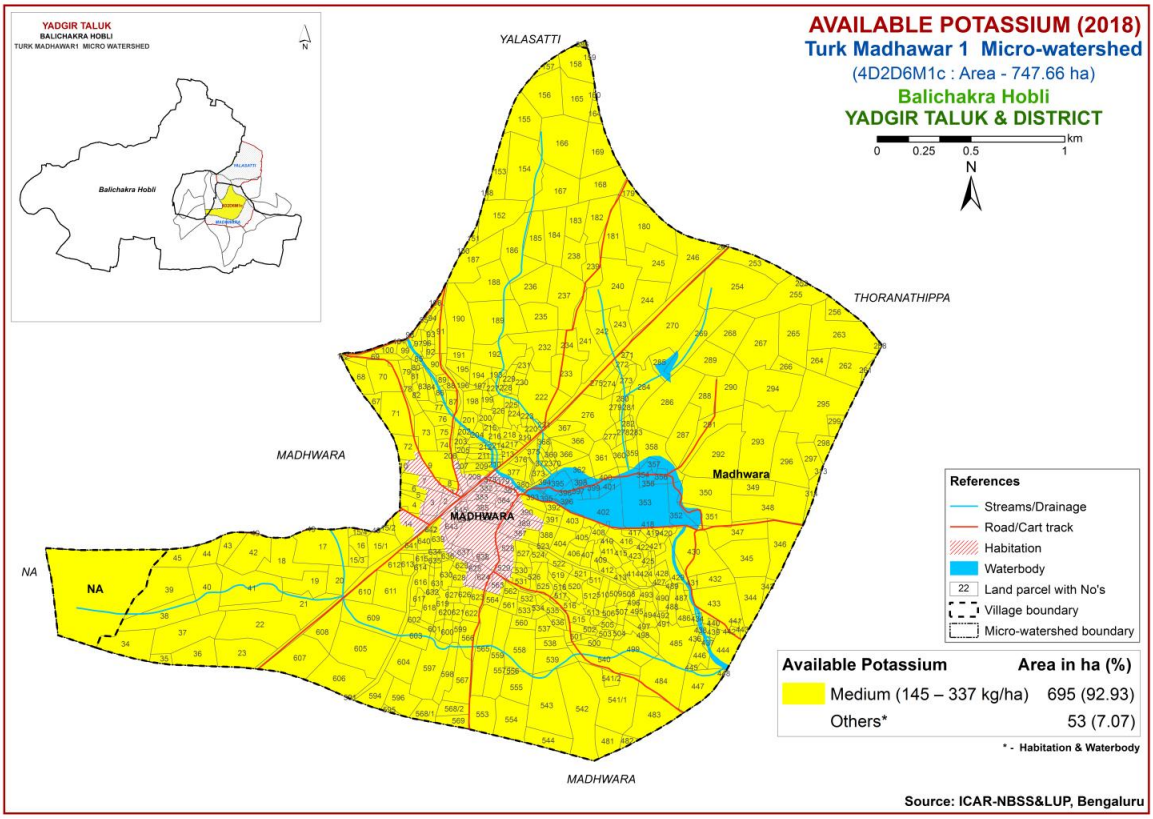


Fig.6.5 Soil available potassium map of Turk Madhawar 1 microwatershed

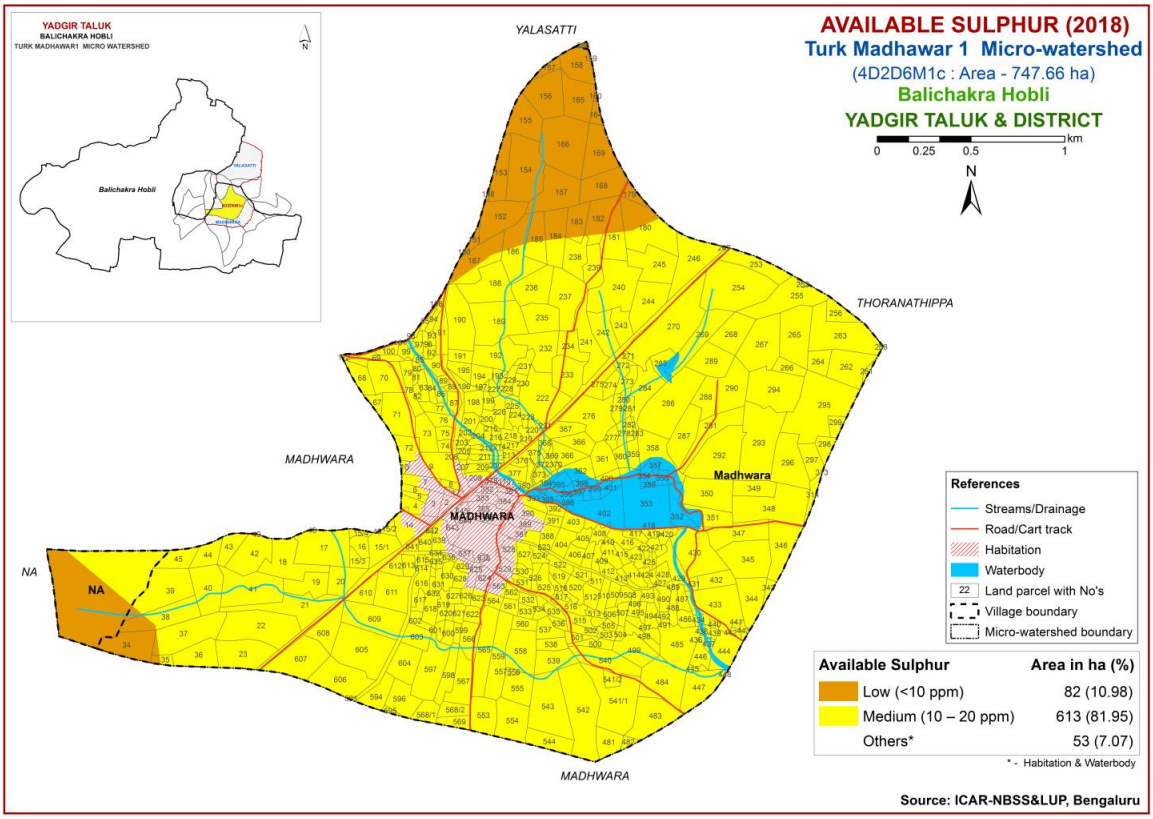


Fig.6.6 Soil available sulphur map of Turk Madhawar 1 microwatershed

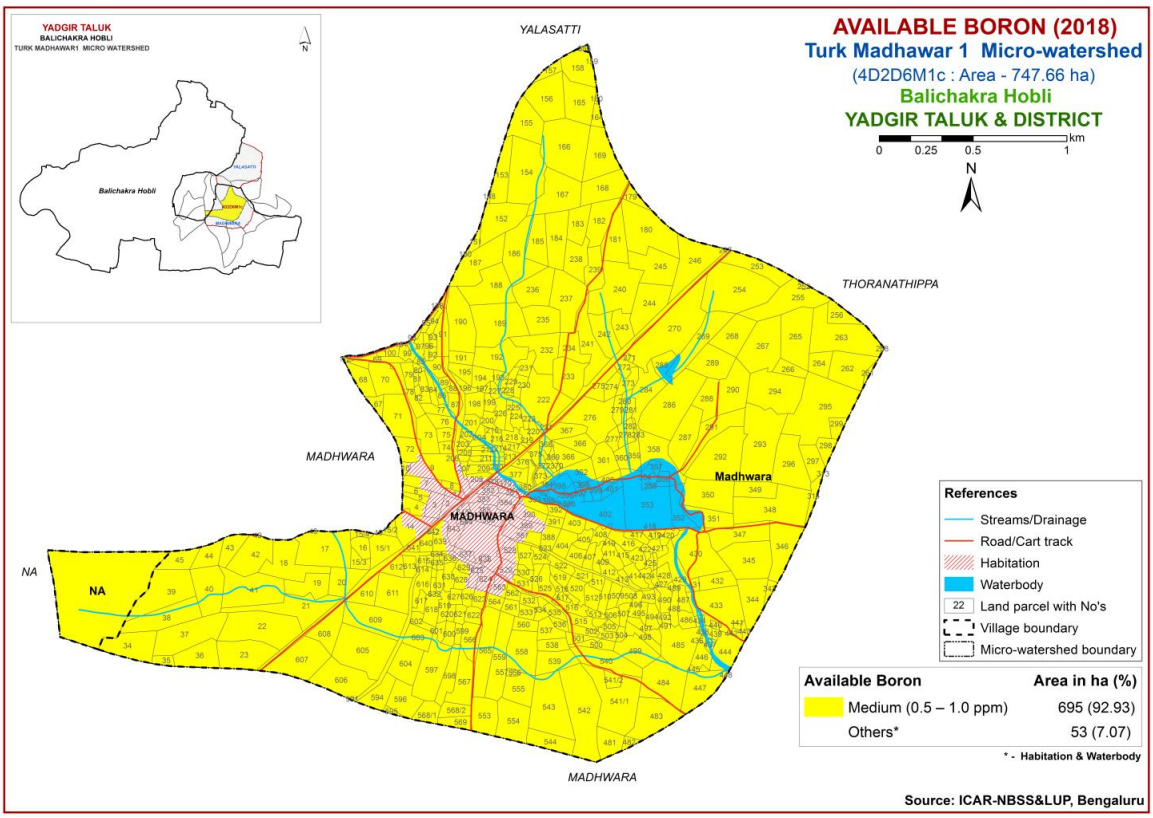


Fig.6.7 Soil available boron map of Turk Madhawar 1 microwatershed

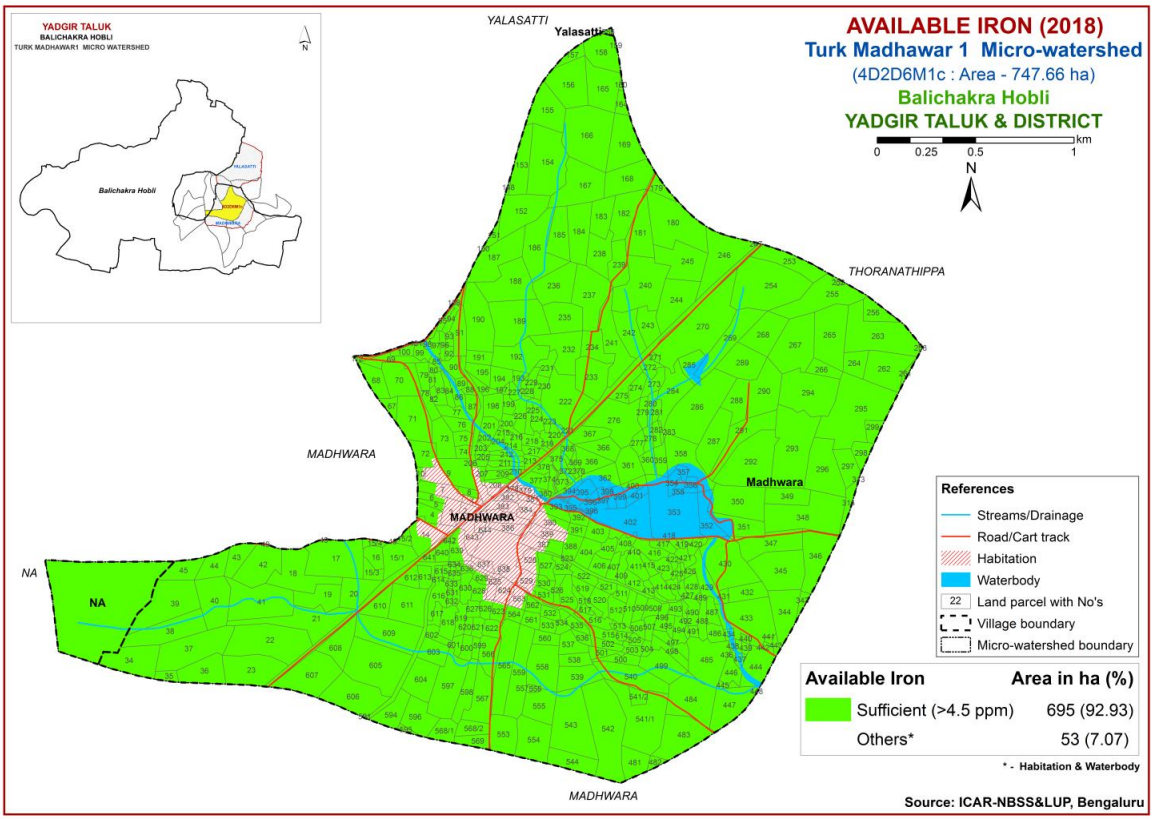


Fig.6.8 Soil available iron map of Turk Madhawar 1 microwatershed

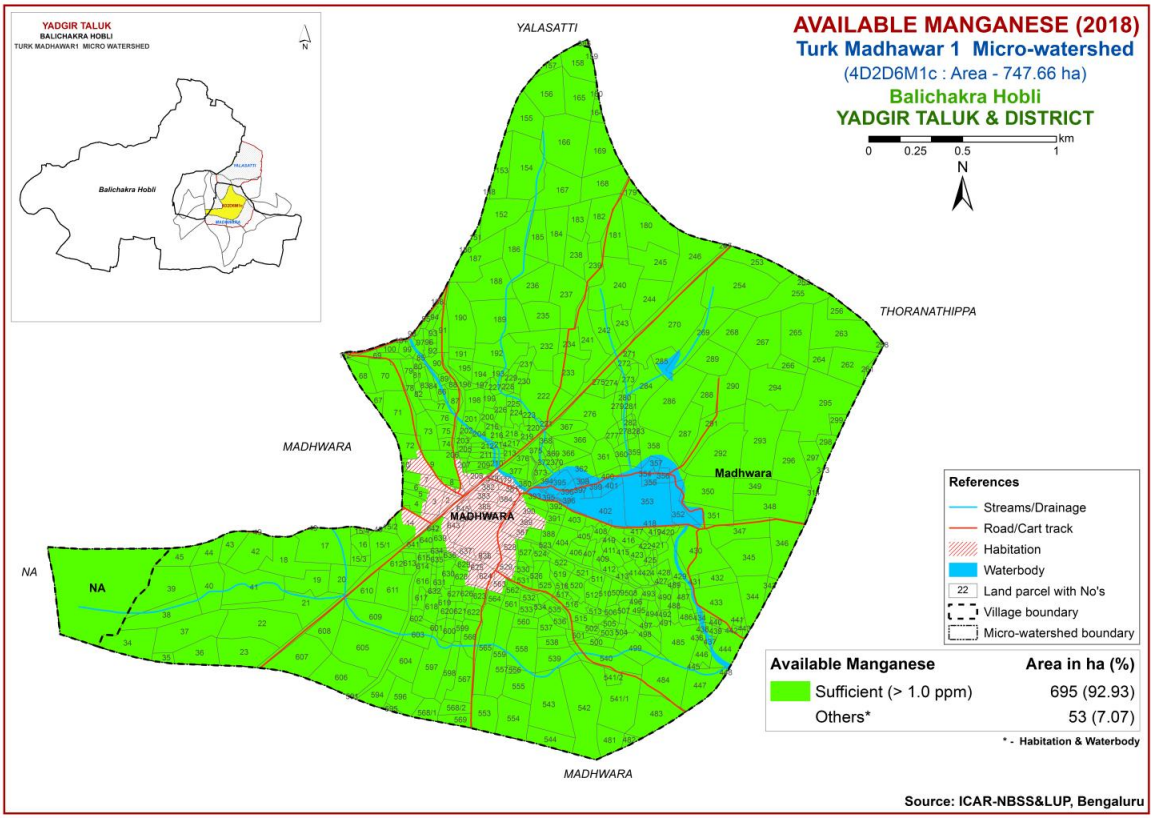


Fig.6.9 Soil available manganese map of Turk Madhawar 1 microwatershed

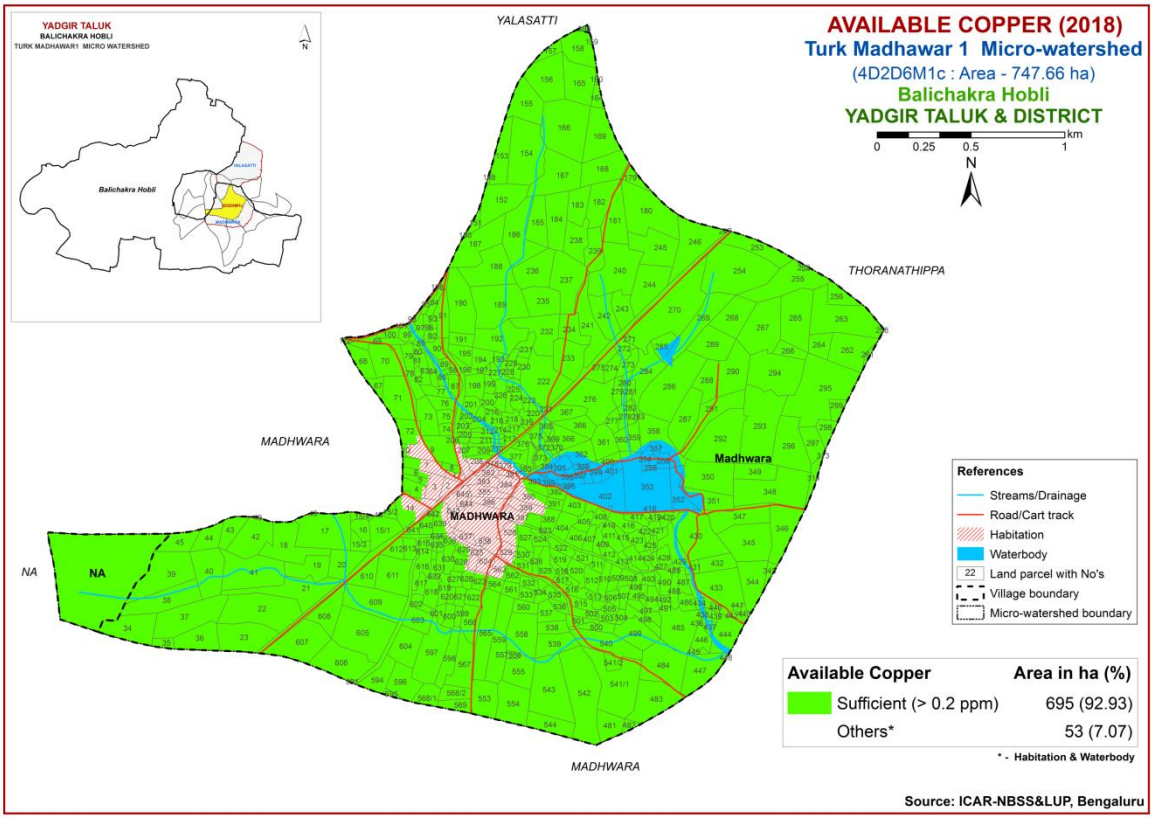


Fig.6.10 Soil available copper map of Turk Madhawar 1 microwatershed

6.11 Available Zinc

Available zinc content is deficient (<0.6 ppm) in the entire microwatershed area (Fig 6.11).

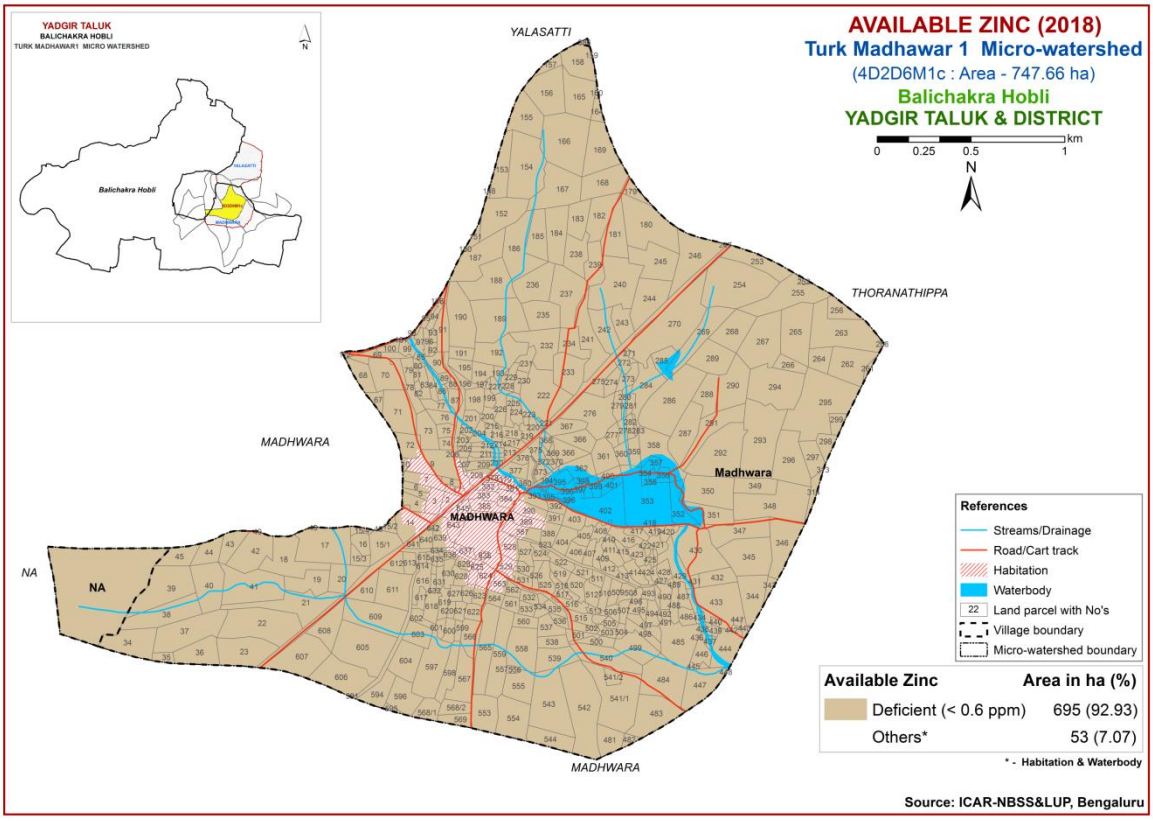


Fig.6.11 Soil available zinc map of Turk Madhawar 1 microwatershed

Chapter 7

LAND SUITABILITY FOR MAJOR CROPS

The soil and land resource units (soil phases) of Turk Madhawar 1 microwatershed were assessed for their suitability for growing food, fodder, fibre and other horticulture crops by following the procedure as outlined in FAO, 1976 and 1983. Crop requirements were developed for each of the crop from the available research data and also by referring to Naidu *et. al.* (2006) and Natarajan *et. al* (2015). The crop requirements were matched with the soil and land characteristics (Table 7.1) to arrive at the crop suitability (Table 7.2 to 7.30) are given at the end of the chapter. In FAO land suitability classification, two orders are recognized. Order S-Suitable and Order N-Not suitable. The orders have classes, subclasses and units. Order-S has three classes, Class S1-Highly Suitable, Class S2-Moderately Suitable and Class S3- Marginally Suitable. Order N has two classes, N1-Currently not Suitable and N2- Permanently not Suitable. There are no subclasses within the Class S1 as they will have very minor or no limitation for crop growth. Classes S2 and S3 are divided into subclasses based on the kinds of limitations encountered. The limitations that affect crop production are 'c' for erratic rainfall and its distribution and length of growing period (LGP), 'e' for erosion hazard, 'r' for rooting condition, 't' for lighter or heavy texture, 'g' for gravelliness or stoniness, 'n' for nutrient availability, 'l' for topography, 'm' for moisture availability, 'w' for drainage and 'z' for calcareousness. These limitations are indicated as lower case letters to the class symbol. For example, moderately suitable lands with the limitations of soil depth and erosion are designated as S2re. For the microwatershed, the soil mapping units were evaluated and classified up to subclass level.

Using the above criteria, the soil map units of the microwatershed were evaluated and land suitability maps for 29 major agricultural and horticultural crops were generated. The detailed information on the kind of suitability of each of the soil phase for the crops assessed are given village/ survey number wise for the microwatershed in Appendix-III.

7.1 Land Suitability for Sorghum (*Sorghum bicolor*)

Sorghum is one of the major food crop grown in Karnataka in an area of 10.47 lakh ha in Bijapur, Gulbarga, Raichur, Bidar, Belgaum, Dharwad, Bellary, Chitradurga, Mysore and Tumakuru districts. The crop requirements for growing sorghum (Table 7.2) were matched with the soil-site characteristics (Table 7.1) of the soils of the microwatershed and a land suitability map for growing sorghum was generated. The area extent and their geographic distribution of different suitability subclasses in the microwatershed are given in Figure 7.1.

Highly suitable (Class S1) lands for growing sorghum occur in an area of 149 ha (20%) and are distributed in the southern, central, northern and southwestern part of the microwatershed. Maximum area of about 333 ha (45%) is moderately suitable (Class S2) for growing sorghum and are distributed in the major part of the microwatershed. They

have minor limitations of rooting depth, texture, gravelliness, drainage and calcareousness. An area of about 212 ha (28%) is marginally suitable (Class S3) for growing sorghum and is distributed in the western, central, southern and southwestern part of the microwatershed with moderate limitations of texture, nutrient availability, drainage and calcareousness.

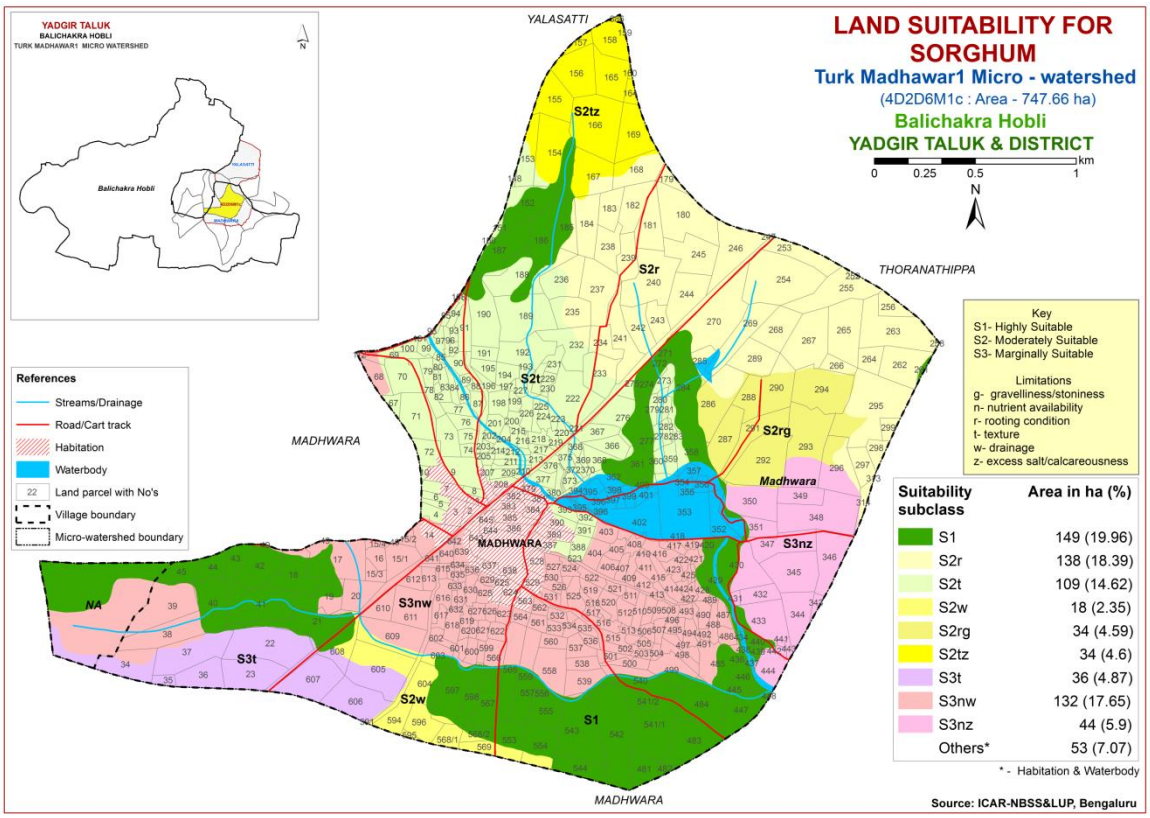


Fig. 7.1 Land suitability map of Sorghum

7.2 Land Suitability for Maize (*Zea mays*)

Maize is one of the most important food crop grown in an area of 13.37 lakh ha in almost all the districts of the State. The crop requirements for growing maize (Table 7.3) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing maize was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.2.

Highly suitable (Class S1) lands for growing maize occur in an area of 40 ha (5%) and are distributed in the southern part of the microwatershed. Maximum area of about 485 ha (65%) is moderately suitable (Class S2) for growing maize and are distributed in the major part of the microwatershed. They have minor limitations of texture, rooting depth, gravelliness, nutrient availability and calcareousness. An area of about 169 ha (23%) is marginally suitable (Class S3) for growing maize and is distributed in the west, central, southwestern and southern part of the microwatershed with moderate limitations of texture, nutrient availability, drainage and calcareousness.

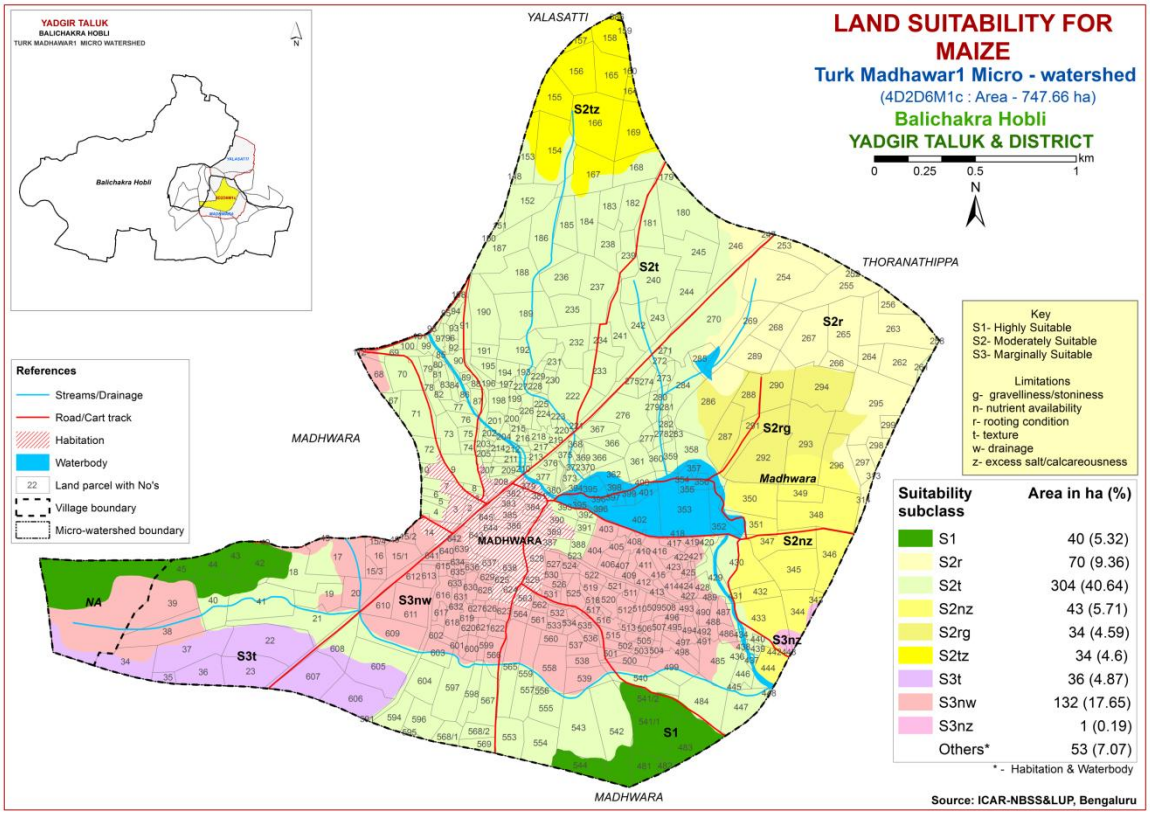


Fig. 7.2 Land suitability map of Maize

7.3 Land Suitability for Bajra (*Pennisetum glaucum)*

Bajra is one of the most important millet crop grown in an area of 2.34 lakh ha in the northern districts of Karnataka state. The crop requirements for growing bajra (Table 7.4) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing bajra was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.3.

Highly suitable (Class S1) lands for growing bajra occur in an area of 40 ha (5%) and are distributed in the southern part of the microwatershed. Maximum area of about 442 ha (59%) is moderately suitable (Class S2) for growing bajra and are distributed in the major part of the microwatershed. They have minor limitations of texture, rooting depth, drainage and calcareousness. An area of about 212 ha (28%) is marginally suitable (Class S3) for growing bajra and is distributed in the western, central, southern and southwestern part of the microwatershed with moderate limitations of texture, nutrient availability and calcareousness.

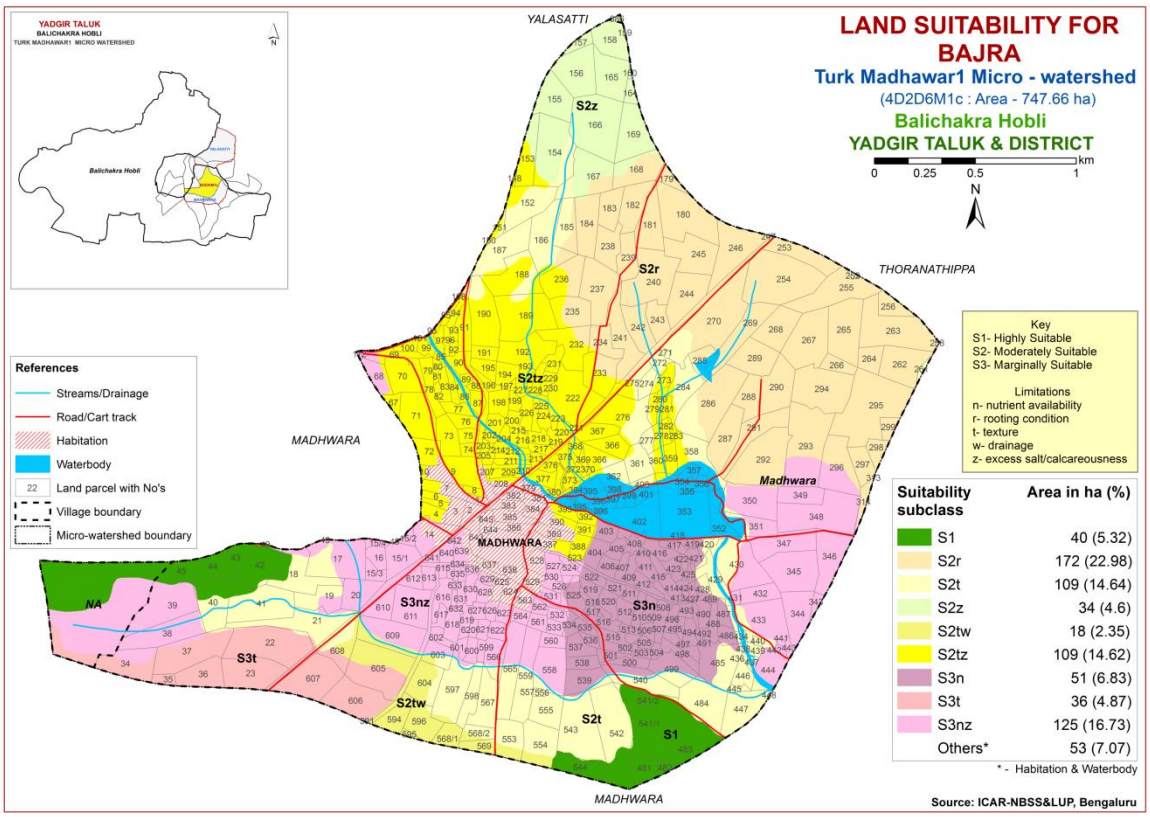


Fig. 7.3 Land suitability map of Bajra

7.4 Land Suitability for Groundnut (*Arachis hypogaea*)

Groundnut is one of the major oilseed crop grown in an area of 6.54 lakh ha in Karnataka in most of the districts either as rainfed or irrigated crop. The crop requirements for growing groundnut (Table 7.5) were matched with the soil-site characteristics (Table 7.1) of the soils of the microwatershed and a land suitability map for growing groundnut was generated. The area extent and their geographic distribution of different suitability subclasses in the microwatershed are given in Figure 7.4.

