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

ASHANAL-4 (4D5B1G2d) MICROWATERSHED

Yadgir 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.

Citation: Rajendra Hegde, Ramesh Kumar, S.C., B.A. Dhanorkar, S. Srinivas, M. Lalitha, K.V. Niranjana, R.S. Reddy and S.K. Singh (2019). "Land Resource Inventory and Socio-Economic Status of Farm Households for Watershed Planning and Development of Ashanal-4 (4D5B1G2d) Microwatershed, Yadgir Hobli, Yadgir Taluk and District, Karnataka", ICAR-NBSS&LUP Sujala MWS Publ.255, ICAR – NBSS & LUP, RC, Bangalore. p.131 & 33.

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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 Ashanal-4 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: 11.07.2019

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PART-A

LAND RESOURCE INVENTORY

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EXECUTIVE SUMMARY

The land resource inventory of Ashanal-4 *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 452 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 402 ha in the microwatershed is covered by soils, about 30 ha in the microwatershed is covered by rock outcrops and about 20 ha by others (habitation and water bodies). The salient findings from the land resource inventory are summarized briefly below.

- *The soils belong to 7 soil series and 10 soil phases (management units) and 6 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 52 per cent area of the microwatershed has soils that are moderately deep to very deep (75 - >150 cm) and 37 per cent soils are shallow to moderately shallow (25-75 cm).*
- *About 15 per cent area in the microwatershed has loamy soils and 74 per cent clayey soils at the surface.*
- *Entire area is non gravelly (<15%).*
- *About 45 per cent area of the microwatershed is very high (>200 mm/m) in available water capacity, 30 per cent is low (51-100 mm/m) and 14 per cent area very low (<51 mm/m) in available water capacity.*
- *About 77 per cent area of the microwatershed has very gently sloping (1-3% slope) lands and 12 per cent area is nearly level lands (0-1% slope).*

- *An area of about 65 per cent is moderately (e2) eroded and 24 per cent is slightly (e1) eroded.*
- *An area of about 14 per cent soils are neutral (pH 6.5-7.3) in soil reaction, 61 per cent soil are slightly to moderately alkaline (pH 7.3-8.4) and 14 per cent soils are strongly to very strongly alkaline (8.4 - >9.0).*
- *The Electrical Conductivity (EC) of the soils in the entire area of the microwatershed is dominantly <2 dsm^{-1} indicating that the soils are non-saline.*
- *About 18 per cent of the soils are low (<0.5%) in organic carbon and 71 per cent medium (0.5-0.75%).*
- *About 20 per cent area is low in available phosphorus and 69 per area is medium (23-57 kg/ha).*
- *About 4 per cent is low (145 kg/ha) is low in available potassium and 85 per cent medium (145-337 kg/ha).*
- *Available sulphur is low (<10 ppm) in an area of about 76 per cent, medium (10 - 20 ppm) in 13 per cent and high in <1 per cent area of the microwatershed.*
- *Available boron is low (<0.5 ppm) in an area of about 88 per cent and medium (0.5-1.0 ppm) in an area of 1 per cent.*
- *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	*204(45)*	*135(30)*		*Sapota*	-	*33(7)*
Maize	-	*339(75)*		*Pomegranate*	-	*237(52)*
Bajra	-	*339(75)*		*Musambi*	*55(12)*	*182 (40)*
Groundnut	-	*33(7)*		*Lime*	*55(12)*	*182(40)*
Sunflower	*110(24)*	*127(28)*		*Amla*	-	*339(75)*
Redgram	-	*237(52)*		*Cashew*	-	-
Bengal gram	*204(45)*	*102(23)*		*Jackfruit*	-	*33(7)*
Cotton	*110(24)*	*196(44)*		*Jamun*	-	*204(45)*
Chilli	-	*339(73)*		*Custard apple*	*237(52)*	*102(23)*
Tomato	-	*190(42)*		*Tamarind*	-	*204(45)*
Drumstick	-	*237(52)*		*Mulberry*	-	*33(7)*
Mango	-	-		*Marigold*	-	*339(75)*
Guava	-	*33(7)*		*Chrysanthemum*	-	*339(75)*
Brinjal	*149(33)*	*190(42)*		*Bhendi*	*237(52)*	*102(23)*
Onion	*182(40)*	*102(23)*				

- *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, fiber and horticulture crops.*
- *Maintaining soil-health is vital to 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 to 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 Ashanal-4 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 Ashanal-4 microwatershed is located in the northern part of Karnataka in Yadgir Taluk & District, Karnataka State (Fig.2.1). It comprises parts of Ashanala, Kurakumbala & Mundaragi Villages. It lies between 16^0 45' and 16^0 48' North latitudes and 77^0 11' and 76^0 12' East longitudes covering an area of about 452 ha. It is surrounded by Mundaragi on the north, south and west, Kurakumbala on the east and Ashanala, village on the south side.

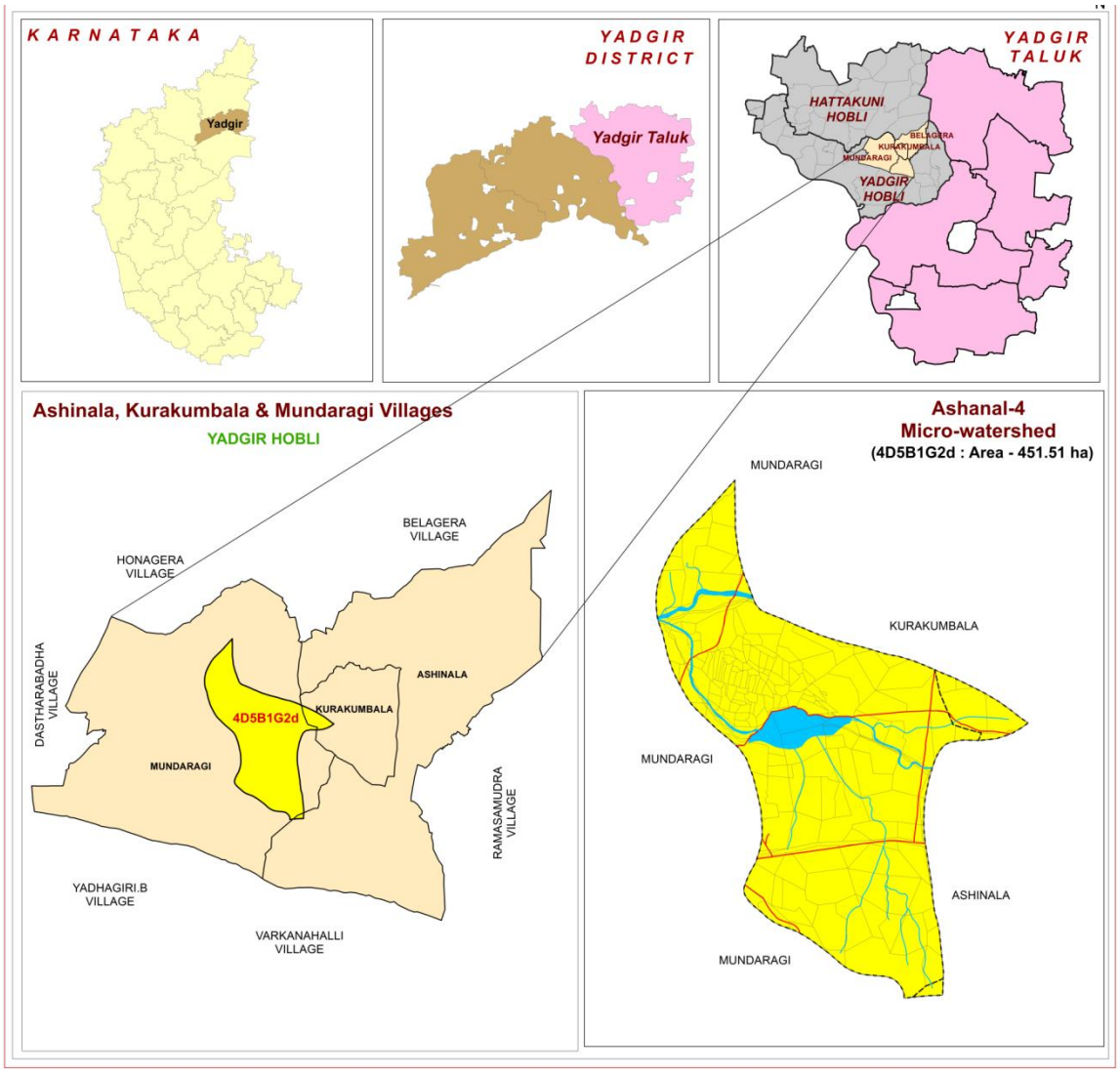


Fig.2.1 Location map of Ashanal-4 Microwatershed

2.2 Geology

Major rock formations observed in the microwatershed are granite gneiss (Figs.2.2). 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 Ashanal-4

microwatershed. The underlying formation is gneiss although at places limestone and shale are below granite gneiss.

Fig.2.2 Granite and granite gneiss rocks

2.3 Physiography

Physiographically, the area has been identified as granite gneiss landscape 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 378-406 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**		

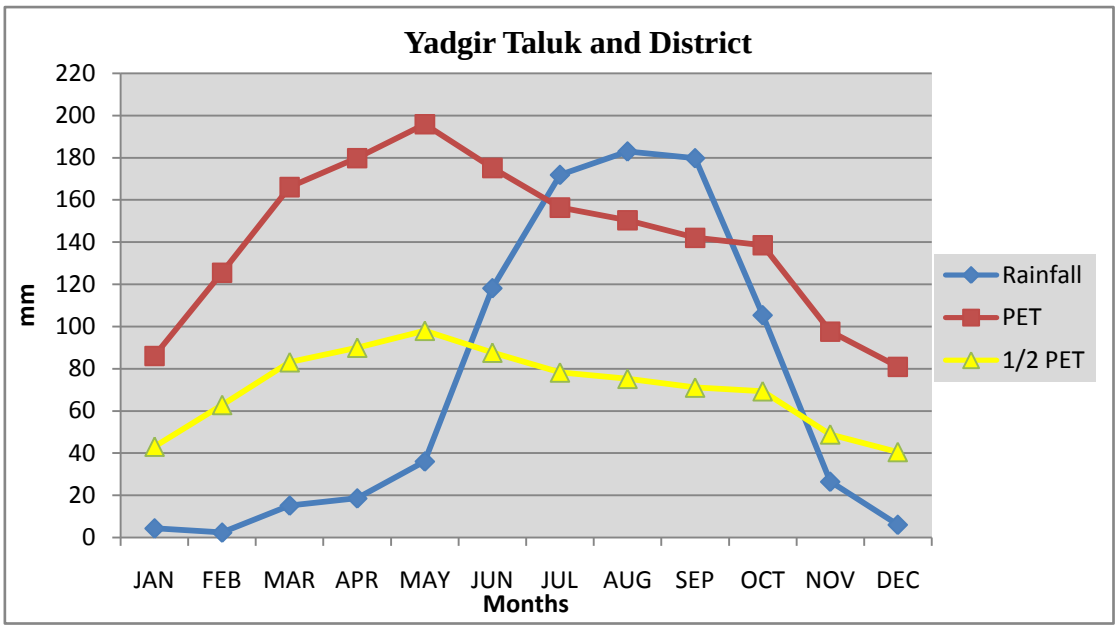


Fig 2.3 Rainfall distribution in Yadgir Taluk, Yadgir District

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 Ashanal-4 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 different crops and cropping systems adopted in the microwatershed is presented in Figures 2.5 a & b. The current land use map of Ashanal-4 microwatershed is presented in Fig.2.6. The location of wells map of the Ashanal-4 microwatershed is shown in the Fig.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 a. Different Crops and Cropping Systems in Ashanal-4 Microwatershed

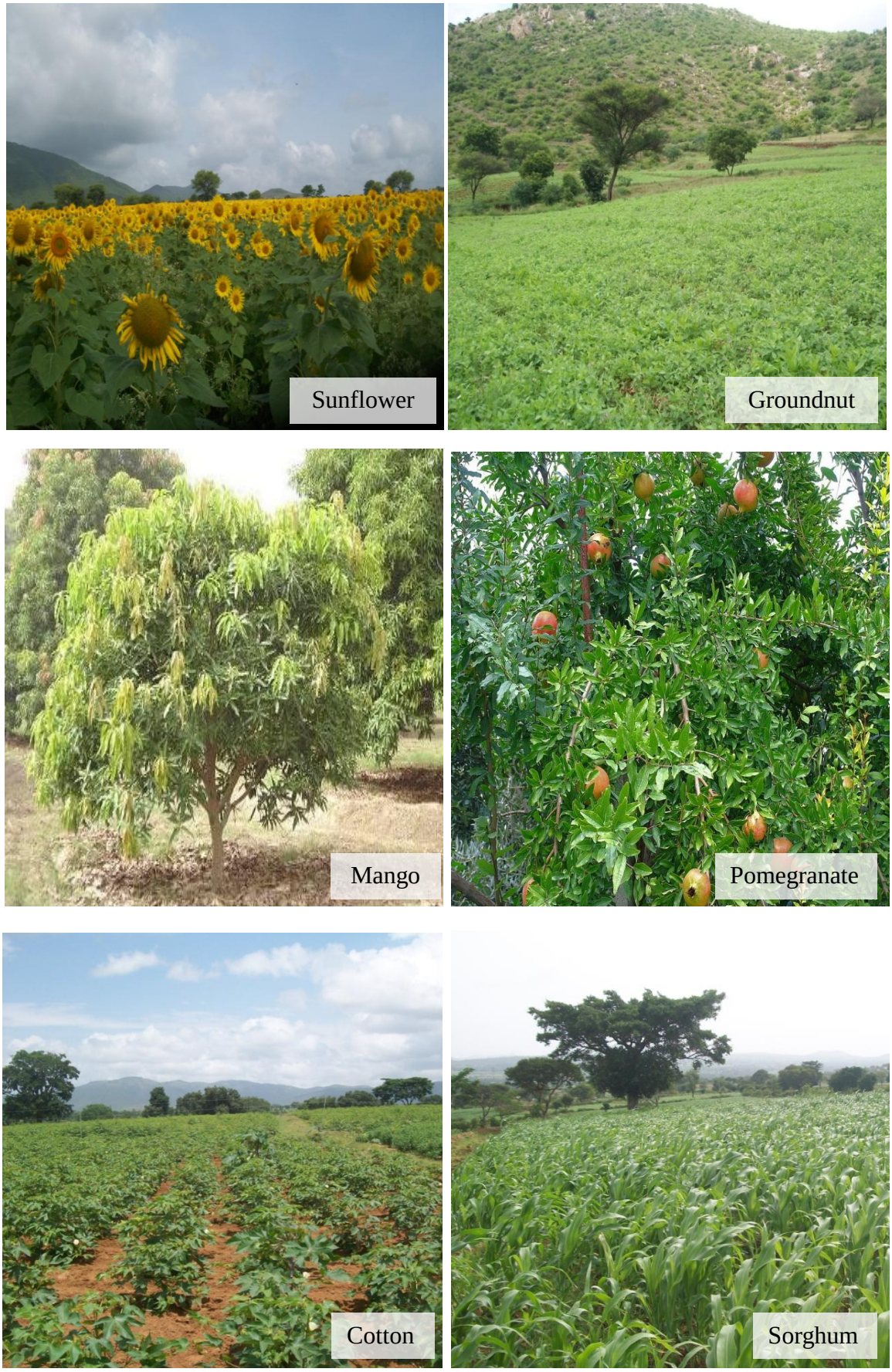


Fig. 2.5 b. Different Crops and Cropping Systems in Ashanal-4 Microwatershed

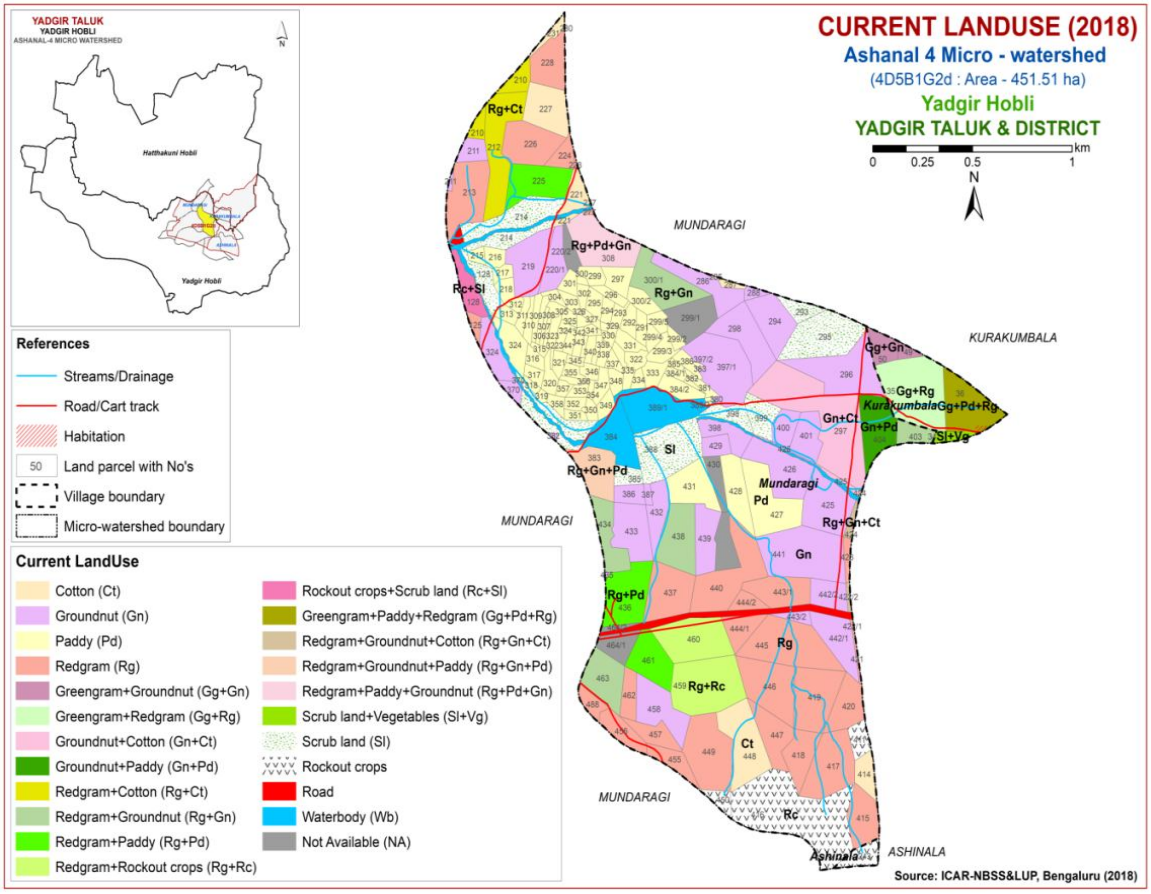


Fig.2.6 Current Land Use map of Ashanal-4 Microwatershed

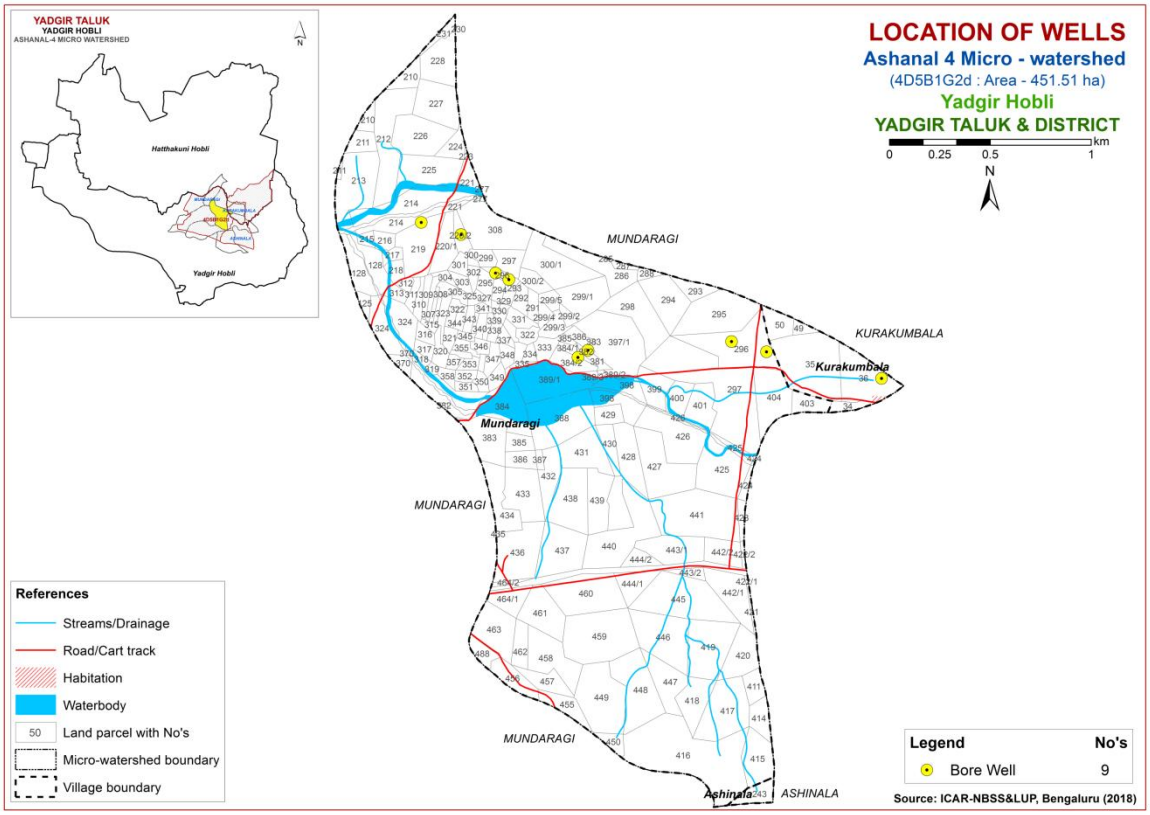


Fig.2.7 Location of wells map of Ashanal-4 Microwatershed.

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 Ashanal-4 microwatershed by the detailed study of all the soil characteristics (depth, texture, colour, structure, consistence, coarse fragments, porosity, soil reaction, soil horizons etc.) site characteristics (slope of the land, erosion, drainage, occurrence of rock fragments etc.) and 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 scales was carried out in an area of 452 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 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 and granite gneiss landscape. 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

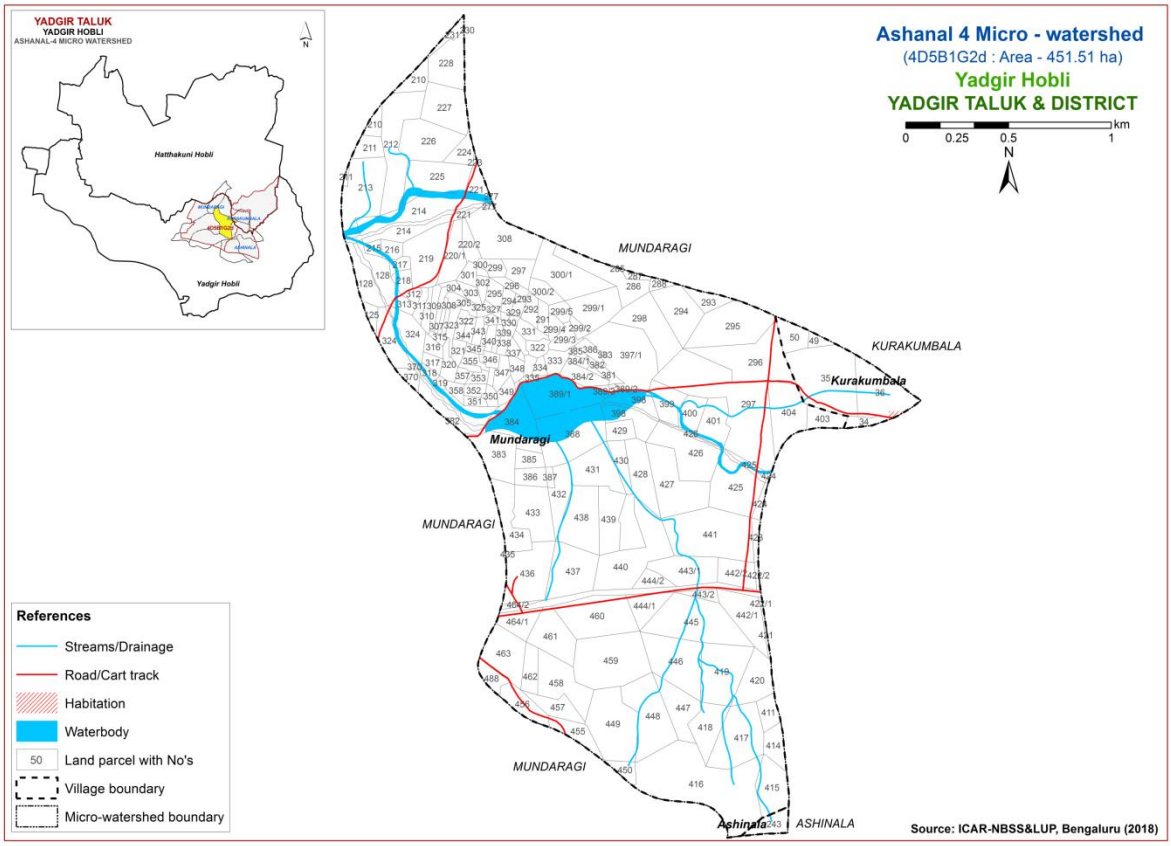


Fig 3.1 Scanned and Digitized Cadastral map of Ashanal-4 Microwatershed

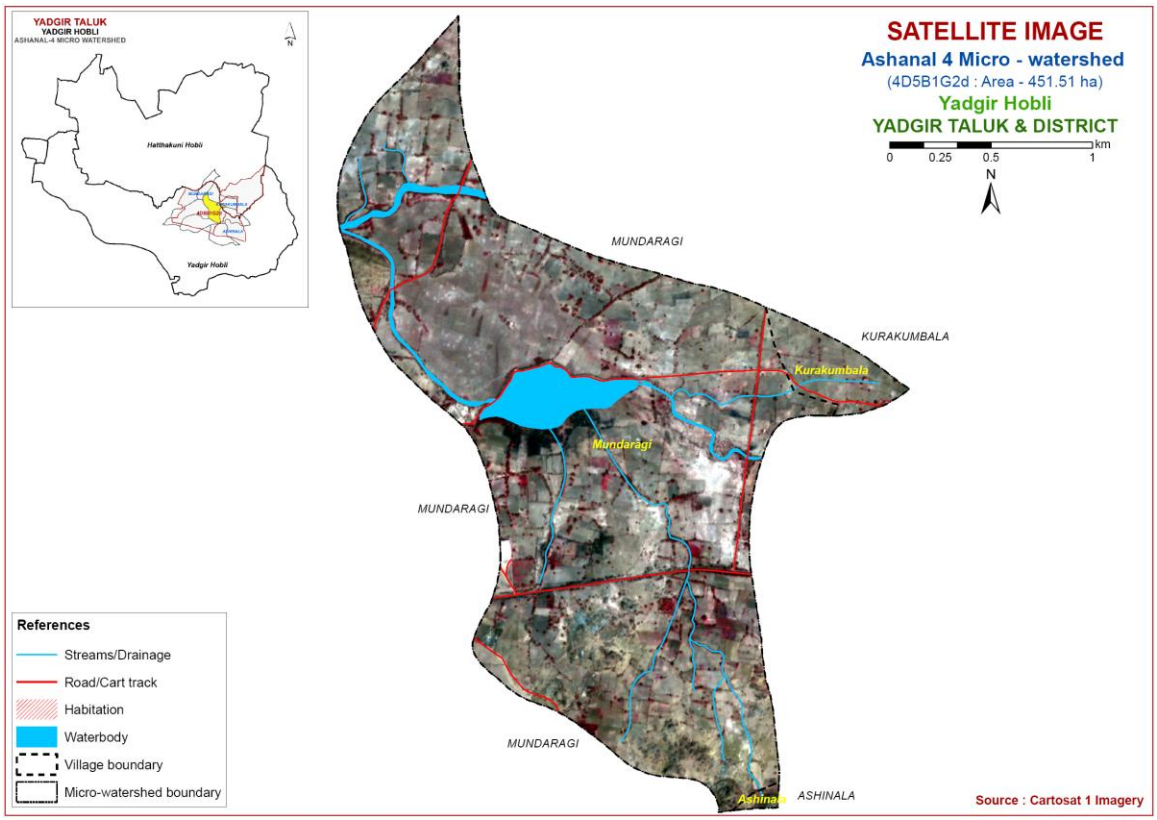


Fig.3.2 Satellite Image of Ashanal-4 Microwatershed

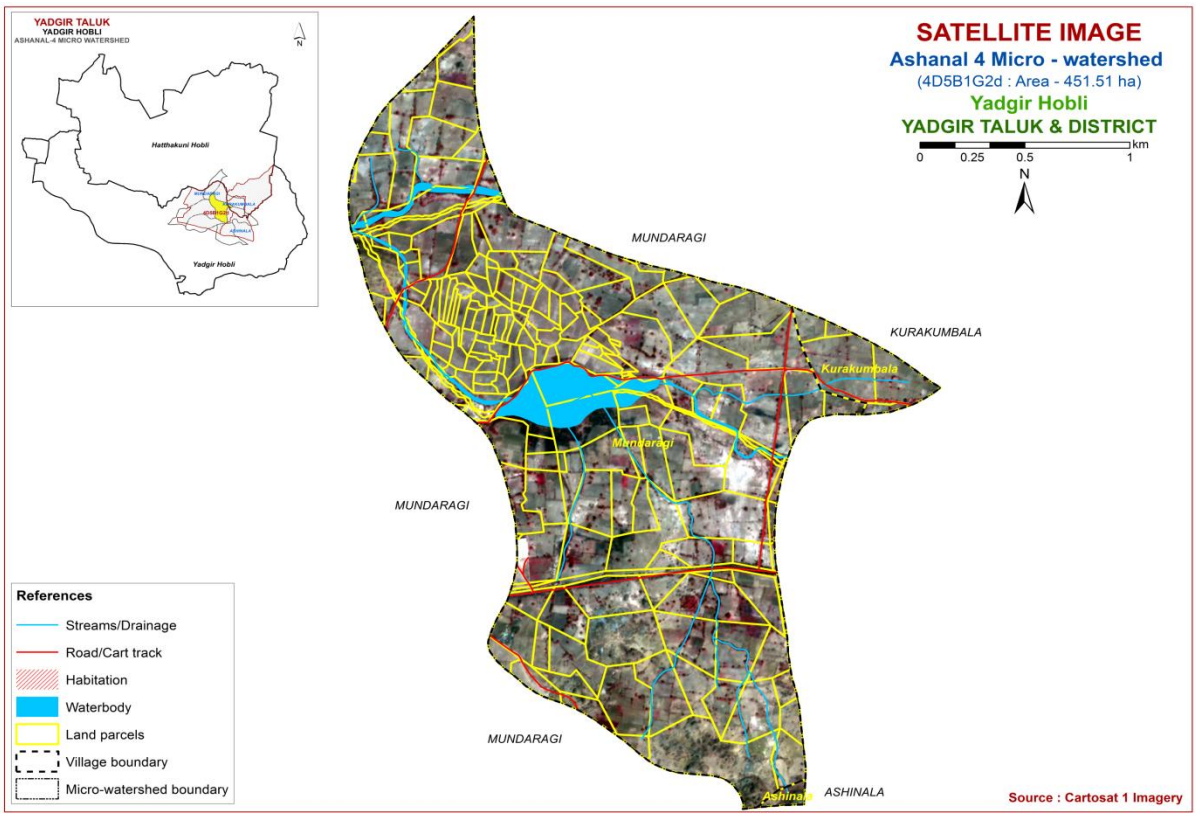


Fig.3.3 Cadastral map overlaid on IRS PAN+LISS IV merged imagery of Ashanal-4 Microwatershed

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).

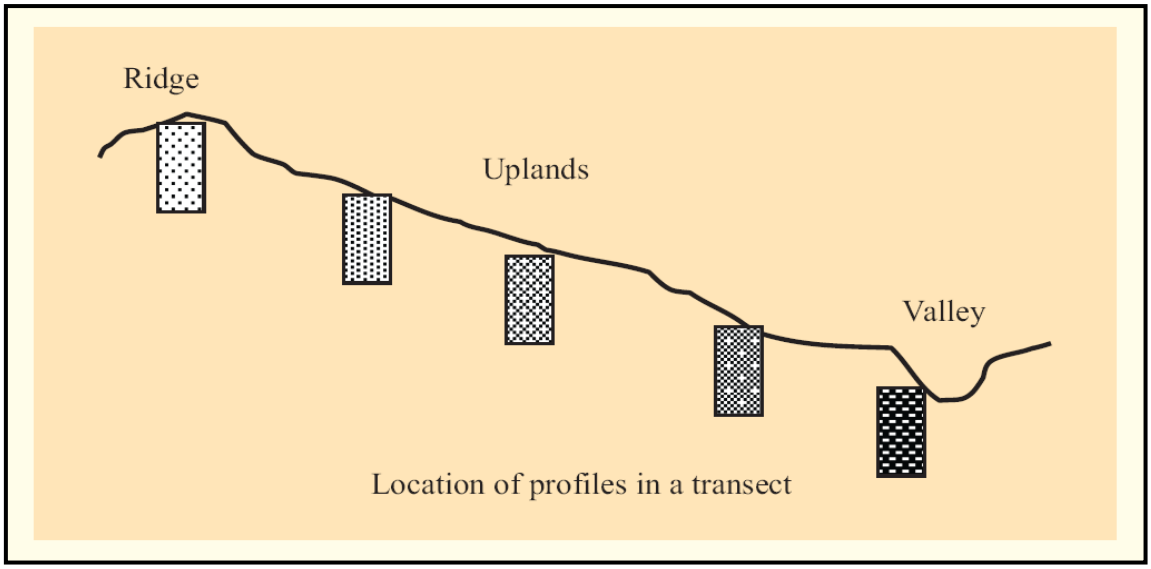


Fig: 3.4. Location of profiles in a transect

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, 7 soil series were identified in the Ashanal-4 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**
Soil of Granite and Granite Gneiss Landscape							
1	BDP (Baddeppalli)	<25	7.5YR 3/2,3/4, 5YR 3/4	scl	<15	Ap-Ac	es
2	DSB (Dastharabad)	25-50	7.5YR 3/3	gc	35-60	Ap-Bt-Cr	-
3	SBR (Sambara)	50-75	10YR 7/1 7.5YR 7/4	ls	<15	Ap-AC	-
4	JNK (Jinkera)	50-75	10YR 3/1,3/2 7.5YR 3/4	scl	<15	Ap-Bw	e
5	HSL (Hosalli)	75-100	10YR 5/4,4/4,4/6	sc	<15	Ap-Bw	e
6	NHL (Neelahalli)	100-150	10YR 5/3,4/2	sl	<15	Ap-Bw	-
7	MDR (Madhwara)	>150	10YR 3/1,3/2,2/1,2/2	scl	<15	Ap-Bw	e

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 10 mapping units representing 7 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 10 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 (LMUs)

The 10 soil phases identified and mapped in the microwatershed were grouped into 6 Land Management Units (LMUs) 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 (LMUs) based

on the management needs. One or more than one soil site characteristic having influence on the management have been choosen for identification and delineation of LMUs. For Ashanal-4 microwatershed, five soil and site characteristics, namely soil depth, soil texture, slope, erosion and gravel content have been considered for defining LMUs. The land use classes 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 (46 samples) for fertility status (major and micronutrients) at 320 m grid interval in the year 2017 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 Ashanal-4 Microwatershed

Soil Map unit No.	Soil Series	Soil Phase	Mapping Unit Description	Area in ha (%)
SOILS OF GRANITE GNEISS LANDSCAPE				
	BDP	Baddeppalli soils are very shallow (<25 cm), well drained, have dark brown to dark reddish brown, calcareous sandy clay loam red soils occurring on very gently sloping uplands under cultivation		**45 (9.97)**
118		BDPcB2	Sandy loam surface, slope 1-3%, moderate erosion	45 (9.97)
	DSB	Dastharabad soils are shallow (25-50 cm), well drained, have dark brown to very dark brown, gravelly clay soils occurring on very gently to gently sloping uplands under cultivation		**16.50 (3.69)**
107		DSBhB2	Sandy clay loam surface, slope 1-3%, moderate erosion	0.50 (0.11)
108		DSBiB2	Sandy clay surface, slope 1-3%, moderate erosion	16 (3.58)
	SBR	Sambara soils are moderately shallow (50-75 cm), well drained, have light gray to pink, loamy sand soils occurring on very gently to gently sloping uplands under cultivation		**1 (0.22)**
11		SBRcB2	Sandy loam surface, slope 1-3%, moderate erosion	1(0.22)
	JNK	Jinkera soils are moderately shallow (50-75 cm), well drained, have dark brown to very dark grayish brown, slightly calcareous, sandy clay loam black soils occurring on very gently sloping uplands under cultivation		**102 (22.63)**
22		JNKiB2	Sandy clay surface, slope 1-3%, moderate erosion	102 (22.63)

	HSL	Hosalli soils are moderately deep (75-100 cm), well drained, have yellowish brown to dark yellowish brown, slightly calcareous sandy clay soils occurring on very gently sloping uplands under cultivation		**33 (7.24)**
33		HSLiB2	Sandy clay surface, slope 1-3%, moderate erosion	33 (7.24)
	NHL	Neelahalli soils are deep (100-150 cm), moderately well drained, have brown to dark grayish brown, sandy loam black soils occurring on very gently sloping lowlands under cultivation		**55(12.28)**
		NHLmB1	Clay surface, slope 1-3%, slight erosion	55 (12.28)
	MDR	Madhwara soils are very deep (>150 cm), moderately well drained, have very dark gray to very dark brown, sodic, slightly calcareous, sandy clay loam soils occurring on nearly level to very gently sloping uplands under cultivation		**149 (32.96)**
132		MDRhB2	Sandy clay loam surface, slope 1-3%, moderate erosion	22 (4.80)
133		MDRiB2	Sandy clay surface, slope 1-3%, moderate erosion	72 (15.99)
60		MDRiA1	Sandy clay surface, slope 0-1%,slight erosion	55 (12.17)
999		Rock outcrops	Rock lands, both massive and bouldery with little or no soil	**30 (6.62)**
1000		Others	Habitation & water body	**20 (4.4)**

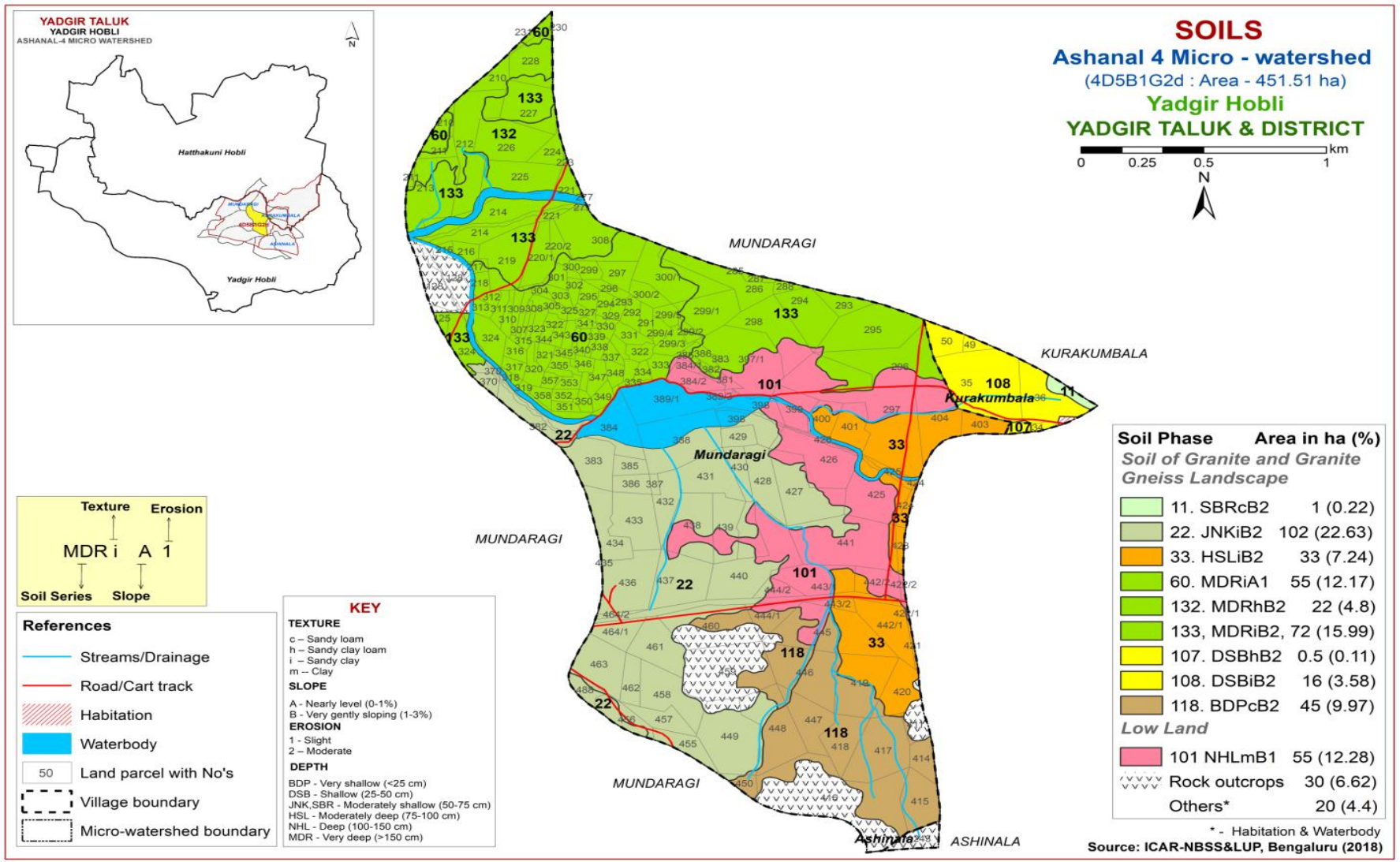


Fig 3.5 Soil Phase or Management Units - Ashanal-4 Microwatersh

Chapter 4

THE SOILS

Detailed information pertaining to the nature, extent and their distribution of different kinds of soils occurring in Ashanal-4 microwatershed is provided in this chapter. The microwatershed area has been identified as granite gneiss landscape based on geology. In all, 7 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.

