ICAR-NBSS&LUP Sujala MWS Publ.335

हर कदम, हर डगर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद
Agrisearch with a human touch

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

CHEPATA (4D5B4I2c) MICROWATERSHED

Gurumitkal 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 Chepata (4D5B4I2c) Microwatershed, Gurmitkal Hobli, Yadgir Taluk and District, Karnataka", ICAR-NBSS&LUP Sujala MWS Publ.335, ICAR – NBSS & LUP, RC, Bangalore. p.135 & 31.

TO OBTAIN COPIES,

Please write to:
Director, ICAR - NBSS & LUP,

Amaravati Road, NAGPUR - 440 033, India

Phone : (0712) 2500386, 2500664, 2500545 (O)

Telefax : 0712-2522534

E-Mail : director@nbsslup.ernet.in

Website URL : nbsslup.in

Or

Head, Regional Centre, ICAR - NBSS&LUP, Hebbal, Bangalore - 560 024

Phone : (080) 23412242, 23510350 (O)

Telefax : 080-23510350

E-Mail : nbssrcb@gmail.com

ICAR-NBSS&LUP Sujala MWS Publ.335

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

CHEPATA (4D5B4I2c) MICROWATERSHED

Gurumitkal Hobli, Yadgir Taluk and District, Karnataka

Karnataka Watershed Development Project – II

Sujala-III

World Bank funded Project

ICAR – NATIONAL BUREAU OF SOIL SURVEY AND LAND USE PLANNING

WATERSHED DEVELOPMENT DEPARTMENT, GOVT. OF KARNATAKA, BANGALORE

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 Chepata 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: 28-08-2019

S.K. SINGH
Director, ICAR - NBSS&LUP

Contributors

Dr. Rajendra Hegde Principal Scientist, Head & Project Leader, Sujala-III Project ICAR-NBSS&LUP, Regional Centre, Bangalore	**Dr. S.K.Singh** Director, ICAR-NBSS&LUP Coordinator, Sujala-III Project Nagpur
Soil Survey, Mapping & Report Preparation	
Dr. B.A. Dhanorkar	Sh. R.S. Reddy
Dr. K.V. Niranjana	Sh. Venkata Giriyappa
	Mr. Somashekar T N
	Smt. Chaitra, S.P.
	Dr. Gopali bardhan
	Ms. Arpitha
	Dr. Mahendra Kumar, M.B.
Field Work	
Sh. C.BacheGowda	Sh. Mahesh, D.B.
Sh. Somashekar	Sh. Ashok S Sindagi
Sh. M. Jayaramaiah	Sh. Veerabhadrappa B.
Sh. Paramesha, K.	Sh. Kailas
Sh. B. M. Narayana Reddy	Sh. Anand
	Sh. Arun N Kambar.
	Sh Kamalesh Awate
	Sh. Sharaan Kumar Huppar
	Sh. Yogesh H.N.
	Sh. Kalaveerachari R Kammar
GIS Work	
Dr. S.Srinivas	Sh. A.G.Devendra Prasad
Sh. D.H.Venkatesh	Sh. Prakashanaik, M.K.
Smt.K.Sujatha	Sh. Abhijith Sastry, N.S.
Smt. K.V.Archana	Sh. Sudip Kumar Suklabaidya
Sh. N. Maddileti	Sh. Avinash, K.N.
	Sh. Amar Suputhra, S
	Sh. Deepak, M.J.
	Smt. K.Karunya Lakshmi
	Ms. Seema, K.V.
	Ms. A. Rajab Nisha

Laboratory Analysis	
Dr. K.M.Nair	Ms. Steffi Peter
Smt. Arti Koyal	Ms. Thara, V.R
Smt. Parvathy	Ms. Roopa, G.
	Ms. Swati, H.
	Sh. Shantaveera Swami
	Ms. Shwetha, N.K.
	Smt. Ishrat Haji
	Ms. P. Pavan Kumari
	Ms. Padmaja
	Ms. Veena, M.
Socio-Economic Analysis	
Dr. S.C. Ramesh Kumar	Sh. M.K. Prakashanaik
	Ms. Karuna V. Kulkarni
	Mrs. Sowmya A.N
	Sh. Vinod R
	Sh. Basavaraja
	Sh. Vijay Kumar Lamani
	Ms. Sowmya K.B
	Mrs. Prathibha, D.G
	Sh. Rajendra,D
Soil & Water Conservation	
Sh. Sunil P. Maske	
Watershed Development Department, GoK, Bangalore	
Sh. Rajeev Ranjan IFS Project Director & Commissioner, WDD	Dr. A. Natarajan NRM Consultant, Sujala-III Project
Dr. S.D. Pathak IFS Executive Director & Chief Conservator of Forests, WDD	

PART-A

LAND RESOURCE INVENTORY

Contents

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

The land resource inventory of Chepata 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 935 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 868 ha in the microwatershed is covered by soils, 22 ha by rock outcrops and 45 ha by others (habitation and water body). The salient findings from the land resource inventory are summarized briefly below.

- *The soils belong to 11 soil series and 20 soil phases (management units) and 7 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 16 per cent area are very shallow to shallow (<25 to 50 cm), 15 per cent area of the microwatershed has soils that are moderately shallow (50-75 cm), 22 per cent moderately deep (75-100 cm) and 40 per cent area are deep to very deep (100 to >150 cm).*
- *About 13 per cent area in the microwatershed has loamy and 79 per cent clayey soils at the surface.*
- *Maximum of 53 per cent area in the microwatershed is non gravelly (<15%) and 40 per cent is gravelly (15-35%).*

- *About 33 per cent area of the microwatershed is very high (>200 mm/m) in available water capacity, 14 per cent area medium (101-150 mm/m), 23 per cent area low (51-100 mm/m) and 23 per cent area very low (<50 mm/m) in available water capacity.*
- *Maximum of 86 per cent area in the microwatershed is very gently sloping (1-3% slope), <1 per cent area is nearly level (0-1%) and 7 per cent area is gently sloping (3-5%) lands.*
- *An area of about <1 per cent in the microwatershed is slightly (e1) eroded, 84 per cent area is moderately (e2) eroded and 8 per cent area is severely (e3) eroded lands.*
- *An area of about 24 per cent is slightly acid (pH 6.0-6.5) in soil reaction, 68 per cent is neutral (pH 6.5-7.3) and <1 per cent soils is slightly alkaline (pH 7.3-7.8).*
- *The Electrical Conductivity (EC) of the entire soils of the microwatershed is dominantly <2 dsm^{-1} indicating that the soils are non-saline.*
- *Entire area of the microwatershed is high (>0.75%) in organic carbon.*
- *21 per cent area is high (>57 kg/ha) in available phosphorus, 26 per area is medium (23-57 kg/ha) and 46 per area is low (<23 kg/ha).*
- *About 80 per cent is medium (145-337 kg/ha) in available potassium and 13 per cent is high (>337 kg/ha).*
- *Available sulphur is low (<10 ppm) in an area of about 23 per cent and medium (10 -20 ppm) in 70 per cent.*
- *About 60 per cent area is low (<0.5 ppm) in available boron and 32 per cent is medium (0.5-1.0 ppm).*
- *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.*
- *About 82 per cent area is deficient (<0.6 ppm) in available zinc and 11 per cent is sufficient (>0.6 ppm).*
- *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	-	*650(70)*		*Guava*	*63(7)*	*138(15)*
Maize	*98(10)*	*552(59)*		*Sapota*	*63(7)*	*138(15)*
Bajra	*143(15)*	*508(54)*		*Pomegranate*	*63(7)*	*435(47)*
Groundnut	*143(15)*	*166(18)*		*Musambi*	*63(7)*	*435(47)*
Sunflower	-	*498(53)*		*Lime*	*63(7)*	*435(47)*
Redgram	-	*513(55)*		*Amla*	*143(15)*	*196(21)*
Bengal gram	-	*297(32)*		*Cashew*	-	*63(7)*
Cotton	-	*319(42)*		*Jackfruit*	*63(7)*	*138(15)*
Chilli	*98(10)*	*480(51)*		*Jamun*	*63(7)*	-
Tomato	*98(10)*	*183(20)*		*Custard apple*	*143(15)*	*493(53)*
Brinjal	*98(10)*	*183(20)*		*Tamarind*	*63(7)*	-
Onion	*98(10)*	*183(20)*		*Mulberry*	*63(7)*	*138(15)*
Bhendi	*98(10)*	*480(51)*		*Marigold*	*98(10)*	*480(51)*
Drumstick	*63(7)*	*138(15)*		*Chrysanthemum*	*98(10)*	*480(51)*
Mango	*63(7)*	-				

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

Chapter 1

INTRODUCTION

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

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

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

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

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

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

The land resource inventory aims to provide site-specific database for Chepata 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 Chepata microwatershed is located in the northern part of Karnataka in Yadgir Taluk and District, Karnataka State (Fig.2.1). It comprises parts of Kakalawara, Chapetla, Gajarakota, Mitathapadampalli & Yadhalapura villages. It lies between 16^0 48' – 16^0 47' north latitudes and 77^0 18' – 77^0 20' east longitudes, covering an area of about 934.79 ha. It is about 46 km southeast of Yadgir town and is surrounded by Kakalawara on the east, Chapetla on the south, Gajarakota on the west, Mitathapadampalli on the northwest and north and Yadhalapura on the western side of the microwatershed.

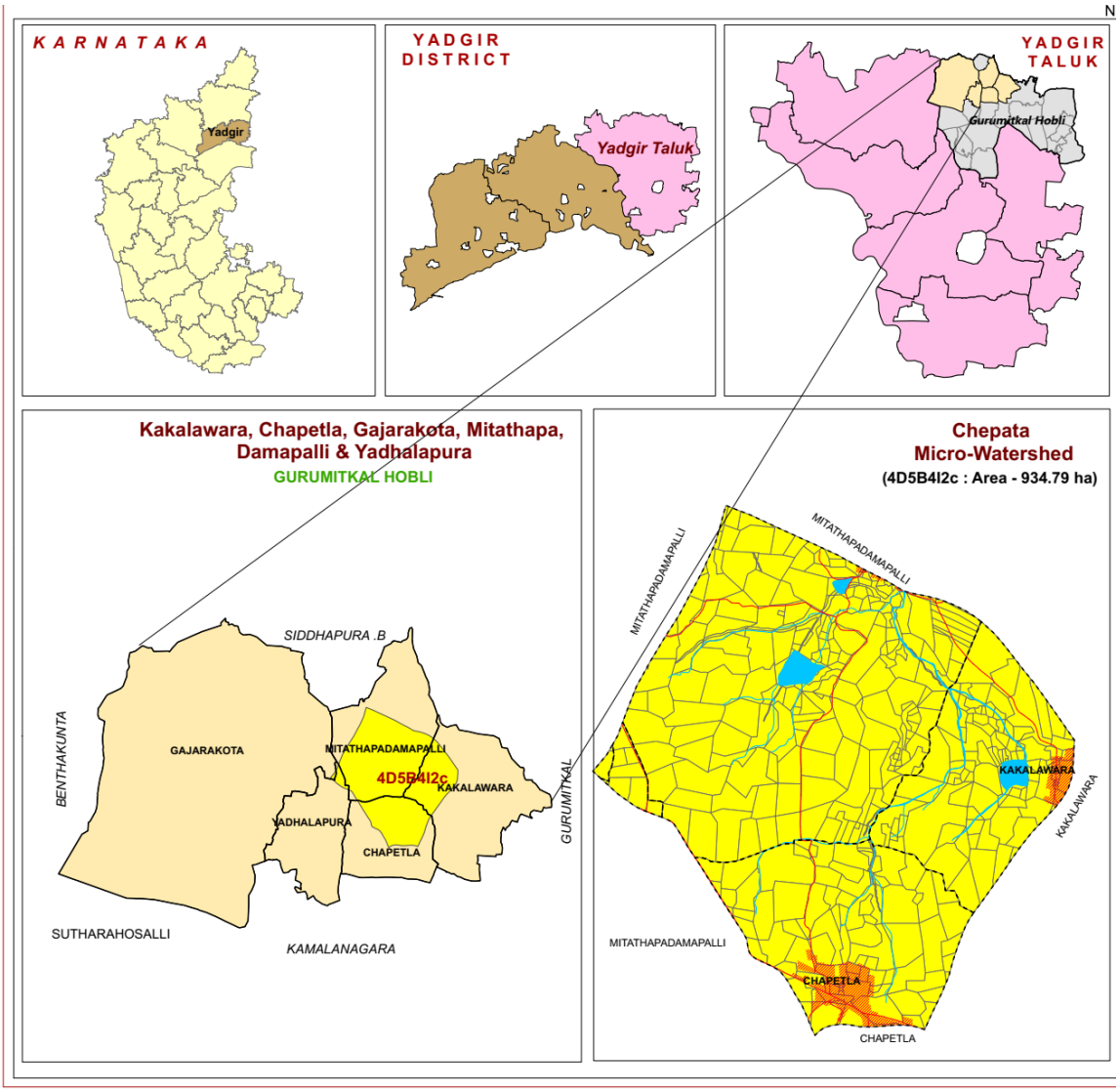


Fig.2.1 Location map of Chepata microwatershed

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 Chepata microwatershed.

Fig.2.2 Granite and granite gneiss rocks formation

2.3 Physiography

Physiographically, the area has been identified as granite gneiss landscape. 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 523-620 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^{0}C and 10^{0}C respectively. During peak summer, temperature shoots up to 45^{0}C. Relative humidity varies from 26% in summer to 62% in winter. Rainfall distribution is shown in Figure 2.3. The average Potential Evapo-Transpiration (PET) is 141 mm and varies from a low of 81 mm in December to 199 mm in the month of May. The PET is always higher than precipitation in all the months except end of June to end of September. Generally, the Length of crop Growing Period (LGP) is 120-150 days and starts from 1st week of June to 4th week of October.