There are no highly suitable (Class S1) lands available for growing groundnut in the microwatershed. Moderately suitable (Class S2) lands occur in an area of 178 ha (24%) and are distributed in the eastern, northern, southern and southwestern part of the microwatershed. They have minor limitations of rooting depth, texture and calcareousness. Marginally suitable lands (Class S3) for growing groundnut occupy a maximum area of about 340 ha (46%) and are distributed in the major part with moderate limitations of texture and drainage. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

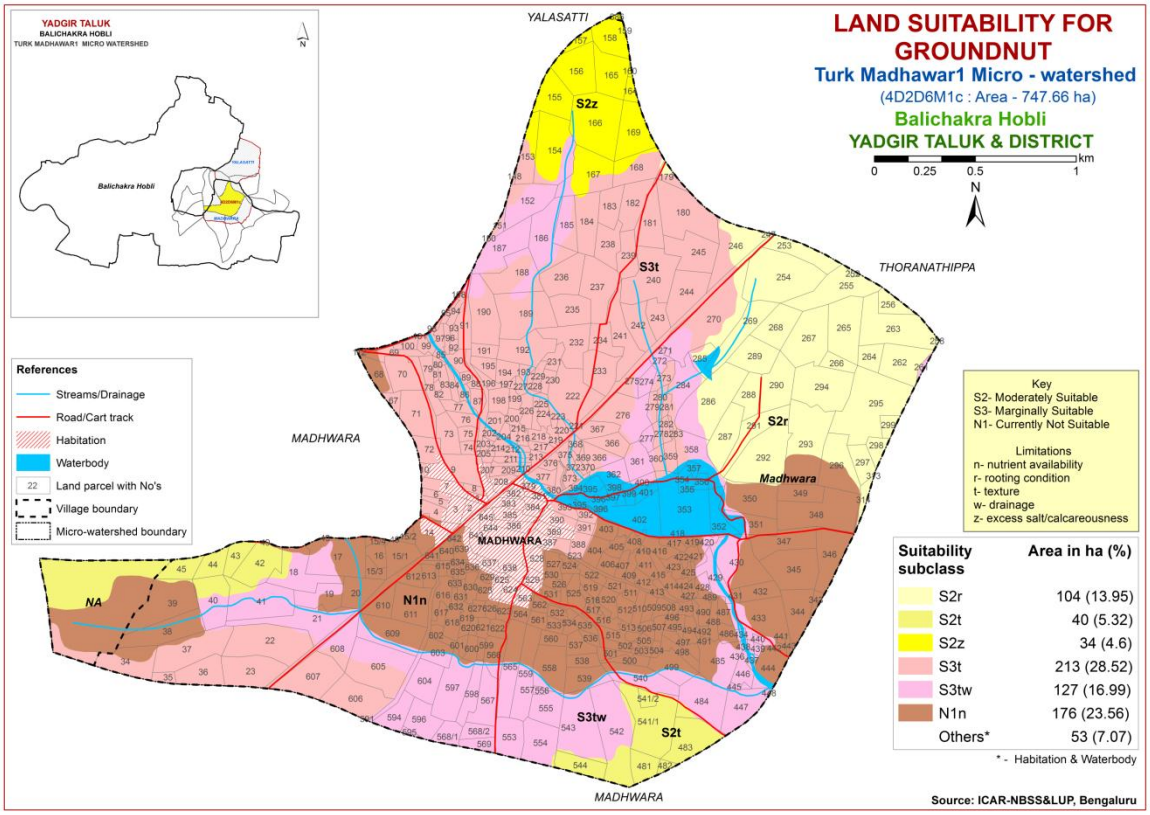


Fig. 7.4 Land suitability map of Groundnut

7.5 Land Suitability for Sunflower (*Helianthus annus*)

Sunflower is one of the most important oilseed crop grown in an area of 3.56 lakh ha in the State in all the districts. The crop requirements for growing sunflower (Table 7.6) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing sunflower was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.5.

Highly suitable (Class S1) lands for growing sunflower occur in an area of 109 ha (15%) and are distributed in the northern, central, southern and southwestern part of the microwatershed. An area of about 201 ha (27%) is moderately suitable (Class S2) for sunflower and are distributed in the northern, western, southern and southwestern part of the microwatershed. They have minor limitations of rooting depth, texture, drainage and calcareousness. An area of about 208 ha (28%) is marginally suitable (Class S3) and are distributed in the eastern, northeastern and southwestern part of the microwatershed with moderate limitations of rooting depth, texture and gravelliness. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

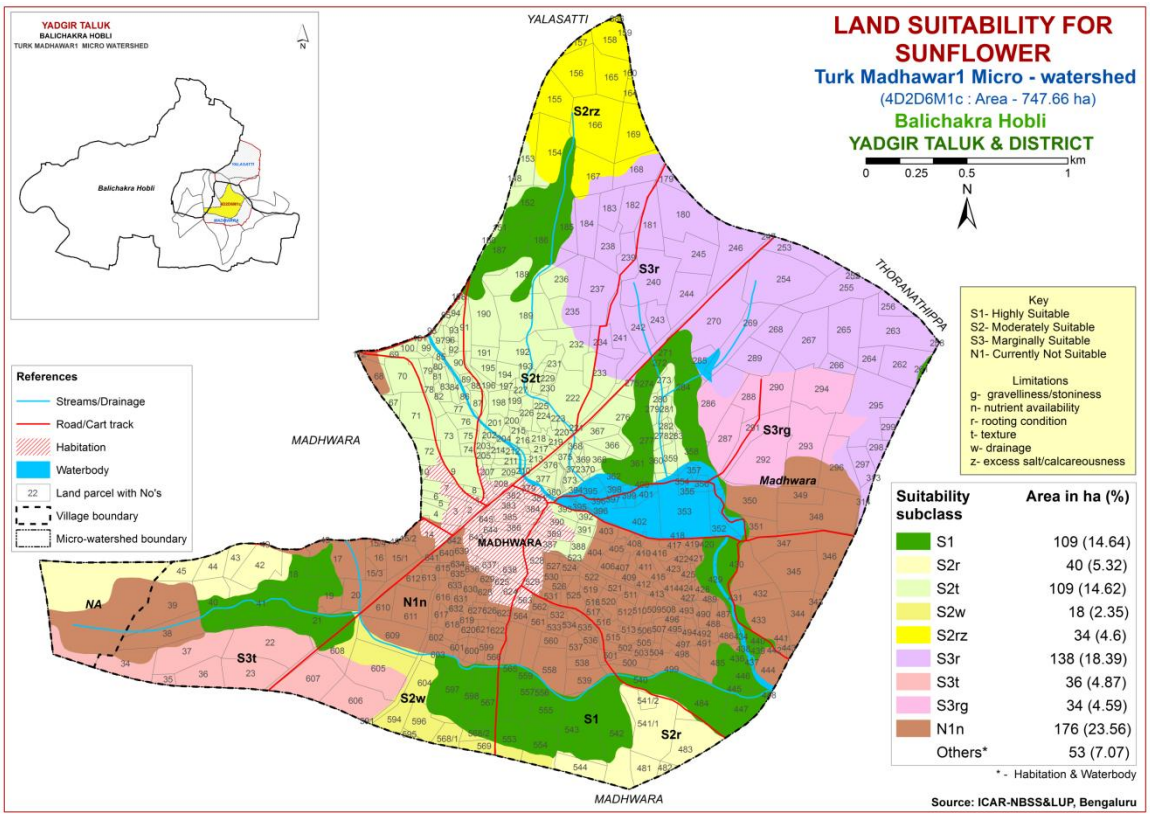


Fig. 7.5 Land suitability map of Sunflower

7.6 Land Suitability for Red gram (*Cajanus Cajan)*

Red gram is one of the most important pulse crop grown in an area of 7.28 lakh ha in almost all the districts of the State. The crop requirements for growing red gram (Table 7.7) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing red gram was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.6.

There are no highly suitable (Class S1) lands available for growing red gram in the microwatershed. An area of about 310 ha (42%) is moderately suitable (Class S2) for growing red gram and are distributed in the northern, central, western, southern and southwestern part of the microwatershed. They have minor limitations of rooting depth, texture, drainage and calcareousness. Maximum area of about 384 ha (51%) is marginally suitable (Class S3) for growing red gram and is distributed in the major part of the microwatershed with moderate limitations of rooting depth, texture, gravelliness, nutrient availability and calcareousness.

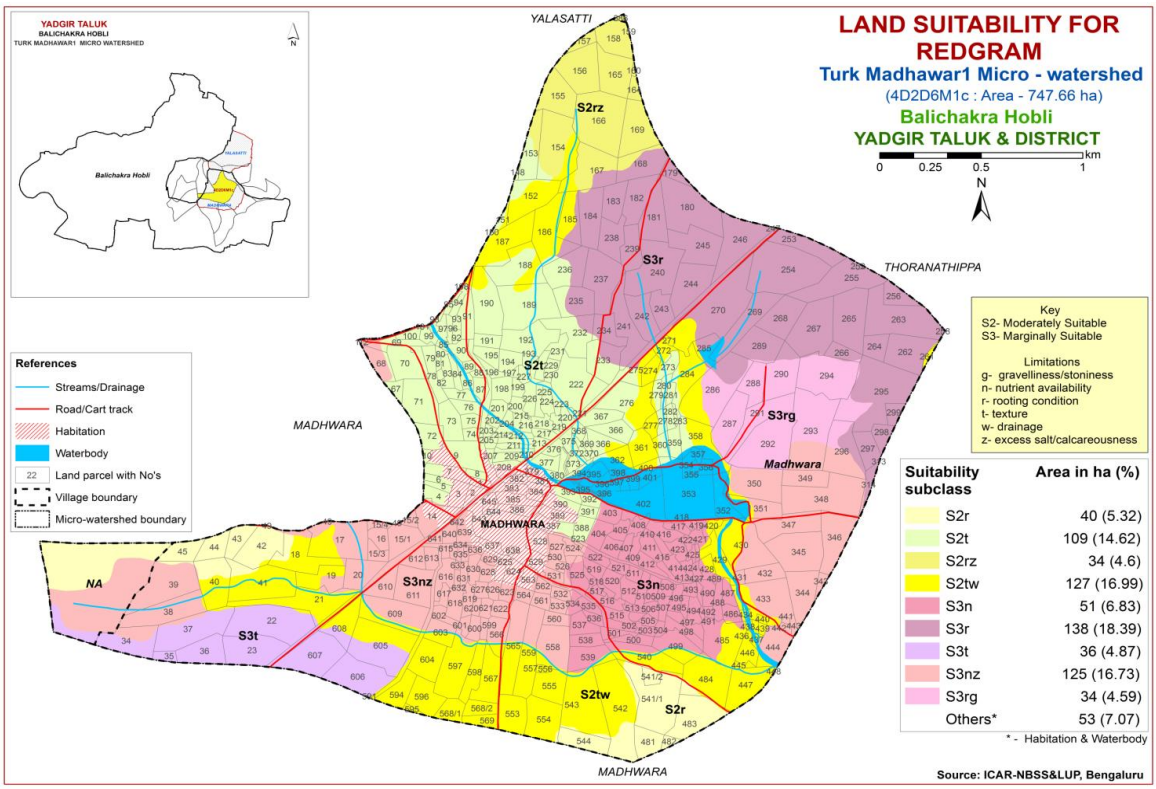


Fig. 7.6 Land suitability map of Red gram

7.7 Land Suitability for Bengal gram (*Cicer aerativum*)

Bengal gram is one of is the most important pulse crop grown in about 9.39 lakh ha area in Bijapur, Raichur, Kalaburgi, Dharwad, Belgaum and Bellary districts. The crop requirements for growing bengal gram (Table 7.8) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing bengal gram was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.7.

Highly suitable (Class S1) lands for growing bengal gram occur in an area of 236 ha (32%) and are distributed in the western, southern, central and southwestern part of the microwatershed. An area of about 246 ha (32%) is moderately suitable (Class S2) for bengal gram and are distributed in the northern, eastern, southern and southwestern part of the microwatershed. They have minor limitations of rooting depth, texture, gravelliness and calcareousness. An area of about 176 ha (24%) is marginally suitable (Class S3) and are distributed in the eastern, southern and southwestern part of the microwatershed with moderate limitations of calcareousness and nutrient availability. Currently not suitable (Class N1) lands occur in an area of about 36 ha (5%) and are distributed in the southwestern part of the microwatershed with severe limitation of rooting texture.

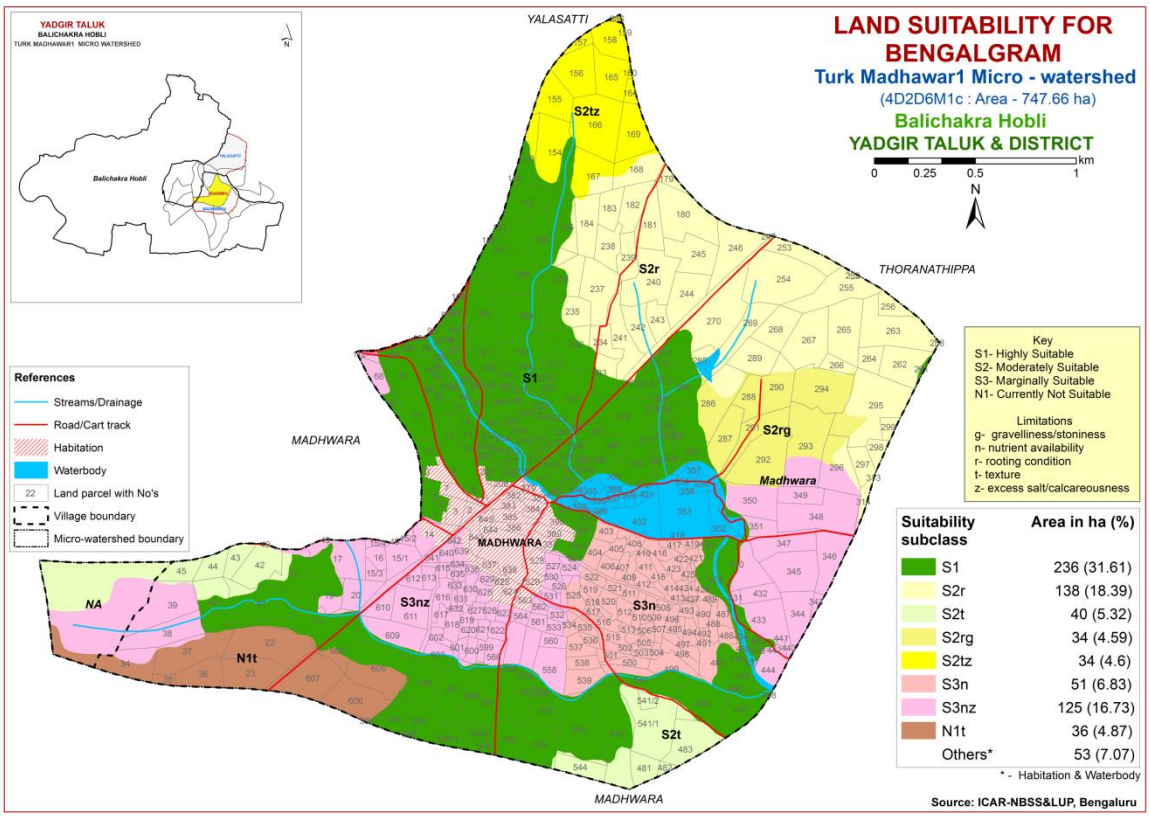


Fig. 7.7 Land suitability map of Bengal gram

7.8 Land Suitability for Cotton (*Gossypium hirsutum*)

Cotton is one of the most important fibre crop grown in the State in about 8.75 lakh ha area in Raichur, Dharwad, Belgaum, Kalaburgi, Bijapur, Bidar, Bellary, Chitradurga and Chamarajnagar districts. The crop requirements for growing cotton (Table 7.9) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing cotton was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.8.

Highly suitable (Class S1) lands for growing cotton occur in an area of 127 ha (17%) and are distributed in the northwestern, central, southern and southwestern part of the microwatershed. Maximum area of about 354 ha (48%) is moderately suitable (Class S2) for cotton and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, gravelliness and calcareousness. An area of about 176 ha (24%) is marginally suitable (Class S3) and are distributed in the eastern, southern and southwestern part of the microwatershed with moderate limitations of calcareousness and nutrient availability. Currently not suitable (Class N1) lands occur in an area of about 36 ha (5%) and are distributed in the southwestern part of the microwatershed with severe limitation of rooting texture.

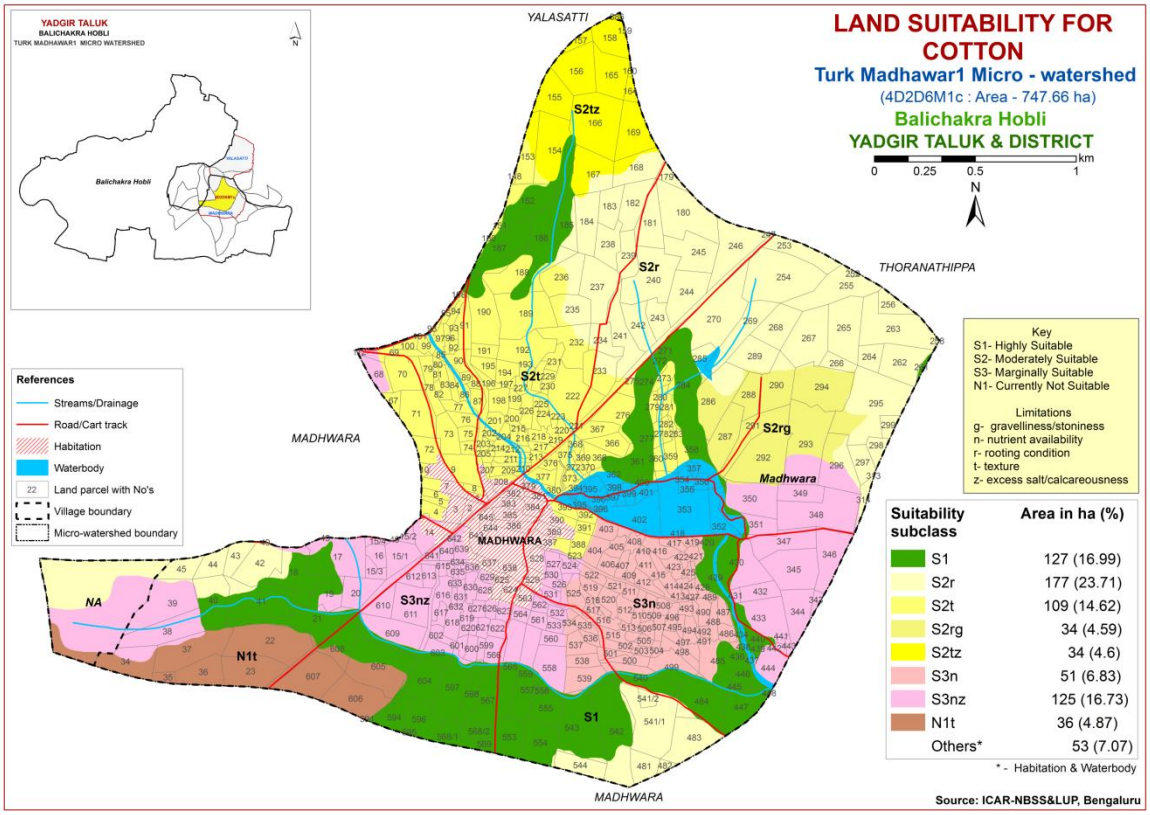


Fig. 7.8 Land suitability map of Cotton

7.9 Land Suitability for Chilli (*Capsicum annuum)*

Chilli is one of the most important spice crop grown in about 0.42 lakh ha in Karnataka state. The crop requirements for growing chilli (Table 7.10) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing chilli was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.9.

There are no highly suitable (Class S1) lands available for growing chilli in the microwatershed. Maximum area of about 464 ha (62%) is moderately suitable (Class S2) for growing chilli and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, gravelliness, drainage and calcareousness. An area of about 54 ha (7%) is marginally suitable (Class S3) for growing chilli and is distributed in the southwestern part of the microwatershed with moderate limitations of drainage and texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

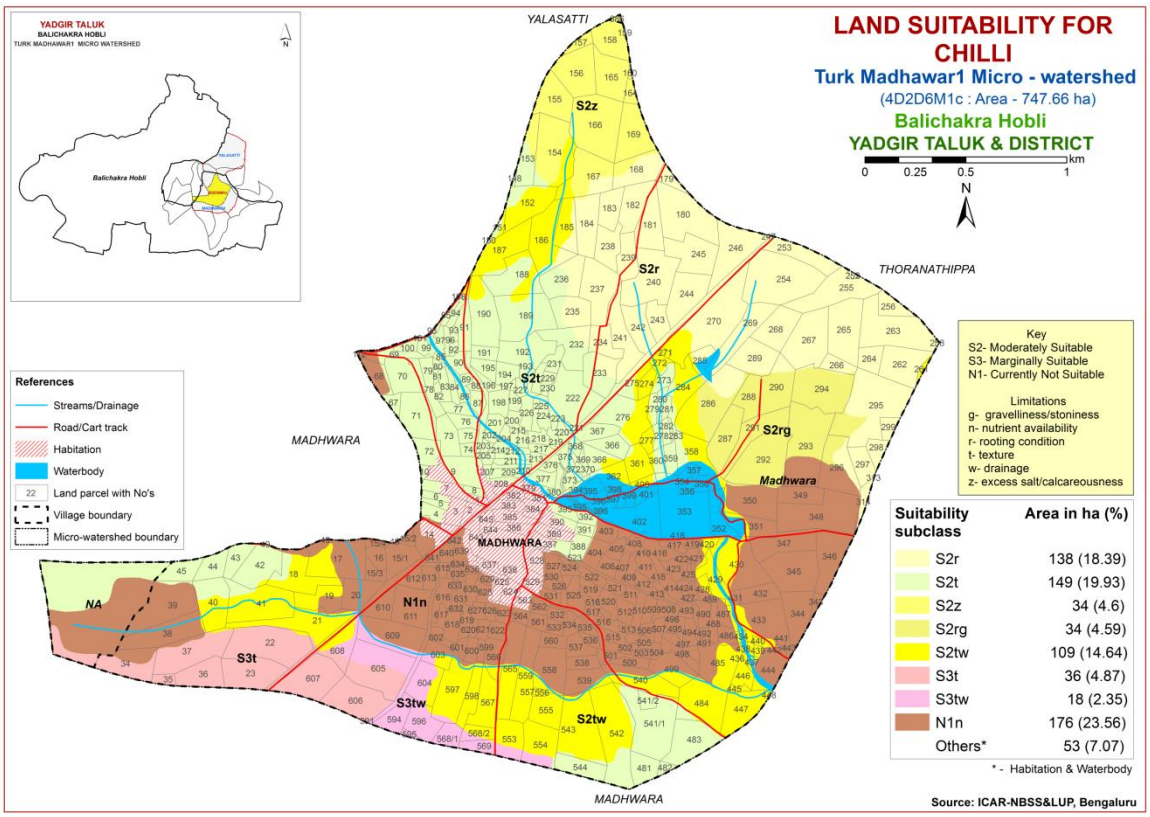


Fig 7.9 Land suitability map of Chilli

7.10 Land Suitability for Tomato *(Lycopersicon esculentum)*

Tomato is one of the most important vegetable crop grown in about 0.61 lakh ha covering almost all the district of the state. The crop requirements for growing tomato (Table 7.11) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing tomato was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.10.

Highly suitable (Class S1) lands for growing tomato occur in an area of 40 ha (5%) and are distributed in the southern and southwestern part of the microwatershed. Maximum area of about 315 ha (42%) is moderately suitable (Class S2) for growing tomato and are distributed in the major part of the microwatershed. They have minor limitations of texture, rooting depth, gravelliness and calcareousness. An area of about 163 ha (22%) is marginally suitable (Class S3) for growing tomato and is distributed in the northwestern, central, southern and southwestern part of the microwatershed with moderate limitations of texture and drainage. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

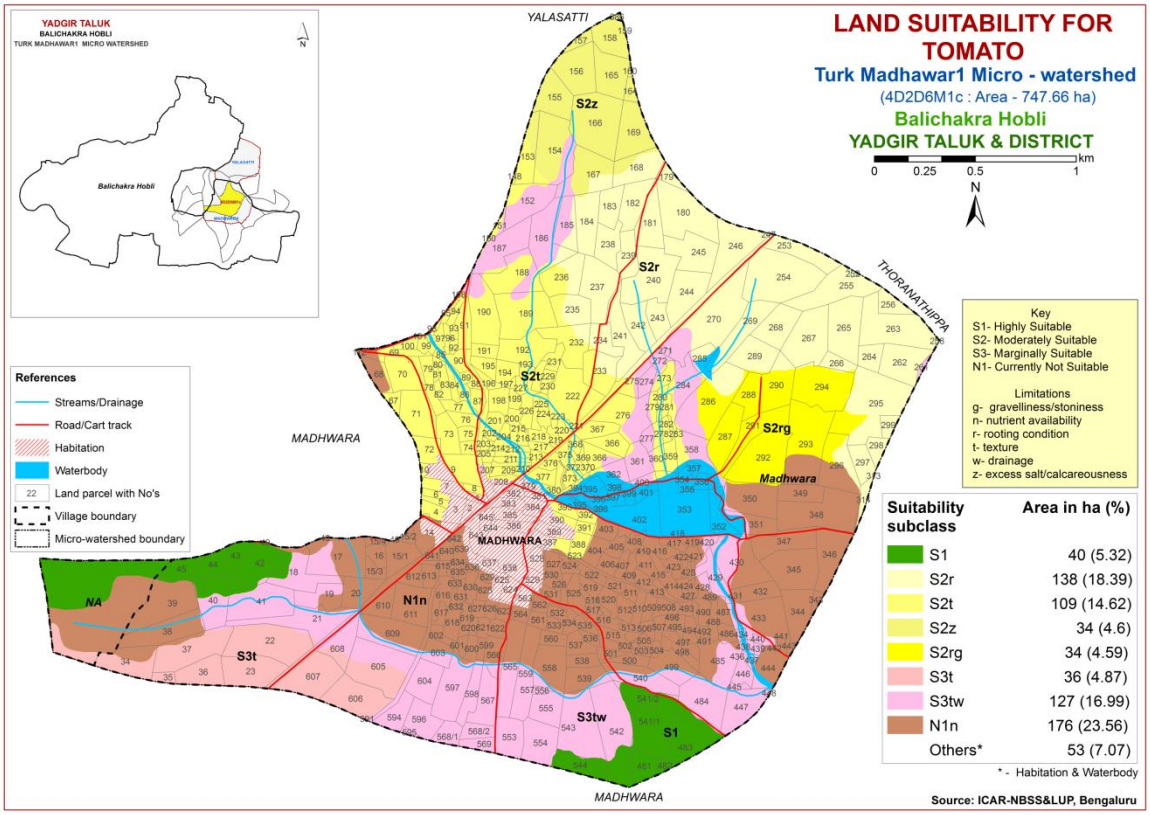


Fig 7.10 Land suitability map of Tomato

7.11 Land Suitability for Brinjal (*Solanum melongena*)

Brinjal is one of the most important vegetable crop grown in the state. The crop requirements for growing brinjal (Table 7.12) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing brinjal was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.11.

Highly suitable (Class S1) lands for growing brinjal occur in an area of 40 ha (5%) and are distributed in the southern part of the microwatershed. Maximum area of about 443 ha (59%) is moderately suitable (Class S2) for brinjal and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth and texture. An area of about 36 ha (5%) is marginally suitable (Class S3) and are distributed in the southwestern part of the microwatershed with moderate limitation of texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

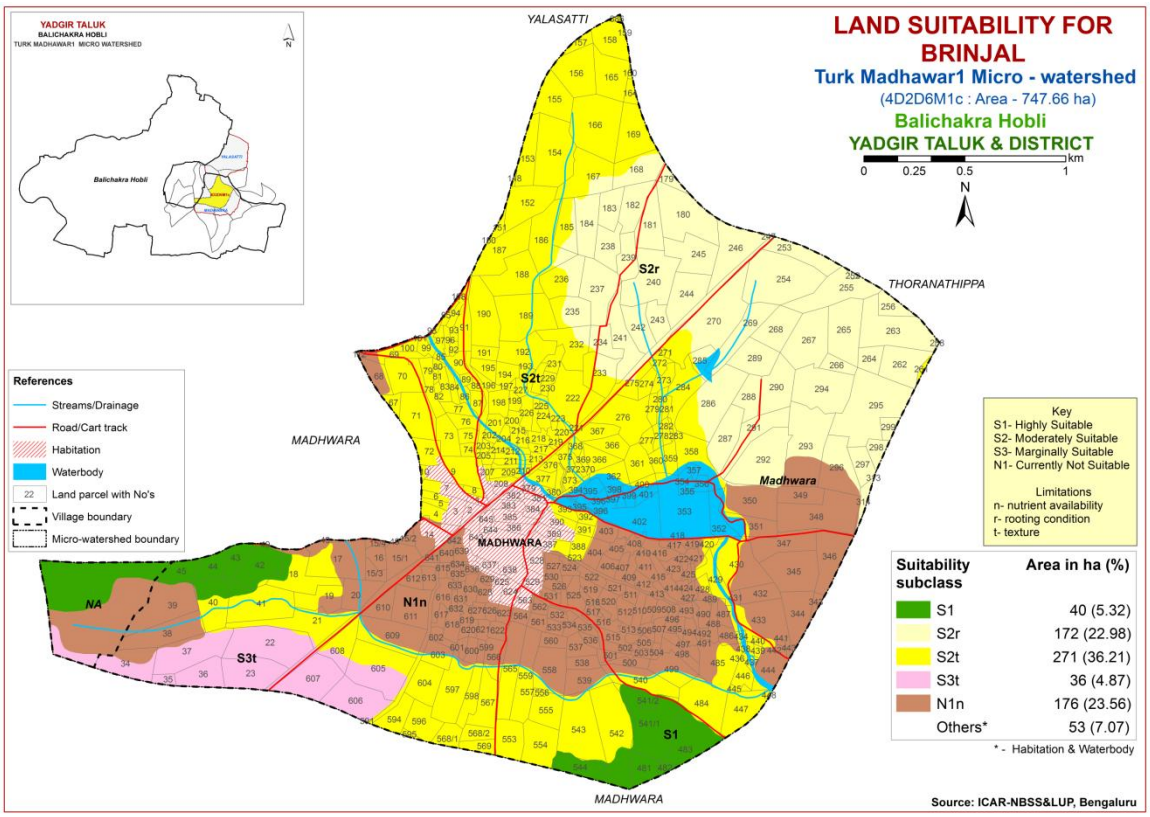


Fig 7.11 Land suitability map of Brinjal

7.12 Land Suitability for Onion (*Allium cepa L.*,)

Onion is one of the most important vegetable crop grown in the state. The crop requirements for growing onion (Table 7.13) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing onion was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.12.

There are no highly suitable (Class S1) lands available for growing onion in the microwatershed. Maximum area of about 464 ha (62%) is moderately suitable (Class S2) for onion and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, drainage and texture. An area of about 54 ha (7%) is marginally suitable (Class S3) and are distributed in the southwestern part of the microwatershed with moderate limitation of texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

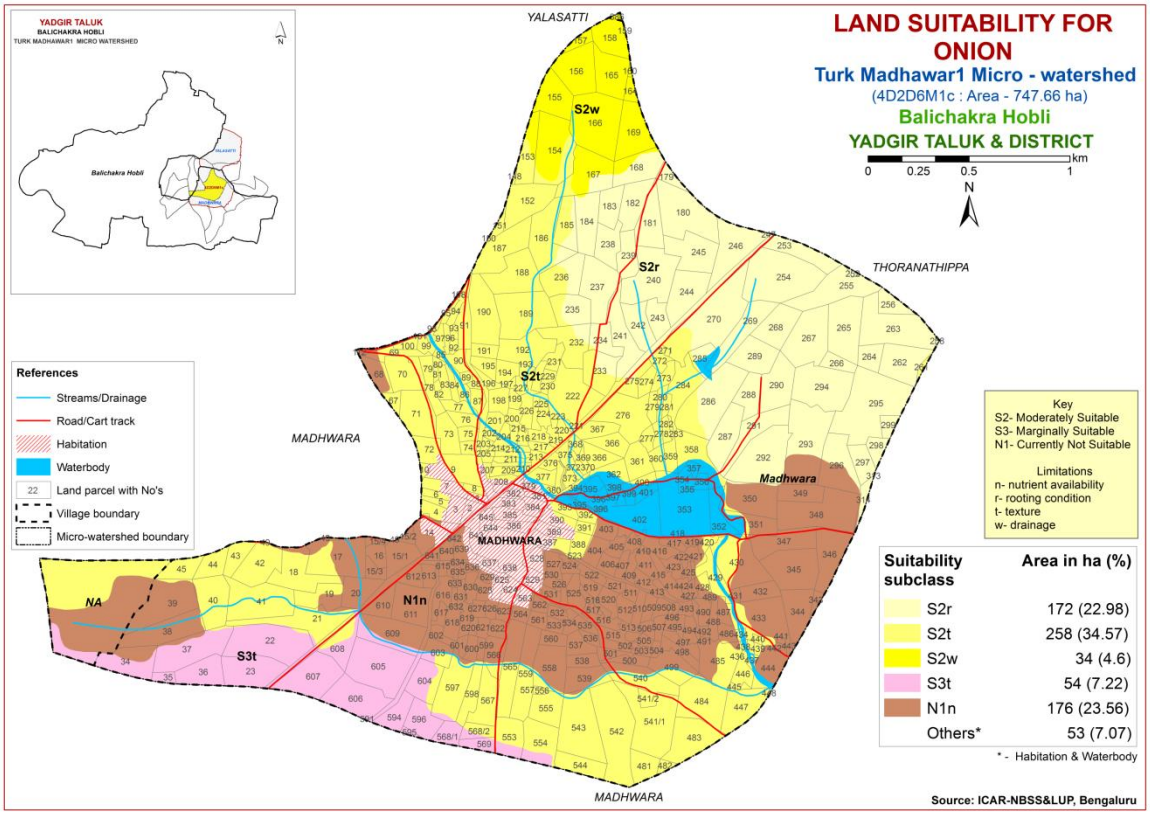


Fig 7.12 Land suitability map of Onion

7.13 Land Suitability for Bhendi (*Abelmoschus esculentus*)

Bhendi is one of the most important vegetable crop grown in the state. The crop requirements for growing bhendi (Table 7.14) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing bhendi was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.13.

Highly suitable (Class S1) lands for growing bhendi occur in an area of 109 ha (15%) and are distributed in the western, central and northwestern part of the microwatershed. Maximum area of about 373 ha (50%) is moderately suitable (Class S2) for bhendi and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, drainage and texture. An area of about 36 ha (5%) is marginally suitable (Class S3) and are distributed in the southwestern part of the microwatershed with moderate limitation of texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

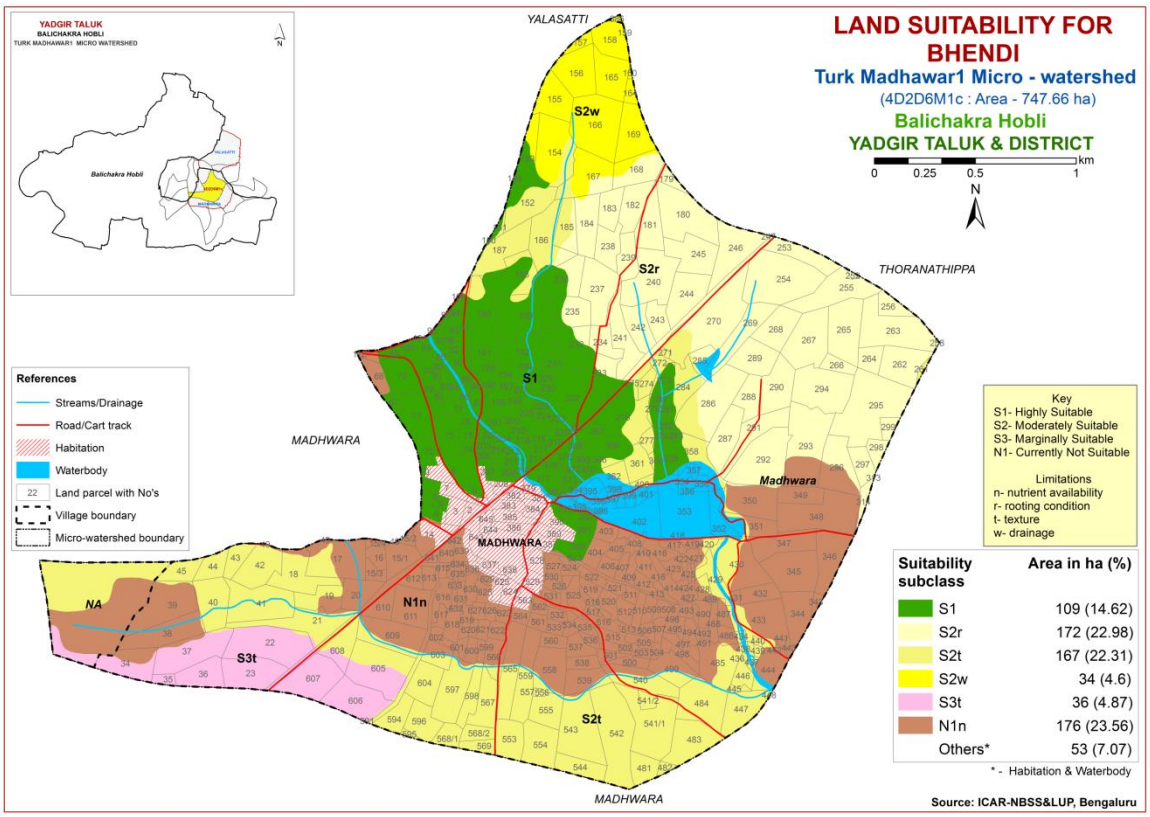


Fig 7.13 Land suitability map of Bhendi

7.14 Land Suitability for Drumstick (*Moringa oleifera*)

Drumstick is one of the most important vegetable crop grown in about 2403 ha in the state. The crop requirements for growing drumstick (Table 7.15) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing drumstick was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.14.