A brief description of each of the 7 soil series identified followed by 10 soil phases (management units) mapped under each series are furnished below. 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, 7 soil series are identified and mapped. Of these, MDR series occupies maximum area of 149 ha (33%) followed by JNK 102 ha (23%), NHL 55 ha (12%) and BDP 45 ha (10%). The other series occupy minor area in the microwatershed. Brief description of each series identified and number of soil phases mapped is given below.

4.1.1 Baddeppalli (BDP) Series: Baddeppalli soils are very shallow (<25cm), well drained, have dark brown to dark reddish brown, calcareous sandy clay loam soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands under cultivation. The Baddeppalli series has been classified as a member of the loamy, mixed are isohyperthermic family of Lithic Ustorthents.

The thickness of the soil is less than 25 cm. Its colour is in 7.5 YR and 5 YR hue with value 3 and chroma 2 to 4. The texture varies from sandy clay loam to sandy clay and is calcareous. The available water capacity is very low (<50 mm/m). Only one phase was identified and mapped.

Landscape and Soil Profile characteristics of Baddeppalli (BDP) Series

4.1.2 Dastharabad (DSB) Series: Dastharabad soils are shallow (25-50 cm), well drained, have dark brown, gravelly clay soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands under cultivation. The Dastharabad series has been classified as a member of the clayey-skeletal, mixed, isohyperthermic family of Haplustalfs.

The thickness of the solum ranges from 28 to 50 cm. The thickness of A horizon ranges from 9 to 14 cm. Its colour is in 10 YR and 7.5 YR hue with value and chroma of 3 to 4. The texture varies from sandy loam to sandy clay. The thickness of B horizon ranges from 28 to 40 cm. Its colour is in 7.5 YR hue with value 3 and chroma 3 to 4. The texture is sandy clay to clay with 35-60 per cent gravel. The available water capacity is very low (<50 mm/m). Two phases were identified and mapped.

Landscape and Soil Profile characteristics of Dastharabad (DSB) Series

4.1.3 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

4.1.4 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

4.1.5 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

4.1.6 Neelahalli (NHL) Series: Neelahalli soils are deep (100-150 cm), well drained, have dark grayish brown to brown sandy loam soils. They are developed from weathered granite gneiss and occur on nearly level to very gently sloping lowlands under cultivation. The Neelahalli series has been classified as a member of the coarse-loamy, mixed, isohyperthermic family of Typic Haplustepts.

The thickness of the solum ranges from 105 to 144 cm. The thickness of A horizon ranges from 8 to 16 cm. Its colour is in 10 YR hue with value 4 to 5 and chroma 2 to 3. The texture ranges from sandy clay loam to sandy clay. The thickness of B horizon ranges from 125 to 134 cm. Its colour is in 10 YR hue with value 4 to 5 and chroma 1 to 3. The texture is dominantly sandy loam. The available water capacity is very high (>200 mm/m). Only one phase was identified and mapped.

Landscape and Soil Profile characteristics of Neelahalli (NHL) Series

4.1.7 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). Three phases were identified and mapped.

Landscape and Soil Profile characteristics of Madhwara (MDR) Series

Table: 4.1 Physical and Chemical Characteristics of Soil Series identified in Ashanal-4 microwatershed

Soil Series: Baddeppalli **(**BDP) **Pedon:** R-11

Location: $16^0$43'84.4"N $77^0$14'06.4"E, Halagera village, Yadgir hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Loamy, mixed (calcareous), isohyperthermic, Lithic Ustorthents

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
0-16	Ap	58.67	17.02	24.31	19.03	13.74	9.62	10.57	5.71	<15	scl	16.19	8.18

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}							%	%
0-16	8.58	-	-	0.262	1.60	7.67	-	-	0.24	0.06	-	18.10	0.74	100	0.35

Contd...

Soil Series: Dastharabad **(**DSB) **Pedon:** R-17

Location: $16^0$31’ 98.6”N $77^0$22’93.0”E, Duppalli village, Sydhapura hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Clayey-skeletal, mixed, isohyperthermic Paralithic Haplustalfs

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	90.51	4.84	4.64	7.06	8.07	37.24	26.03	12.11	35	s	5.32	1.59
6-17	Bt1	49.11	8.08	42.81	10.67	15.44	10.00	8.44	4.56	20	sc	20.68	13.16
17-43	Bt2	39.54	2.84	57.63	12.89	9.14	7.71	6.83	2.97	50	c	26.69	18.50

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	5.93	-	-	0.04	0.67	0.00	2.00	0.54	0.07	0.01	2.61	3.60	0.78	73	0.14
6-17	7.31	-	-	0.110	0.91	0.91	11.19	3.37	0.12	0.49	15.00	15.20	0.36	100	3.22
17-43	6.64	-	-	0.048	0.76	0.00	18.81	5.57	0.23	0.09	24.70	24.90	0.43	99	0.38

Contd...

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: 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: Neelahalli (NHL) **Pedon:** R-17

Location: $16^0$41'38.9"N $77^0$12'20.2"E, Jinatera village, Balichakra hobli, Yadgir taluka and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Coarse-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	54.59	17.20	28.21	1.57	2.51	20.35	19.42	10.75	-	scl	21.01	12.13
15-45	Bw1	75.66	10.87	13.47	6.72	14.15	23.12	22.40	9.27	-	sl	10.80	5.85
45-93	Bw2	70.73	13.38	15.89	3.58	14.33	22.93	22.42	7.47	-	sl	13.76	7.93
93-125	Bw3	71.60	10.65	17.75	4.42	5.97	30.35	20.99	9.88	-	sl	14.72	8.60

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	5.41	-	-	0.121	1.24	0.00	7.10	2.90	0.25	0.48	10.73	14.28	0.51	75	3.36
15-45	7.72	-	-	0.051	0.24	0.91	-	-	0.11	0.27	-	7.23	0.54	100	3.69
45-93	7.66	-	-	0.047	0.08	1.04	-	-	0.12	0.35	-	8.78	0.55	100	3.96
93-125	8.86	-	-	0.11	0.08	2.08	-	-	0.11	0.28	-	9.88	0.56	100	2.83

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
30-53	Bw2	53.95	19.15	26.90	4.68	7.48	12.58	19.65	9.56	-	scl	26.99	14.02
53-117	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
30-53	9.78	-	-	0.40	0.19	5.76	-	-	0.16	1.53	-	24.53	0.91	100	2.49
53-117	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

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 10 soil map units identified in the Ashanal-4 microwatershed are grouped under 2 land capability classes and 5 subclasses. An area about 402 ha (89%) in the microwatershed is suitable for agriculture (Fig. 5.1).

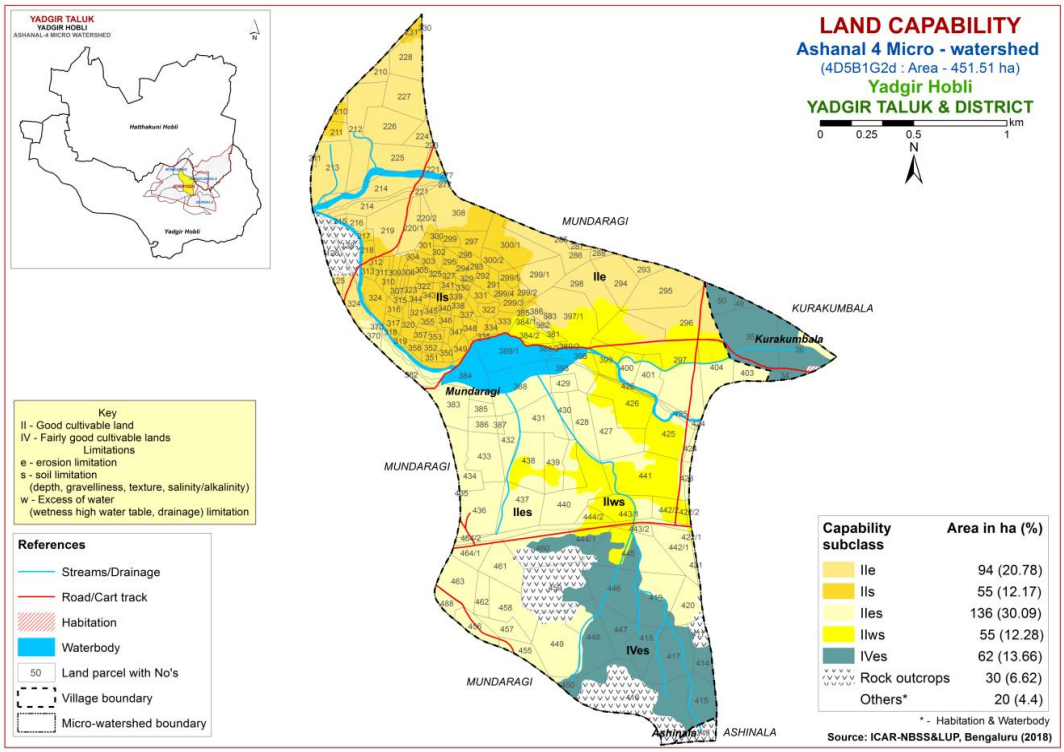


Fig. 5.1 Land Capability map of Ashanal-4 Microwatershed

Good cultivable lands (Class II) cover an area of about 75 per cent and are distributed in the major part of the microwatershed with minor problems of shallow soil depth, drainage and erosion. Fairly good lands (Class IV) cover an area of about 14 per cent and are distributed in the eastern and southern part of the microwatershed with very severe problems of shallow soil depth and erosion. An area about 7 per cent covered with rock outcrops and distributed in the southern and northwestern part of the microwatershed. An area of 4 per cent covered by others.

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.

Very Shallow (<25 cm) soils occur in an area of 45 ha (10%) and are distributed in the southern part of the microwatershed. Shallow (25-50 cm) soils occur in an area of 17 ha (4%) and are distributed in the eastern part of the microwatershed. Moderately shallow (50-75 cm) soils occupy an area of about 103 ha (23%) and are distributed in the central, eastern, western, southwestern and southern part of the microwatershed. Moderately deep (75-100 cm) soils occupy an area of 33 ha (7%) and are distributed in the eastern and southern part of the microwatershed. Deep (100-150 cm) soils occupy maximum of 55 ha (12%) and are distributed in the central and eastern part of the microwatershed. Very deep (>150 cm) soils cover an area of 149 ha (33%) and are distributed in the northern, northeastern and northwestern part of the microwatershed.

The most productive lands 204 ha (45%) 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 major part of the microwatershed. The problematic soils cover about 37 per cent area where the soils are shallow to very shallow and are suitable for short duration crops.

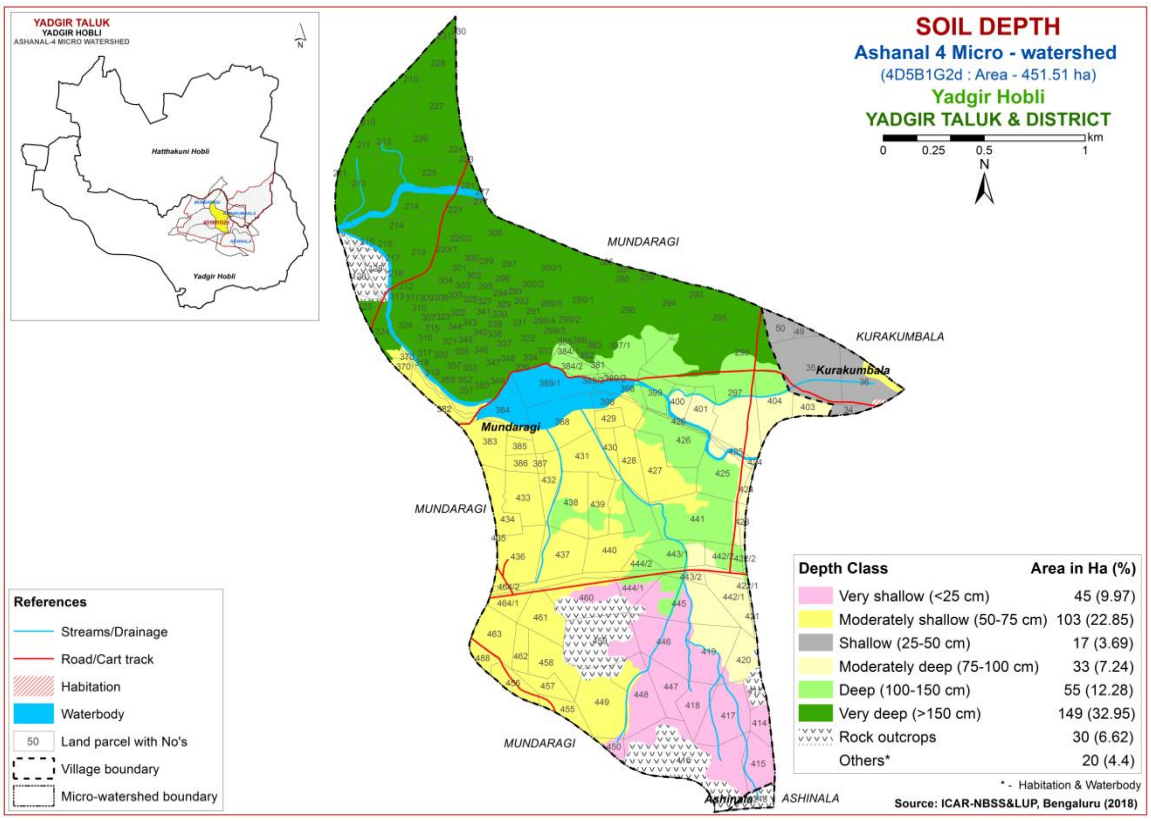


Fig. 5.2 Soil Depth map of Ashanal-4 Microwatershed

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.

An area of about 68 ha (15%) is loamy and are distributed in the northwestern and southern part of the microwatershed. An area of 333 ha (74%) has soils that are clayey at the surface and occur in all parts of the microwatershed.

Entire area has most productive lands with respect to surface soil texture clayey and loamy (74%) that have high potential for soil-water retention and availability, and nutrient retention and availability, but clayey soils have more problems of drainage, infiltration, workability and other physical problems. The other productive lands are loamy soils (15%) which also have high potential for soil-water retention and nutrient availability but have no drainage or other physical problems.

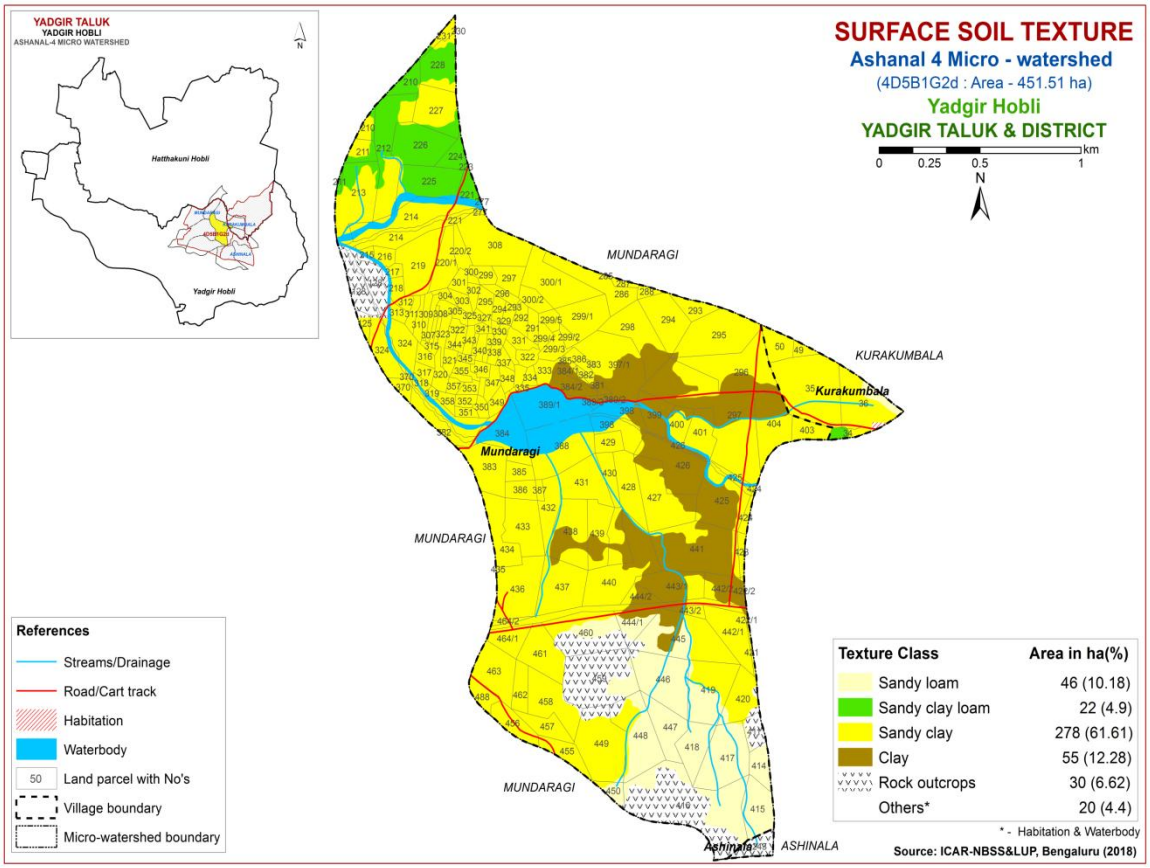


Fig. 5.3 Surface Soil Texture map of Ashanal-4 Microwatershed

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 402 ha (89%) and are distributed in the major part of the microwatershed. An area of about 30 ha (7%) is rock outcrops and distributed in the northwestern and southern part of the microwatershed. The most productive soils 402 ha (89%) that are non gravelly (<15%), where all climatically adapted long duration crops can be grown.

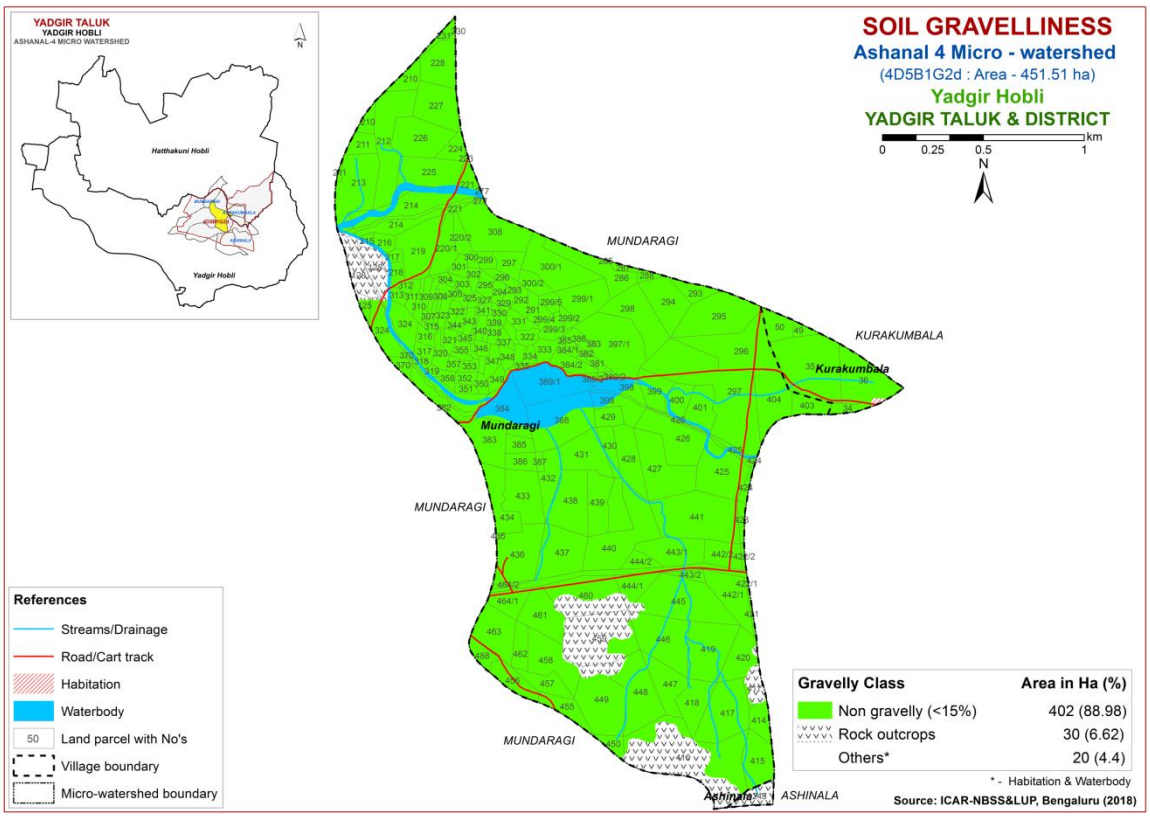


Fig. 5.4 Soil Gravelliness map of Ashanal-4 Microwatershed

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 63 ha (14%) and 135 ha (30%) in the microwatershed has soils that are very low (<50 mm/m) and low (51-100 mm/m) in the available water capacity respectively and are distributed in the central, eastern, western, southern, southeastern and southwestern part of the microwatershed. Very high (>200 mm/m) in 204 ha (45%) and are distributed in the eastern, central, northern and northwestern part of the microwatershed.

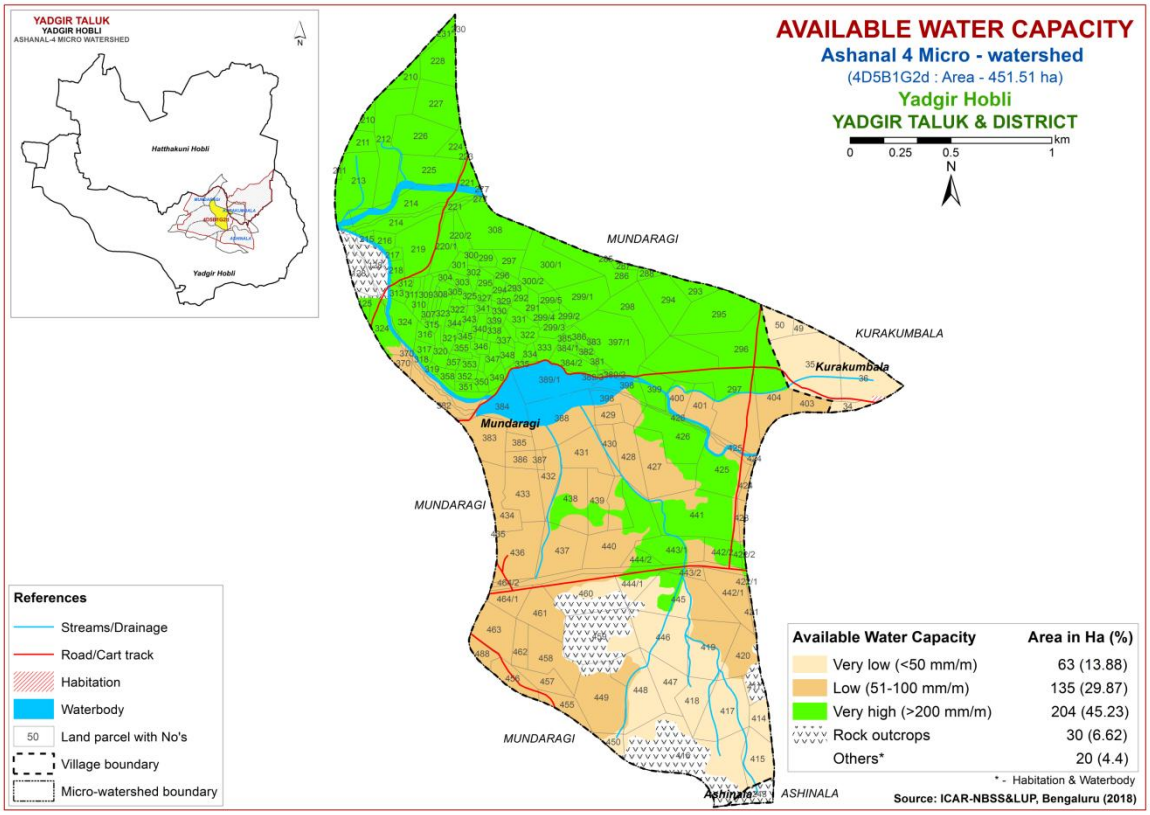


Fig. 5.5 Soil Available Water Capacity map of Ashanal-4 Microwatershed

About 198 ha (44%) 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. An area of 204 ha (45%) are potential areas with regard to AWC where all climatically adapted annual and perennial crops can be grown.

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).

Maximum area of about 347 ha (77%) falls under very gently sloping (1-3% slope) lands and is distributed in the major part of the microwatershed. An area of about 55 ha (12%) are nearly level (0-1%) and are distributed in the north and northwestern part of the microwatershed.

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.

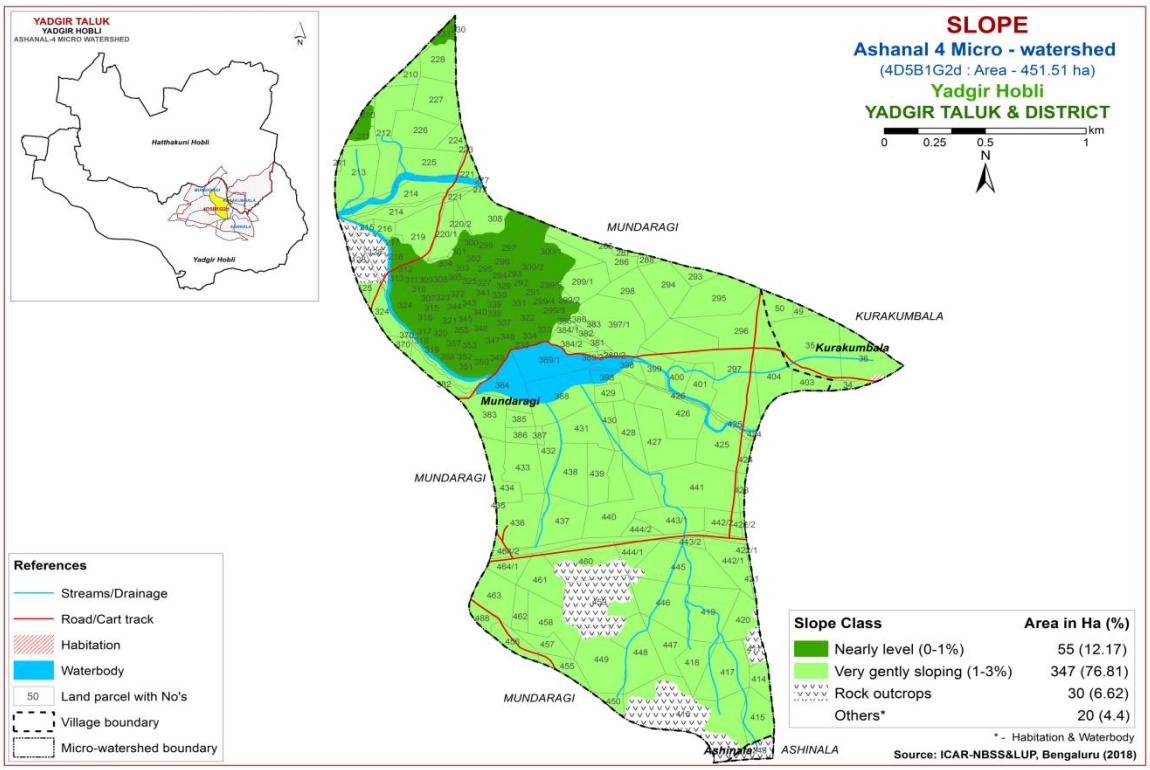


Fig. 5.6 Soil Slope map of Ashanal-4 Microwatershed

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.

Soils that are slightly eroded (e1 class) cover an area of 110 ha (24%) and are distributed in the central, eastern, southern and northwestern parts of the microwatershed. Moderately eroded soils cover a maximum area of 291 ha (65%) and are distributed in the all parts of the microwatershed.

Entire area in the microwatershed is slight and moderate erosion. For moderately eroded areas, taking up soil and water conservation and other land development measures are needed.

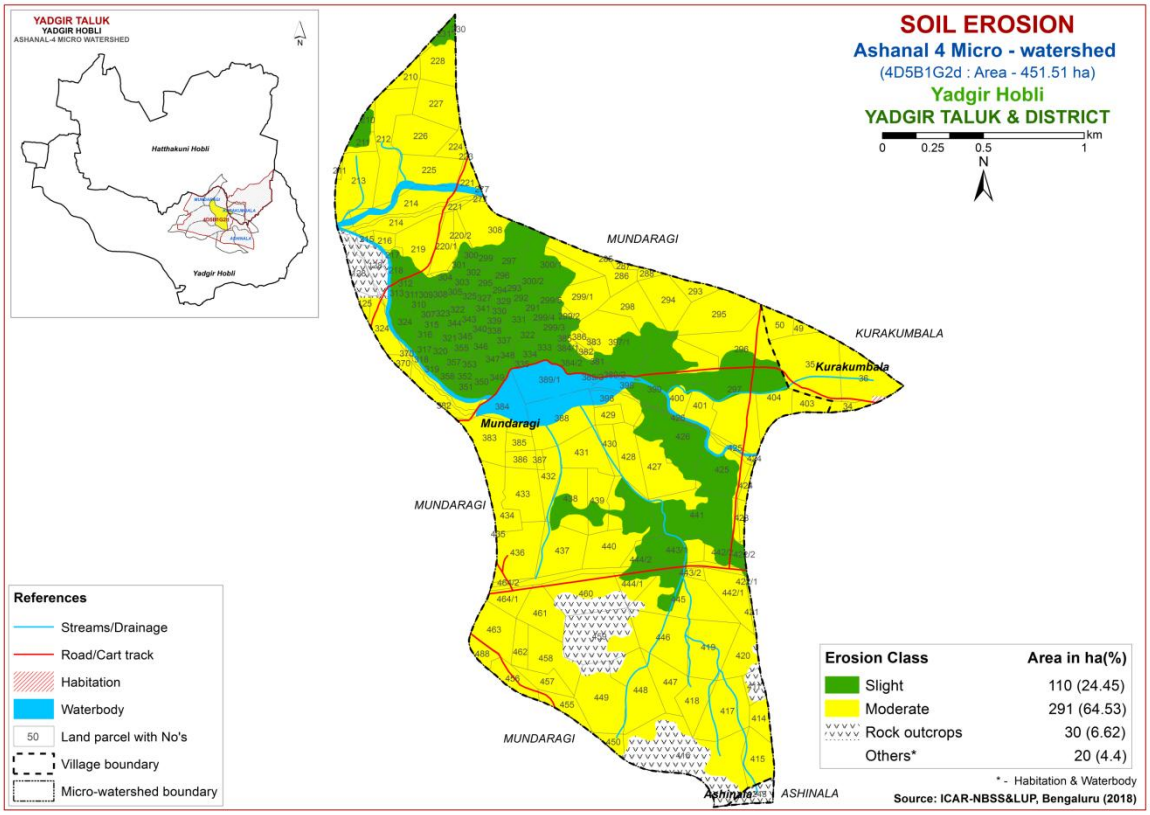


Fig. 5.7 Soil Erosion map of Ashanal-4 Microwatershed

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 and 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 Ashanal-4 microwatershed for soil reaction (pH) showed that an area of about <1 ha (<0.1%) is slightly acid (pH 6.0-6.5) and are distributed in the southern part of the microwatershed. An area of 63 ha (14%) is neutral (pH 6.5-7.3) and are distributed in the southern and northwestern part of the microwatershed. An area of about 125 ha (28%) is slightly alkaline (pH 7.3-7.8) and are distributed in the eastern, southeastern, southern, northwestern and northern part of the microwatershed. Maximum area of about 150 ha (33%) are moderately alkaline (pH 7.8-8.4) and are distributed in the major part of the microwatershed. 60 ha (14%) area is strongly alkaline (pH 8.4-9.0) and are distributed in the central, southwestern and northeastern part of the microwatershed and small area of 4 ha (<1%) is very strongly alkaline (pH >9.0) and are distributed in the northeastern part of the microwatershed (Fig. 6.1). In all, major area of about 339 ha is alkaline and 63 ha is under neutral.

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

The soil organic carbon content (an index of available Nitrogen) in the soils of the microwatershed is low (<0.5%) in an area of about 81 ha (18%) and are distributed in the western, southern and northwestern part of the microwatershed, medium (0.5-0.75%)

covering a maximum area of about 321 ha (71%) and are distributed in the all parts of the microwatershed (Fig. 6.3).

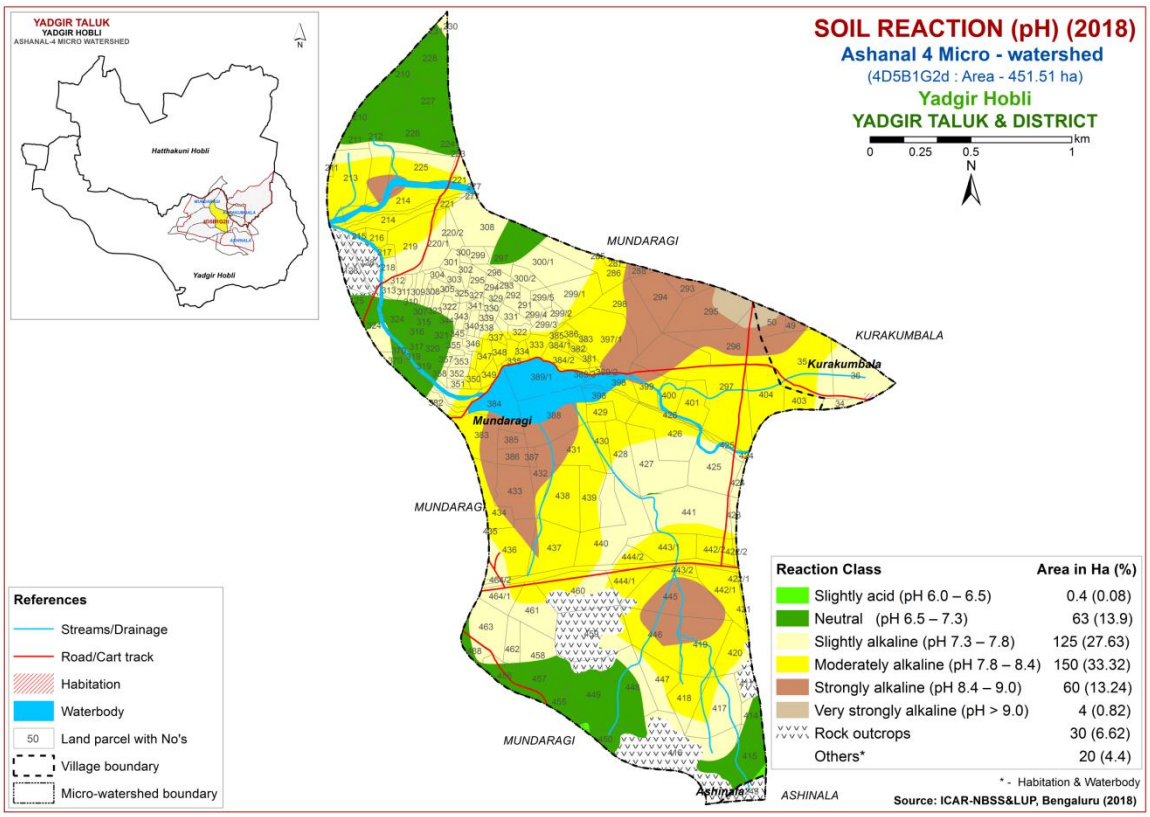


Fig.6.1 Soil Reaction (pH) map of Ashanal-4 Microwatershed

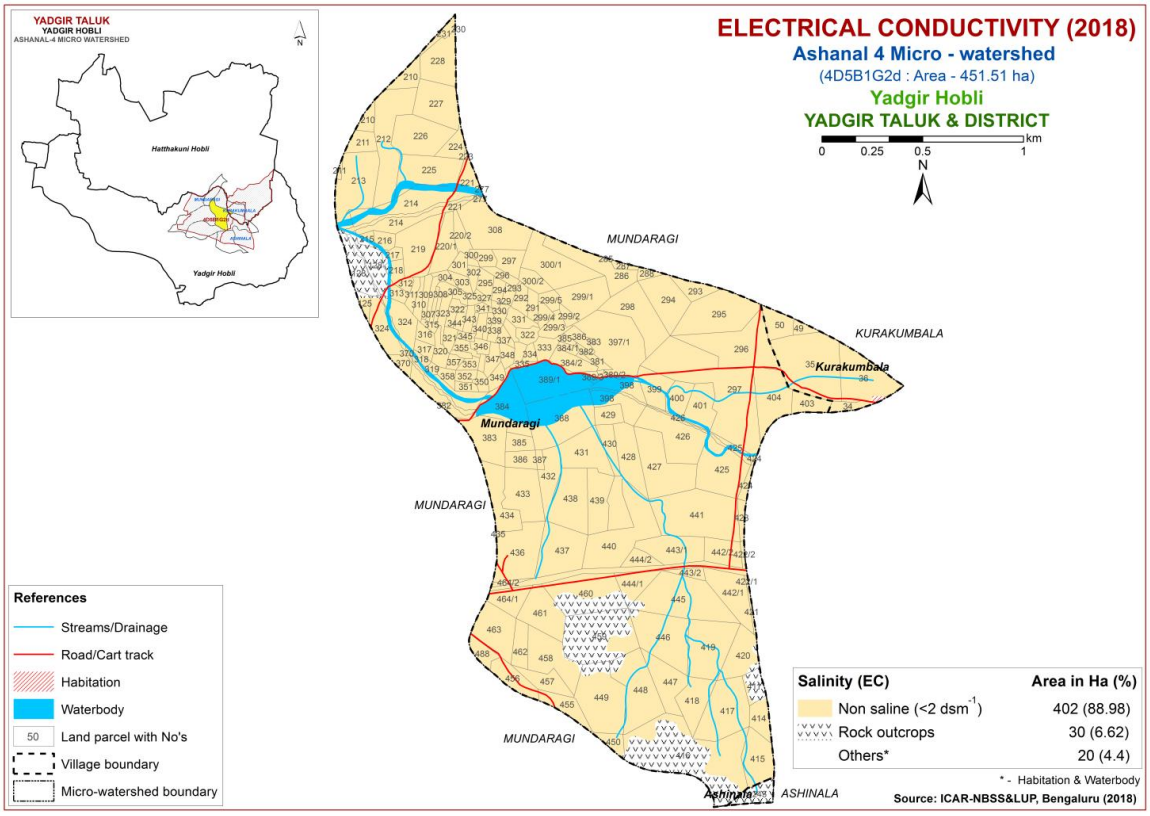


Fig.6.2 Electrical Conductivity (EC) map of Ashanal-4 Microwatershed

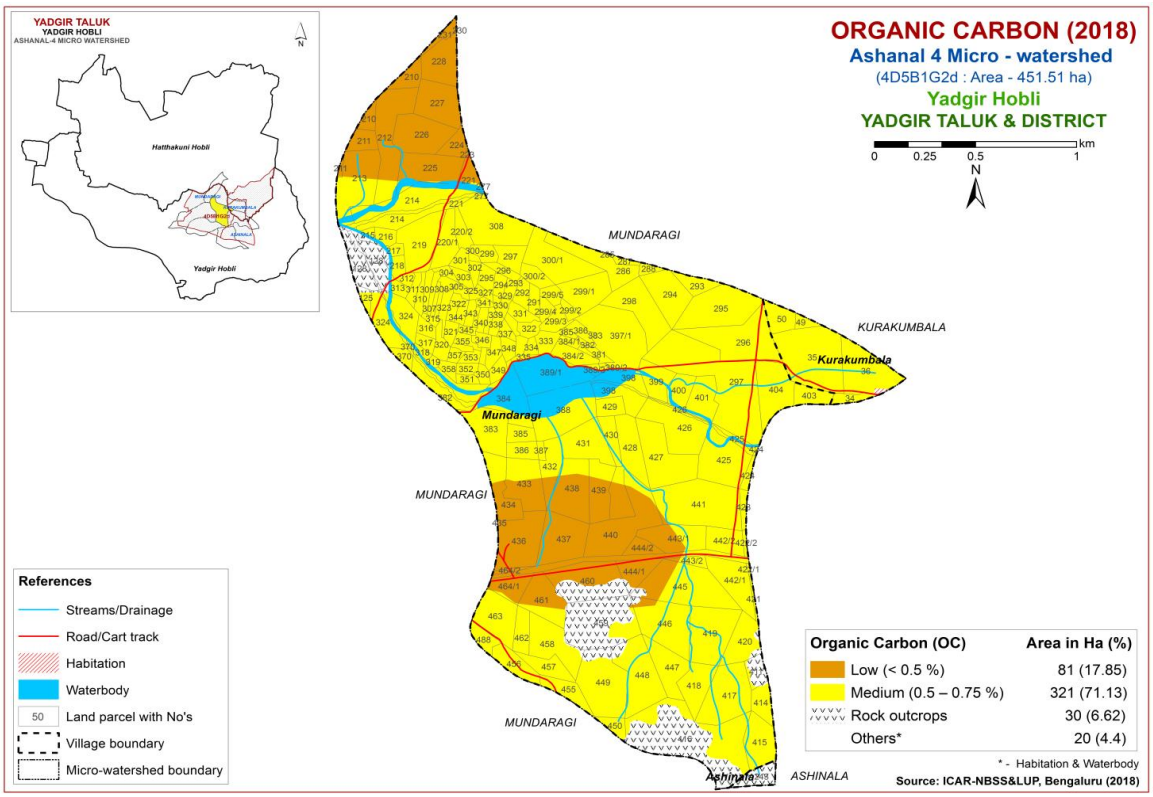


Fig.6.3 Soil Organic Carbon map of Ashanal-4 Microwatershed

6.4 Available Phosphorus

Available phosphorus content is low (<23 kg/ha) in area of 89 ha (20%) and are distributed in the eastern and southeastern part of the microwatershed. Medium (23-57 kg/ha) in maximum area of about 313 ha (69%) and occur in the major part of the microwatershed (Fig. 6.4).