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

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

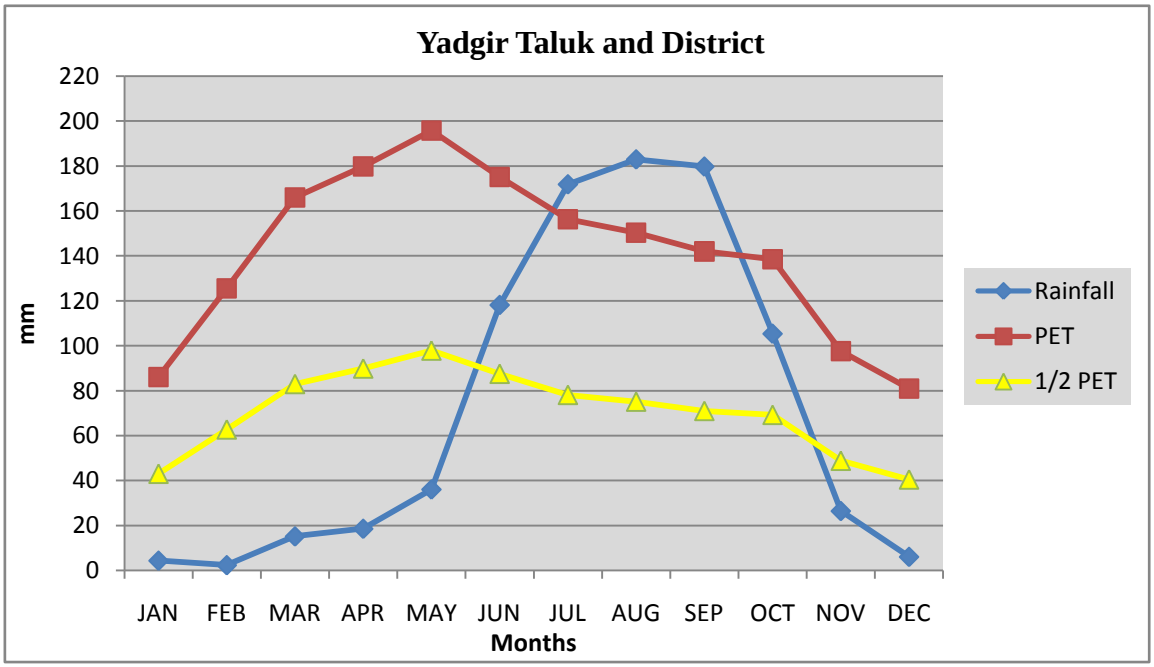


Fig 2.3 Rainfall distribution in Yadgir Taluk and District

2.6 Natural Vegetation

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

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

Fig 2.4 Natural vegetation of Chepata microwatershed

2.7 Land Utilization

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

Table 2.2 Land Utilization in Yadgir District

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

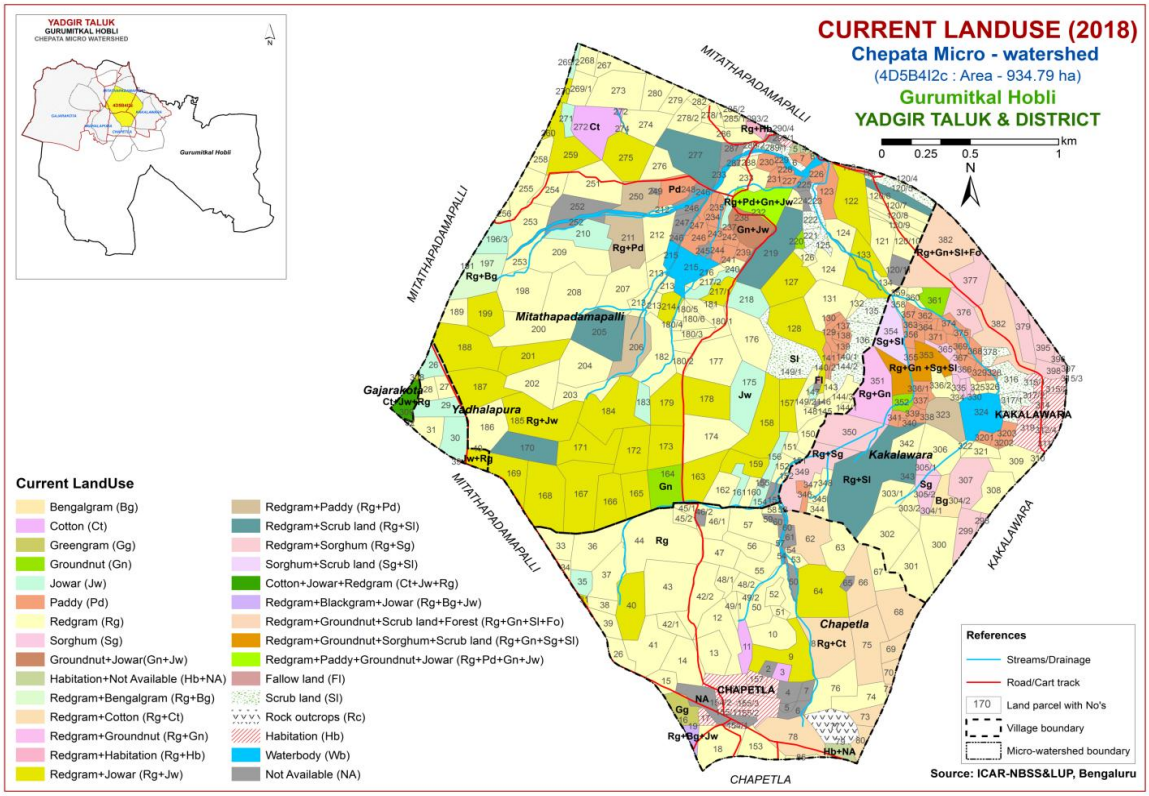


Fig.2.5 Current Land Use map of Chepata microwatershed

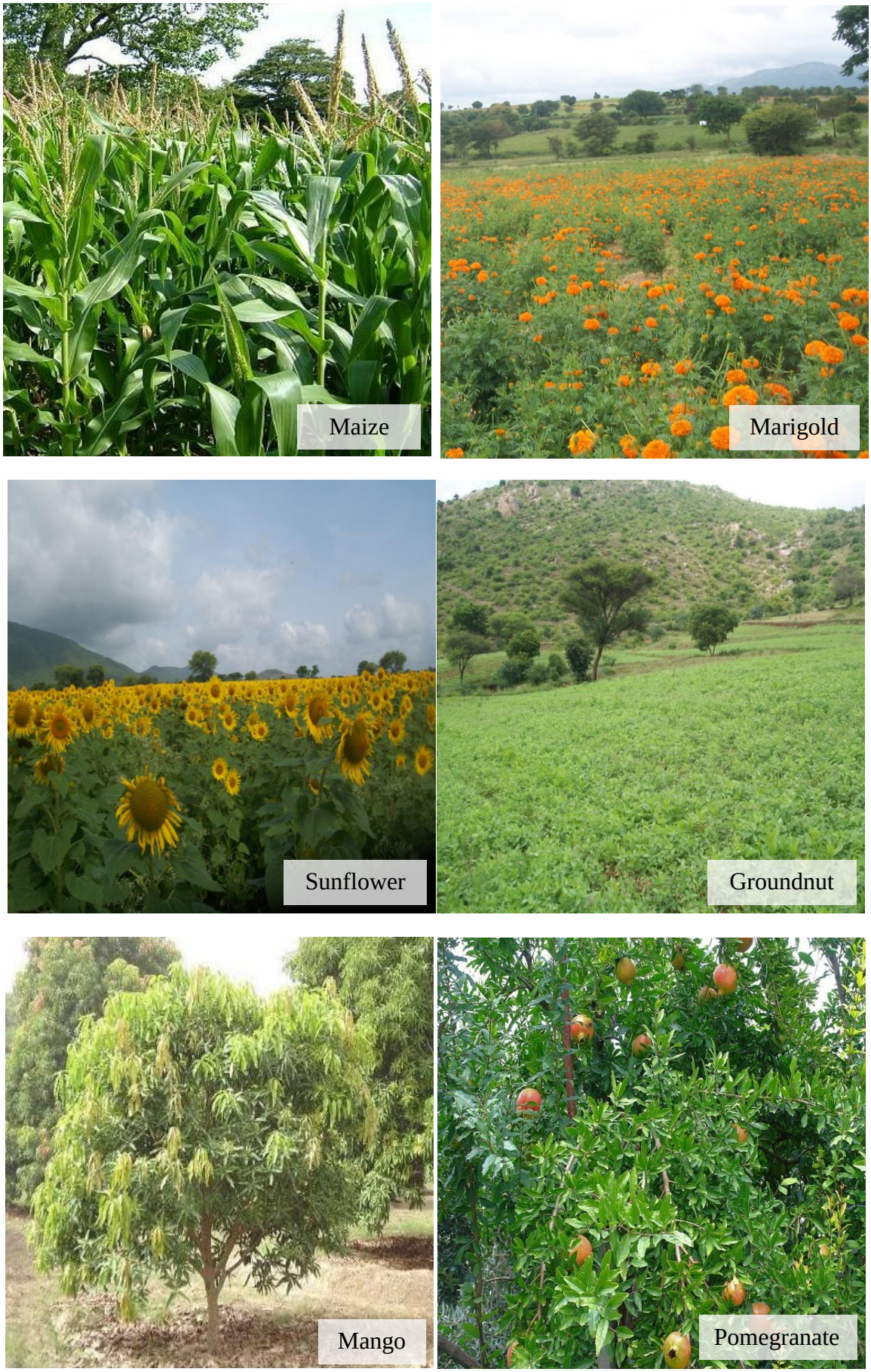


Fig. 2.6 a. Different Crops and Cropping Systems in Chepata microwatershedv

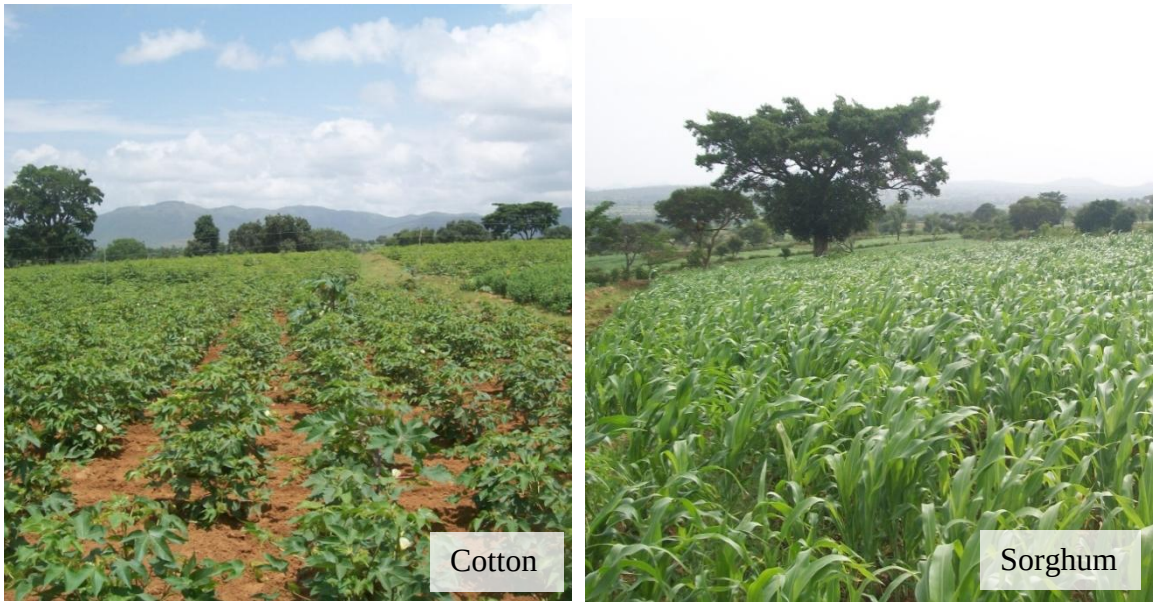


Fig. 2.6 b. Different Crops and Cropping Systems in Chepata microwatershed

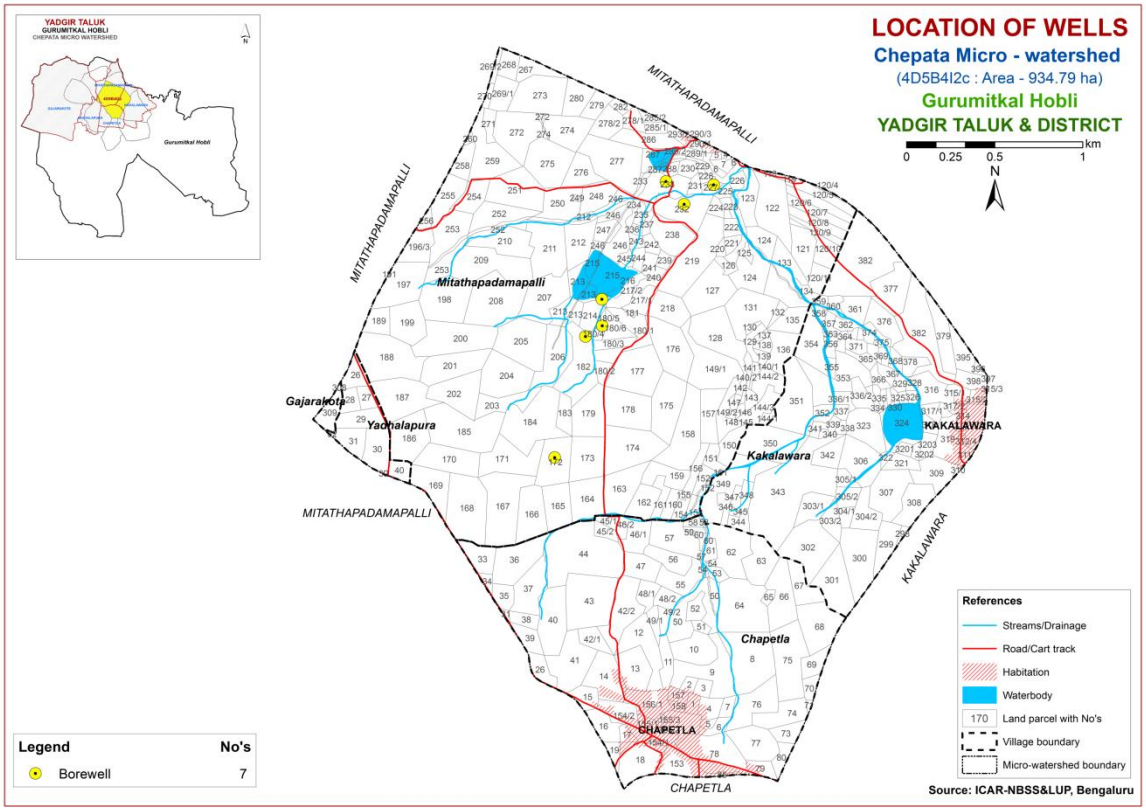


Fig. 2.7 Location of wells in Chepata microwatershed

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 Chepata microwatershed by the detailed study of all the soil characteristics (depth, texture, colour, structure, consistence, coarse fragments, porosity, soil reaction, soil horizons etc.) and site characteristics (slope of the land, erosion, drainage, occurrence of rock fragments etc.) followed by grouping of similar areas based on soil-site characteristics into homogeneous (management units) units, and showing the area extent and their geographic distribution on the microwatershed cadastral map. The detailed survey at 1:7920 scale was carried out in an area of 935 ha. The methodology followed for carrying out land resource inventory was as per the guidelines given in Soil Survey Manual (IARI, 1971; Soil Survey Staff, 2006; Natarajan *et al.,* 2015) which is briefly described below.

3.1 Base Maps

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

3.2 Image Interpretation for Physiography

False Colour Composites (FCCs) of Cartosat-I and LISS-IV merged satellite data covering microwatershed area was visually interpreted using image interpretation elements and all the available collateral data with local knowledge. The delineated physiographic boundaries were transferred on to a cadastral map overlaid on satellite imagery. Physiographically, the area has been identified as granite gneiss 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

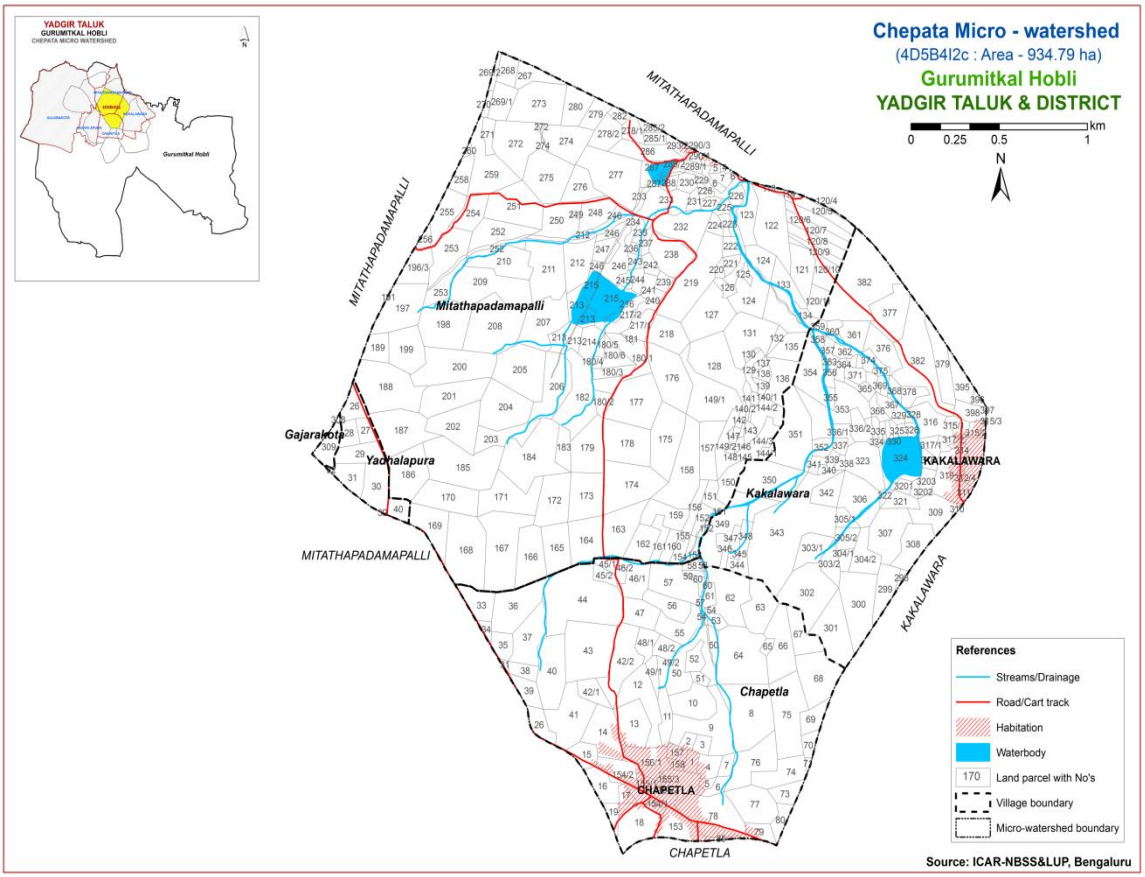


Fig 3.1 Scanned and Digitized Cadastral map of Chepata microwatershed

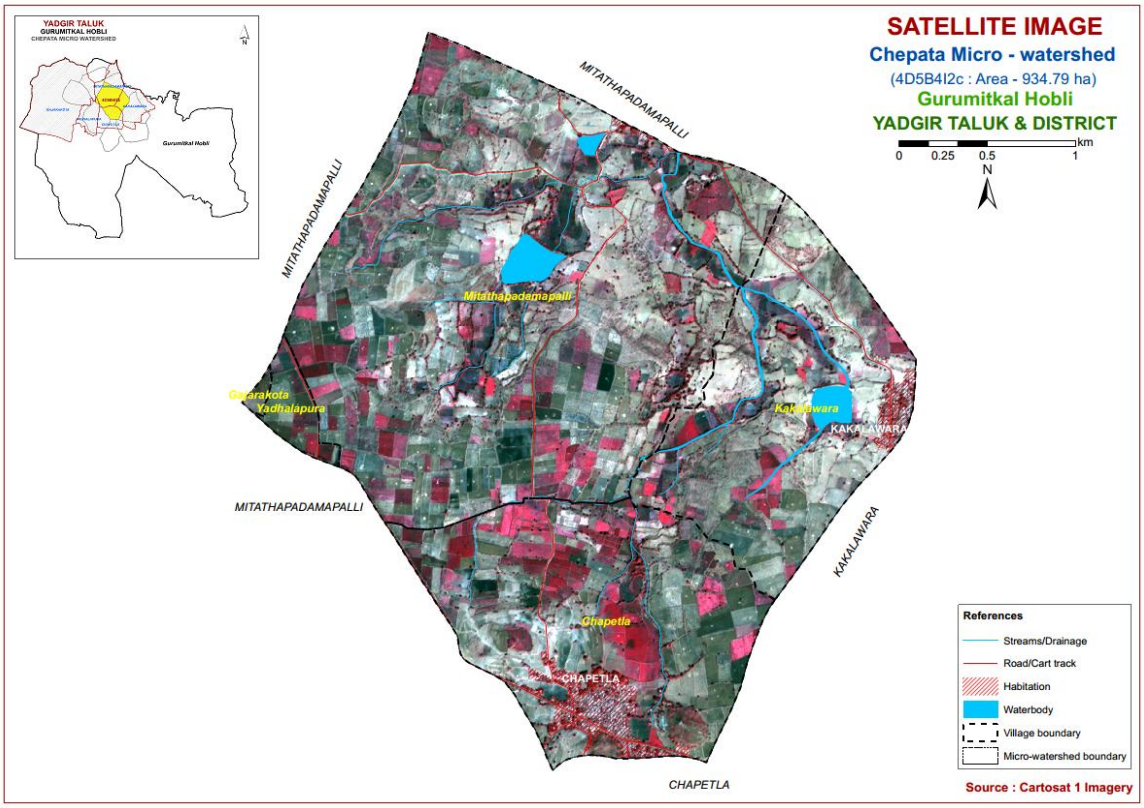


Fig.3.2 Satellite Image of Chepata microwatershed

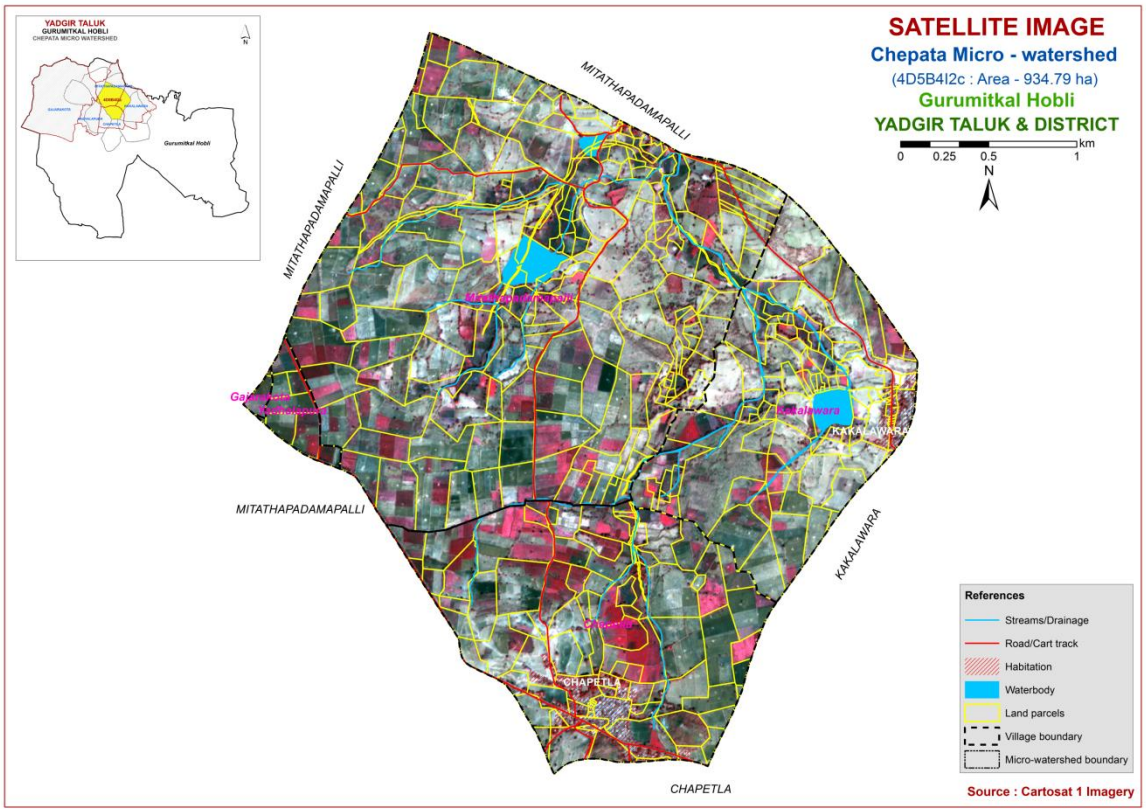


Fig.3.3 Cadastral map overlaid on IRS PAN+LISS IV merged imagery of Chepata microwatershed

3.3 Field Investigation

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

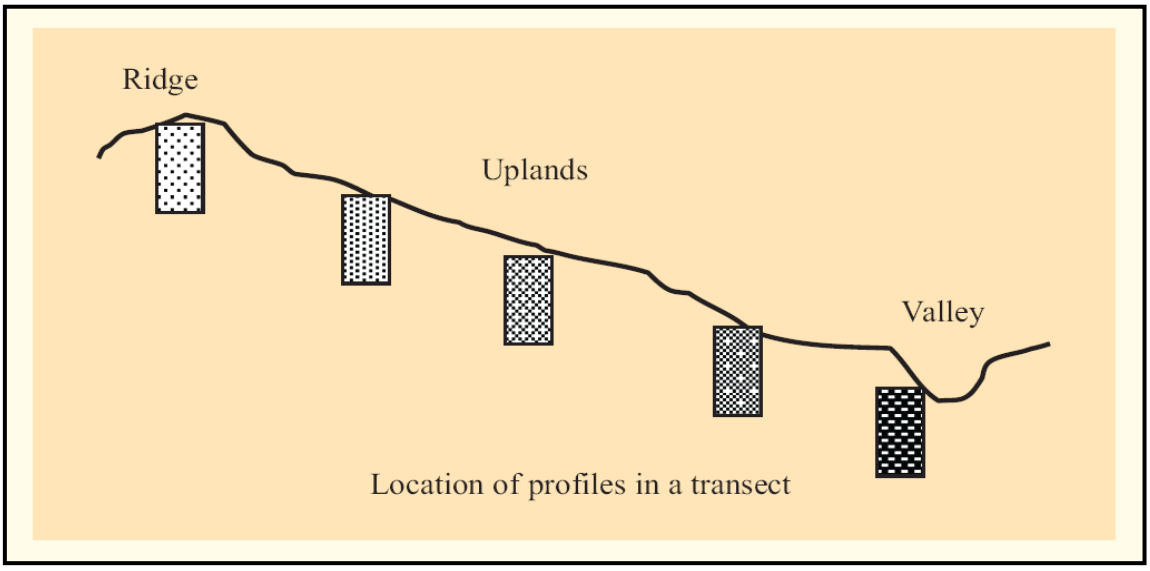


Fig: 3.4. Location of profiles in a transect

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

Based on the soil characteristics, the soils were grouped into different soil series. Soil series is the most homogeneous unit having similar horizons and properties and behaves similarly for a given level of management. Soil depth, texture, colour, kind of horizon and horizon sequence, calcareousness, amount and nature of gravel present, nature of substratum *etc*, were used as the major differentiating characteristics for

identifying soil series occurring in the area. The differentiating characteristics used for identifying the soil series are given in Table 3.1. Based on the above characteristics, 11 soil series were identified in the Chepata microwatershed.