There are no highly suitable (Class S1) lands available for growing drumstick in the microwatershed. Maximum area of about 310 ha (42%) is moderately suitable (Class S2) for drumstick and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, drainage and calcareousness. An area of about 208 ha (28%) is marginally suitable (Class S3) and are distributed in the eastern, northeastern and southwestern part of the microwatershed with moderate limitations of rooting depth and texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

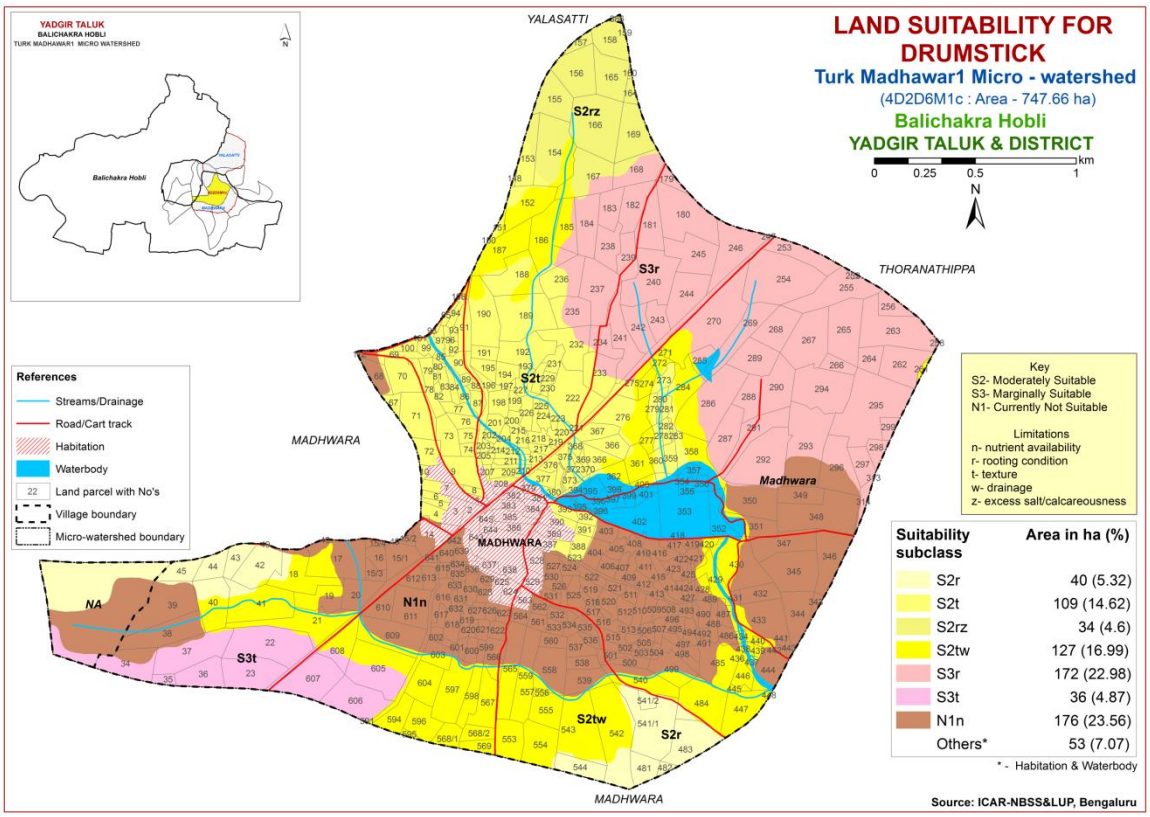


Fig 7.14 Land suitability map of Drumstick

7.15 Land Suitability for Mango (*Mangifera indica*)

Mango is one of the most important fruit crop grown in an area of 1.73 lakh ha in almost all the districts of the state. The crop requirements (Table 7.16) for growing mango were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing mango was generated. The area extent and their geographic distribution of different suitability subclasses in the microwatershed is given in Figure 7.15

There are no highly suitable (Class S1 and S2) lands available for growing mango in the microwatershed. An area of about 310 ha (42%) is marginally suitable (Class S3) and are distributed in the northern, western, southern and southwestern part of the microwatershed with moderate limitations of rooting depth, texture and calcareousness. Currently not suitable (Class N1) lands occur in a maximum area of about 384 ha (51%) and are distributed in the major part of the microwatershed with severe limitations of rooting depth and nutrient availability.

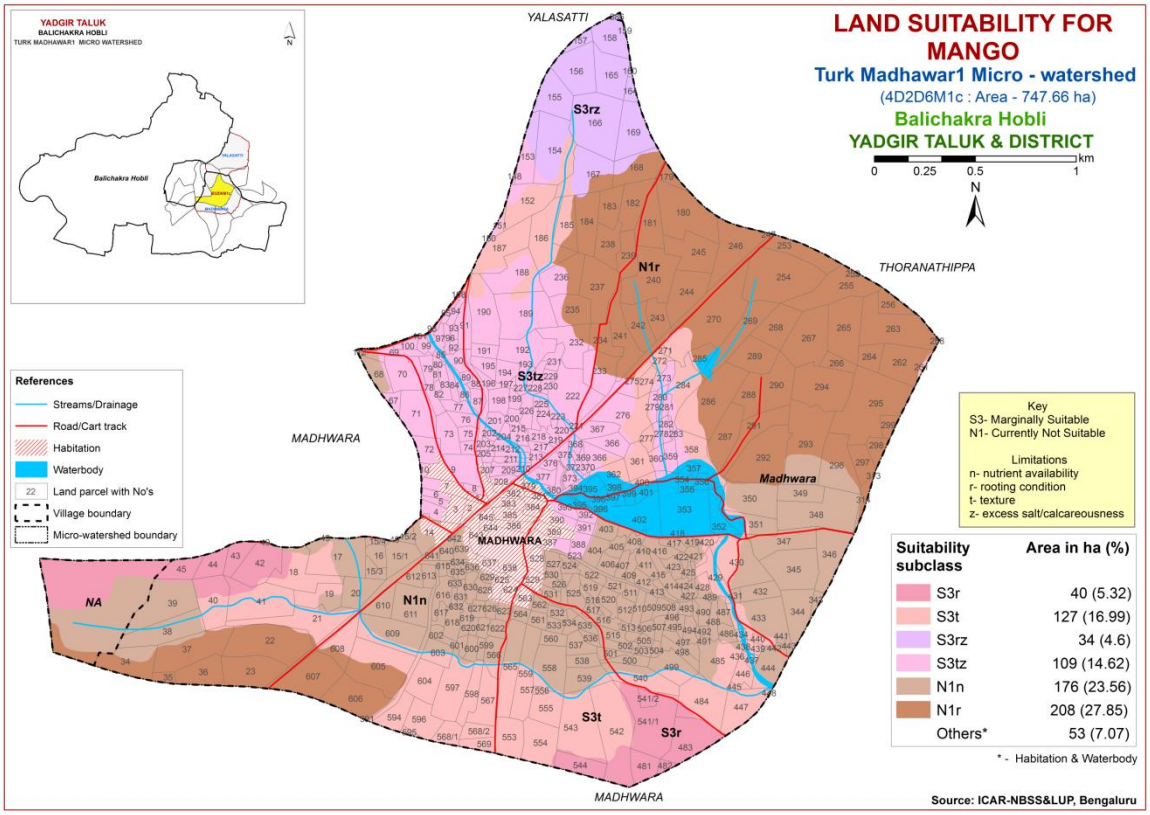


Fig. 7.15 Land suitability map of Mango

7.16 Land Suitability for Guava (*Psidium guajava*)

Guava is one of the most important fruit crop grown in an area of 0.06 lakh ha in almost all the districts of the State. The crop requirements (Table 7.17) for growing guava were matched with the soil-site characteristics (7.1) and a land suitability map for growing guava was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.16.

There are no highly suitable (Class S1) lands available for growing guava in the microwatershed. An area of about 74 ha (10%) is moderately suitable (Class S2) for guava and are distributed in the northern, southern and southwestern part of the microwatershed. They have minor limitations of rooting depth, texture and calcareousness. Maximum area of about 444 ha (59%) is marginally suitable (Class S3) and are distributed in the major part of the microwatershed with moderate limitations of rooting depth and texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

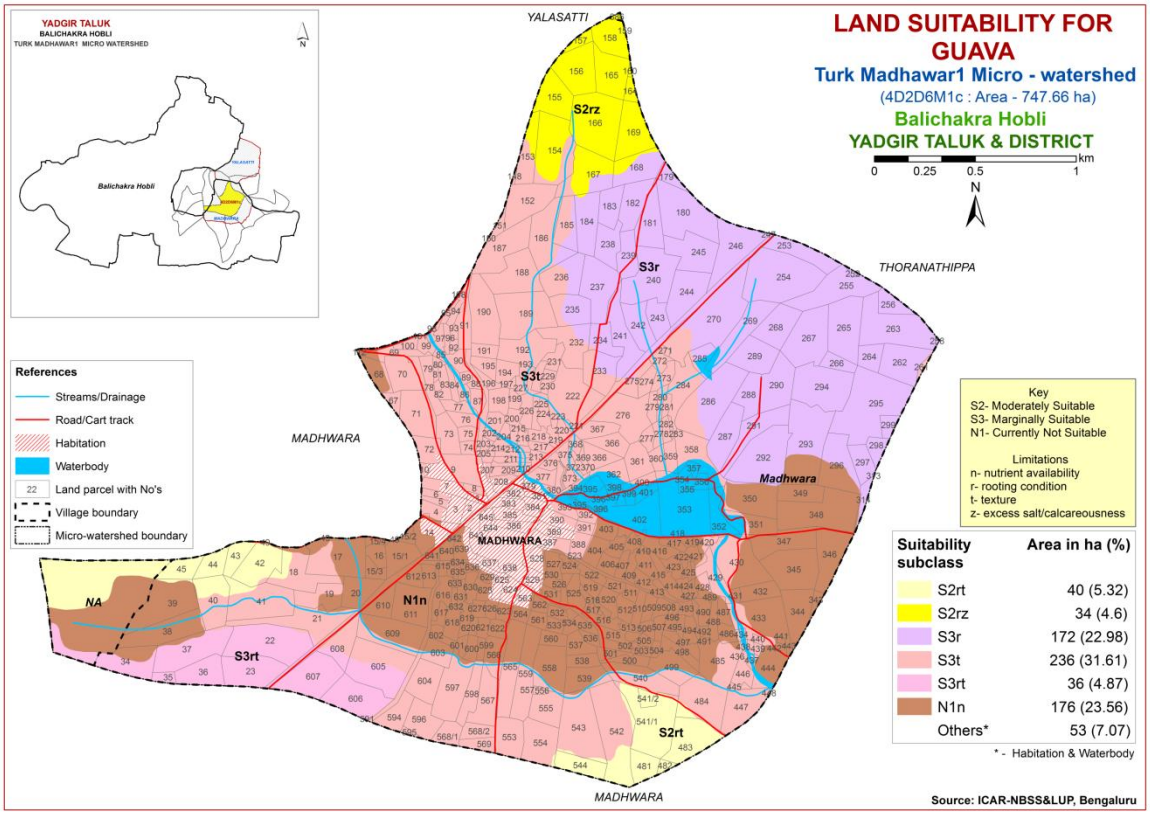


Fig. 7.16 Land suitability map of Guava

7.17 Land Suitability for Sapota (*Manilkara zapota*)

Sapota is one of the most important fruit crop grown in an area of 29373 ha in almost all the districts of the State. The crop requirements (Table 7.18) for growing sapota were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing sapota was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed are given in Figure 7.17.

There are no highly suitable (Class S1) lands available for growing sapota in the microwatershed. An area of about 74 ha (10%) is moderately suitable (Class S2) for sapota and are distributed in the northern, southern and southwestern part of the microwatershed. They have minor limitations of rooting depth and calcareousness. Maximum area of about 444 ha (59%) is marginally suitable (Class S3) and are distributed in the major part of the microwatershed with moderate limitations of rooting depth and texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

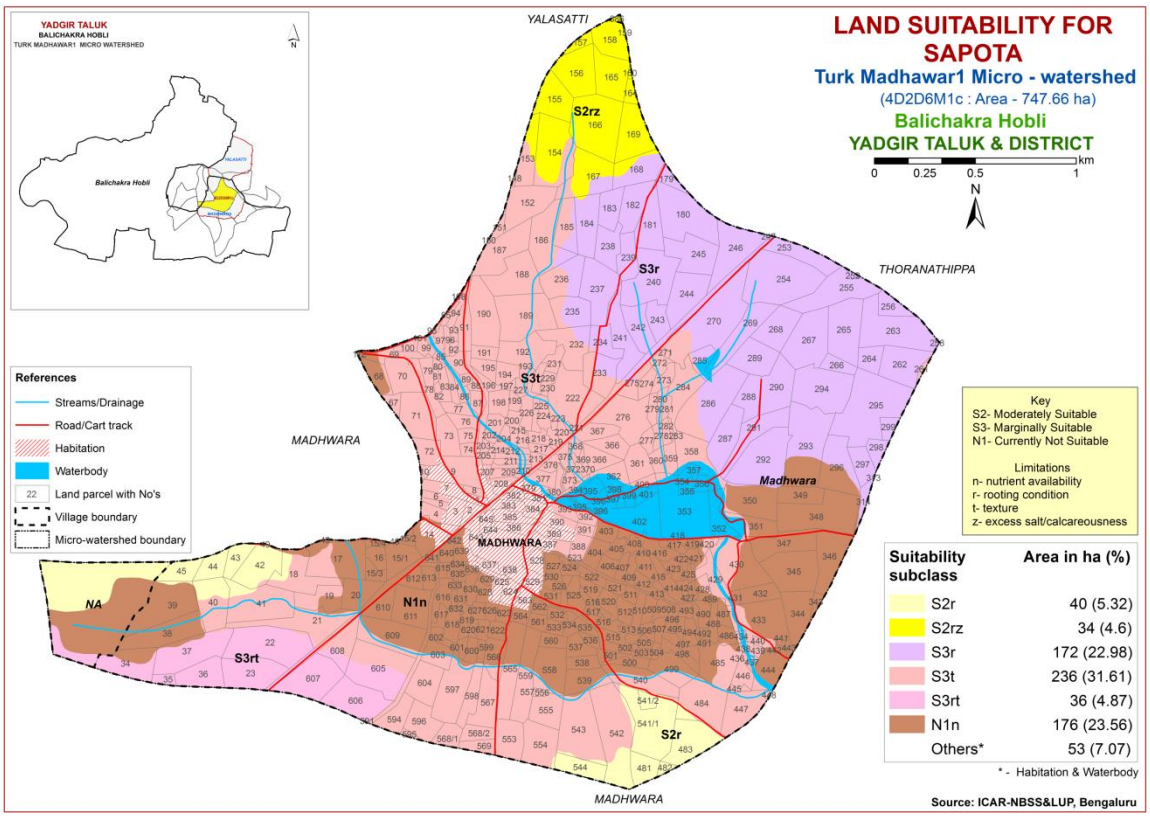


Fig. 7.17 Land suitability map of Sapota

7.18 Land Suitability for Pomegranate (*Punica granatum*)

Pomegranate is one of the most important fruit crop commercially grown in about 18488 ha in Karnataka, mainly in Bijapur, Bagalkot, Koppal, Gadag and Chitradurga districts. The crop requirements for growing pomegranate (Table 7.19) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing pomegranate was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.18.

There are no highly suitable (Class S1) lands available for growing pomegranate in the microwatershed. Maximum area of about 310 ha (42%) is moderately suitable (Class S2) for pomegranate and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture and calcareousness. An area of about 208 ha (28%) is marginally suitable (Class S3) and are distributed in the eastern, northeastern and southwestern part of the microwatershed with moderate limitations of rooting depth and texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

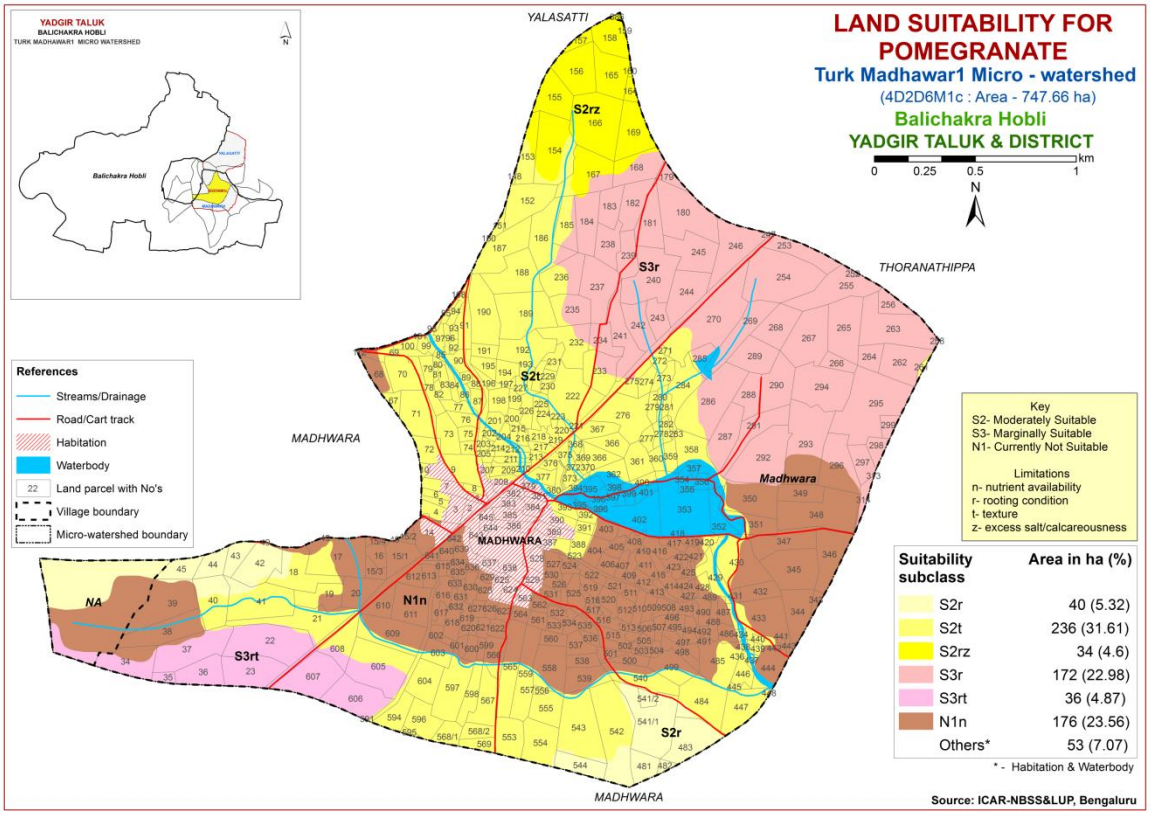


Fig 7.18 Land suitability map of Pomegranate

7.19 Land Suitability for Musambi (*Citrus limetta*)

Musambi is one of the important fruit crop grown in an area of 3446 ha in almost all the districts of the State. The crop requirements for growing musambi (Table 7.20) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing musambi was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.19.

Highly suitable (Class S1) lands for growing musambi occur in a maximum area of 236 ha (32%) and are distributed in the major part of the microwatershed. An area of about 74 ha (10%) is moderately suitable (Class S2) for musambi and are distributed in the northern, southern and southwestern part of the microwatershed. They have minor limitations of rooting depth and calcareousness. An area of about 208 ha (28%) is marginally suitable (Class S3) and are distributed in the eastern, northeastern and southwestern part of the microwatershed with moderate limitations of rooting depth and texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

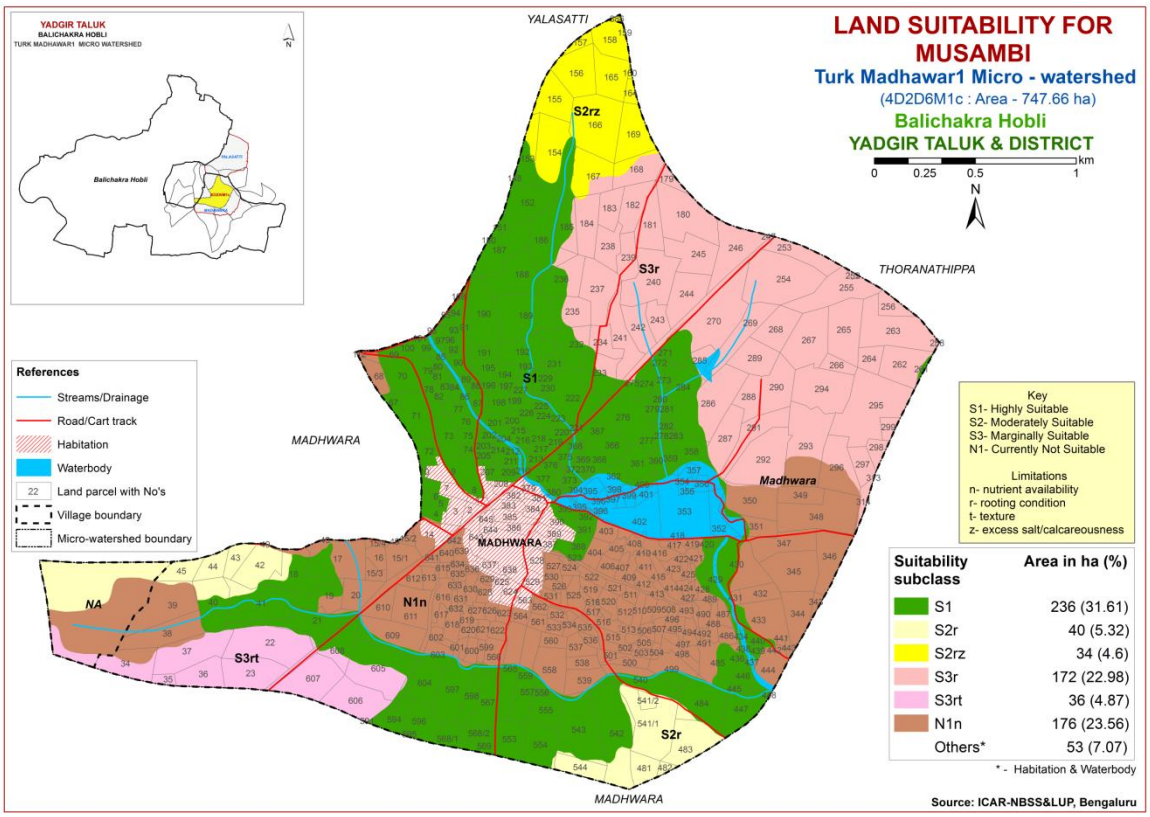


Fig. 7.19 Land suitability map of Musambi

7.20 Land Suitability for Lime (*Citrus sp*)

Lime is one of the most important fruit crop grown in an area of 0.11 lakh ha in almost all the districts of the State. The crop requirements for growing lime (Table 7.21) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing lime was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7. 20.

Highly suitable (Class S1) lands for growing lime occur in a maximum area of 236 ha (32%) and are distributed in the major part of the microwatershed. An area of about 74 ha (10%) is moderately suitable (Class S2) for lime and are distributed in the northern, southern and southwestern part of the microwatershed. They have minor limitations of rooting depth and calcareousness. An area of about 208 ha (28%) is marginally suitable (Class S3) and are distributed in the eastern, northeastern and southwestern part of the microwatershed with moderate limitations of rooting depth and texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

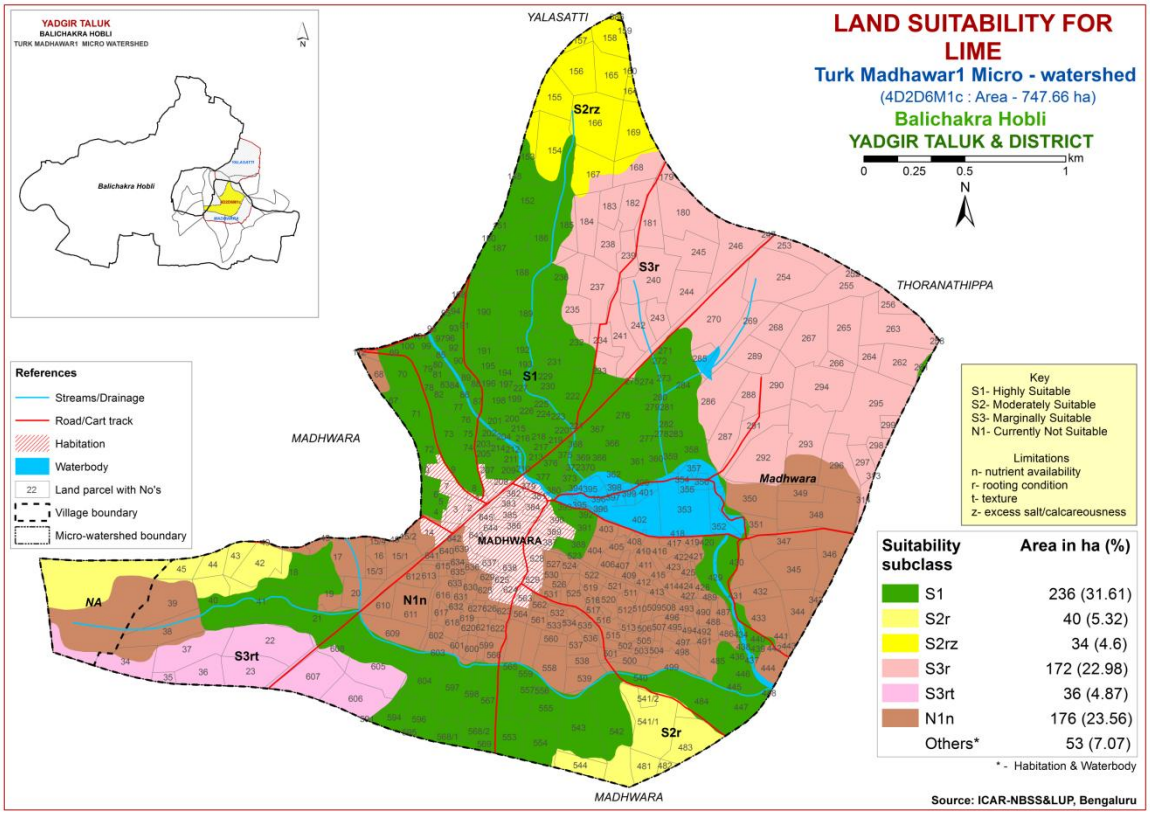


Fig. 7.20 Land suitability map of Lime

7.21 Land Suitability for Amla (*Phyllanthus emblica*)

Amla is one of the medicinal fruit crop grown in almost all the districts of the State. The crop requirements for growing amla (Table 7.22) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing amla was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.21.

Highly suitable (Class S1) lands for growing amla occur in an area of 149 ha (20%) and are distributed in the northern, central, southern and southwestern part of the microwatershed. Maximum area of about 333 ha (45%) is moderately suitable (Class S2) for amla and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture and calcareousness. An area of about 36 ha (5%) is marginally suitable (Class S3) and are distributed in the southwestern part of the microwatershed with moderate limitation of texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

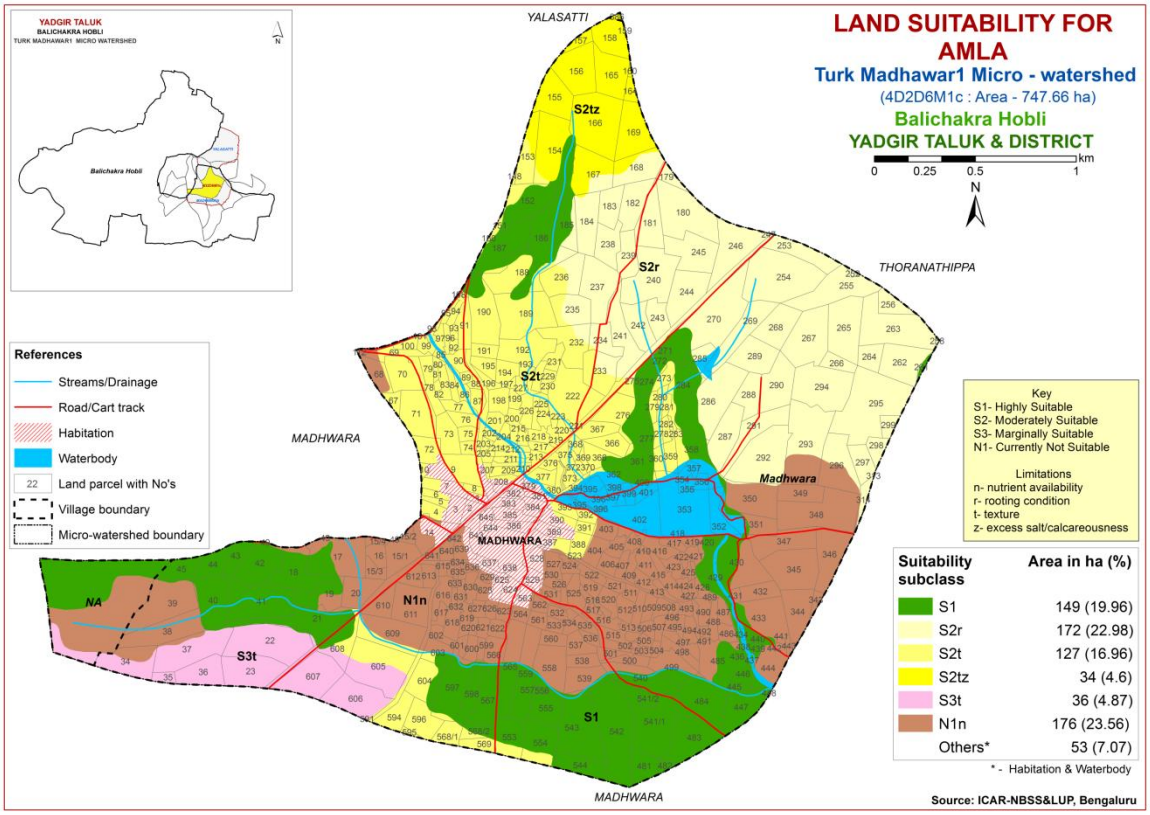


Fig. 7.21 Land suitability map of Amla

7.22 Land Suitability for Cashew (*Anacardium occidentale)*

Cashew is one of the most important plantation nut crop grown in an area of 0.7 lakh ha in almost all the districts of the state. The crop requirements for growing cashew (Table 7.23) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing cashew was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.22.

There are no highly suitable (Class S1) lands available for growing cashew in the microwatershed. An area of about 40 ha (5%) is moderately suitable (Class S2) for cashew and are distributed in the southern part of the microwatershed. They have minor limitations of rooting depth and texture. An area of about 140 ha (19%) is marginally suitable (Class S3) and are distributed in the eastern, northeastern and southwestern part of the microwatershed with moderate limitations of rooting depth and texture. Currently not suitable (Class N1) lands occur in a maximum area of about 515 ha (69%) and are distributed in the major part of the microwatershed with severe limitations of rooting depth, texture, calcareousness and nutrient availability.

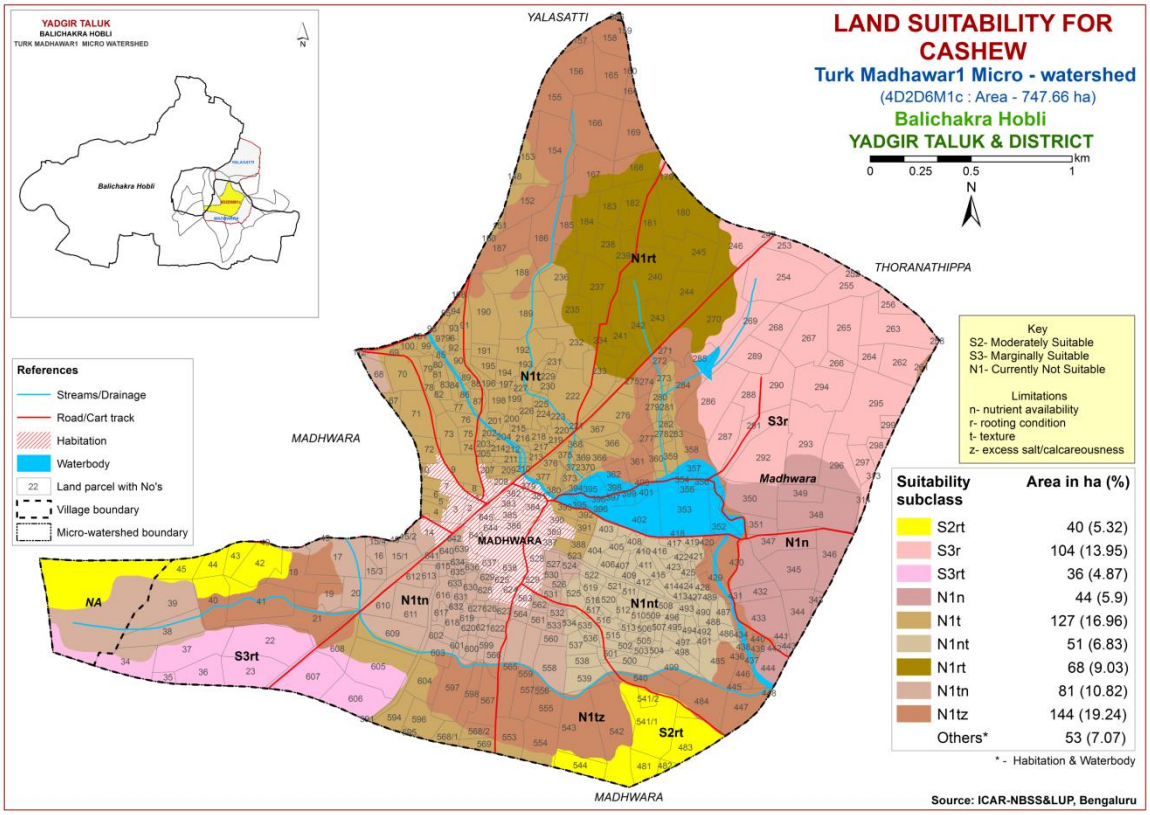


Fig. 7.22 Land suitability map of Cashew

7. 23 Land Suitability for Jackfruit (*Artocarpus heterophyllus*)

Jackfruit is one of the most important fruit crop grown in an area of 5368 ha in almost all the districts of the State. The crop requirements for growing jackfruit (Table 7.24) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing jackfruit was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed are given in Figure 7.23.