6.5 Available Potassium

Available potassium content is low (<145 kg/ha) in an area of about 19 ha (4%) and are distributed in the eastern and southern part of the microwatershed. Medium (145-337 kg/ha) in a maximum area of about 383 ha (85%) and are distributed in the all parts of the microwatershed (Fig. 6.5).

6.6 Available Sulphur

Maximum area of about 342 ha (76%) is low (<10 ppm) in available sulphur content and are distributed in the major part of the microwatershed, medium (10-20 ppm) in an area of about 59 ha (13%) and are distributed in the eastern and southern part of the microwatershed. High (>20 ppm) in an area of <1 ha (<1%) and are distributed in the eastern part of the microwatershed (Fig. 6.6).

6.7 Available Boron

Available boron content is medium (0.5-1.0 ppm) in a small area of 7 ha (1%) and are distributed in the eastern part of the microwatershed. An area of about 395 ha (88%)

is low (<0.5 ppm) in available boron and are distributed in the all parts of the microwatershed (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).

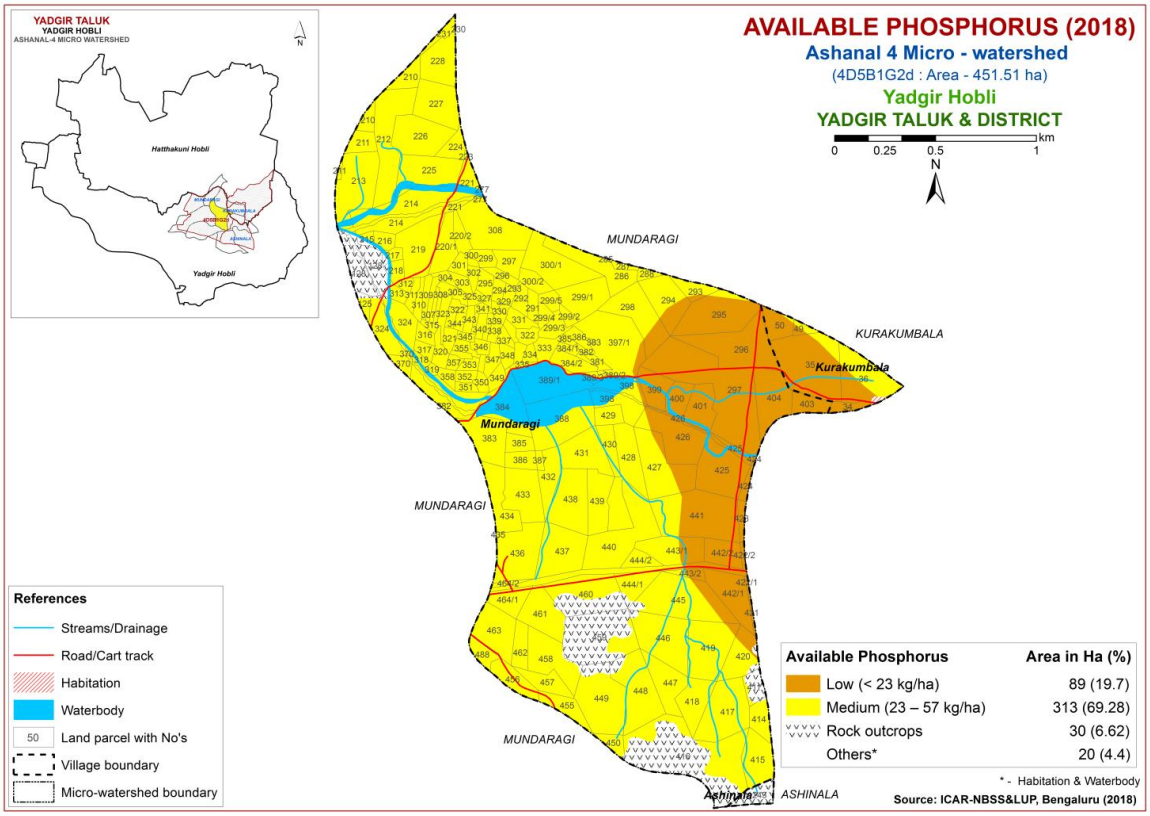


Fig.6.4 Soil Available Phosphorus map of Ashanal-4 Microwatershed

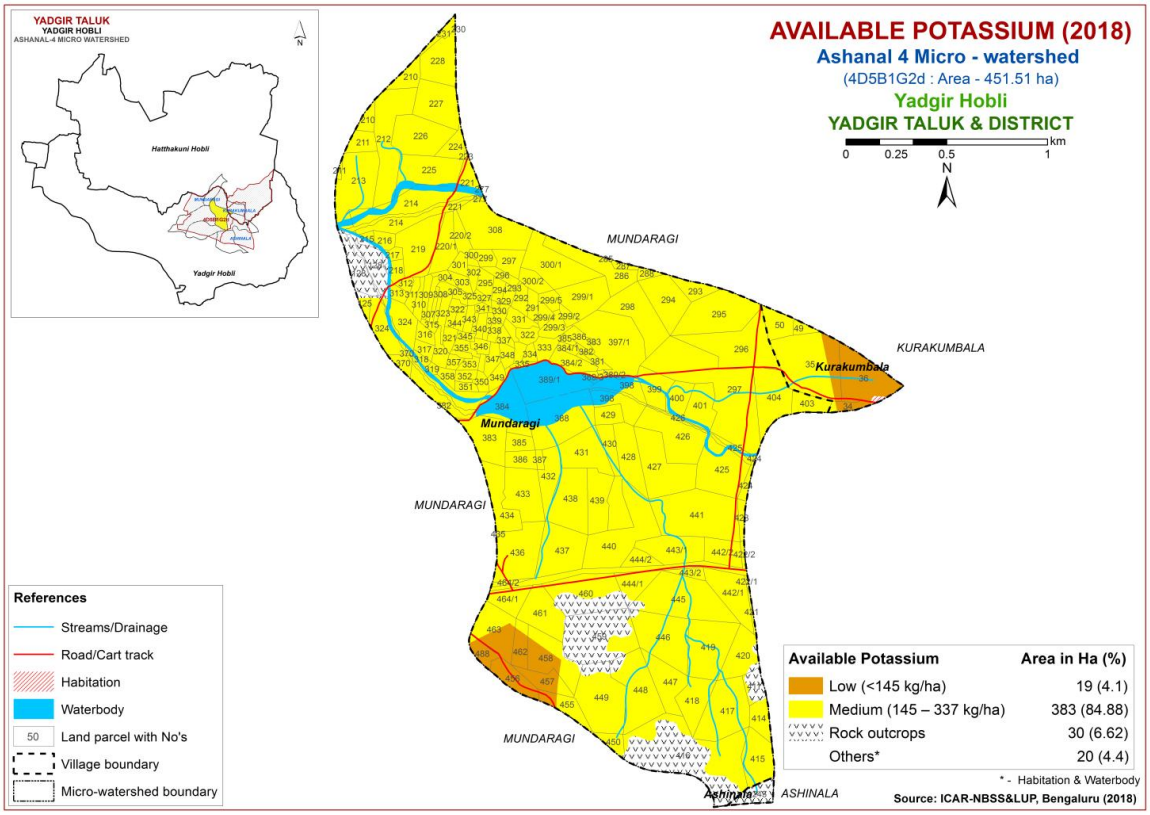


Fig.6.5 Soil Available Potassium map of Ashanal-4 Microwatershed

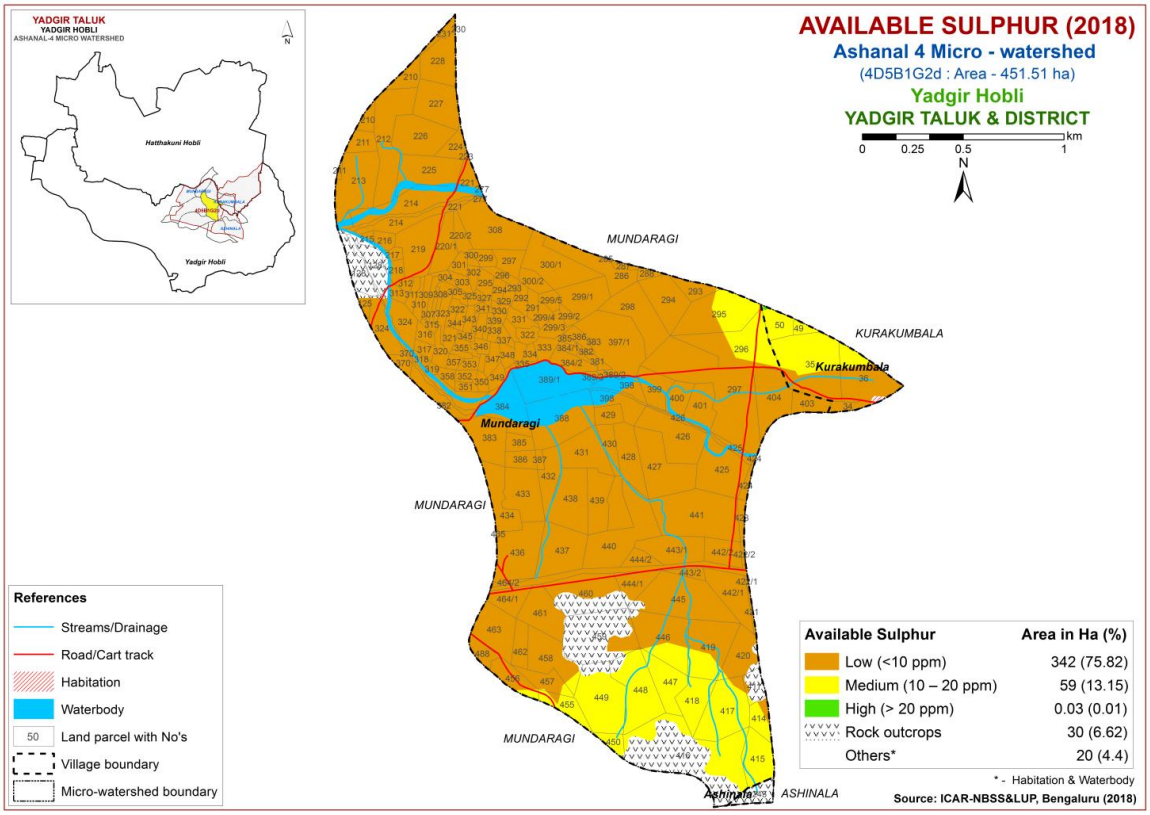


Fig.6.6 Soil Available Sulphur map of Ashanal-4 Microwatershed

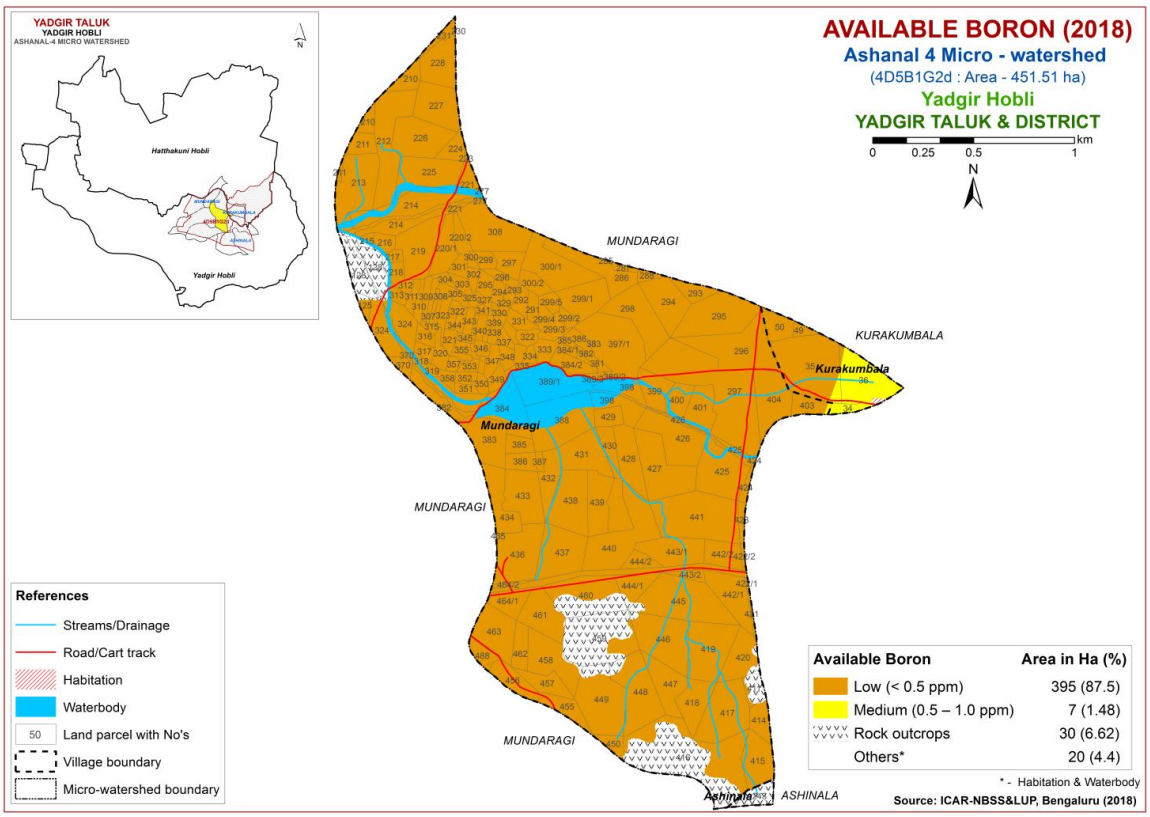


Fig.6.7 Soil Available Boron map of Ashanal-4 Microwatershed

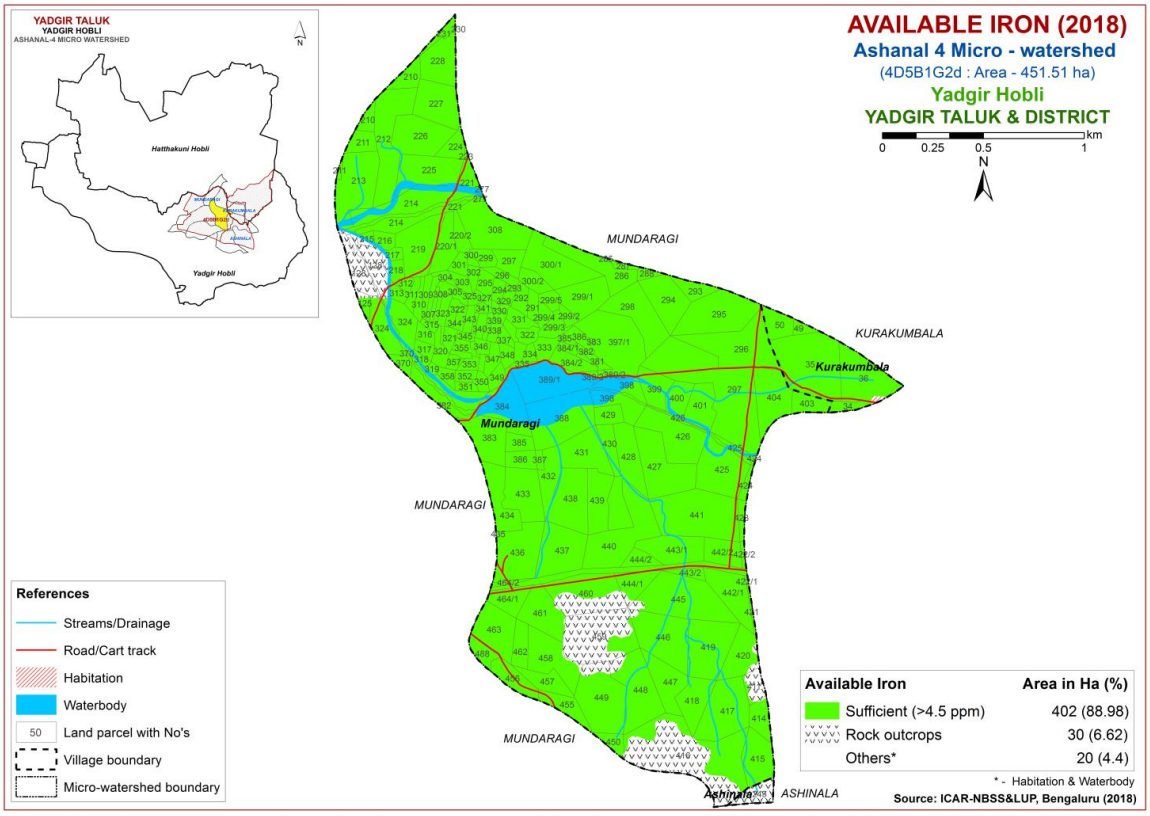


Fig.6.8 Soil Available Iron map of Ashanal-4 Microwatershed

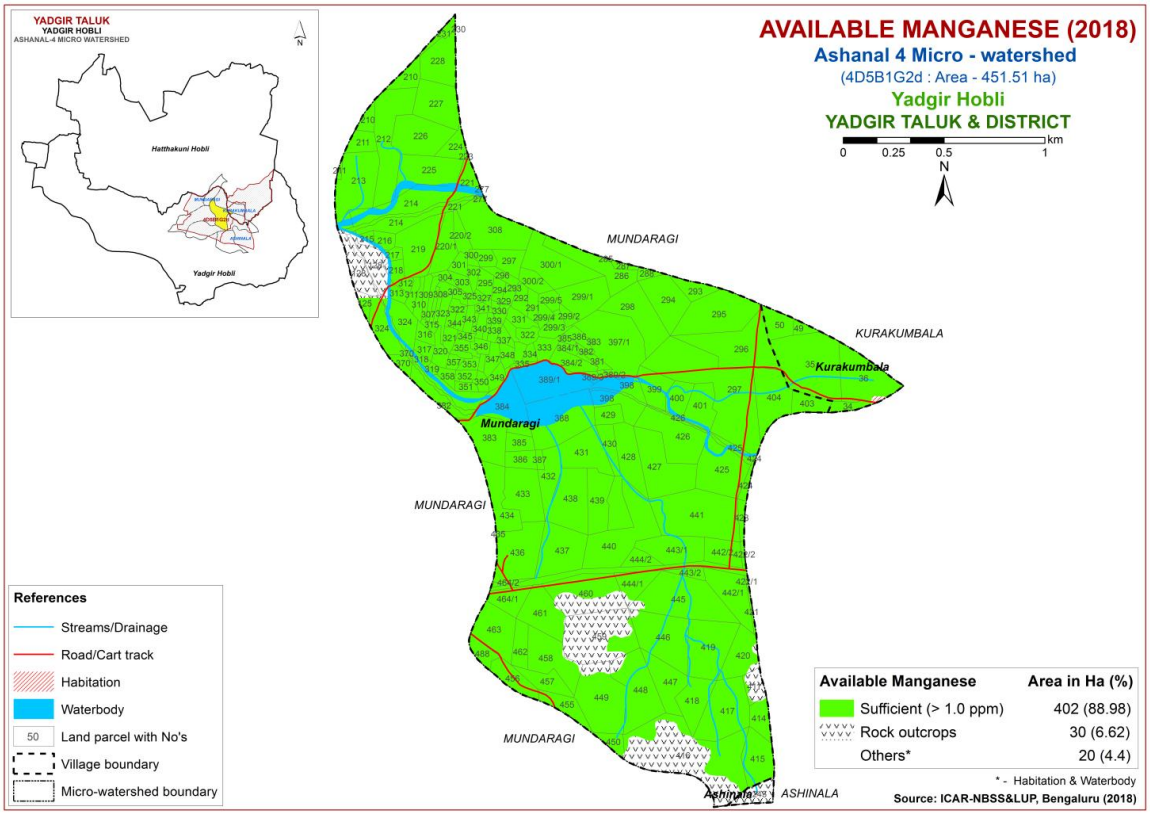


Fig.6.9 Soil Available Manganese map of Ashanal-4 Microwatershed

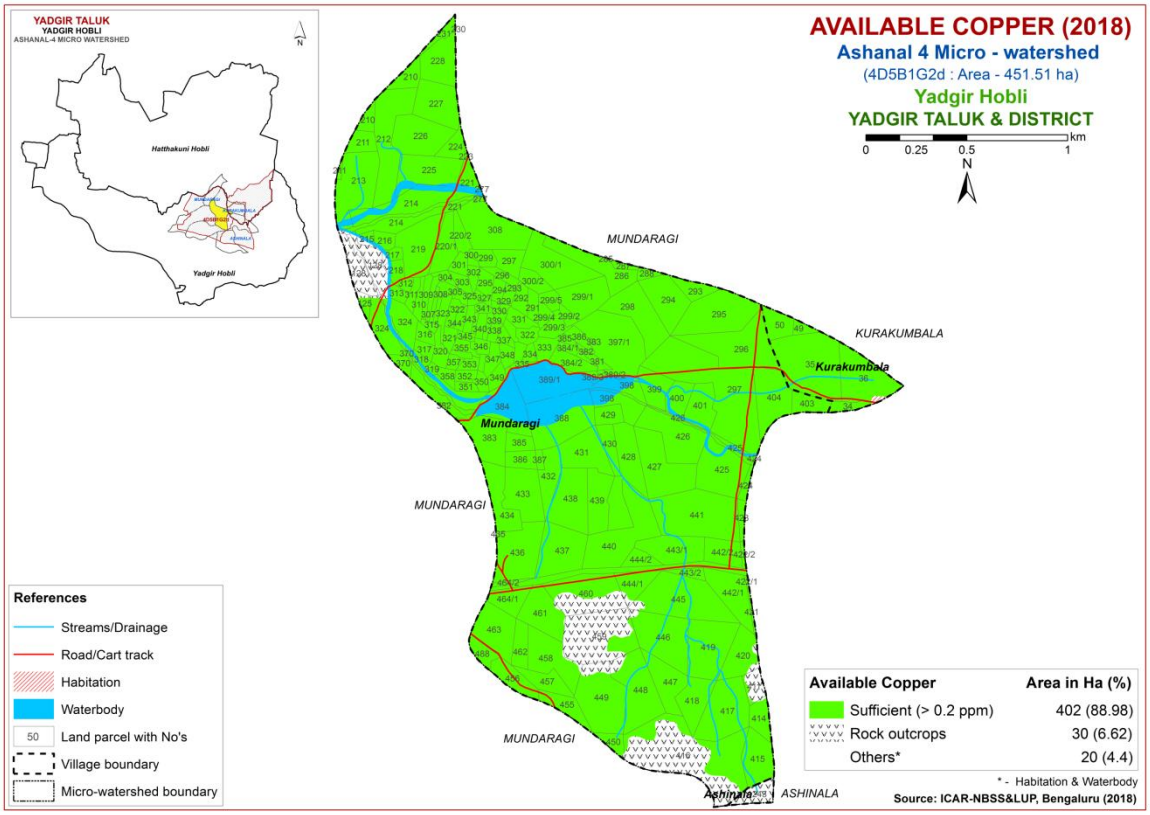


Fig.6.10 Soil Available Copper map of Ashanal-4 Microwatershed

6.11 Available Zinc

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

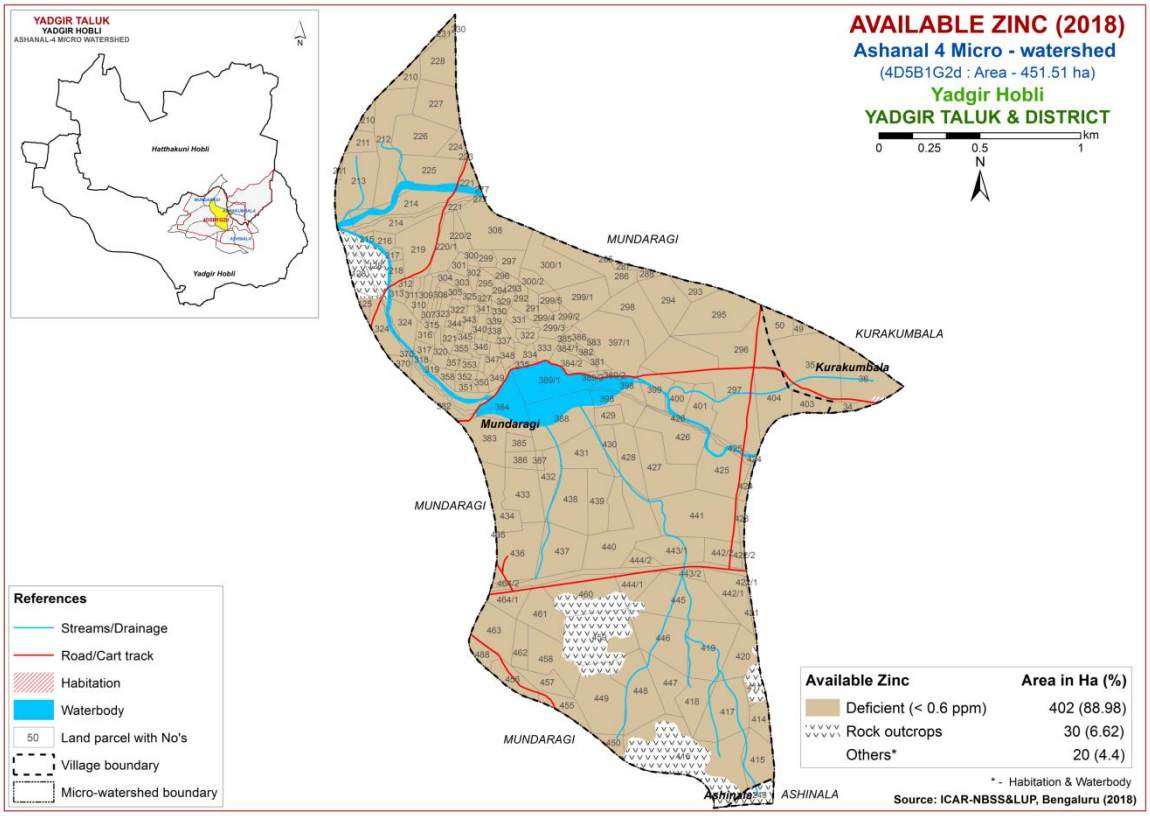


Fig.6.11 Soil Available Zinc map of Ashanal-4 Microwatershed

Chapter 7

LAND SUITABILITY FOR MAJOR CROPS

The soil and land resource units (soil phases) of Ashanal-4 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. 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 limitations for crop growth. Classes S2, S3 and N1 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 annual and perennial 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 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.

An area of about 204 ha (45%) is highly suitable (Class S1) for growing sorghum and are distributed in the central, southern, northern and northeastern part of the microwatershed. An area of about 135 ha (30%) is moderately suitable (Class S2) for growing sorghum and are distributed in the southern, southwestern, northwestern,

Table 7.1 Soil-Site Characteristics of Ashanal-4 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 (1:2.5)	EC (dSm^{-1}) (1:2.5)	ESP (%)	CEC [Cmol (p^{+})kg^{-1}]	BS (%)
					Sur-face	Sub-surface	Surface (%)	Sub-surface (%)								
BDPcB2	866	150	WD	<25	sl	scl	<15	-	<50	1-3	moderate	8.58	0.262	0.35	18.10	100
DSBhB2	866	150	WD	25-50	scl	g c	<15	35-60	<50	1-3	moderate	5.93	0.04	0.14	3.60	73
DSBiB2	866	150	WD	25-50	sc	g c	<15	35-60	<50	1-3	moderate	5.93	0.04	0.14	3.60	73
SBRcB2	866	150	SED	50-75	sl	ls-s	<15	-	<50	1-3	moderate	8.24	0.145	1.15	7.50	100
JNKiB2	866	150	WD	50-75	sc	scl	<15	-	50-100	1-3	moderate	8.42	0.148	0.18	14.50	100
HSLiB2	866	150	MWD	75-100	sc	sc	<15	-	101-150	1-3	moderate	7.16	0.117	5.94	4.90	97
NHLmB1	866	150	WD	100-150	c	sl	<15	-	>200	1-3	slight	5.41	0.121	3.36	14.28	75
MDRhB2	866	150	WD	>150	scl	scl	<15	-	>200	1-3	moderate	8.31	0.33	0.90	20.57	100
MDRiB2	866	150	WD	>150	sc	scl	<15	-	>200	1-3	moderate	8.31	0.33	0.90	20.57	100
MDRiA1	866	150	WD	>150	sc	scl	<15	-	>200	0-1	slight	8.31	0.33	0.90	20.57	100

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

western and central part of the microwatershed. They have minor limitations of texture, calcareousness, and rooting depth. An area of about 18 ha (4%) is marginally suitable (Class S3) for growing sorghum and are distributed in the eastern and southeastern part of the microwatershed with moderate limitations rooting depth, texture and gravelliness. An area of about 45 ha (10%) is currently not suitable (Class N1) for growing sorghum and are distributed in the southern part of the microwatershed with severe limitations of rooting depth.

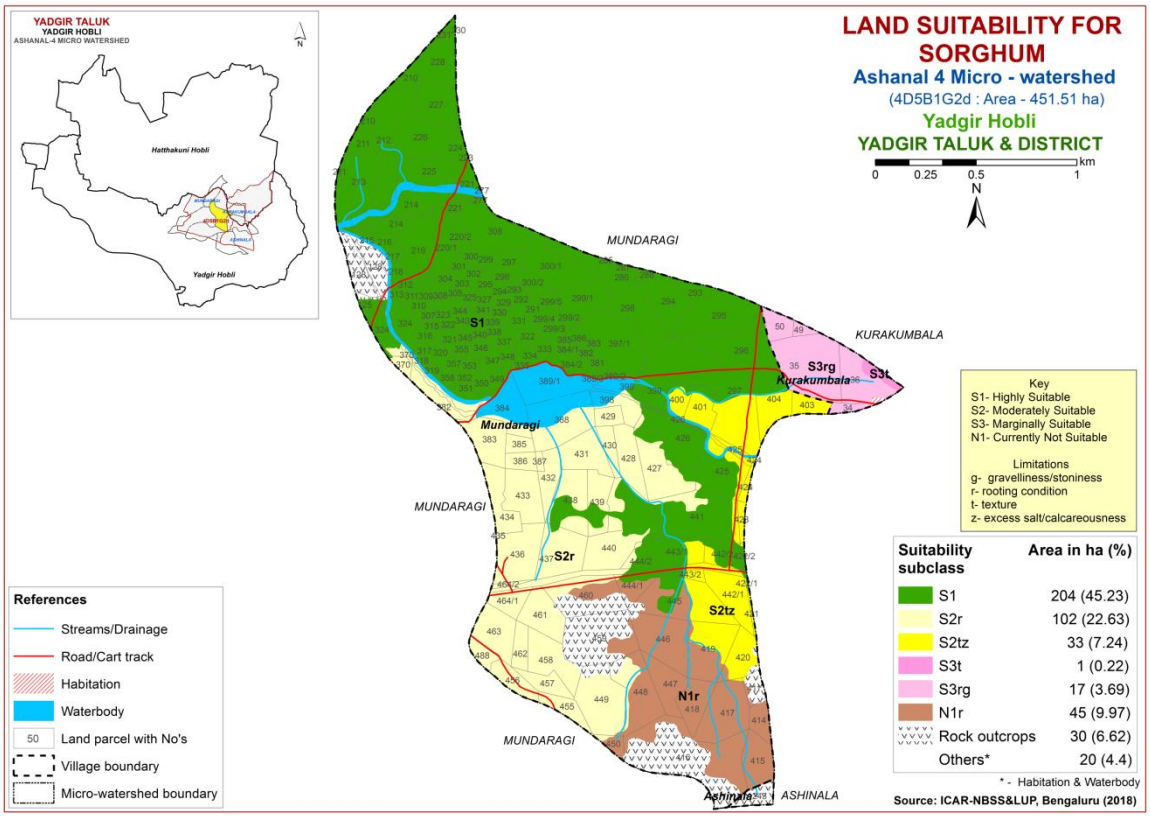


Fig. 7.1 Land Suitability map of Sorghum

Table 7.2 Crop 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

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.

An area of about 339 ha (75 %) is moderately suitable (Class S2) and are distributed in the major part of the microwatershed. They have minor limitations of texture drainage and calcareousness. Marginally suitable lands (Class S3) for growing maize occupy area of about 18 ha (4%) and occur in the eastern part of the microwatershed. They have moderate limitations of rooting depth, gravelliness and texture. An area of about 45 ha (10%) is currently not suitable (Class N1) for growing maize and are distributed in the southern part of the microwatershed with severe limitation rooting depth.

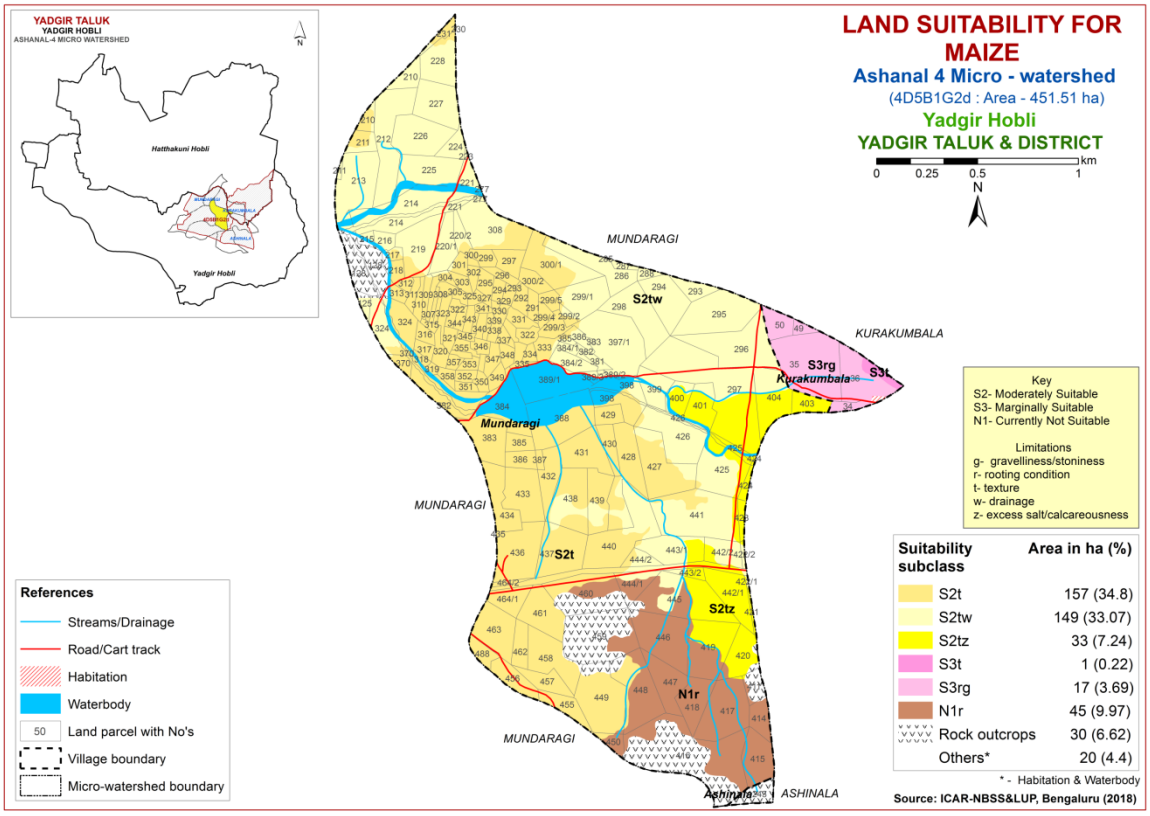


Fig. 7.2 Land Suitability map of Maize

Table 7.3 Crop 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

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.

Major area of about 339 ha (75%) is moderately suitable (Class S2) for growing bajra and are distributed in the all parts of the microwatershed. They have minor limitations of texture, drainage, calcareousness and rooting depth. Marginally suitable lands (Class S3) occupy an area of about 18 ha (4%) and distributed in the eastern part of the microwatershed. They have moderate limitations of rooting depth, gravelliness and texture. An area of about 45 ha (10%) is currently not suitable (Class N1) for growing bajra and are distributed in the southern part of the microwatershed with severe limitation rooting depth.

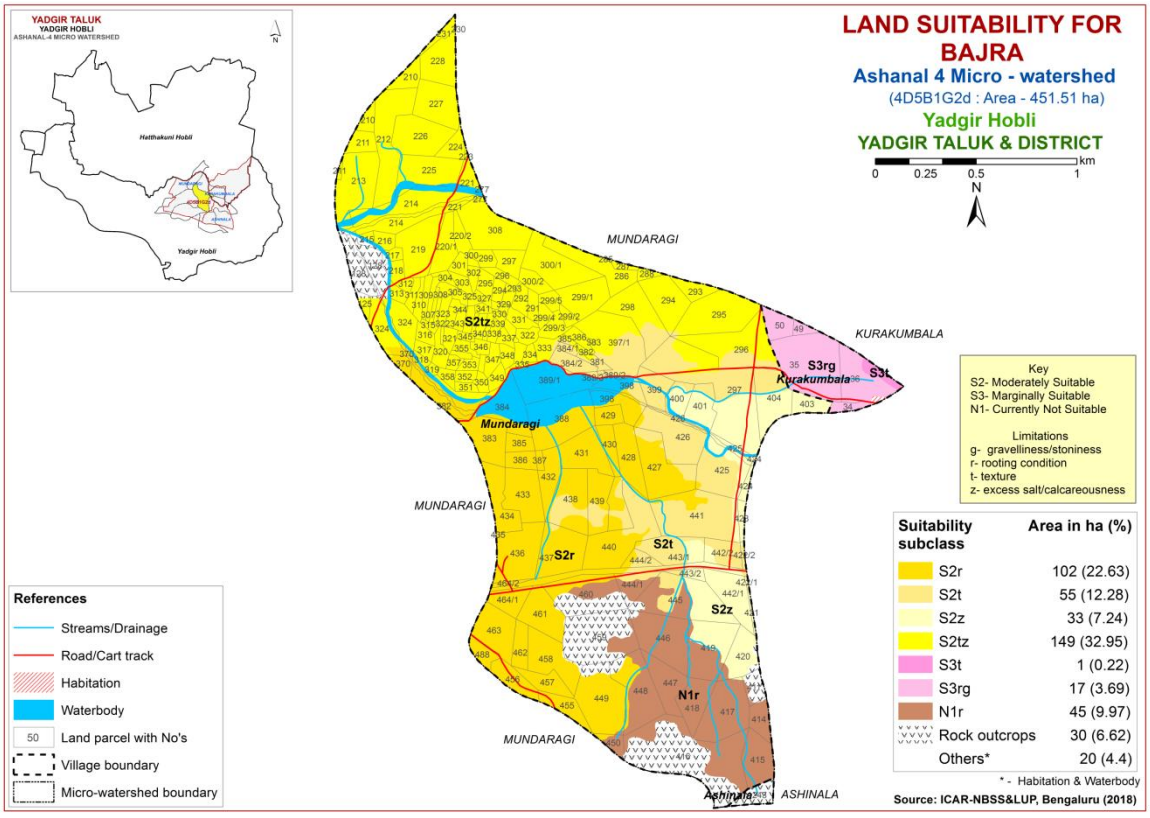


Fig. 7.3 Land Suitability map of Bajra

Table 7.4 Crop 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	%				
	$CaCO_3$ 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

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.