Table 3.1 Differentiating Characteristics used for identifying soil Series

(Characteristics are of Series Control Section)

Soils of Granite gneiss Landscape							
Sl. no	**Soil Series**	**Depth (cm)**	**Colour (moist)**	**Texture**	**Gravel (%)**	**Horizon sequence**	**Calcareous-ness**
1	BDP (Baddeppalli)	<25	7.5YR 3/2, 3/4 5YR 3/4	scl	-	Ap-Ac	es
2	BDL (Badiyala)	25-50	7.5YR 2.5/3, 2.5/2,3/3 10YR3/4,4/3	sl	-	Ap-Bw	e
3	YLR (Yelleri)	50-75	2.5YR 3/4, 4/4 5YR 3/4, 7.5 YR 4/4	c	15-35	Ap-Bt	-
4	JNK (Jinkera)	50-75	10YR 3/1,3/2 7.5YR3/4	scl	-	Ap-Bw	e
5	GWD (Gowdagera)	75-100	10YR 3/1,3/2, 4/2	scl	-	Ap-Bw	es
6	KBD (Kalabelagundi)	75-100	2.5YR 4/4, 4/3 5YR 4/2, 4/3	g scl	35-60	Ap-Bt	-
7	SHT (Shettalli)	75-100	10YR 3/1	scl	15-35	Ap-Bw	e
8	MDG (Mundaragi)	100-150	10YR 4/4, 3/3 7.5YR 4/4	scl	-	Ap-Bw	-
9	NGP (Nagalapur)	100-150	10YR3/2,3/1,2/1	c	-	Ap-Bss	es
10	BMN (Bhimanahalli)	>150	10YR 3/1	c	-	Ap-Bss	es
11	BMD (Bommaraladoddi)	>150	5YR 3/3, 4/1, 4/3, 4/6	scl	-	Ap-Bt	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 20 mapping units representing 11 soil series occurring in the microwatershed. The soil map unit (soil legend) description

is presented in Table 3.2. The soil phase map (management units) shows the distribution of 20 soil phases mapped in the microwatershed. Each mapping unit (soil phase) delineated on the map has similar soil and site characteristics. In other words, all the farms or survey numbers included in one phase will have similar management needs and have to be treated accordingly.

3.5 Land Management Units

The 20 soil phases identified and mapped in the microwatershed were grouped into 7 Land Management Units (LMU's) for the purpose of preparing a Proposed Crop Plan for sustained development of the microwatershed. The database (soil phases) generated under LRI was utilized for identifying Land Management Units (LMU's) based on the management needs. One or more than one soil site characteristic having influence on the management have been chosen for identification and delineation of LMUs. For Chepata microwatershed, five soil and site characteristics, namely soil depth, soil texture, slope, erosion and gravel content have been considered for defining LMUs. The Land Management Units are expected to behave similarly for a given level of management.

3.6 Laboratory Characterization

Soil samples were collected from representative master profiles for laboratory characterization by following the methods outlined in the Laboratory Manual (Sarma *et al*, 1987). Surface soil samples collected from farmer's fields (93 samples) for fertility status (major and micronutrients) at 320 m grid interval in the year 2018 were analyzed in the laboratory (Katyal and Rattan, 2003). By linking the soil fertility data to the survey numbers through GIS, soil fertility maps were generated by using Kriging method for the microwatershed.

Table 3.2 Soil map unit description of Chepata 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 soils occurring on very gently sloping uplands under cultivation		**38 (4.05)**
119		BDPiB3	Sandy clay surface, slope 1-3%, severe erosion	38 (4.05)
	BDL	Badiyala soils are shallow (25-50 cm), well drained, have dark brown to very dark brown and dark yellowish brown, slightly calcareous sandy loam soils occurring on very gently to gently sloping uplands under cultivation		**116 (12.31)**
4		BDLhB2	Sandy clay loam surface, slope 1-3%, moderate erosion	16 (1.66)
162		BDLhB2g1	Sandy clay loam surface, slope 1-3%,	12

*Soil map unit No.	Soil Series	Soil Phase	Mapping Unit Description	Area in ha(%)
			moderate erosion, gravelly (15-35%)	(1.27)
5		BDLiB2	Sandy clay surface, slope 1-3%, moderate erosion	57 (6.08)
6		BDLiB3	Sandy clay surface, slope 1-3%, moderate erosion	31 (3.3)
	YLR	Yalleri soils are moderately shallow (50-75 cm), well drained, have brown to reddish brown and dark reddish brown, clay red soils occurring on very gently to gently sloping uplands under cultivation		**29 (3.08)**
30		YLRcC3	Sandy loam surface, slope 3-5%, severe erosion	7 (0.72)
31		YLRiB2	Sandy clay surface, slope 1-3%, moderate erosion	22 (2.36)
	JNK	Jinkera soils are moderately shallow (50-75 cm), well drained, have dark brown to very dark grayish brown, slightly calcareous sandy clay loam soils occurring on very gently sloping uplands under cultivation		**108 (11.6)**
152		JNKmB2	Clay surface, slope 1-3%, moderate erosion	108 (11.6)
	GWD	Gowdagera soils are moderately deep (75-100 cm), moderately well drained, have dark grayish brown to very dark grayish brown, calcarious, sodic sandy clay loam soils occurring on very gently sloping uplands under cultivation		**64 (6.85)**
150		GWDiB2g1	Sandy clay surface, slope 1-3%, moderate erosion, gravelly (15-35%)	64 (6.85)
	KBD	Kalabelagundi soils are moderately deep (75-100 cm), well drained, have reddish brown to dark reddish brown and dark reddish gray, gravelly sandy clay loam soils occurring on very gently sloping uplands under cultivation		**58 (6.16)**
164		KBDcC2g1	Sandy loam surface, slope 3-5%, moderate erosion, gravelly (15-35%)	58 (6.16)
	SHT	Shettalli soils are moderately deep (75-100 cm), well drained, have very dark gray, slightly calcariuos, gravelly sandy clay loam soils occurring on very gently sloping uplands under cultivation		**80 (8.58)**
129		SHTiB2	Sandy clay surface, slope 1-3%, moderate erosion	55 (5.88)
112		SHTmB2	Clay surface, slope 1-3%, moderate erosion	25 (2.7)
	MDG	Mundargi soils are deep (100-150 cm), moderately well drained, have brown to dark yellowish brown, sandy clay loam soils occurring on very gently sloping uplands under cultivation		**15 (1.59)**
149		MDGhB2g1	Sandy clay loam surface, slope 1-3%, moderate erosion, gravelly (15-35%)	15 (1.59)
	NGP	Nagalapur soils are deep (100-150 cm), moderately well drained, have very dark gray to very dark grayish brown,		**137 (14.63)**

*Soil map unit No.	Soil Series	Soil Phase	Mapping Unit Description	Area in ha(%)
		black calcareous cracking clay soils occurring on very gently sloping uplands under cultivation		
49		NGPmB2	Clay surface, slope 1-3%, moderate erosion	68 (7.26)
146		NGPmB2g1	Clay surface, slope 1-3%, moderate erosion, gravelly (15-35%)	69 (7.37)
	BMN	Bhimanahalli soils are very deep (>150 cm), moderately well drained, have very dark gray, calcareous cracking clay black soils occurring on nearly level to very gently sloping uplands under cultivation		**161 (17.19)**
159		BMNmA1	Clay surface, slope 0-1%, slight erosion	2 (0.24)
62		BMNmB2	Clay surface, slope 1-3%, moderate erosion	52 (5.53)
63		BMNmB2g1	Clay surface, slope 1-3%, moderate erosion, gravelly (15-35%)	107 (11.42)
	BMD	Bomraldoddi soils are very deep (>150 cm), well drained, have dark gray, reddish brown to dark reddish brown and yellowish red, slightly calcarious, sandy clay loam soils occurring on very gently sloping uplands under cultivation		**63 (6.76)**
64		BMDcB2	Sandy loam surface, slope 1-3%, moderate erosion	18 (1.91)
65		BMDiB2g1	Sandy clay surface, slope 1-3%, moderate erosion, gravelly (15-35%)	45 (4.85)
999		Rock outcrops	Rock lands, both massive and bouldery with little or no soil	**22 (2.38)**
1000		Others	Habitation and waterbody	**45 (4.83)**

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

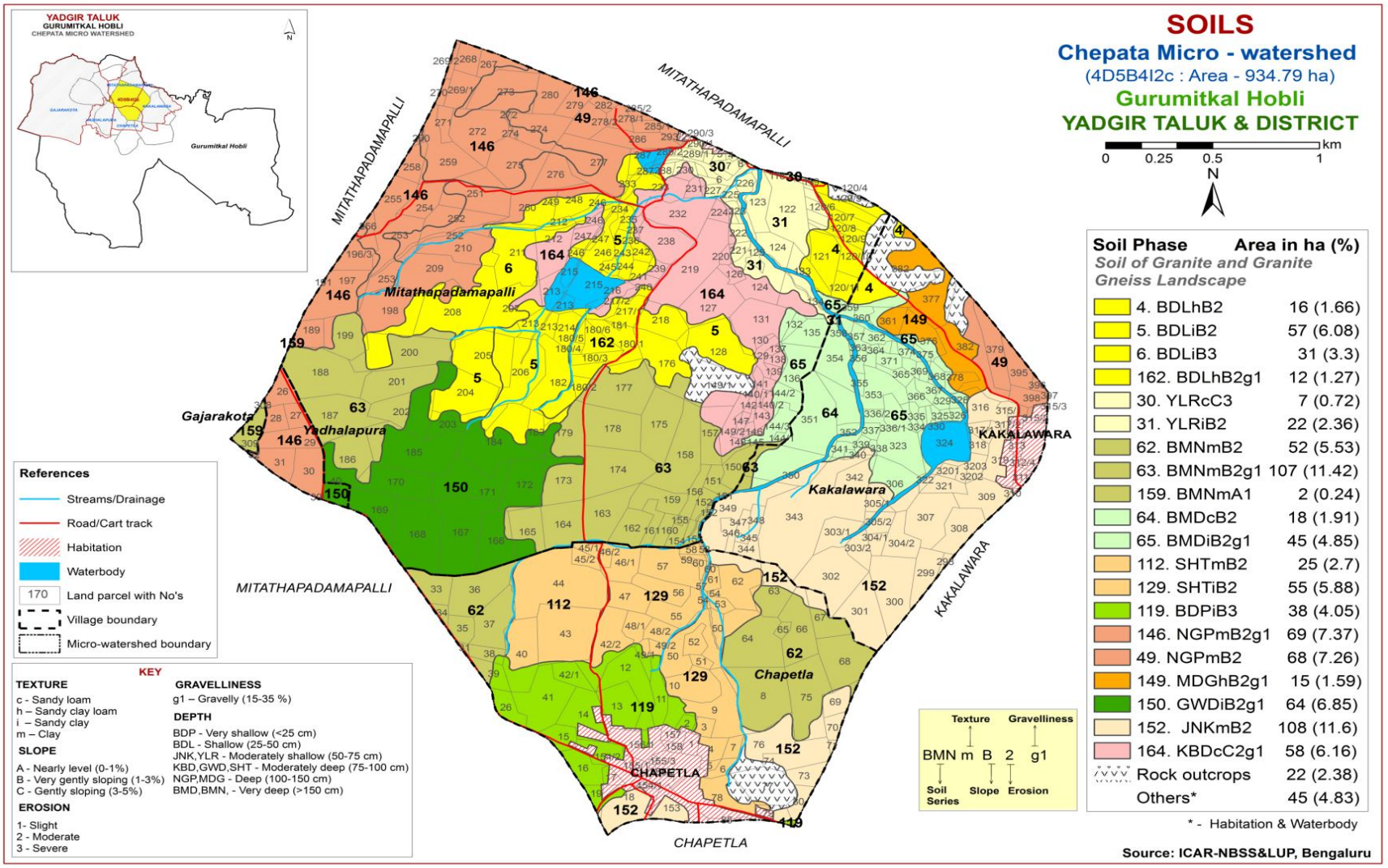


Fig 3.5 Soil phase or Management Units - Chepata microwatershed

Chapter 4

THE SOILS

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

A brief description of each of the 11 soil series identified followed by 20 soil phases (management units) mapped under each series are furnished below. The physical and chemical characteristics of soil series identified in Chepata microwatershed are given in Table 4.1 along with soil classification. The soils in any one map unit differ from place to place in their depth, texture, slope, gravelliness, erosion or any other site characteristic that affect management. The soil phase map can be used for identifying the suitability of areas for growing specific crops or for other alternative uses and also for deciding the type of conservation structures needed. The detailed information on soil and site-characteristics like soil depth, surface soil texture, slope, erosion, gravelliness, AWC, LCC etc, with respect to each of the soil phase identified is given village/survey number wise for the microwatershed in Appendix-I.

4.1 Soils of granite gneiss landscape

In this landscape, 9 soil series are identified and mapped. Of these, BMN series occupies maximum area of 161 ha (17%) followed by 137 ha (15%), 116 ha (12%), 108 (12%), 80 ha (9%), GWD 64 ha (7%), BMD 63 ha (7%), KBW 58 ha (6%), BDP 38 ha (4%), YLR 29 ha (3%) and MDG 15 ha (2%). 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 Baddepalli series has been classified as a member of the loamy, mixed, calcareous, 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 Badiyala (BDL) Series: Badiyala soils are shallow (25-50 cm), well drained, have very dark brown to dark yellow brown and dark brown, slightly calcareous sandy loam soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands under cultivation. The Badiyala series has been classified as a member of the coarse-loamy, mixed, isohyperthermic family of Fluventic Haplustepts.

The thickness of the solum ranges from 28 to 50 cm. The thickness of A horizon ranges from 4 to 12 cm. Its colour is in 10YR hue with value 3 to 4 and chroma 3 to 4. The texture is loamy sand, sandy clay loam and sandy clay. The thickness of B horizon ranges from 27 to 45 cm. Its colour is in 10 YR and 7.5 YR hue with value 2 to 4 and chroma 3 to 4. Its texture is sandy loam to sandy clay loam and is slightly calacreous. The available water capacity is very low (<50mm/m). Three phases were identified and mapped.

Landscape and Soil Profile characteristics of Badiyala (BDL) Series

4.1.3 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). Five phases were identified and mapped.

Landscape and Soil Profile characteristics of Jinkera (JNK) Series

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

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

Landscape and Soil Profile characteristics of Yalleri (YLR) Series

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

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

Landscape and Soil Profile characteristics of Gowdagera (GWD) Series

4.1.6 Kalabelagundi (KBD) Series: Kalabelagundi soils are moderately deep (75-100 cm), well drained, have dark reddish brown to dark reddish grey and reddish brown, gravelly sandy clay loam soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands under cultivation. The Kalabelagundi series has been classified as a member of the loamy-skeletal, mixed, isohyperthermic family of Typic Haplustalfs.

The thickness of the solum ranges from 75 to 98 cm. The thickness of A horizon ranges from 10 to 19 cm. Its colour is in hue 5 YR and 7.5 YR with value 3 to 4 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 70 to 84 cm. Its colour is in hue 5 YR and 2.5YR with value 3 to 4 and chroma 2 to 4. Its texture is sandy clay loam to sandy clay with gravel content of 35-60 per cent. The available water capacity is very low (<50 mm/m).

Landscape and Soil Profile characteristics of Kalabelagundi (KBD) Series

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

The thickness of the solum ranges from 78 to 100 cm. The thickness of A horizon ranges from 7 to 12 cm. Its colour is in hue 7.5 YR with value and chroma of 3 to 4. Its texture varies from sandy loam to sandy clay with 20 per cent gravel. The thickness of B horizon ranges from 68 to 92 cm. Its colour is in hue 7.5 YR with value 2 to 4 and chroma 1 to 3. Its texture is sandy clay loam to sandy clay with 15-35 per cent gravel and is slightly calcareous. The available water capacity is low (51-100 mm/m).

Landscape and Soil Profile characteristics of Shettalli (SHT) Series

4.1.8 Mundargi (MDG) Series: Mundargi soils are deep (100-150 cm), well drained, have dark brown to dark yellowish brown, sandy clay loam soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands under cultivation. The Mundargi series has been classified as a member of the fine-loamy, mixed, isohyperthermic family of Fluventic Haplustepts.

The thickness of the solum ranges from 100 to 149 cm. The thickness of A horizon ranges from 8 to 20 cm. Its colour is in 10 YR hue with value 3 and chroma 1 to 4. The texture ranges from sandy loam to sandy clay loam and sandy clay. The thickness of B horizon ranges from 105 to 140 cm. Its colour is in 10 YR hue with value 3 to 4 and chroma 2 to 4. The texture varies from sandy loam to sandy clay loam and sandy clay. The available water capacity is very high (>200 mm/m). Only one phase was identified and mapped.

Landscape and Soil Profile characteristics of Mundargi (MDG) Series

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

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

Landscape and Soil Profile characteristics of Naglapur (NGP) Series

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

The thickness of the solum is more than 150 cm. The thickness of A horizon ranges from 6 to 13 cm. Its colour is in 10 YR hue with value 3 to 4 and chroma 1 to 2 with clay texture. The thickness of B horizon ranges from 163 to 176 cm. Its colour is in 10 YR hue with value 2 to 4 and chroma 1. Its texture is clay and is calcareous. The available water capacity is very high (>200 mm/m).

Landscape and Soil Profile characteristics of Bhimanahalli (BMN) Series

4.1.11 Bomraldoddi (BMD) Series: Bomraldoddi soils are very deep (>150 cm), well drained, have dark reddish brown to dark grey, reddish brown, dark brown and yellowish red, 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 thickness of the solum is more than 150 cm. The thickness of A horizon ranges from 11 to 17 cm. Its colour is in 5 YR hue with value 3 to 4 and chroma 1 to 5. Texture varies from sandy loam to sandy clay loam. The thickness of B horizon is more than 150 cm. Its colour is in hue 5 YR with value 4 and chroma 1 to 6. Texture varies from sandy clay loam to sandy clay and is slightly calcareous. The available water capacity is high (151-200 mm/m).

Table 4.1 Physical and Chemical characteristics of soil series identified in Chepata 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: Badiyala **(**BDL) **Pedon:** R-5

Location: $16^0$37'10.0"N $77^0$20'21.5", Gudalagunta village, Balichakra hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Coarse-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
0-12	Ap	87.13	7.04	5.83	10.03	24.32	23.61	23.51	5.67	<15	ls	6.27	2.44
12-28	Bw1	64.63	13.30	22.07	6.74	13.07	22.30	17.01	5.50	<15	scl	16.34	7.83
28-52	BC	73.11	12.02	14.87	3.93	16.03	26.89	18.41	7.86	<15	sl	12.94	5.47

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-12	6.20	-	-	0.074	1.00	0.00	2.80	0.98	0.14	0.01	3.92	4.20	0.72	93	0.20
12-28	9.04	-	-	0.253	0.80	3.20	-	-	0.16	0.69	-	16.90	0.77	100	4.09
28-52	9.41	-	-	0.364	1.10	3.60	-	-	0.16	1.39	-	11.10	0.75	100	12.52

Contd...

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

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

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

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

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

Contd...

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

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

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

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

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

Contd...

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

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

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

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

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

Contd...

Soil Series: Kalabelagundi (KBD) **Pedon:** R-13

Location: $16^0$43'78.3"n $77^0$13'71.4"E, Halagera village, Yadgir hobli, Yadgir taluk and district

Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Loamy-skeletal, mixed, isohyperthermic Typic 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
0-11	Ap	72.35	5.19	22.46	7.19	14.29	19.01	25.28	6.58	15	scl	15.12	8.16
11-35	AB	73.20	5.81	20.99	13.66	18.67	16.79	17.62	6.47	20	scl	11.58	7.29
35-64	Bt	51.68	7.30	41.03	29.41	8.00	4.86	5.62	3.78	40	sc	19.86	14.24
64-89	BC	64.35	3.51	32.15	21.84	12.03	14.87	10.23	5.38	40	scl	16.72	10.36

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	7.84	-	-	0.604	0.88	0.52	8.69	2.17	0.44	0.49	11.78	11.50	0.51	100	4.27
11-35	5.57	-	-	0.181	0.68	0.00	6.40	1.63	0.18	0.14	8.36	9.10	0.43	92	1.57
35-64	7.42	-	-	0.098	0.44	1.05	15.82	2.34	0.12	0.76	19.04	19.60	0.48	97	3.90
64-89	6.66	-	-	0.165	0.56	0.65	10.45	4.00	0.09	0.43	14.97	15.10	0.47	99	2.86

Contd...