There are no highly suitable (Class S1) lands available for growing jackfruit in the microwatershed. An area of about 74 ha (10%) is moderately suitable (Class S2) for jackfruit and are distributed in the northern, southern and southwestern part of the microwatershed. They have minor limitations of rooting depth and calcareousness. Maximum area of about 444 ha (59%) is marginally suitable (Class S3) and are distributed in the major part of the microwatershed with moderate limitations of rooting depth and texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

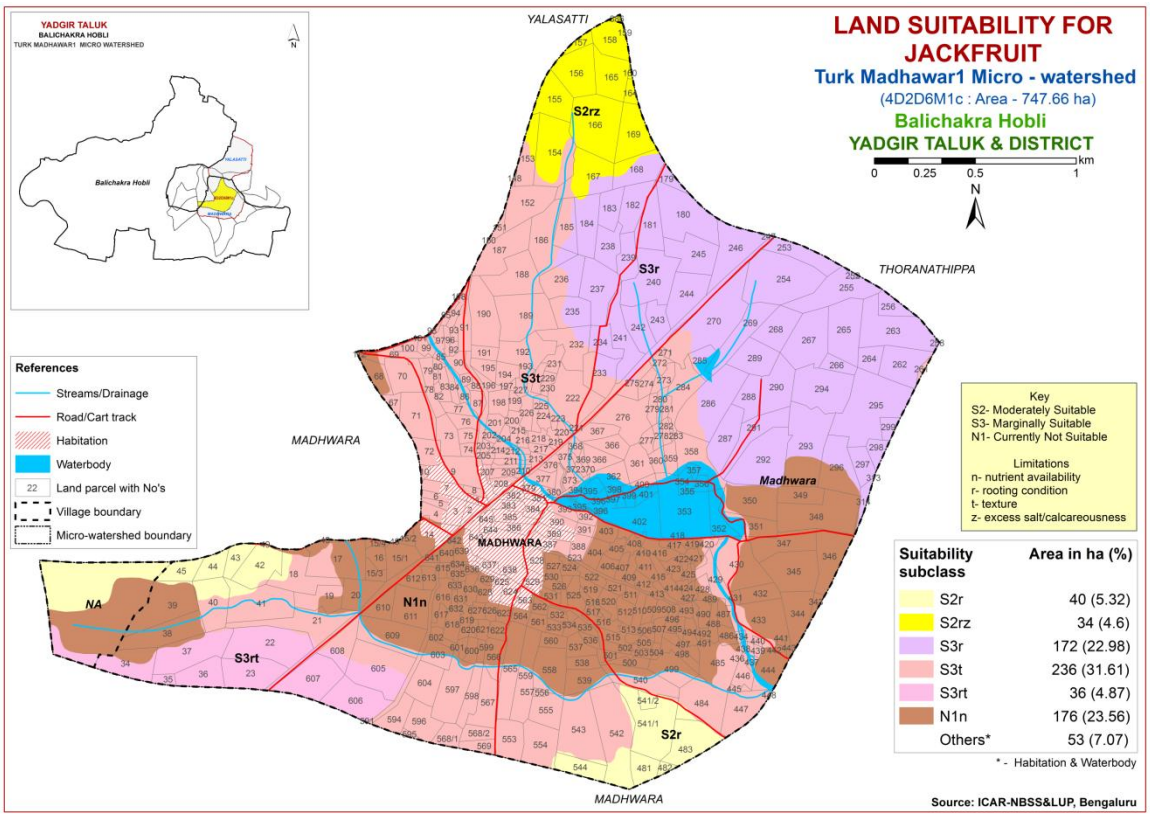


Fig. 7.23 Land suitability map of Jackfruit

7.24 Land Suitability for Jamun (*Syzygium cumini*)

Jamun is one of the important fruit crop grown in almost all the districts of the State. The crop requirements for growing jamun (Table 25) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing jamun was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.24.

There are no highly suitable (Class S1) lands available for growing jamun in the microwatershed. An area of about 236 ha (32%) is moderately suitable (Class S2) for jamun and are distributed in the western, central, southern and southwestern part of the microwatershed. They have minor limitation of texture. Maximum area of about 282 ha (38%) is marginally suitable (Class S3) and are distributed in the major part of the microwatershed with moderate limitations of rooting depth, calcareousness and texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

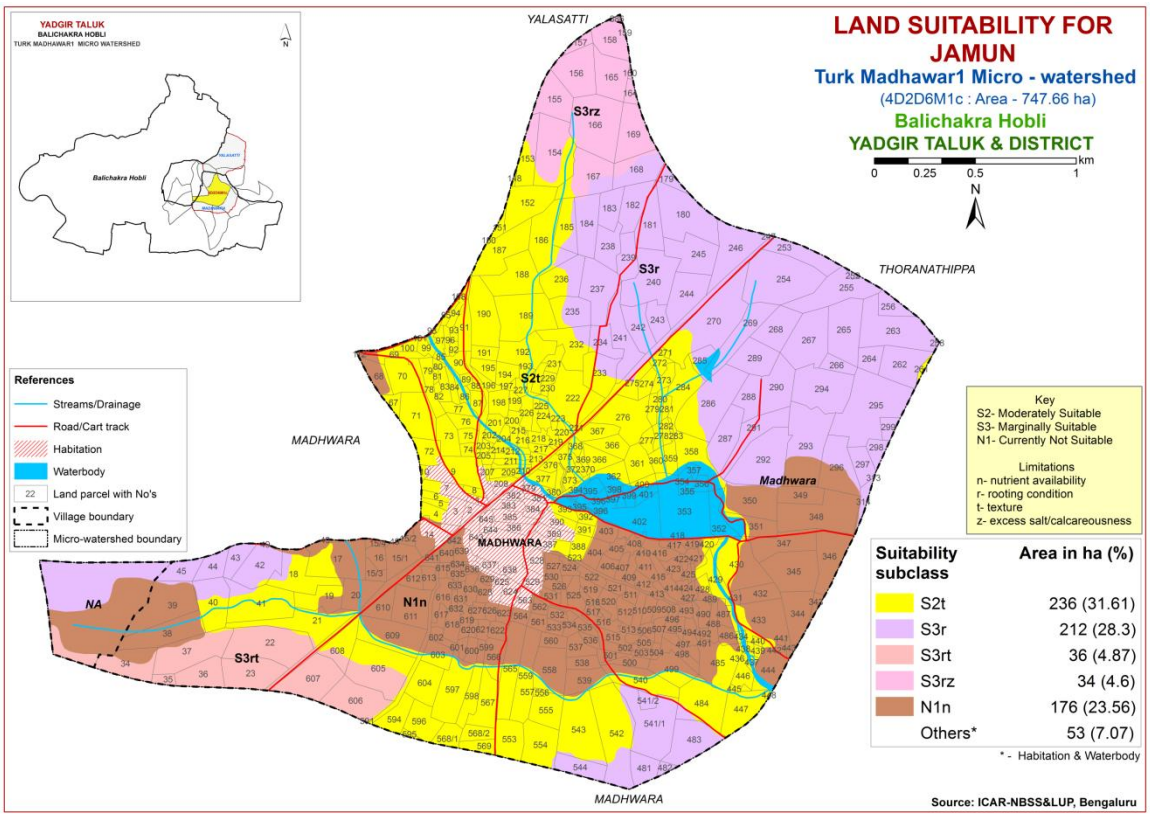


Fig. 7.24 Land suitability map of Jamun

7.25 Land Suitability for Custard Apple (*Annona reticulata*)

Custard apple is one of the most important fruit crop grown in almost all the districts of the State. The crop requirements for growing custard apple (Table7.26) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing custard apple was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.25.

Highly suitable (Class S1) lands for growing custard apple occur in a maximum area of 310 ha (42%) and are distributed in the major part of the microwatershed. An area of about 172 ha (23%) is moderately suitable (Class S2) for growing custard apple and are distributed in the eastern and northeastern part of the microwatershed. They have minor limitation of rooting depth. An area of about 36 ha (5%) is marginally suitable (Class S3) and are distributed in the southwestern part of the microwatershed with moderate limitation of texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

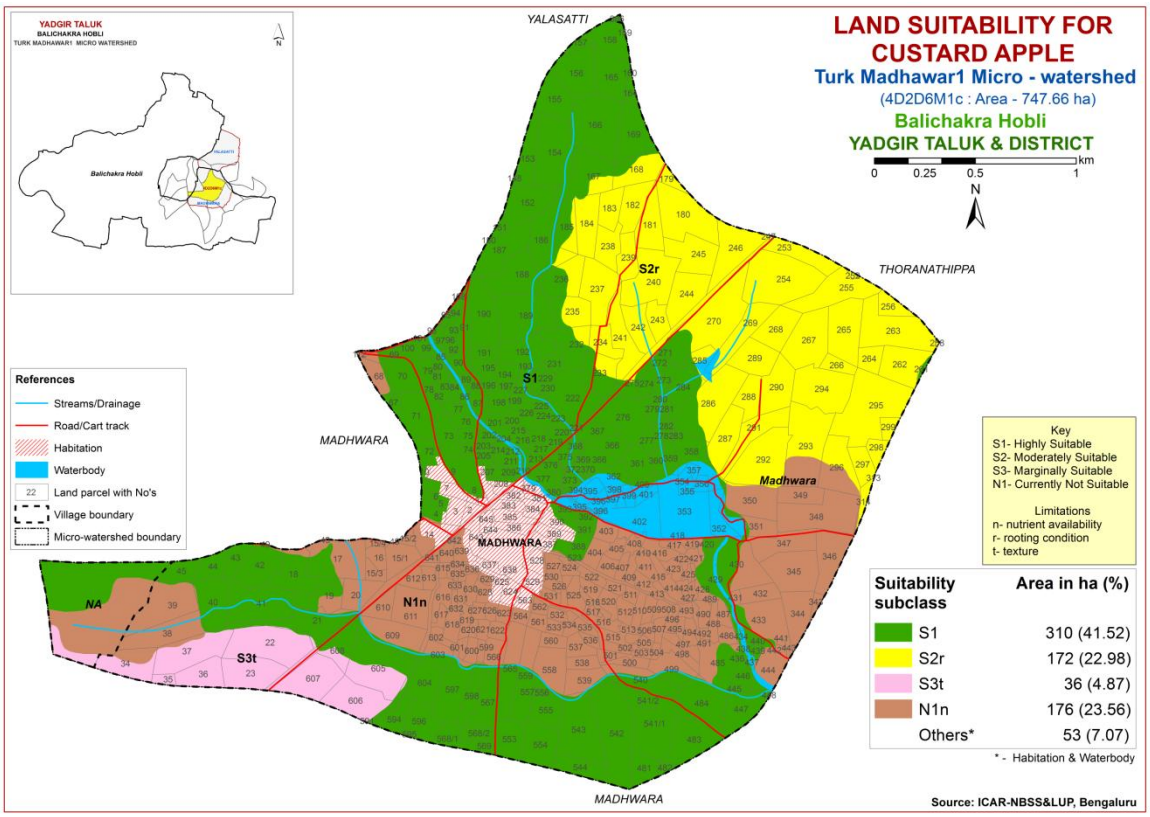


Fig. 7.25 Land suitability map of Custard Apple

7.26 Land Suitability for Tamarind (*Tamarindus indica*)

Tamarind is one of the most important spice crop grown in almost all the districts of the state. The crop requirements for growing tamarind (Table 7.27) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing tamarind was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Fig. 7.26.

There are no highly suitable (Class S1) lands available for growing tamarind in the microwatershed. Maximum area of about 236 ha (32%) is moderately suitable (Class S2) for tamarind and are distributed in the western, central, southern and southwestern part of the microwatershed. They have minor limitation of texture. An area of about 74 ha (10%) is marginally suitable (Class S3) and are distributed in the northern, southern and southwestern part of the microwatershed with moderate limitations of rooting depth and calcareousness. Currently not suitable (Class N1) lands occur in an area of about 384 ha (51%) and are distributed in the major part of the microwatershed with severe limitations of rooting depth and nutrient availability.

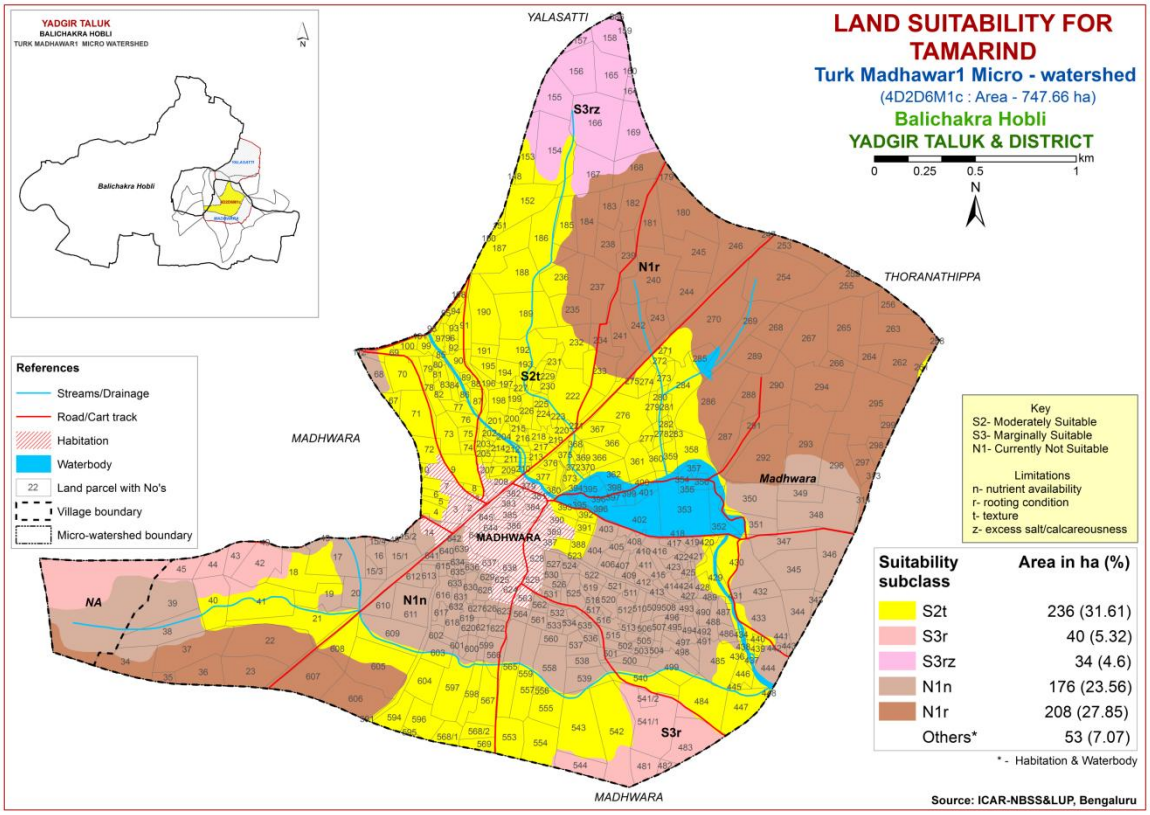


Fig. 7.26 Land suitability map of Tamarind

7.27 Land Suitability for Mulberry (*Morus nigra*)

Mulberry is one of the important leaf crop grown for rearing silkworms in about 1.6 lakh ha area in all the districts of the state. The crop requirements for growing mulberry (Table 7.28) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing mulberry was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.27.

There are no highly suitable (Class S1) lands available for growing mulberry in the microwatershed. An area of about 74 ha (10%) is moderately suitable (Class S2) for mulberry and are distributed in the northern, southern and southwestern part of the microwatershed. They have minor limitations of rooting depth and calcareousness. Maximum area of about 444 ha (59%) is marginally suitable (Class S3) and are distributed in the major part of the microwatershed with moderate limitations of rooting depth and texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

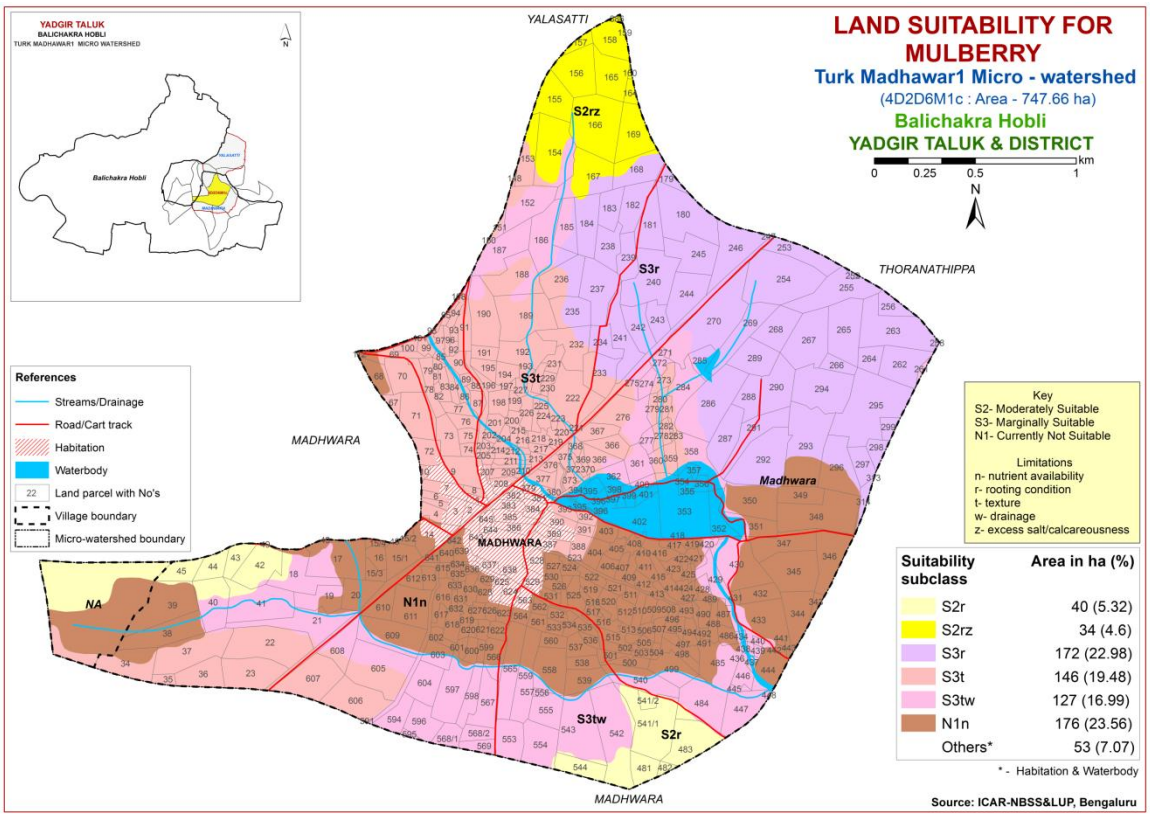


Fig 7.27 Land suitability map of Mulberry

7.28 Land suitability for Marigold (*Tagetes sps*.)

Marigold is one of the most important flower crop grown in an area of 9108 ha in almost all the districts of the State. The crop requirements (Table 7.29) for growing marigold were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing marigold was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed are given in Figure 7.28.

There are no highly suitable (Class S1) lands available for growing marigold in the microwatershed. Maximum area of about 483 ha (65%) is moderately suitable (Class S2) for marigold and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, drainage, gravelliness, calcareousness and texture. An area of about 36 ha (5%) is marginally suitable (Class S3) and are distributed in the southwestern part of the microwatershed with moderate limitation of texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

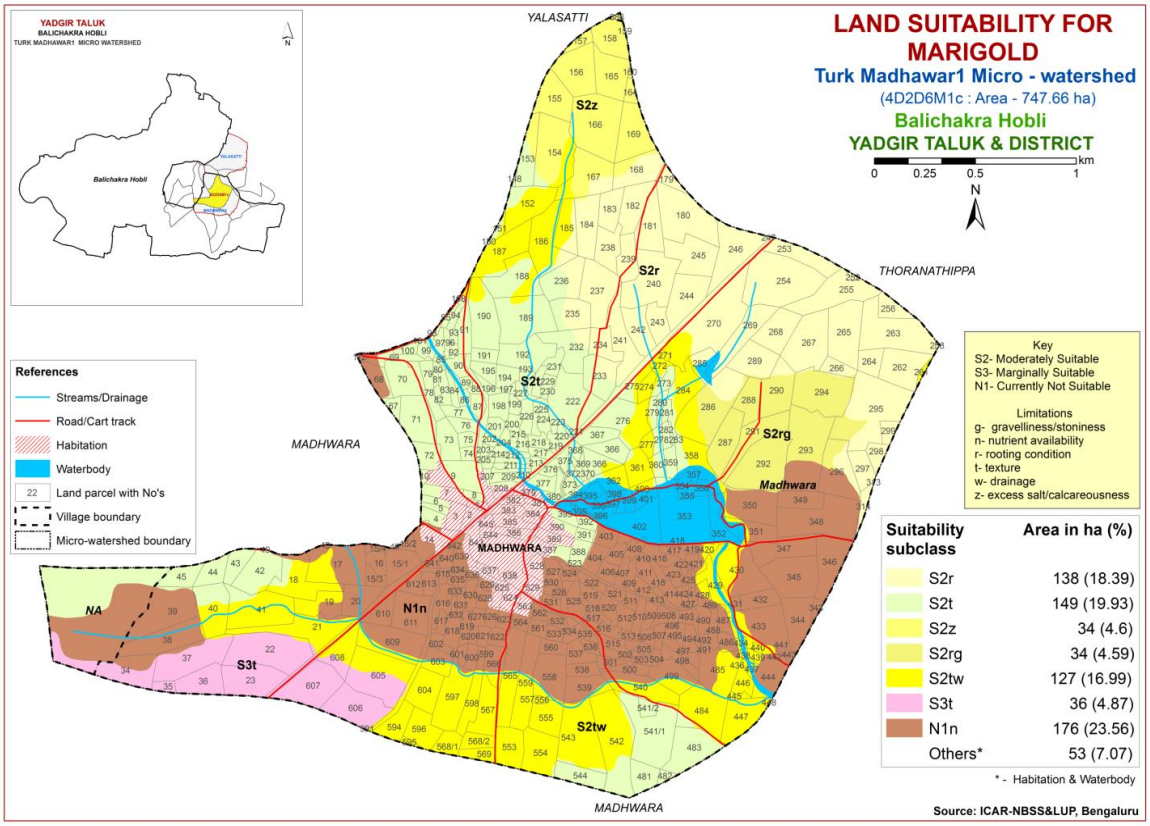


Fig. 7.28 Land suitability map of Marigold

7.29 Land Suitability for Chrysanthemum (*Dendranthema grandiflora*)

Chrysanthemum is one of the most important flower crop grown in an area of 4978 ha in almost all the districts of the State. The crop requirements (Table 7.30) for growing chrysanthemum were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing chrysanthemum was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed are given in Figure 7.29.

There are no highly suitable (Class S1) lands available for growing chrysanthemum in the microwatershed. Maximum area of about 483 ha (65%) is moderately suitable (Class S2) for chrysanthemum and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, drainage, gravelliness, calcareousness and texture. An area of about 36 ha (5%) is marginally suitable (Class S3) and are distributed in the southwestern part of the microwatershed with moderate limitation of texture. Currently not suitable (Class N1) lands occur in an area of 176 ha (24%) and are distributed in the western, southeastern, southwestern and southern part of the microwatershed with severe limitation of nutrient availability.

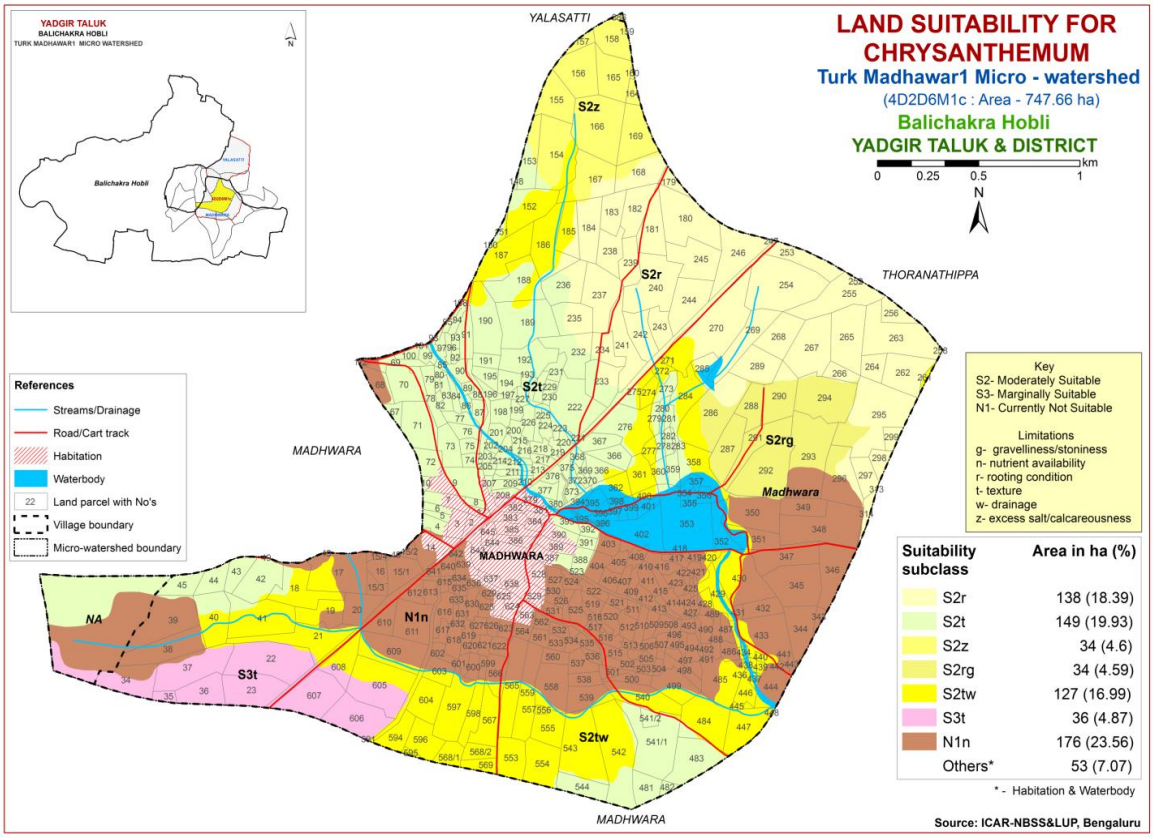


Fig. 7.29 Land suitability map of Chrysanthemum

Table 7.1 Soil-Site Characteristics of Gajarkot-2 Microwatershed

Soil Map Units	Climate (P) (mm)	Growing period (Days)	Drain-age Class	Soil depth (cm)	Soil texture		Gravelliness		AWC (mm/m)	Slope (%)	Erosion	pH	EC (dSm^{-1})	ESP (%)	CEC [Cmol (p^{+})kg^{-1}]	BS (%)
					Sur-face	Sub-surface	Surface (%)	Sub-surface (%)								
GWDcB2	866	150	MW	75-100	sl	scl	<15	<15	101-150	1-3	Moderate	9.89	0.74	17.40	8.35	100
GWDiB2	866	150	MW	75-100	sc	scl	<15	<15	101-150	1-3	Moderate	9.89	0.74	17.40	8.35	100
TMKiB2	866	150	MW	>150	sc	c	<15	<15	>200	1-3	Moderate	9.60	0.35	6.63	21.83	100
SGRmB2	866	150	MW	>150	c	c	<15	<15	>200	1-3	Moderate	8.3	6.49	11.61	34.77	100
HSLiB2	866	150	MW	75-100	sc	sc	<15	<15	101-150	1-3	Moderate	7.16	0.117	5.94	4.90	97
NGPmB2	866	150	MW	100-150	c	c	<15	<15	>200	1-3	Moderate	7.42	0.24	0.22	67.10	100
MDRmB2	866	150	W	>150	c	scl	<15	<15	>200	1-3	Moderate	8.31	0.33	0.90	20.57	100
KDRcB2	866	150	MW	100-150	sl	c	<15	<15	>200	1-3	Moderate	8.34	0.15	0.09	33.20	100
KDRmB2	866	150	MW	100-150	c	c	<15	<15	>200	1-3	Moderate	8.34	0.15	0.09	33.20	100
PGPcB2	866	150	W	75-100	sl	sc	<15	<15	51-100	1-3	Moderate	6.83	0.210	2.83	3.15	100
PGPiB2	866	150	W	75-100	sc	sc	<15	<15	51-100	1-3	Moderate	6.83	0.210	2.83	3.15	100
YLRbB2	866	150	W	50-75	ls	c	<15	15-35	51-100	1-3	Moderate	6.91	0.069	0.45	6.90	100
YLRcB2g1	866	150	W	50-75	sl	c	15-35	15-35	51-100	1-3	Moderate	6.91	0.069	0.45	6.90	100
YLRiB2	866	150	W	50-75	sc	c	<15	15-35	51-100	1-3	Moderate	6.91	0.069	0.45	6.90	100
JNKiB2	866	150	W	50-75	sc	scl	<15	<15	51-100	1-3	Moderate	8.42	0.148	0.18	14.50	100
SBRcB2	866	150	sed	50-75	sl	ls	<15	<15	<50	1-3	Moderate	8.24	0.145	1.15	7.50	100

*Symbols and abbreviations are according to Field Guide for LRI under Sujala-III Project, Karnataka

Table 7.2 Land suitability criteria for Sorghum

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	26–30	30–34; 24–26	34–40; 20–24	>40; <20
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V.poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sc, c (red), c (black)	scl, cl	ls, sl	-
	pH	1:2.5	5.5-7.8	5.0-5.5 7.8-9.0	>9.0	-
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	10-15
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	5-10	10-15	>15	
Erosion hazard	Slope	%	0-3	3-5	5-10	>10

Table 7.3 Land suitability criteria for Maize

Land use requirement			Rating			
Soil –site characteristics		Unit	Highly suitable (S1)	Moderately suitable (S2)	Marginally suitable (S3)	Not suitable (N1)
Climatic regime	Mean temperature in growing season	°C	30-34	35-38 26-30	38-40 26-20	
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	Very poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc	c (red), c (black)	ls, sl	-
	pH	1:2.5	5.5-7.8	5.0-5.5 7.8-9.0	>9.0	-
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	5-10	10-15	>15	-
Erosion hazard	Slope	%	0-3	3-5	5-10	>10

Table 7.4 Land suitability criteria for Bajra

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	28-32	33-38 24-27	39-40 20-23	<20
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm	500-750	400-500	200-400	<200
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	Very poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sl, scl, cl,sc,c (red)	c (black)	ls	-
	pH	1:2.5	6.0-7.8	5.0-5.5 7.8-9.0	5.5-6.0 >9.0	
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	15-35	35-60	>60	
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	5-10	10-15	>15	
Erosion hazard	Slope	%	1-3	3-5	5-10	>10

Table 7.5 Land suitability criteria for Groundnut

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	24–33	22–24; 33–35	20–22; 35–40	<20; >40
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Mod. Well drained	Poorly drained	Very Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl	sl,cl, sc	c (red), c (black), ls	-
	pH	1:2.5	6.0-7.8	5.5-6.0 7.8-8.4	5.0-5.5 8.4-9.0	>9.0
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<35	35-60	>60	
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.6 Land suitability criteria for Sunflower

Land use requirement			Rating			
Soil –site characteristics		Unit	Highly suitable (S1)	Moderately suitable (S2)	Marginally suitable (S3)	Not suitable (N1)
Climatic regime	Mean temperature in growing season	°C	24–30	30–34; 20–24	34–38; 16–20	>38; <16
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	mod. Well drained	-	Poorly to very drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	cl, sc,c (red), c (black)	scl	ls, sl	-
	pH	1:2.5	6.5-7.8	7.8-8.4 5.5-6.5	8.4-9.0; 5.0-5.5	>9.0
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.7 Land suitability criteria for Redgram

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	30-35(G) 20-25(AV) 15-18 (F&PS) 35-40(M)	25-30(G) 20-25 (AV) 12-15 (F&PS) 30-35(M)	20-25(G) 15-20(AV) 10-12 (F&PS) 25-30(M)	< 20 <15 <10 <25
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Mod. Well drained	Poorly drained	Very Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sc, c (red)	c (black),sl, scl, cl	ls	-
	pH	1:2.5	6.0-7.8	5.5-6.0 7.8-9.0	5.0-5.5 >9.0	-
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-50	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<1.0	1.0-2.0	>2.0	
	Sodicity (ESP)	%	5-10	10-15	>15	
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.8 Land suitability criteria for Bengal gram

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	20–25	25–30; 15–20	30–35; 10–15	>35; <10
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Mod. Well drained	Poorly drained	Very Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	c(black)	-	c (red), scl, cl, sc	ls, sl
	pH	1:2.5	6.0-7.8	5.0-6.0 7.8-9.0	>9.0	-
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	5-10	10-15	>15	-
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.9 Land suitability criteria for Cotton

Land use requirement			**Rating**			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	22-32	>32	<19	-
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well to moderately well	Poorly drained/Some what excessively drained	-	very poorly/excessively drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sc, c (red,black)	cl	scl	ls, sl
	pH	1:2.5	6.5-7.8	7.8-8.4	5.5-6.5 8.4->9.0	<5.5
	CEC	C mol (p+)Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	50-100	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	5-10	10-15	>15	
Erosion hazard	Slope	%	<3	3-5	-	>5

Table 7.10 Land suitability criteria for Chilli

Land use requirement			Rating			
Soil –site characteristics		Unit	Highly suitable (S1)	Moderately suitable (S2)	Marginally suitable (S3)	Not suitable (N1)
Climatic regime	Mean temperature in growing season	°C	25-32	33-35 20-25	35-38 <20	>38
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	Very poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc	c (black), sl	ls	-
	pH	1:2.5	6.0-7.3	5.0-6.0 7.3-8.4	8.4-9.0	>9.0
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.11 Land suitability criteria for Tomato

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	25-28	29-32 20-24	15-19 33-36	<15 >36
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V.poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sl, scl, cl, sc, c (red)	-	ls, c(black)	-
	pH	1:2.5	6.0-7.3	5.0-6.0 7.3-8.4	8.4-9.0	>9.0
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.12 Land suitability criteria for Brinjal

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	Well drained	Moderately well drained	Poorly drained	V. Poorly drained
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class				
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sl, scl, cl, sc c (red)	-	ls, c (black)	-
	pH	1:2.5	6.0-7.3	7.3-8.4 5.0-6.0	8.4-9.0	>9.0
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	>60
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.13 Land suitability criteria for Onion

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	20-30	30-35	35-40	>40
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately /imperfectly	-	Poorly to V poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sl,scl,cl,sc,c (red)	-	c (Black),ls	-
	pH	1:2.5	6.0-7.3	5.0-6.0 7.3-7.8	7.8-8.4	>8.4
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<1.0	1.0-2.0	2.0-4.0	<4
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.14 Land suitability criteria for Bhendi

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	25-28	29-32 20-24	15-19 33-36	<15 >36
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Imperfectly drained	Poorly to very poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl,sc, c (red)	c (black)	ls	-
	pH	1:2.5	6.0-7.3	5.0-6.0 7.3-8.4	8.4-9.0	>9.0
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.15 Land suitability criteria for Drumstick

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C				
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V.Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sc, scl, cl, c (red)	sl, c (black)	ls	s
	pH	1:2.5	6.0-7.3	5.0-5.5 7.3-7.8	5.5-6.0 7.8-8.4	>8.4
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	<35	35-60	60-80	>80
Soil toxicity	Salinity (EC saturation extract)	ds/m				
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-10	-	>10

Table 7.16 Land suitability criteria for Mango

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	28-32	24-27 33-35	36-40	20-24
	Min temp. before flowering	^{0}C	10-15	15-22	>22	-
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration	Days				
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V. Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc, c (red)	-	ls, sl, c (black)	-
	pH	1:2.5	5.5-7.3	5.0-5.5 7.3-8.4	8.4-9.0	>9.0
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>150	100-150	75-100	<75
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.17 Land suitability criteria for Guava

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	28-32	33-36 24-27	37-42 20-23	
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V.Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc, c (red)	sl	c (black), ls	-
	pH	1:2.5	6.0-7.8	5.0-6.0	7.8-8.4	>8.4
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.18 Land suitability criteria for Sapota

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	28-32	33-36 24-27	37-42 20-23	>42 <18
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	-	Poorly to very drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc, c (red)	sl	ls, c (black)	-
	pH	1:2.5	6.0-7.3	5.0-6.0 7.3-8.4	8.4-9.0	>9.0
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.19 Land suitability criteria for Pomegranate

Land use requirement			Rating			
Soil –site characteristics		Unit	Highly suitable (S1)	Moderately suitable (S2)	Marginally suitable (S3)	Not suitable (N1)
Climatic regime	Mean temperature in growing season	°C	30-34	35-38 25-29	39-40 15-24	
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V.Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl,cl, sc, c (red)	c (black),sl	ls	-
	pH	1:2.5	5.5-7.8	7.8-8.4	5.0-5.5 8.4-9.0	>9.0
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.20 Land suitability criteria for Musambi

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	28-30	31-35 24-27	36-40 20-23	>40 <20
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately drained	poorly	Very poorly
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc, c	sl	ls	-
	pH	1:2.5	6.0-7.8	5.5-6.0 7.8-8.4	5.0-5.5 8.4-9.0	>9.0
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.21 Land suitability criteria for Lime

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	28-30	31-35 24-27	36-40 20-23	>40 <20
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately drained	poorly	Very poorly
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc, c	sl	ls	-
	pH	1:2.5	6.0-7.8	5.5-6.0 7.8-8.4	5.0-5.5 8.4-9.0	>9.0
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.22 Land suitability criteria for Amla

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C				
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Mod. well drained	Poorly drained	V. Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc, c (red)	c (black)	ls, sl	-
	pH	1:2.5	5.5-7.3	5.0-5.5 7.3-7.8	7.8-8.4	>8.4
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15-35	35-60	60-80	-
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	0-3	3-5	5-10	>10

Table 7.23 Land suitability criteria for Cashew

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	32 to 34	28 to 32; 34 to 38	24 to 28; 38 to 40	<20; >40
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	moderately well drained	Poorly drained	Very poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc, c (red)	-	sl, ls	c (black)
	pH	1:2.5	5.5-6.5	5.0-5.5 6.5-7.3	7.3-7.8	>7.8
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	<3	3-10	>10	-

Table 7.24 Land suitability criteria for Jackfruit

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C				
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Mod. well	Poorly	V. Poorly
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc, c (red)	-	sl, ls, c (black)	-
	pH	1:2.5	5.5-7.3	5.0-5.5 7.3-7.8	7.8-8.4	>8.4
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	>60
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	0-3	3-5	5-10	>10-

Table 7.25 Land suitability criteria for Jamun

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C				
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well	Mod. well	Poorly	V.Poorly
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl, sc, c(red)	sl, c (black)	ls	-
	pH	1:2.5	6.0-7.8	5.0-6.0	7.8-8.4	>8.4
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>150	100-150	50-100	<50
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	>60
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	0-3	3-5	5-10	>10

Table 7.26 Land suitability criteria for Custard apple

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C				
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Mod. well drained	Poorly drained	V.Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	Scl, cl, sc, c (red), c (black)	-	Sl, ls	-
	pH	1:2.5	6.0-7.3	5.5-6.0 7.3-8.4	5.0-5.5 8.4-9.0	>9.0
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15-35	35-60	60-80	-
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	0-3	3-5	>5	-

Table 7.27 Land suitability criteria for Tamarind

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C				
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Mod.well drained	Poorly drained	V.Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	scl, cl,sc, c (red)	sl, c (black)	ls	-
	pH	1:2.5	6.0-7.3	5.0-6.0 7.3-7.8	7.8-8.4	>8.4
	CEC	C mol (p+)/ Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>150	100-150	75-100	<75
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	0-3	3-5	5-10	>10

Table 7.28 Land suitability criteria for Mulberry

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	24–28	22–24; 28–32	32–38; 22–18	>38; <18
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V. Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sc, cl, scl	c (red)	c (black), sl, ls	-
	pH	1:2.5	5.5-7.3	5.0-5.5 7.8-8.4	7.3-8.4	>8.4
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>100	75-100	50-75	<50
	Stoniness	%				
	Coarse fragments	Vol %	0-35	35-60	60-80	>80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2	2-4	4-8	>8
	Sodicity (ESP)	%	<5	5-10	10-15	>15
Erosion hazard	Slope	%	0-3	3-5	5-10	>10

Table 7.29 Land suitability criteria for Marigold

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	18-23	17-15 24-35	35-40 10-14	>40 <10
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V.Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sl,scl, cl, sc, c (red)	c (black)	ls	-
	pH	1:2.5	6.0-7.3	5.0-6.0 7.3-8.4	8.4-9.0	>9.0
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%				
Erosion hazard	Slope	%	<3	3-5	5-10	>10

Table 7.30 Land suitability criteria for Chrysanthemum

Land use requirement			Rating			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N1)**
Climatic regime	Mean temperature in growing season	°C	18-23	17-15 24-35	35-40 10-14	>40 <10
	Mean max. temp. in growing season	°C				
	Mean min. tempt. in growing season	°C				
	Mean RH in growing season	%				
	Total rainfall	mm				
	Rainfall in growing season	mm				
Land quality	Soil-site characteristic					
Moisture availability	Length of growing period for short duration	Days				
	Length of growing period for long duration					
	AWC	mm/m				
Oxygen availability to roots	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V.Poorly drained
	Water logging in growing season	Days				
Nutrient availability	Texture	Class	sl,scl, cl, sc, c (red)	c (black)	ls	-
	pH	1:2.5	6.0-7.3	5.0-6.0 7.3-8.4	8.4-9.0	>9.0
	CEC	C mol (p+)/Kg				
	BS	%				
	CaCO3 in root zone	%		<5	5-10	>10
	OC	%				
Rooting conditions	Effective soil depth	cm	>75	50-75	25-50	<25
	Stoniness	%				
	Coarse fragments	Vol %	<15	15-35	35-60	60-80
Soil toxicity	Salinity (EC saturation extract)	ds/m	<2.0	2-4	4-8	>8.0
	Sodicity (ESP)	%				
Erosion hazard	Slope	%	<3	3-5	5-10	>10

7.30 Land Management Units (LMUs)

The 16 soil map units identified in Turk Madhawar 1 microwatershed have been grouped into 9 Land Management Units (LMU's) for the purpose of preparing a Proposed Crop Plan. Land Management Units are grouped based on the similarities in respect of the type of soil, the depth of the soil, the surface soil texture, gravel content, AWC, slope, erosion etc. and a Land Management Units map (Fig. 7.30) has been generated. These Land Management Units are expected to behave similarly for a given level of management.