The moderately suitable (Class S2) lands for growing groundnut occur in an area of 33 ha (7%) and are distributed in the eastern and southeastern part of the microwatershed. They have minor limitations of calcareousness. Marginally suitable lands (Class S3) for growing groundnut occupy a maximum area of about 324 ha (72%) and are distributed in the major part of the microwatershed. They have moderate limitations of texture, drainage, gravelliness and rooting depth. An area of about 45 ha (10%) is currently not suitable (Class N1) for growing groundnut and are distributed in the southern part of the microwatershed with severe limitation rooting depth.

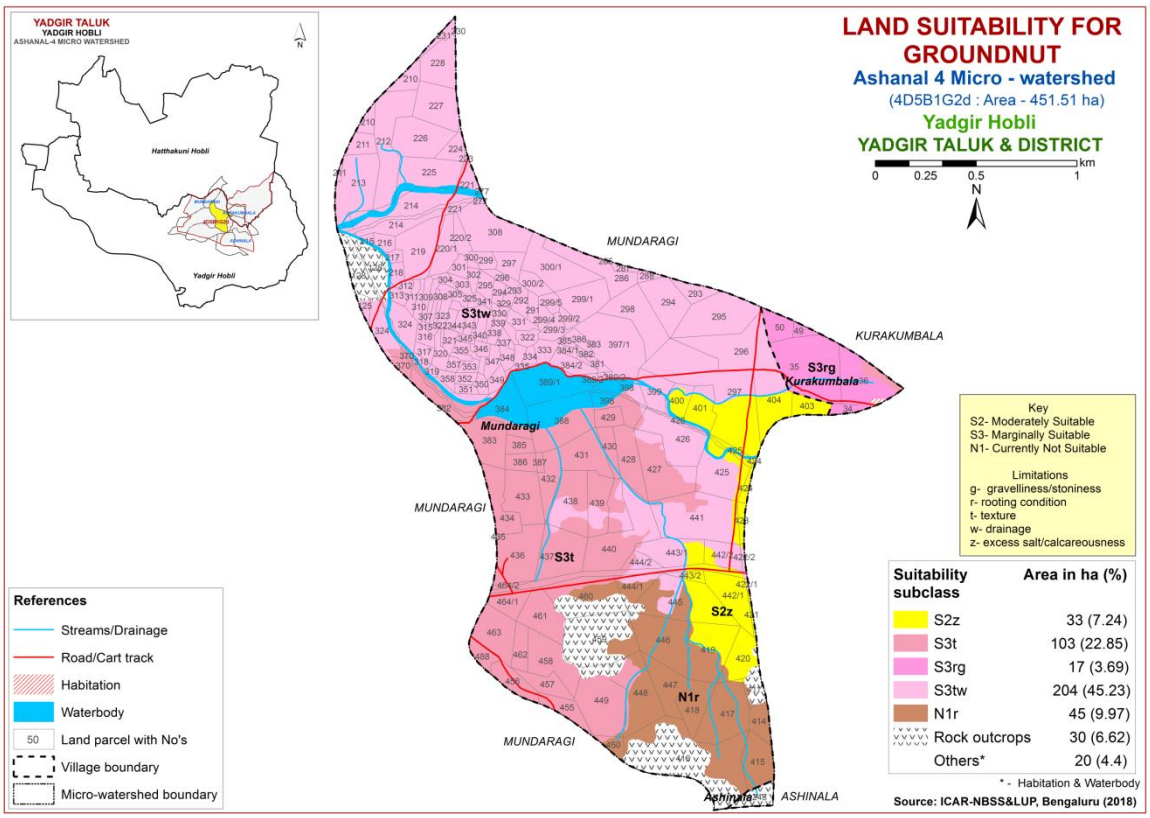


Fig. 7.4 Land Suitability map of Groundnut

Table 7.5 Crop 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

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.

An area of about 110 ha (24%) is highly suitable (Class S1) for growing sunflower and are distributed in the central, northen, northwestern, eastern and southern part of the microwatershed. An area of about 127 ha (28%) is moderately suitable (Class S2) for sunflower and are distributed in the central, northwestern, southwestern, eastern and southeastern part of the microwatershed. They have minor limitations of rooting depth, calcareousness and drainage. Marginally suitable (Class S3) lands for sunflower are found to occur in an area of about 103 ha (23%) with moderate limitations of rooting depth and texture, and are distributed in the eastern, western and southwestern part of the microwatershed. An area of about 62 ha (14%) is currently not suitable (Class N1) and are distributed in the southern and eastern part of the microwatershed with severe limitation of rooting depth and gravelliness.

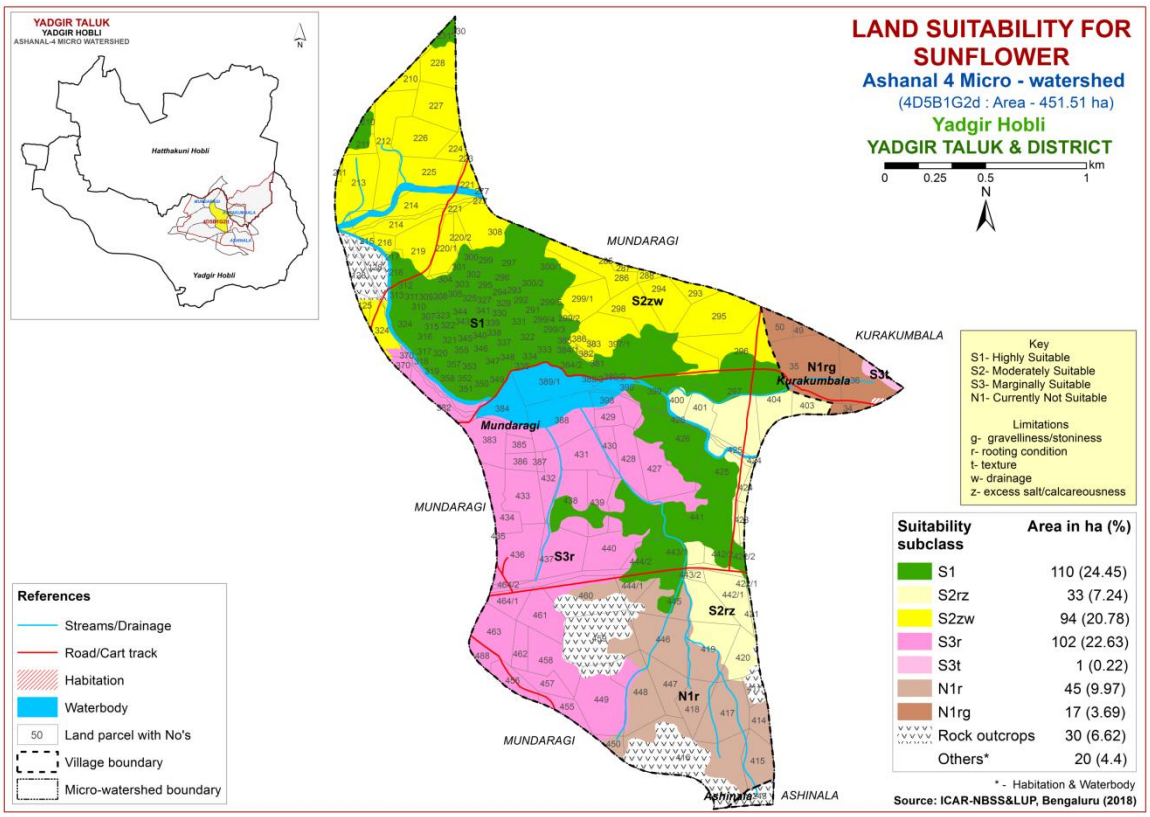


Fig. 7.5 Land Suitability map of Sunflower

Table 7.6 Crop 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

7.6 Land suitability criteria for Red gram (*Cajanus Cajan)*

Redgram 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 redgram was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.6.

Maximum area of about 237 ha (52%) is moderately suitable (Class S2) for growing redgram and are distributed in the all parts of the microwatershed. They have minor limitations of gravelliness, rooting depth, texture and drainage. Marginally suitable lands (Class S3) for growing redgram occupy an area of about 120 ha (26%) and occur in the eastern, western, central and southwestern part of the microwatershed. They have moderate limitations of rooting depth, texture and gravelliness. An area of about 45 ha (10%) is currently not suitable (Class N1) for growing redgram and are distributed in the southern part of the microwatershed with severe limitation rooting depth.

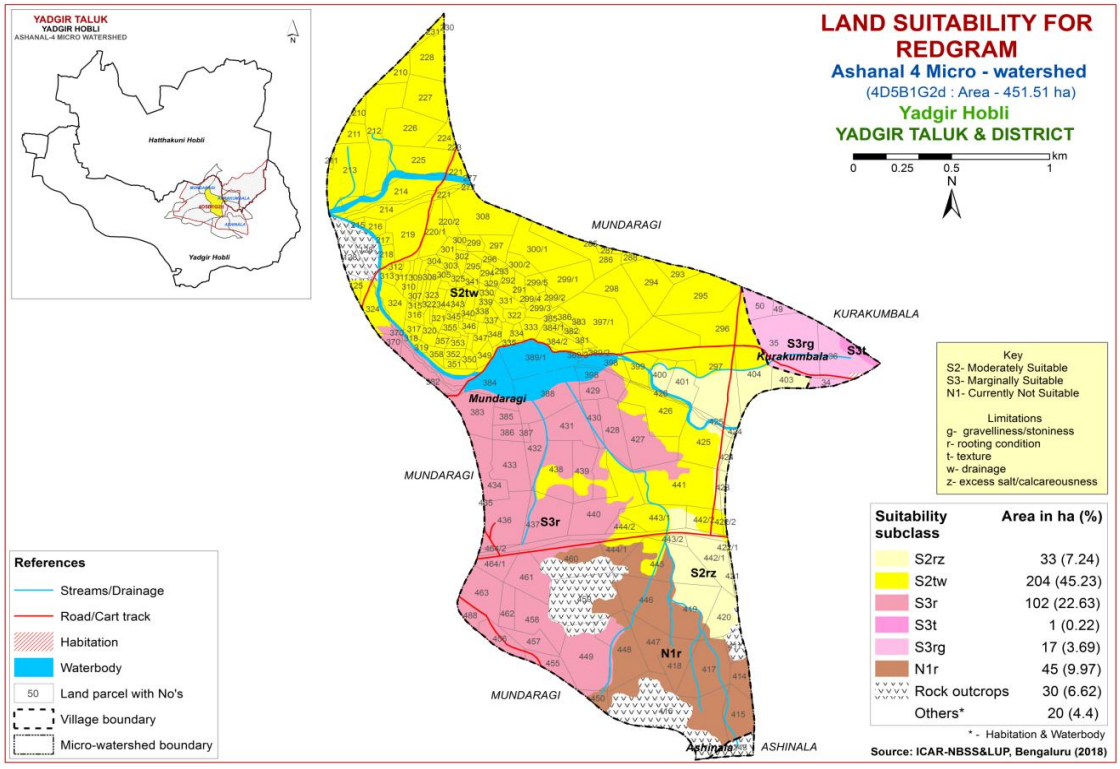


Fig. 7.6 Land Suitability map of Redgram

Table 7.7 Land suitability criteria for Red 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	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

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

Bengal gram is one of 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 (Class S1) suitable lands for growing Bengal gram occur in a maximum area of 204 ha (45%) and are distributed in the central, northern, northwestern and southern part of the microwatershed. An area of about 102 ha (23%) is moderately suitable (Class S2) for growing Bengal gram and are distributed in the western, southwestern and southern part of the microwatershed. They have minor limitations of rooting depth. Marginally suitable lands (Class S3) occupy an area of about 50 ha (11%) and are distributed in the eastern and southeastern part of the microwatershed. They have moderate limitations of rooting depth, gravelliness, texture and calcareousness. Currently not suitable (Class N1) lands occur in an area of 46 ha (10%) and are distributed in the eastern and southern part of the microwatershed with severe limitations of texture and rooting depth.

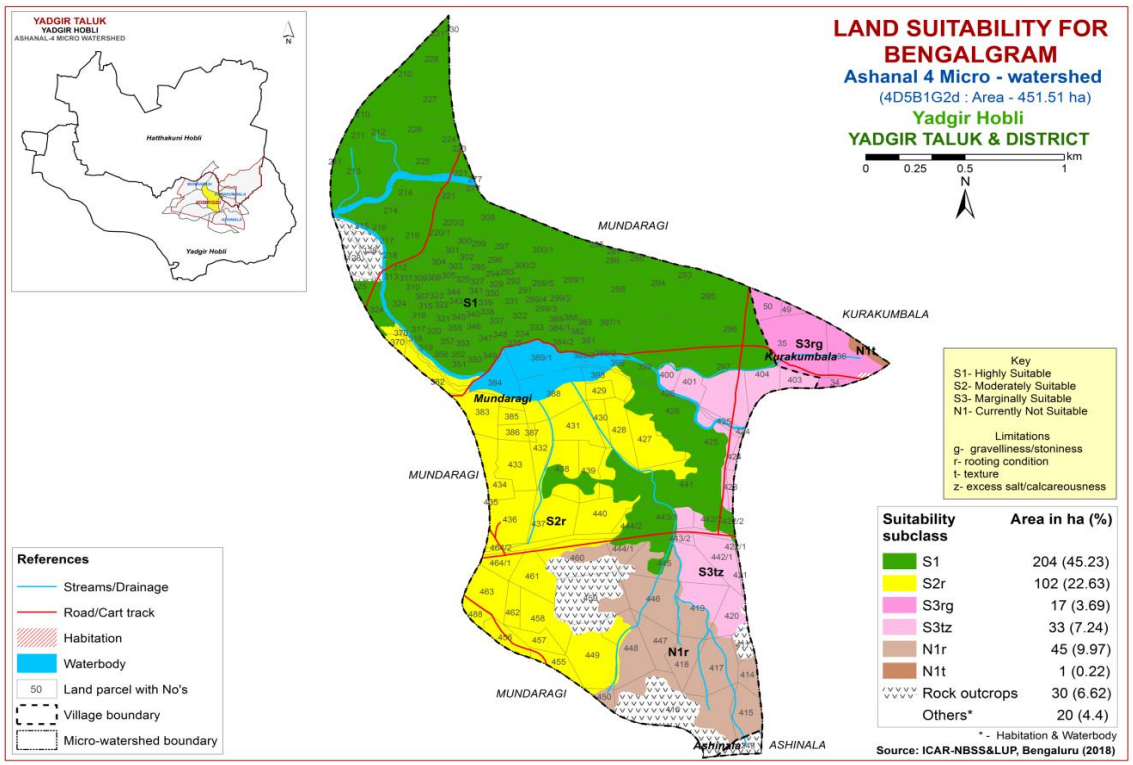


Fig. 7.7 Land Suitability map of Bengal gram.

Table 7.8 Crop 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

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.

An area of about 110 ha (24%) in the microwatershed has soils that are highly suitable (Class S1) for growing cotton crop. They have no limitations for growing cotton and are distributed in the northwestern, central, eastern and southern part of the microwatershed. Moderately suitable (Class S2) lands are found to occur in a maximum area of about 196 ha (44%). The soils have moderate limitations of rooting depth and calcareousness. They are distributed in the major part of the microwatershed. Marginally suitable (Class S3) lands for cotton are found to occur in an area of about 50 ha (11%) with moderate limitations of rooting depth, texture, calcareousness and gravelliness and are distributed in the eastern and southeastern part the microwatershed. Currently not suitable (Class N1) lands occur in an area of 46 ha (10%) and are distributed in the southern and eastern part of the microwatershed with severe limitations of texture and rooting depth.

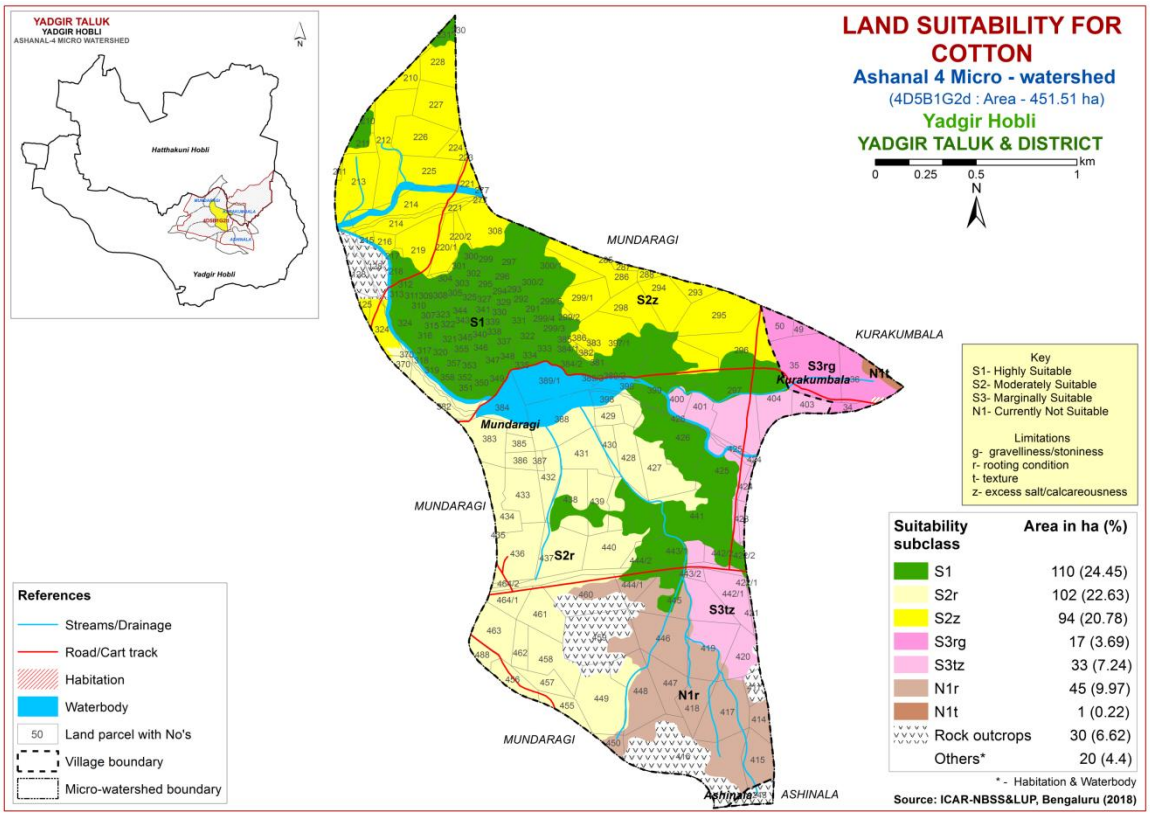


Fig. 7.8 Land Suitability map of Cotton

Table 7.9 Crop 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

7.9 Land Suitability for Chilli (*Capsicum annuum)*

Chilli is one of the most important fruit and 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.

Major area of about 339 ha (75%) is moderately suitable (Class S2) for growing chilli and are distributed in all parts of the microwatershed. They have minor limitations of texture, drainage, calcareousness and rooting depth. Marginally suitable lands (Class S3) occupy an area of about 18 ha (4%) and are distributed in the eastern part of the microwatershed. They have moderate limitations of rooting depth, gravelliness and texture. Currently not suitable (Class N1) lands occur in an area of 45 ha (10%) and are distributed in the southern part of the microwatershed with severe limitation of rooting depth.

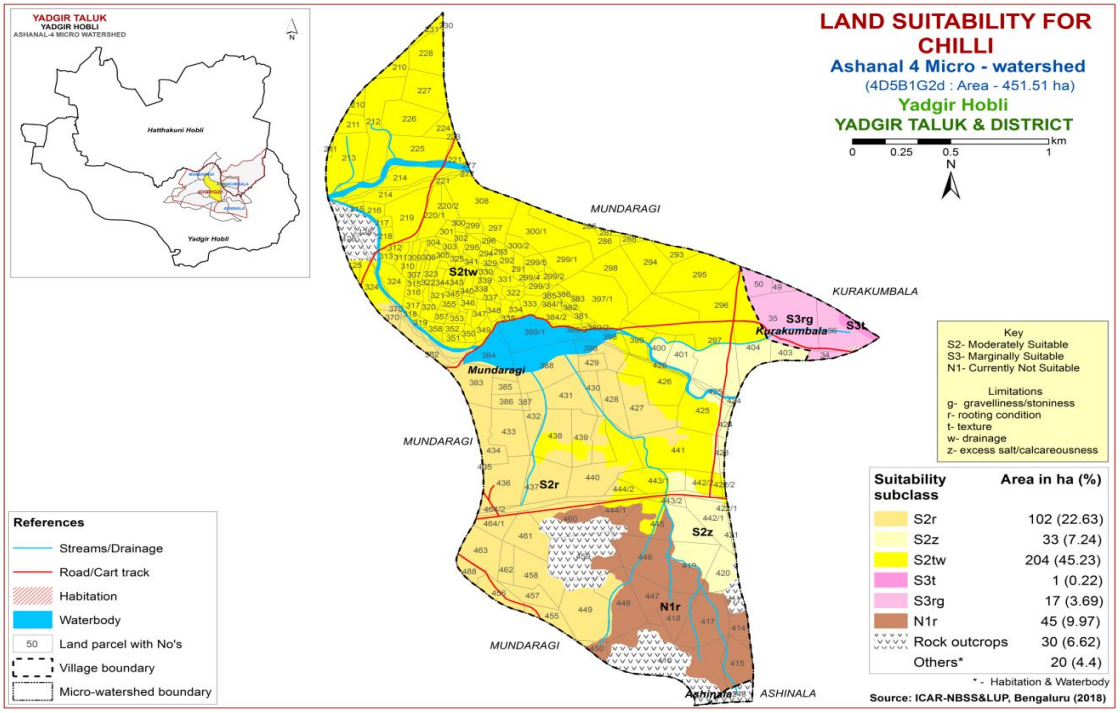


Fig 7.9 Land Suitability map of Chilli

Table 7.10 Crop 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

7.10 Land Suitability for Tomato *(Lycopersicon esculentum)*

Tomato is one of the most important fruit 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.

An area of about 190 ha (42%) is moderately suitable (Class S2) for growing tomato and are distributed in the central, northwestern, eastern, southern and southwestern part of the microwatershed. They have minor limitations of calcareousness, texture, drainage and rooting depth. Marginally suitable lands (Class S3) occupy an area of about 167 ha (37%) and are distributed in the northern, northeastern, northwestern, central and eastern part of the microwatershed. They have moderate limitations of gravelliness, rooting depth, drainage and texture. Currently not suitable (Class N1) lands occur in an area of 45 ha (10%) and are distributed in the southern part of the microwatershed with severe limitation of rooting depth.

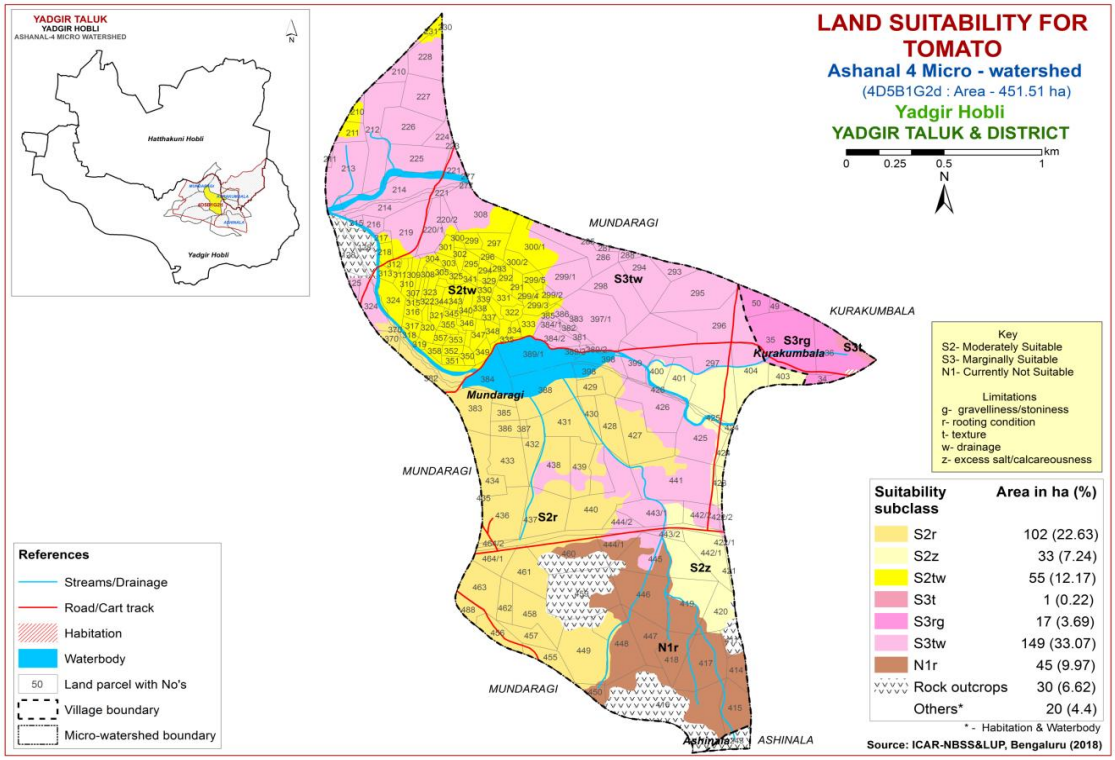


Fig 7.10 Land Suitability map of Tomato

Table 7.11 Crop 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

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 drumstick (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 (Class S1) suitable lands for growing Brinjal occur in an area of 149 ha (33%) and are distributed in the central, eastern and northern part of the microwatershed. Maximum area of about 190 ha (42%) is moderately suitable (Class S2) for brinjal and is distributed in the central, northwestern, eastern and southern part of the microwatershed. They have minor limitations of rooting depth and texture. An area of 18 ha (4%) is marginally suitable and is distributed in the eastern part of the microwatershed with moderate limitations of rooting depth, gravelliness and texture. Currently not suitable (Class N1) lands for growing brinjal occur in 45 ha (10%) and are distributed in the southeastern part of the microwatershed. They have severe limitation of rooting depth.

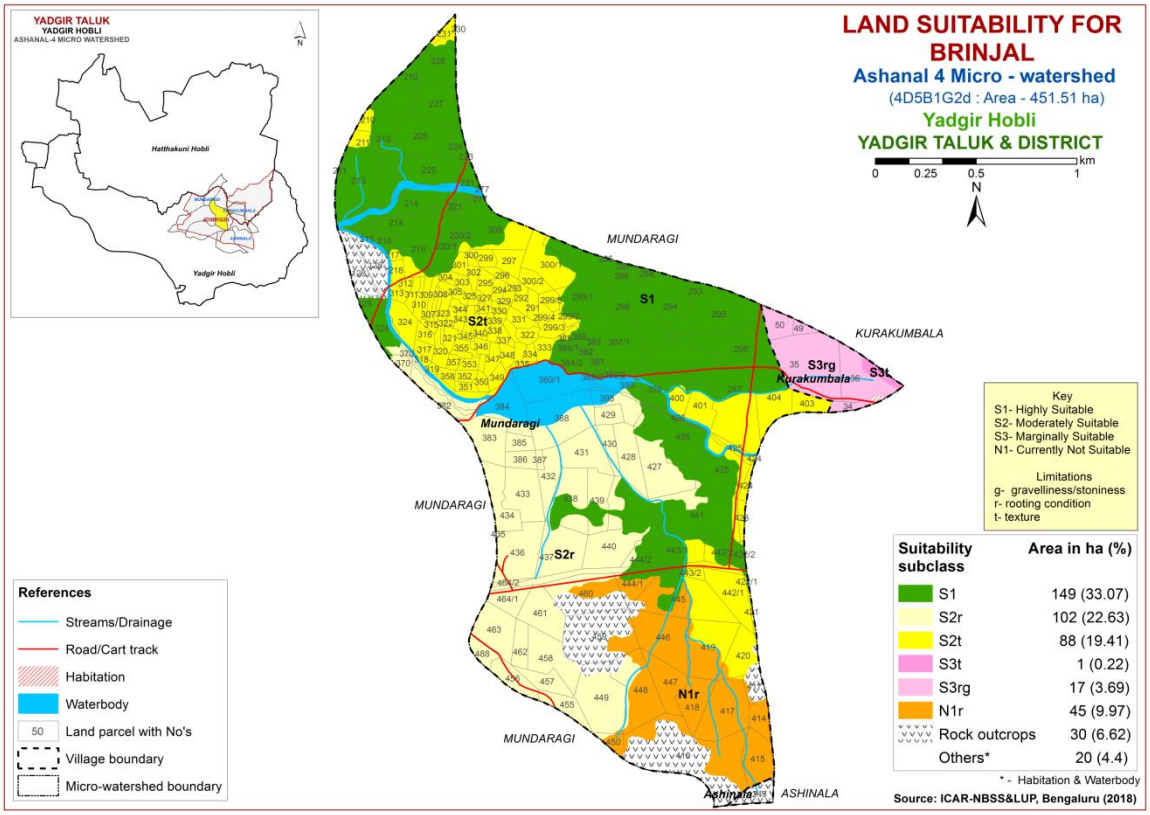


Fig 7.11 Land Suitability map of Brinjal

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

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.

Highly (Class S1) suitable lands for growing onion occur in an area of 182 ha (40%) and are distributed in the northern, southeastern, eastern and northwestern part of the microwatershed. An area of about 102 ha (23%) is moderately suitable (Class S2) for onion and is distributed in the western and southwestern part of the microwatershed. They have minor limitation of rooting depth. An area of 73 ha (16%) is marginally suitable and is distributed in the major part of the microwatershed with moderate limitations of rooting depth, gravelliness and texture. Currently not suitable (Class N1) lands for growing onion occur in 45 ha (10%) and are distributed in the southeastern part of the microwatershed. They have severe limitation of rooting depth.

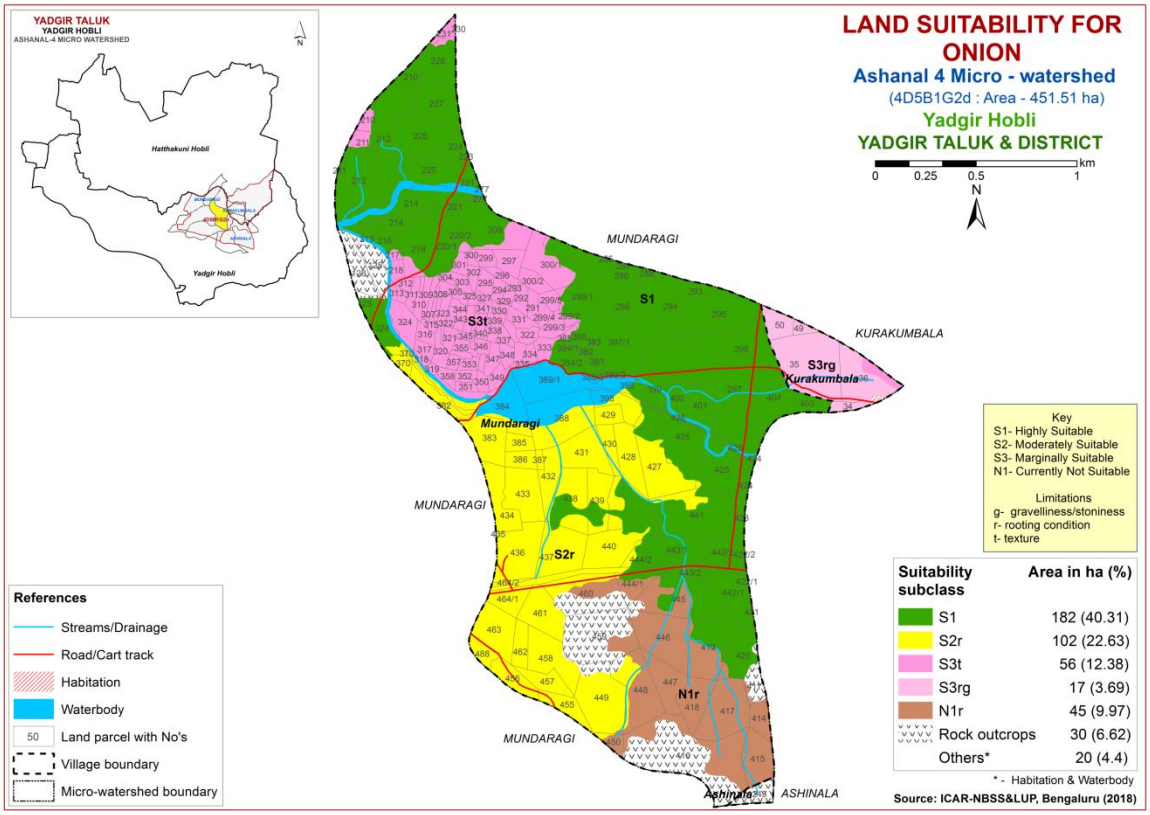


Fig 7.12 Land Suitability map of Onion

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 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	6.0-7.3	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

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 (Class S1) suitable lands for growing bhendi occur in a maximum area of 237 ha (52%) and are distributed in the major part of the microwatershed. An area of about 102 ha (23%) is moderately suitable (Class S2) for bhendi and is distributed in the western and southwestern part of the microwatershed. They have minor limitation of rooting depth. An area of 18 ha (4%) is marginally suitable and is distributed in the eastern part of the microwatershed with moderate limitations of rooting depth, gravelliness and texture. Currently not suitable (Class N1) lands for growing bhendi occur in 45 ha (10%) and are distributed in the southeastern part of the microwatershed. They have severe limitation of rooting depth.

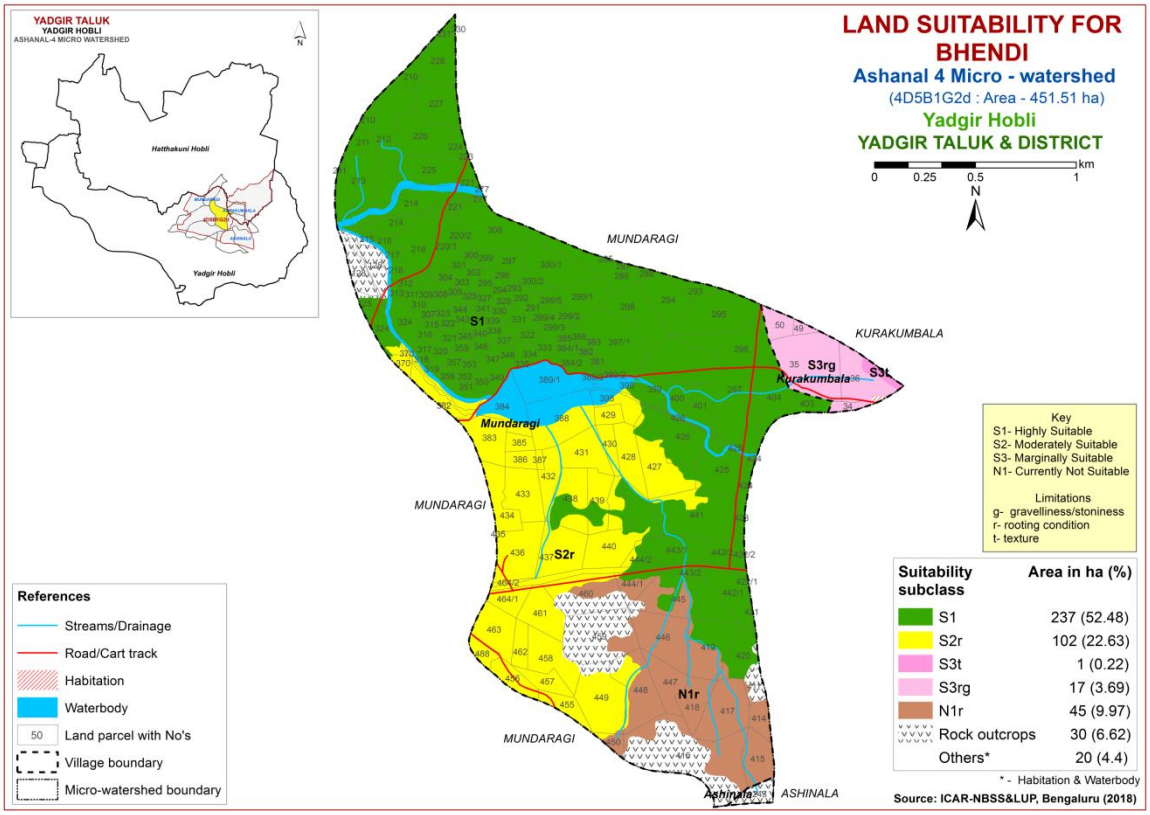


Fig 7.13 Land Suitability map of Bhendi

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

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.

Major area of about 237 ha (52%) is moderately suitable (Class S2) for drumstick and is distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, calcareousness and drainage. An area of about 103 ha (23%) is marginally suitable (Class S3) for growing drumstick and are distributed in the eastern and major parts of central and southwestern of the microwatershed. They have moderate limitations of rooting depth and texture. An area of about 62 ha (14%) is currently not suitable (Class N1) for growing drumstick and are distributed in the eastern and southern part of the microwatershed. They have severe limitations of rooting depth and gravelliness.

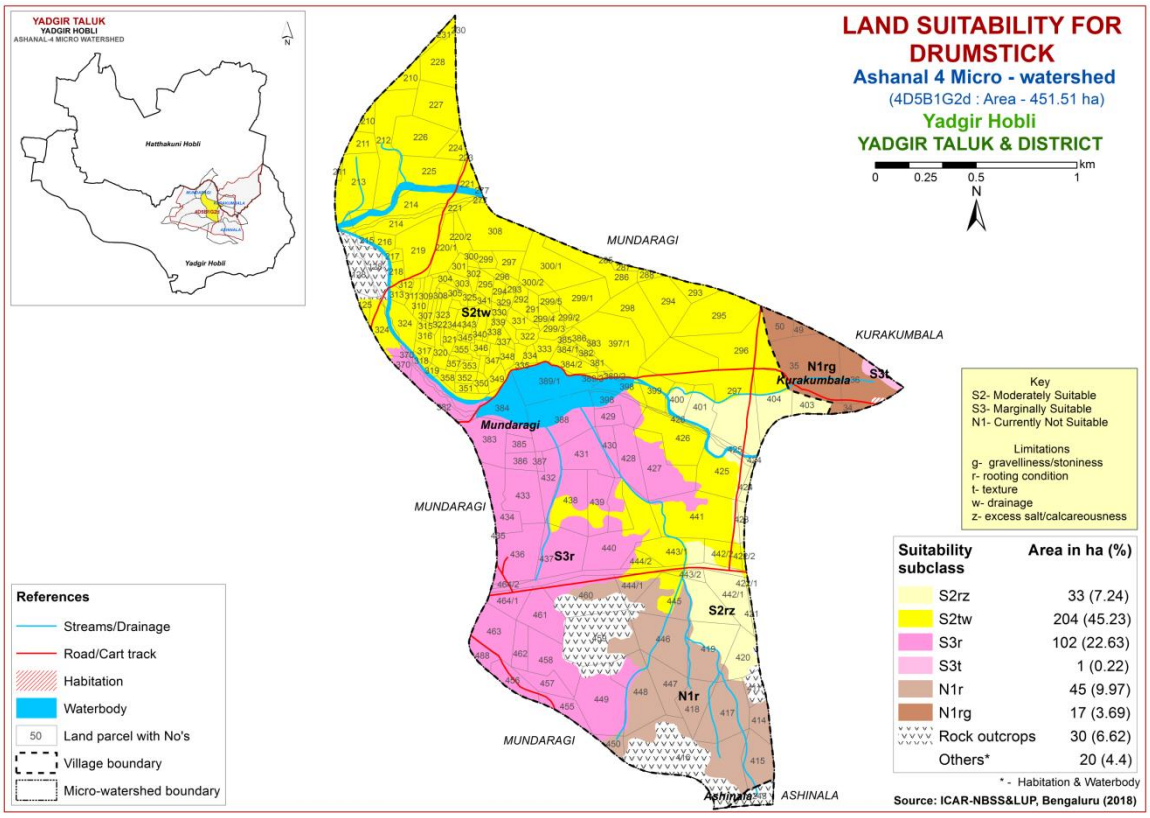


Fig 7.14 Land Suitability map of Drumstick

Table 7.15 Crop 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

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.

Maximum area of 237 ha (52%) is marginally suitable (Class S3) for growing mango with moderate limitations of drainage, texture, calcareousness and rooting depth and are distributed the in the eastern, northeastern, northern and northwestern part of the microwatershed. An area of about 165 ha (37%) is currently not suitable (Class N1) for growing mango and occur in the western, southwestern, southern, central and eastern part of the microwatershed with severe limitations of rooting depth and gravelliness.