Soil Series: Shettalli (SHT) **Pedon:** R-14

Location: $16^0$47'21.1"N $77^0$04'91.1"E, Thumakura 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
0-14	Ap	74.39	10.89	14.73	5.64	8.30	21.00	28.89	10.55	50	sl	12.58	4.51
14-35	Bw1	54.37	14.73	30.90	3.58	5.90	15.38	21.71	7.80	25	scl	20.37	10.92
35-63	Bw2	41.16	20.63	38.21	1.71	1.71	10.61	13.61	13.50	30	cl	24.34	15.03
63-83	Bw3	36.96	21.52	41.51	4.31	5.28	8.94	12.39	6.03	35	c	24.76	16.17

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}							%	%
0-14	7.26	-	-	0.199	0.91	0.13	-	-	0.28	0.09	-	10.60	0.72	100	0.86
14-35	7.05	-	-	0.051	0.80	1.17	-	-	0.12	0.09	-	18.20	0.59	100	0.48
35-63	7.67	-	-	0.238	0.70	2.86	-	-	0.14	0.16	-	24.40	0.64	100	0.64
63-83	8.67	-	-	0.142	0.20	12.48	-	-	0.13	0.23	-	27.40	0.66	100	0.84

Contd...

Soil Series: Mundargi **(**MDG) **Pedon:** R-2

Location: $16^0$46'82.4"N $77^0$04'85.2"E, Thumakura village, Yadgir 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
0-9	Ap	81.23	12.97	5.80	4.84	10.19	14.83	37.94	13.42	<15	ls	11.75	3.31
9-20	A2	76.82	16.19	6.98	4.96	10.12	20.75	27.53	13.46	-	ls	14.52	3.99
20-46	Bw1	42.43	17.43	40.15	2.26	5.59	11.49	14.93	8.16	-	c	34.90	21.14
46-90	Bw2	54.51	16.56	28.93	4.72	5.03	19.92	16.67	8.18	-	scl	36.73	18.88
90-110	Bw3	53.69	11.00	35.30	9.57	9.89	16.23	13.01	4.99	-	sc	38.72	20.53

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	8.2	-	-	0.399	0.44	0.78	-	-	0.16	0.38	-	4.90	0.84	100	3.08
9-20	8.44	-	-	0.075	0.29	1.82	-	-	0.05	0.35	-	4.90	0.70	100	2.88
20-46	9.39	-	-	0.451	0.32	2.73	-	-	0.12	5.22	-	20.77	0.52	100	10.06
46-90	9.75	-	-	0.616	0.24	3.25	-	-	0.12	5.72	-	16.56	0.57	100	13.82
90-110	9.72	-	-	0.725	0.24	3.64	-	-	0.14	6.84	-	19.76	0.56	100	13.836

Contd...

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

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

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

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

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

Contd...

Soil Series: Bhimanahalli (BMN) **Pedon:** R-3

Location: $16^0$31'82.4"N $77^0$12'70.8"E, Bheemanahalli village, Sydhapura hobli, Yadgir taluk and district

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

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-8	Ap	20.34	19.94	59.72	2.68	5.03	3.75	5.25	3.64	-	c	50.19	33.49
8-40	Bss1	19.61	22.76	57.62	1.94	2.59	5.28	4.96	4.85	-	c	43.22	29.05
40-70	Bss2	21.25	17.65	61.10	3.02	5.26	3.91	5.48	3.58	-	c	44.30	30.25
70-120	Bss3	19.08	22.29	58.63	1.75	5.04	3.84	5.15	3.29	-	c	43.26	30.31
120-170	Bss4	11.11	20.44	68.45	2.04	1.93	1.70	2.83	2.61	-	c	51.33	33.51

Depth (cm)	pH (1:2.5)			E.C. (1:2.5)	O.C.	$CaCO_3$	Exchangeable bases					CEC	CEC/ Clay	Base saturation	ESP
							Ca	Mg	K	Na	Total				
	Water	$CaCl_2$	M KCl	dS m^{-1}	%	%	cmol kg^{-1}							%	%
0-8	8.2	-	-	0.284	0.72	4.94	-	-	1.20	0.34	-	52.70	0.88	100	0.65
8-40	8.44	-	-	0.139	0.40	7.28	-	-	0.30	0.48	-	52.06	0.90	100	0.93
40-70	8.32	-	-	0.202	0.40	6.37	-	-	0.18	0.40	-	52.52	0.86	100	0.77
70-120	9.3	-	-	0.282	0.36	6.89	-	-	0.27	0.38	-	50.97	0.87	100	0.75
120-170	8.47	-	-	0.305	0.37	8.19	-	-	0.28	0.91	-	58.19	0.85	100	1.57

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 20 soil map units identified in the Chepata microwatershed are grouped under 3 land capability classes and 4 subclasses. Entire area in the microwatershed is suitable for agriculture (Fig. 5.1).

Good lands (Class II) cover a maximum area of about 63 per cent and are distributed in the major part of the microwatershed with minor problems of soil and erosion. Moderately good lands (Class III) cover an area of about 18 per cent and are distributed in the northern and northeastern part of the microwatershed with moderate problems of soil and erosion. Fairly good cultivable (Class IV) covers a small area of about 12 per cent and is distributed in the western and southern part of the microwatershed with moderate problems of soil and erosion.

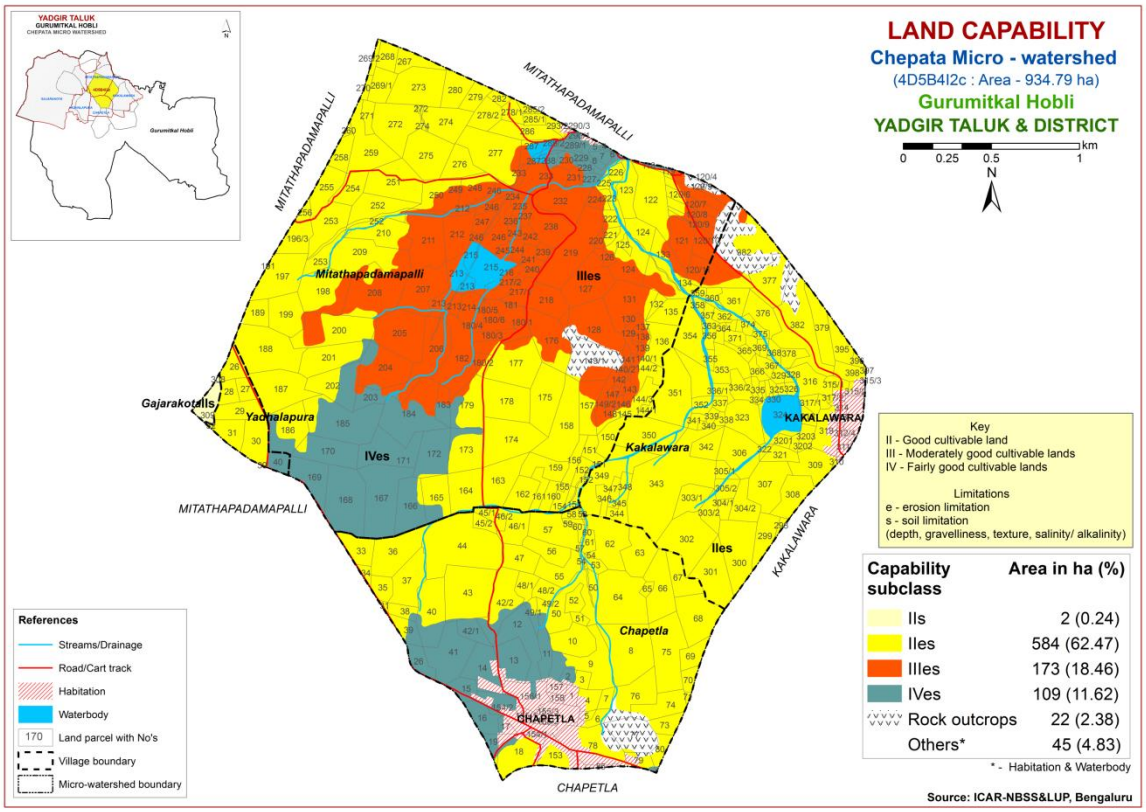


Fig. 5.1 Land Capability Classification map of Chepata microwatershed

5.2 Soil Depth

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

Very shallow to shallow (<25-50) soils occupy an area of about 153 ha (16%) and are distributed in the southern, central, western and northeastern part of the microwatershed. Moderately shallow to moderately deep (50-100 cm) soils occupy an area of 339 ha (36%) and are distributed in the eastern, northeastern, western, southern and southeastern part of the microwatershed. Deep to very deep (100 to >150 cm) soils occupy a maximum area of 376 ha (40%) and are distributed in the major part of the microwatershed.

The most productive lands 376 ha (40%) with respect to soil rooting depth where all climatically adapted annual and perennial crops can be grown is deep (100 - 150 cm depth) soils occurring in the western, southwestern and northern part of the

microwatershed. The problematic soils cover about 16 per cent area where the soils are very shallow to shallow and are suitable for short duration crops.

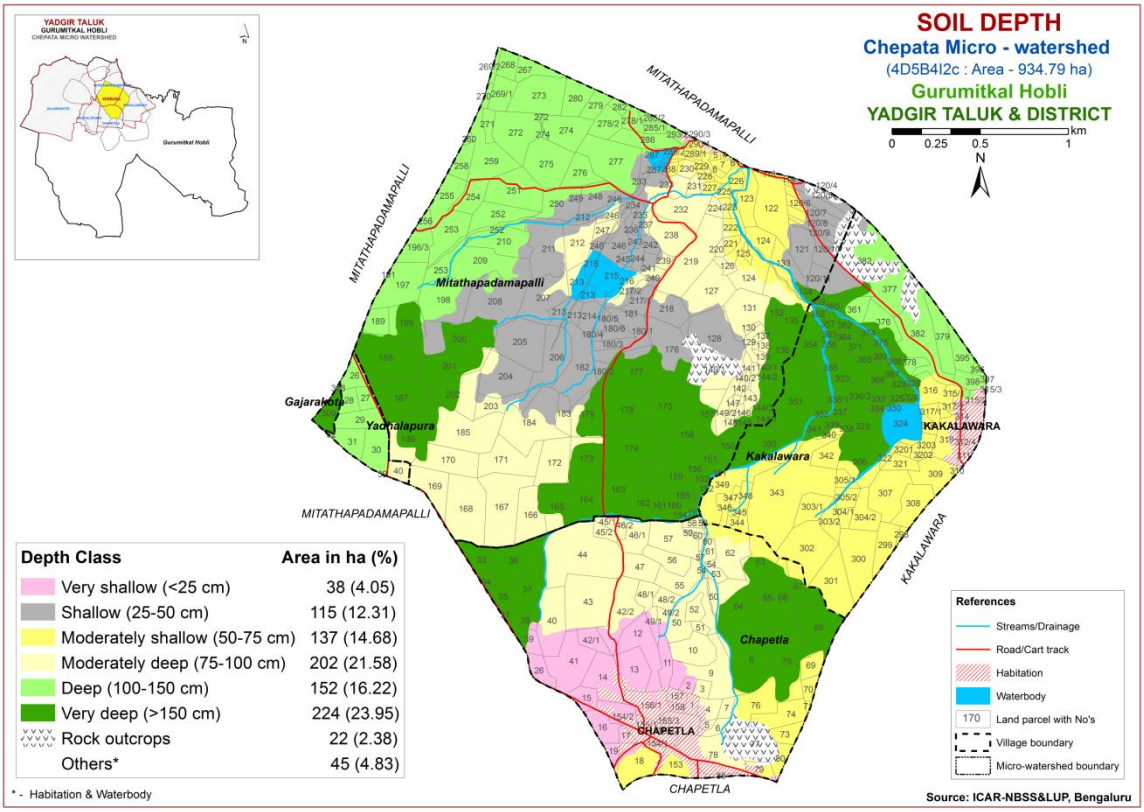


Fig. 5.2 Soil depth map of Chepata microwatershed

5.3 Surface Soil Texture

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

Maximum area of about 743 ha (79%) of the microwatershed has clayey soils at the surface and are distributed in the major part of the microwatershed. An area of 124 ha (13%) has soils that are loamy and are distributed in the eastern and northeastern part of the microwatershed. Clayey and loamy soils have high potential for soil-water retention and availability, and nutrient retention and availability, but clay soils have more problems of drainage, infiltration, work ability and other physical problems.

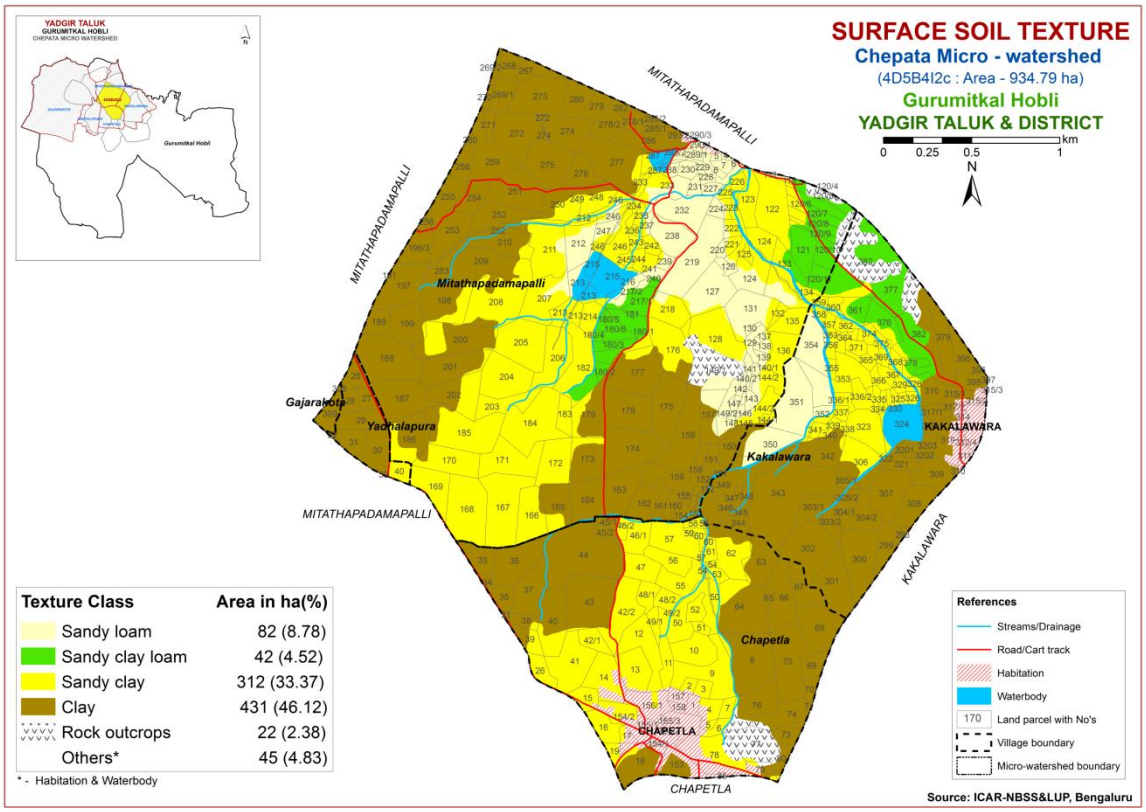


Fig. 5.3 Surface soil texture map of Chepata microwatershed

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 498 ha (53%) and are distributed in the major part of the microwatershed. An area of about 369 ha (40%) is gravelly (15-35%) and are distributed in the eastern, western, central, northern and northwestern part of the microwatershed.

The problem soils (40%) that are gravelly (15-35%), where only short or medium duration crops can be grown. The most productive soils (53%) that are non gravelly (<15%), where all climatically adapted long duration crops can be grown.

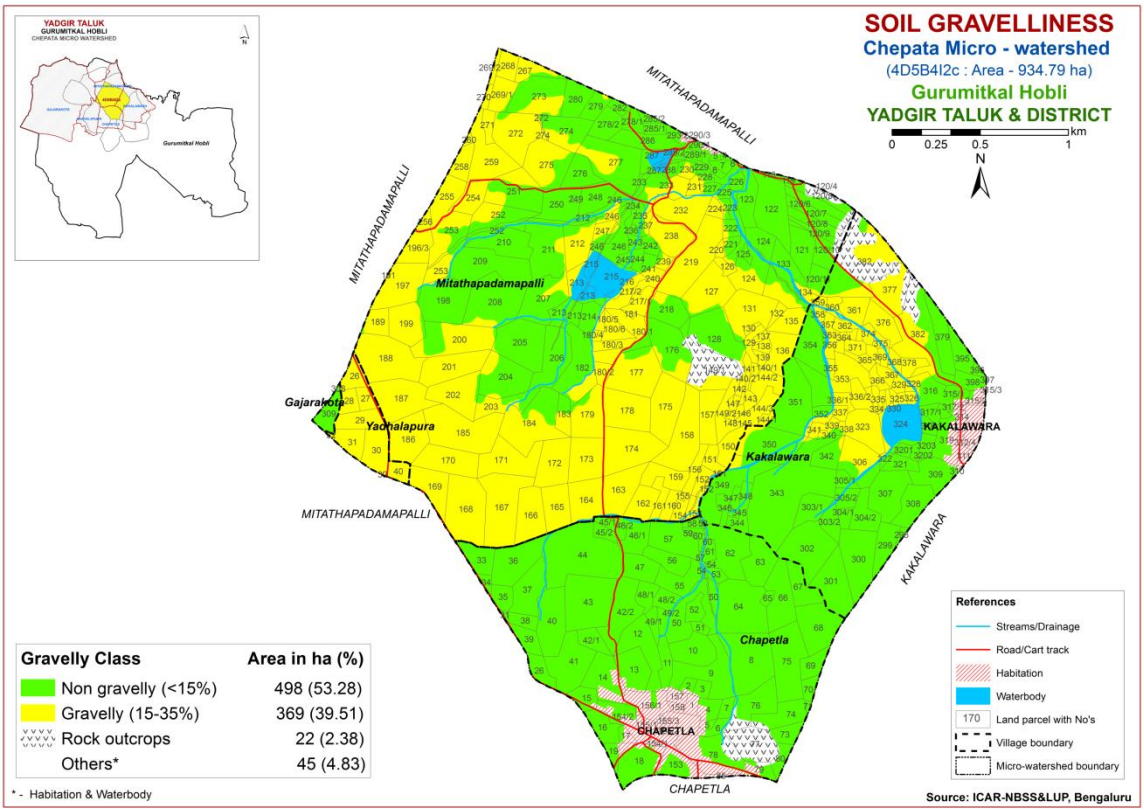


Fig. 5.4 Soil gravelliness map of Chepata microwatershed

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.

Maximum area of about 427 ha (46%) in the microwatershed have soils that are very low to low (<50 to 100 mm/m) in available water capacity and are distributed in the major part of the microwatershed. An area of about 127 ha (14%) is medium (101 - 150 mm/m) in available water capacity and are distributed in the eastern and western part of the microwatershed. An area of about 312 ha (33%) is very high (>200 mm/m) in available water capacity and are distributed in the northern, western, eastern, northwestern, central, southeastern and southwestern part of the microwatershed.

Maximum of 427 ha (46%) 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 312 ha (33%) are potential areas with regard to AWC where all climatically adapted annual and perennial crops can be grown.