The 16 map units that have been grouped into 9 Land Management Units along with brief description of soil and site characteristics are given below.

LMU	Soil map units	Soil and site characteristics
1	34.GWDcB2 35.GWDiB2 104.TMKiB2 106.SGRmB2	Moderately deep to very deep (75 to > 150cm), 1-3% slopes, non- gravelly (<15 %), moderate erosion
2	33.HSLiB2	Moderately deep (75 - 100cm), 1-3% slopes, non-gravelly (<15 %), moderate erosion
3	49.NGPmB2	Deep (100 – 150cm), 1-3% slopes, non- gravelly (<15%), moderate erosion
4	61.MDRmB2	Very deep (> 150cm), 1-3% slopes, non- gravelly (<15%), moderate erosion
5	84.KDRcB2 89.KDRmB2	Deep (100 – 150cm), 1-3% slopes, non- gravelly (<15%), moderate erosion
6	40.PGPcB2 41.PGPiB2	Moderately deep (75 - 100cm), 1-3% slopes, non-gravelly (<15 %), moderate erosion
7	27.YLRbB2 29.YLRcB2g1 31.YLRiB2	Moderately shallow (50 - 75cm), 1-3% slopes, non-gravelly to gravelly (<15 - 35 %), moderate erosion
8	22.JNKiB2	Moderately shallow (50 - 75cm), 1-3% slopes, non-gravelly (<15%), moderate erosion
9	11.SBRcB2	Moderately shallow (50 - 75cm), 1-3% slopes, non-gravelly (<15%), moderate erosion

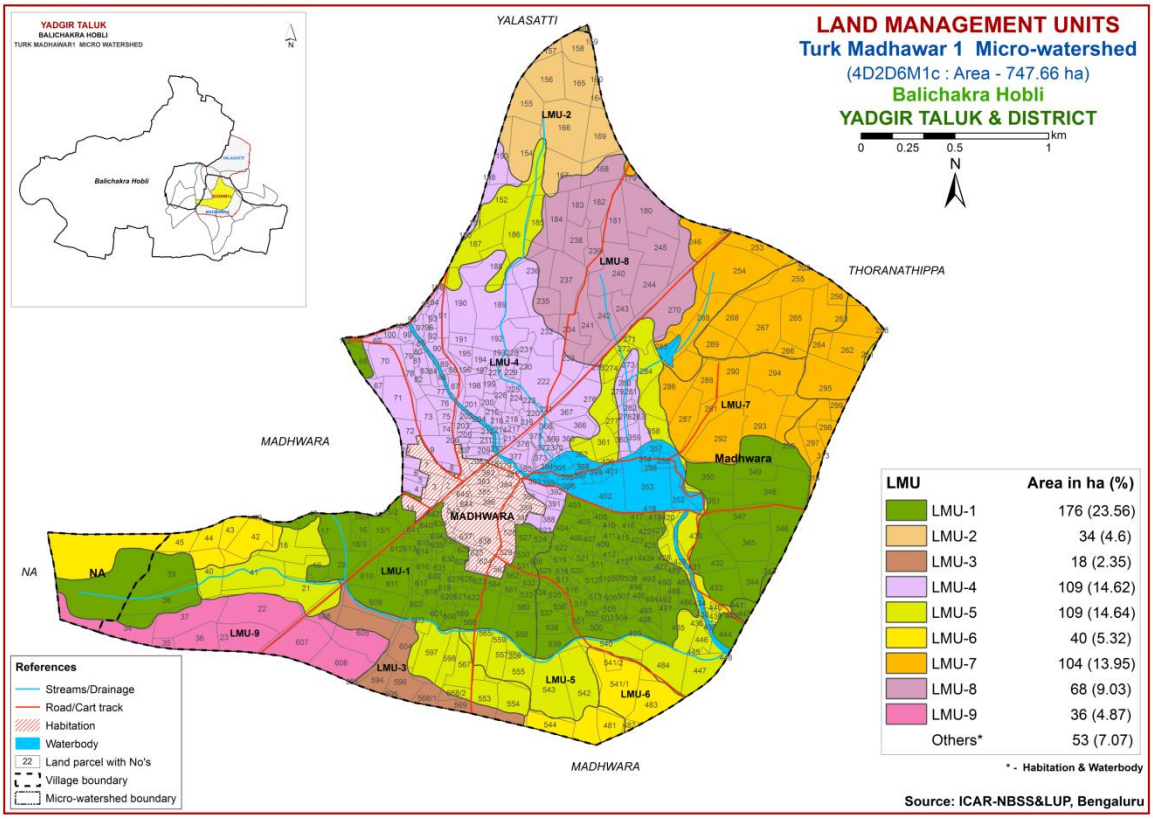


Fig. 7.3 Land Management Units Map-Turk Madhawar 1 microwatershed

7.31 Proposed crop plan for Turk Madhawar 1 microwatershed

After assessing the land suitability for the 29 crops, the Proposed Crop Plan has been prepared for the 9 identified LMUs by considering only the highly (Class S1) and moderately (Class S2) suitable lands for each of the 29 crops. The resultant proposed crop plan is presented below in Table 7.31.

Table 7.31 Proposed crop plan for Turk Madhawar 1 microwatershed

LMU	Soil Map Units	Survey Number	Soil Characteristics	Field Crops/ Commercial crops	Horticulture Crops (Rainfed/Irrigated)	Suitable Interventions
1	34.GWDcB2 35.GWDiB2 104.TMKiB2 106.SGRmB2 (Moderately deep to very deep, sodic soils)	**Madhwara:**15/1,15/2,15/3,15/4,16,17,20,38,39,49,68,112,296,343,344,345,346,347,348,349,350,351403,404,405,406,407,408,409,410,411,412,413,414,415,416,417,418,419,421,422,423,424,425,426,427,428,430,431,432,433,441,442,443,444,486,487,488,489,490,491,492,493,494,495,496,497,498,499,500,501,502,503,504,505,506,507,508,509,510,511,512,513,514,515,516,517,518,519,520,521,522,523,524,525,526,527,530,531,532,533,534,535,536,537,538,539,558,560,561,562,564,565,566,599,600,601,602,603,609,610,611,612,613,614,615,616,617,618,619,620,621,622,623,626,627,628,629,630,631,632,633,634,635,636,639,640,641,642	Moderately deep to very deep (75 to > 150cm), 1-3% slopes, non-gravelly (<15 %), moderate erosion	-	**Agri-Silvi-Pasture** Ber, Aonla, Acacia sp. Dhaincha, Rhodes grass, Para grass, Bermuda grass	Application of gypsum, iron pyrites and elemental sulphur. Addition of farm yard manures, green manures and providing subsurface drainage
2	33.HSLiB2 (Moderately deep black clay soils)	**Madhwara:**154,155,156,157,158,159,160,164,165,166,167,169	Moderately deep (75 - 100cm), 1-3% slopes, non-gravelly (<15 %), moderate erosion	Sunflower, Sorghum, Maize, Groundnut, Red gram, Bajra, Bengal gram, Safflower, Linseed	**Fruit crops:** Musambi, Sapota, Pomegranate, Amla, Custard apple, Guava, Jackfruit, Lime **Vegetables:** Tomato, Onion**,** Bhendi, Chilli, Brinjal, Drumstick, Coriander **Flowers:** Marigold, Chrysanthemum	Application of FYM, biofertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices

LMU	Soil Map Units	Survey Number	Soil Characteristics	Field Crops/ Commercial crops	Horticulture Crops (Rainfed/Irrigated)	Suitable Interventions
3	49.NGPmB2 (Deep, black calcareous clay soils)	**Madhwara:**568/1,569,594,595,596,604	Deep (100 – 150cm), 1-3% slopes, non-gravelly (<15%), moderate erosion	Maize, Sorghum, Sunflower, Cotton, Redgram, Bengalgram, Bajra	**Fruit crops:** Pomegranate Custard apple **Vegetables:** Chilli, Bhendi **Flowers:** Marigold, Chrysanthemum	Application of FYM, biofertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices
4	61.MDRmB2 (very deep sandy clay loam soils)	**Madhwara:**4,5,6,9,8,10,67,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100,101,108,148,150,151,153,188,189,190,191,192,193,194,195,196,197,198,199,200,201,202,203,204,205,206,207,209,210,211,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,228,229,230,231,232,233,236,273,276,278,279,280,281,282,283,359,360,366,367,368,369,370,371,372,373,374,375,376,377,380,388,391,392,393	Very deep (> 150cm), 1-3% slopes, non-gravelly (<15%), moderate erosion	Sunflower, Sorghum, Maize, Groundnut, Red gram, Bajra	**Fruit crops:** Mango, Musambi, Sapota, Tamarind, Pomegranate, Amla, Custard apple, Guava, Jackfruit, Jamun, Lime **Vegetables:** Tomato, Onion**,** Bhendi, Chilli, Brinjal, Drumstick, Coriander **Flowers:** Marigold, Chrysanthemum	Application of FYM, biofertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices
5	84.KDRcB2 89.KDRmB2 (Deep, black calcareous clay soils)	**Madhwara:**19,21,18,40,41,152,185,186,187,261,271,272,274,275,277,284,358,361,362,400,420,429,434,436,437,438,439,440,445,446,447,448,484,485,540,542,543,553,554,555,556,557,559,567,568/2,597,598,608	Deep (100 – 150cm), 1-3% slopes, non-gravelly (<15%), moderate erosion	Maize, Sorghum, Sunflower, Cotton, Red gram, Bengalgram, Bajra	**Fruit crops:** Lime, Musambi, Custard apple, Pomegranate **Vegetables:** Chilli, Bhendi **Flowers:** Marigold, Chrysanthemum	Application of FYM, biofertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices
6	40.PGPcB2 41.PGPiB2 (Moderately	**Madhwara:**42,43,44,45,481,482,483,541/1,541/2,544	Moderately deep (75 - 100cm), 1-3% slopes, non-	Maize, Sorghum Groundnut, Bajra, Sunflower, Red	**Fruit crops:** Amla, Custard apple, Guava, Jackfruit, Lime,	Drip irrigation, mulching, suitable soil and water

LMU	Soil Map Units	Survey Number	Soil Characteristics	Field Crops/ Commercial crops	Horticulture Crops (Rainfed/Irrigated)	Suitable Interventions
	deep, red sandy clay soils)		gravelly (<15 %), moderate erosion	gram, Cotton, Mulberry	Musambi, Pomegranate **Vegetables:** Tomato, Chilli, Drumstick, Onion, Bhendi, Brinjal **Flowers:** Marigold, Chrysanthemum	conservation practices (Crescent Bunding with Catch Pit etc)
7	27.YLRbB2 29.YLRcB2g1 31.YLRiB2 (Moderately shallow, red clay soils)	**Madhwara:**246,247,252,253,254,255,256,258,262,263,264,265,266,267,268,269,285,286,287,288,289,290,291,292,293,294,295,297,298,299,313,314	Moderately shallow (50 - 75cm), 1-3% slopes, non-gravelly to gravelly (<15 - 35 %), moderate erosion	Maize, Sorghum, Cotton, Bajra	**Fruit crops:** Amla, Custard apple **Vegetables:** Tomato, Onion**,** Bhendi, Chilli, Brinjal **Flowers:** Marigold, Chrysanthemum	Drip irrigation, mulching, suitable soil and water conservation practices (Crescent Bunding with Catch Pit etc)
8	22.JNKiB2 (Moderately shallow, sandy clay loam soils)	**Madhwara:**168,179,180,181,182,183,184,234,235,237,238,239,240,241,242,243,244,245,270	Moderately shallow (50 - 75cm), 1-3% slopes, non-gravelly (<15%), moderate erosion	Maize, Sorghum Groundnut, Bajra	**Fruit crops:** Amla, Custard apple **Vegetables:** Tomato, Chilli, Brinjal, Bhendi, Onion **Flowers:** Marigold, Chrysanthemum	Application of FYM, biofertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices
9	11.SBRcB2 (Moderately shallow, loamy sand soils)	**Madhwara:**22,23,34,35,36,37,591,605,606,607	Moderately shallow (50 - 75cm), 1-3% slopes, non-gravelly (<15%), moderate erosion	-	**Agri-Silvi-Pasture:** Hybrid Napier, *Styloxanthes hamata, Styloxanthes scabra*	Application of FYM, biofertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices

Chapter 8

SOIL HEALTH MANAGEMENT

8.1 Soil Health

Soil health is basic to plant health and plant health is basic to human and bovine health. Soil is fundamental to crop production. Without soil, no food could be produced nor would livestock be fed on a large scale. Because it is finite and fragile, soil is a precious resource that requires special care from its users.

Soil health or the capacity of the soil to function is critical to human survival. Soil health has been defined as: "the capacity of the soil to function as a living system without adverse effect on the ecosystem". Healthy soils maintain a diverse community of soil organisms that help to form beneficial symbiotic associations with plant roots, recycle essential plant nutrients, improve soil structure with positive repercussions for soil, water and nutrient holding capacity and ultimately improve crop production and also contribute to mitigating climate change by maintaining or increasing its carbon content.

Functional interactions of soil biota with organic and inorganic components, air and water determine a soil's potential to store and release nutrients and water to plants and to promote and sustain plant growth. Thus, maintaining soil health is vital to crop production and conserve soil resource base for sustaining agriculture.

The most important characteristics of a healthy soil are

- Good soil tilth
- Sufficient soil depth
- Good water storage and good drainage
- Adequate supply, but not excess of nutrients
- Large population of beneficial organisms
- Small proportion of plant pathogens and insect pests
- Low weed pressure
- Free of chemicals and toxins that may harm the crop
- Resistance to degradation
- Resilience when unfavorable conditions occur

Characteristics of Turk Madhawar 1 microwatershed

- The soil phases identified in the microwatershed belonged to the soil series of MDR 109 ha (15%), YLR 104 ha (14%), SGR 81 ha (11%), JNK 68 ha (9%), TMK 51 ha (7%), GWD 44 ha (6%), PGP 40 ha (5%), SBR 36 ha (5), HSL 34 ha (5%), NGP 18 ha (2) and KDR 109 (15%).
- As per land capability classification, entire area of the microwatershed falls under arable land category (Class II & IV). The major limitations identified in the arable lands were soil, wetness and erosion.

- On the basis of soil reaction, about 188 ha (25%) is slightly alkaline (pH 7.3-7.8) and 507 ha (68%) is moderately alkaline (pH 7.8 – 8.4). Thus, entire area of the microwatershed is alkaline.
- **Soil Health Management**

  The following actions are required to improve the current land husbandry practices that provide a sound basis for the successful adoption of sustainable crop production system.

Acid soils

1. Growing of crops suitable for particular soil pH.
2. Ameliorating the soils through the application of amendments (liming materials).

Liming materials:

1. $CaCO_3$ (Calcium Carbonate).
2. Dolomite [Ca Mg $(Co_3)_2$]
3. Quick lime (Cao)
4. Slaked lime [Ca $(OH)_2$]

For normal pH and pH 4.8 (35 t/ha) and pH 6 .0-7.0 (4 t/ha) lime is required.

Alkaline soils

Slightly to moderately alkaline soils occur in 695 ha of the the microwatershed.

1. Regular addition of organic manure, green manuring, green leaf manuring, crop residue incorporation and mulching needs to be taken up to improve the soil organic matter status.
2. Application of biofertilizers (Azospirullum, Azatobacter, Rhizobium).
3. Application of 25% extra N and P (125 % RDN&P).
4. Application of $ZnSO_4$ – 12.5 kg/ha (once in three years).
5. Application of Boron – 5kg/ha (once in three years).

Neutral soils

Regular addition of organic manure, green manuring, green leaf manuring, crop residue incorporation and mulching needs to be taken up to improve the soil organic matter status.

1. Application of biofertilizers (Azospirullum, Azotobacter, Rhizobium).
2. Application of 100 per cent RDF.
3. Need based micronutrient applications.

Besides the above recommendations, the best transfer of technology options are also to be adopted.

Soil Degradation

Soil erosion is one of the major factors affecting the soil health in the microwatershed. Entire area in the microwatershed is suffering from moderate erosion. The areas suffering from moderate erosion need immediate soil and water conservation and other land development and land husbandry practices for restoring soil health.

Dissemination of information and communication of benefits

Any large scale implementation of soil health management requires that supporting information is made available widely, particularly through channels familiar to farmers and extension workers. Given the very high priority attached to soil-health especially by the Central Government on issuing Soil-Health Cards to all the farmers, media outlets like Regional, State and National Newspapers, Radio and Dooradarshan programs in local languages but also modern information and communication technologies such as Cellular phones and the Internet, which can be much more effective in reaching the younger farmers.

Inputs for Net Planning (Saturation Plan) and Interventions needed

Net planning (Saturation Plan) in IWMP is focusing on preparation of

1. Soil and Water Conservation Plan for each plot or farm.
2. Productivity enhancement measures/ interventions for existing crops/livestock/other farm enterprises.
3. Diversification of farming mainly with perennial horticultural crops and livestock.
4. Improving livelihood opportunities and income generating activities.

In this connection, how various outputs of Sujala-III are of use in addressing these objectives of Net Planning (Saturation Plan) are briefly presented below.

- **Soil Depth:** The depth of a soil decides the amount of moisture and nutrients it can hold, what crops can be taken up or not, depending on the rooting depth and the length of growing period available for raising any crop. Deeper the soil, better for a wide variety of crops. If sufficient depth is not available for growing deep rooted crops, either choose medium or short duration crops or deeper planting pits need to be opened and additional good quality soil brought from outside has to be filled into the planting pits.
- **Surface Soil Texture:** Lighter soil texture in the top soil means, better rain water infiltration, less run-off and soil moisture conservation, less capillary rise and less evaporation losses. Lighter surface textured soils are amenable to good soil tilth and are highly suitable for crops like groundnut, root vegetables (carrot, raddish, potato etc) but not ideal for crops that need stagnant water like lowland paddy. Heavy textured soils are poor in water infiltration and percolation. They are prone for sheet erosion; such soils can be improved by sand mulching. The technology that is

developed by the AICRP-Dry land Agriculture, Vijayapura, Karnataka can be adopted.

- **Gravelliness:** More gravel content is favorable for run-off harvesting but poor in soil moisture storage and nutrient availability. It is a significant parameter that decides the kind of crop to be raised.
- **Land Capability Classification:** The land capability map shows the areas suitable and not suitable for agriculture and the major constraints in each of the plot/survey number. Hence, one can decide what kind of enterprise is possible in each of these units. In general, erosion and soil are the major constraints in Turk Madhawar 1 microwatershed.
- **Organic Carbon:** The OC content (an index of available Nitrogen) is medium (0.5-0.75%) in about 618 ha (83%) area and low (<0.5%) in 77 ha (10%). The areas that are medium in OC needs to be further improved by applying farmyard manure and rotating crops with cereals and legumes or mixed cropping.
- **Promoting Green Manuring:** Growing of green manuring crops costs Rs. 1250/ha (green manuring seeds) and about Rs. 2000/ha towards cultivation that totals to Rs. 3250/- per ha. On the other hand, application of organic manure @ 10 tons/ha costs Rs. 5000/ha. The practice needs to be continued for 2-3 years or more. Nitrogen fertilizer needs to be supplemented by 25% in addition to the recommended level in 695 ha area where OC is medium and low (<0.5-0.75%). For example, for rainfed maize, recommended level is 50 kg N per ha and an additional 12 kg /ha needs to be applied for all the crops grown in these plots.
- **Available Phosphorus**: Available phosphorus is medium (23-57 kg/ha) in the entire area of the microwatershed. For all the crops 25% additional P needs to be applied.
- **Available Potassium:** Available potassium is medium (145-337 kg/ha) in the enrire area of the microwatershed. For all the crops 25% additional potassium needs to be applied.
- **Available Sulphur:** Available sulphur is a very critical nutrient for oilseed crops. It is medium (10 - 20 ppm) in 613 ha (82%) and low (<10 ppm) in 82 ha (11%). Entire area need to be applied with magnesium sulphate or gypsum or Factamphos (p) fertilizer (13% sulphur) for 2-3 years for the deficiency to be corrected.
- **Available Boron:** Entire area of the microwatershed is medium (0.5-1.0 ppm) in available boron. For these areas, application of sodium borate @ 10 kg/ha as soil application or 0.2 % borax as foliar spray is recommended.
- **Available Iron:** All the soils in the microwatershed are sufficient (>4.5 ppm) in available iron.
- **Available Manganese:** All the soils in the microwatershed are sufficient (>1.0 ppm) in available manganese.
- **Available Copper:** All the soils in the microwatershed are sufficient (>0.2 ppm) in available copper.

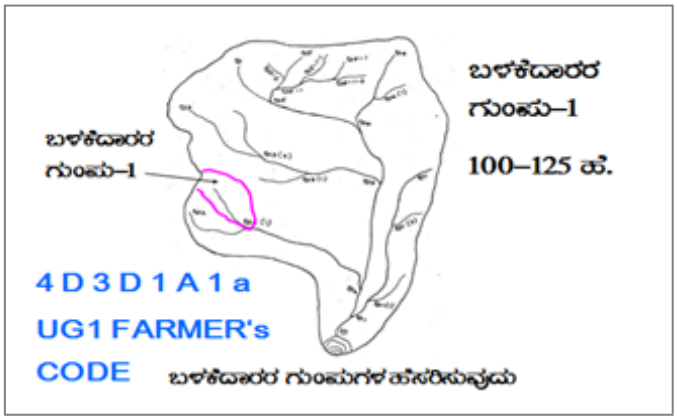
- **Available Zinc:** All the soils in the microwatershed are deficient (<0.6 ppm) in available zinc. Application of zinc sulphate @25 kg/ha is recommended for these areas.
- **Soil Alkalinity:** An area of 188 ha (25%) is slightly alkaline and 507 ha (68%) is moderately alkaline in the microwatershed have soils that are moderately alkaline. These areas need application of gypsum and wherever calcium is in excess, iron pyrites and element sulphur can be recommended. Management practices like treating repeatedly with good quality water to drain out the excess salts and provision of subsurface drainage and growing of salt tolerant crops like Casuarina, Acacia, Neem, Ber etc, are recommended.
- **Land Suitability for Various Crops:** Areas that are highly, moderately and marginally suitable for growing various crops are indicated. Along with the suitability, various constraints that are limiting the productivity are also indicated. For example, in case of cotton, rooting depth, texture and calcareousness are the major constraints in various plots. With suitable management interventions, the productivity can be enhanced. In order to increase the water holding capacity of light textured soils, growing of green manure crops and application of organic manure is recommended.

Chapter 9

SOIL AND WATER CONSERVATION TREATMENT PLAN

For preparing soil and water conservation treatment plan for Turk Madhawar 1 microwatershed, the land resource inventory database generated under Sujala-III project has been transformed as information through series of interpretative (thematic) maps using soil phase map as a base. The various thematic maps (1:7920 scale) generated were

- Soil depth
- Surface soil texture
- Available water capacity
- Soil slope
- Soil gravelliness
- Land capability
- Present land use and land cover
- Crop suitability
- Rainfall
- Hydrology
- Water Resources
- Socio-economic data



- Contour plan with existing features- network of waterways, pothissa boundaries, cut up/ minor terraces etc.
- Cadastral map (1:7920 scale)
- Satellite imagery (1:7920 scale)

Apart from these, Hand Level/ Hydro Marker/ Dumpy Level/ Total Station and Kathedars' List to be collected.

Steps for Survey and Preparation of Treatment Plan

The boundaries of Land User Groups' and Survey No. boundaries are traced in the field.

- Naming of user groups and farmers
- Identification of arable and non arable lands
- Identification of drainage lines and gullies
- Identification of non treatable areas
- Identification of priority areas in the arable lands
- Treatment plan for arable lands
- Location of water harvesting and recharge structures

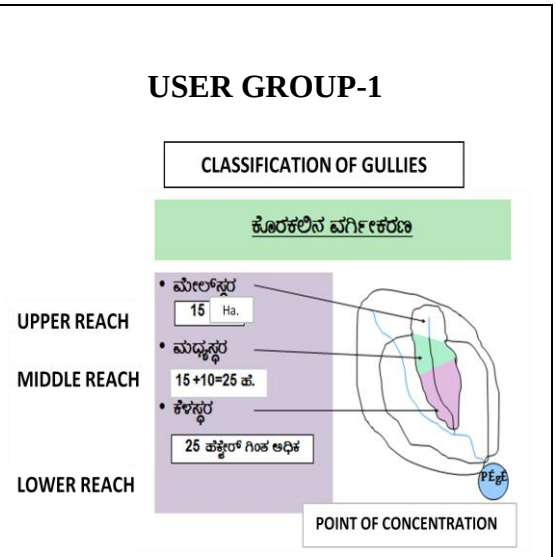
9.1 Treatment Plan

The treatment plan recommended for arable lands is briefly described below

9.1.1 Arable Land Treatment

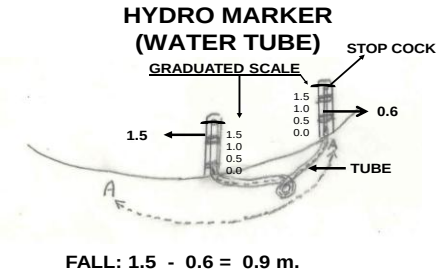
A. BUNDING

Steps for Survey and Preparation of Treatment Plan	
• Cadastral map (1:7920 scale) is enlarged to a scale of 1:2500 scale • Existing network of waterways, pothissa boundaries, grass belts, natural drainage lines/ watercourse, cut ups/ terraces are marked on the cadastral map to the scale • Drainage lines are demarcated into	
Small gullies	(up to 5 ha catchment)
Medium gullies	(5-15 ha catchment)
Ravines	(15-25 ha catchment) and
Halla/Nala	(more than 25ha catchment)



Measurement of Land Slope

Land slope is estimated or determined by the study and interpretation of contours or by measurement in the field using simple instruments like Hand Level or Hydromarker.



Vertical and Horizontal intervals between bunds as recommended by the Watershed Development Department.

Slope percentage	Vertical interval (m)	Corresponding Horizontal Distance (m)
2 - 3%	0.6	24
3 - 4%	0.9	21
4 - 5%	0.9	21
5 - 6%	1.2	21
6 - 7%	1.2	21

Note: (i) The above intervals are maximum.

(ii) Considering the slope class and erosion status (A1... A=0-1 % slope, 1= slight erosion) the intervals have to be decided.

Bund length recording: Considering the contour plan and the existing grass belts/partitions, the bunds are aligned and lengths are measured.

Section of the Bund

Bund section is decided considering the soil texture class and gravelliness class ($bg_{0...}$ b=loamy sand, g_0 = <15% gravel). The recommended Sections for different soils are given below.

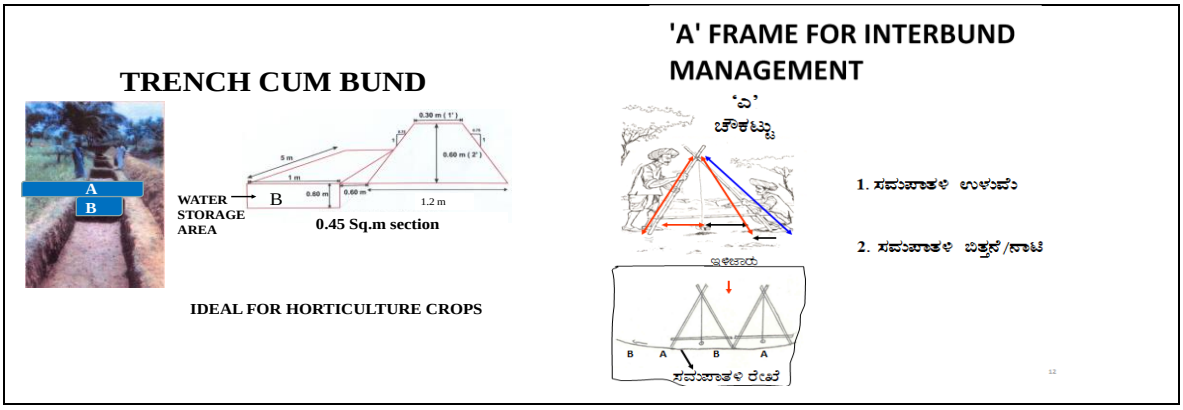
Recommended Bund Section

Top width (m)	Base width (m)	Height (m)	Side slope (Z:1;H:V)	Cross section (sq m)	Soil Texture	Remarks
0.3	0.9	0.3	01:01	0.18	Sandy loam	Vegetative bund
0.3	1.2	0.3	1.5:1	0.225	Sandy clay	
0.3	1.2	0.5	0.9:1	0.375	Red gravelly soils	
0.3	1.2	0.6	0.75:1	0.45		
0.3	1.5	0.6	01:01	0.54	Red sandy loam	
0.3	2.1	0.6	1.5:1	0.72	Very shallow black soils	
0.45	2	0.75	01:01	0.92		
0.45	2.4	0.75	1.3:1	1.07	Shallow black soils	
0.6	3.1	0.7	1.78:1	1.29	Medium black soils	
0.5	3	0.85	1.47:1	1.49		

Formation of Trench cum Bund

Dimensions of the Borrow Pits/Trenches to be excavated (machinery are decided considering the Bund Section).

Details of Borrow Pit dimensions are given below:



Size of Borrow Pits/ Trench recommended for Trench cum Bund (by machinery)

Bund section	Bund length	Earth quantity	Pit				Berm (pit to pit)	Soil depth class
m^2	m	m^3	L(m)	W(m)	D(m)	Quantity (m^3)	m	
0.375	6	2.25	5.85	0.85	0.45	2.24	0.15	Shallow
0.45	6	2.7	5.4	1.2	0.43	2.79	0.6	Shallow
0.45	6	2.7	5	0.85	0.65	2.76	1	Moderately Shallow
0.54	5.6	3.02	5.5	0.85	0.7	3.27	0.1	Moderately shallow
0.54	5.5	2.97	5	1.2	0.5	3	0.5	Shallow
0.72	6.2	4.46	6	1.2	0.7	5.04	0.2	Moderately shallow
0.72	5.2	3.74	5.1	0.85	0.9	3.9	0.1	Moderately deep

B. Water Ways

1. Existing waterways are marked on the cadastral map (1:7920 scale) and their dimensions are recorded.
2. Considering the contour plan of the MWS, additional waterways/ modernization of the existing ones can be thought of.
3. The design details are given in the Manual.

C. Farm Ponds

Waterways and the catchment area will give an indication on the size of the Farm Pond. Location of the pond can be decided based on the contour plan/ field condition and farmers' need/desire.

D. Diversion Channel

Existing EPT/ CPT are marked on the cadastral map. Looking to the need, these can be modernized or fresh diversion channel can be proposed and runoff from this can be stored in Gokatte/ Recharge ponds.

9.1.2 Non-Arable Land Treatment

Depending on the gravelliness and crops preferred by the farmers, the concerned authorities can decide appropriate treatment plan. The recommended treatments may be Contour Trench, Staggered Trench, Crescent Bund, Boulder Bund or Pebble Bund.