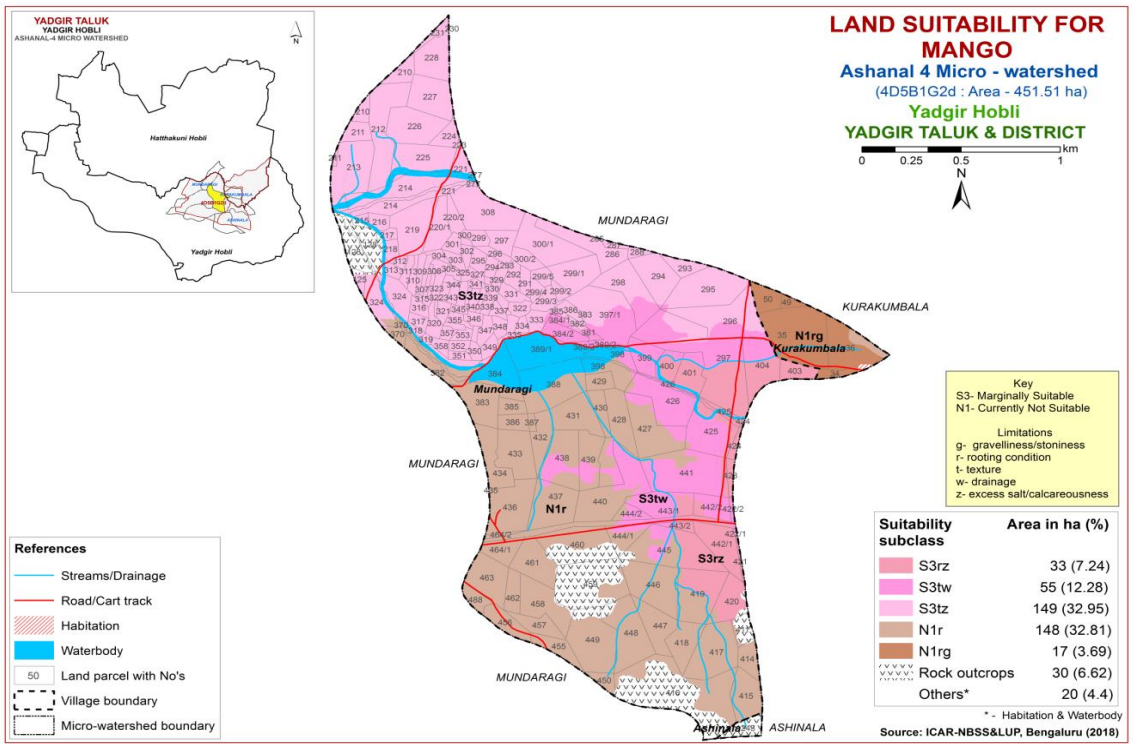


Fig. 7.15 Land Suitability map of Mango

Table 7.16 Crop 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

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 (Table 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.

An area of about 33 ha (7%) is moderately suitable (Class S2) for growing guava and are distributed in the eastern and southeastern part of the microwatershed and have minor limitations of rooting depth and calcareousness. Marginally suitable (Class S3) lands cover a maximum area of about 307 ha (68%) and are distributed in the major part of the microwatershed. They have moderate limitations of rooting depth, texture and drainage. An area of about 62 ha (14%) is currently not suitable (Class N1) for growing guava and occur in the southern and eastern part of the microwatershed with severe limitations of rooting depth and gravelliness.

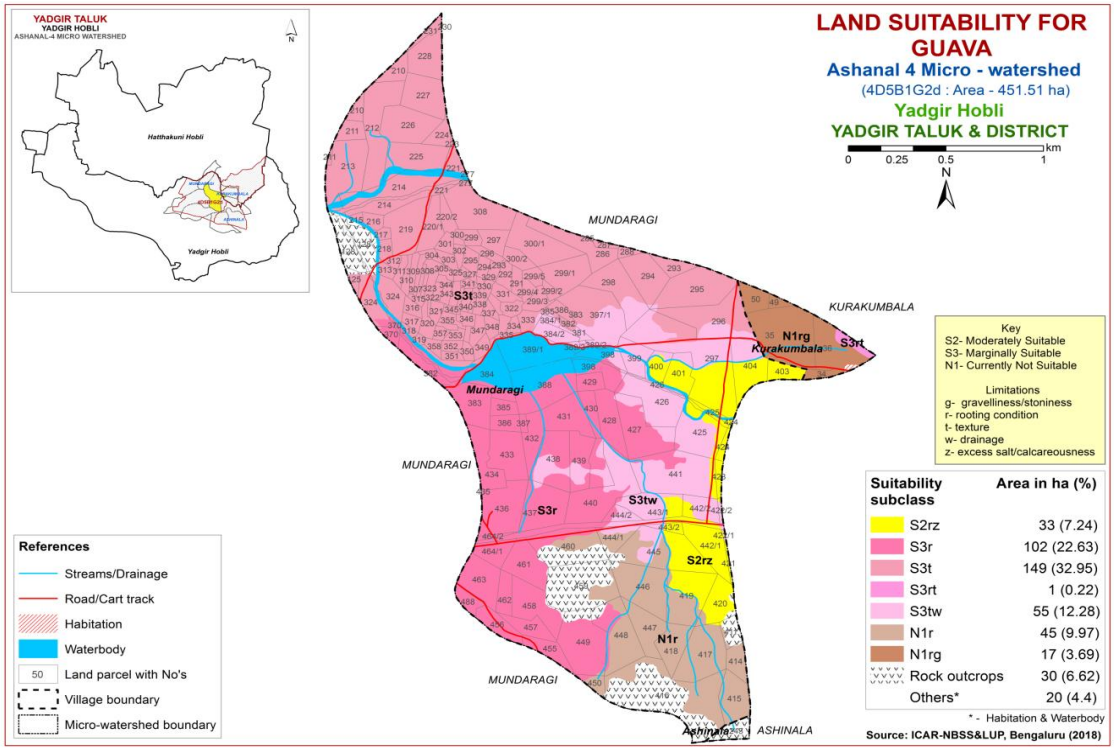


Fig. 7.16 Land Suitability map of Guava

Table 7.17 Crop 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

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.

An area of about 33 ha (7%) is moderately suitable (Class S2) and are distributed in the southeastern and eastern part of the microwatershed. They have minor limitations of calcareousness and rooting depth. Maximum area of about 307 ha (68%) is marginally suitable (Class S3) for growing sapota and are distributed in the major part of the microwatershed. They have moderate limitations of rooting depth, texture and drainage. An area of about 62 ha (14%) is currently not suitable (Class N1) for growing sapota and occur in the southern and eastern part of the microwatershed with severe limitations of rooting depth and gravelliness.

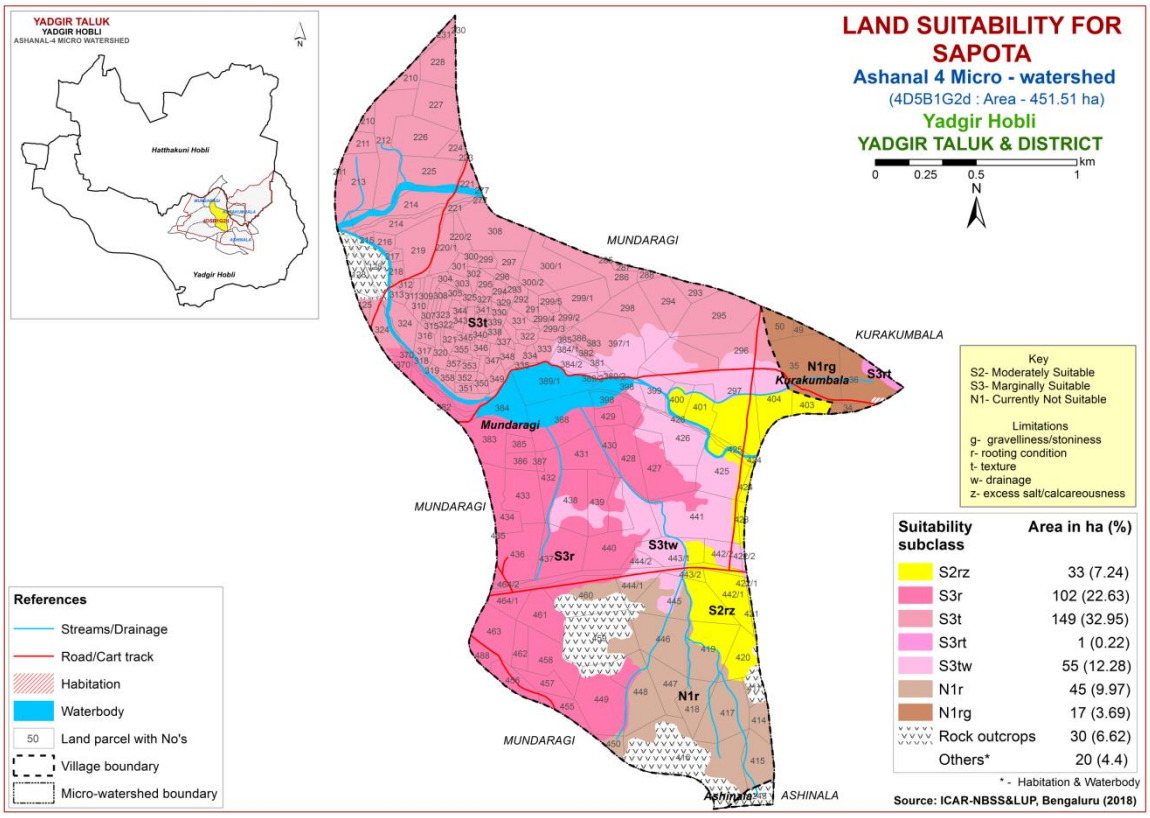


Fig. 7.17 Land Suitability map of Sapota

Table 7.18 Crop 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

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.

Major area of about 237 ha (52%) is moderately suitable (Class S2) for pomegranate and are distributed in the central, northwestern, northern, eastern, southeastern and southern part of the microwatershed. They have minor limitations of rooting depth, texture, calcareousness and drainage. An area of about 103 ha (23%) is marginally suitable (Class S3) for growing pomegranate and are distributed in the western, southwestern, southern and central part of the microwatershed. They have moderate limitations of rooting depth and texture. An area of about 62 ha (14%) is currently not suitable (Class N1) for growing pomegranate and are distributed in the eastern and southern part of the microwatershed. They have very severe limitations of rooting depth and gravelliness.

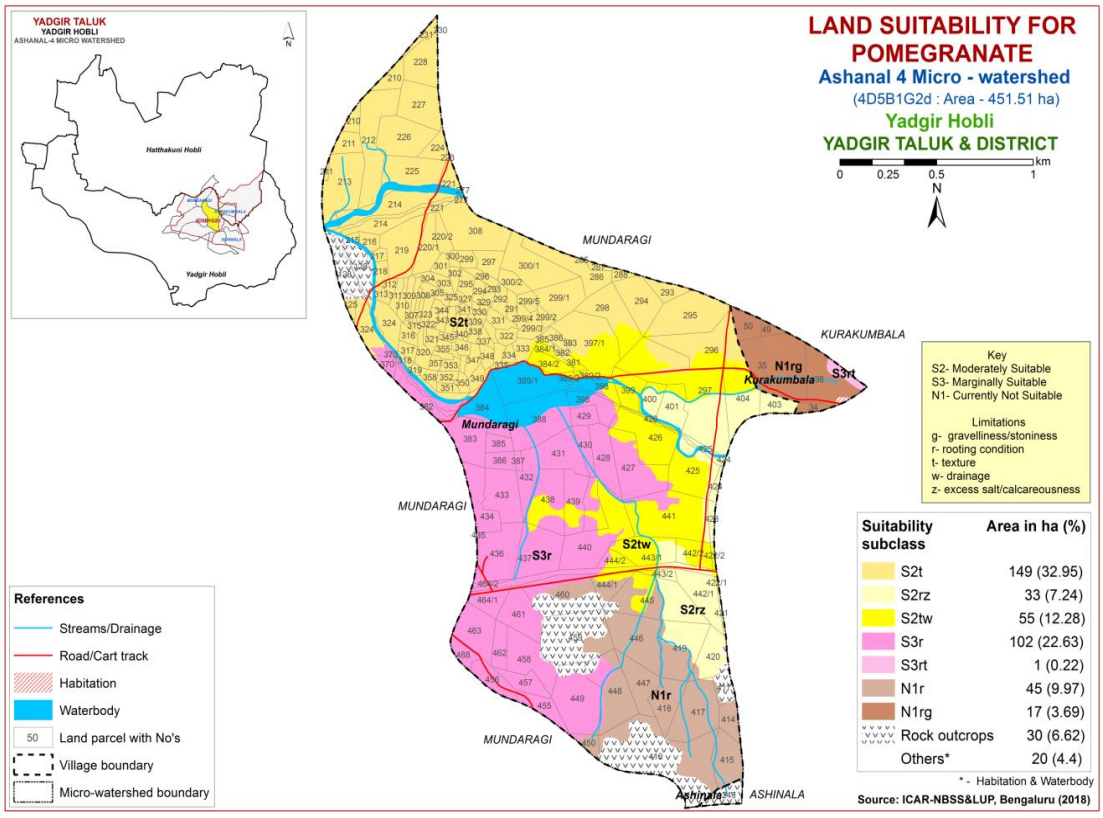


Fig 7.18 Land Suitability map of Pomegranate

Table 7.19 Crop 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

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.

An area of about 55 ha (12%) is highly suitable (Class S1) for growing Musambi and are distributed in the northwestern and northern part of the microwatershed. Major area of about 182 ha (40%) is moderately suitable (Class S2) for growing Musambi and are distributed in all parts of the microwatershed. They have minor limitations of drainage, calcareousness and rooting depth. Marginally suitable (Class S3) lands occupy an area of about 103 ha (23%) and are distributed in the central, southwestern, southern and western part of the microwatershed. They have moderate limitations of rooting depth and texture. An area of about 62 ha (14%) is currently not suitable (Class N1) and are distributed in the southern and eastern part of the microwatershed with severe limitations of rooting depth and gravelliness.

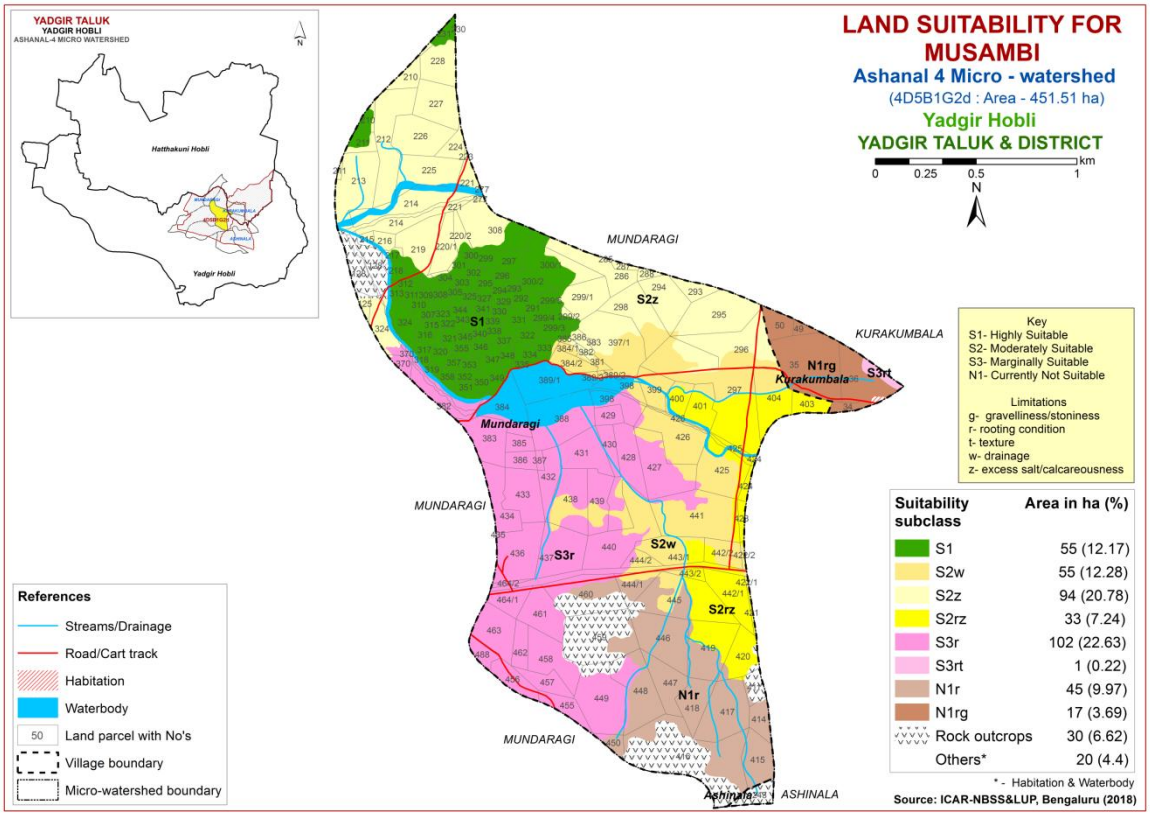


Fig. 7.19 Land Suitability map of Musambi

Table 7.20 Crop 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

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.

An area of about 55 ha (12%) is highly suitable (Class S1) for growing lime and are distributed in the northwestern and northern part of the microwatershed. Major area of about 182 ha (40%) is moderately suitable (Class S2) for growing lime and are distributed in all parts of the microwatershed. They have minor limitations of drainage, calcareousness and rooting depth. Marginally suitable (Class S3) lands occupy an area of about 103 ha (23%) and are distributed in the central, southwestern, southern and western part of the microwatershed. They have moderate limitations of rooting depth and texture. An area of about 62 ha (14%) is currently not suitable (Class N1) and are distributed in the southern and eastern part of the microwatershed with severe limitations of rooting depth and gravelliness.

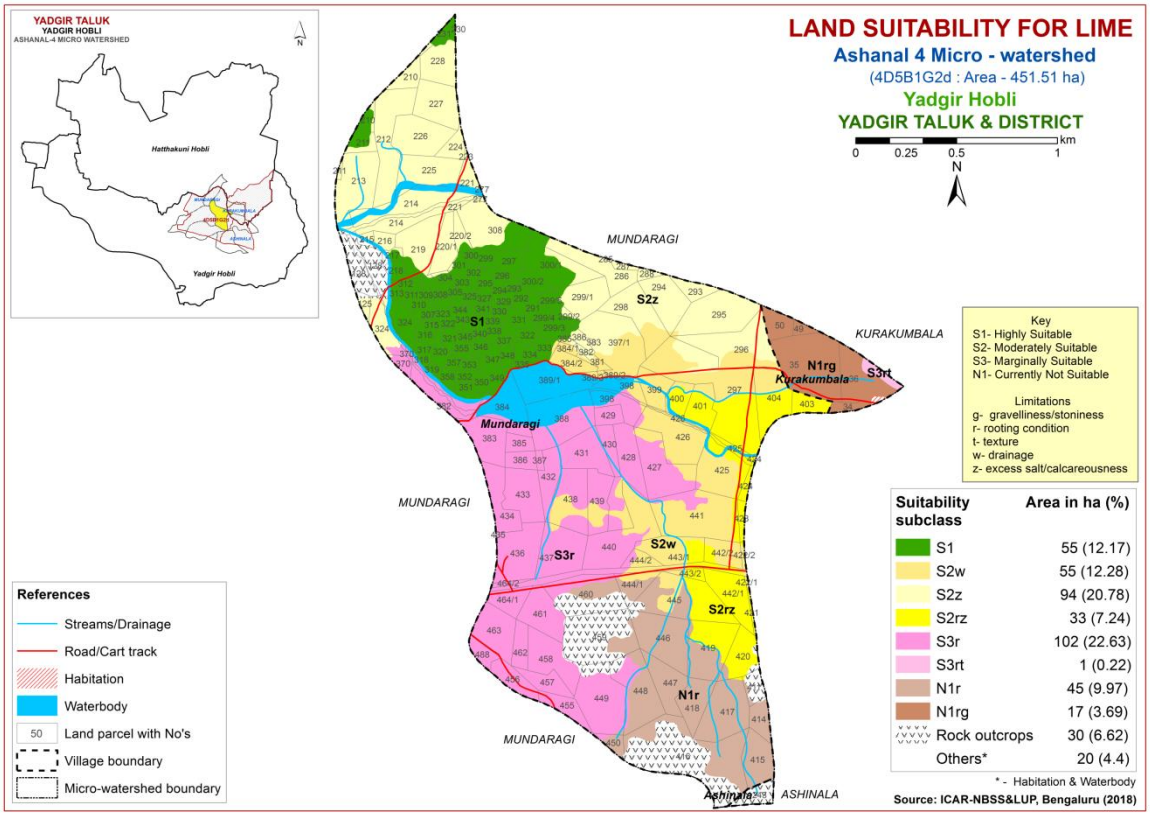


Fig. 7.20 Land Suitability map of Lime

Table 7.21 Crop 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

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.

Maximum area of about 339 ha (75%) has soils that are moderately suitable (Class S2) for growing Amla with minor limitations of drainage, texture, calcareousness and rooting depth and are distributed in all parts of the microwatershed. An area of 18 ha (4%) is marginally suitable (Class S3) with moderate limitations of rooting depth, texture and gravelliness and are distributed in the eastern part of the microwatershed. An area of about 45 ha (10%) is currently not suitable (Class N1) and are distributed in the southern part of the microwatershed with severe limitation of rooting depth.

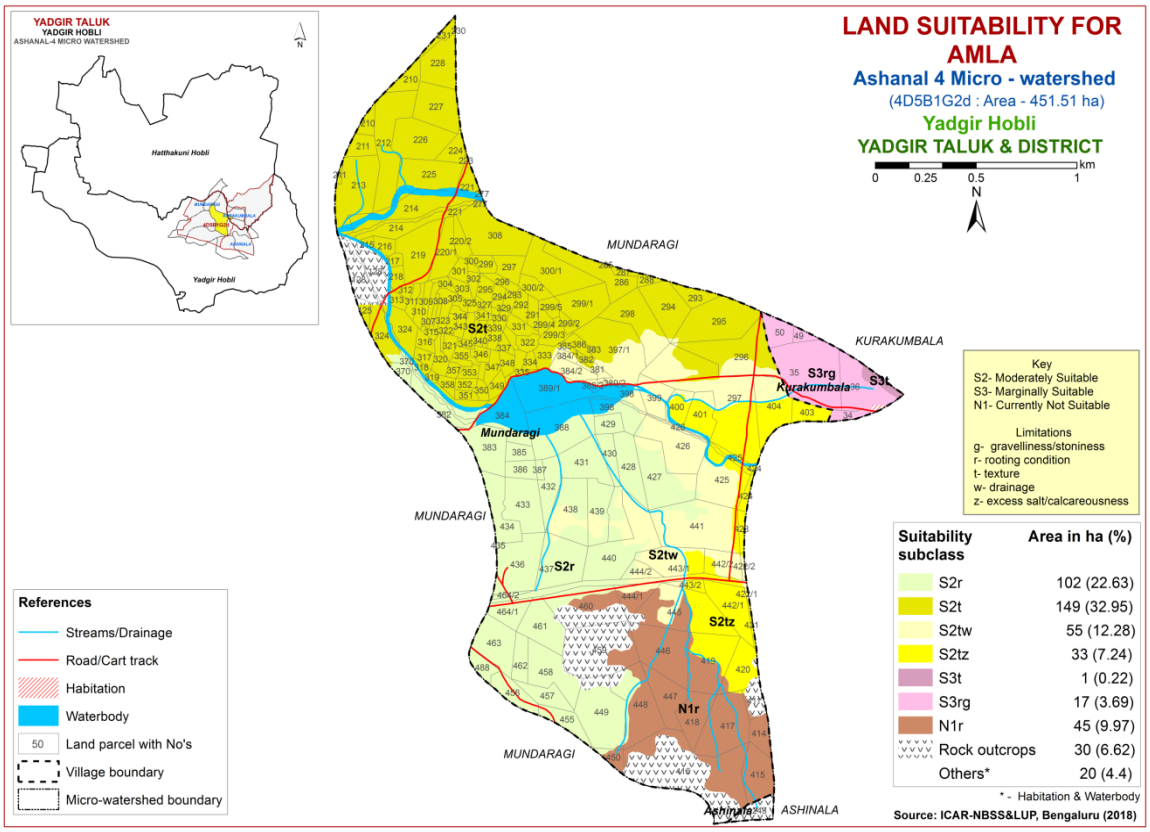


Fig. 7.21 Land Suitability map of Amla

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

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.

The marginally suitable (Class S3) lands cover an area of about 1 ha (<1%) and occur in the eastern part of the microwatershed. They have moderate limitations of rooting depth and texture. Maximum area of about 401 ha (89%) is currently not suitable (Class N1) and are distributed in all parts of the microwatershed with severe limitations of rooting depth, texture, calcareousness and drainage.

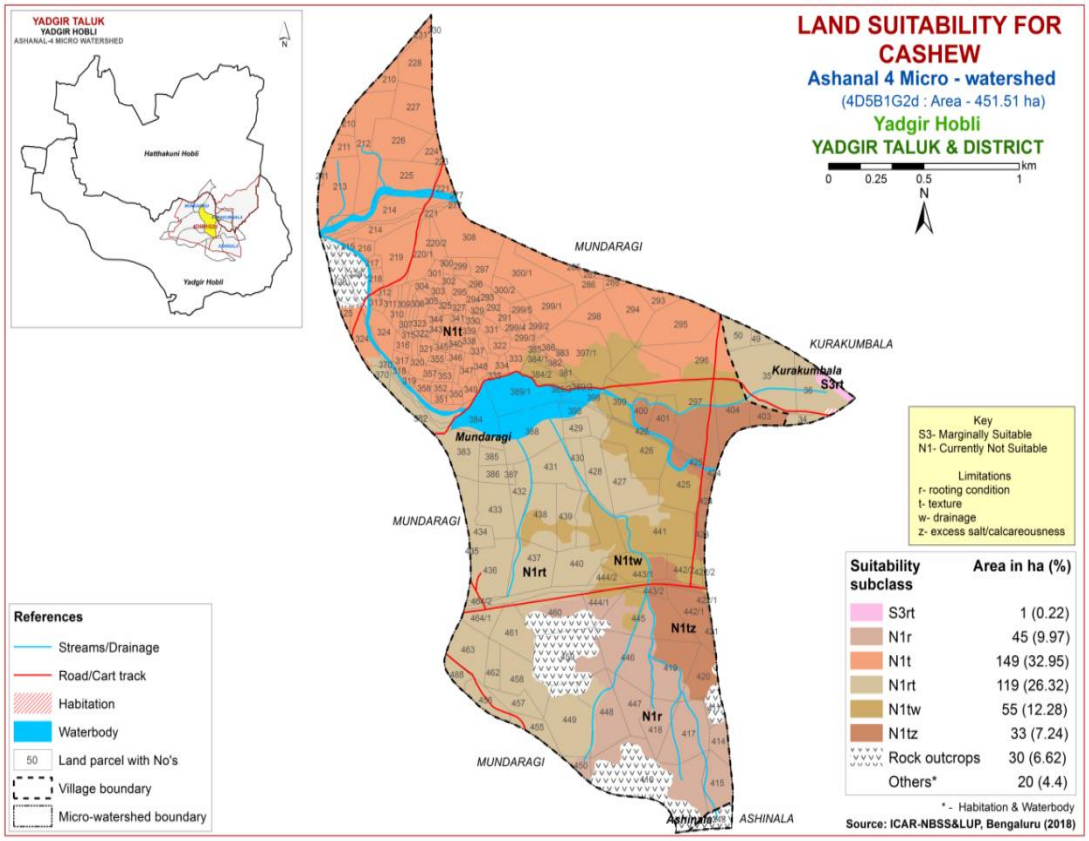


Fig. 7.22 Land Suitability map of Cashew

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	-

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.

The moderately suitable (Class S2) lands occupy small area of 33 ha (7%) and are distributed in the southeastern and eastern part of the microwatershed with minor limitations of rooting depth and calcareousness. Marginally suitable (Class S3) lands for growing Jackfruit occupy maximum area of about 307 ha (68%) and are distributed in the major part of the microwatershed. They have moderate limitations of rooting depth, drainage and texture. An area of about 62 ha (14%) is currently not suitable (Class N1) and are distributed in the eastern and southern part of the microwatershed with severe limitations of rooting depth and gravelliness.

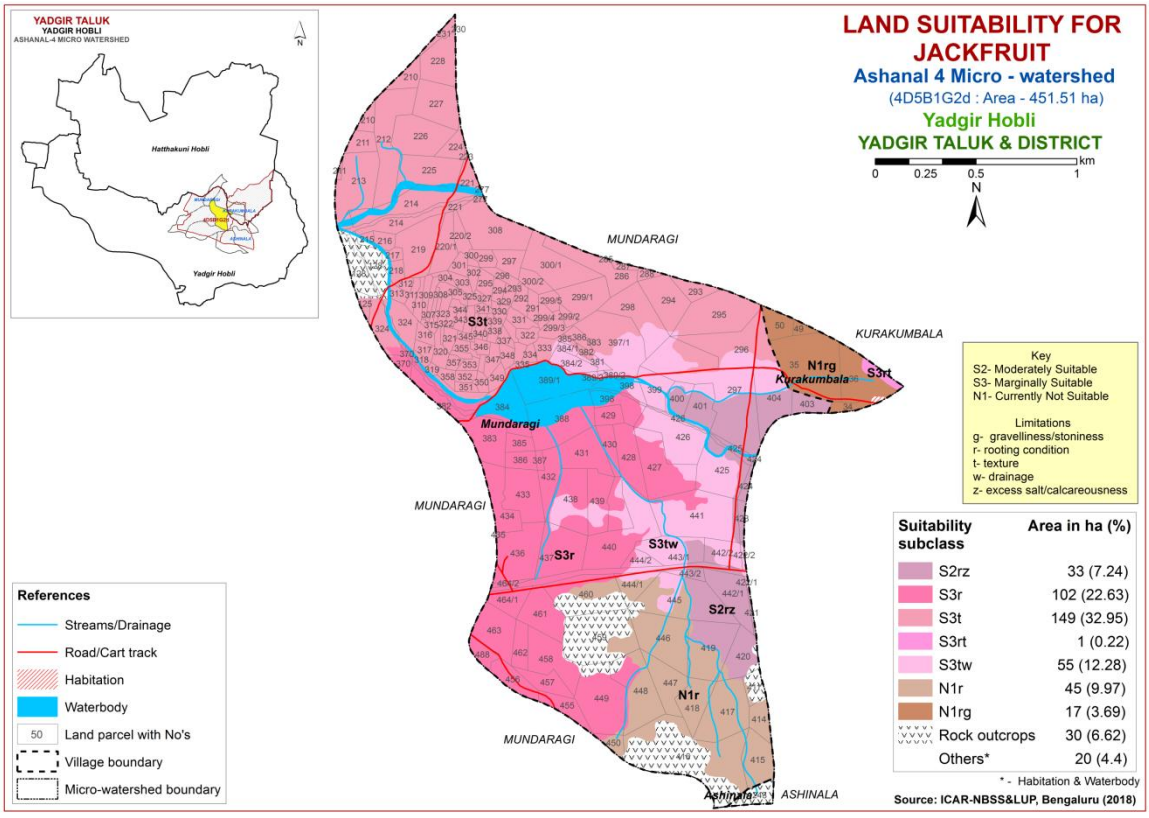


Fig. 7.23 Land Suitability map of Jackfruit

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-

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.

Maximum area of about 204 ha (45%) is moderately suitable (Class S2) for growing Jamun and are distributed in the central, eastern, northern, southern and northwestern part of the microwatershed. They have minor limitations of texture and drainage. An area of about 136 ha (30%) is marginally suitable (Class S3) for growing Jamun and are distributed in the western, central, eastern, southwestern, southeastern and southern part of the microwatershed. They have moderate limitations of texture, calcareousness and rooting depth. An area of about 62 ha (14%) is currently not suitable (Class N1) and are distributed in the eastern and southern part of the microwatershed with severe limitations of rooting depth and gravelliness.

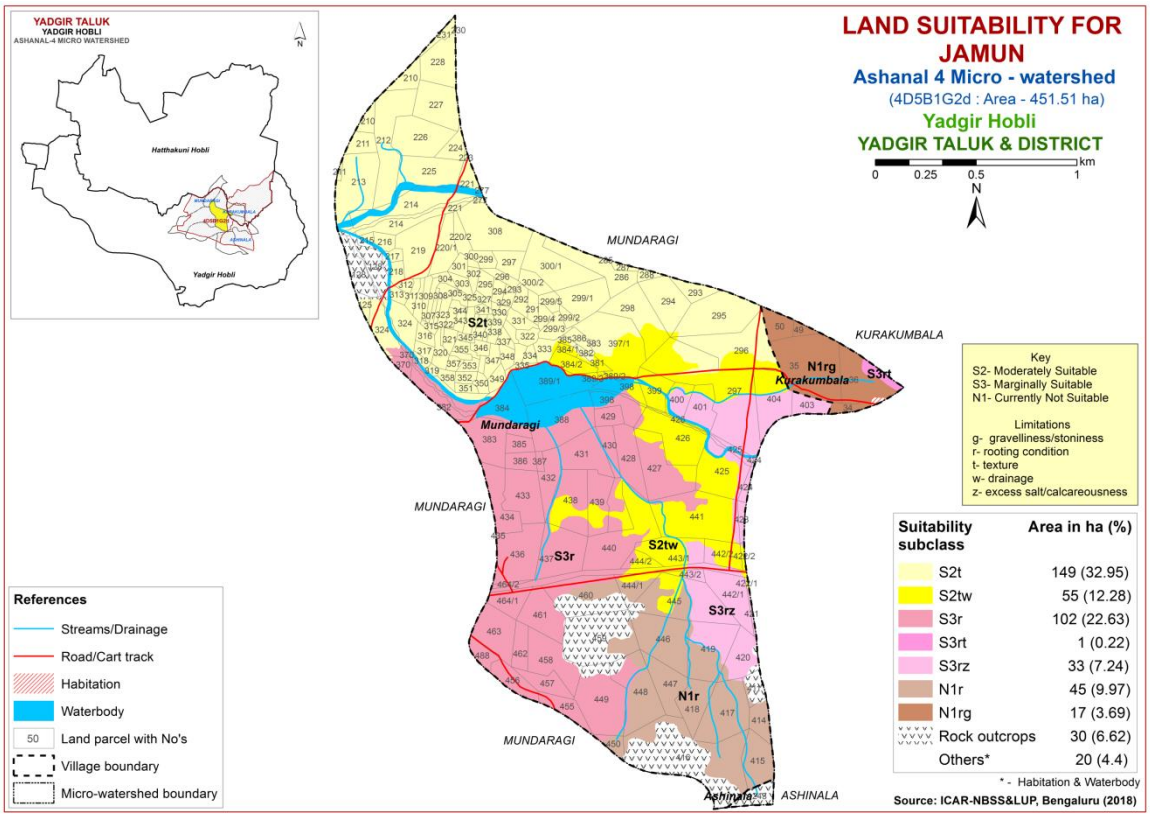


Fig. 7.24 Land Suitability map of Jamun

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

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.

A maximum area of 237 ha (52%) is highly suitable (Class S1) for growing custard apple and are distributed in the southern, southeastern, northern, northwestern, eastern and central part of the microwatershed. An area of about 102 ha (23%) has soils that are moderately suitable (Class S2) for growing custard apple with minor limitation of rooting depth and are distributed in the western, central, southwestern and southern part of the microwatershed. An area of about 18 ha (4%) is marginally suitable (Class S3) for growing custard apple and are distributed in the eastern part of the microwatershed with moderate limitations of rooting depth, texture and gravelliness. An area of about 45 ha (10%) is currently not suitable (Class N1) and are distributed in the southern part of the microwatershed with severe limitation of rooting depth.

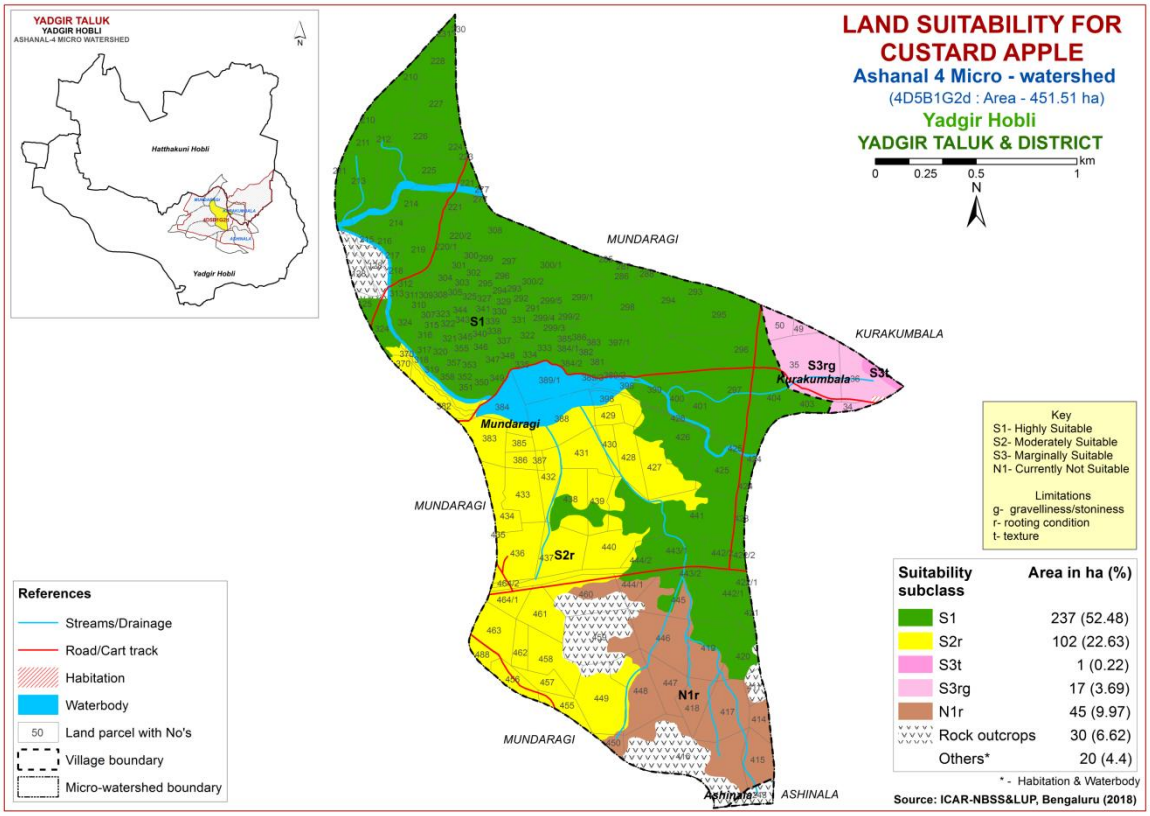


Fig. 7.25 Land Suitability map of Custard Apple

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	-

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.

An area of about 204 ha (45%) is moderately suitable (Class S2) for growing Tamarind and are distributed in the northwestern, northern, central, southern and eastern part of the microwatershed. They have minor limitations of texture and drainage. Marginally suitable (Class S3) lands for growing Tamarind occupy a small area of about 33 ha (7%) and are distributed in the eastern and southern part of the microwatershed. They have moderate limitations of rooting depth and calcareousness. Area of about 165 ha (37%) is currently not suitable (Class N1) for growing Tamarind and occur in the eastern, southern, southwestern, western and central part of the microwatershed with severe limitations of rooting depth and gravelliness.