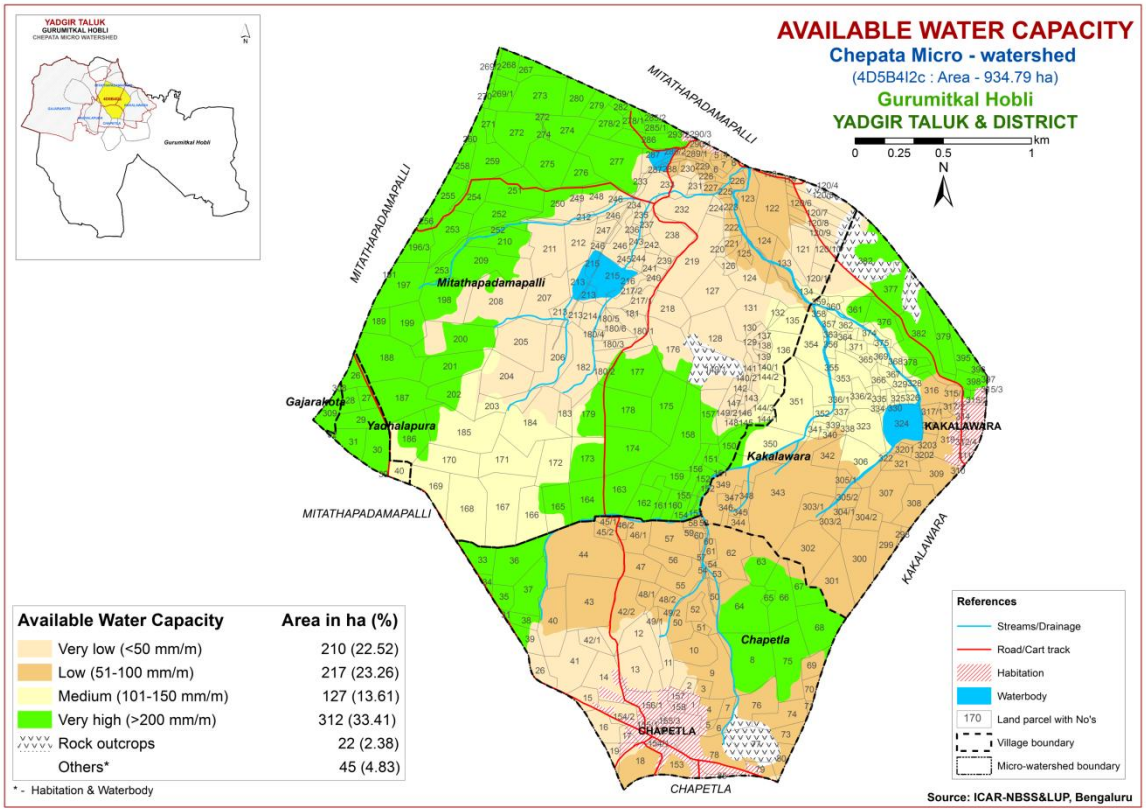


Fig. 5.5 Soil available water capacity map of Chepata microwatershed

5.6 Soil Slope

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

Maximum area of about 801 ha (86%) in the microwatershed falls under very gently sloping (1-3% slope) lands and are distributed in all parts of the microwatershed. An area of 64 ha (7%) falls under gently slopping (3-5%) lands and are distributed in the northeastern part of the microwatershed. An area of 2 ha (<1%) falls under nearly level (0-1%) lands and are distributed in the western part of the microwatershed.

Maximum 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.

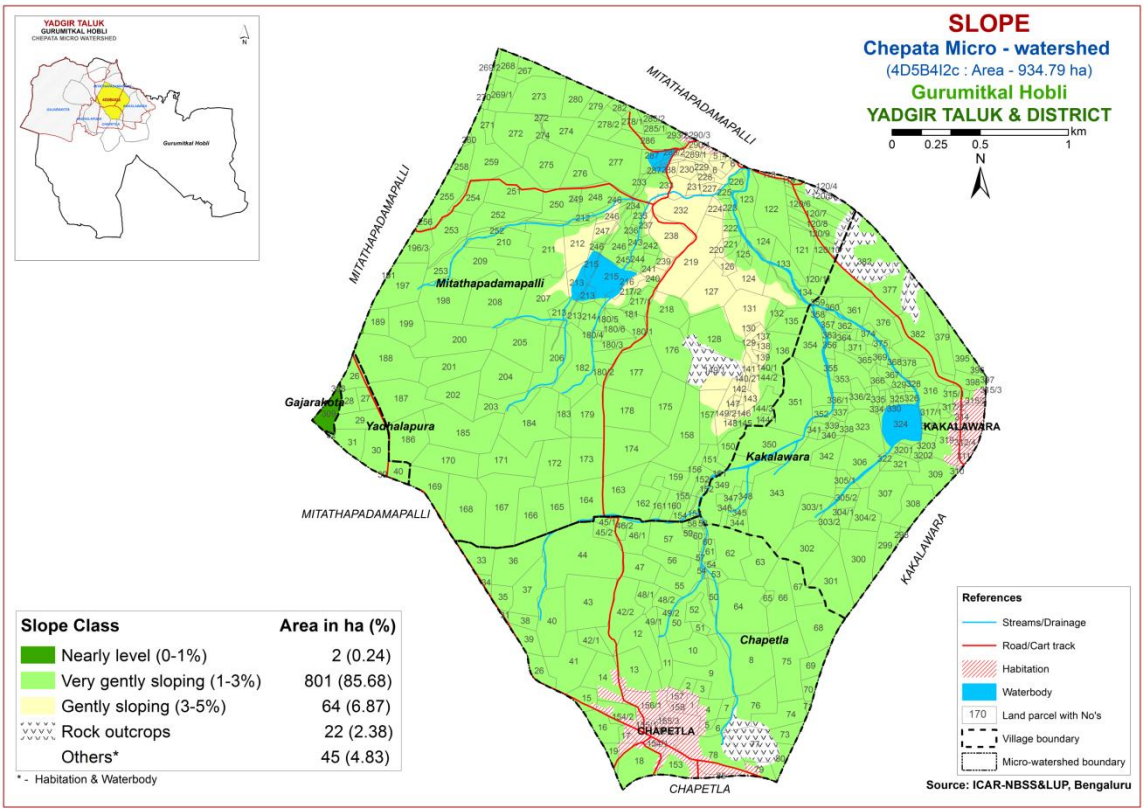


Fig. 5.6 Soil slope map of Chepata microwatershed

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.

Maximum area of about 790 ha (84%) in the microwatershed falls under moderately eroded (e2 class) lands and are distributed in all parts of the microwatershed. An area of about 75 ha (8%) in the microwatershed falls under severely eroded (e3 class) lands and are distributed in the southern, northeastern and northwestern part of the microwatershed. An area of about 2 ha (<1%) in the microwatershed falls under slightly eroded (e1 class) lands and are distributed in the western part of the microwatershed.

Maximum area in the microwatershed has soils that are problematic because of moderate and severe erosion. For these areas, taking up of soil and water conservation and other land development measures are needed.

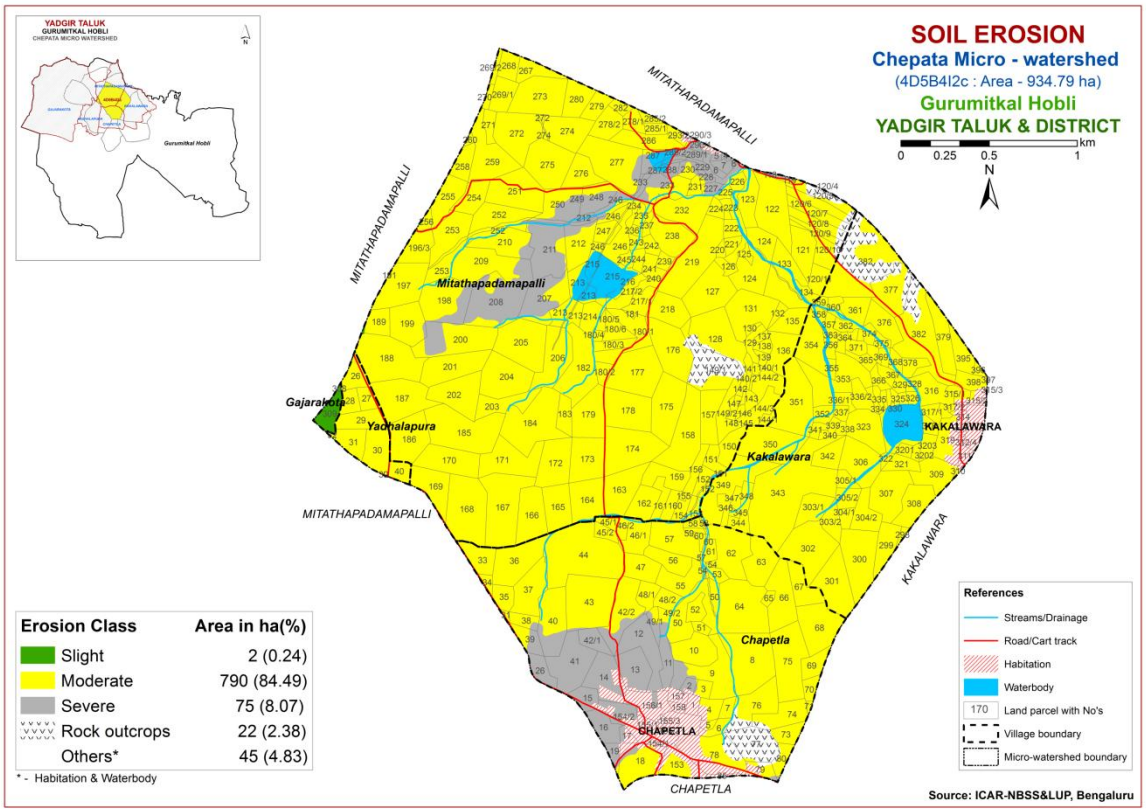


Fig. 5.7 Soil erosion map of Chepata microwatershed

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 2018 were analysed for pH, EC, organic carbon, available phosphorus and potassium, and for micronutrients like zinc, boron, copper, iron manganese and secondary nutrient sulphur.

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

6.1 Soil Reaction (pH)

The soil analysis of the Chepata microwatershed for soil reaction (pH) showed that maximum area of about 632 ha (68%) is neutral (pH 6.5-7.3) and are distributed in the major part of the microwatershed. An area of 227 ha (24%) is slightly acid (pH 6.0-6.5) and are distributed in the northern and northwestern part of the microwatershed. An area of 8 ha (<1%) is slightly alkaline (pH 7.3-7.8) and are distributed in the southern part of the microwatershed (Fig. 6.1). In all, major area of about 632 ha is neutral, 227 ha is slightly acid and 8 ha is under alkaline.

6.2 Electrical Conductivity (EC)

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

6.3 Organic Carbon

Organic carbon content is high (>0.75 %) in the entire area of the microwatershed (Fig. 6.3).

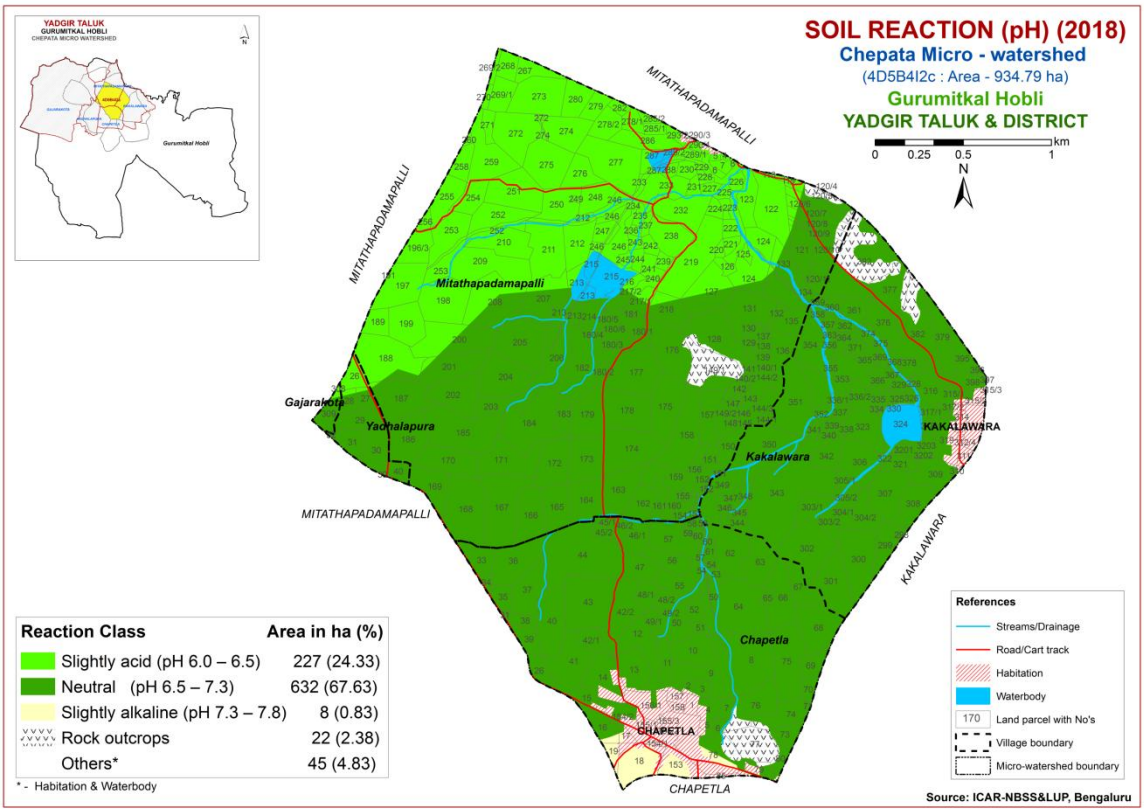


Fig.6.1 Soil reaction (pH) map of Chepata microwatershed

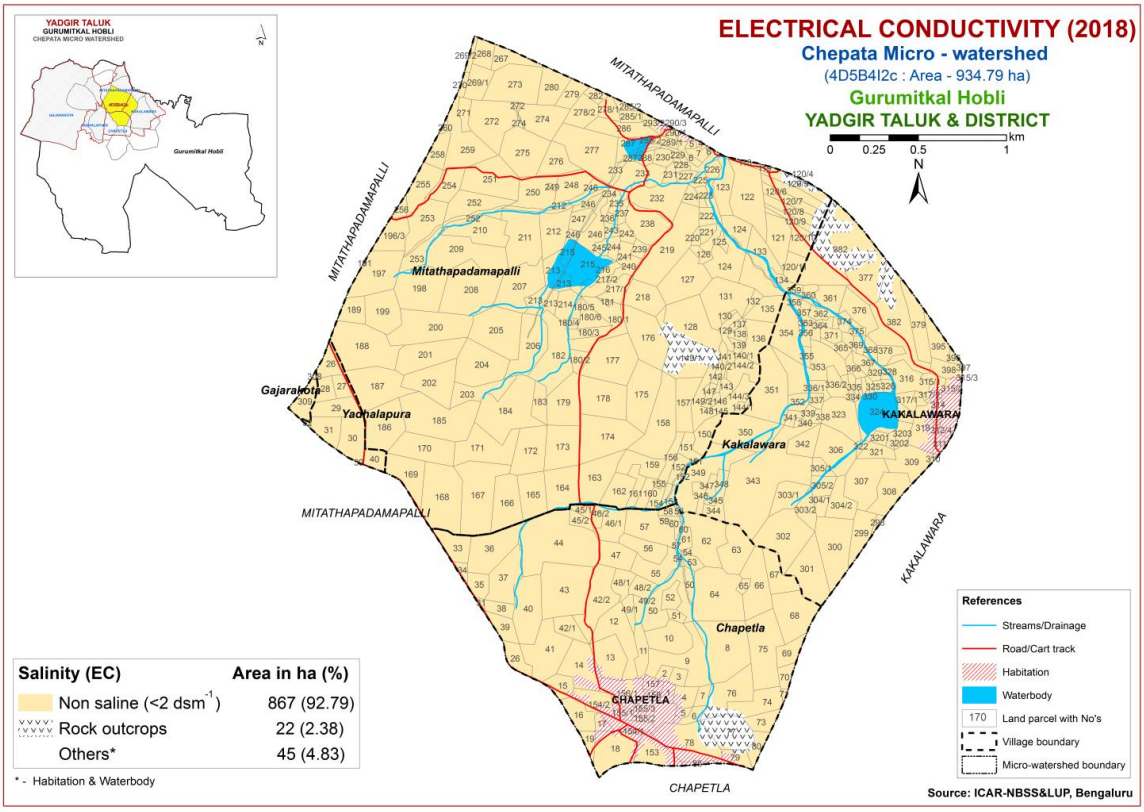


Fig.6.2 Electrical conductivity (EC) map of Chepata microwatershed

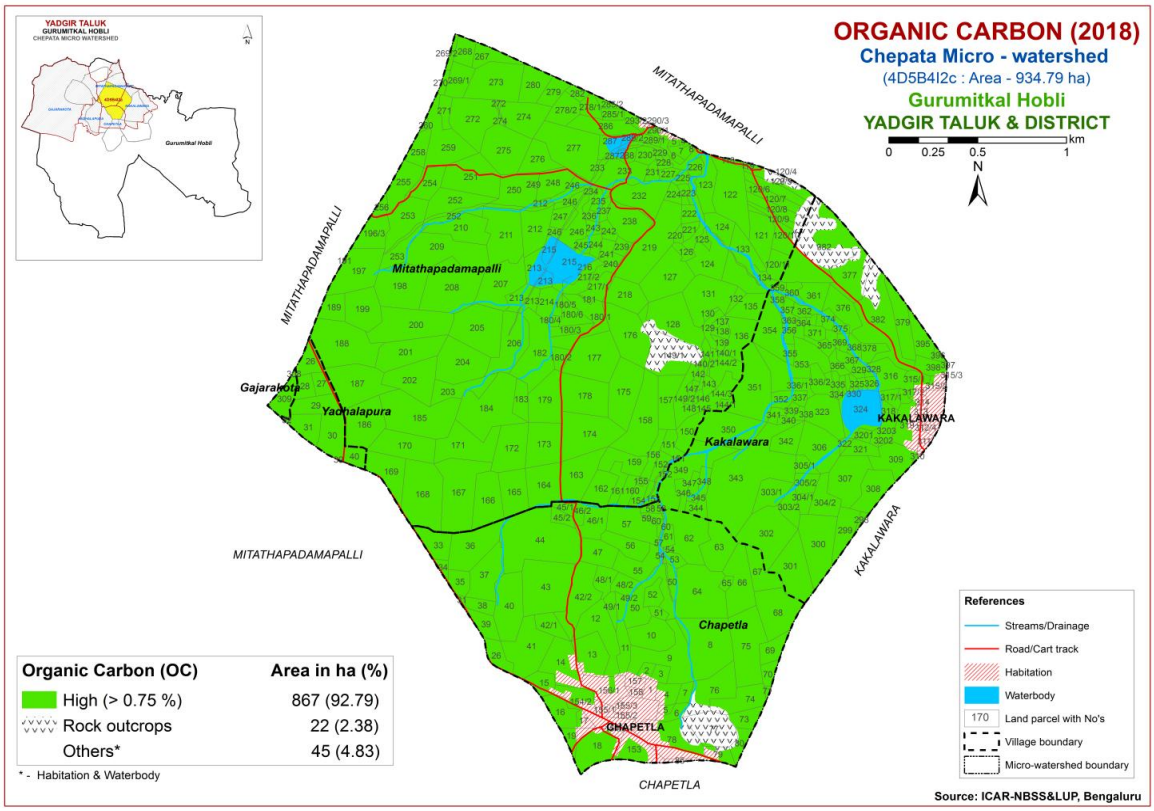


Fig.6.3 Soil organic carbon map of Chepata microwatershed

6.4 Available Phosphorus

Available phosphorus content is low (<23 kg/ha) in a maximum area of about 433 ha (46%) and are distributed in the major part of the microwatershed. Medium (23-57 kg/ha) in an area of about 241 ha (26%) and are distributed in the central, eastern and northern part of the microwatershed. High (>57 kg/ha) in an area of 193 ha (21%) and are distributed in the northern part of the microwatershed (Fig. 6.4).

6.5 Available Potassium

Available potassium content is medium (145-337 kg/ha) in a maximum area of about 748 ha (80%) and are distributed in the major part of the microwatershed. High (>337 kg/ha) in an area of 120 ha (13%) and is distributed in the western and southern part of the microwatershed (Fig. 6.5).

6.6 Available Sulphur

Maximum area of about 654 ha (70%) is medium (10-20 ppm) in available sulphur content and are distributed in the major part of the microwatershed. Low (<10 ppm) in an area of about 214 ha (23%) and is distributed in the western part of the microwatershed (Fig. 6.6).

6.7 Available Boron

Available boron content is low (<0.5 ppm) in a maximum area of about 564 ha (60%) and are distributed in the major part of the microwatershed. An area of 303 ha

(32%) is medium (0.5-1.0 ppm) in available boron content and are distributed in the western, southern and southwestern part 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).