9.1.3 Treatment of Natural Water Course/ Drainage Lines

a) The cadastral map has to be updated as regards the network of drainage lines (gullies/ *nalas/ hallas*) and existing structures are marked to the scale and storage capacity of the existing water bodies are documented.
b) The drainage line will be demarcated into Upper Reach, Middle Reach and Lower Reach.
c) Considering the Catchment, *Nala* bed and bank conditions, suitable structures are decided.
d) Number of storage structures (Check dam/ *Nala* bund/ Percolation tank) will be decided considering the commitments and available runoff from water budgeting and quality of water in the wells and site suitability.
e) Detailed Leveling Survey using Dumpy Level / Total Station has to be carried out to arrive at the site-specific designs as shown in the Manual.
f) The location of ground water recharge structures are decided by examining the lineaments and fracture zones from geological maps.
g) Rainfall intensity data of the nearest Rain Gauge Station is considered for Hydrologic Designs.
h) Silt load to the Storage/Recharge Structures is reduced by providing vegetative, boulder and earthern checks in the natural water course. Location and design details are given in the Manual.

9.2 Recommended Soil and Water Conservation Measures

The appropriate conservation structures best suited for each of the land parcel/ survey number (Appendix-I) are selected based on the slope per cent, severity of erosion, amount of rainfall, land use and soil type. The different kinds of conservation structures recommended are:

1. Graded / Strengthening of Bunds
2. Trench cum Bunds (TCB)
3. Trench cum Bunds / Strengthening
4. Crescent Bunds

A map (Fig. 9.1) showing soil and water conservation plan with different kinds of structures recommended has been prepared which shows the spatial distribution and extent of area. An area of about 144 ha (19%) needs trench cum bunding and maximum area of about 551 ha (74%) needs graded bunding.

The conservation plan prepared may be presented to all the stakeholders including farmers and after considering their suggestions, the conservation plan for the microwatershed may be finalised in a participatory approach.

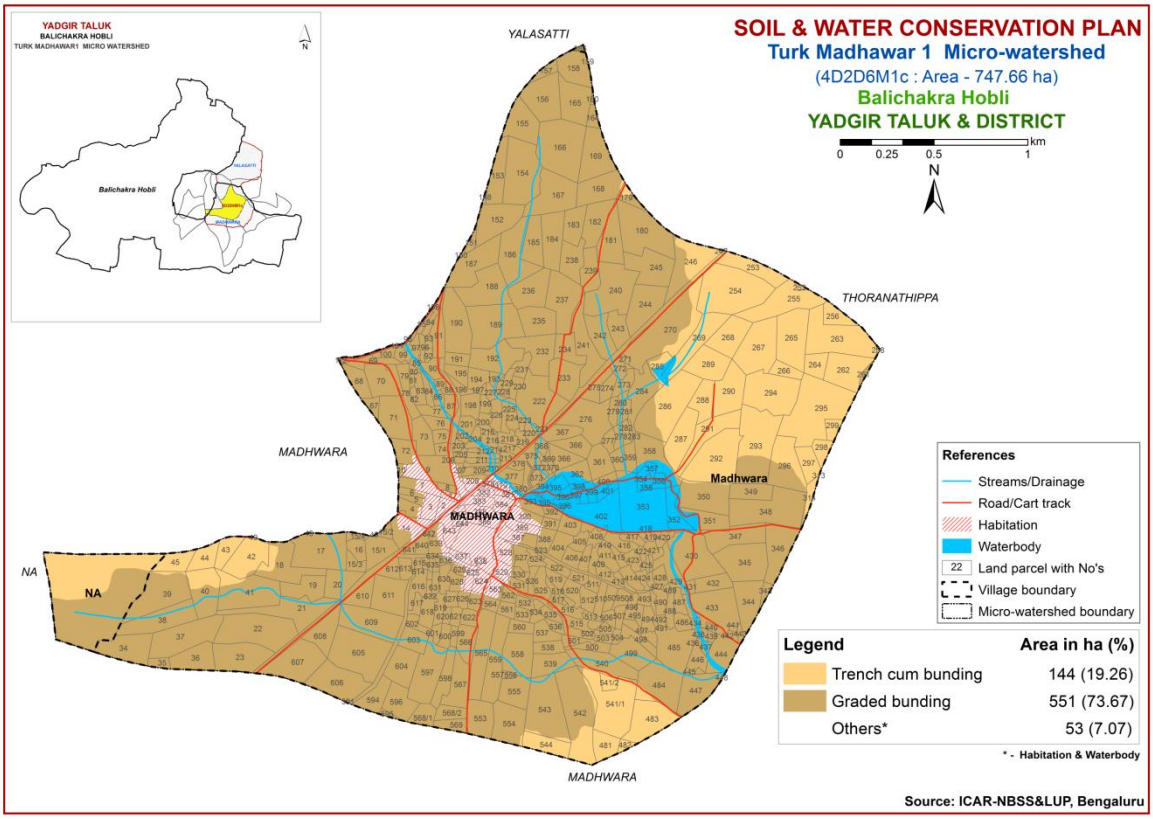


Fig. 9.1 Soil and water conservation plan map of Turk Madhawar 1 microwatershed

9.3 Greening of microwatershed

As part of the greening programme in the watersheds, it is envisaged to plant a variety of horticultural and other tree plants that are edible, economical and produce lot of biomass which helps to restore the ecological balance in the watersheds. The lands that are suitable for greening programme are non-arable lands (land capability classes V, VI VII and VIII) and also the lands that are not suitable or marginally suitable and field bunds for growing annual and perennial crops. The method of planting these trees is given below.

It is recommended to open pits during the 1st week of March along the contour and heap the dugout soil on the lower side of the slope in order to harness the flowing water and facilitate weathering of soil in the pit. Exposure of soil in the pit also prevents spread of pests and diseases due to scorching sun rays. The pits should be filled with mixture of soil and organic manure during the second week of April and keep ready with sufficiently tall seedlings produced either in poly bags or in root trainer nurseries so that planting can be done during the 2nd or 3rd week of April depending on the rainfall.

The tree species suitable for the area considering rainfall, temperature and adaptability is listed below; waterlogged areas are recommended to be planted with species like Nerale (*Sizyzium cumini*) and Bamboo. Dry areas are to be planted with species like Honge, Bevu, Seetaphal *etc*.

Dry deciduous species			Temp (°C)	Rainfall (mm)
1.	Bevu	*Azadiracta indica*	21–32	400 –1,200
2.	Tapasi	*Holoptelia integrifolia*	20-30	500 - 1000
3.	Seetaphal	*Anona Squamosa*	20-40	400 - 1000
4.	Honge	*Pongamia pinnata*	20 -50	500– 2,500
5.	Kamara	*Hardwikia binata*	25 -35	400 - 1000
6.	Bage	*Albezzia lebbek*	20 - 45	500 - 1000
7.	Ficus	*Ficus bengalensis*	20 - 50	500–2,500
8.	Sisso	*Dalbargia Sissoo*	20 - 50	500 -2000
9.	Ailanthus	*Ailanthus excelsa*	20 - 50	500 - 1000
10.	Hale	*Wrightia tinctoria*	25 - 45	500 - 1000
11.	Uded	*Steriospermum chelanoides*	25 - 45	500 -2000
12.	Dhupa	*Boswella Serrata*	20 - 40	500 - 2000
13.	Nelli	*Emblica Officinalis*	20 - 50	500 -1500
14.	Honne	*Pterocarpus marsupium*	20 - 40	500 - 2000
Moist Deciduous Species			**Temp (°C)**	**Rainfall (mm)**
15.	Teak	*Tectona grandis*	20 - 50	500-5000
16.	Nandi	*Legarstroemia lanceolata*	20 - 40	500 - 4000
17.	Honne	*Pterocarpus marsupium*	20 - 40	500 - 3000
18.	Mathi	*Terminalia alata*	20 -50	500 - 2000
19.	Shivane	*Gmelina arboria*	20 -50	500 -2000
20.	Kindal	*T.Paniculata*	20 - 40	500 - 1500
21.	Beete	*Dalbargia latifolia*	20 - 40	500 - 1500
22.	Tare	*T. belerica*	20 - 40	500 - 2000
23.	Bamboo	*Bambusa arundinasia*	20 - 40	500 - 2500
24.	Bamboo	*Dendrocalamus strictus*	20 – 40	500 – 2500
25.	Muthuga	*Butea monosperma*	20 - 40	400 - 1500
26.	Hippe	*Madhuca latifolia*	20 - 40	500 - 2000
27.	Sandal	*Santalum album*	20 - 50	400 - 1000
28.	Nelli	*Emblica officinalis*	20 - 40	500 - 2000
29.	Nerale	*Sizyzium cumini*	20 - 40	500 - 2000
30.	Dhaman	*Grevia tilifolia*	20 - 40	500 - 2000
31.	Kaval	*Careya arborea*	20 - 40	500 - 2000
32.	Harada	*Terminalia chebula*	20 - 40	500 - 2000

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Appendix-I

Turk madhwar-1 (6M1c) Microwatershed

Soil Phase Information

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	1	0.43	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	2	0.58	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	3	1.05	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	4	0.94	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	5	0.42	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	6	0.53	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Habitation	Not Available	IIes	Graded bunding
Madhwara	7	1.34	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	8	0.43	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Habitation	Not Available	IIes	Graded bunding
Madhwara	9	3.11	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Habitation	Not Available	IIes	Graded bunding
Madhwara	10	0.28	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	14	2.38	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	15/1	2.12	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	15/2	0.45	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	15/3	0.78	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIsw	Graded bunding
Madhwara	15/4	0.4	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	16	0.95	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	17	5.29	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIsw	Graded bunding
Madhwara	18	4.09	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	19	2.42	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	20	2.29	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIsw	Graded bunding
Madhwara	21	4.6	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	22	6.48	SBRcB2	LMU-9	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	1 Bore Well	IVs	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	23	4.13	SBRcB2	LMU-9	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IVs	Graded bunding
Madhwara	34	3.64	SBRcB2	LMU-9	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IVs	Graded bunding
Madhwara	35	0.59	SBRcB2	LMU-9	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVs	Graded bunding
Madhwara	36	2.74	SBRcB2	LMU-9	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVs	Graded bunding
Madhwara	37	5.17	SBRcB2	LMU-9	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IVs	Graded bunding
Madhwara	38	4.19	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIsw	Graded bunding
Madhwara	39	5.42	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	40	3.7	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land+Redgram (Sl+Rg)	Not Available	IIes	Graded bunding
Madhwara	41	5.5	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Graded bunding
Madhwara	42	3.53	PGPcB2	LMU-6	Moderately deep (75-100 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Trench cum bunding
Madhwara	43	1.52	PGPcB2	LMU-6	Moderately deep (75-100 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Trench cum bunding
Madhwara	44	1.63	PGPcB2	LMU-6	Moderately deep (75-100 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Trench cum bunding
Madhwara	45	1.75	PGPcB2	LMU-6	Moderately deep (75-100 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Trench cum bunding
Madhwara	49	0.05	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Waterbody	Not Available	IIsw	Graded bunding
Madhwara	67	0.64	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	68	1.54	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIsw	Graded bunding
Madhwara	69	1.13	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	70	2.47	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	71	3.5	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	72	1.53	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	73	1.9	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	74	0.53	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	75	0.71	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	76	0.97	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	77	0.85	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	78	1.21	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	79	0.79	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	80	0.22	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	81	0.19	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	82	0.16	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	83	0.86	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	84	0.57	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	85	0.29	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	86	0.77	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	87	0.76	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	88	0.29	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	89	0.34	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	90	0.86	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	91	1.54	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	92	0.29	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	93	0.28	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	94	0.49	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	95	0.3	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	96	0.4	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	97	0.52	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	98	0.19	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	99	0.57	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	100	0.49	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	101	0.72	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Waterbody	Not Available	IIes	Graded bunding
Madhwara	108	0.04	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Waterbody	Not Available	IIes	Graded bunding
Madhwara	112	0.07	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIsw	Graded bunding
Madhwara	148	0.11	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut (Rg+Gn)	Not Available	IIes	Graded bunding
Madhwara	150	0.03	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding
Madhwara	151	0.49	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding
Madhwara	152	3.8	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding
Madhwara	153	2.53	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding
Madhwara	154	5.97	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding
Madhwara	155	3.15	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	156	4.05	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	157	0.71	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Graded bunding
Madhwara	158	2.7	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	159	0.02	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	160	0.11	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Graded bunding
Madhwara	164	0.6	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	165	3.37	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	166	6.75	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding
Madhwara	167	4.56	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding
Madhwara	168	3.27	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	169	3.73	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Graded bunding
Madhwara	179	0.85	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	Not Available	IIes	Graded bunding
Madhwara	180	5.98	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	181	3.01	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	182	2.75	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	183	2.01	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	184	3.21	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	185	2.39	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	186	4.49	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	187	4.07	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	188	4.2	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut+Redgram (Ct+Gn+Rg)	Not Available	IIes	Graded bunding
Madhwara	189	5.62	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut (Rg+Gn)	Not Available	IIes	Graded bunding
Madhwara	190	4.22	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut (Rg+Gn)	Not Available	IIes	Graded bunding
Madhwara	191	0.87	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	192	3.42	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	193	0.45	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	194	1.12	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	195	0.99	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	196	0.56	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	197	0.2	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	198	1.22	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	199	0.51	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	200	0.7	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	201	0.75	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	202	0.34	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	203	0.3	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	204	0.69	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	205	0.26	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	206	0.18	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	207	0.24	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	208	0.73	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	209	0.83	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	210	0.37	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	211	0.51	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	212	0.48	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	213	0.42	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	214	0.48	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	215	0.34	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	216	0.4	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	217	0.53	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	1 Bore Well	IIes	Graded bunding
Madhwara	218	0.76	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	219	0.32	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	220	0.58	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	221	0.18	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	222	5	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	2 Bore Well	IIes	Graded bunding
Madhwara	223	0.37	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	224	0.75	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	225	0.68	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	226	0.95	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	227	0.42	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	228	0.33	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	229	0.63	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	230	0.62	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	231	0.85	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	232	3.29	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	1 Bore Well	IIes	Graded bunding
Madhwara	233	3.03	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut (Rg+Gn)	Not Available	IIes	Graded bunding
Madhwara	234	1.84	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding
Madhwara	235	2.73	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	236	3.29	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	237	4.27	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	238	2.28	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	239	2.04	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	240	5.73	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	241	3.55	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	242	2.54	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Graded bunding
Madhwara	243	1.7	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	1 Bore Well	IIes	Graded bunding
Madhwara	244	3.72	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	245	3.83	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	246	4.47	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	1 Bore Well	IIes	Trench cum bunding
Madhwara	247	0.03	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Trench cum bunding
Madhwara	252	0.14	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	Not Available	IIes	Trench cum bunding
Madhwara	253	2.63	YLRiB2	LMU-7	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut (Rg+Gn)	Not Available	IIes	Trench cum bunding
Madhwara	254	7.89	YLRiB2	LMU-7	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	Not Available	IIes	Trench cum bunding
Madhwara	255	4.67	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	256	1.36	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	Not Available	IIes	Trench cum bunding
Madhwara	258	0.06	YLRiB2	LMU-7	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Trench cum bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	261	0.26	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	Not Available	IIes	Graded bunding
Madhwara	262	3.63	YLRiB2	LMU-7	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Trench cum bunding
Madhwara	263	6.18	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Trench cum bunding
Madhwara	264	1.42	YLRiB2	LMU-7	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Trench cum bunding
Madhwara	265	4.72	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	266	1.08	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	267	5.07	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	268	3.09	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	269	3.66	YLRiB2	LMU-7	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	270	8.7	JNKiB2	LMU-8	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	No Crop+Redgram (Nc+Rg)	Not Available	IIes	Graded bunding
Madhwara	271	0.18	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	No Crop (Nc)	Not Available	IIes	Graded bunding
Madhwara	272	0.73	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	No Crop (Nc)	Not Available	IIes	Graded bunding
Madhwara	273	0.96	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	No Crop (Nc)	Not Available	IIes	Graded bunding
Madhwara	274	0.88	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	No Crop (Nc)	Not Available	IIes	Graded bunding
Madhwara	275	1.11	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	No Crop (Nc)	Not Available	IIes	Graded bunding
Madhwara	276	4.26	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	No Crop (Nc)	Not Available	IIes	Graded bunding
Madhwara	277	0.67	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	278	0.57	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	279	0.67	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	280	0.57	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	281	0.39	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	282	0.47	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	283	0.17	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	284	2.92	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	No Crop (Nc)	Not Available	IIes	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	285	1.34	YLRiB2	LMU-7	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	286	7.07	YLRcB2g1	LMU-7	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut (Rg+Gn)	Not Available	IIes	Trench cum bunding
Madhwara	287	3.39	YLRcB2g1	LMU-7	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	288	2.09	YLRcB2g1	LMU-7	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	289	3.11	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	290	3.63	YLRcB2g1	LMU-7	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	291	3.23	YLRcB2g1	LMU-7	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	292	6.25	YLRcB2g1	LMU-7	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Trench cum bunding
Madhwara	293	7.46	YLRcB2g1	LMU-7	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	Not Available	IIes	Trench cum bunding
Madhwara	294	5.59	YLRcB2g1	LMU-7	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	295	8.91	YLRiB2	LMU-7	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	Not Available	IIes	Trench cum bunding
Madhwara	296	4.34	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	297	1.7	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	298	1.01	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	299	0.78	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	313	0	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Trench cum bunding
Madhwara	314	0.8	YLRbB2	LMU-7	Moderately shallow (50-75 cm)	Loamy sand	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	343	0.42	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	344	3.06	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	345	4.7	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Graded bunding
Madhwara	346	3.69	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Graded bunding
Madhwara	347	3.4	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	348	6.4	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	349	1.91	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	350	4.28	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	Not Available	IIes	Graded bunding
Madhwara	351	2.39	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	352	1.82	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	353	6.86	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	354	0.58	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	355	0.27	Waterbody	Others	Others	Others	Others	Others	Others	Others	Paddy (Pd)	Not Available	Others	Others
Madhwara	356	0.52	Waterbody	Others	Others	Others	Others	Others	Others	Others	Paddy (Pd)	Not Available	Others	Others
Madhwara	357	0.31	Waterbody	Others	Others	Others	Others	Others	Others	Others	Paddy (Pd)	Not Available	Others	Others
Madhwara	358	3.42	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Graded bunding
Madhwara	359	0.92	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	360	0.82	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	361	1.93	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Graded bunding
Madhwara	362	1.61	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Graded bunding
Madhwara	366	2.93	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	367	1.4	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	368	0.5	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	369	0.33	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	370	0.24	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	371	0.14	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	372	0.4	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	373	0.44	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	374	0.47	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	375	0.5	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	376	0.55	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding

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Madhwara	377	1.05	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	1 Bore Well	IIes	Graded bunding
Madhwara	378	0.18	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	379	0.4	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	380	0.39	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	381	0.45	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	382	0.45	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	383	0.78	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	384	0.82	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	385	1.08	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	386	0.79	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	387	1.3	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	388	1.02	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	389	0.94	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	390	1.16	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	391	0.52	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	392	0.7	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	393	1.09	MDRmB2	LMU-4	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	394	0.46	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	395	1.12	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	396	0.66	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	397	0.48	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	398	0.47	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	399	0.59	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	400	0.79	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Waterbody	Not Available	IIes	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	401	0.5	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	402	4.29	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Madhwara	403	1.1	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	404	1.25	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	405	0.77	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	406	0.84	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	407	0.65	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	408	0.72	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	409	0.62	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	410	0.12	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	411	1.02	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	412	0.85	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	413	0.38	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	414	0.9	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	415	0.47	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	416	1.05	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	417	0.53	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	418	0.17	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	419	0.2	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	420	0.52	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	421	0.66	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	422	0.34	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	423	0.81	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	424	0.43	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	425	0.27	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	426	0.17	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	427	0.31	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	428	0.77	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	429	1.89	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	430	5.19	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Graded bunding
Madhwara	431	0.32	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	432	1.52	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	433	5.16	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land+Redgram (Sl+Rg)	Not Available	IIes	Graded bunding
Madhwara	434	0.28	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	435	0.17	Waterbody	Others	Others	Others	Others	Others	Others	Others	Paddy (Pd)	Not Available	Others	Others
Madhwara	436	0.12	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	437	0.34	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	438	0.21	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	439	0.21	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	440	0.18	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	441	0.13	GWDcB2	LMU-1	Moderately deep (75-100 cm)	Sandy loam	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	442	0.27	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	443	0.27	GWDcB2	LMU-1	Moderately deep (75-100 cm)	Sandy loam	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	444	2.52	GWDiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	445	0.28	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	446	1.08	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	447	3.35	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	448	0.05	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	481	1.77	PGPcB2	LMU-6	Moderately deep (75-100 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Madhwara	482	0.41	PGPiB2	LMU-6	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Trench cum bunding
Madhwara	483	4.11	PGPiB2	LMU-6	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Trench cum bunding
Madhwara	484	4.67	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Graded bunding
Madhwara	485	4.04	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	486	0.76	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	487	0.73	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	488	0.84	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	489	0.12	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	490	0.84	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	491	0.27	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	492	0.37	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	493	0.48	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	494	0.79	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	495	0.39	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	496	0.74	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	497	0.92	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	498	0.99	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	499	2.53	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	500	0.89	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	501	0.67	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	502	0.6	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	503	0.51	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	504	0.35	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	505	0.41	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	506	0.53	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	507	0.58	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	508	0.66	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	509	0.73	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	510	0.78	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	511	0.52	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	512	0.94	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	513	0.37	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	514	0.29	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	515	0.8	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	516	0.9	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	517	0.23	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	518	0.68	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	519	0.72	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	520	1.01	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	521	0.54	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	522	0.7	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	523	0.07	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	524	0.62	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	525	1.15	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	526	0.58	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	527	0.95	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	528	1.03	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	529	0.8	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	530	0.56	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	531	0.64	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	532	0.58	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	533	0.59	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	534	0.61	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	535	0.6	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	536	0.47	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	537	1.24	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	538	1.05	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	539	2.26	TMKiB2	LMU-1	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	540	3.41	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Madhwara	541/1	6.27	PGPiB2	LMU-6	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Trench cum bunding
Madhwara	541/2	0.66	PGPiB2	LMU-6	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Trench cum bunding
Madhwara	542	7.6	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IIes	Graded bunding
Madhwara	543	6.13	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	544	2.14	PGPcB2	LMU-6	Moderately deep (75-100 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut+Redgram (Ct+Gn+Rg)	Not Available	IIes	Trench cum bunding
Madhwara	553	2.61	KDRmB2	LMU-5	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	554	3.46	KDRmB2	LMU-5	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut (Rg+Gn)	Not Available	IIes	Graded bunding
Madhwara	555	2.37	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	556	0.13	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	557	0.11	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	558	3.44	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	559	3.81	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	560	0.88	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	561	0.7	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	562	0.51	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	563	0.79	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	564	0.62	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	565	3.82	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	566	1.76	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	567	2.81	KDRmB2	LMU-5	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	568/1	1.3	NGPmB2	LMU-3	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	568/2	1.16	KDRmB2	LMU-5	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	569	1.03	NGPmB2	LMU-3	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	591	0.04	SBRcB2	LMU-9	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IVs	Graded bunding
Madhwara	594	1.9	NGPmB2	LMU-3	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	1 Bore Well	IIes	Graded bunding
Madhwara	595	0.23	NGPmB2	LMU-3	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	596	2.42	NGPmB2	LMU-3	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	597	4.31	KDRmB2	LMU-5	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	598	1.84	KDRmB2	LMU-5	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Madhwara	599	0.41	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	600	0.69	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	601	0.48	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	602	0.69	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	603	1.58	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIsw	Graded bunding
Madhwara	604	2.72	NGPmB2	LMU-3	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	1 Bore Well	IIes	Graded bunding
Madhwara	605	6.38	SBRcB2	LMU-9	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Redgram (Ct+Rg)	Not Available	IVs	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	606	4.33	SBRcB2	LMU-9	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton+Groundnut (Ct+Gn)	Not Available	IVs	Graded bunding
Madhwara	607	4.73	SBRcB2	LMU-9	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVs	Graded bunding
Madhwara	608	2.45	KDRcB2	LMU-5	Deep (100-150 cm)	Sandy loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Madhwara	609	4.51	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	610	1.45	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	611	3.34	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	612	0.89	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	613	0.76	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIsw	Graded bunding
Madhwara	614	0.23	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	615	0.23	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	616	1.36	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	1 Bore Well	IIsw	Graded bunding
Madhwara	617	0.5	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	618	1.23	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	619	0.82	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	620	0.36	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	621	0.55	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	622	0.78	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	623	0.72	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	624	1.01	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	625	0.44	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	626	0.57	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	627	0.55	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	628	0.77	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	629	0.48	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding

Village	Survey No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	Wells	Land Capability	Conservation Plan
Madhwara	630	0.82	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	631	0.45	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	632	0.27	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	633	0.12	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	634	0.2	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	635	0.27	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	636	0.3	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	637	0.49	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	638	0.16	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	639	1.25	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	640	0.66	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	641	0.33	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	642	0.12	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIsw	Graded bunding
Madhwara	643	1.12	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	644	0.07	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Madhwara	645	0.53	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
NA	NA	21.97	SGRmB2	LMU-1	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Not Avalaible (NA)	Not Available	IIsw	Graded bunding
Yalasatti	386	0.13	HSLiB2	LMU-2	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding

Appendix II

Turk madhwar-1 (6M1c) Microwatershed

Soil Fertility Information

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	4	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	5	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	6	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	7	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	8	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	9	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	10	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	14	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	15/1	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	15/2	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	15/3	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	15/4	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	16	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	17	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	18	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	19	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	20	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	21	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	22	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	23	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	34	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	35	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	36	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	37	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	38	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	39	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	40	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	41	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	42	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	43	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	44	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	45	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	49	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	67	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	68	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	69	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	70	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	71	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	72	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	73	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	74	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	75	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	76	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	77	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	78	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	79	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	80	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	81	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	82	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	83	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	84	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	85	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	86	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	87	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	88	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	89	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	90	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	91	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	92	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	93	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	94	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	95	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	96	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	97	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	98	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	99	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	100	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	101	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	108	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	112	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	148	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	150	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	151	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	152	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	153	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	154	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	155	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	156	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	157	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	158	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	159	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	160	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	164	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	165	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	166	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	167	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	168	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	169	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	179	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	180	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	181	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	182	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	183	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	184	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	185	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	186	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	187	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	188	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	189	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	190	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	191	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	192	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	193	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	194	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	195	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	196	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	197	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	198	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	199	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	200	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	201	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	202	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	203	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	204	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	205	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	206	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	207	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	208	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	209	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	210	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	211	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	212	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	213	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	214	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	215	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	216	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	217	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	218	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	219	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	220	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	221	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	222	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	223	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	224	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	225	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	226	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	227	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	228	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	229	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	230	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	231	Moderately alkaline	Non saline	Medium (0.5	Medium (23	Medium (145 –	Medium (10 –	Medium (0.5 –	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
		(pH 7.8 – 8.4)	(<2 dsm)	– 0.75 %)	– 57 kg/ha)	337 kg/ha)	20 ppm)	1.0 ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Madhwara	232	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	233	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	234	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	235	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	236	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	237	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	238	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	239	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	240	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	241	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	242	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	243	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	244	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	245	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	246	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	247	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	252	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	253	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	254	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	255	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	256	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	258	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	261	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	262	Slightly alkaline	Non saline	Medium (0.5	Medium (23	Medium (145 –	Medium (10 –	Medium (0.5 –	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
		(pH 7.3 – 7.8)	(<2 dsm)	– 0.75 %)	– 57 kg/ha)	337 kg/ha)	20 ppm)	1.0 ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Madhwara	263	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	264	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	265	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	266	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	267	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	268	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	269	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	270	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	271	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	272	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	273	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	274	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	275	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	276	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	277	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	278	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	279	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	280	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	281	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	282	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	283	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	284	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	285	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	286	Moderately alkaline	Non saline	Medium (0.5	Medium (23	Medium (145 –	Medium (10 –	Medium (0.5 –	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
		(pH 7.8 – 8.4)	(<2 dsm)	– 0.75 %)	– 57 kg/ha)	337 kg/ha)	20 ppm)	1.0 ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Madhwara	287	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	288	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	289	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	290	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	291	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	292	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	293	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	294	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	295	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	296	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	297	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	298	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	299	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	313	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	314	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	343	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	344	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	345	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	346	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	347	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	348	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	349	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	350	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	351	Moderately alkaline	Non saline	Medium (0.5	Medium (23	Medium (145 –	Medium (10 –	Medium (0.5 –	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
		(pH 7.8 – 8.4)	(<2 dsm)	– 0.75 %)	– 57 kg/ha)	337 kg/ha)	20 ppm)	1.0 ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Madhwara	352	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	353	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	354	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	355	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	356	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	357	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	358	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	359	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	360	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	361	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	362	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	366	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	367	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	368	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	369	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	370	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	371	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	372	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	373	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	374	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	375	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	376	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	377	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	378	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	379	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	380	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	381	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	382	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	383	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	384	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	385	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	386	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	387	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	388	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	389	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	390	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	391	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	392	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	393	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	394	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	395	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	396	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	397	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	398	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	399	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	400	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	401	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	402	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	403	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	404	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	405	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	406	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	407	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	408	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	409	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	410	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	411	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	412	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	413	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	414	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	415	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	416	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	417	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	418	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	419	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	420	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	421	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	422	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	423	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	424	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	425	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	426	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	427	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	428	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	429	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	430	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	431	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	432	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	433	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	434	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	435	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	436	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	437	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	438	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	439	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	440	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	441	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	442	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	443	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	444	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	445	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	446	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	447	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	448	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	481	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	482	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	483	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	484	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	485	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	486	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	487	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	488	Moderately alkaline	Non saline	Medium (0.5	Medium (23	Medium (145 –	Medium (10 –	Medium (0.5 –	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
		(pH 7.8 – 8.4)	(<2 dsm)	– 0.75 %)	– 57 kg/ha)	337 kg/ha)	20 ppm)	1.0 ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Madhwara	489	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	490	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	491	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	492	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	493	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	494	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	495	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	496	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	497	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	498	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	499	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	500	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	501	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	502	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	503	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	504	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	505	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	506	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	507	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	508	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	509	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	510	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	511	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	512	Moderately alkaline	Non saline	Medium (0.5	Medium (23	Medium (145 –	Medium (10 –	Medium (0.5 –	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
		(pH 7.8 – 8.4)	(<2 dsm)	– 0.75 %)	– 57 kg/ha)	337 kg/ha)	20 ppm)	1.0 ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Madhwara	513	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	514	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	515	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	516	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	517	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	518	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	519	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	520	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	521	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	522	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	523	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	524	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	525	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	526	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	527	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	528	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	529	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	530	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	531	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	532	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	533	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	534	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	535	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	536	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	537	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	538	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	539	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	540	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	541/1	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	541/2	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	542	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	543	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	544	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	553	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	554	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	555	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	556	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	557	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	558	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	559	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	560	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	561	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	562	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	563	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	564	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	565	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	566	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	567	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	568/1	Moderately alkaline	Non saline	Medium (0.5	Medium (23	Medium (145 –	Medium (10 –	Medium (0.5 –	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
		(pH 7.8 – 8.4)	(<2 dsm)	– 0.75 %)	– 57 kg/ha)	337 kg/ha)	20 ppm)	1.0 ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Madhwara	568/2	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	569	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	591	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	594	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	595	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	596	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	597	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	598	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	599	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	600	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	601	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	602	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	603	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	604	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	605	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	606	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	607	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	608	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	609	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	610	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	611	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	612	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	613	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	614	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	615	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	616	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	617	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	618	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	619	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	620	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	621	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	622	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	623	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	624	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	625	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	626	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	627	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	628	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	629	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	630	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	631	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	632	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	633	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	634	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	635	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	636	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	637	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	638	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Madhwara	639	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	640	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	641	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	642	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Madhwara	643	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	644	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	645	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
NA	NA	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Yalasatti	386	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Appendix III

Turk madhwar-1 (6M1c) Microwatershed

Soil Suitability Information

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	4	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	5	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	6	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	7	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	8	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	9	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	10	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	14	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	15/1	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	15/2	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	15/3	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	15/4	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	16	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	17	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	18	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	19	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	20	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	21	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	22	N1r	S3t	S3rt	S3t	S3rt	N1t	N1r	S3rt	N1t	S3t	S3t	S3t	S3rt	S3t	S3rt	S3rt	S3rt	S3t	S3t	S3t	S3t	S3t	S3t	S3rt	S3t	S3t	S3t	S3t	S3t
Madhwara	23	N1r	S3t	S3rt	S3t	S3rt	N1t	N1r	S3rt	N1t	S3t	S3t	S3t	S3rt	S3t	S3rt	S3rt	S3rt	S3t	S3t	S3t	S3t	S3t	S3t	S3rt	S3t	S3t	S3t	S3t	S3t
Madhwara	34	N1r	S3t	S3rt	S3t	S3rt	N1t	N1r	S3rt	N1t	S3t	S3t	S3t	S3rt	S3t	S3rt	S3rt	S3rt	S3t	S3t	S3t	S3t	S3t	S3t	S3rt	S3t	S3t	S3t	S3t	S3t