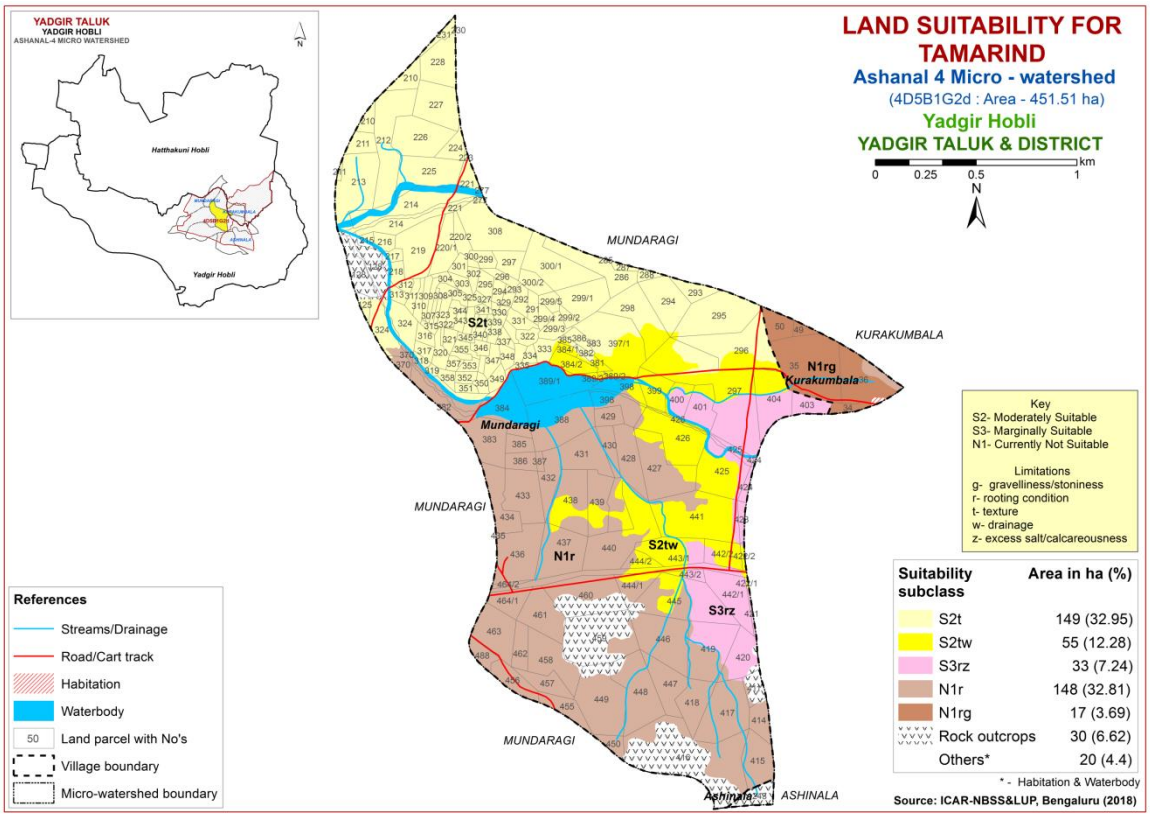


Fig. 7.26 Land Suitability map of Tamarind

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

7.27 Land Suitability for Mulberry (*Morus nigra*)

Mulberry is one of the important 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.

Moderately (Class S2) suitable lands occur in 33 ha (7%) and are distributed in the eastern and southeastern part of the microwatershed with minor limitations of rooting depth and calcareousness. Major area of about 307 ha (69%) is marginally suitable (Class S3) for growing mulberry and are distributed in all parts of the microwatershed. They have moderate limitations of texture, drainage and rooting depth. Currently not suitable lands (Class N1) occupy an area of about 62 ha (14%) and distributed in the eastern and southern part of the microwatershed. They have severe limitations of rooting depth and gravelliness.

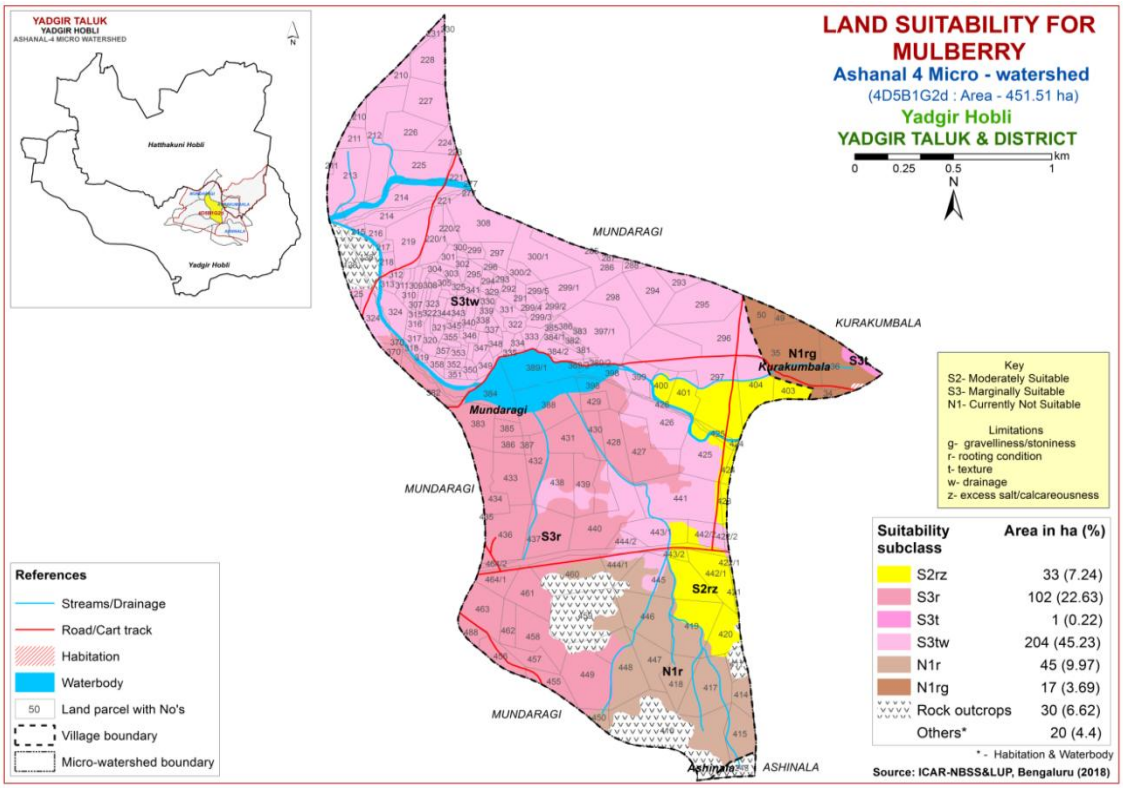


Fig 7.27 Land Suitability map of Mulberry

Table 7.28 Crop 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

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.

Moderately (Class S2) suitable lands occur in 339 ha (75%) and are distributed in all part of the microwatershed with minor limitations of texture, drainage, rooting depth and calcareousness. An area of about 18 ha (4%) is marginally suitable (Class S3) for growing mulberry and are distributed in the eastern part of the microwatershed. They have moderate limitations of texture, gravelliness and rooting depth. Currently not suitable lands (Class N1) occupy an area of about 45 ha (10%) and distributed in the southern part of the microwatershed. They have severe limitation of rooting depth.

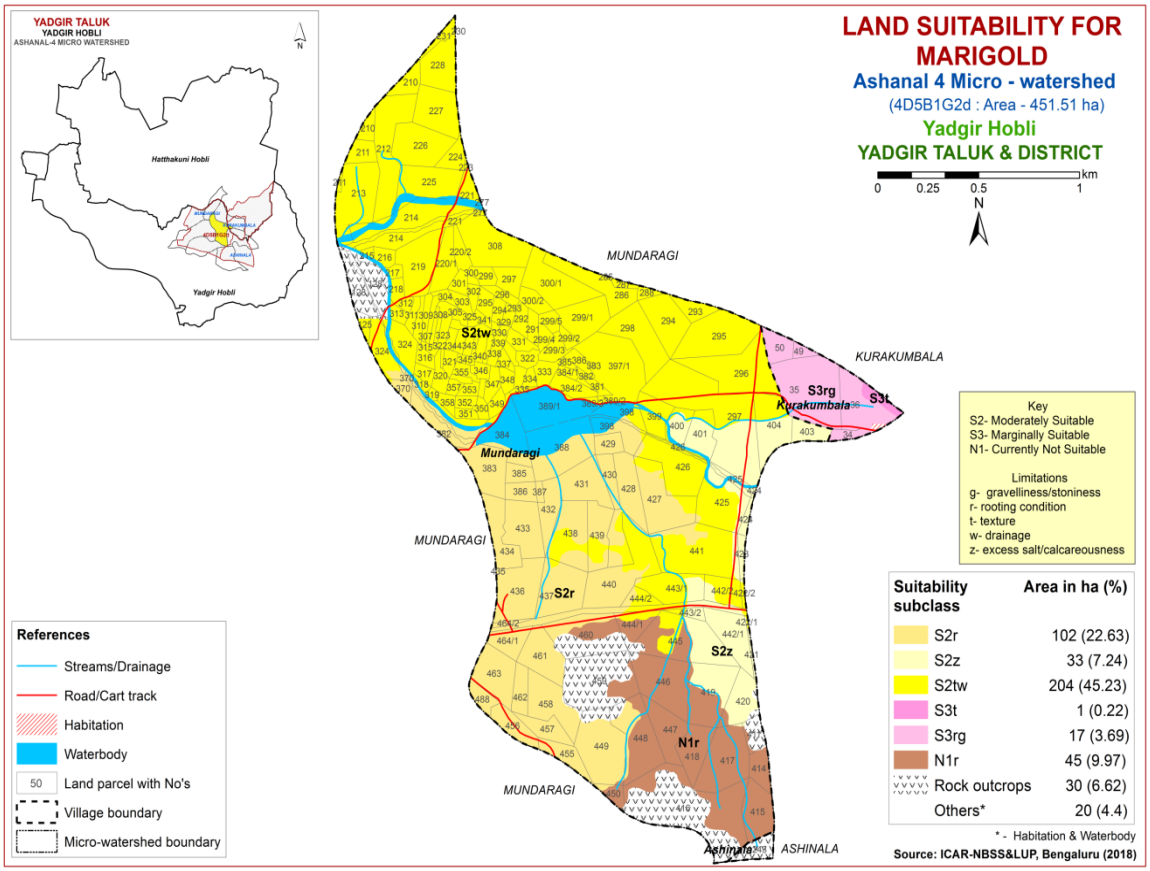


Fig. 7.28 Land Suitability map of Marigold

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

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.

Maximum area of about 339 ha (75%) is moderately suitable (Class S2) for growing Chrysanthemum and are distributed in the major part of the microwatershed. They have minor limitations of texture, rooting depth, calcareousness and drainage. Marginally suitable (Class S3) lands for growing Chrysanthemum occupy an area of about 18 ha (4%) and are distributed in the eastern part of the microwatershed. They have moderate limitations of rooting depth, texture and gravelliness. Currently not suitable lands (Class N1) occupy an area of about 45 ha (10%) and distributed in the southern part of the microwatershed. They have severe limitation of rooting depth.

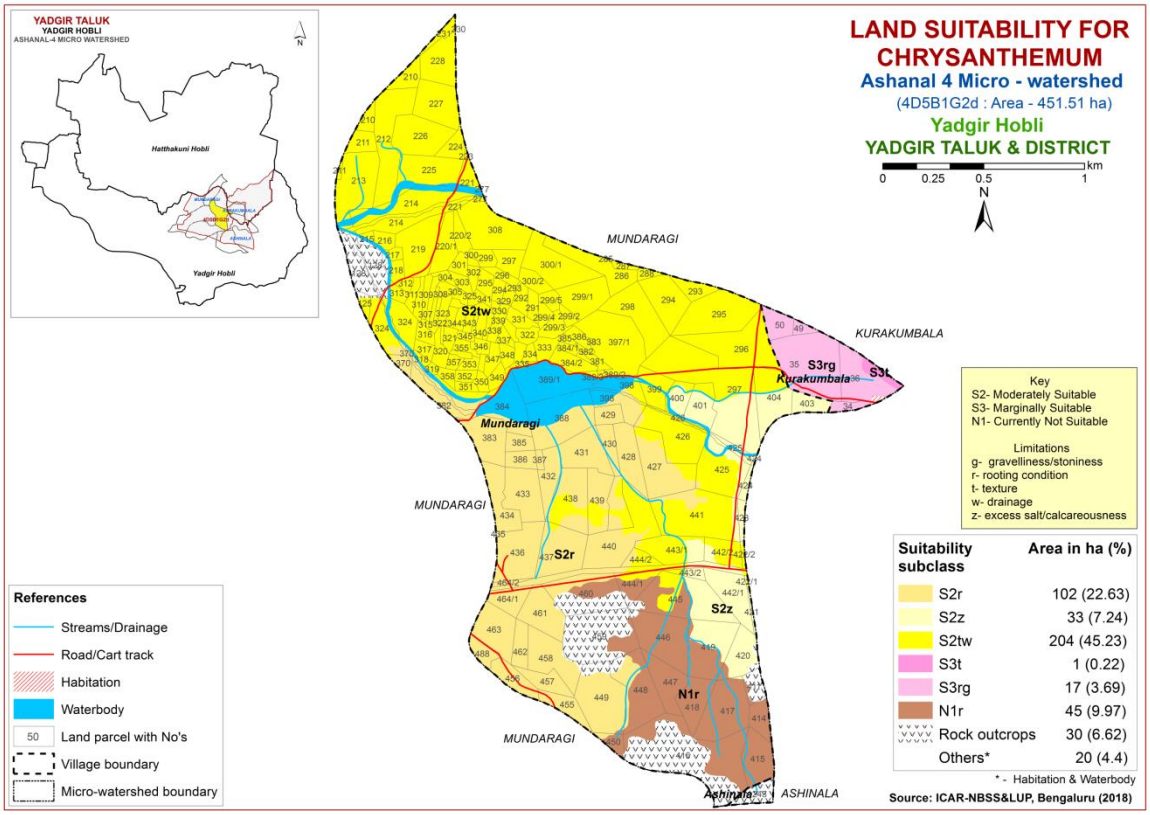


Fig. 7.29 Land Suitability map of Chrysanthemum

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 10 soil map units identified in Ashanal-4 microwatershed have been grouped into 6 Land Management Units (LMUs) 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 Use Classes map (Fig. 7.30) has been generated. These Land Management Units are expected to behave similarly for a given level of management.

The map units that have been grouped into 6 Land Management Units along with brief description of soil and site characteristics are given below.

LMU NO.	Soil map units	Soil and site characteristics
1	11.SBRcB2 118.BDPcB2	Very shallow to moderately shallow loamy sand to sandy clay loam soil (<25cm to 50-75cm), 1-3 % slopes, non-gravelly (<15%) moderate erosion.
2	107.DSBhB2 108.DSBiB2	Shallow red very gravelly clay soils (25-50cm), 1-3 % slopes, very gravelly (35-60%), moderate erosion.
3	60.MDRiA1 132.MDRhB2 133.MDRiB2	Very deep black cracking clay soils (>150cm), 0-1% to 1-3% slopes, non-gravelly (<15%), slight to moderate erosion.
4	101.NHLmB1	Deep black sandy loam soils (100-150cm), 1-3 % slopes, non-gravelly (<15%), slight erosion.
5	22.JNKiB2	Moderately shallow black sandy clay loam soils (50 to75 cm), 1-3 % slopes, non-gravelly (<15%), moderate erosion.
6	33.HSLiB2	Moderately deep black sandy clay soils (75 to 100 cm), 1-3% slopes, non-gravelly (<15%) moderate erosion.

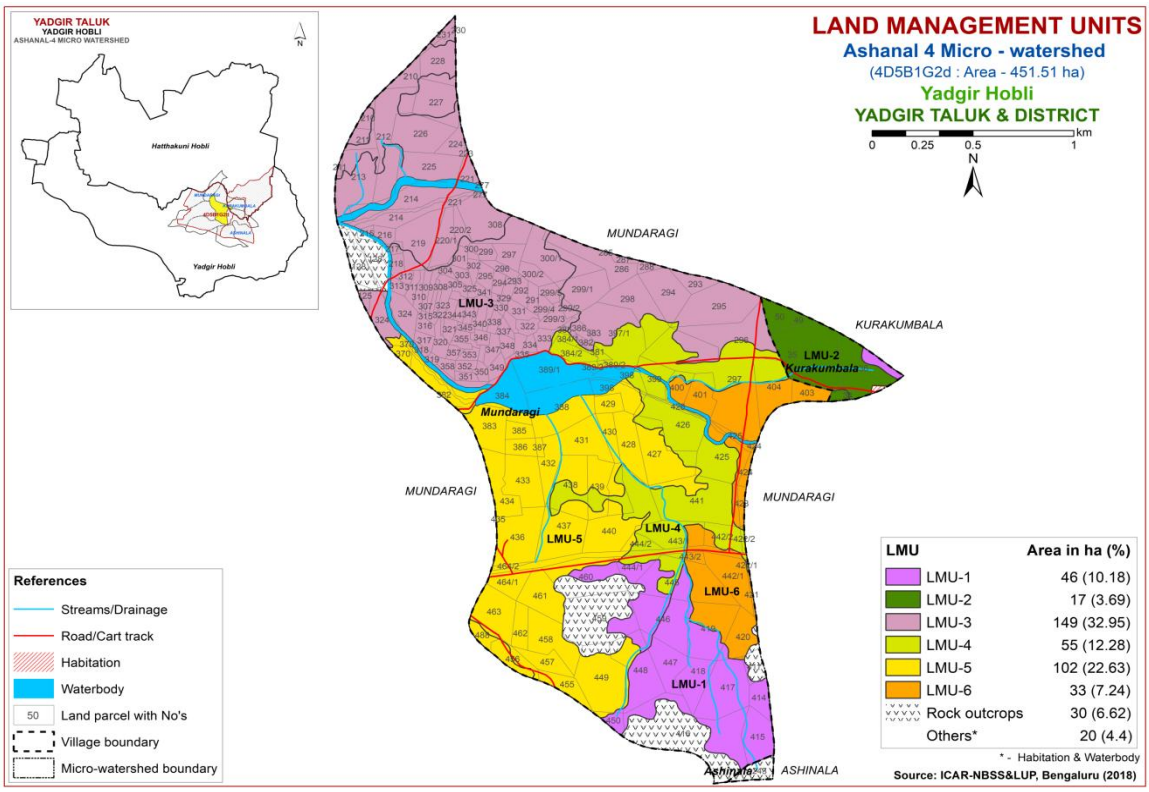


Fig. 7.30 Land management units map of Ashanal-4 Microwatershed

7.31 Proposed Crop Plan for Ashanal-4 Microwatershed

After assessing the land suitability for the 29 crops, the Proposed Crop Plan has been prepared for the 6 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 Ashanal-4 Microwatershed

LMU No.	Soil Map Units	Survey number	Soil and site characteristics	Field crops	Horticulture crops	Suitable interventions
1	11. SBRcB2 118. BDPcB2 (Very shallow to Moderately shallow loamy sand to sandy clay loam soil)	**Mundaragi**:414,415,417,418,444/1,446,447,448,450	Very shallow to moderately shallow loamy sand to sandy clay loam soil (<25cm to 50-75cm), 1-3 % slopes, non-gravelly (<15%) moderate erosion.	-	**Agri- silvi- Pasture:** Hybrid napier, *Styloxanthes hamata, Styloxanthes scabra*	Use of short duration varieties, sowing across the slope and split application of nitrogenous fertilizers
2	107. DSBhB2 108. DSBiB2 (Shallow red very gravelly clay soils)	**Kurakumbala**:34,35,36,49,50	Shallow red very gravelly clay soils (25-50cm), 1-3 % slopes, very gravelly (35-60%), moderate erosion.	-	**Agri- silvi- Pasture:** Hybrid napier, *Styloxanthes hamata, Styloxanthes scabra*	Use of short duration varieties, sowing across the slope and split application of nitrogenous fertilizers
3	60. MDRiA1 132.MDRhB2 133.MDRiB2 (Very deep black cracking clay soils)	**Mundaragi**:125,210,211,212,213,214,215,216,217,218,219,220/1,220/2,221,223,224,225,226,227,228,230,231,277,285,286,287,288,291,292,293,294,295,296,298,299,299/1,299/2,299/3,299/4,299/5,300,300/1,300/2,301,302,303,304,305,306,307,308,309,310,311,312,313,315,316,317,318,319,320,321,322,323,324,325,326,327,328,329,330,331,333,334,335,337,338,339,340,341,342,343,344,345,346,347,348,349,350,351,352,353,354,355,356,357,358,397/1,397/2	Very deep black cracking clay soils (>150cm), 0-1% to 1-3% slopes, non-gravelly (<15%), slight to moderate erosion.	**Field crops:** Maize, Sorghum, Sunflower, Cotton, Redgram, Bengalgram, Bajra	**Fruit crops:** Amla, Custard apple, Jamun, Lime, Musambi, Tamarind, Pomegranate **Vegetables:** Tomato, Chilli, Drumstick, Brinjal, Bhendi, Coriander **Flowers:** Marigold, Chrysanthemum	Application of FYM, biofertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices

4	101. NHLmB1 (Deep black sandy loam soils)	**Mundaragi**:297,380,381,382,384/1,384/2,389/2,389/3,399,422/1,422/2,425,426,441,442/2,443/1, 444/2	Deep black sandy loam soils (100-150cm), 1-3 % slopes, non-gravelly (<15%), slight erosion.	**Field crops**: Maize, Sorghum, Sunflower, Cotton, Redgram, Bajra	**Fruit crops:** Amla, Custard apple, Jamun, Lime, Musambi, Tamarind, Pomegranate **Vegetables:** Chilli, Drumstick, Brinjal, Onion, Bhendi **Flowers:** Marigold, Chrysanthemum	Application of FYM, biofertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices
5	22. JNKiB2 (Moderately shallow black sandy clay loam soils)	**Mundaragi**:370,383,385,386,387,388,427,428,429,430, 431,432,433,434,435,436,437,438,439,440,449,455,456,457,458,461,462,463,464/1, 464/2, 488	Moderately shallow black sandy clay loam soils (50 to75 cm), 1-3 % slopes, non-gravelly (<15%), moderate erosion.	**Field crops**: Maize, Sorghum, Cotton, Bengalgram, Bajra	**Fruit crops:** Amla, Custard apple, Tamarind, Pomegranate **Vegetables:** Tomato, Chilli, Brinjal, Onion, Bhendi, Coriander **Flowers:** Marigold, Chrysanthemum	Drip irrigation, mulching, suitable soil and conservation practices(crescent bunding with catch pit etc.,)
6	33. HSLiB2 (Moderately deep black sandy clay soils)	**Mundaragi**:400,401,403,404,419,420,421,423,424,442/1, 443/2,445	Moderately deep black sandy clay soils (75 to 100 cm), 1-3% slopes, non-gravelly (<15%) moderate erosion.	**Field crops**: Maize, Sorghum, Groundnut, Sunflower, Redgram, Bajra, Mulberry	**Fruit Crops:** Amla, Custard apple, Guava, Jamun, Lime, Musambi, Sapota, Pomegranate **Vegetables:** Tomato, Chilli, Drumstick, Brinjal, Onion, Bhendi, Coriander **Flowers:** Marigold, Chrysanthemum	Drip irrigation, mulching, suitable soil and conservation practices (crescent bunding with catch pit etc.,)

Chapter 8

SOIL HEALTH MANAGEMENT

8.1 Soil Health

Soil health is basic to plant health and plant 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 Ashanal-4 Microwatershed

- The soil phases identified in the microwatershed belonged to the soil series of MDR 149 ha (33%), JNK 102 ha (23%), NHL 55 ha (12%), BDP 45 ha (10%), HSL 33 ha (7%), DSB 16.5 ha (4%) and SBR 1 ha (<1%),
- 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 63 ha (14%) is neutral (pH 6.5 -7.3), 275 ha (61%) area is slightly to moderately alkaline (pH 7.3-8.4) and 64 ha (14%) is strongly to very strongly alkaline (pH 8.4 - >9.0).

❖ **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 alkaline to strongly alkaline soils cover about 339 ha area in 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

Neutral soils occur in about 63 ha area in 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, Azotobacter, Rhizobium).
3. Application of 100 per cent RDF.
4. 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. Out of total 452 ha area in the microwatershed, an area of about 291 ha is suffering from moderate erosion. These areas 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, radish, 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-Dryland 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 Ashanal-4 microwatershed.
- **Organic Carbon:** The OC content (an index of available Nitrogen) is medium in (0.5-0.75%) in about 321 ha (71%) and low (<0.5%) in 81 ha (18%). The areas that are medium and low 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 372 ha area where OC is low to medium (<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 low (<23 kg/ha) in an area of 89 ha (20%) and medium (23-57 kg/ha) in 313 ha (69%) of the microwatershed. For all the crops, 25% additional P needs to be applied where available P is low and medium.
- **Available Potassium:** Available potassium is low (<145 kg/ha) in an area of 19 ha (4%) and medium (145-337 kg/ha) in maximum area of 383 ha (85%) of the microwatershed. All the plots, where available potassium is low and medium, for all the crops, additional 25 % potassium may be applied.
- **Available Sulphur:** Available sulphur is a very critical nutrient for oilseed crops. It is high in <1 ha (<1%), medium in 59 ha (13%) and low in 342 ha (76%). Low and medium areas 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:** An area of 395 ha (88%) is low and 7 ha (1%) medium. For these areas, application of sodium borate @ 10 kg/ha as soil application or 0.2 % borax as foliar spray is recommended.
- **Available Iron:** An entire cultivated area of 402 ha (89%) is sufficient in available iron in the microwatershed.
- **Available Copper:** Entire area of the microwatershed is sufficient in available copper content.

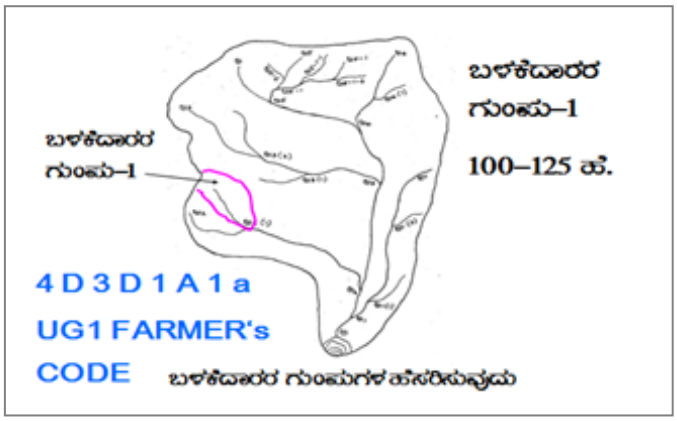
- **Available Manganese:** Entire area of the microwatershed is sufficient in available manganese content.
- **Available Zinc:** Entire area of the microwatershed is deficient in available zinc content. Application of zinc sulphate @25 kg/ha is recommended for the deficient areas.
- **Soil Alkalinity:** The microwatershed has 339 ha (75%) area with soils that are slightly to very strongly 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, Acasia, Neem, Ber etc, are recommended.
- **Land Suitability for various crops:** Areas that are highly, moderately and marginally suitable and also currently not 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, gravel content, rooting depth and salinity/alkalinity 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 Ashanal-4 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.

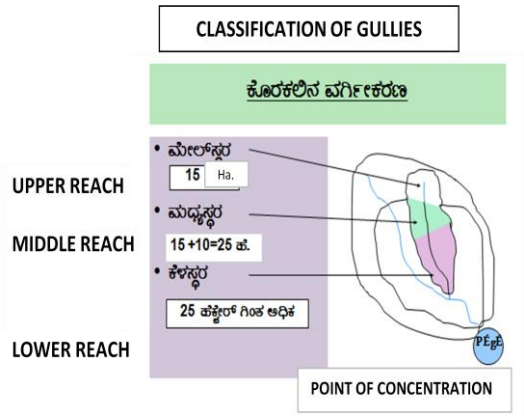
- Naming of user groups and farmers
- Identification of arable and non arable lands
- Identification of drainage lines and gullies
- Identification of non treatable areas
- Identification of priority areas in the arable lands
- Treatment plan for arable lands
- Location of water harvesting and recharge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

9.1 Treatment Plan

The treatment plan recommended for arable lands is briefly described below

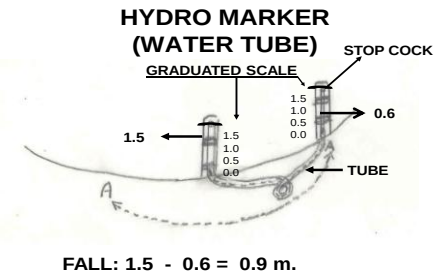
9.1.1 Arable Land Treatment

A. BUNDING

Steps for Survey and Preparation of Treatment Plan		USER GROUP-1
• 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.

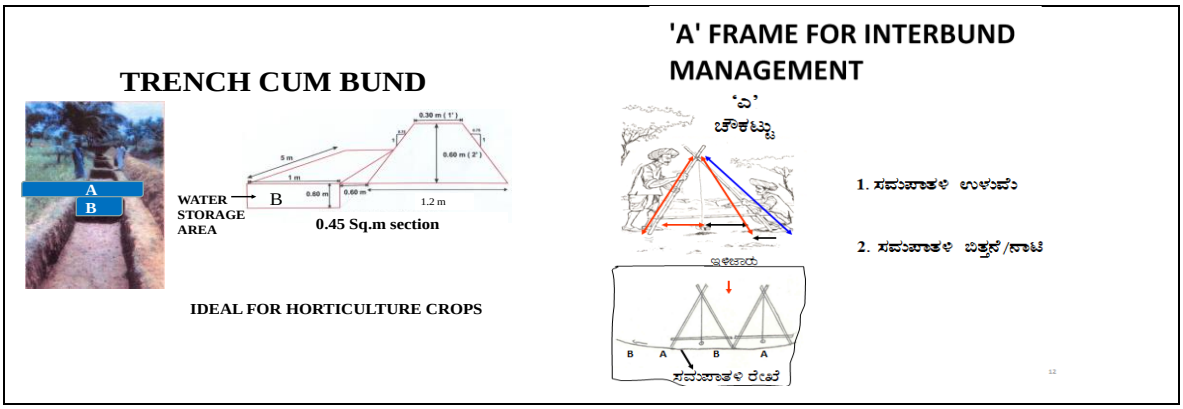
Recommended Bund Section

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 earthen 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 62 ha (14%) needs Trench cum bunding, 285 ha (63%) needs Graded Bunding and 55 ha (12%) Strengthening of existing bunds.

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.

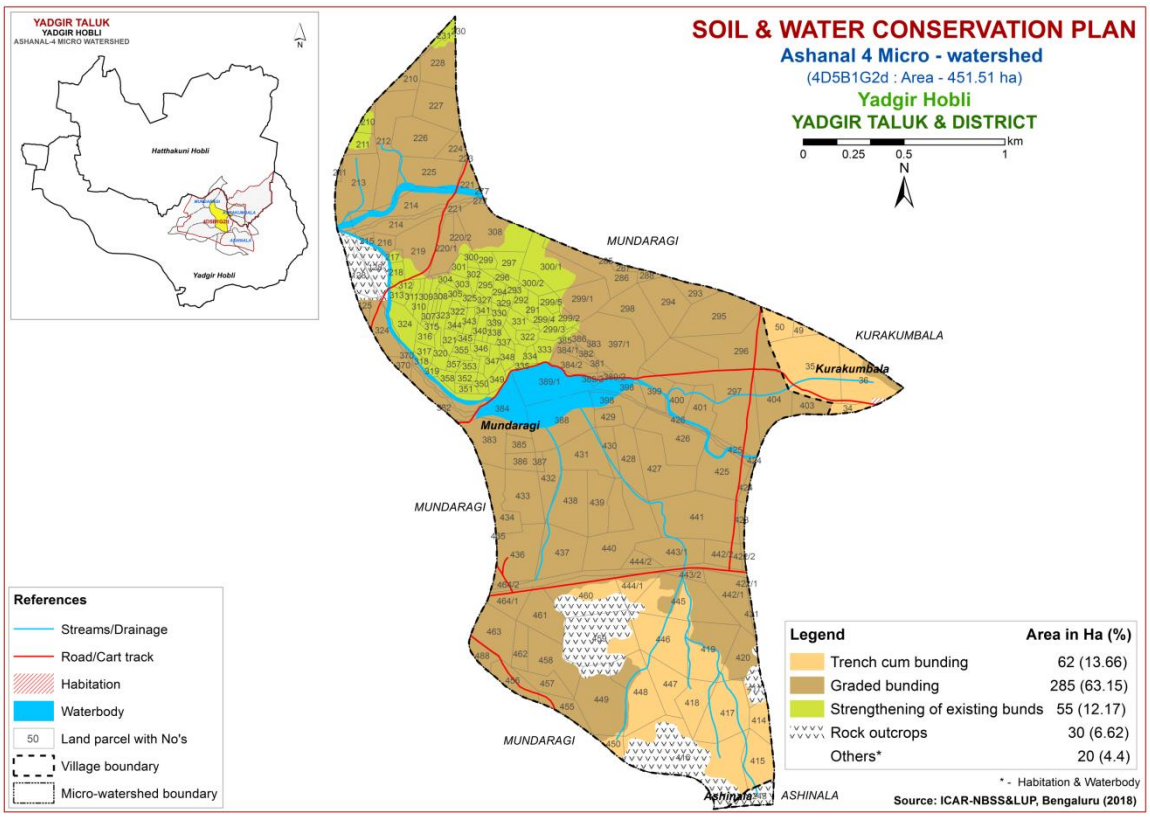


Fig. 9.1 Soil and Water Conservation Plan map of Ashanal-4 Microwatershed

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 dug out 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

Ashanal -4 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
Mundaragi	125	0.6	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	128	4.29	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Rockout crops+ Scrub land (Rc+Sl)	Not Available	Ro	Ro
Mundaragi	210	2.27	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIe	Graded bunding
Mundaragi	211	1.55	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	212	6.73	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIe	Graded bunding
Mundaragi	213	5.65	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	214	6.49	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIe	Graded bunding
Mundaragi	215	0.54	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIe	Graded bunding
Mundaragi	216	0.89	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIe	Graded bunding
Mundaragi	217	0.64	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	218	0.86	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	219	4.78	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	1 Bore Well	IIe	Graded bunding
Mundaragi	220/1	2.46	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	220/2	1.13	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	1 Bore Well	IIe	Graded bunding
Mundaragi	221	2.05	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIe	Graded bunding
Mundaragi	223	0.09	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	224	1.32	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	225	4.75	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy (Rg+Pd)	Not Available	IIe	Graded bunding
Mundaragi	226	4.75	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	227	4.21	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIe	Graded bunding
Mundaragi	228	3.56	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	230	0.02	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Redgram+Groundnut (Rg+Gn)	Not Available	IIs	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
Mundaragi	231	0.71	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Cotton (Ct)	Not Available	IIs	Graded bunding
Mundaragi	277	0.12	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	285	0.06	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIe	Graded bunding
Mundaragi	286	3.79	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	287	0.37	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIe	Graded bunding
Mundaragi	288	0.5	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	291	0.79	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	292	0.9	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	293	1.99	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIe	Graded bunding
Mundaragi	294	4.7	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	295	7.4	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIe	Graded bunding
Mundaragi	296	7.77	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	4 Bore Well	IIe	Graded bunding
Mundaragi	297	15.61	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Groundnut+Cotton (Gn+Ct)	Not Available	IIws	Graded bunding
Mundaragi	298	5.04	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	299	0.95	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	299/1	3.6	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIe	Graded bunding
Mundaragi	299/2	0.55	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	299/3	1.2	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	299/4	0.68	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	299/5	0.76	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	300	0.21	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	300/1	5.15	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Redgram+Groundnut (Rg+Gn)	Not Available	IIs	Graded bunding
Mundaragi	300/2	1.22	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	301	0.78	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	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
Mundaragi	302	0.54	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	303	0.67	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	304	0.46	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	305	0.45	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	306	0.3	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	307	0.34	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	308	6.55	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy+Groundnut (Rg+Pd+Gn)	Not Available	IIe	Graded bunding
Mundaragi	309	0.67	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	310	0.67	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	311	0.64	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	312	0.46	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	313	0.7	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	315	0.32	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	316	0.71	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	317	0.66	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	318	0.33	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	319	0.28	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	320	0.99	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	321	0.67	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	322	1.27	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	323	0.79	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	324	5.32	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	325	0.42	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	326	0.29	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	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
Mundaragi	327	0.34	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	328	0.15	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	329	0.18	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	330	0.33	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	331	0.94	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	333	1.14	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	334	0.5	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	335	0.5	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	337	0.54	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	338	0.55	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	339	0.37	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	340	0.54	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	341	0.36	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	342	0.21	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	343	0.56	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	344	0.54	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	345	0.35	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	346	0.61	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	347	0.94	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	348	0.72	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	349	0.8	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	350	0.56	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	351	0.5	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	352	0.6	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	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
Mundaragi	353	0.56	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	354	0.25	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	355	0.61	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	356	0.3	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	357	0.47	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	358	0.61	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	370	0.73	JNKiB2	LMU-5	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
Mundaragi	380	0.06	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	Not Available	IIws	Graded bunding
Mundaragi	381	0.5	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	Not Available	IIws	Graded bunding
Mundaragi	382	0.3	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	Not Available	IIws	Graded bunding
Mundaragi	383	4.07	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut +Paddy (Rg+Gn+Pd)	1 Bore Well	IIes	Graded bunding
Mundaragi	384	4.62	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody (Wb)	Not Available	Others	Others
Mundaragi	384/1	0.45	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	Not Available	IIws	Graded bunding
Mundaragi	384/2	1.54	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	1 Bore Well	IIws	Graded bunding
Mundaragi	385	1.38	JNKiB2	LMU-5	Moderately shallow (50-75 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
Mundaragi	386	2.08	JNKiB2	LMU-5	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
Mundaragi	387	0.34	JNKiB2	LMU-5	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
Mundaragi	388	7.12	JNKiB2	LMU-5	Moderately shallow (50-75 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
Mundaragi	389/1	5.53	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody (Wb)	Not Available	Others	Others
Mundaragi	389/2	0.08	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	Not Available	IIws	Graded bunding
Mundaragi	389/3	0.41	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Waterbody (Wb)	Not Available	IIws	Graded bunding
Mundaragi	397/1	7.42	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	397/2	0.09	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIe	Graded bunding
Mundaragi	398	3.95	JNKiB2	LMU-5	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

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
Mundaragi	399	2.33	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Scrub land (Sl)	Not Available	IIws	Graded bunding
Mundaragi	400	1.84	HSLiB2	LMU-6	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
Mundaragi	401	2.76	HSLiB2	LMU-6	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
Mundaragi	403	1.61	HSLiB2	LMU-6	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut (Rg+Gn)	Not Available	IIes	Graded bunding
Mundaragi	404	4.55	HSLiB2	LMU-6	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut+Paddy (Gn+Pd)	Not Available	IIes	Graded bunding
Mundaragi	411	1.37	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Rockout crops	Not Available	Ro	Ro
Mundaragi	414	1.66	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IVes	Trench cum bunding
Mundaragi	415	3.47	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	416	15.48	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Rockout crops	Not Available	Ro	Ro
Mundaragi	417	6.06	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	418	3.14	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	419	5.86	HSLiB2	LMU-6	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
Mundaragi	420	3.34	HSLiB2	LMU-6	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
Mundaragi	421	0.25	HSLiB2	LMU-6	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
Mundaragi	422/1	0.09	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Redgram (Rg)	Not Available	IIws	Graded bunding
Mundaragi	422/2	0.24	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Redgram+Groundnut +Cotton (Rg+Gn+Ct)	Not Available	IIws	Graded bunding
Mundaragi	423	0.61	HSLiB2	LMU-6	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
Mundaragi	424	0.56	HSLiB2	LMU-6	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut +Cotton (Rg+Gn+Ct)	Not Available	IIes	Graded bunding
Mundaragi	425	5.91	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Groundnut (Gn)	Not Available	IIws	Graded bunding
Mundaragi	426	5.37	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Groundnut (Gn)	Not Available	IIws	Graded bunding
Mundaragi	427	6.13	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Mundaragi	428	3.46	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Mundaragi	429	1.28	JNKiB2	LMU-5	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
Mundaragi	430	1.52	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	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
Mundaragi	431	4.03	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Mundaragi	432	2.44	JNKiB2	LMU-5	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
Mundaragi	433	4.39	JNKiB2	LMU-5	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
Mundaragi	434	3.28	JNKiB2	LMU-5	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	Graded bunding
Mundaragi	435	0.06	JNKiB2	LMU-5	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
Mundaragi	436	5.59	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy (Rg+Pd)	Not Available	IIes	Graded bunding
Mundaragi	437	5.14	JNKiB2	LMU-5	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
Mundaragi	438	5.15	JNKiB2	LMU-5	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	Graded bunding
Mundaragi	439	3.31	JNKiB2	LMU-5	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
Mundaragi	440	7.23	JNKiB2	LMU-5	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
Mundaragi	441	9.03	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Groundnut (Gn)	Not Available	IIws	Graded bunding
Mundaragi	442/1	3.81	HSLiB2	LMU-6	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
Mundaragi	442/2	2.29	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Groundnut (Gn)	Not Available	IIws	Graded bunding
Mundaragi	443/1	3.89	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Redgram (Rg)	Not Available	IIws	Graded bunding
Mundaragi	443/2	0.71	HSLiB2	LMU-6	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
Mundaragi	444/1	2.11	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	444/2	1.13	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Redgram (Rg)	Not Available	IIws	Graded bunding
Mundaragi	445	8.1	HSLiB2	LMU-6	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
Mundaragi	446	6.09	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	447	3.43	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	448	6.28	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IVes	Trench cum bunding
Mundaragi	449	6.9	JNKiB2	LMU-5	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
Mundaragi	450	0.99	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Rockout crops	Not Available	IVes	Trench cum bunding
Mundaragi	455	1.92	JNKiB2	LMU-5	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
Mundaragi	456	2.19	JNKiB2	LMU-5	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
Mundaragi	457	1.97	JNKiB2	LMU-5	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
Mundaragi	458	4.57	JNKiB2	LMU-5	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
Mundaragi	459	8.28	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Redgram+Rockout crops (Rg+Rc)	Not Available	Ro	Ro
Mundaragi	460	6.34	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Redgram+Rockout crops (Rg+Rc)	Not Available	Ro	Ro
Mundaragi	461	3.93	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy (Rg+Pd)	Not Available	IIes	Graded bunding
Mundaragi	462	1.66	JNKiB2	LMU-5	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
Mundaragi	463	4.16	JNKiB2	LMU-5	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	Graded bunding
Mundaragi	464/1	2.06	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIes	Graded bunding
Mundaragi	464/2	0.33	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIes	Graded bunding
Mundaragi	488	1.16	JNKiB2	LMU-5	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
Kurakumbala	34	0.85	DSBhB2	LMU-2	Shallow (25-50 cm)	Sandy clay loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Scrubland+Vegetables (Sl+Vg)	Not Available	IVes	Trench cum bunding
Kurakumbala	35	9.01	DSBiB2	LMU-2	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Greengram+Redgram (Gg+Rg)	Not Available	IVes	Trench cum bunding
Kurakumbala	36	5.58	DSBiB2	LMU-2	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Greengram+Paddy+Redgram (Gg+Pd+Rg)	1 Bore Well	IVes	Trench cum bunding
Kurakumbala	49	0.58	DSBiB2	LMU-2	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Greengram+Groundnut (Gg+Gn)	Not Available	IVes	Trench cum bunding
Kurakumbala	50	1.82	DSBiB2	LMU-2	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Greengram+Groundnut (Gg+Gn)	Not Available	IVes	Trench cum bunding
Mundaragi	125	0.6	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	128	4.29	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Rockoutcrops+Scrub land (Rc+Sl)	Not Available	Ro	Ro
Mundaragi	210	2.27	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIe	Graded bunding
Mundaragi	211	1.55	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	212	6.73	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIe	Graded bunding
Mundaragi	213	5.65	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	214	6.49	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIe	Graded bunding
Mundaragi	215	0.54	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIe	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
Mundaragi	216	0.89	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIe	Graded bunding
Mundaragi	217	0.64	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	218	0.86	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	219	4.78	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	1 Bore Well	IIe	Graded bunding
Mundaragi	220/1	2.46	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	220/2	1.13	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	1 Bore Well	IIe	Graded bunding
Mundaragi	221	2.05	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIe	Graded bunding
Mundaragi	223	0.09	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	224	1.32	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	225	4.75	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy (Rg+Pd)	Not Available	IIe	Graded bunding
Mundaragi	226	4.75	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	227	4.21	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIe	Graded bunding
Mundaragi	228	3.56	MDRhB2	LMU-3	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	230	0.02	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Redgram+Groundnut (Rg+Gn)	Not Available	IIs	Graded bunding
Mundaragi	231	0.71	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Cotton (Ct)	Not Available	IIs	Graded bunding
Mundaragi	277	0.12	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIe	Graded bunding
Mundaragi	285	0.06	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIe	Graded bunding
Mundaragi	286	3.79	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	287	0.37	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIe	Graded bunding
Mundaragi	288	0.5	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	291	0.79	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	292	0.9	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	293	1.99	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIe	Graded bunding
Mundaragi	294	4.7	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding