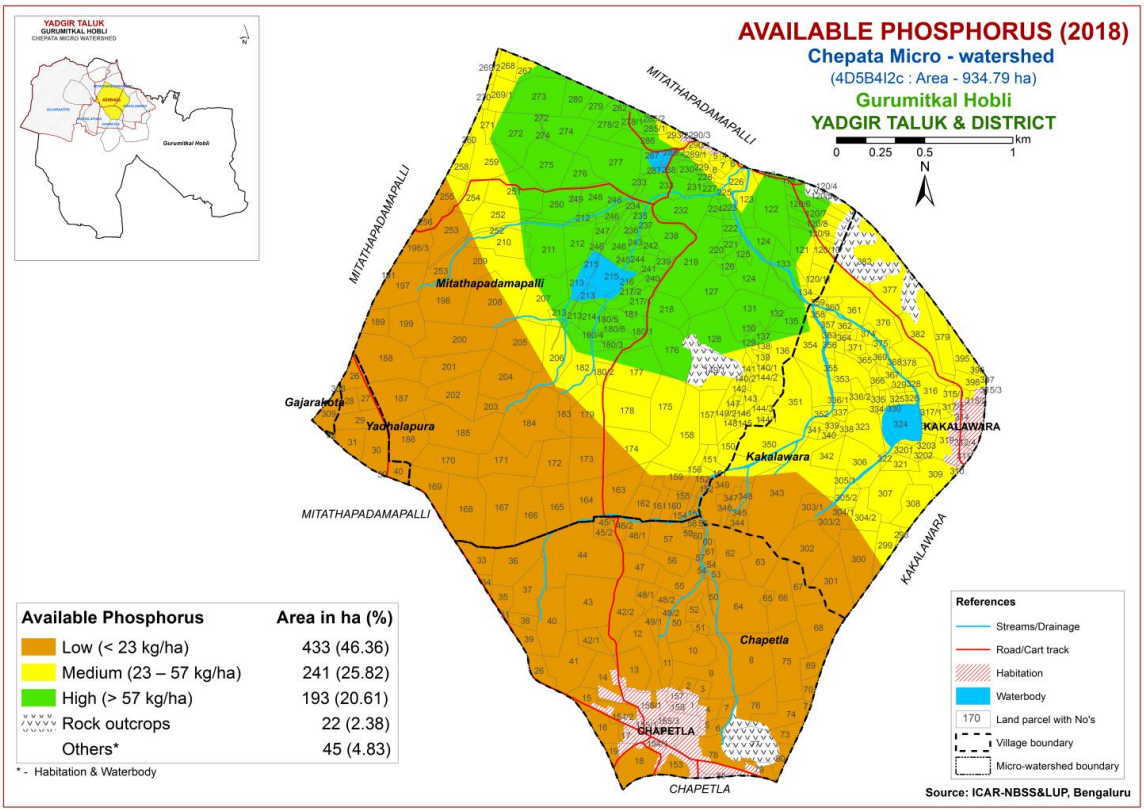


Fig.6.4 Soil available phosphorus map of Chepata microwatershed

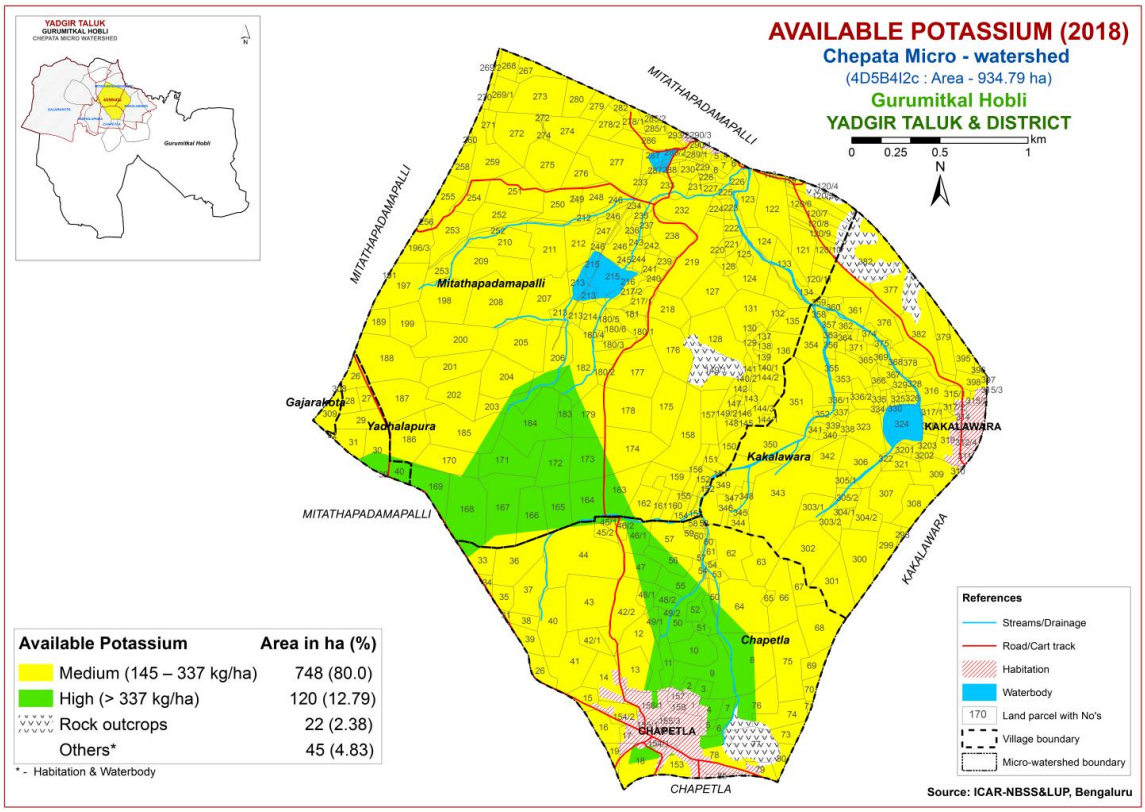


Fig.6.5 Soil available potassium map of Chepata microwatershed

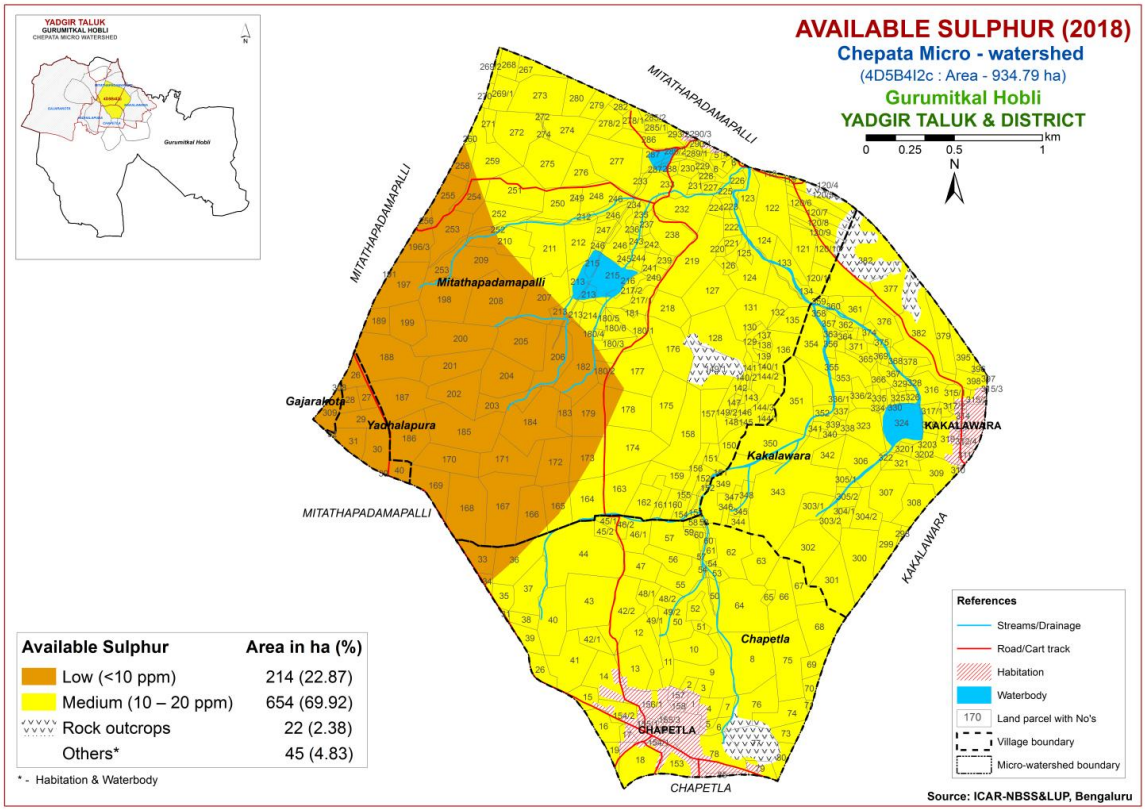


Fig.6.6 Soil available sulphur map of Chepata microwatershed

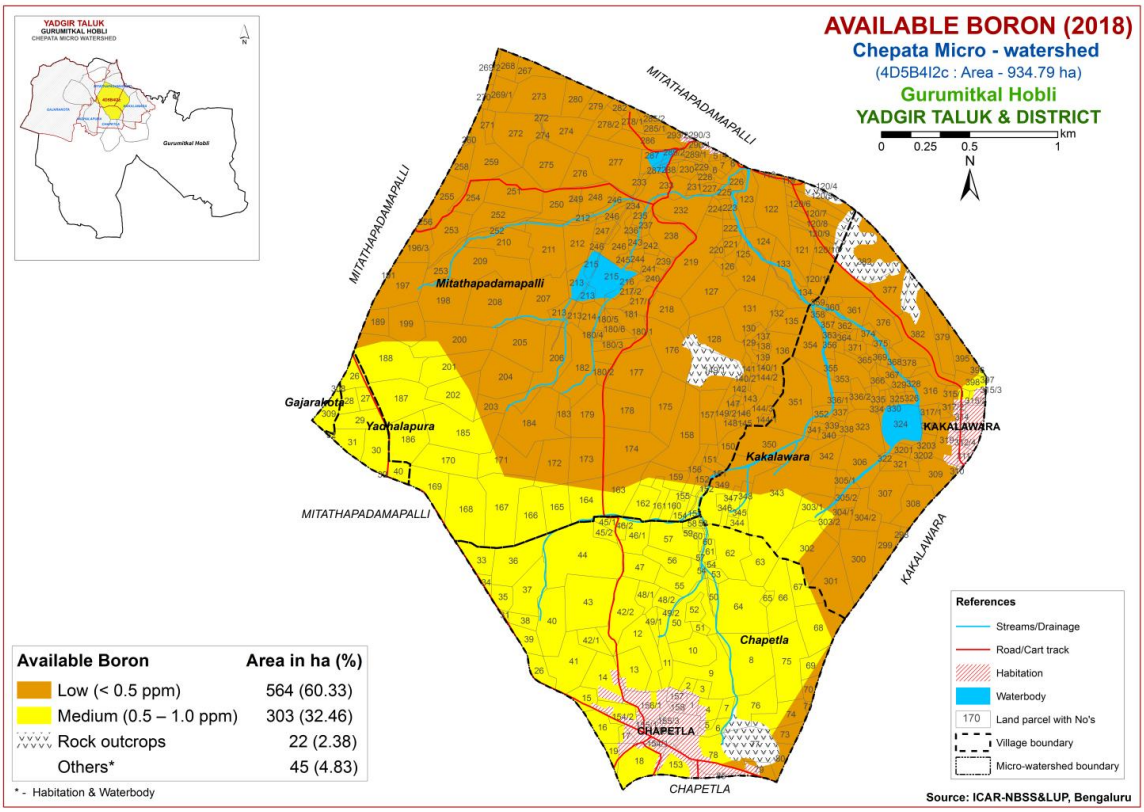


Fig.6.7 Soil available boron map of Chepata microwatershed

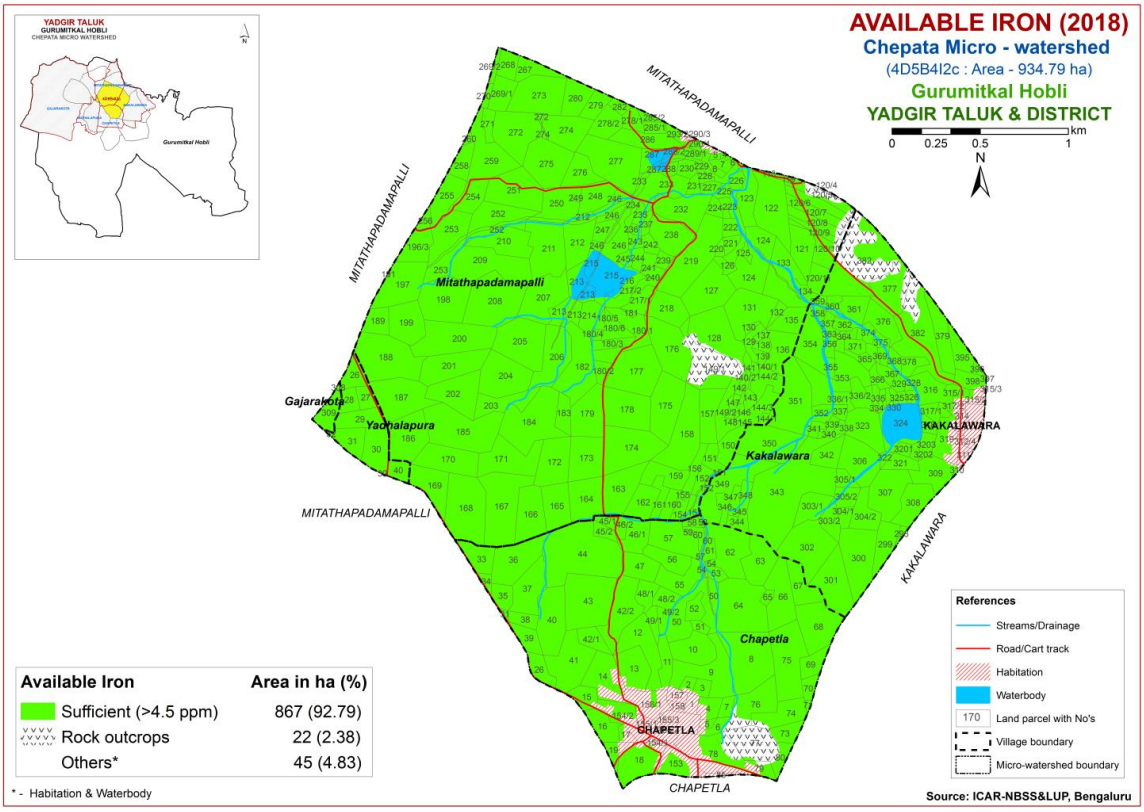


Fig.6.8 Soil available iron map of Chepata microwatershed

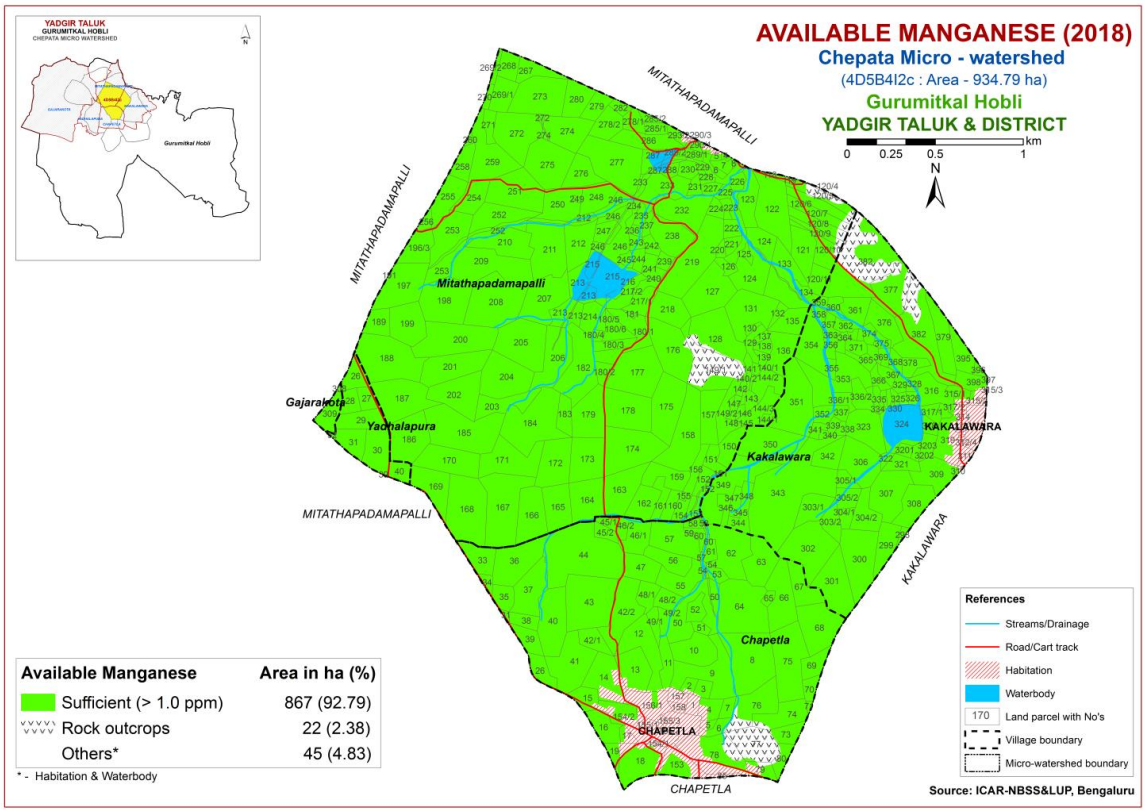


Fig.6.9 Soil available manganese map of Chepata microwatershed

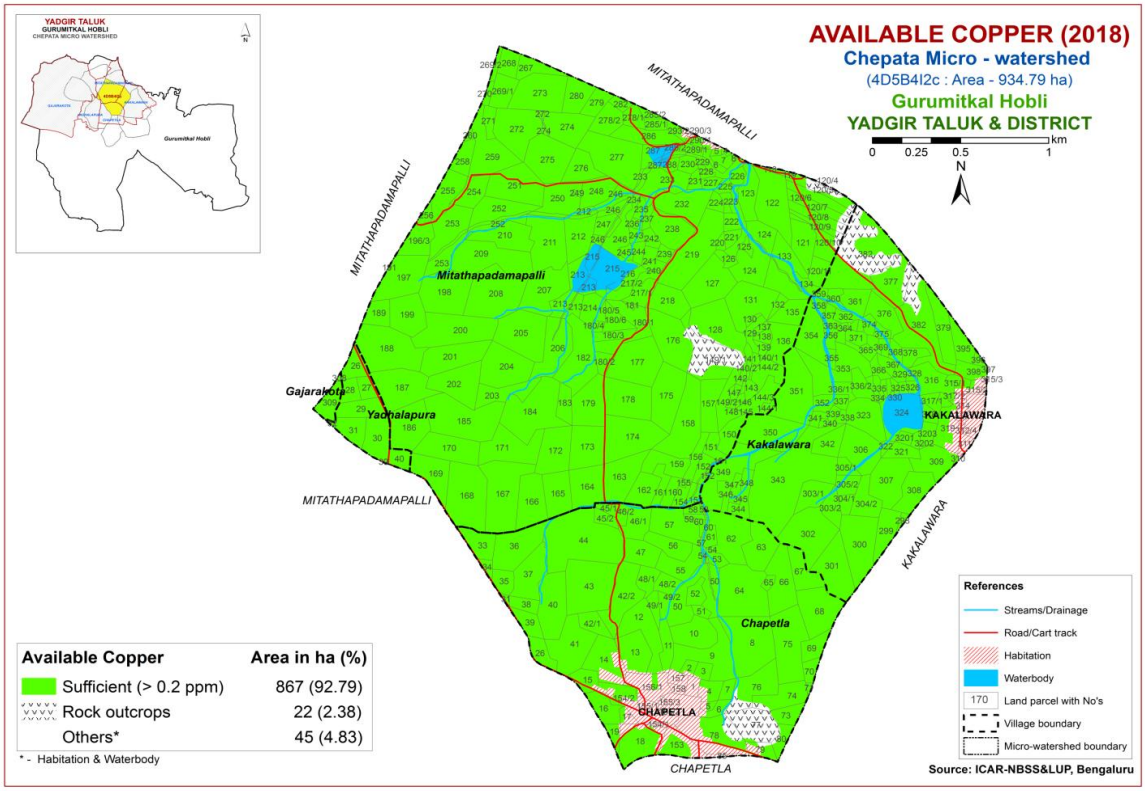


Fig.6.10 Soil available copper map of Chepata microwatershed

6.11 Available Zinc

Available zinc content is deficient in a maximum area of 763 ha (82%) (<0.6 ppm) and are distributed in the major part of the microwatershed. Sufficient in 104 ha (11%) (>0.6 ppm) and is distributed in the northern part of the microwatershed (Fig 6.11).