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	35	N1r	S3t	S3rt	S3t	S3rt	N1t	N1r	S3rt	N1t	S3t	S3t	S3t	S3rt	S3t	S3rt	S3rt	S3rt	S3t	S3t	S3t	S3t	S3t	S3t	S3rt	S3t	S3t	S3t	S3t	S3t
Madhwara	36	N1r	S3t	S3rt	S3t	S3rt	N1t	N1r	S3rt	N1t	S3t	S3t	S3t	S3rt	S3t	S3rt	S3rt	S3rt	S3t	S3t	S3t	S3t	S3t	S3t	S3rt	S3t	S3t	S3t	S3t	S3t
Madhwara	37	N1r	S3t	S3rt	S3t	S3rt	N1t	N1r	S3rt	N1t	S3t	S3t	S3t	S3rt	S3t	S3rt	S3rt	S3rt	S3t	S3t	S3t	S3t	S3t	S3t	S3rt	S3t	S3t	S3t	S3t	S3t
Madhwara	38	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	39	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	40	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	41	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	42	S3r	S1	S2r	S1	S2rt	S2r	S3r	S2r	S2t	S2r	S2r	S1	S2r	S1	S2rt	S3r	S2r	S2t	S2t	S2t	S1	S2t	S2t	S2r	S1	S1	S2t	S2r	S2r
Madhwara	43	S3r	S1	S2r	S1	S2rt	S2r	S3r	S2r	S2t	S2r	S2r	S1	S2r	S1	S2rt	S3r	S2r	S2t	S2t	S2t	S1	S2t	S2t	S2r	S1	S1	S2t	S2r	S2r
Madhwara	44	S3r	S1	S2r	S1	S2rt	S2r	S3r	S2r	S2t	S2r	S2r	S1	S2r	S1	S2rt	S3r	S2r	S2t	S2t	S2t	S1	S2t	S2t	S2r	S1	S1	S2t	S2r	S2r
Madhwara	45	S3r	S1	S2r	S1	S2rt	S2r	S3r	S2r	S2t	S2r	S2r	S1	S2r	S1	S2rt	S3r	S2r	S2t	S2t	S2t	S1	S2t	S2t	S2r	S1	S1	S2t	S2r	S2r
Madhwara	49	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	67	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	68	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	69	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	70	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	71	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	72	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	73	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	74	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	75	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	76	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	77	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	78	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	79	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	80	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	81	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	82	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	83	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	84	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	85	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	86	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	87	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	88	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	89	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	90	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	91	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	92	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	93	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	94	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	95	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	96	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	97	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	98	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	99	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	100	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	101	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	108	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	112	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	148	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	150	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	151	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	152	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	153	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	154	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	155	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	156	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	157	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	158	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	159	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	160	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	164	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	165	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	166	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	167	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	168	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	169	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz
Madhwara	179	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	180	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	181	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	182	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	183	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	184	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	185	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	186	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	187	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	188	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	189	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	190	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	191	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	192	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	193	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	194	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	195	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	196	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	197	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	198	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	199	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	200	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	201	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	202	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	203	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	204	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	205	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	206	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	207	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	208	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	209	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	210	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	211	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	212	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	213	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	214	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	215	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	216	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	217	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	218	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	219	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	220	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	221	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	222	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	223	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	224	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	225	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	226	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	227	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	228	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	229	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	230	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	231	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	232	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	233	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	234	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	235	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	236	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	237	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	238	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	239	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	240	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	241	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	242	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	243	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	244	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	245	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	246	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	247	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	252	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	253	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	254	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	255	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	256	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	258	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	261	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	262	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	263	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	264	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	265	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	266	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	267	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	268	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	269	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	270	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	271	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	272	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	273	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	274	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	275	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	276	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	277	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	278	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	279	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	280	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	281	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	282	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	283	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	284	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	285	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	286	N1r	S2rg	S3r	S2rg	S3r	S2rg	N1r	S3r	S2rg	S3rg	S3rg	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2rg	S2rg	S2rg	S2rg	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	287	N1r	S2rg	S3r	S2rg	S3r	S2rg	N1r	S3r	S2rg	S3rg	S3rg	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2rg	S2rg	S2rg	S2rg	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	288	N1r	S2rg	S3r	S2rg	S3r	S2rg	N1r	S3r	S2rg	S3rg	S3rg	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2rg	S2rg	S2rg	S2rg	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	289	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	290	N1r	S2rg	S3r	S2rg	S3r	S2rg	N1r	S3r	S2rg	S3rg	S3rg	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2rg	S2rg	S2rg	S2rg	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	291	N1r	S2rg	S3r	S2rg	S3r	S2rg	N1r	S3r	S2rg	S3rg	S3rg	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2rg	S2rg	S2rg	S2rg	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	292	N1r	S2rg	S3r	S2rg	S3r	S2rg	N1r	S3r	S2rg	S3rg	S3rg	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2rg	S2rg	S2rg	S2rg	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	293	N1r	S2rg	S3r	S2rg	S3r	S2rg	N1r	S3r	S2rg	S3rg	S3rg	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2rg	S2rg	S2rg	S2rg	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	294	N1r	S2rg	S3r	S2rg	S3r	S2rg	N1r	S3r	S2rg	S3rg	S3rg	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2rg	S2rg	S2rg	S2rg	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	295	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	296	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	297	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	298	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	299	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	313	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	314	N1r	S2r	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Madhwara	343	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	344	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	345	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	346	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	347	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	348	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	349	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	350	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	351	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	352	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	353	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	354	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	355	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	356	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	357	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	358	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	359	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	360	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	361	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	362	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	366	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	367	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	368	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	369	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	370	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	371	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	372	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	373	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	374	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	375	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	376	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	377	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	378	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	379	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	380	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	381	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	382	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	383	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	384	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	385	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	386	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	387	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	388	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	389	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	390	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	391	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	392	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	393	S3tz	S2t	S3t	S2t	S3t	S2t	S2t	S1	S1	S2t	S2t	S2t	S3t	S1	N1t	S2t	S1	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2tz	S2t	S1	S2t	S3t
Madhwara	394	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	395	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	396	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	397	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	398	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	399	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	400	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	401	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	402	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	403	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	404	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	405	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	406	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	407	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	408	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	409	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	410	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	411	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	412	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	413	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	414	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	415	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	416	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	417	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	418	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	419	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	420	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	421	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	422	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	423	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	424	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	425	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	426	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	427	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	428	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	429	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	430	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	431	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	432	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	433	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	434	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	435	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	436	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	437	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	438	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	439	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	440	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	441	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	442	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	443	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	444	N1n	S2nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	445	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	446	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	447	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	448	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	481	S3r	S1	S2r	S1	S2rt	S2r	S3r	S2r	S2t	S2r	S2r	S1	S2r	S1	S2rt	S3r	S2r	S2t	S2t	S2t	S1	S2t	S2t	S2r	S1	S1	S2t	S2r	S2r
Madhwara	482	S3r	S1	S2r	S1	S2rt	S2r	S3r	S2r	S2t	S2r	S2r	S1	S2r	S1	S2rt	S3r	S2r	S2t	S2t	S2t	S1	S2t	S2t	S2r	S1	S1	S2t	S2r	S2r
Madhwara	483	S3r	S1	S2r	S1	S2rt	S2r	S3r	S2r	S2t	S2r	S2r	S1	S2r	S1	S2rt	S3r	S2r	S2t	S2t	S2t	S1	S2t	S2t	S2r	S1	S1	S2t	S2r	S2r
Madhwara	484	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	485	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	486	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	487	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	488	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	489	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	490	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	491	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	492	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	493	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	494	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	495	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	496	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	497	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	498	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	499	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	500	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	501	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	502	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	503	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	504	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	505	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	506	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	507	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	508	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	509	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	510	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	511	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	512	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	513	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	514	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	515	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	516	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	517	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	518	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	519	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	520	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	521	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	522	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	523	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	524	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	525	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	526	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	527	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	528	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	529	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	530	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	531	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	532	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	533	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	534	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	535	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	536	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	537	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	538	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	539	N1n	S3nw	N1n	S3nw	N1n	S3n	N1n	N1n	S3n	N1n	S3n	N1n	N1n	N1n	N1nt	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3n	N1n	N1n	N1n	N1n
Madhwara	540	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	541/1	S3r	S1	S2r	S1	S2rt	S2r	S3r	S2r	S2t	S2r	S2r	S1	S2r	S1	S2rt	S3r	S2r	S2t	S2t	S2t	S1	S2t	S2t	S2r	S1	S1	S2t	S2r	S2r
Madhwara	541/2	S3r	S1	S2r	S1	S2rt	S2r	S3r	S2r	S2t	S2r	S2r	S1	S2r	S1	S2rt	S3r	S2r	S2t	S2t	S2t	S1	S2t	S2t	S2r	S1	S1	S2t	S2r	S2r
Madhwara	542	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	543	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	544	S3r	S1	S2r	S1	S2rt	S2r	S3r	S2r	S2t	S2r	S2r	S1	S2r	S1	S2rt	S3r	S2r	S2t	S2t	S2t	S1	S2t	S2t	S2r	S1	S1	S2t	S2r	S2r

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	553	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	554	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	555	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	556	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	557	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	558	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	559	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	560	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	561	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	562	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	563	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	564	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	565	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	566	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	567	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	568/1	S3t	S2t	S3t	S2w	S3t	S1	S2t	S1	S1	S2w	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S3tw	S3tw	S2tw	S2tw	S2t	S2tw	S2t	S2t	S2tw	S3tw
Madhwara	568/2	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	569	S3t	S2t	S3t	S2w	S3t	S1	S2t	S1	S1	S2w	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S3tw	S3tw	S2tw	S2tw	S2t	S2tw	S2t	S2t	S2tw	S3tw
Madhwara	591	N1r	S3t	S3rt	S3t	S3rt	N1t	N1r	S3rt	N1t	S3t	S3t	S3t	S3rt	S3t	S3rt	S3rt	S3rt	S3t	S3t	S3t	S3t	S3t	S3t	S3rt	S3t	S3t	S3t	S3t	S3t
Madhwara	594	S3t	S2t	S3t	S2w	S3t	S1	S2t	S1	S1	S2w	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S3tw	S3tw	S2tw	S2tw	S2t	S2tw	S2t	S2t	S2tw	S3tw
Madhwara	595	S3t	S2t	S3t	S2w	S3t	S1	S2t	S1	S1	S2w	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S3tw	S3tw	S2tw	S2tw	S2t	S2tw	S2t	S2t	S2tw	S3tw
Madhwara	596	S3t	S2t	S3t	S2w	S3t	S1	S2t	S1	S1	S2w	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S3tw	S3tw	S2tw	S2tw	S2t	S2tw	S2t	S2t	S2tw	S3tw
Madhwara	597	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	598	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	599	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	600	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	601	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	602	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	603	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	604	S3t	S2t	S3t	S2w	S3t	S1	S2t	S1	S1	S2w	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S3tw	S3tw	S2tw	S2tw	S2t	S2tw	S2t	S2t	S2tw	S3tw
Madhwara	605	N1r	S3t	S3rt	S3t	S3rt	N1t	N1r	S3rt	N1t	S3t	S3t	S3t	S3rt	S3t	S3rt	S3rt	S3rt	S3t	S3t	S3t	S3t	S3t	S3t	S3rt	S3t	S3t	S3t	S3t	S3t
Madhwara	606	N1r	S3t	S3rt	S3t	S3rt	N1t	N1r	S3rt	N1t	S3t	S3t	S3t	S3rt	S3t	S3rt	S3rt	S3rt	S3t	S3t	S3t	S3t	S3t	S3t	S3rt	S3t	S3t	S3t	S3t	S3t
Madhwara	607	N1r	S3t	S3rt	S3t	S3rt	N1t	N1r	S3rt	N1t	S3t	S3t	S3t	S3rt	S3t	S3rt	S3rt	S3rt	S3t	S3t	S3t	S3t	S3t	S3t	S3rt	S3t	S3t	S3t	S3t	S3t
Madhwara	608	S3t	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S1	S3t	S1	N1tz	S2t	S1	S3tw	S2t	S2tw	S3tw	S2tw	S2tw	S2t	S2t	S2t	S2t	S2tw	S3tw
Madhwara	609	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	610	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	611	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	612	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	613	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	614	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	615	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	616	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	617	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	618	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	619	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	620	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	621	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	622	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	623	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	624	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	625	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	626	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	627	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	628	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Madhwara	629	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	630	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	631	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	632	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	633	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	634	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	635	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	636	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	637	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	638	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	639	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	640	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	641	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	642	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Madhwara	643	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	644	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Madhwara	645	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
NA	NA	N1n	S3nw	N1n	S3nw	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1tn	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Yalasatti	386	S3rz	S2tz	S2rz	S2tz	S2rz	S2tz	S3rz	S2rz	S2tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S2w	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S2w	S2rz	S2rz

PART-B

SOCIO-ECONOMIC STATUS OF FARM HOUSEHOLDS

CONTENTS

LIST OF TABLES

Chapter 1

FINDINGS OF THE SOCIO-ECONOMIC SURVEY

- *The survey was conducted in Turk Madhawar-1 is located at North latitude 16^0 40' 9.811" and 16^0 38' 5.741" and East longitude 77^0 21' 33.973" and 77^0 19' 0.731" covering an area of about 747.27 ha coming unde Madhwara and kalebilagunda villages of Yadagiri taluk.*
- *Socio-economic analysis of Turk Madhawar-1 micro watersheds of Turk Madhawar sub-watershed, Yadgiri taluk & District indicated that, out of the total sample of 36 farmers were sampled in Turk Madhawar-1 micro-watershed among households surveyed 15 (41.67%) were marginal, 13 (36.11%) were small, 1 (2.78 %) were semi medium and 3 (8.33 %) were medium farmers. 4 landless farmers were also interviewed for the survey.*
- *The population characteristics of households indicated that, there were 93 (62.00%) men and 57 (38.00 %) were women. The average population of landless was 3.8, marginal farmers were 4.2, small farmers were 4.2, semi medium farmers were 5 and medium farmers were 4.3.*
- *Majority of the respondents (52.67%) were in the age group of 16-35 years.*
- *Education level of the sample households indicated that, there were 63.33 per cent illiterates, 28.67 per cent pre university education and 5.33 per cent attained graduation.*
- *About, 66.67 per cent of household heads practicing agriculture and 22.22 per cent of the household heads were engaged as agricultural labourers.*
- *Agriculture was the major occupation for 53.33 per cent of the household members.*
- *In the study area, 66.67 per cent of the households possess katcha house and 33.33 per cent possess pucca house.*
- *The durable assets owned by the households showed that, 77.78 per cent possess TV, 25.00 per cent possess mixer grinder, 94.44 per cent possess mobile phones and 16.67 per cent possess motor cycles.*
- *Farm implements owned by the households indicated that, 27.78 per cent of the households possess plough, 22.22 per cent possess bullock cart.*
- *Regarding livestock possession by the households, 2.78 per cent possess local cow.*
- *The average labour availability in the study area showed that, own labour men available in the micro watershed was 1.75, women available in the micro watershed was 1.56, hired labour (men) available was 12.84 and hired labour (women) available was 13.06.*
- *Out of the total land holding of the sample respondents 75.31 per cent (38.21 ha) of the area is under dry condition and the remaining 24.69 per cent area is irrigated land.*
- *There were 3.00 live bore wells among the sampled households.*

- *Bore/open well was the major source of irrigation for 8.33 per cent of the households.*
- *The major crops grown by sample farmers are Red gram, Groundut, Sorghum, Paddy and Cotton and cropping intensity was recorded as 100.00 per cent.*
- *Out of the sample households 83.33 percent possessed bank account and 2.78 per cent of them have savings in the account.*
- *About 75.00 per cent of the respondents borrowed credit from various sources.*
- *Among the credit borrowed by households, 3.57 per cent from co-operative/Grameena bank.*
- *Majority of the respondents (100.00%) have borrowed loan for agriculture purpose.*
- *Regarding the opinion on institutional sources of credit, 100.00 per cent of the households opined that credit helped to perform timely agricultural operations.*
- *The per hectare cost of cultivation for Red gram, Groundut, Sorghum, Paddy and Cotton was Rs.31506.68, 35080.48, 31325.20, 227383.74 and 30361.71 with benefit cost ratio of 1:1.10, 1: 1.60, 1: 1.30, 1: 0.50 and 1:1.50 respectively.*
- *Further, 36.11 per cent of the households opined that dry fodder was adequate.*
- *The average annual gross income of the farmers was Rs. 45361.10 in micro-watershed, of which Rs. 38972.22 comes from agriculture.*
- *Sampled households have grown 3 horticulture trees and 72 forestry trees together in the fields and back yards.*
- *Households have an average investment capacity of Rs. 1555.56 for land development and Rs. 2222.22 for irrigation facility.*
- *Source of funds for additional investment is concerned, 66.67 per cent depends on bank loan for land development activities.*
- *Regarding marketing channels, 88.89 per cent of the households have sold agricultural produce to the local/village merchants.*
- *Further, 88.89 per cent of the households have used tractor for the transport of agriculture commodity.*
- *Majority of the farmers (88.89%) have experienced soil and water erosion problems in the watershed and 86.11 per cent of the households were interested towards soil testing.*
- *About, 16.67 per cent of farmers practicing summer ploughing as soil and water conservation practice.*
- *Fire was the major source of fuel for domestic use for 66.67 per cent of the households and 33.33 per cent households has LPG connection.*
- *Piped supply was the major source for drinking water for 61.11 per cent of the households.*
- *Electricity was the major source of light for 100.00 per cent of the households.*
- *In the study area, 19.44 per cent of the households possess toilet facility.*

- *Regarding possession of PDS card, 100.00 per cent of the households possessed BPL card.*
- *Households opined that, the requirement of cereals (102.78%), pulses (91.67%) and oilseeds (27.78%) are adequate for consumption.*
- *Farming constraints experienced by households in the micro watersheds were lower fertility status of the soil (94.44%) wild animal menace on farm field (88.89%), frequent incidence of pest and diseases (75.00%), inadequacy of irrigation water (2.78%), high cost of fertilizers and plant protection chemicals (83.33%), high rate of interest on credit (44.44%), low price for the agricultural commodities (75.00%), lack of marketing facilities in the area (55.56%), inadequate extension services (2.78%), lack of transport for safe transport of the agricultural produce to the market (50.00%).*

Chapter 2

INTRODUCTION

Soil and water are the two precious natural resources which are essential for crop production and existence of life on earth. Rainfed agriculture is under severe stress due to various constraints related to agriculture like uneven and erratic distribution of rainfall, indiscriminate use of fertilizers, chemicals and pesticides, adoption of improper land management practices, soil erosion, decline in soil fertility, decline in ground water resources leading to low crop productivity. The area under rainfed agriculture has to be managed effectively using the best available practices to enhance the production of food, fodder and fuel. This is possible if the land resources are characterized at each parcel of land through detailed land resource inventory using the best available techniques of remote sensing, GPS and GIS. The watershed development programs are aimed at the sustainable distribution of its resources and the process of creating and implementing plans, programs, and projects to sustain and enhance watershed functions that affect the plant, animal and human communities within a watershed boundary.

World Bank funded KWDP II, SUJALA III project was implemented in with Broad objective of demonstrating more effective watershed management through greater integration of programmes related to rain-fed agriculture, innovative and science based approaches and strengthen institutional capacities and If successful, it is expected that the systems and tools could be mainstreamed into the overall IWMP in the State of Karnataka and in time, throughout other IWMP operations in India. With this background the socio-economic survey has been carried out with following specific objectives:

1. To understand the demographic features of the households in the micro-watershed
2. To understand the extent of family labour available and additional employment opportunities available within the village.
3. To know the status of assets of households in the micro-watershed for suggesting possible improvements.
4. To study the cropping pattern, cropped area and productivity levels of different households in micro-watershed.
5. To determine the type and extent of livestock owned by different categories of HHs
6. Availability of fodder and level of livestock management.

Scope and importance of survey

Survey helps in identification of different socio-economic and resource use-patterns of farmers at the Micro watershed. Household survey provides demographic features, labor force, and levels of education; land ownership and asset position (including livestock and other household assets) of surveyed households; and cropping patterns, input intensities, and average crop yields from farmers' fields. It also discusses crop utilization and the degree of commercialization of production in the areas; farmers' access to and utilization of credit from formal and informal sources; and the level of adoption and use of soil, water, and pest management technologies.

Chapter 3

METHODOLOGY

The description of the methods, components selected for the survey and procedures followed in conducting the baseline survey are furnished under the following heads.

1. Description of the study area

Yadgir District is one of the 30 districts of Karnataka state in southern India. This district was carved out from the erstwhile Gulbarga district as the 30th district of Karnataka on 10 April 2010. Yadgir town is the administrative headquarters of the district. The district comprises of 3 taluks namely, Shahapur, Yadgiri and Shorapur (There are 16 hoblies, 117 Gram Panchayats, 4 Municipalities,8 Towns/ Urban agglomeration and 487 inhabited & 32 un-inhabited villages The district occupies an area of 5,160.88 km².

Yadgir district is the second smallest district in the state, area wise is very rich in cultural traditions. The vast stretch of fertile black soil of the district is known for bumper red gram and jowar crops. The district is a "Daal bowl" of the state. The district is also known for cluster of cement industries and a distinct stone popularly known as "Malakheda Stone". Two main rivers, Krishna and Bhima, and a few tributaries flow in this region. Krishna and Bhima Rivers drain the district. They constitute the two major river basins of the district. Kagna and Amarja are the two sub - basins of Bhima River, which occur within the geographical area of the district

According to the 2011 census Yadgir district has a population of 1, 172,985, roughly equal to the nation of Timor-Lesteor the US state of Rhode Island. This gives it a ranking of 404th in India (out of a total of 640). The district has a population density of 224 inhabitants per square kilometre (580/sq mi). Its population growth rate over the decade 2001-2011 was 22.67%. Yadgir has a sex ratio of 984 females for every 1000 males, and a literacy rate of 52.36%.

2. Locale of the survey and description of the micro-watershed and

The study was conducted in Turk Madhawar-1 micro-watershed (Turk Madhawar sub-watershed, Yadgiri taluk & District) is located at North latitude 16^0 40’ 9.811” and 16^0 38' 5.741" and East longitude 77^0 21’ 33.973" and 77^0 19’ 0.731”covering an area of about 747.27 ha bounded by unde Madhwara and kalebilagunda Villages.

3. Selection of the respondents for the study

The micro-watershed is marked with 320 square meters grids. One farmer from every alternate grid in the micro-watershed was selected for the study and interviewed for socio-economic data. Totally 36 households were interviewed for the survey.

4. The parameters considered for socio-economic survey of households

Two forms of data were collected from the micro-watershed which includes primary data from the farm households and secondary data about the villages under the micro-watershed jurisdiction.

The following parameters were considered for the primary data collection about the socio-economic data of the households, (1) Demographic information, (2) Farm and durable assets owned by households, (3) Livestock possession, (4) Labour availability, (5) Level of migration in the village, Land holding, (7) Cropping pattern, (8) Source of irrigation, (9) Borrowing status, (10) Cost of cultivation of major crops, (11) Economics of subsidiary activities, (12) Fodder availability, (13) Family annual income from different sources, (14) Horticulture and forestry species grown, (15) Additional investment capacity, (16) Marketing practices, (17) Status of soil and water conservation structure, (18) Access to basic needs and (19) Constraints and suggestion.

The following parameters were considered for the secondary data regarding the villages under the micro-watershed jurisdiction, (1) Number of villages in each micro-watershed jurisdiction, (2) Village wise number of households, (3) Geographical area of the villages, (4) Cultivable are a including rainfed and irrigated, (5) Number and type of house in each village, (6) Human and livestock population, (7) Facilities in the village such as roads, transport facility for conveyance, drinking water supply, street light and (8) Community based organizations in the villages.

5. Development of interview schedule and data collection

Taking into the consideration the objectives of the survey, an interview schedule was prepared after thorough consultation with the experts in the field of social sciences. A comprehensive interview schedule covering all the major parameters for measuring the socio-economic situation was developed.

6. Tools used to analyze the data

The statistical components such as frequency and percentage were used to analyze the data.

Abbreviations used in the report

LL=Landless
MF=Marginal Farmers
SF=Small farmers
SMF=Semi medium farmers
MDF=Medium farmers
LF=Large Farmers

Chapter 4

FINDINGS OF THE SURVEY

This chapter deals with systematic presentation of results of the survey. Keeping in view the objectives, the salient features of the survey are presented under the following headings.

Households sampled for socio-economic survey: The data on households sampled for socio economic survey in Turk Madhawar-1 Micro watershed is presented in Table 1 and it indicated that 36 farmers were sampled in Turk Madhawar-1 micro-watershed among households surveyed 15 (41.67%) were marginal, 13 (36.11%) were small, 1 (2.78 %) were semi medium and 3 (8.33 %) were medium farmers. 4 landless farmers were also interviewed for the survey.

Table 1. Households sampled for socio economic survey in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Farmers	4	11.1	15	41.7	13	36.1	1	2.78	3	8.33	36	100

Population characteristics: The population characteristics of households sampled for socio-economic survey in Turk Madhawar-1 Micro watershed is presented in Table 2. The data indicated that, there were 93 (62.00%) men and 57 (38.00%) were women. The average population of landless was 3.8, marginal farmers were 4.2, small farmers were 4.2, semi medium farmers were 5 and medium farmers were 4.3.

Table 2. Population characteristics in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (15)		MF (63)		SF (54)		SMF (5)		MDF (13)		All (150)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Men	10	66.7	42	67	30	56	3	60	8	61.5	93	62
2	Women	5	33.3	21	33	24	44	2	40	5	38.5	57	38
Total		15	100	63	100	54	100	5	100	13	100	150	100
Average		3.8		4.2		4.2		5.0		4.3		4.2	

Age wise classification of population: The age wise classification of household members in Turk Madhawar-1 Micro watershed is presented in Table 3. The indicated that, 16 (10.67%) of population were 0-15 years of age, 79 (52.67%) were 16-35 years of age, 49(32.67%) were 36-60 years of age and 6 (4.00 %) were above 61 years of age.

Table 3: Age wise classification of members of the household in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (15)		MF (63)		SF (54)		SMF (5)		MDF (13)		All (150)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	0-15 years of age	6	40	3	4.76	2	3.7	3	60	2	15	16	10.67
2	16-35 years of age	5	33.3	35	55.6	31	57.4	2	40	6	46	79	52.67
3	36-60 years of age	3	20	24	38.1	19	35.2	0	0	3	23	49	32.67
4	> 61 years	1	6.67	1	1.59	2	3.7	0	0	2	15	6	4
Total		15	100	63	100	54	100	5	100	13	100	150	100

Education level of household members: Education level of household members in Turk Madhawar-1 Micro watershed is presented in Table 4. The results indicated that, there were 63.33 per cent of illiterates, 8.67 per cent of them had primary school education, 5.33 per cent middle school education, and 13.33 per cent high school education, 0.67 per cent of them had PUC education, 0.67 per cent of them had Diploma, 5.33 per cent attained graduation and 0.67 them had other education.

Table 4. Education level of members of the household in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (15)		MF (63)		SF (54)		SMF (5)		MDF (13)		All (150)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Illiterate	7	46.7	42	66.7	34	63	2	40	10	76.92	95	63.3
2	Primary School	4	26.7	5	7.94	1	1.85	2	40	1	7.69	13	8.67
3	Middle School	2	13.3	3	4.76	3	5.56	0	0	0	0	8	5.33
4	High School	2	13.3	7	11.1	9	16.7	0	0	2	15.38	20	13.3
5	PUC	0	0	0	0	1	1.85	0	0	0	0	1	0.67
6	Diploma	0	0	1	1.59	0	0	0	0	0	0	1	0.67
7	Degree	0	0	4	6.35	4	7.41	0	0	0	0	8	5.33
8	Masters	0	0	1	1.59	2	3.7	0	0	0	0	3	2
9	Others	0	0	0	0	0	0	1	20	0	0	1	0.67
Total		15	100	63	100	54	100	5	100	13	100	150	100

Occupation of head of households: The data regarding the occupation of the household heads in Turk Madhawar-1 Micro watershed is presented in Table 5. The results indicate that, 66.67 per cent of households heads were practicing agriculture and 22.22 per cent of the household heads were agricultural Labour.

Table 5: Occupation of heads of households in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Agriculture	0	0	9	60	13	100	1	100	1	33.3	24	66.67
2	Agricultural Labour	2	50	4	27	0	0	0	0	2	66.7	8	22.22
3	General Labour	2	50	0	0	0	0	0	0	0	0	2	5.56
4	Student	0	0	2	13	0	0	0	0	0	0	2	5.56
Total		4	100	15	100	13	100	1	100	3	100	36	100

Table 6: Occupation of members of the household in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (15)		MF (63)		SF (54)		SMF (5)		MDF (13)		All (150)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Agriculture	0	0	33	52.4	39	72.22	1	20	7	54	80	53.3
2	Agricultural Labour	3	20	12	19.1	3	5.56	0	0	2	15	20	13.3
3	General Labour	2	13.3	1	1.59	0	0	0	0	0	0	3	2
4	Student	7	46.7	11	17.5	10	18.52	2	40	2	15	32	21.3
5	Others	0	0	4	6.35	2	3.7	0	0	0	0	6	4
6	Housewife	3	20	2	3.17	0	0	1	20	2	15	8	5.33
7	Children	0	0	0	0	0	0	1	20	0	0	1	0.67
Total		15	100	63	100	54	100	5	100	13	100	150	100

Occupation of the members of the household: The data regarding the occupation of the household members in Turk Madhawar-1 Micro watershed is presented in Table 6. The results indicate that, agriculture was the major occupation for 53.33 per cent of the household members, 13.33 per cent were agricultural labour, 2.00 per cent were general labour, 21.33 per cent were working in pursuing education, 5.33 per cent were involved as housewife and 0.67 per cent were children.

Institutional Participation of household members: The data regarding the institutional participation of the household members in Turk Madhawar-1 Micro watershed is presented in Table 7. The results show that, out of the total family members in the households 100 per cent of were not participating in any of the institutions.

Table 7: Institutional Participation of household member in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (15)		MF (63)		SF (54)		SMF (5)		MDF (13)		All (150)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	No Participation	15	100	63	100	54	100	5	100	13	100	150	100
Total		15	100	63	100	54	100	5	100	13	100	150	100

Type of house owned: The data regarding the type of house owned by the households in Turk Madhawar-1 Micro watershed is presented in Table 8. The results indicate that, 66.67 per cent of the households possess katcha house and 33.33 per cent possess pacca house.

Table 8. Type of house owned by households in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Katcha	3	75	9	60	8	61.54	1	100	3	100	24	66.67
2	Pucca/RCC	1	25	6	40	5	38.46	0	0	0	0	12	33.33
Total		4	100	15	100	13	100	1	100	3	100	36	100

Durable assets owned by the households: The data regarding the Durable Assets owned by the households in Turk Madhawar-1 Micro watershed is presented in Table 9. The results shows that, 77.78 per cent possess TV, 25.00 per cent possess mixer grinder, 16.67 per cent possess motor cycle, 94.44 per cent possess mobile phones.

Table 9. Durable assets owned by households in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Television	4	100	11	73	10	76.9	1	100	2	66.7	28	77.78
2	Mixer/Grinder	0	0	3	20	5	38.5	0	0	1	33.3	9	25
3	Motor Cycle	0	0	2	13	3	23.1	0	0	1	33.3	6	16.67
4	Mobile Phone	4	100	15	100	12	92.3	0	0	3	100	34	94.44
5	Blank	0	0	0	0	1	7.69	0	0	0	0	1	2.78

Average value of durable assets: The data regarding the average value of durable assets owned by the households in Turk Madhawar-1 Micro watershed is presented in Table 10.

The result shows that, the average value of television was Rs.4535.00, mixer grinder was Rs.1044.00, motor cycle was Rs. 40000.00 and Landline mobile phone was Rs.1506.00.

Table 10. Average value of durable assets owned in Turk Madhawar-1 micro-watershed

Average Value (Rs.)

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
1	Television	4750	4818	4400	7000	2000	4535
2	Mixer/Grinder	0	1133	840	0	1800	1044
3	Motor Cycle	0	40000	33333	0	60000	40000
4	Mobile Phone	2000	1340	1500	0	1950	1506

Farm implements owned: The data regarding the farm implements owned by the households in Turk Madhawar-1 Micro watershed is presented in Table 11. About 22.22 per cent of the households possess Bullock Cart, 27.78 per cent possess plough and 25.00 per cent possess Weeder.

Table 11. Farm implements owned in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Bullock Cart	0	0	4	26.7	3	23.08	0	0	1	33.3	8	22.22
2	Plough	0	0	5	33.3	3	23.08	0	0	2	66.7	10	27.78
3	Weeder	0	0	4	26.7	3	23.08	0	0	2	66.7	9	25
4	Blank	4	100	10	66.7	10	76.92	1	100	1	33.3	26	72.22

Average value of farm implements: The data regarding the average value of farm Implements owned by the households in Turk Madhawar-1 Micro watershed is presented in Table 12. The results show that the average value of plough was Rs.2980.00, bullock Cart was Rs.28500.00 and weeder was Rs.75.00.

Table 12. Average value of farm implements in Turk Madhawar-1 micro-watershed

Average Value (Rs.)

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
1	Bullock Cart	0	30000	30000	0	18000	28500
2	Plough	0	2400	4666	0	1900	2980
3	Weeder	0	82	50	0	137	75

Livestock possession by the households: The data regarding the Livestock possession by the households in Turk Madhawar-1 Micro watershed is presented in Table 13. The results indicate that, 25.00 per cent of the households possess bullocks, 2.78 per cent possess local cow.

Table 13. Livestock possession by households in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Bullock	0	0	4	27	3	23.08	0	0	2	66.7	9	25
2	Local cow	1	25	0	0	0	0	0	0	0	0	1	2.78
3	blank	3	75	11	73	10	76.92	1	100	1	33.3	26	72.22

Average Labour availability: The data regarding the average labour availability in Turk Madhawar-1 Micro watershed is presented in Table 14. The indicated that, own labour men available in the micro watershed was 1.75, women available in the micro watershed was 1.56, hired labour (men) available was 12.84 and hired labour (women) available was 13.06.

Table 14. Average labour availability in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
		N	N	N	N	N	N
1	Hired labour Female	0	10.2	15	15	18.3	13.06
2	Own Labour Female	0	1.73	1.46	1	1.33	1.56
3	Own labour Male	0	2	1.62	1	1.33	1.75
4	Hired labour Male	0	9.73	15	20	16.7	12.84

Adequacy of hired labour: The data regarding the adequacy of hired labour in Turk Madhawar-1 Micro watershed is presented in Table 15. The results indicate that, 88.89 per cent of the household opined that hired labour was adequate.

Table 15. Adequacy of hired labour in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Adequate	0	0	15	100	13	100	1	100	3	100	32	88.9

Distribution of land (ha): The data regarding the distribution of land (ha) in Turk Madhawar-1 Micro watershed is presented in Table 16. The results indicate that, 28.78 ha (75.31%) of dry land and 9.43 ha (24.69 %) of irrigated land.

Table 16. Distribution of land (ha) in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Dry	0	0	10.1	100	18.64	100	0	0	0	0	28.78	75.31
2	Irrigated	0	0	0	0	0	0	1.73	100	7.71	100	9.43	24.69
Total		0	100	10.1	100	18.64	100	1.73	100	7.71	100	38.21	100

Average value of land (ha): The data regarding the average land value (Rs./ha) in Turk Madhawar-1 Micro watershed is presented in Table 17. The results show that the average value of dry land was Rs.390767.83 and the average value of irrigated land was Rs.190733.59.

Table 17. Average value of land (ha) in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
		N	N	N	N	N	N
1	Dry	0	572124.6	292196.7	0	0	390767.8
2	Irrigated	0	0	0	231381.7	181617.7	190733.6

Status of bore wells: The data regarding the status of bore wells in Turk Madhawar-1 Micro watershed is presented in Table 18. The results indicate that, 3 functioning bore wells among the sampled households in micro watershed.

Table 18. Status of bore wells in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
		N	N	N	N	N	N
1	Functioning	0	0	0	1	2	3

Source of irrigation: The data regarding the source of irrigation in Turk Madhawar-1 Micro watershed is presented in Table 19. The results that bore well were major source of irrigation for 8.33 per cent of the households.

Table 19. Source of irrigation in Turk Madhawar-1 micro-watershed

		LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
Sl.No.	Particulars	N	%	N	%	N	%	N	%	N	%	N	%
1	Bore Well	0	0	0	0	0	0	1	100	2	66.67	3	8.33

Depth of water (Avg. In meters): The data regarding the depth of water in Turk Madhawar-1 Micro watershed is presented in Table 20. The results revealed that, the depth of bore well was 7.37 meter.

Table 20. Depth of water (Avg. In meters) in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
		N	N	N	N	N	N
1	Bore Well	0	0	0	137.16	42.67	7.37

Irrigated Area (ha): The data regarding the irrigated area (ha) in Turk Madhawar-1 Micro watershed is presented in Table 21. The results indicate that, the availability of irrigation water was used for kharif crops was 7.41 ha.

Table 21. Irrigated Area (ha) in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
1	Kharif	0	0	0	1.73	5.68	7.41
Total		0	0	0	1.73	5.68	7.41

Cropping pattern: The data regarding the cropping pattern in Turk Madhawar-1 Micro watershed is presented in Table 22. The results indicate that, farmers have grown Cotton (23.36 ha), Red gram (12.17 ha), Sorghum (2.54 ha), Groundnut (0.89 ha) and Paddy (0.10 ha).

Table 22. Cropping pattern in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
1	Kharif - Cotton	0	8.46	12.87	0	2.02	23.36
2	Kharif - Red gram	0	0.68	5.81	0	5.68	12.17
3	Kharif - Sorghum	0	0.81	0	1.73	0	2.54
4	Kharif - Groundnut	0	0.89	0	0	0	0.89
5	Kharif - Paddy	0	0.1	0	0	0	0.1
Total		0	10.94	18.68	1.73	7.71	39.06

Cropping intensity: The data regarding the cropping intensity in Turk Madhawar-1 Micro watershed is presented in Table 23. The results indicate that, the cropping intensity was 100.00 per cent.

Table 23. Cropping intensity (%) in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
1	Cropping Intensity	0	100	100	100	100	100

Possession of bank account and savings: The data regarding the possession of bank account and saving in Turk Madhawar-1 micro-watershed is presented in Table 24. The results indicate that, 83.33 cent of the households posses bank account and 2.78 per cent of them have savings.

Table 24. Possession of Bank account and savings in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Account	0	0	13	86.67	13	100	1	100	3	100	30	83.33
2	Savings	0	0	0	0	0	0	0	0	1	33.33	1	2.78

Borrowing status: The data regarding the borrowing status in Turk Madhawar-1 micro-watershed is presented in Table 25. The results indicate that, 75.00 percent of the sample farmers have borrowed credit from different sources.

Table 25. Borrowing status in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Credit Availed	0	0	12	80	13	100	1	100	1	33	27	75

Source of credit: The data regarding the source of credit availed by households in Turk Madhawar-1 micro-watershed is presented in Table 26. The result shows that, 3.57 per cent have borrowed loan from Grameena Bank.

Table 26. Source of credit borrowed by households in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (0)		MF (12)		SF (13)		SMF (1)		MDF (2)		All (28)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Grameena Bank	0	0	1	8.33	0	0	0	0	0	0	1	3.57

Avg. Credit amount: The data regarding the avg. Credit amount in Turk Madhawar-1 micro-watershed is presented in Table 27. The results show that, farmers have borrowed Avg. Credit of Rs.1428.57 from different sources.

Table 27. Avg. Credit amount in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (0)	MF (12)	SF (13)	SMF (1)	MDF (2)	All (28)
		N	N	N	N	N	N
1	Average Credit	0	3333.33	0	0	0	1428.57

Purpose of credit borrowed (institutional Source): The data regarding the purpose of credit borrowed - Institutional Credit in Turk Madhawar-1 micro-watershed is presented in Table 28. The results indicate that, 100.00 per cent of the households have borrowed loan for agriculture.