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Mundaragi	295	7.4	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIe	Graded bunding
Mundaragi	296	7.77	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	4 Bore Well	IIe	Graded bunding
Mundaragi	297	15.61	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Groundnut+Cotton (Gn+Ct)	Not Available	IIws	Graded bunding
Mundaragi	298	5.04	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	299	0.95	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	299/1	3.6	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIe	Graded bunding
Mundaragi	299/2	0.55	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	299/3	1.2	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	299/4	0.68	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	299/5	0.76	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	300	0.21	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	300/1	5.15	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Redgram+Groundnut (Rg+Gn)	Not Available	IIs	Graded bunding
Mundaragi	300/2	1.22	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	301	0.78	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	302	0.54	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	303	0.67	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	304	0.46	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	305	0.45	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	306	0.3	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	307	0.34	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	308	6.55	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy+Groundnut (Rg+Pd+Gn)	Not Available	IIe	Graded bunding
Mundaragi	309	0.67	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	310	0.67	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	311	0.64	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding

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Mundaragi	312	0.46	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	313	0.7	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	315	0.32	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	316	0.71	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	317	0.66	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	318	0.33	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	319	0.28	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	320	0.99	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	321	0.67	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	322	1.27	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	323	0.79	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	324	5.32	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	325	0.42	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	326	0.29	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	327	0.34	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	328	0.15	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	329	0.18	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	330	0.33	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	331	0.94	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	333	1.14	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	334	0.5	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	335	0.5	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	337	0.54	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	338	0.55	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding

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Mundaragi	339	0.37	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	340	0.54	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	341	0.36	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	342	0.21	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	343	0.56	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	344	0.54	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	345	0.35	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	346	0.61	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	347	0.94	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	348	0.72	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	349	0.8	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	350	0.56	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	351	0.5	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	352	0.6	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	353	0.56	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	354	0.25	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	355	0.61	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	356	0.3	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	357	0.47	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	358	0.61	MDRiA1	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Paddy (Pd)	Not Available	IIs	Graded bunding
Mundaragi	370	0.73	JNKiB2	LMU-5	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
Mundaragi	380	0.06	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	Not Available	IIws	Graded bunding
Mundaragi	381	0.5	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	Not Available	IIws	Graded bunding
Mundaragi	382	0.3	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	Not Available	IIws	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
Mundaragi	383	4.07	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut +Paddy(Rg+Gn+Pd)	1 Bore Well	IIes	Graded bunding
Mundaragi	384	4.62	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody (Wb)	Not Available	Others	Others
Mundaragi	384/1	0.45	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	Not Available	IIws	Graded bunding
Mundaragi	384/2	1.54	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	1 Bore Well	IIws	Graded bunding
Mundaragi	385	1.38	JNKiB2	LMU-5	Moderately shallow (50-75 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
Mundaragi	386	2.08	JNKiB2	LMU-5	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
Mundaragi	387	0.34	JNKiB2	LMU-5	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
Mundaragi	388	7.12	JNKiB2	LMU-5	Moderately shallow (50-75 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
Mundaragi	389/1	5.53	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody (Wb)	Not Available	Others	Others
Mundaragi	389/2	0.08	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Paddy (Pd)	Not Available	IIws	Graded bunding
Mundaragi	389/3	0.41	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Waterbody (Wb)	Not Available	IIws	Graded bunding
Mundaragi	397/1	7.42	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIe	Graded bunding
Mundaragi	397/2	0.09	MDRiB2	LMU-3	Very deep (>150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIe	Graded bunding
Mundaragi	398	3.95	JNKiB2	LMU-5	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
Mundaragi	399	2.33	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Scrub land (Sl)	Not Available	IIws	Graded bunding
Mundaragi	400	1.84	HSLiB2	LMU-6	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
Mundaragi	401	2.76	HSLiB2	LMU-6	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
Mundaragi	403	1.61	HSLiB2	LMU-6	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut (Rg+Gn)	Not Available	IIes	Graded bunding
Mundaragi	404	4.55	HSLiB2	LMU-6	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut+Paddy (Gn+Pd)	Not Available	IIes	Graded bunding
Mundaragi	411	1.37	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Rockout crops	Not Available	Ro	Ro
Mundaragi	414	1.66	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IVes	Trench cum bunding
Mundaragi	415	3.47	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	416	15.48	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Rockout crops	Not Available	Ro	Ro
Mundaragi	417	6.06	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	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
Mundaragi	418	3.14	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	419	5.86	HSLiB2	LMU-6	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
Mundaragi	420	3.34	HSLiB2	LMU-6	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
Mundaragi	421	0.25	HSLiB2	LMU-6	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
Mundaragi	422/1	0.09	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Redgram (Rg)	Not Available	IIws	Graded bunding
Mundaragi	422/2	0.24	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Redgram+Groundnut +Cotton (Rg+Gn+Ct)	Not Available	IIws	Graded bunding
Mundaragi	423	0.61	HSLiB2	LMU-6	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
Mundaragi	424	0.56	HSLiB2	LMU-6	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut +Cotton (Rg+Gn+Ct)	Not Available	IIes	Graded bunding
Mundaragi	425	5.91	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Groundnut (Gn)	Not Available	IIws	Graded bunding
Mundaragi	426	5.37	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Groundnut (Gn)	Not Available	IIws	Graded bunding
Mundaragi	427	6.13	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Mundaragi	428	3.46	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Mundaragi	429	1.28	JNKiB2	LMU-5	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
Mundaragi	430	1.52	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIes	Graded bunding
Mundaragi	431	4.03	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Mundaragi	432	2.44	JNKiB2	LMU-5	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
Mundaragi	433	4.39	JNKiB2	LMU-5	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
Mundaragi	434	3.28	JNKiB2	LMU-5	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	Graded bunding
Mundaragi	435	0.06	JNKiB2	LMU-5	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
Mundaragi	436	5.59	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy (Rg+Pd)	Not Available	IIes	Graded bunding
Mundaragi	437	5.14	JNKiB2	LMU-5	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
Mundaragi	438	5.15	JNKiB2	LMU-5	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	Graded bunding
Mundaragi	439	3.31	JNKiB2	LMU-5	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
Mundaragi	440	7.23	JNKiB2	LMU-5	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
Mundaragi	441	9.03	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Groundnut (Gn)	Not Available	IIws	Graded bunding
Mundaragi	442/1	3.81	HSLiB2	LMU-6	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
Mundaragi	442/2	2.29	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Groundnut (Gn)	Not Available	IIws	Graded bunding
Mundaragi	443/1	3.89	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Redgram (Rg)	Not Available	IIws	Graded bunding
Mundaragi	443/2	0.71	HSLiB2	LMU-6	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
Mundaragi	444/1	2.11	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	444/2	1.13	NHLmB1	LMU-4	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Redgram (Rg)	Not Available	IIws	Graded bunding
Mundaragi	445	8.1	HSLiB2	LMU-6	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
Mundaragi	446	6.09	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	447	3.43	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mundaragi	448	6.28	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IVes	Trench cum bunding
Mundaragi	449	6.9	JNKiB2	LMU-5	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
Mundaragi	450	0.99	BDPcB2	LMU-1	Very shallow (<25 cm)	Sandy loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Rockout crops	Not Available	IVes	Trench cum bunding
Mundaragi	455	1.92	JNKiB2	LMU-5	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
Mundaragi	456	2.19	JNKiB2	LMU-5	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
Mundaragi	457	1.97	JNKiB2	LMU-5	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
Mundaragi	458	4.57	JNKiB2	LMU-5	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
Mundaragi	459	8.28	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Redgram+Rockout crops (Rg+Rc)	Not Available	Ro	Ro
Mundaragi	460	6.34	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Redgram+Rockout crops (Rg+Rc)	Not Available	Ro	Ro
Mundaragi	461	3.93	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy (Rg+Pd)	Not Available	IIes	Graded bunding
Mundaragi	462	1.66	JNKiB2	LMU-5	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
Mundaragi	463	4.16	JNKiB2	LMU-5	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	Graded bunding
Mundaragi	464/1	2.06	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIes	Graded bunding
Mundaragi	464/2	0.33	JNKiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	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
Mundaragi	**488**	**1.16**	**JNKiB2**	**LMU-5**	**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**

Note:Ro- Rock outcrops

Appendix II

Ashanal-4 Microwatershed

Soil Fertility Information

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	125	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	128	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops
Mundaragi	210	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	211	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	212	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	218	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	220/1	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	220/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	221	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	223	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	224	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	225	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	226	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	227	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	228	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	230	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	231	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	277	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	285	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	286	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	288	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	293	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	294	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	295	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	296	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	297	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	298	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	299/1	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	299/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	299/3	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	299/4	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	299/5	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	300	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	300/1	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	300/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	301	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	302	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	303	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	304	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	305	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	306	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	307	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	308	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	309	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	310	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	311	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	312	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	315	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	316	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	317	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	318	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	319	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	320	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	321	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	322	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	323	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	324	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	325	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	326	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	327	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	328	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	329	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	330	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	331	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	333	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	334	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	335	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	337	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	338	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	339	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	340	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	341	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	342	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	343	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	344	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	345	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	346	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	348	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	349	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	351	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	352	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	353	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	354	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	355	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	356	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	357	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	358	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	370	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	381	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	382	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	383	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	384	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Mundaragi	384/1	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	384/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	385	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	386	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	387	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	388	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	389/1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Mundaragi	389/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	389/3	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	397/1	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	397/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	398	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	399	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	400	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	401	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	403	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	404	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	411	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops
Mundaragi	414	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	415	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	416	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops
Mundaragi	417	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	421	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	422/1	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	422/2	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	423	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	424	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	425	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	426	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	427	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	428	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	432	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	433	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	434	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	435	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	436	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	437	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	438	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	439	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	440	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	441	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	442/1	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	442/2	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	443/1	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	443/2	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	444/1	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	444/2	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	445	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	447	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	448	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	449	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	450	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	455	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	456	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	457	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	458	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	459	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro
Mundaragi	460	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro
Mundaragi	461	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	462	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	463	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	464/1	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	464/2	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	488	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kurakumbala	34	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Low (<145 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)
Kurakumbala	35	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kurakumbala	36	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Kurakumbala	49	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kurakumbala	50	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	125	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	128	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro
Mundaragi	210	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	211	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	212	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	218	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	220/1	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	220/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	221	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	223	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	224	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	225	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	226	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	227	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	228	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	230	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	231	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	277	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	285	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	286	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	288	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	293	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	294	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	295	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	296	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	297	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	298	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	299/1	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	299/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	299/3	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	299/4	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	299/5	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	300	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	300/1	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	300/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	301	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	302	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	303	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	304	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	305	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	306	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	307	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	308	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	309	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	310	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	311	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	312	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	315	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	316	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	317	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	318	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	319	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	320	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	321	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	322	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	323	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	324	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	325	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	326	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	327	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	328	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	329	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	330	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	331	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	333	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	334	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	335	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	337	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	338	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	339	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	340	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	341	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	342	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	343	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	344	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	345	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	346	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	348	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	349	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	351	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	352	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	353	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	354	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	355	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	356	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	357	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	358	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	370	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	381	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	382	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	383	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	384	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	384/1	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	384/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	385	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	386	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	387	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	388	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	389/1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Mundaragi	389/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	389/3	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	397/1	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	397/2	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	398	Moderately alkaline (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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	399	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	400	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	401	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	403	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	404	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	411	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops
Mundaragi	414	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	415	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	416	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops
Mundaragi	417	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	421	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	422/1	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	422/2	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	423	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	424	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	425	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	426	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	427	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	428	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	432	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	433	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	434	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	435	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	436	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	437	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	438	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	439	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	440	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	441	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	442/1	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey Number	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Mundaragi	442/2	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	443/1	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	443/2	Moderately alkaline (pH 7.8 – 8.4)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	444/1	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	444/2	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	445	Strongly alkaline (pH 8.4 – 9.0)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	447	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	448	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	449	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	450	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	455	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	456	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	457	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	458	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	459	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro
Mundaragi	460	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro	Ro
Mundaragi	461	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	462	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	463	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)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	464/1	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	464/2	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)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mundaragi	488	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Appendix III

Ashanal4 Microwatershed

Soil Suitability Information

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	125	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	128	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mundaragi	210	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	211	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	212	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	213	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	214	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	215	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	216	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	217	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	218	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	219	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	220/1	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	220/2	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	221	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	223	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	224	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	225	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	226	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	227	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	228	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	230	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	231	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	277	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	285	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	286	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	287	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	288	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	291	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	292	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	293	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	294	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	295	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	296	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	297	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	298	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	299	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	299/1	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	299/2	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	299/3	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	299/4	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	299/5	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	300	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	300/1	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	300/2	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	301	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	302	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	303	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	304	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	305	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	306	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	307	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	308	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	309	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	310	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	311	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	312	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	313	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	315	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	316	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	317	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	318	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	319	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	320	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	321	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	322	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	323	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	324	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	325	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	326	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	327	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	328	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	329	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	330	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	331	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	333	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	334	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	335	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	337	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	338	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	339	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	340	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	341	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	342	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	343	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	344	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	345	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	346	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	347	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	348	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	349	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	350	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	351	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	352	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	353	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	354	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	355	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	356	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	357	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	358	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	370	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mundaragi	380	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	381	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	382	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	383	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mundaragi	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
Mundaragi	384/1	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	384/2	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	385	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mundaragi	386	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mundaragi	387	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mundaragi	388	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mundaragi	389/1	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	Others
Mundaragi	389/2	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	389/3	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	397/1	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	397/2	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	398	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	399	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	400	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	401	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	403	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	404	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	411	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mundaragi	414	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	415	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	416	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mundaragi	417	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	418	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	419	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	420	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	421	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	422/1	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	422/2	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	423	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	424	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	425	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	426	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	427	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
Mundaragi	428	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
Mundaragi	429	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
Mundaragi	430	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
Mundaragi	431	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
Mundaragi	432	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
Mundaragi	433	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
Mundaragi	434	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
Mundaragi	435	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
Mundaragi	436	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

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	437	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
Mundaragi	438	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
Mundaragi	439	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
Mundaragi	440	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
Mundaragi	441	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	442/1	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	442/2	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	443/1	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	443/2	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	444/1	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	444/2	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	445	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	446	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	447	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	448	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	449	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
Mundaragi	450	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	455	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
Mundaragi	456	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
Mundaragi	457	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
Mundaragi	458	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
Mundaragi	459	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mundaragi	460	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mundaragi	461	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
Mundaragi	462	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
Mundaragi	463	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
Mundaragi	464/1	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
Mundaragi	464/2	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
Mundaragi	488	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
Kurakumbala	34	N1rg	S3rg	N1rg	S3rg	N1rg	S3rg	N1rg	N1rg	S3rg	N1rg	S3rg	S3rg	N1rg	S3rg	N1rt	N1rg	N1rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	N1rg	S3rg	S3rg	S3rg	N1rg	N1rg

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Kurakumbala	35	N1rg	S3rg	N1rg	S3rg	N1rg	S3rg	N1rg	N1rg	S3rg	N1rg	S3rg	S3rg	N1rg	S3rg	N1rt	N1rg	N1rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	N1rg	S3rg	S3rg	S3rg	N1rg	N1rg
Kurakumbala	36	N1rg	S3rg	N1rg	S3rg	N1rg	S3rg	N1rg	N1rg	S3rg	N1rg	S3rg	S3rg	N1rg	S3rg	N1rt	N1rg	N1rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	N1rg	S3rg	S3rg	S3rg	N1rg	N1rg
Kurakumbala	49	N1rg	S3rg	N1rg	S3rg	N1rg	S3rg	N1rg	N1rg	S3rg	N1rg	S3rg	S3rg	N1rg	S3rg	N1rt	N1rg	N1rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	N1rg	S3rg	S3rg	S3rg	N1rg	N1rg
Kurakumbala	50	N1rg	S3rg	N1rg	S3rg	N1rg	S3rg	N1rg	N1rg	S3rg	N1rg	S3rg	S3rg	N1rg	S3rg	N1rt	N1rg	N1rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	N1rg	S3rg	S3rg	S3rg	N1rg	N1rg
Mundaragi	125	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	128	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mundaragi	210	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	211	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	212	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	213	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	214	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	215	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	216	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	217	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	218	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	219	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	220/1	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	220/2	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	221	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	223	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	224	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	225	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	226	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	227	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	228	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	230	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	231	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	277	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	285	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	286	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	287	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	288	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	291	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	292	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	293	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	294	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	295	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	296	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	297	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	298	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	299	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	299/1	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	299/2	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	299/3	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	299/4	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	299/5	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	300	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	300/1	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	300/2	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	301	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	302	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	303	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	304	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	305	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	306	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	307	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	308	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	309	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	310	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	311	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	312	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	313	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	315	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	316	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	317	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	318	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	319	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	320	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	321	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	322	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	323	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	324	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	325	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	326	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	327	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	328	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	329	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	330	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	331	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	333	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	334	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	335	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	337	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	338	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	339	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	340	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	341	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	342	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	343	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	344	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	345	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	346	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	347	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	348	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	349	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	350	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	351	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	352	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	353	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	354	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	355	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	356	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	357	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	358	S3tz	S2t	S3t	S1	S3t	S1	S2t	S1	S1	S1	S2tw	S2t	S3t	S1	N1t	S2t	S1	S3tw	S3t	S2tw	S2tw	S2tw	S2tw	S2t	S2tz	S2t	S1	S2tw	S3tw
Mundaragi	370	N1r	S2t	S3r	S2r	S3r	S2r	N1r	S3r	S2r	S3r	S3r	S2r	S3r	S2r	N1rt	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mundaragi	380	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	381	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	382	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	383	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
Mundaragi	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
Mundaragi	384/1	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	384/2	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	385	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
Mundaragi	386	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
Mundaragi	387	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
Mundaragi	388	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
Mundaragi	389/1	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
Mundaragi	389/2	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	389/3	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	397/1	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	397/2	S3tz	S2tw	S3t	S1	S3t	S2z	S2t	S2z	S1	S2zw	S2tw	S2t	S3t	S1	N1t	S2t	S2z	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2t	S2tz	S1	S1	S2tw	S3tw
Mundaragi	398	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
Mundaragi	399	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	400	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	401	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	403	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	404	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	411	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mundaragi	414	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	415	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	416	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mundaragi	417	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	418	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	419	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	420	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	421	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	422/1	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	422/2	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	423	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	424	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	425	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	426	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	427	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
Mundaragi	428	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
Mundaragi	429	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
Mundaragi	430	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
Mundaragi	431	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
Mundaragi	432	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
Mundaragi	433	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

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	434	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
Mundaragi	435	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
Mundaragi	436	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
Mundaragi	437	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
Mundaragi	438	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
Mundaragi	439	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
Mundaragi	440	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
Mundaragi	441	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	442/1	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	442/2	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	443/1	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	443/2	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	444/1	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	444/2	S3tw	S2tw	S3tw	S1	S3tw	S1	S2tw	S2w	S1	S1	S2tw	S2tw	S3tw	S1	N1tw	S2tw	S2w	S3tw	S1	S2tw	S3tw	S2tw	S2tw	S2tw	S2t	S1	S1	S2tw	S3tw
Mundaragi	445	S3rz	S2tz	S2rz	S2tz	S2rz	S3tz	S3rz	S2rz	S3tz	S2rz	S2rz	S2tz	S2rz	S1	N1tz	S3rz	S2rz	S2z	S1	S2z	S2z	S2z	S2z	S2rz	S2z	S2t	S1	S2rz	S2rz
Mundaragi	446	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	447	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	448	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	449	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
Mundaragi	450	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r	N1r
Mundaragi	455	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
Mundaragi	456	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
Mundaragi	457	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
Mundaragi	458	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
Mundaragi	459	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mundaragi	460	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mundaragi	461	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
Mundaragi	462	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
Mundaragi	463	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
Mundaragi	464/1	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

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengalgram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mundaragi	**464/2**	**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**
Mundaragi	**488**	**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**

Note: RO- Rock Outcrops

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 Ashanal-4 is located at North latitude 16^0 48' 11.49" and 16^0 46' 0.097" and East longitude 77^0 12' 45.296" and 77^0 11' 8.211" covering an area of about 451.34 ha coming under Kurakumbala, Mundaragi and Ashinala villages of Yadagiri taluk.*
- *Socio-economic analysis indicated that, out of the total sample of 34 respondents, 7 (20.59%) were marginal, 14(41.18%) were small and 7 (20.59%) were semi medium and 1 (2.94%) were medium farmers.*
- *The population characteristics of households indicated that, there were 114 (63.69%) men and 65 (36.31%) were women. Majority of the respondents (41.90%) were in the age group of 35-60 years.*
- *Education level of the sample households indicated that, majority there were 40.22 per cent illiterates and only 4.47 per cent attained graduation.*
- *About, 73.53 per cent of household heads practicing agriculture and 5.88 per cent of the household heads were engaged as agricultural labourers.*
- *Agriculture was the major occupation for 62.57 per cent of the household members.*
- *In the study area, 85.29 per cent of the households possess katcha house and 8.82 per cent possess pucca house.*
- *The durable assets owned by the households showed that, 73.53 per cent possess TV, 58.82 per cent possess mixer grinder and 102.94 per cent possess mobile phones.*
- *Farm implements owned by the households indicated that, 32.35 per cent of the households possess plough and only 14.71 per cent sprayer.*
- *Regarding livestock possession by the households, 5.88 per cent possess local cow and 2.94 per cent possess buffalo respectively.*
- *The average labour availability in the study area showed that, own labour men available in the micro watershed was 1.71, women available in the micro watershed was 1.53, hired labour (men) available was 9.38 and hired labour (women) available was 7.91.*
- *Further, 14.71 per cent of the households opined that hired labour was inadequate during the agricultural season.*
- *In the study area, about 2.23 per cent of the respondents migrated from the micro watershed in search of jobs with an average distance of 2720.00 kms for about 7.00 months.*
- *Out of the total land holding of the sample respondents (40.65 ha), 85.67 per cent of the area is under dry condition and the remaining 12.33 per cent area is irrigated land.*
- *There were 2.00 bore wells among the sampled households. Bore well was the major source of irrigation for 5.88 per cent of the households.*

- *The major crops grown by sample farmers are Red gram, Cotton, Groundnut, Jowar and Paddy and cropping intensity was recorded as 100.00 per cent.*
- *The sample households possessed 76.47 per cent bank account and 38.24 per cent of them have savings in the account.*
- *About 38.24 per cent of the respondents borrowed credit from various sources. Among the credit borrowed by households, 53.85 per cent have borrowed loan from commercial banks and 38.46 per cent from Cooperative 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, Cotton, Groundnut, Jowar and Paddy was Rs.29628.77, 33083.33, 60299.77, 40188.22 and 40549.18 with benefit cost ratio of 1:1.30, 1: 1.00, 1: 0.60, 1: 0.70 and 1:1.10 respectively.*
- *Further, 35.29 per cent of the households opined that dry fodder was adequate.*
- *The average annual gross income of the farmers was Rs. 70561.76 in micro-watershed, of which Rs. 57885.29 comes from agriculture.*
- *Sampled households have grown horticulture crops was coconut (2) and Mango (4) trees in the fields and forest species have grown 49 neem trees, 12 tamarind trees, 1 banyan trees together in both field and backyard.*
- *Households have an average investment capacity of Rs. 1597.06 for land development, Rs. 88.24 for creation of irrigation facility, Rs.2470.59 for adoption of improved crop production and Rs.235.29 adoption of improved livestock management.*
- *Source of funds for additional investment is concerned, from own sources for land development was 38.24, for irrigation facility was 2.94 per cent, for improved crop production was 32.35 per cent and for improved livestock management was 11.8 per cent.*
- *Regarding marketing channels, 82.35 per cent of the households have sold agricultural produce to the local/village merchants, while, 2.94 per cent have sold by Agents/Traders.*
- *Further, 44.12 per cent of the households have used tractor for the transport of agriculture commodity.*
- *Majority of the farmers (41.18 %) have experienced soil and water erosion problems in the watershed and 82.35 per cent of the households were interested towards soil testing.*
- *Firewood connection was the major source of fuel for domestic use for 32.35 per cent of the households and 64.71 per cent households has LPG.*
- *Piped supply was the major source for drinking water for 97.06 per cent of the households.*
- *Electricity was the major source of light for 100.00 per cent of the households.*
- *In the study area, 26.47 per cent of the households possess toilet facility.*

- *Regarding possession of PDS card, 94.12 per cent of the households possessed BPL card and 5.88 per cent do not possess PDS card. Cereals (58.82%), pulses (50.00%), oilseeds (26.47%) were adequate for consumption.*
- *Farming constraints experienced by households in the micro watersheds were lower fertility status of the soil (85.29%) wild animal menace on farm field (85.29%), frequent incidence of pest and diseases (55.88%), inadequacy of irrigation water (85.29%), high cost of fertilizers and plant protection chemicals (79.41%), high rate of interest on credit (85.29%), low price for the agricultural commodities (82.35%), lack of marketing facilities in the area (55.88%), inadequate extension services (85.29%) and lack of transport for safe transport of the agricultural produce to the market (79.41%).*

Chapter 1

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 Ashanal-4 micro-watershed (Ramasamudram sub-watershed, Yadgiri taluk & District) is located at North latitude 16^0 48’ 11.49” and 16^0 46’ 0.097” and East longitude 77^0 12’ 45.296" and 77^0 11’ 8.211”covering an area of about 451.34 ha bounded by under Kurakumbala, Mundaragi and Ashinala 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 34 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 Ashanal-4 Micro watershed is presented in Table 1 and it indicated that 34 farmers were sampled in Ashanal-4 micro-watershed among households surveyed 7 (20.59%) were marginal, 14 (41.18%) were small, 7 (20.59 %) were semi medium, 1 (2.94 %) were medium and 0 (0.00 %) were large farmers. 5 landless farmers were also interviewed for the survey.

Table 1. Households sampled for socio economic survey in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Farmers	5	14.7	7	20.6	14	41.2	7	20.6	1	2.94	34	100

Population characteristics: The population characteristics of households sampled for socio-economic survey in Ashanal-4 Micro watershed is presented in Table 2. The data indicated that, there were 114 (63.69%) men and 65 (36.31%) were women.

Table 2. Population characteristics in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (34)		MF (36)		SF (70)		SMF (35)		MDF (4)		All (179)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Men	20	58.8	25	69	45	64	22	62.9	2	50	114	63.7
2	Women	14	41.2	11	31	25	36	13	37.1	2	50	65	36.3
Total		34	100	36	100	70	100	35	100	4	100	179	100
Average		6.8		5.1		5.0		5.0		4.0		5.3	

Age wise classification of population: The age wise classification of household members in Ashanal-4 Micro watershed is presented in Table 3. The indicated that, 32 (17.88%) of population were 0-15 years of age, 75 (41.90%) were 16-35 years of age, 61(34.08%) were 36-60 years of age and 11 (6.15 %) were above 61 years of age.

Table 3: Age wise classification of members of the household in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (34)		MF (36)		SF (70)		SMF (35)		MDF (4)		All (179)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	0-15 years of age	6	17.7	7	19.4	9	12.9	8	22.86	2	50	32	17.88
2	16-35 years of age	16	47.1	14	38.9	32	45.7	13	37.14	0	0	75	41.9
3	36-60 years of age	11	32.4	10	27.8	25	35.7	13	37.14	2	50	61	34.08
4	> 61 years	1	2.94	5	13.9	4	5.71	1	2.86	0	0	11	6.15
Total		34	100	36	100	70	100	35	100	4	100	179	100

Education level of household members: Education level of household members in Ashanal-4 Micro watershed is presented in Table 4. The results indicated that, there were 40.22 per cent of illiterates, 12.85 per cent of them had primary school education, 11.17

per cent middle school education, 21.79 per cent high school education, 6.70 per cent of them had PUC education, 2.23 per cent of them had ITI, 4.47 per cent attained graduation and 0.56 them had other education.

Table 4. Education level of members of the household in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (34)		MF (36)		SF (70)		SMF (35)		MDF (4)		All (179)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Illiterate	12	35.3	18	50	29	41.4	12	34.3	1	25	72	40.2
2	Primary School	4	11.8	3	8.33	9	12.9	5	14.3	2	50	23	12.9
3	Middle School	6	17.7	1	2.78	9	12.9	3	8.57	1	25	20	11.2
4	High School	7	20.6	7	19.4	15	21.4	10	28.6	0	0	39	21.8
5	PUC	2	5.88	1	2.78	6	8.57	3	8.57	0	0	12	6.7
6	ITI	1	2.94	3	8.33	0	0	0	0	0	0	4	2.23
7	Degree	2	5.88	3	8.33	2	2.86	1	2.86	0	0	8	4.47
8	Others	0	0	0	0	0	0	1	2.86	0	0	1	0.56
Total		34	100	36	100	70	100	35	100	4	100	179	100

Occupation of head of households: The data regarding the occupation of the household heads in Ashanal-4 Micro watershed is presented in Table 5. The results indicate that, 73.53 per cent of household's heads were practicing agriculture, 5.88 per cent of the household heads were agricultural Labour, general labour and government services (2.94%).

Table 5: Occupation of heads of households in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Agriculture	4	80	3	43	12	85.71	5	71	1	100	25	73.53
2	Agricultural Labour	0	0	1	14	0	0	1	14	0	0	2	5.88
3	General Labour	1	20	0	0	0	0	0	0	0	0	1	2.94
4	Government Service	0	0	0	0	1	7.14	0	0	0	0	1	2.94
Total		5	100	4	100	13	100	6	100	1	100	29	100

Table 6: Occupation of members of the household in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (34)		MF (36)		SF (70)		SMF (35)		MDF (4)		All (179)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Agriculture	20	58.8	21	58.3	50	71.43	19	54.29	2	50	112	62.6
2	Agricultural Labour	0	0	2	5.56	0	0	3	8.57	0	0	5	2.79
3	General Labour	4	11.8	0	0	1	1.43	2	5.71	0	0	7	3.91
4	Government Service	0	0	0	0	1	1.43	0	0	0	0	1	0.56
5	Private Service	0	0	0	0	1	1.43	0	0	0	0	1	0.56
6	Student	10	29.4	12	33.3	12	17.14	11	31.43	2	50	47	26.3
7	Others	0	0	1	2.78	4	5.71	0	0	0	0	5	2.79
8	Housewife	0	0	0	0	1	1.43	0	0	0	0	1	0.56
Total		34	100	36	100	70	100	35	100	4	100	179	100

Occupation of the members of the household: The data regarding the occupation of the household members in Ashanal-4 Micro watershed is presented in Table 6. The results indicate that, agriculture was the major occupation for 62.57 per cent of the household members, 2.79 per cent were agricultural labour, 3.91 per cent were general labour, 0.56

per cent were working in government sector and private services, 26.26 per cent were working in pursuing education and 0.56 per cent were involved as housewife.

Institutional Participation of household members: The data regarding the institutional participation of the household members in Ashanal-4 Micro watershed is presented in Table 7. The results show that, out of the total family members in the households 0.56 per cent of them were participating in NGOs and 99.4 per cent were not participating in any of the institutions.

Table 7: Institutional Participation of household member in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (34)		MF (36)		SF (70)		SMF (35)		MDF (4)		All (179)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	NGOs	0	0	0	0	0	0	1	2.86	0	0	1	0.56
2	No Participation	34	100	36	100	70	100	34	97.1	4	100	178	99.4
Total		34	100	36	100	70	100	35	100	4	100	179	100

Type of house owned: The data regarding the type of house owned by the households in Ashanal-4 Micro watershed is presented in Table 8. The results indicate that, 5.88 percent possess thatched house, 85.29 per cent of the households possess katcha house and 8.82 per cent possess pacca house.

Table 8. Type of house owned by households in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Thatched	0	0	2	29	0	0	0	0	0	0	2	5.88
2	Katcha	5	100	5	71	12	85.71	6	85.7	1	100	29	85.29
3	Pucca/RCC	0	0	0	0	2	14.29	1	14.3	0	0	3	8.82
Total		5	100	7	100	14	100	7	100	1	100	34	100

Durable assets owned by the households: The data regarding the Durable Assets owned by the households in Ashanal-4 Micro watershed is presented in Table 9. The results shows that, 73.53 per cent possess TV, 58.82 per cent possess mixer grinder, 2.94 per cent possess refrigerator and radio, 38.24 per cent possess Bicycle, 26.47 per cent possess motor cycle and 102.94 per cent possess mobile phones.

Table 9. Durable assets owned by households in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Radio	0	0	0	0	1	7.14	0	0	0	0	1	2.94
2	Television	4	80	3	43	12	85.7	6	86	0	0	25	73.53
3	Mixer/Grinder	0	0	3	43	12	85.7	4	57	1	100	20	58.82
4	Refrigerator	0	0	0	0	0	0	1	14	0	0	1	2.94
5	Bicycle	1	20	0	0	8	57.1	4	57	0	0	13	38.24
6	Motor Cycle	1	20	0	0	7	50	1	14	0	0	9	26.47
7	Mobile Phone	5	100	7	100	14	100	7	100	2	200	35	102.94

Average value of durable assets: The data regarding the average value of durable assets owned by the households in Ashanal-4 Micro watershed is presented in Table 10. The result shows that, the average value of television was Rs.5060.00, mixer grinder was Rs.1040.00, refrigerator was 20000.00, bicycle was Rs.1000.00, motor cycle was Rs. 28833.00, mobile phone was Rs.1910.00 and radio was Rs.2000.

Table 10. Average value of durable assets owned in Ashanal-4 micro-watershed

Average Value (Rs.)

Sl.No.	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	Radio	0	0	2000	0	0	2000
2	Television	13750	6333	2916	2916	0	5060
3	Mixer/Grinder	0	666	1066	1250	1000	1040
4	Refrigerator	0	0	0	20000	0	20000
5	Bicycle	1000	0	1000	1000	0	1000
6	Motor Cycle	30000	0	27071	40000	0	28833
11	Mobile Phone	714	2571	714	916	26500	1910

Farm implements owned: The data regarding the farm implements owned by the households in Ashanal-4 Micro watershed is presented in Table 11. About 26.47 per cent of the households possess Bullock Cart, 32.35 per cent possess plough, 14.71 per cent possess Sprayer, 73.53 per cent possess Weeder, 5.88 per cent possess tractor and harvester, 2.94 per cent possess thresher and 8.82 per cent possess chaff cutter.

Table 11. Farm implements owned in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Bullock Cart	0	0	4	57.1	3	21.43	2	28.6	0	0	9	26.47
2	Plough	0	0	3	42.9	4	28.57	4	57.1	0	0	11	32.35
3	Tractor	0	0	0	0	1	7.14	1	14.3	0	0	2	5.88
4	Sprayer	0	0	0	0	3	21.43	2	28.6	0	0	5	14.71
5	Weeder	2	40	4	57.1	13	92.86	6	85.7	0	0	25	73.53
6	Harvester	0	0	0	0	1	7.14	1	14.3	0	0	2	5.88
7	Thresher	0	0	0	0	0	0	1	14.3	0	0	1	2.94
8	Chaff Cutter	0	0	0	0	2	14.29	1	14.3	0	0	3	8.82

Table 12. Average value of farm implements in Ashanal-4 micro-watershed

Average Value (Rs.)

Sl.No.	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	Bullock Cart	0	28750	11875	35000	0	23250
2	Plough	0	2000	615	850	0	865
3	Tractor	0	0	300000	400000	0	350000
4	Sprayer	0	0	4333	4500	0	4400
5	Weeder	110	62	25	35	0	39
6	Harvester	0	0	45000	60000	0	52500
7	Thresher	0	0	0	50000	0	50000
8	Chaff Cutter	0	0	4000	3000	0	3666

Average value of farm implements: The data regarding the average value of farm Implements owned by the households in Ashanal-4 Micro watershed is presented in Table

12. The results show that the average value of plough was Rs.865.00, bullock Cart was Rs.23250.00, sprayer was Rs.4400.00, weeder was Rs.39.00, harvester was Rs. 52500, tractor Rs. 350000, thresher was Rs.50000 and chaff cutter Rs.3666.

Livestock possession by the households: The data regarding the Livestock possession by the households in Ashanal-4 Micro watershed is presented in Table 13. The results indicate that, 38.24 per cent of the households possess bullocks, 5.88 per cent possess local cow, 2.94 per cent possess buffalo and sheep.

Table 13. Livestock possession by households in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Bullock	0	0	4	57	5	35.71	4	57	0	0	13	38.24
2	Local cow	0	0	0	0	1	7.14	0	0	1	100	2	5.88
3	Buffalo	0	0	0	0	1	7.14	0	0	0	0	1	2.94
4	Sheep	0	0	0	0	1	7.14	0	0	0	0	1	2.94

Average Labour availability: The data regarding the average labour availability in Ashanal-4 Micro watershed is presented in Table 14. The indicated that, own labour men available in the micro watershed was 1.71, women available in the micro watershed was 1.53, hired labour (men) available was 9.38 and hired labour (women) available was 7.91.

Table 14. Average labour availability in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	Hired labour Female	1	3.86	8	17.14	5	7.91
2	Own Labour Female	1	1.57	1.71	1.57	1	1.53
3	Own labour Male	1	1.29	2.14	1.86	1	1.71
4	Hired labour Male	1	5.29	10.14	17.86	10	9.38

Adequacy of hired labour: The data regarding the adequacy of hired labour in Ashanal-4 Micro watershed is presented in Table 15. The results indicate that, 85.29 per cent of the household opined that hired labour was adequate and 14.71 per cent of the household opined that hired labour was Inadequate.

Table 15. Adequacy of hired labour in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Adequate	0	0	7	100	14	100	7	100	1	100	29	85.3
2	Inadequate	5	100	0	0	0	0	0	0	0	0	5	14.7

Migration among the households: The data regarding the migration (Table 16) indicate that, 2.23 percent of the population was being migrated from the micro watershed.

Table 16. Migration among the households in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (34)		MF (36)		SF (70)		SMF (35)		MDF (4)		All (179)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Migration	0	0.00	0	0.00	4	5.71	0	0.00	0	0.00	4	2.23

Average distance and duration of migration: The data regarding the average distance and duration of migration (Table 17) indicate that, people migrated to a distance of 2720 kms on an average for 7 months.