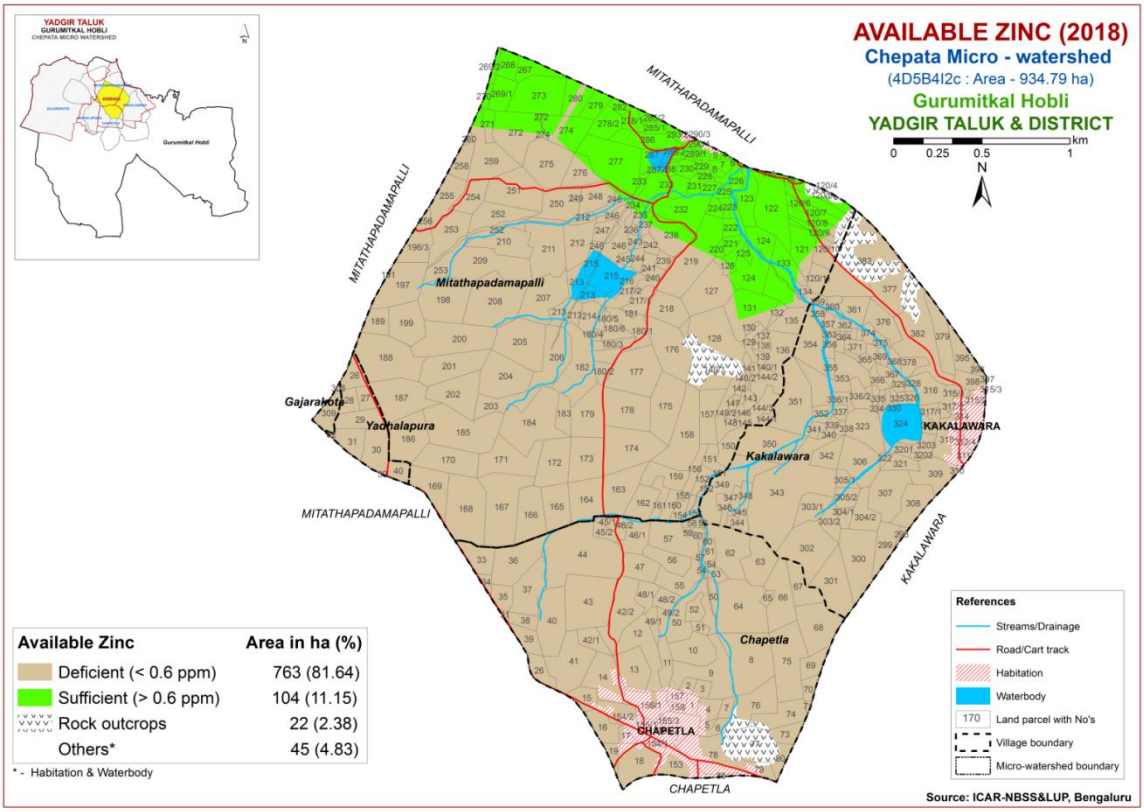


Fig.6.11 Soil available zinc map of Chepata microwatershed

Chapter 7

LAND SUITABILITY FOR MAJOR CROPS

The soil and land resource units (soil phases) of Chepata 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 (Table 7.2 to 7.30) were matched with the soil and land characteristics (Table 7.1) to arrive at the crop suitability. The criteria tables are given at the end of the chapter. In FAO land suitability classification, two orders are recognized. Order S-Suitable and Order N-Not suitable. The orders have classes, subclasses and units. Order-S has three classes, Class S1-Highly Suitable, Class S2-Moderately Suitable and Class S3- Marginally Suitable. Order N has two classes, N1-Currently not Suitable and N2- Permanently not Suitable. There are no subclasses within the Class S1 as they will have very minor or no limitation for crop growth. Classes S2 and S3 are divided into subclasses based on the kinds of limitations encountered. The limitations that affect crop production are 'c' for erratic rainfall and its distribution and length of growing period (LGP), 'e' for erosion hazard, 'r' for rooting condition, 't' for lighter or heavy texture, 'g' for gravelliness or stoniness, 'n' for nutrient availability, 'l' for topography, 'm' for moisture availability, 'w' for drainage and 'z' for calcareousness. These limitations are indicated as lower case letters to the class symbol. For example, moderately suitable lands with the limitations of soil depth and erosion are designated as S2re. For the microwatershed, the soil mapping units were evaluated and classified up to subclass level.

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

7.1 Land Suitability for Sorghum (*Sorghum bicolor*)

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

There are no highly suitable (Class S1) lands available for growing sorghum in the microwatershed. Maximum area of about 650 ha (70%) is moderately suitable (Class S2) for growing sorghum and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, gravelliness, topography and

calcareousness. An area of about 179 ha (19%) is marginally suitable (Class S3) for growing sorghum and is distributed in the western, central and northeastern part of the microwatershed with moderate limitations of rooting depth, texture, nutrient availability and calcareousness. Currently not suitable (Class N1) lands occur in an area of 38 ha (4%) and are distributed in the southern part of the microwatershed with severe limitation of rooting depth.

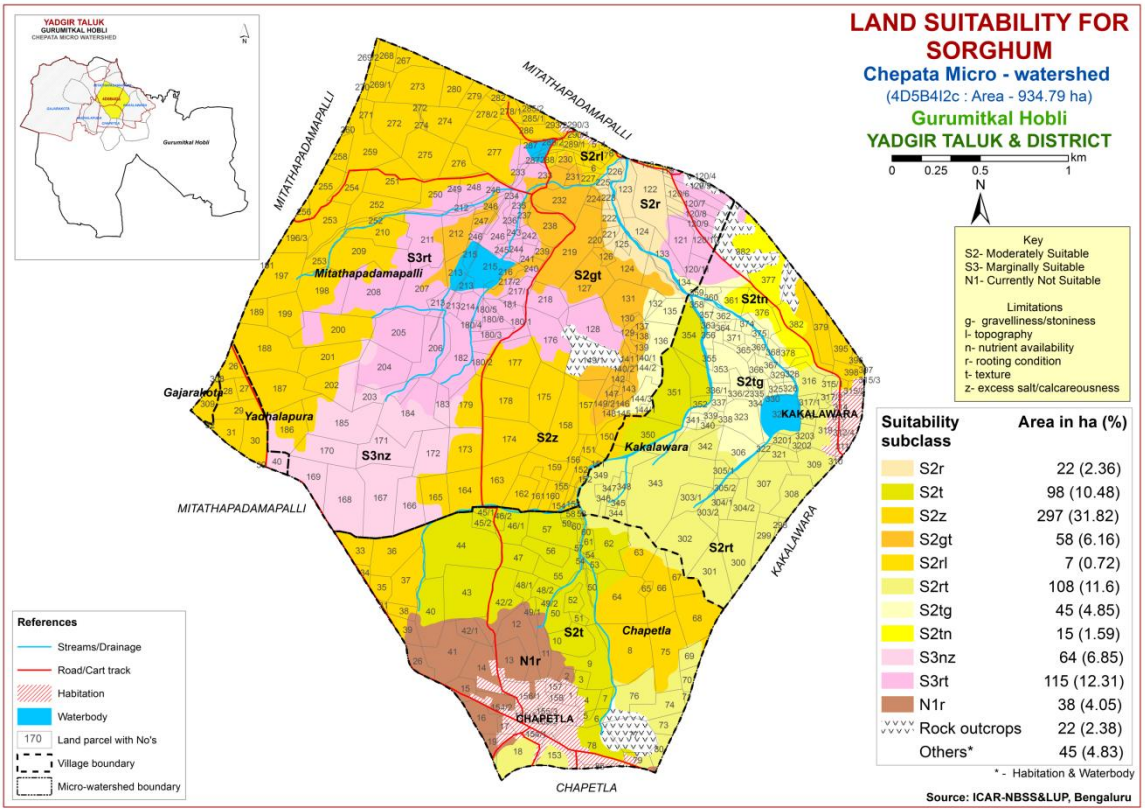


Fig. 7.1 Land suitability map of Sorghum

7.2 Land Suitability for Maize (*Zea mays*)

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

Highly suitable (Class S1) lands for growing maize occur in an area of 98 ha (10%) and are distributed in the southern and central part of the microwatershed. Maximum area of about 552 ha (59%) is moderately suitable (Class S2) for growing maize and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, gravelliness, nutrient availability, topography and calcareousness. An area of about 179 ha (19%) is marginally suitable (Class S3) for growing maize and is distributed in the western, central and northeastern part of the microwatershed with moderate limitations of rooting depth, texture, nutrient availability

and calcareousness. Currently not suitable (Class N1) lands occur in an area of 38 ha (4%) and are distributed in the southern part of the microwatershed with severe limitation of rooting depth.

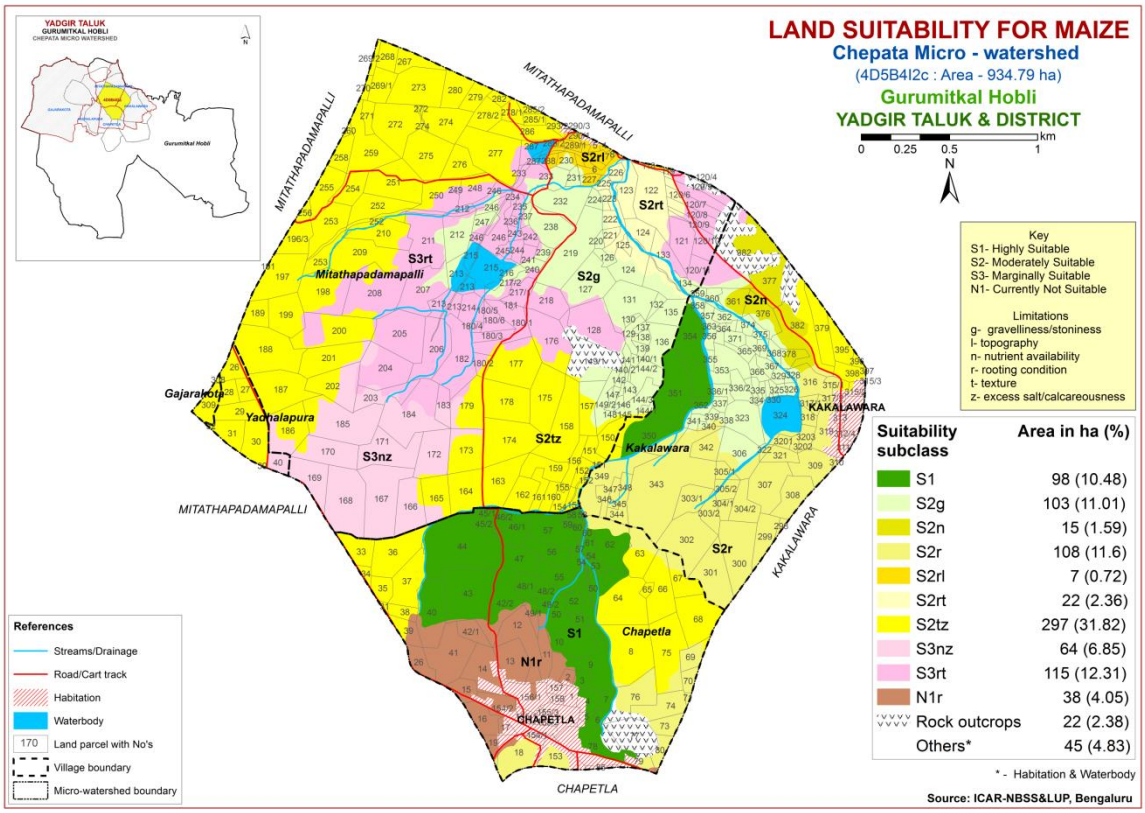


Fig. 7.2 Land suitability map of Maize

7.3 Land Suitability for Bajra (*Pennisetum glaucum)*

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

Highly suitable (Class S1) lands for growing bajra occur in an area of 143 ha (15%) and are distributed in the northern and eastern part of the microwatershed. Maximum area of about 508 ha (54%) is moderately suitable (Class S2) for growing bajra and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, gravelliness, nutrient availability, topography and calcareousness. An area of about 179 ha (19%) is marginally suitable (Class S3) for growing bajra and is distributed in the western, central and northeastern part of the microwatershed with moderate limitations of rooting depth, nutrient availability and calcareousness. Currently not suitable (Class N1) lands occur in an area of 38 ha (4%) and are distributed in the southern part of the microwatershed with severe limitation of rooting depth.

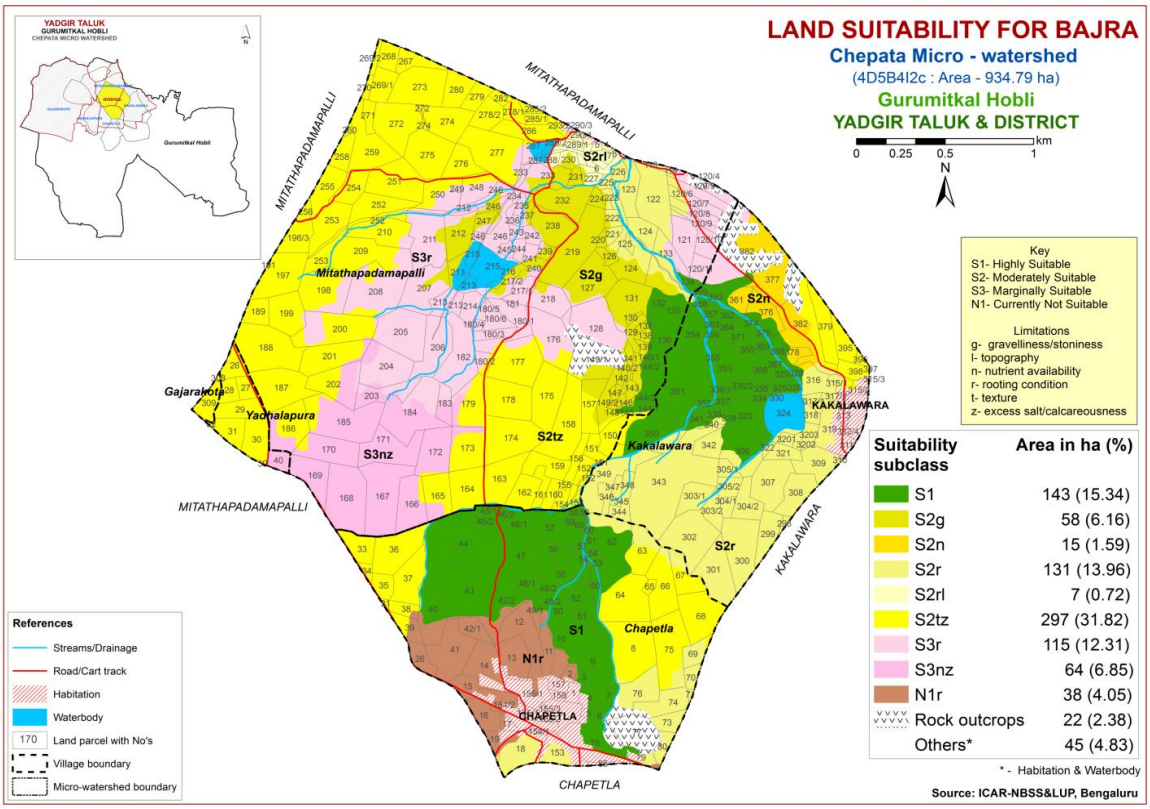


Fig. 7.3 Land suitability map of Bajra

7.4 Land Suitability for Groundnut (*Arachis hypogaea*)

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

Highly suitable (Class S1) lands for growing groundnut occur in an area of 143 ha (15%) and are distributed in the northern and eastern part of the microwatershed. An area of about 166 ha (18%) is moderately suitable (Class S2) for growing groundnut and are distributed in the eastern, southern and northeastern part of the microwatershed. They have minor limitations of rooting depth and gravelliness. Maximum area of about 457 ha (49%) is marginally suitable (Class S3) for growing groundnut and is distributed in the major part of the microwatershed with moderate limitations of rooting depth, texture, nutrient availability and calcareousness. Currently not suitable (Class N1) lands occur in an area of 102 ha (11%) and are distributed in the southern and western part of the microwatershed with severe limitation of rooting depth.

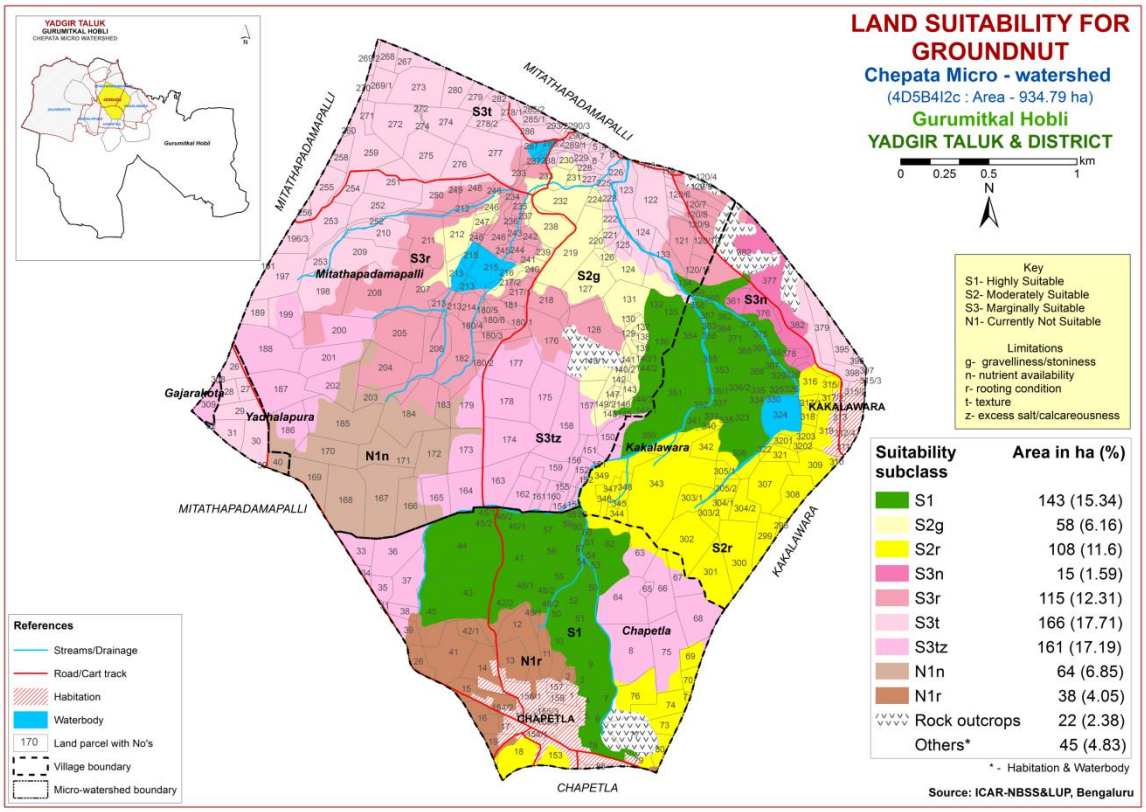


Fig. 7.4 Land suitability map of Groundnut

7.5 Land Suitability for Sunflower (*Helianthus annus*)

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

There are no highly suitable (Class S1) lands available for growing sunflower in the microwatershed. Maximum area of about 498 ha (53%) is moderately suitable (Class S2) for growing sunflower and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, gravelliness and calcareousness. An area of about 152 ha (16%) is marginally suitable (Class S3) for growing sunflower and is distributed in the western, central and northeastern part of the microwatershed with moderate limitations of rooting depth, texture, nutrient availability and calcareousness. Currently not suitable (Class N1) lands occur in an area of 217 ha (23%) and are distributed in the southern, western, central and northeastern part of the microwatershed with severe limitations of rooting depth and nutrient availability.