Table 28. Purpose of credit borrowed (institutional Source) by households in Turk Madhawar-1 micro-watershed

SN	Particulars	LL (0)		MF (1)		SF (0)		SMF (0)		MDF (0)		All (1)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Agriculture production	0	0	1	100	0	0	0	0	0	0	1	100

Repayment status of household (institutional Source): The data regarding the repayment status of credit borrowed from institutional Source by households in Turk Madhawar-1 micro watershed is presented in Table 29. The results indicate that, 100.00 per cent have unpaid.

Table 29. Repayment status of household (institutional Source) in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (0)		MF (1)		SF (0)		SMF (0)		MDF (0)		All (1)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Un paid	0	0	1	100	0	0	0	0	0	0	1	100

Opinion regarding institutional sources of credit: The data regarding the opinion on institutional sources of credit in Turk Madhawar-1 micro watershed is presented in Table 30. The results indicate that, 100.00 per cent of the households opined that credit helped to perform timely agricultural operations.

Table 30. Opinion regarding institutional sources of credit in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	MF (1)		All (1)	
		N	%	N	%
1	Helped to perform timely agricultural operations	1	100	1	100

Cost of Cultivation of Red gram: The data regarding the cost of cultivation (Rs/ha) of Red gram in Turk Madhawar-1 micro watershed is presented in Table 31.a. The results indicate that, the total cost of cultivation (Rs/ha) for Red gram was Rs. 31506.68. The gross income realized by the farmers was Rs. 36278.13. The net income from Red gram cultivation was Rs.4771.45, thus the benefit cost ratio was found to be 1:1.10.

Table 31(a). Cost of Cultivation of Red gram in Turk Madhawar-1 micro-watershed

Sl. No	Particulars		Units	Phy Units	Value (Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	48.18	7888.14	25.04
2	Bullock		Pairs/day	1.6	853.03	2.71
3	Tractor		Hours	3.35	3352.97	10.64
4	Machinery		Hours	0	0	0
5	Seed Main Crop (Establishment and Maintenance)		Kgs (Rs.)	18.1	2711.06	8.6
6	Seed Inter Crop		Kgs.	0	0	0
7	FYM		Quintal	0.76	917.43	2.91
8	Fertilizer + micronutrients		Quintal	6.33	5605.64	17.79
9	Pesticides (PPC)		Kgs/liters	1.06	1306.88	4.15
10	Irrigation		Number	0	0	0
11	Repairs			0	0	0
12	Msc. Charges (Marketing costs etc)			0	0	0
13	Depreciation charges			0	167.7	0.53
14	Land revenue and Taxes			0	3.71	0.01
II	**Cost B1**					
16	Interest on working capital				1264.92	4.01
17	**Cost B1 = (Cost A1 + sum of 15 and 16)**				24071.46	76.4
III	**Cost B2**					
18	Rental Value of Land				358.33	1.14
19	**Cost B2 = (Cost B1 + Rental value)**				24429.8	77.54
IV	**Cost C1**					
20	Family Human Labour			20.14	4212.64	13.37
21	**Cost C1 = (Cost B2 + Family Labour)**				28642.44	90.91
V	**Cost C2**					
22	Risk Premium				0	0
23	**Cost C2 = (Cost C1 + Risk Premium)**				28642.44	90.91
VI	**Cost C3**					
24	Managerial Cost				2864.24	9.09
25	**Cost C3 = (Cost C2 + Managerial Cost)**				31506.68	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		10.75	36278.13	
		b) Main Crop Sales Price (Rs.)			3375	
b.	Gross Income (Rs.)				36278.13	
c.	Net Income (Rs.)				4771.45	
d.	Cost per Quintal (Rs./q.)				2931.11	
e.	Benefit Cost Ratio (BC Ratio)				1:1.1	

Cost of Cultivation of Groundut: The data regarding the cost of cultivation (Rs/ha) of Groundut in Turk Madhawar-1 micro watershed is presented in Table 31.b. The results indicate that, the total cost of cultivation (Rs/ha) for Groundut was Rs. 35080.48. The gross income realized by the farmers was Rs. 56136.36. The net income from Groundut cultivation was Rs.21055.88, thus the benefit cost ratio was found to be 1:1.60.

Table 31(b). Cost of Cultivation of Groundut in Turk Madhawar-1 micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	38.17	6736.36	19.2
2	Bullock		Pairs/day	0	0	0
3	Tractor		Hours	5.61	5613.64	16
4	Machinery		Hours	0	0	0
5	Seed Main Crop (Establishment and Maintenance)		Kgs (Rs.)	28.07	3368.18	9.6
6	Seed Inter Crop		Kgs.	0	0	0
7	FYM		Quintal	0	0	0
8	Fertilizer + micronutrients		Quintal	4.49	3592.73	10.24
9	Pesticides (PPC)		Kgs / liters	2.25	2694.55	7.68
10	Irrigation		Number	0	0	0
11	Repairs			0	0	0
12	Msc. Charges (Marketing costs etc)			0	0	0
13	Depreciation charges			0	0.02	0
14	Land revenue and Taxes			0	4.94	0.01
II	**Cost B1**					
16	Interest on working capital				1158.65	3.3
17	**Cost B1 = (Cost A1 + sum of 15 and 16)**				23169.07	66.05
III	**Cost B2**					
18	Rental Value of Land				1200	3.42
19	**Cost B2 = (Cost B1 + Rental value)**				24369.07	69.47
IV	**Cost C1**					
20	Family Human Labour			35.93	7522.27	21.44
21	**Cost C1 = (Cost B2 + Family Labour)**				31891.34	90.91
V	**Cost C2**					
22	Risk Premium				0	0
23	**Cost C2 = (Cost C1 + Risk Premium)**				31891.34	90.91
VI	**Cost C3**					
24	Managerial Cost				3189.13	9.09
25	**Cost C3 = (Cost C2 + Managerial Cost)**				35080.48	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		11.23	56136.36	
		b) Main Crop Sales Price (Rs.)			5000	
b.	Gross Income (Rs.)				56136.36	
c.	Net Income (Rs.)				21055.88	
d.	Cost per Quintal (Rs./q.)				3124.58	
e.	Benefit Cost Ratio (BC Ratio)				1:1.6	

Cost of Cultivation of Sorghum: The data regarding the cost of cultivation (Rs/ha) of Sorghum in Turk Madhawar-1 micro watershed is presented in Table 31.c. The results indicate, the total cost of cultivation (Rs/ha) for Sorghum was Rs.31325.20. The gross income realized by the farmers was Rs. 39046.29. The net income from Sorghum cultivation was Rs. 7721.10, thus the benefit cost ratio was found to be 1:1.30.

Table 31(c). Cost of Cultivation of Sorghum in Turk Madhawar-1 micro-watershed

Sl.No	Particulars	Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**				
1	Hired Human Labour	Man days	36.76	6361.86	20.31
2	Bullock	Pairs/day	0	0	0
3	Tractor	Hours	5.97	5973.55	19.07
4	Machinery	Hours	0	0	0
5	Seed Main Crop (Establishment and Maintenance)	Kgs (Rs.)	5.39	646.75	2.06
6	Seed Inter Crop	Kgs.	0	0	0
7	FYM	Quintal	2.47	2964	9.46
8	Fertilizer + micronutrients	Quintal	2.4	2533.06	8.09
9	Pesticides (PPC)	Kgs / liters	2.47	2964	9.46
10	Irrigation	Number	0	0	0
11	Repairs		0	0	0
12	Msc. Charges (Marketing costs etc)		0	0	0
13	Depreciation charges		0	0.02	0
14	Land revenue and Taxes		0	4.94	0.02
II	**Cost B1**				
16	Interest on working capital			1092.94	3.49
17	**Cost B1 = (Cost A1 + sum of 15 and 16)**			22541.12	71.96
III	**Cost B2**				
18	Rental Value of Land			450	1.44
19	**Cost B2 = (Cost B1 + Rental value)**			22991.12	73.39
IV	**Cost C1**				
20	Family Human Labour		25.12	5486.33	17.51
21	**Cost C1 = (Cost B2 + Family Labour)**			28477.45	90.91
V	**Cost C2**				
22	Risk Premium			0	0
23	**Cost C2 = (Cost C1 + Risk Premium)**			28477.45	90.91
VI	**Cost C3**				
24	Managerial Cost			2847.75	9.09
25	**Cost C3 = (Cost C2 + Managerial Cost)**			31325.2	100
VII	**Economics of the Crop**				
a.	Main Product	a) Main Product (q)	12.01	39046.29	
		b) Main Crop Sales Price (Rs.)		3250	
b.	Gross Income (Rs.)			39046.29	
c.	Net Income (Rs.)			7721.1	
d.	Cost per Quintal (Rs./q.)			2607.34	
e.	Benefit Cost Ratio (BC Ratio)			1:1.3	

Cost of Cultivation of Paddy: The data regarding the cost of cultivation (Rs/ha) of Paddy in Turk Madhawar-1 micro watershed is presented in Table 31.d. The results indicate that, the total cost of cultivation (Rs/ha) for Paddy was Rs. 227383.74. The gross income realized by the farmers was Rs.111150.00. The net income from Paddy cultivation was Rs. -116233.74, thus the benefit cost ratio was found to be 1:0.50.

Table 31(d). Cost of Cultivation of Paddy in Turk Madhawar-1 micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	226.42	40137.5	17.65
2	Bullock		Pairs/day	0	0	0
3	Tractor		Hours	10.29	10291.67	4.53
4	Machinery		Hours	0	0	0
5	Seed Main Crop (Establishment and Maintenance)		Kgs (Rs.)	123.5	24700	10.86
6	Seed Inter Crop		Kgs.	0	0	0
7	FYM		Quintal	20.58	28816.67	12.67
8	Fertilizer + micronutrients		Quintal	41.17	32933.33	14.48
9	Pesticides (PPC)		Kgs / liters	20.58	24700	10.86
10	Irrigation		Number	51.46	0	0
11	Repairs			0	0	0
12	Msc. Charges (Marketing costs etc)			0	0	0
13	Depreciation charges			0	448.72	0.2
14	Land revenue and Taxes			0	4.94	0
II	**Cost B1**					
16	Interest on working capital				13338	5.87
17	**Cost B1 = (Cost A1 + sum of 15 and 16)**				175370.83	77.13
III	**Cost B2**					
18	Rental Value of Land				466.67	0.21
19	**Cost B2 = (Cost B1 + Rental value)**				175837.49	77.33
IV	**Cost C1**					
20	Family Human Labour			144.08	30875	13.58
21	**Cost C1 = (Cost B2 + Family Labour)**				206712.49	90.91
V	**Cost C2**					
22	Risk Premium				0	0
23	**Cost C2 = (Cost C1 + Risk Premium)**				206712.49	90.91
VI	**Cost C3**					
24	Managerial Cost				20671.25	9.09
25	**Cost C3 = (Cost C2 + Managerial Cost)**				227383.74	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		61.75	111150	
		b) Main Crop Sales Price (Rs.)			1800	
b.	Gross Income (Rs.)				111150	
c.	Net Income (Rs.)				-116233.74	
d.	Cost per Quintal (Rs./q.)				3682.33	
e.	Benefit Cost Ratio (BC Ratio)				1:0.5	

Cost of Cultivation of Cotton: The data regarding the cost of cultivation (Rs/ha) of Cotton in Turk Madhawar-1 micro watershed is presented in Table 31.e. The results indicate that, the total cost of cultivation (Rs/ha) for Cotton was Rs.30361.71. The gross income realized by the farmers was Rs. 46961.80. The net income from Cotton cultivation was Rs. 16600.09, thus the benefit cost ratio was found to be 1:1.50.

Table 31(e). Cost of Cultivation of Cotton in Turk Madhawar-1 micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	34.78	5776.2	19.02
2	Bullock		Pairs/day	0.59	294.79	0.97
3	Tractor		Hours	2.89	2888.2	9.51
4	Machinery		Hours	0.32	323.99	1.07
5	Seed Main Crop (Establishment and Maintenance)		Kgs (Rs.)	3.18	3395.1	11.18
6	Seed Inter Crop		Kgs.	0	0	0
7	FYM		Quintal	2.06	2810.69	9.26
8	Fertilizer + micronutrients		Quintal	4.04	3750.8	12.35
9	Pesticides (PPC)		Kgs / liters	2.09	2514	8.28
10	Irrigation		Number	0	0	0
11	Repairs			0	0	0
12	Msc. Charges (Marketing costs etc)			0	0	0
13	Depreciation charges			0	224.62	0.74
14	Land revenue and Taxes			0	4.86	0.02
II	**Cost B1**					
16	Interest on working capital				1496.47	4.93
17	**Cost B1 = (Cost A1 + sum of 15 and 16)**				23479.71	77.33
III	**Cost B2**					
18	Rental Value of Land				470	1.55
19	**Cost B2 = (Cost B1 + Rental value)**				23949.71	78.88
IV	**Cost C1**					
20	Family Human Labour			17.16	3651.84	12.03
21	**Cost C1 = (Cost B2 + Family Labour)**				27601.55	90.91
V	**Cost C2**					
22	Risk Premium				0	0
23	**Cost C2 = (Cost C1 + Risk Premium)**				27601.55	90.91
VI	**Cost C3**					
24	Managerial Cost				2760.16	9.09
25	**Cost C3 = (Cost C2 + Managerial Cost)**				30361.71	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		9.73	46961.8	
		b) Main Crop Sales Price (Rs.)			4825	
b.	Gross Income (Rs.)				46961.8	
c.	Net Income (Rs.)				16600.09	
d.	Cost per Quintal (Rs./q.)				3119.46	
e.	Benefit Cost Ratio (BC Ratio)				1:1.5	

Adequacy of fodder: The data regarding the adequacy of fodder in Turk Madhawar-1 Micro watershed is presented in Table 32. The results indicate that, 36.11 per cent of the households opined that dry fodder was adequate.

Table 32. Adequacy of fodder in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Adequate-Dry Fodder	0	0	6	40	3	23.08	1	100	3	100	13	36.11

Average annual gross income: The data regarding the annual gross income in Turk Madhawar-1 Micro watershed is presented in Table 33. The results indicate that, the farmers have annual gross income of Rs. 45361.10 in micro-watershed, of which Rs. 38972.22 is from agriculture itself.

Table 33. Average annual gross income in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	Wage	0	8666.67	0	50000	16666.7	6388.89
2	Agriculture	0	27200	44307.7	84000	111667	38972.2
	Income(Rs.)	0	35866.7	44307.7	134000	128333	45361.1

Average annual Expenditure: The data regarding the average annual expenditure in Turk Madhawar-1 Micro watershed is presented in Table 34. The results indicate that, the farmers have annual gross expenditure of Rs. 179979.49 in micro-watershed, of which Rs. 37555.56 is from agriculture itself.

Table 34. Average annual Expenditure in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	Wage	0	7333.33	0	20000	20000	1722.22
2	Agriculture	0	33800	58846.2	20000	20000	37555.6
	Total	0	41133.3	58846.2	40000	40000	179979

Horticulture species grown: The data regarding horticulture species grown in Turk Madhawar-1 Micro watershed is presented in Table 35. The results indicate that, the total number of horticultural trees grown (both field and backyard) by the sampled households were Lemon (1), Mango (2).

Table 35. Horticulture species grown in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		F	B	F	B	F	B	F	B	F	B	F	B
1	Lemon	0	0	0	0	0	0	1	0	0	0	1	0
2	Mango	0	0	1	0	0	0	1	0	0	0	2	0

***F= Field B=Back Yard**

Forest species grown: The data regarding forest species grown in Turk Madhawar-1 Micro watershed is presented in Table 36. The results indicate that, households have

planted 4 teak trees, 50 neem trees, 11 acacia trees and 7 banyan trees together in both field and backyard.

Table 36. Forest species grown in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		F	B	F	B	F	B	F	B	F	B	F	B
1	Teak	0	0	2	0	2	0	0	0	0	0	4	0
2	Neem	0	0	16	0	19	0	2	0	13	0	50	0
3	Acacia	0	0	4	0	7	0	0	0	0	0	11	0
4	Banyan	0	0	0	0	7	0	0	0	0	0	7	0

***F= Field B=Back Yard**

Average additional investment capacity: The data regarding average additional investment capacity in Turk Madhawar-1 Micro watershed is presented in Table 37. The results indicate that, households have an average investment capacity of Rs. 1555.56 for land development, Rs. 2222.22 for creation of irrigation facility, Rs.750.00 for adoption of improved livestock breeds, Rs.55.56 for adoption of improved crop production activities.

Table 37. Average additional investment capacity of households in Turk Madhawar-1 micro-watershed

Sl. No.	Particulars	LL (4)	MF (15)	SF (13)	SMF (1)	MDF (3)	All (36)
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	Land development	0	1866.67	2153.85	0	0	1555.56
2	Irrigation facility	0	0	0	0	26666.7	2222.22
3	Improved crop production	0	600	1384.62	0	0	750
4	Improved livestock management	0	0	153.85	0	0	55.56

Source of funds for additional investment: The data regarding source of funds for additional investment in Turk Madhawar-1 Micro watershed is presented in Table 38. The results indicate that, the sources of finance raised from bank as a loan and from own sources for land development were 66.67.

Table 38. Source of funds for additional investment in Turk Madhawar-1 micro-watershed

Sl.No	Item	Land development		Improved crop production		Improved livestock management	
		N	%	N	%	N	%
1	Loan from bank	24	66.67	11	30.56	1	2.78

Marketing of agricultural produce: The data regarding marketing of the agricultural produce in Turk Madhawar-1 Micro watershed is presented in Table 39. The results indicated that, 82.35 percent of output of Cotton was sold in the market with average price of Rs. 4825.00; 100.00 percent of output of Groundnut was sold in the market with average price of Rs. 5000.00; 66.67 percent of output of Paddy was sold in the market

with average price of Rs. 1800.00 and 89.62 percent of output of Red gram was sold in the market with average price of Rs. 3375.00.

Table 39. Marketing of agricultural produce in Turk Madhawar-1 micro-watershed

Sl.No	Crops	Output obtained (q)	Output retained (q)	Output sold (q)	Output sold (%)	Avg. Price obtained (Rs/q)
1	Cotton	204	36	168	82	4825
2	Groundnut	10	0	10	100	5000
3	Paddy	6	2	4	67	1800
4	Red gram	106	11	95	90	3375
5	Sorghum	30	0	30	100	3250

Marketing channels used for sale of agricultural produce: The data regarding marketing channels used for sale of agricultural produce in Turk Madhawar-1 Micro watershed is presented in Table 40. The results indicated that, 88.89 cent of the households have sold agricultural produce to the local/village merchants.

Table 40. Marketing channels used for sale of agricultural produce in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Local/village Merchant	0	0	15	100	13	100	1	100	3	100	32	88.89

Mode of transport of agricultural produce: The data regarding mode of transport of agricultural produce in Turk Madhawar-1 Micro watershed is presented in Table 41. The results indicated that, 88.89 cent of the households have used tractor for the transport of agriculture commodity.

Table 41. Mode of transport of agricultural produce in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Tractor	0	0	15	100	13	100	1	100	3	100	32	88.89

Incidence of soil and water erosion problems: The data regarding incidence of incidence of soil and water erosion problems in Turk Madhawar-1 Micro watershed is presented in Table 42. The results indicate that, 88.89 per cent of the households have experienced soil and water erosion problems.

Table 42. Incidence of soil and water erosion problems in Turk Madhawar-1 micro-watershed

Sl. No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Soil and water erosion problems in the farm	0	0	15	100	13	100	1	100	3	100	32	88.89

Interest towards soil testing: The data regarding Interest shown towards soil testing in Turk Madhawar-1 Micro watershed is presented in Table 43. The results indicated that, 86.11 per cent of the households were interested towards soil testing.

Table 43. Interest regarding soil testing in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Interest in soil test	0	0	15	100	12	92.3	1	100	3	100	31	86.11

Soil and water conservation practices and structures adopted: The data regarding soil and water conservation practices and structures adopted in Turk Madhawar-1 Micro watershed is presented in Table 44. The results indicated that 100 per cent of farmers practicing summer ploughing as soil and water conservation practice.

Table 44. Soil and water conservation practices and structures adopted in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Summer Ploughing	0	0	2	13	3	23	1	100	0	0	6	16.67
2	Dead Furrow	0	0	2	13	3	23	1	100	0	0	6	16.67
3	Mulching	0	0	1	6.7	1	7.7	0	0	0	0	2	5.56
4	Contour Cultivation	0	0	2	13	1	7.7	1	100	0	0	4	11.11

Usage pattern of fuel for domestic use: The data on usage pattern of fuel for domestic use in Turk Madhawar-1 Micro watershed is presented in Table 45. The results indicated that, firewood was the major source of fuel for domestic use for 66.67 per cent of the households followed by LPG (33.33%).

Table 45. Usage pattern of fuel for domestic use in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Fire Wood	3	75	10	66.7	7	53.9	1	100	3	100	24	66.67
2	LPG	1	25	5	33.3	6	46.2	0	0	0	0	12	33.33

Source of drinking water: The data on source of drinking water in Turk Madhawar-1 Micro watershed is presented in Table 46. The results indicated that, tank supply of water was the major source for drinking water for 8.33 per cent of the households followed by piped waters supply (61.11 %), bore well water (27.78%) and open well water for (2.78%).

Table 46. Source of drinking water in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Piped supply	2	50	9	60	9	69.23	1	100	1	33.3	22	61.11
2	Bore Well	2	50	5	33.3	1	7.69	0	0	2	66.7	10	27.78
3	Open well	0	0	0	0	1	7.69	0	0	0	0	1	2.78
4	Lake/ Tank	0	0	1	6.67	2	15.38	0	0	0	0	3	8.33

Source of light: The data on source of light in Turk Madhawar-1 Micro watershed is presented in Table 47. The results indicated that, electricity was the major source of light for 100.00 per cent of the households.

Table 47. Source of light in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Electricity	4	100	15	100	13	100	1	100	3	100	36	100

Existence of sanitary toilet facility: The data on availability of toilet facility in Turk Madhawar-1 Micro watershed is presented in Table 48. The results indicated that, 19.44 per cent of the households possess toilets.

Table 48. Existence of sanitary toilet facility in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Sanitary toilet facility	1	25	1	6.7	1	7.69	1	100	3	100	7	19.4

Possession of PDS card: The data regarding possession of PDS card in Turk Madhawar-1 Micro watershed is presented in Table 49. The results indicated that, 100.00 per cent of the households possessed BPL card.

Table 49. Possession of PDS card in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	BPL	4	100	15	100	13	100	1	100	3	100	36	100

Participation in NREGA programme: The data regarding Participation in NREGA programme in Turk Madhawar-1 Micro watershed is presented in Table 50. The results indicated that, only 33.33 per cent of the households have participated in NREGA programme.

Table 50. Participation in NREGA programme in Turk Madhawar-1 micro-watershed

Sl. No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Participation in NREGA programme	0	0	5	33.3	7	53.9	0	0	0	0	12	33.3

Table 51. Adequacy of food items in Turk Madhawar-1 micro-watershed

Sl.No.	Particulars	LL (4)		MF (15)		SF (13)		SMF (1)		MDF (3)		All (36)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Cereals	4	100	16	107	13	100	1	100	3	100	37	102.8
2	Pulses	3	75	14	93.3	12	92.31	1	100	3	100	33	91.67
3	Oilseed	1	25	4	26.7	3	23.08	0	0	2	66.67	10	27.78
4	Vegetables	0	0	1	6.67	0	0	0	0	1	33.33	2	5.56
5	Milk	2	50	2	13.3	0	0	1	100	1	33.33	6	16.67
6	Egg	0	0	1	6.67	0	0	0	0	0	0	1	2.78

Adequacy of food items: The data regarding adequacy of food items in Turk Madhawar-1 Micro watershed is presented in Table 51. The results indicated that, the extent of

adequacy of food items for cereals, pulses, Oilseeds and vegetables were 102.78, 91.67, 27.78, 5.56 per cent respectively, similarly for milk (16.67%) and Egg (2.78%).

Inadequacy of food items: The data regarding in adequacy of food items in Turk Madhawar-1 Micro watershed is presented in Table 52. The results indicated that, the extent of in adequacy of food items for cereals, pulses, Oilseeds and vegetables were 8.33, 66.67, 88.89 and 94.44 per cent respectively, similarly for fruits (97.22%), milk (80.56%), egg (94.44%) and meat (94.44%).

Table 52. Inadequacy of food items in Turk Madhawar-1 micro-watershed

Sl. No.	**Particulars**	**LL** (4)		**MF** (15)		**SF** (13)		**SMF** (1)		**MDF** (3)		**All (36)**	
		N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	Pulses	1	25	1	6.67	1	7.69	0	0	0	0	3	8.33
2	Oilseed	2	50	10	66.7	10	76.92	1	100	1	33.33	24	66.67
3	Vegetables	3	75	13	86.7	13	100	1	100	2	66.67	32	88.89
4	Fruits	4	100	14	93.3	13	100	1	100	3	100	35	97.22
5	Milk	2	50	12	80	13	100	0	0	2	66.67	29	80.56
6	Egg	4	100	13	86.7	13	100	1	100	3	100	34	94.44
7	Meat	4	100	14	93.3	12	92.31	1	100	3	100	34	94.44

Farming constraints: The results (Table 53) indicated that, lower fertility status of the soil was the constraint experienced by (94.44 %) per cent of the households, wild animal menace on farm field (88.89%), frequent incidence of pest and diseases (75.00%), inadequacy of irrigation water (2.78%), high cost of fertilizers and plant protection chemicals (83.33%), high rate of interest on credit (44.44%), low price for the agricultural commodities (75.00 %), lack of marketing facilities in the area (55.56%), inadequate extension services (2.78 %), lack of transport for safe transport of the agricultural produce to the market (50.00%).

Table 53. Farming constraints experienced in Turk Madhawar-1 micro-watershed

SN	**Particulars**	**MF (15)**		**SF (13)**		**SMF (1)**		**MDF (3)**		**All (36)**	
		N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	Lower fertility status of the soil	17	113.33	13	100	1	100	3	100	34	94.44
2	Wild animal menace on farm field	15	100	13	100	1	100	3	100	32	88.89
3	Frequent incidence of pest and diseases	12	80	11	84.62	1	100	3	100	27	75
4	Inadequacy of irrigation water	0	0	1	7.69	0	0	0	0	1	2.78
5	High cost of Fertilizers and plant protection chemicals	14	93.33	12	92.31	1	100	3	100	30	83.33
6	High rate of interest on credit	7	46.67	6	46.15	0	0	3	100	16	44.44
7	Low price for the agricultural commodities	12	80	11	84.62	1	100	3	100	27	75
8	Lack of marketing facilities in the area	12	80	6	46.15	0	0	2	66.67	20	55.56
9	Inadequate extension services	1	6.67	0	0	0	0	0	0	1	2.78
10	Lack of transport for safe transport of the Agril produce to the market.	10	66.67	7	53.85	1	100	0	0	18	50

Chapter 5

SUMMARY AND IMPLICATIONS

In order to assess the socio-economic condition of the farmers in the watershed 36 households located in the micro watershed were interviewed for the survey. The study was conducted in Turk Madhawar-1 micro-watershed (Turk Madhawar sub-watershed, Yadgiri taluk & District) is located at North latitude 16^0 40' 9.811" and 16^0 38' 5.741" and East longitude 77^0 21' 33.973" and 77^0 19' 0.731"covering an area of about 747.27 ha bounded by unde Madhwara and kalebilagunda Villages.

Socio-economic analysis of Turk Madhawar-1 micro watersheds of Turk Madhawar sub-watershed, Yadgiri taluk & District indicated that, out of the total sample of 36 farmers were sampled in Turk Madhawar-1 micro-watershed among households surveyed 15 (41.67%) were marginal, 13 (36.11%) were small, 1 (2.78 %) were semi medium and 3 (8.33 %) were medium farmers. 4 landless farmers were also interviewed for the survey. The population characteristics of households indicated that, there were 93 (62.00%) men and 57 (38.00 %) were women. The average population of landless was 3.8, marginal farmers were 4.2, small farmers were 4.2, semi medium farmers were 5 and medium farmers were 4.3. Majority of the respondents (52.67%) were in the age group of 16-35 years.

Education level of the sample households indicated that, there were 63.33 per cent illiterates, 28.67 per cent pre university education and 5.33 per cent attained graduation. About, 66.67 per cent of household heads practicing agriculture and 22.22 per cent of the household heads were engaged as agricultural labourers. Agriculture was the major occupation for 53.33 per cent of the household members.

In the study area, 66.67 per cent of the households possess katcha house and 33.33 per cent possess pucca house. The durable assets owned by the households showed that, 77.78 per cent possess TV, 25.00 per cent possess mixer grinder, 94.44 per cent possess mobile phones and 16.67 per cent possess motor cycles. Farm implements owned by the households indicated that, 27.78 per cent of the households possess plough, 22.22 per cent possess bullock cart.

Regarding livestock possession by the households, 2.78 per cent possess local cow. The average labour availability in the study area showed that**,** own labour men available in the micro watershed was 1.75, women available in the micro watershed was 1.56, hired labour (men) available was 12.84 and hired labour (women) available was 13.06.

Out of the total land holding of the sample respondents 75.31 per cent (38.21 ha) of the area is under dry condition and the remaining 24.69 per cent area is irrigated land.

There were 3.00 live bore wells among the sampled households. Bore/open well was the major source of irrigation for 8.33 per cent of the households.

The major crops grown by sample farmers are Red gram, Groundut, Sorghum, Paddy and Cotton and cropping intensity was recorded as 100.00 per cent. Out of the sample households 83.33 percent possessed bank account and 2.78 per cent of them have savings in the account. About 75.00 per cent of the respondents borrowed credit from various sources. Among the credit borrowed by households, 3.57 per cent from co-operative/Grameena bank. Majority of the respondents (100.00%) have borrowed loan for agriculture purpose.

Regarding the opinion on institutional sources of credit, 100.00 per cent of the households opined that credit helped to perform timely agricultural operations. The per hectare cost of cultivation for Red gram, Groundut, Sorghum, Paddy and Cotton was Rs.31506.68 , 35080.48, 31325.20, 227383.74 and 30361.71 with benefit cost ratio of 1:1.10, 1: 1.60, 1: 1.30, 1: 0.50 and 1:1.50 respectively. Further, 36.11 per cent of the households opined that dry fodder was adequate.

The average annual gross income of the farmers was Rs. 45361.10 in micro-watershed, of which Rs. 38972.22 comes from agriculture. Sampled households have grown 3 horticulture trees and 72 forestry trees together in the fields and back yards. Households have an average investment capacity of Rs. 1555.56 for land development and Rs. 2222.22 for irrigation facility.

Source of funds for additional investment is concerned, 66.67 per cent depends on bank loan for land development activities. Regarding marketing channels, 88.89 per cent of the households have sold agricultural produce to the local/village merchants. Further, 88.89 per cent of the households have used tractor for the transport of agriculture commodity.

Majority of the farmers (88.89%) have experienced soil and water erosion problems in the watershed and 86.11 per cent of the households were interested towards soil testing. About, 16.67 per cent of farmers practicing summer ploughing as soil and water conservation practice.

Fire was the major source of fuel for domestic use for 66.67 per cent of the households and 33.33 per cent households has LPG connection. Piped supply was the major source for drinking water for 61.11 per cent of the households. Electricity was the major source of light for 100.00 per cent of the households. In the study area, 19.44 per cent of the households possess toilet facility. Regarding possession of PDS card, 100.00 per cent of the households possessed BPL card. Households opined that, the requirement of cereals (102.78%), pulses (91.67%) and oilseeds (27.78%) are adequate for consumption.

Farming constraints experienced by households in the micro watersheds were lower fertility status of the soil (94.44%) wild animal menace on farm field (88.89%), frequent incidence of pest and diseases (75.00%), inadequacy of irrigation water (2.78%), high cost of fertilizers and plant protection chemicals (83.33%), high rate of interest on credit (44.44%), low price for the agricultural commodities (75.00%), lack of marketing facilities in the area (55.56%), inadequate extension services (2.78%), lack of transport for safe transport of the agricultural produce to the market (50.00%).

Implications of the survey

- ✓ Result indicated that, there were 63.33 per cent were illiterate hence, extension methodologies such as demonstration, street play, drama, video shows will be effective in dissemination of the technologies in the micro watershed.
- ✓ The data indicate that, 66.67 per cent of the households possess katcha house. Hence, the development department while implementing the watershed plan should focus on agriculture to enhance the productivity of major crops in the area to increase the income of the farmers.
- ✓ Results indicated that the local institutional participation of the household members in the micro watershed is minimal hence, activities like membership campaign, awareness creation about the benefits of membership in local institutions and strengths of organized groups must be conveyed.
- ✓ Majority of the households in the watershed have experience in use of mobile phones, and television hence, these mass media can be effectively utilized for transfer of technology as well as for information dissemination.
- ✓ The farm machinery/implement possession in the micro watershed was found to be minimum the reasons may lack of knowledge or lack of financial ability which can be addressed through training on use of different farm implements, providing information on different sources of finance for purchase of farm implements.
- ✓ The possession of livestock such as crossbred cow found is less hence, farmers must be made aware of the benefits of crossbred cow in increased milk production.
- ✓ The possession of livestock such as sheep, goat and poultry was found to be low hence, farmers may be informed the role of subsidiary enterprises in enhancing the income and information on financial support for subsidiary activities.
- ✓ The data indicate that, job/work was the reason for all the migrants hence, farmers may be trained on profitable agriculture or self employment such has animal husbandry, plate making, sheep rearing, goat rearing, rabbit rearing with suitable information on sources of financial support.
- ✓ The results indicate that there was a change in quality of life due to migration hence, the developmental departments should take actions to arrest migration and to improve the quality of the life in rural areas.

- ✓ Households possess 28.78ha (75.31 %) of dry land and 9.43ha (24.69 %) of irrigated land hence, the availability of the dry land agricultural technologies such as short duration crops, high yielding drought resistance crop varieties, drip irrigation technology and subsidy information will be helpful for the farmers to enhance the productivity of land and as well as farmers income.
- ✓ Few of the bore well in micro watershed found non functional hence, farmers may be trained on possibility of bore well rejuvenation.
- ✓ Bore well was major source of irrigation for 8.33 per cent of the households. hence, in order to increase the area under irrigation as well as to increase the water use efficiency farmers may trained on drip irrigation and provide the information on subsidy for drip irrigation equipment's along with the information on different agencies which provides the financial assistance for drip irrigation.
- ✓ The cropping intensity in the micro watershed was found to be (100.00 %) hence, care must be taken by the implementing agency to bring uncultivated land into cultivation through suitable measures.
- ✓ Many of the household members have borrowed loan from cooperative banks which has higher rate of interest hence, farmers may be sensitized on the different sources of credit with lesser interest rate such SHGs etc.
- ✓ The results indicated the non availability of both green and dry fodder throughout the year hence, fodder development activities can be taken up in the micro watershed.
- ✓ The average annual gross income of the households Rs.38972.22 from agriculture and Rs. 6388.89 from wages. Agriculture was found to be the major source of income for households hence; the development activities should focus on productivity enhancement, marketing arrangements and agricultural technology dissemination to have a direct impact on the farmers.
- ✓ The cultivation of forest species is found minimal hence, information and production technology related to agro-forestry and integrated farming system.
- ✓ The data indicated that, 88.89 per cent of the households have experienced soil and water erosion problems. Hence, those farmers who reported the soil and water erosion problems may be given attention while implementation of the watershed development plan.
- ✓ The data indicated that, 86.11 per cent of the households have interest in soil testing hence, farmers must be provided with the information on various institutions which are involved in soil testing for the benefit of the farmers.
- ✓ Except summer ploughing the adoption of other soil and water conservation structures is minimum hence, the farmers in the micro watershed should be sensitized on the use of different conservation structures for soil water conservation.
- ✓ Cereals and pulses found be adequate for per cent of the households respectively hence, farm households and the farm women must be trained on importance of balanced nutrition and role of vegetable, milk, egg, meat in balanced diet.

- ✓ Lower fertility status of the soil (94.44%), wild animal menace on farm field (88.89%), frequent incidence of pest and diseases (75.00%), high cost of fertilizers and plant protection chemicals (83.33%), high rate of interest on credit (44.44%), low price for the agricultural commodities (75.00%), lack of marketing facilities in the area (55.56%), inadequate extension services (2.78%), lack of transport for safe transport of the agricultural produce to the market (50.00%) were the major farming constraints experienced hence, these constraints must be addressed immediately for the welfare of the farmers. Awareness to be created among the farmers to approach nearest KVKs/RSKs and other developmental departments for technical and for subsidized inputs and utilize the well established regulated markets, approaching the contract firms, direct markets to avoid the involvement of middlemen.