Table 17. Average distance and duration of migration in Ashanal-4 micro-watershed

Sl.No.	Particulars	SF (4)	All (4)
1	Avg. Distance (kms)	2720	2720
2	Avg. Duration (months)	7	7

Purpose of migration: The data regarding the purpose of migration **(**Table 18) indicate that, 100.00 percent of them went for the purpose of job/wage/work.

Table 18. Purpose of migration by members of households in Ashanal-4 micro-watershed

Sl.No.	Particulars	SF (4)		All (4)	
		N	%	N	%
1	Job/wage/work	4	100	4	100
Total		4	100	4	100

Distribution of land (ha): The data regarding the distribution of land (ha) in Ashanal-4 Micro watershed is presented in Table 19. The results indicate that, 34.83 ha (85.67%) of dry land and 5.01 ha (12.33 %) of irrigated land.

Table 19. Distribution of land (ha) in Ashanal-4 micro-watershed

Sl.No	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Dry	0	0	3.4	80.77	20.77	100	10.66	78.16	0	0	34.83	85.67
2	Irrigated	0	0	0	0	0	0	2.98	21.84	2.04	100	5.01	12.33
3	Permanent Fallow	0	0	0.81	19.23	0	0	0	0	0	0	0.81	1.99
Total		0	100	4.21	100	20.77	100	13.64	100	2.04	100	40.65	100

Average value of land (ha): The data regarding the average land value (Rs./ha) in Ashanal-4 Micro watershed is presented in Table 20. The results show that the average value of dry land was Rs.318006.04 and the average value of irrigated land was Rs.418644.06.

Table 20. Average value of land (ha) in Ashanal-4 micro-watershed

Sl.No	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	Dry	0	846857.2	288776.3	206302.2	0	318006
2	Irrigated	0	0	0	436277.2	392842.9	418644.1
3	Permanent Fallow	0	741000	0	0	0	741000

Table 21. Status of bore wells in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	De-functioning	0	0	0	1	1	2
2	Functioning	0	0	0	1	1	2

Status of bore wells: The data regarding the status of bore wells in Ashanal-4 Micro watershed is presented in Table 21. The results indicate that, there were 2 De-functioning bore wells and 2 functioning bore wells among the sampled households in micro watershed.

Source of irrigation: The data regarding the source of irrigation in Ashanal-4 Micro watershed is presented in Table 22. The results that bore well were major source of irrigation for 5.88 per cent of the households.

Table 22. Source of irrigation in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Bore Well	0	0	0	0	0	0	1	14.3	1	100	2	5.88

Depth of water (Avg. In meters): The data regarding the depth of water in Ashanal-4 Micro watershed is presented in Table 23. The results revealed that, the depth of bore well was 3.85 meter.

Table 23. Depth of water (Avg. In meters) in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	Bore Well	0	0	0	10.01	60.96	3.85

Irrigated Area (ha): The data regarding the irrigated area (ha) in Ashanal-4 Micro watershed is presented in Table 24. The results indicate that, the availability of irrigation water was used 3.66 ha for rabi crop.

Table 24 Irrigated Area (ha) in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	Rabi	0	0	0	1.62	2.04	3.66
Total		0	0	0	1.62	2.04	3.66

Cropping pattern: The data regarding the cropping pattern in Ashanal-4 Micro watershed is presented in Table 25. The results indicate that, farmers have grown red gram (11.72 ha), cotton (6.07 ha), paddy (3.40 ha), groundnut (2.83 ha) and jowar (15.34 ha).

Table 25. Cropping pattern in Ashanal-4 micro-watershed

Sl.No	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	Kharif - Jowar	0	0.85	6.26	8.23	0	15.34
2	Kharif - Red gram	0	0.93	10.79	0	0	11.72
3	Kharif - Cotton	0	1.62	2.83	0	0	6.07
4	Kharif - Paddy	0	0	0	1.36	2.04	3.4
5	Kharif - Groundnut	0	0	0.81	2.02	0	2.83
Total		0	3.4	20.7	13.24	2.04	39.37

Cropping intensity: The data regarding the cropping intensity in Ashanal-4 Micro watershed is presented in Table 26. The results indicate that, the cropping intensity was 100.00 per cent.

Table 26. Cropping intensity (%) in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
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 Ashanal-4 micro-watershed is presented in Table 27. The results indicate that, 76.47 cent of the household's posse's bank account and 38.24 per cent of them have savings.

Table 27. Possession of Bank account and savings in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Account	0	0	5	71.43	14	100	6	85.71	1	100	26	76.47
2	Savings	0	0	0	0	10	71.43	3	42.86	0	0	13	38.24

Borrowing status: The data regarding the borrowing status in Ashanal-4 micro-watershed is presented in Table 28. The results indicate that, 38.24 percent of the sample farmers have borrowed credit from different sources.

Table 28. Borrowing status in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Credit Availed	0	0	0	0	10	71.4	3	42.9	0	0	13	38.24

Source of credit: The data regarding the source of credit availed by households in Ashanal-4 micro-watershed is presented in Table 29. The results show that, 53.85 per cent have borrowed loan from commercial banks and 38.46 per cent have borrowed loan from Cooperative bank and Grameena Bank and 15.38 per cent have borrowed loan from money lender.

Table 29. Source of credit borrowed by households in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (0)		MF (0)		SF (10)		SMF (3)		All (13)	
		N	%	N	%	N	%	N	%	N	%
1	Commercial Bank	0	0	0	0	3	30	4	133	7	53.85
2	Cooperative Bank	0	0	1	0	2	20	2	67	5	38.46
3	Grameena Bank	0	0	0	0	5	50	0	0	5	38.46
4	Money Lender	0	0	0	0	2	20	0	0	2	15.38

Avg. Credit amount: The data regarding the avg. Credit amount in Ashanal-4 micro-watershed is presented in Table 30. The results show that, farmers have borrowed Avg. Credit of Rs.108923.08 from different sources.

Table 30. Avg. Credit amount in Ashanal-4 micro-watershed

Sl.No.	Particulars	SF (10)	SMF (3)	All (13)
1	Average Credit	62100	245000	108923

Purpose of credit borrowed (institutional Source): The data regarding the purpose of credit borrowed - Institutional Credit in Ashanal-4 micro-watershed is presented in Table 31. The results indicate that, 100.00 per cent of the households have borrowed loan for agriculture.

Table 31. Purpose of credit borrowed (institutional Source) by households in Ashanal-4 micro-watershed

SN	Particulars	MF (1)		SF (10)		SMF (6)		All (17)	
		N	%	N	%	N	%	N	%
1	Agriculture production	1	100	10	100	6	100	17	100

Purpose of credit borrowed (Private Source): The data regarding the purpose of credit borrowed – Private Source in Ashanal-4 micro-watershed is presented in Table 32. The results indicate that, 100.00 per cent of the households have borrowed loan for agriculture.

Table 32 Purpose of credit borrowed (Private Source) by households in Ashanal-4 micro-watershed

Sl.No.	Particulars	SF (2)		All (2)	
		N	%	N	%
1	Agriculture production	2	100	2	100

Repayment status of household (institutional Source): The data regarding the repayment status of credit borrowed from institutional Source by households in Ashanal-4 micro watershed is presented in Table 33. The results indicate that, 11.76 per cent of the households have partially paid and 88.24 per cent have unpaid.

Table 33 Repayment status of household (institutional Source) in Ashanal-4 micro-watershed

Sl.No.	Particulars	MF (1)		SF (10)		SMF (6)		All (17)	
		N	%	N	%	N	%	N	%
1	Partially paid	0	0	1	10	1	16.67	2	11.76
2	Un paid	1	100	9	90	5	83.33	15	88.24

Repayment status of household (Private Source): The data regarding the repayment status of credit borrowed from private sources by households in Ashanal-4 micro watershed is presented in Table 34. The results indicate that, 100.00 per cent of the households have partially paid.

Table 34. Repayment status of household (Private Source) in Ashanal-4 micro-watershed

Sl.No.	Particulars	SF (2)		All (2)	
		N	%	N	%
1	Partially paid	2	100	2	100

Opinion regarding institutional sources of credit: The data regarding the opinion on institutional sources of credit in Ashanal-4 micro watershed is presented in Table 35. The results indicate that, 100.00 per cent of the households opined that credit helped to perform timely agricultural operations.

Table 35. Opinion regarding institutional sources of credit in Ashanal-4 micro-watershed

Sl.No.	Particulars	MF (1)		SF (10)		SMF (6)		All (17)	
		N	%	N	%	N	%	N	%
1	Helped to perform timely agricultural operations	1	100	10	100	6	100	17	100

Opinion regarding Non- institutional sources of credit: The data regarding the opinion on non-institutional sources of credit in Ashanal-4 micro watershed is presented in Table 36. The results indicate that, 100.00 per cent of the households opined that credit helped to perform timely agricultural operations.

Table 36. Opinion regarding Non- institutional sources of credit in Ashanal-4 micro-watershed

Sl.No.	Particulars	SF (2)		All (2)	
		N	%	N	%
1	Loan amount was adequate to fulfil the requirement	2	100	2	100

Cost of Cultivation of Red gram: The data regarding the cost of cultivation (Rs/ha) of Red gram in Ashanal-4 micro watershed is presented in Table 37.a. The results indicate that, the total cost of cultivation (Rs/ha) for Red gram was Rs. 29628.77. The gross income realized by the farmers was Rs. 39226.32. The net income from Red gram cultivation was Rs.9597.55, thus the benefit cost ratio was found to be 1:1.30.

Table 37(a). Cost of Cultivation of Red gram in Ashanal-4 micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	36.8	9438.65	31.86
2	Bullock		Pairs/day	1.62	1187.23	4.01
3	Tractor		Hours	2.17	1574.67	5.31
4	Machinery		Hours	0.14	102.92	0.35
5	Seed Main Crop (Establishment and Maintenance)		Kgs (Rs.)	13.87	1415.97	4.78
7	FYM		Quintal	1.5	3230.08	10.9
8	Fertilizer + micronutrients		Quintal	3.82	3725.55	12.57
9	Pesticides (PPC)		Kgs / liters	0.74	728.21	2.46
10	Irrigation		Number	0	0	0
11	Repairs			0	0	0
12	Msc. Charges (Marketing costs etc)			0	0	0
13	Depreciation charges			0	788.45	2.66
14	Land revenue and Taxes			0	0	0
II	**Cost B1**					
16	Interest on working capital				1093.18	3.69
17	**Cost B1 = (Cost A1 + sum of 15 and 16)**				23284.9	78.59
III	**Cost B2**					
18	Rental Value of Land				170.37	0.58
19	**Cost B2 = (Cost B1 + Rental value)**				23455.27	79.16
IV	**Cost C1**					
20	Family Human Labour			13.4	3469.97	11.71
21	**Cost C1 = (Cost B2 + Family Labour)**				26925.24	90.88
V	**Cost C2**					
22	Risk Premium				10	0.03
23	**Cost C2 = (Cost C1 + Risk Premium)**				26935.24	90.91
VI	**Cost C3**					
24	Managerial Cost				2693.52	9.09
25	**Cost C3 = (Cost C2 + Managerial Cost)**				29628.77	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		8.01	39226.32	
		b) Main Crop Sales Price (Rs.)			4900	
		f) Main Crop Sales Price (Rs.)			66.67	
b.	Gross Income (Rs.)				39226.32	
c.	Net Income (Rs.)				9597.55	
d.	Cost per Quintal (Rs./q.)				3701.11	
e.	Benefit Cost Ratio (BC Ratio)				1:1.3	

Cost of Cultivation of Cotton: The data regarding the cost of cultivation (Rs/ha) of Cotton in Ashanal-4 micro watershed is presented in Table 37.b. The results indicate that, the total cost of cultivation (Rs/ha) for Cotton was Rs. 33083.33. The gross income realized by the farmers was Rs. 34461.44. The net income from Cotton cultivation was Rs.1378.11, thus the benefit cost ratio was found to be 1:1.00.

Table 37(b). Cost of Cultivation of Cotton in Ashanal-4 micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	33.72	6749.28	20.4
2	Bullock		Pairs/day	2.26	2198.3	6.64
3	Tractor		Hours	1.73	1457.3	4.4
4	Machinery		Hours	0.78	555.75	1.68
5	Seed Main Crop (Establishment and Maintenance)		Kgs (Rs.)	5.23	415.78	1.26
6	Seed Inter Crop		Kgs.	0	0	0
7	FYM		Quintal	2.31	5434	16.43
8	Fertilizer + micronutrients		Quintal	5.35	5254.93	15.88
9	Pesticides (PPC)		Kgs / liters	1.69	1687.83	5.1
10	Irrigation		Number	0	0	0
11	Repairs			0	0	0
12	Msc. Charges (Marketing costs etc)			0	0	0
13	Depreciation charges			0	253.69	0.77
14	Land revenue and Taxes			0	0	0
II	**Cost B1**					
16	Interest on working capital				1536.31	4.64
17	**Cost B1 = (Cost A1 + sum of 15 and 16)**				25543.16	77.21
III	**Cost B2**					
18	Rental Value of Land				173.33	0.52
19	**Cost B2 = (Cost B1 + Rental value)**				25716.49	77.73
IV	**Cost C1**					
20	Family Human Labour			17.7	4349.26	13.15
21	**Cost C1 = (Cost B2 + Family Labour)**				30065.75	90.88
V	**Cost C2**					
22	Risk Premium				10	0.03
23	**Cost C2 = (Cost C1 + Risk Premium)**				30075.75	90.91
VI	**Cost C3**					
24	Managerial Cost				3007.58	9.09
25	**Cost C3 = (Cost C2 + Managerial Cost)**				33083.33	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		7.9	34461.44	
		b) Main Crop Sales Price (Rs.)			4360	
b.	Gross Income (Rs.)				34461.44	
c.	Net Income (Rs.)				1378.11	
d.	Cost per Quintal (Rs./q.)				4185.64	
e.	Benefit Cost Ratio (BC Ratio)				1:1	

Cost of Cultivation of Groundnut: The data regarding the cost of cultivation (Rs/ha) of Groundnut in Ashanal-4 micro watershed is presented in Table 37.c. The results indicate, the total cost of cultivation (Rs/ha) for Groundnut was Rs.60299.77. The gross income realized by the farmers was Rs. 34221.85. The net income from Groundnut cultivation was Rs. -26077.92, thus the benefit cost ratio was found to be 1:0.60.

Table 37(c). Cost of Cultivation of Groundnut in Ashanal-4 micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	41	8348.6	13.85
2	Bullock		Pairs/day	3.58	3383.9	5.61
3	Tractor		Hours	1.85	1543.75	2.56
4	Machinery		Hours	0.25	185.25	0.31
5	Seed Main Crop (Establishment and Maintenance)		Kgs (Rs.)	185.25	19142.5	31.75
7	FYM		Quintal	2.72	6545.5	10.85
8	Fertilizer + micronutrients		Quintal	6.92	6181.18	10.25
9	Pesticides (PPC)		Kgs / liters	1.11	1111.5	1.84
10	Irrigation		Number	0	0	0
11	Repairs			0	0	0
12	Msc. Charges (Marketing costs etc)			0	0	0
13	Depreciation charges			0	177.1	0.29
14	Land revenue and Taxes			0	0	0
II	**Cost B1**					
16	Interest on working capital				3958.88	6.57
17	**Cost B1 = (Cost A1 + sum of 15 and 16)**				50578.16	83.88
III	**Cost B2**					
18	Rental Value of Land				166.67	0.28
19	**Cost B2 = (Cost B1 + Rental value)**				50744.82	84.15
IV	**Cost C1**					
20	Family Human Labour			17.29	4063.15	6.74
21	**Cost C1 = (Cost B2 + Family Labour)**				54807.97	90.89
V	**Cost C2**					
22	Risk Premium				10	0.02
23	**Cost C2 = (Cost C1 + Risk Premium)**				54817.97	90.91
VI	**Cost C3**					
24	Managerial Cost				5481.8	9.09
25	**Cost C3 = (Cost C2 + Managerial Cost)**				60299.77	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		7.66	34073.65	
		b) Main Crop Sales Price (Rs.)			4450	
	By Product	e) Main Product (q)		0.49	148.2	
		f) Main Crop Sales Price (Rs.)			300	
b.	Gross Income (Rs.)				34221.85	
c.	Net Income (Rs.)				-26077.92	
d.	Cost per Quintal (Rs./q.)				7875.12	
e.	Benefit Cost Ratio (BC Ratio)				1:0.6	

Cost of Cultivation of Jowar: The data regarding the cost of cultivation (Rs/ha) of Jowar in Ashanal-4 micro watershed is presented in Table 37.d. The results indicate that, the total cost of cultivation (Rs/ha) for Jowar was Rs. 40188.22. The gross income realized by the farmers was Rs.29047.63. The net income from Jowar cultivation was Rs. -11140.59, thus the benefit cost ratio was found to be 1:0.70.

Table 37(d). Cost of Cultivation of Jowar in Ashanal-4 micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	61.88	13043.79	32.46
2	Bullock		Pairs/day	3.01	2825.64	7.03
3	Tractor		Hours	3.4	2474.34	6.16
4	Machinery		Hours	0.13	101.05	0.25
5	Seed Main Crop (Establishment and Maintenance)		Kgs (Rs.)	18.21	1166.3	2.9
7	FYM		Quintal	0.95	1951.34	4.86
8	Fertilizer + micronutrients		Quintal	5.01	5006.01	12.46
9	Pesticides (PPC)		Kgs / liters	0.85	848.77	2.11
10	Irrigation		Number	0	0	0
11	Repairs			0	0	0
12	Msc. Charges (Marketing costs etc)			0	0	0
13	Depreciation charges			0	1500.28	3.73
14	Land revenue and Taxes			0	0	0
II	**Cost B1**					
16	Interest on working capital				1077.89	2.68
17	**Cost B1 = (Cost A1 + sum of 15 and 16)**				29995.42	74.64
III	**Cost B2**					
18	Rental Value of Land				196.97	0.49
19	**Cost B2 = (Cost B1 + Rental value)**				30192.39	75.13
IV	**Cost C1**					
20	Family Human Labour			25.75	6332.36	15.76
21	**Cost C1 = (Cost B2 + Family Labour)**				36524.74	90.88
V	**Cost C2**					
22	Risk Premium				10	0.02
23	**Cost C2 = (Cost C1 + Risk Premium)**				36534.74	90.91
VI	**Cost C3**					
24	Managerial Cost				3653.47	9.09
25	**Cost C3 = (Cost C2 + Managerial Cost)**				40188.22	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		13.94	28578.02	
		b) Main Crop Sales Price (Rs.)			2050	
	By Product	e) Main Product (q)		0.92	469.61	
		f) Main Crop Sales Price (Rs.)			509.09	
b.	Gross Income (Rs.)				29047.63	
c.	Net Income (Rs.)				-11140.59	
d.	Cost per Quintal (Rs./q.)				2882.84	
e.	Benefit Cost Ratio (BC Ratio)				1:0.7	

Cost of Cultivation of Paddy: The data regarding the cost of cultivation (Rs/ha) of Paddy in Ashanal-4 micro watershed is presented in Table 37.e. The results indicate that, the total cost of cultivation (Rs/ha) for Paddy was Rs.40549.18. The gross income realized by the farmers was Rs. 45008.14. The net income from Paddy cultivation was Rs. 4458.96, thus the benefit cost ratio was found to be 1:1.10.

Table 37(e). Cost of Cultivation of Paddy in Ashanal-4 micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	45.01	8573.05	21.14
2	Bullock		Pairs/day	2.7	2697.87	6.65
3	Tractor		Hours	1.84	1839.26	4.54
4	Machinery		Hours	0	0	0
5	Seed Main Crop (Establishment and Maintenance)		Kgs (Rs.)	73.58	7358.5	18.15
7	FYM		Quintal	1.84	4598.15	11.34
8	Fertilizer + micronutrients		Quintal	7.24	6494.29	16.02
9	Pesticides (PPC)		Kgs / liters	0.61	613.09	1.51
10	Irrigation		Number	0	0	0
11	Repairs			0	0	0
12	Msc. Charges (Marketing costs etc)			0	0	0
13	Depreciation charges			0	0.01	0
14	Land revenue and Taxes			0	0	0
II	**Cost B1**					
16	Interest on working capital				2288.88	5.64
17	**Cost B1 = (Cost A1 + sum of 15 and 16)**				34463.1	84.99
III	**Cost B2**					
18	Rental Value of Land				183.33	0.45
19	**Cost B2 = (Cost B1 + Rental value)**				34646.44	85.44
IV	**Cost C1**					
20	Family Human Labour			9.81	2206.45	5.44
21	**Cost C1 = (Cost B2 + Family Labour)**				36852.89	90.88
V	**Cost C2**					
22	Risk Premium				10	0.02
23	**Cost C2 = (Cost C1 + Risk Premium)**				36862.89	90.91
VI	**Cost C3**					
24	Managerial Cost				3686.29	9.09
25	**Cost C3 = (Cost C2 + Managerial Cost)**				40549.18	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		35.56	42677.83	
		b) Main Crop Sales Price (Rs.)			1200	
	By Product	e) Main Product (q)		2.33	2330.31	
		f) Main Crop Sales Price (Rs.)			1000	
b.	Gross Income (Rs.)				45008.14	
c.	Net Income (Rs.)				4458.96	
d.	Cost per Quintal (Rs./q.)				1140.15	
e.	Benefit Cost Ratio (BC Ratio)				1:1.1	

Adequacy of fodder: The data regarding the adequacy of fodder in Ashanal-4 Micro watershed is presented in Table 38. The results indicate that, 35.29 per cent of the households opined that dry fodder was adequate.

Table 38. Adequacy of fodder in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Adequate-Dry Fodder	0	0	3	42.86	4	28.57	4	57.1	1	100	12	35.29

Average annual gross income: The data regarding the annual gross income in Ashanal-4 Micro watershed is presented in Table 39. The results indicate that, the farmers have annual gross income of Rs. 70561.76 in micro-watershed, of which Rs. 57885.29 is from agriculture itself.

Table 39. Average annual gross income in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	Service/salary	0	0	6785.71	0	0	2794.12
2	Wage	0	2571.43	9642.86	26142.9	0	9882.35
3	Agriculture	0	20428.6	93807.1	60400	89000	57885.3
Income(Rs.)		0	23000	110236	86542.9	89000	70561.8

Average annual Expenditure: The data regarding the average annual expenditure in Ashanal-4 Micro watershed is presented in Table 40. The results indicate that, the farmers have annual gross expenditure of Rs. 215928.57 in micro-watershed, of which Rs. 26558.82 is from agriculture itself.

Table 40. Average annual Expenditure in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	Service/salary	0	0	40000	0	0	1176.47
2	Wage	0	9000	11500	16800	0	4764.71
3	Agriculture	0	14200	37285.7	37142.9	50000	26558.8
Total		0	23200	88785.7	53942.9	50000	215929

Horticulture species grown: The data regarding horticulture species grown in Ashanal-4 Micro watershed is presented in Table 41. The results indicate that, the total number of horticultural trees grown (both field and backyard) by the sampled households were coconut (2) and Mango (4).

Table 41. Horticulture species grown in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		F	B	F	B	F	B	F	B	F	B	F	B
1	Coconut	0	0	0	0	0	2	0	0	0	0	0	2
2	Mango	0	0	0	0	4	0	0	0	0	0	4	0

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

Forest species grown: The data regarding forest species grown in Ashanal-4 Micro watershed is presented in Table 42. The results indicate that, households have planted 49 neem trees, 12 tamarind trees, 1 banyan trees together in both field and backyard.

Table 42. Forest species grown in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		F	B	F	B	F	B	F	B	F	B	F	B
1	Neem	0	0	2	0	28	6	12	1	0	0	42	7
2	Tamarind	0	0	0	0	7	1	4	0	0	0	11	1
3	Banyan	0	0	0	0	1	0	0	0	0	0	1	0

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

Average additional investment capacity: The data regarding average additional investment capacity in Ashanal-4 Micro watershed is presented in Table 43. The results indicate that, households have an average investment capacity of Rs. 1597.06 for land development, Rs. 88.24 for creation of irrigation facility, Rs.2470.59 for adoption of improved crop production and Rs.235.29 for adoption of improved livestock management.

Table 43. Average additional investment capacity of households in Ashanal-4 micro-watershed

Sl.No	Particulars	LL (5)	MF (7)	SF (14)	SMF (7)	MDF (1)	All (34)
1	Land development	0	2042.86	1142.86	2000	10000	1597.06
2	Irrigation facility	0	0	214.29	0	0	88.24
3	Improved crop production	0	3714.29	857.14	3714.29	20000	2470.59
4	Improved livestock management	0	285.71	142.86	428.57	1000	235.29

Source of funds for additional investment: The data regarding source of funds for additional investment in Ashanal-4 Micro watershed is presented in Table 44. The results indicate that, the sources of finance raised from own sources for land development was 38.24, for irrigation facility was 2.94 per cent, for improved crop production was 32.35 per cent and for improved livestock management was 11.8 per cent.

Table 44. Source of funds for additional investment in Ashanal-4 micro-watershed

Sl.No	Item	Land development		Irrigation facility		Improved crop production		Improved livestock management	
		N	%	N	%	N	%	N	%
1	own	13	38.24	1	2.94	11	32.35	4	11.8

Table 45. Marketing of agricultural produce in Ashanal-4 micro-watershed

Sl.No	Crops	Output obtained (q)	Output retained (q)	Output sold (q)	Output sold (%)	Avg. Price obtained (Rs/q)
1	Cotton	48	0	48	100	4360
2	Groundnut	22	1	21	95	4450
3	Jowar	195	7	188	96	2050
4	Paddy	120	10	110	92	1200
5	Redgram	89	3	86	97	4900

Marketing of agricultural produce: The data regarding marketing of the agricultural produce in Ashanal-4 Micro watershed is presented in Table 45. The results indicated that, 100.00 percent of output of cotton was sold in the market; 95.45 percent of output of

groundnut was sold in the market; 96.41 percent of output of jowar was sold in the market; 91.67 percent of output of paddy was sold in the market and 96.63 percent of output of redgram was sold in the market.

Marketing channels used for sale of agricultural produce: The data regarding marketing channels used for sale of agricultural produce in Ashanal-4 Micro watershed is presented in Table 46. The results indicated that, 82.35 cent of the households have sold agricultural produce to the local/village merchants and 2.94 per cent of regulated market.

Table 46. Marketing channels used for sale of agricultural produce in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Local/village Merchant	0	0	6	86	15	107	6	85.7	1	100	28	82.35
2	Regulated Market	0	0	0	0	0	0	1	14.3	0	0	1	2.94

Mode of transport of agricultural produce: The data regarding mode of transport of agricultural produce in Ashanal-4 Micro watershed is presented in Table 47. The results indicated that, 44.12 cent of the households have used tractor, 32.35 per cent have used Cart and 8.82 per cent carry by truck for the transport of agriculture commodity.

Table 47. Mode of transport of agricultural produce in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Cart	0	0	1	14	10	71.4	0	0	0	0	11	32.35
2	Tractor	0	0	3	43	5	35.7	6	85.7	1	100	15	44.12
3	Truck	0	0	2	29	0	0	1	14.3	0	0	3	8.82

Incidence of soil and water erosion problems: The data regarding incidence of incidence of soil and water erosion problems in Ashanal-4 Micro watershed is presented in Table 48. The results indicate that, 41.18 per cent of the households have experienced soil and water erosion problems.

Table 48. Incidence of soil and water erosion problems in Ashanal-4 micro-watershed

Sl.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Soil and water erosion problems in the farm	0	0	6	86	4	28.6	3	43	1	100	14	41.1

Interest towards soil testing: The data regarding Interest shown towards soil testing in Ashanal-4 Micro watershed is presented in Table 49. The results indicated that, 82.35 per cent of the households were interested towards soil testing.

Table 49. Interest regarding soil testing in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Interest in soil test	0	0	6	86	14	100	7	100	1	100	28	82.35

Usage pattern of fuel for domestic use: The data on usage pattern of fuel for domestic use in Ashanal-4 Micro watershed is presented in Table 50. The results indicated that,

firewood was the major source of fuel for domestic use for 32.35 per cent of the households followed by LPG (64.71%), Kerosene (0.00 %), Dung cake (0.00 %) and Biogas (2.94 %).

Table 50. Usage pattern of fuel for domestic use in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Fire Wood	2	40	1	14.3	7	50	1	14.3	0	0	11	32.35
2	Biogas	0	0	0	0	1	7.14	0	0	0	0	1	2.94

Source of drinking water: The data on source of drinking water in Ashanal-4 Micro watershed is presented in Table 51. The results indicated that, piped supply of water was the major source for drinking water for 97.06 per cent of the households followed by bore well water (2.94%).

Table 51. Source of drinking water in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Piped supply	5	100	7	100	14	100	6	85.7	1	100	33	97.06
2	Bore Well	0	0	0	0	0	0	1	14.3	0	0	1	2.94

Source of light: The data on source of light in Ashanal-4 Micro watershed is presented in Table 52. The results indicated that, electricity was the major source of light for 100.00 per cent of the households.

Table 52. Source of light in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Electricity	5	100	7	100	14	100	7	100	1	100	34	100

Existence of sanitary toilet facility: The data on availability of toilet facility in Ashanal-4 Micro watershed is presented in Table 53. The results indicated that, 26.47 per cent of the households possess toilets.

Table 53. Existence of sanitary toilet facility in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Sanitary toilet facility	5	100	1	14	1	7.14	1	14	1	100	9	26.5

Possession of PDS card: The data regarding possession of PDS card in Ashanal-4 Micro watershed is presented in Table 54. The results indicated that, 94.12 per cent of the households possessed BPL card and 5.88 per cent do not possess PDS card.

Table 54. Possession of PDS card in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	BPL	4	80	6	85.7	14	100	7	100	1	100	32	94.12
2	Not Possessed	1	20	1	14.3	0	0	0	0	0	0	2	5.88

Participation in NREGA programme: The data regarding Participation in NREGA programme in Ashanal-4 Micro watershed is presented in Table 55. The results indicated that, only 55.88 percent of the participate have participated in NREGA programme.

Table 55. Participation in NREGA programme in Ashanal-4 micro-watershed

Sl. No	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Participation in NREGA programme	2	40	1	14.3	12	85.7	4	57.1	0	0	19	55.9

Adequacy of food items: The data regarding adequacy of food items in Ashanal-4 Micro watershed is presented in Table 56. The results indicated that, the extent of adequacy of food items for cereals, pulses, Oilseeds and vegetables were 58.82, 50.00, 26.47, 61.76 per cent respectively, similarly for Fruits (35.29%) and milk (79.41%).

Table 56. Adequacy of food items in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Cereals	0	0	2	28.6	11	78.57	6	85.7	1	100	20	58.82
2	Pulses	0	0	2	28.6	9	64.29	5	71.4	1	100	17	50
3	Oilseed	0	0	2	28.6	4	28.57	2	28.6	1	100	9	26.47
4	Vegetables	5	100	6	85.7	6	42.86	3	42.9	1	100	21	61.76
5	Fruits	0	0	0	0	8	57.14	4	57.1	0	0	12	35.29
6	Milk	5	100	4	57.1	12	85.71	6	85.7	0	0	27	79.41

Inadequacy of food items: The data regarding in adequacy of food items in Ashanal-4 Micro watershed is presented in Table 57. The results indicated that, the extent of in adequacy of food items for cereals, pulses, Oilseeds and vegetables were 41.18, 50.00, 73.53, 35.29 and 97.06 per cent respectively, similarly for fruits (61.76%), milk (20.59%), egg (100.00%) and meat (97.06%).

Table 57. Inadequacy of food items in Ashanal-4 micro-watershed

Sl.No.	Particulars	LL (5)		MF (7)		SF (14)		SMF (7)		MDF (1)		All (34)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Cereals	5	100	5	71.4	3	21.43	1	14.3	0	0	14	41.18
2	Pulses	5	100	5	71.4	5	35.71	2	28.6	0	0	17	50
3	Oilseed	5	100	5	71.4	10	71.43	5	71.4	0	0	25	73.53
4	Vegetables	0	0	0	0	8	57.14	4	57.1	0	0	12	35.29
5	Fruits	5	100	7	100	5	35.71	3	42.9	1	100	21	61.76
6	Milk	0	0	3	42.9	2	14.29	1	14.3	1	100	7	20.59
7	Egg	5	100	7	100	14	100	7	100	1	100	34	100
8	Meat	4	80	7	100	14	100	7	100	1	100	33	97.06

Response on market surplus of food items: The data regarding adequacy of food items in Ashanal-4 Micro watershed is presented in Table 58. The results indicated that, the extent of adequacy of food items for fruits and vegetables were 2.94 per cent respectively,

Table 58. Response on market surplus of food items in Ashanal-4 micro-watershed

Sl. No.	**Particulars**	**LL** (5)		**MF** (7)		**SF** (14)		**SMF** (7)		**MDF** (1)		**All (34)**	
		N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	Vegetables	0	0	1	14.3	0	0	0	0	0	0	1	2.94
2	Fruits	0	0	0	0	1	7.14	0	0	0	0	1	2.94

Farming constraints: The data regarding farming constraints experienced by households in Ashanal-4 Micro watershed is presented in Table 59. The results indicated that, lower fertility status of the soil was the constraint experienced by (85.29 %) per cent of the households, wild animal menace on farm field (85.29%), frequent incidence of pest and diseases (55.88%), inadequacy of irrigation water (85.29%), high cost of fertilizers and plant protection chemicals (79.41%), high rate of interest on credit (85.29%), low price for the agricultural commodities (82.35 %), lack of marketing facilities in the area (55.88%), inadequate extension services (85.29 %) and lack of transport for safe transport of the agricultural produce to the market (79.41%).

Table 59. Farming constraints experienced in Ashanal-4 micro-watershed

SN	**Particulars**	**LL** (5)		**MF** (7)		**SF** (14)		**SMF** (7)		**MDF** (1)		**All (34)**	
		N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	Lower fertility status of the soil	0	0	6	85.71	14	100	7	100	1	100	29	85.29
2	Wild animal menace on farm field	0	0	6	85.71	14	100	7	100	1	100	29	85.29
3	Frequent incidence of pest and diseases	0	0	2	28.57	10	71.43	6	85.71	1	100	19	55.88
4	Inadequacy of irrigation water	0	0	6	85.71	14	100	7	100	1	100	29	85.29
5	High cost of Fertilizers and plant protection chemicals	0	0	6	85.71	14	100	6	85.71	1	100	27	79.41
6	High rate of interest on credit	0	0	6	85.71	14	100	8	114.29	1	100	29	85.29
7	Low price for the agricultural commodities	0	0	6	85.71	14	100	7	100	1	100	28	82.35
8	Lack of marketing facilities in the area	0	0	2	28.57	10	71.43	6	85.71	1	100	19	55.88
9	Inadequate extension services	0	0	6	85.71	14	100	7	100	1	100	29	85.29
10	Lack of transport for safe transport of the Agril produce to the market.	0	0	6	85.71	13	92.86	7	100	1	100	27	79.41

Chapter 5

SUMMARY AND IMPLICATIONS

In order to assess the socio-economic condition of the farmers in the watershed 34 households located in the micro watershed were interviewed for the survey. The study was conducted in Ashanal-4 micro-watershed (Ramasamudram sub-watershed, Yadgiri taluk & District) is located at North latitude 16^0 48' 11.49" and 16^0 46' 0.097" and East longitude 77^0 12' 45.296" and 77^0 11' 8.211"covering an area of about 451.34 ha bounded by under Kurakumbala, Mundaragi and Ashinala Villages.

Socio-economic analysis indicated that, out of the total sample of 34 respondents, 7 (20.59%) were marginal, 14(41.18%) were small and 7 (20.59%) were semi medium and 1 (2.94%) were medium farmers. The population characteristics of households indicated that, there were 114 (63.69%) men and 65 (36.31%) were women. Majority of the respondents (41.90%) were in the age group of 35-60 years. Education level of the sample households indicated that, majority there were 40.22 per cent illiterates and only 4.47 per cent attained graduation. About, 73.53 per cent of household heads practicing agriculture and 5.88 per cent of the household heads were engaged as agricultural labourers. Agriculture was the major occupation for 62.57 per cent of the household members.

In the study area, 85.29 per cent of the households possess katcha house and 8.82 per cent possess pucca house. The durable assets owned by the households showed that, 73.53 per cent possess TV, 58.82 per cent possess mixer grinder and 102.94 per cent possess mobile phones. Farm implements owned by the households indicated that, 32.35 per cent of the households possess plough and only 14.71 per cent sprayer. Regarding livestock possession by the households, 5.88 per cent possess local cow and 2.94 per cent possess buffalo respectively.

The average labour availability in the study area showed that**,** own labour men available in the micro watershed was 1.71, women available in the micro watershed was 1.53, hired labour (men) available was 9.38 and hired labour (women) available was 7.91. Further, 14.71 per cent of the households opined that hired labour was inadequate during the agricultural season. In the study area, about 2.23 per cent of the respondents migrated from the micro watershed in search of jobs with an average distance of 2720.00 kms for about 7.00 months.

Out of the total land holding of the sample respondents (40.65 ha), 85.67 per cent of the area is under dry condition and the remaining 12.33 per cent area is irrigated land. There were 2.00 bore wells among the sampled households. Bore well was the major source of irrigation for 5.88 per cent of the households. The major crops grown by sample farmers are Red gram, Cotton, Groundnut, Jowar and Paddy and cropping intensity was recorded as 100.00 per cent.

The sample households possessed 76.47 per cent bank account and 38.24 per cent of them have savings in the account. About 38.24 per cent of the respondents borrowed

credit from various sources. Among the credit borrowed by households, 53.85 per cent have borrowed loan from commercial banks and 38.46 per cent from Cooperative 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, Cotton, Groundnut, Jowar and Paddy was Rs.29628.77 , 33083.33, 60299.77, 40188.22, and 40549.18 with benefit cost ratio of 1:1.30, 1: 1.00, 1: 0.60, 1: 0.70, and 1:1.10 , respectively.

Further, 35.29 per cent of the households opined that dry fodder was adequate and 74.71 per cent of the households have opined that the green fodder was adequate.

The average annual gross income of the farmers was Rs. 70561.76 in micro-watershed, of which Rs. 57885.29 comes from agriculture.

Sampled households have grown horticulture crops was coconut (2) and Mango (4) trees in the fields and forest species have grown 49 neem trees, 12 tamarind trees, 1 banyan trees together in both field and backyard.

Households have an average investment capacity of Rs. 1597.06 for land development, Rs. 88.24 for creation of irrigation facility, Rs.2470.59 for adoption of improved crop production and Rs.235.29 for adoption of improved livestock management. Source of funds for additional investment is concerned, from own sources for land development was 38.24, for irrigation facility was 2.94 per cent, for improved crop production was 32.35 per cent and for improved livestock management was 11.8 per cent.

Regarding marketing channels, 82.35 per cent of the households have sold agricultural produce to the local/village merchants, while, 2.94 per cent have sold by Agents/Traders. Further, 44.12 per cent of the households have used tractor for the transport of agriculture commodity.

Majority of the farmers (41.18 %) have experienced soil and water erosion problems in the watershed and 82.35 per cent of the households were interested towards soil testing.

Firewood connection was the major source of fuel for domestic use for 32.35 per cent of the households and 64.71 per cent households has LPG. Piped supply was the major source for drinking water for 97.06 per cent of the households. Electricity was the major source of light for 100.00 per cent of the households. In the study area, 26.47 per cent of the households possess toilet facility. Regarding possession of PDS card, 94.12 per cent of the households possessed BPL card and 5.88 per cent do not possess PDS card. Cereals (58.82%), pulses (50.00%), oilseeds (26.47%) were adequate for consumption.

Farming constraints experienced by households in the micro watersheds were lower fertility status of the soil (85.29%) wild animal menace on farm field (85.29%), frequent

incidence of pest and diseases (55.88%), inadequacy of irrigation water (85.29%), high cost of fertilizers and plant protection chemicals (79.41%), high rate of interest on credit (85.29%), low price for the agricultural commodities (82.35%), lack of marketing facilities in the area (55.88%), inadequate extension services (85.29%) and lack of transport for safe transport of the agricultural produce to the market (79.41%).

Implications of the survey

- ✓ Result indicated that, there were 40.22 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, 85.29 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 34.83ha (85.67 %) of dry land and 5.01ha (12.33 %) of irrigated land hence, the availability of the dryland 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 5.88 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.
- ✓ Sampled households have grown horticulture crops was coconut (2) and Mango (4) trees in the fields and forest species have grown 49 neem trees, 12 tamarind trees, 1 banyan trees together in both field and backyard. Hence, production technologies related to these crops can be made available to the farmers for better adoption.
- ✓ 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.57885.29 from agriculture and Rs. 9882.35 from wages and. 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, 41.18 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, 82.35 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 (85.29%), wild animal menace on farm field (85.29%), frequent incidence of pest and diseases (55.88%), high cost of fertilizers and plant protection chemicals (79.41%), high rate of interest on credit (85.29%), low price for the agricultural commodities (82.35%), lack of marketing facilities in the area (55.88%), inadequate extension services (85.29%), lack of transport for safe transport of the agricultural produce to the market (79.41%) 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.