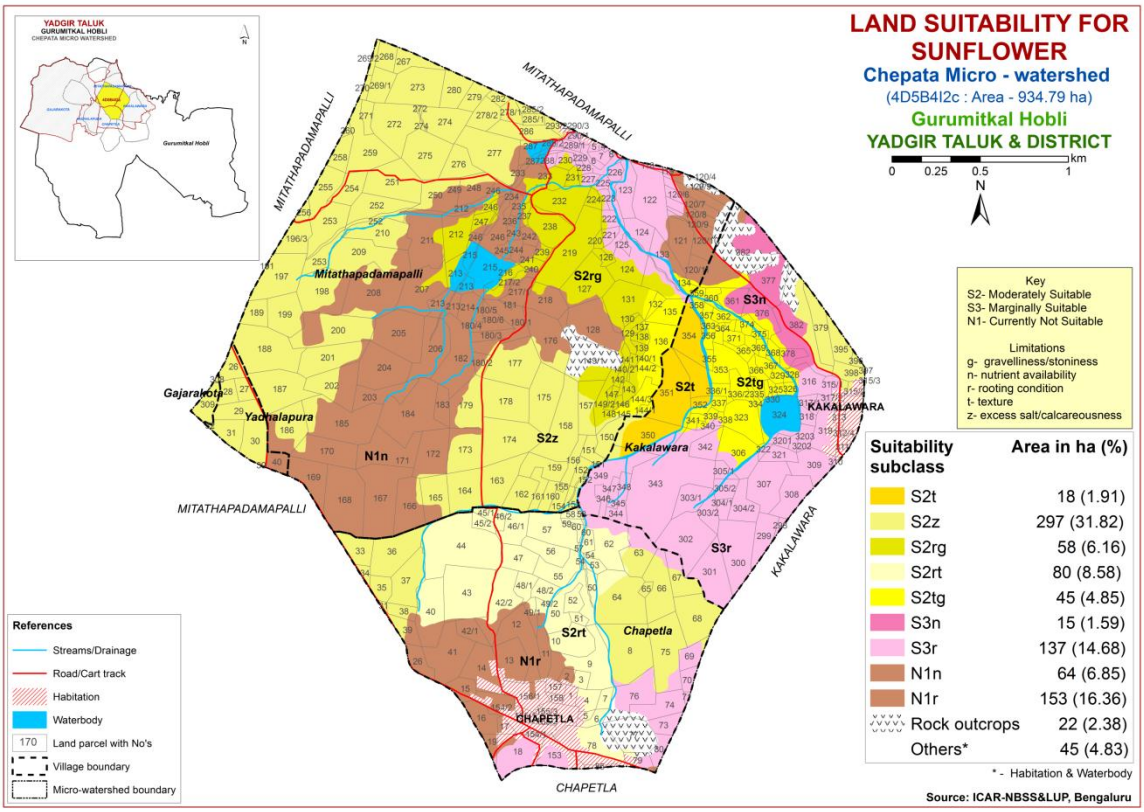


Fig. 7.5 Land suitability map of Sunflower

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

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

There are no highly suitable (Class S1) lands available for growing red gram in the microwatershed. Maximum area of about 513 ha (55%) is moderately suitable (Class S2) for growing red gram and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, gravelliness, nutrient availability and calcareousness. An area of about 201 ha (21%) is marginally suitable (Class S3) for growing red gram and is distributed in the eastern, western, southern and northeastern part of the microwatershed with moderate limitations of rooting depth, nutrient availability and calcareousness. Currently not suitable (Class N1) lands occur in an area of 153 ha (16%) and are distributed in the southern, central and northeastern part of the microwatershed with severe limitation of rooting depth.

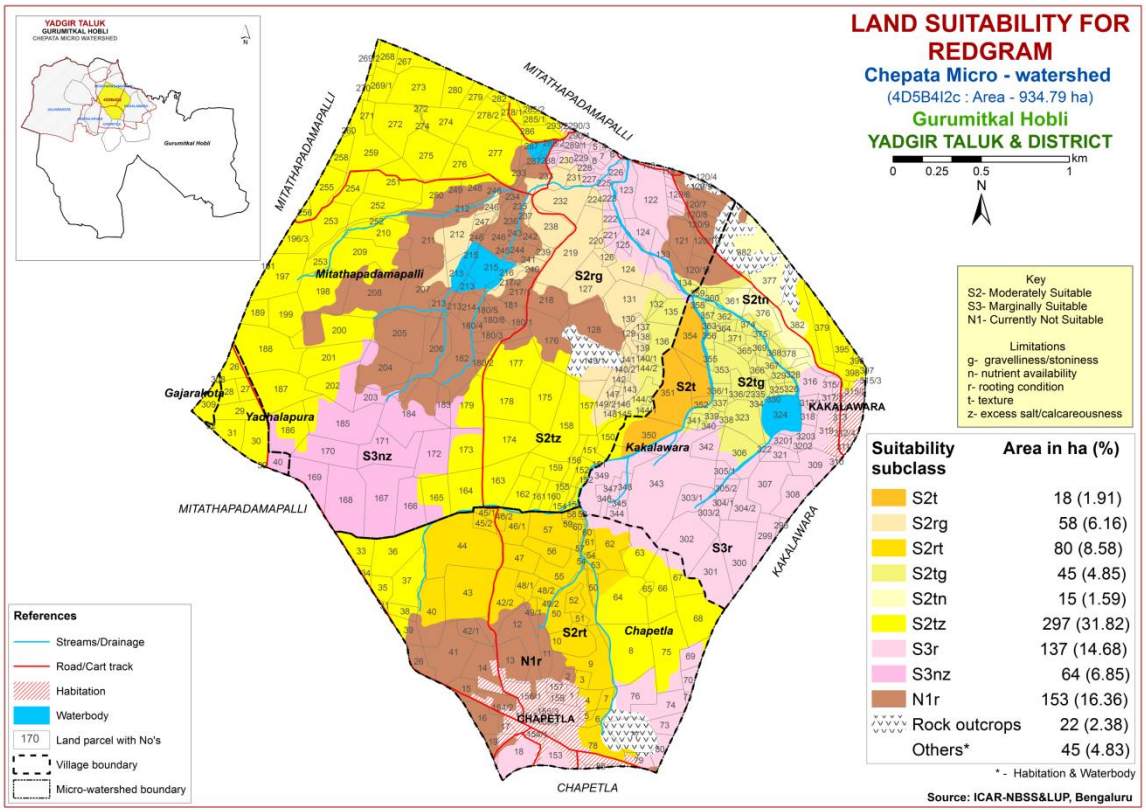


Fig. 7.6 Land suitability map of Red gram

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

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

There are no highly suitable (Class S1) lands available for growing bengal gram in the microwatershed. Maximum area of about 297 ha (32%) is moderately suitable (Class S2) for growing bengal gram and are distributed in the eastern, northern, western, northwestern, central, southeastern and southwestern part of the microwatershed. They have minor limitation of calcareousness. Maximum area of about 417 ha (45%) is marginally suitable (Class S3) for growing bengal gram and is distributed in the major part of the microwatershed with moderate limitations of texture, nutrient availability and calcareousness. Currently not suitable (Class N1) lands occur in an area of 153 ha (16%) and are distributed in the southern, central and northeastern part of the microwatershed with severe limitations of rooting depth and texture.

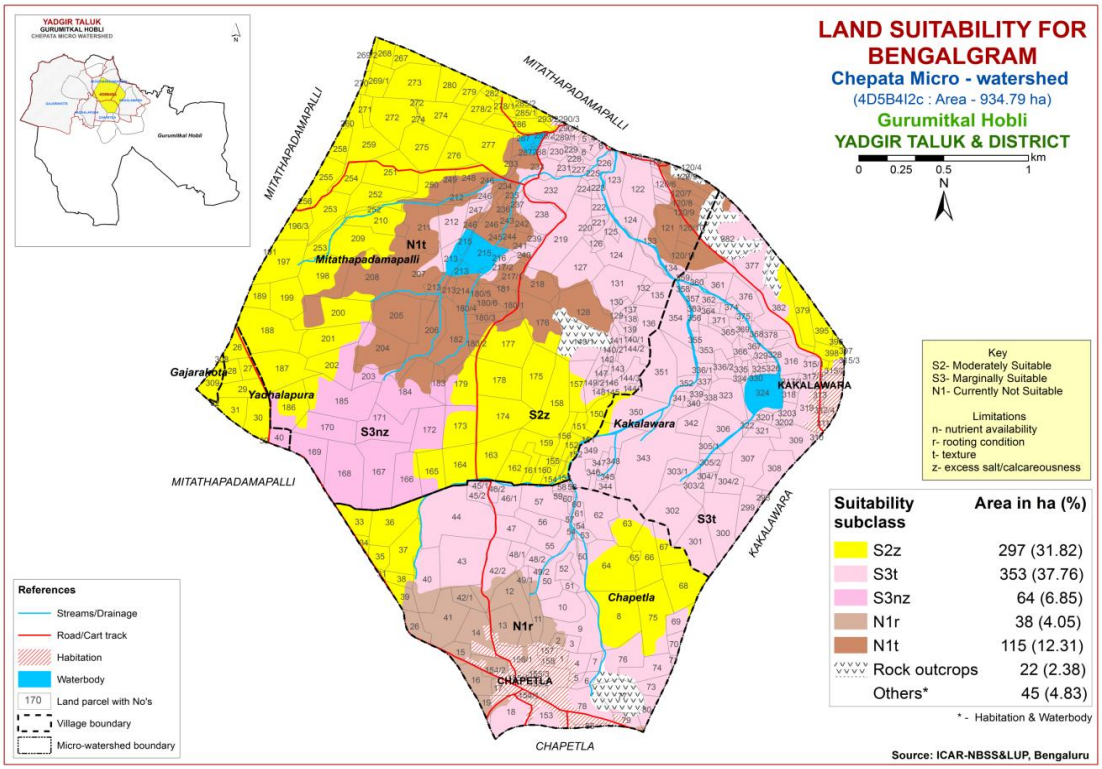


Fig. 7.7 Land suitability map of Bengal gram

7.8 Land Suitability for Cotton (*Gossypium hirsutum*)

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

There are no highly suitable (Class S1) lands available for growing cotton in the microwatershed. Maximum area of about 319 ha (34%) is moderately suitable (Class S2) for growing cotton and are distributed in the eastern, northern, western, northwestern, central, southeastern and southwestern part of the microwatershed. They have minor limitation of calcareousness. Maximum area of about 395 ha (42%) is marginally suitable (Class S3) for growing cotton and is distributed in the major part of the microwatershed with moderate limitations of texture, nutrient availability, topography and calcareousness. Currently not suitable (Class N1) lands occur in an area of 153 ha (16%) and are distributed in the southern, central and northeastern part of the microwatershed with severe limitations of rooting depth and texture.

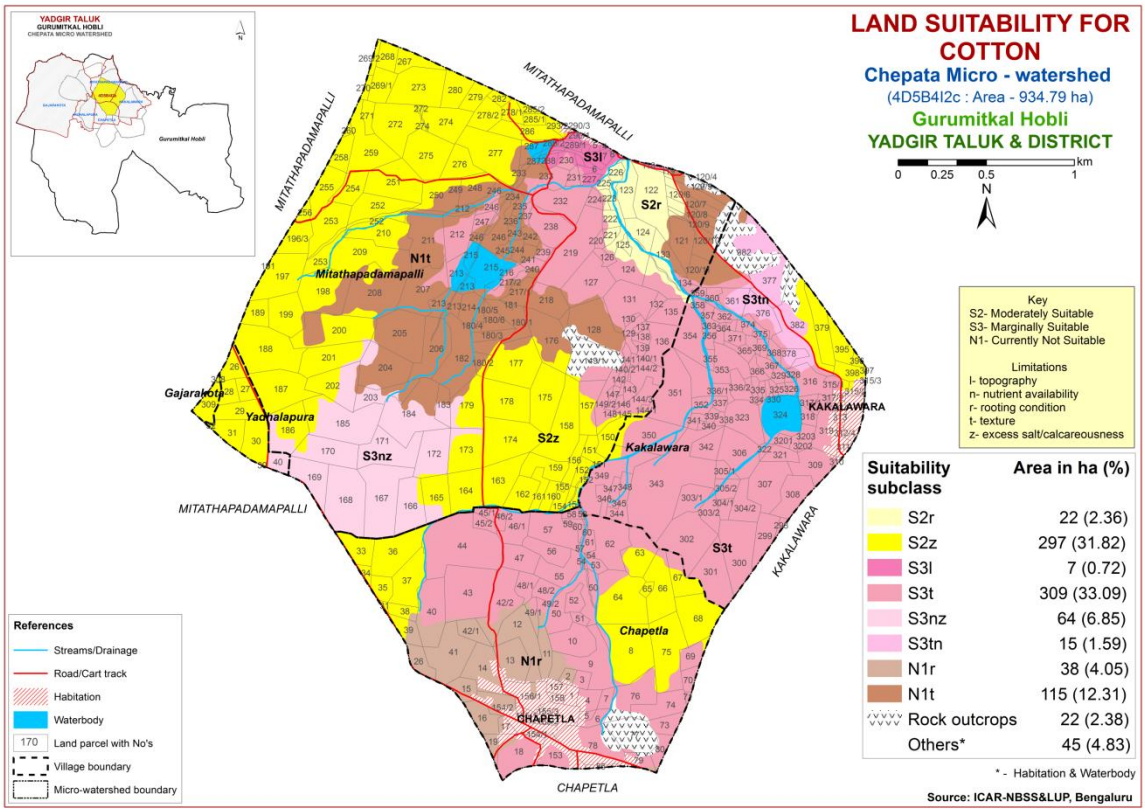


Fig. 7.8 Land suitability map of Cotton

7.9 Land Suitability for Chilli (*Capsicum annuum)*

Chilli is one of the most important vegetable 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.

Highly suitable (Class S1) lands for growing chilli occur in an area of 98 ha (10%) and are distributed in the southern and central part of the microwatershed. Maximum area of about 480 ha (51%) is moderately suitable (Class S2) for growing chilli and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, gravelliness, topography and calcareousness. An area of about 188 ha (20%) is marginally suitable (Class S3) for growing chilli and is distributed in the western, central and northeastern part of the microwatershed with moderate limitations of rooting depth, nutrient availability and gravelliness. Currently not suitable (Class N1) lands occur in an area of 102 ha (11%) and are distributed in the southern and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

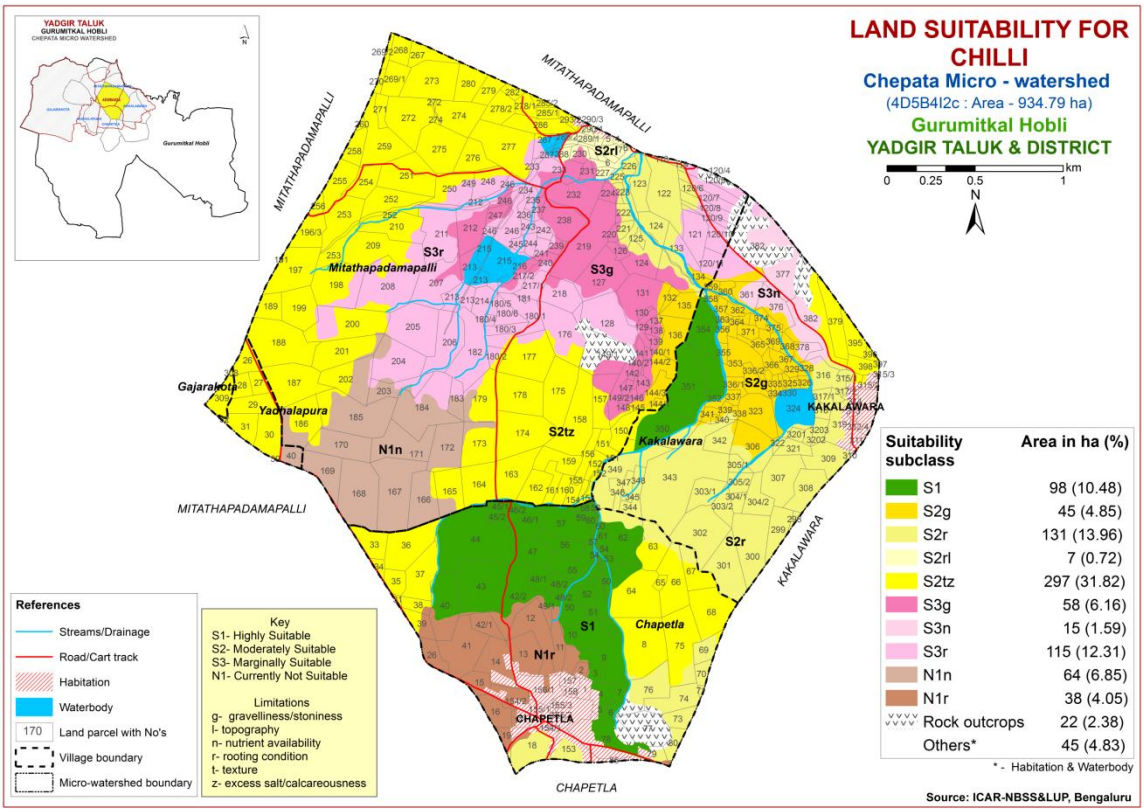


Fig 7.9 Land suitability map of Chilli

7.10 Land Suitability for Tomato *(Lycopersicon esculentum)*

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

Highly suitable (Class S1) lands for growing tomato occur in an area of 98 ha (10%) and are distributed in the southern and central part of the microwatershed. An area of about 183 ha (20%) is moderately suitable (Class S2) for growing tomato and are distributed in the eastern, southern and northeastern part of the microwatershed. They have minor limitations of rooting depth, gravelliness and topography. Maximum area of about 485 ha (52%) is marginally suitable (Class S3) for growing tomato and is distributed in the major part of the microwatershed with moderate limitations of rooting depth, texture, nutrient availability and gravelliness. Currently not suitable (Class N1) lands occur in an area of 102 ha (11%) and are distributed in the southern and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

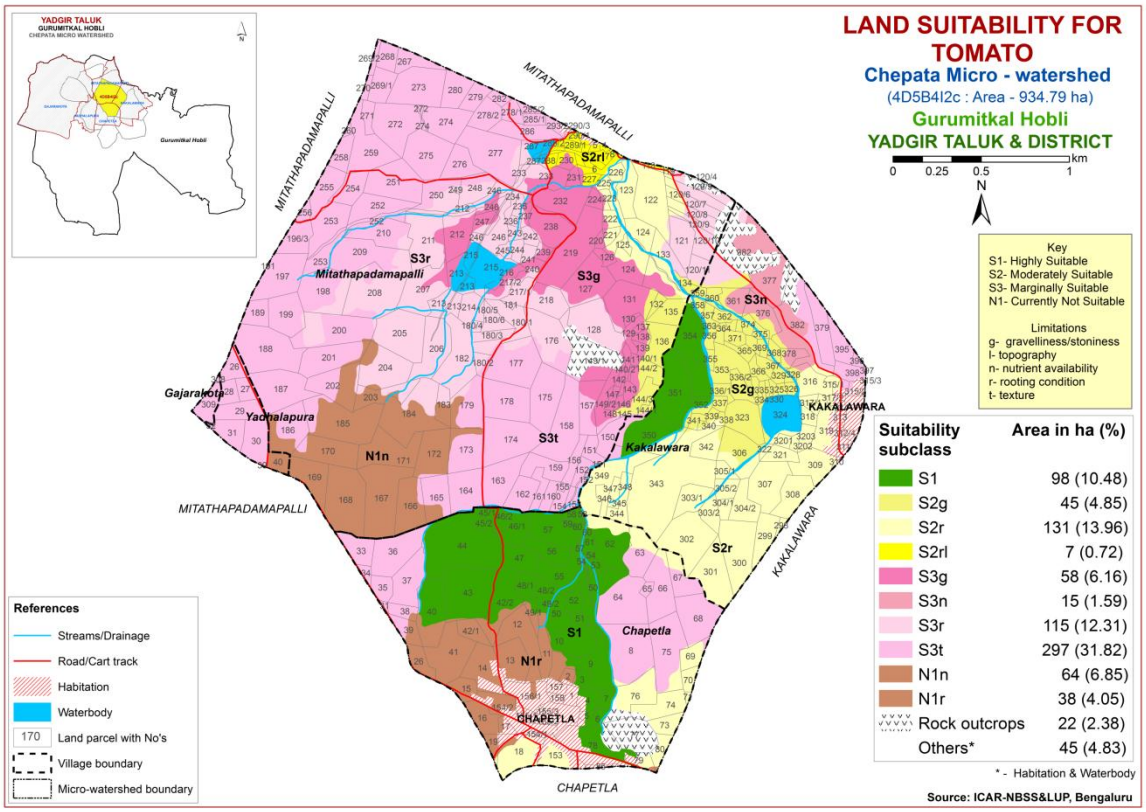


Fig 7.10 Land suitability map of Tomato

7.11 Land Suitability for Brinjal (*Solanum melongena*)

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

Highly suitable (Class S1) lands for growing brinjal occur in an area of 98 ha (10%) and are distributed in the southern and central part of the microwatershed. An area of about 183 ha (20%) is moderately suitable (Class S2) for growing brinjal and are distributed in the eastern, southern and northeastern part of the microwatershed. They have minor limitations of rooting depth, gravelliness and topography. Maximum area of about 485 ha (52%) is marginally suitable (Class S3) for growing brinjal and is distributed in the major part of the microwatershed with moderate limitations of rooting depth, texture, nutrient availability and gravelliness. Currently not suitable (Class N1) lands occur in an area of 102 ha (11%) and are distributed in the southern and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

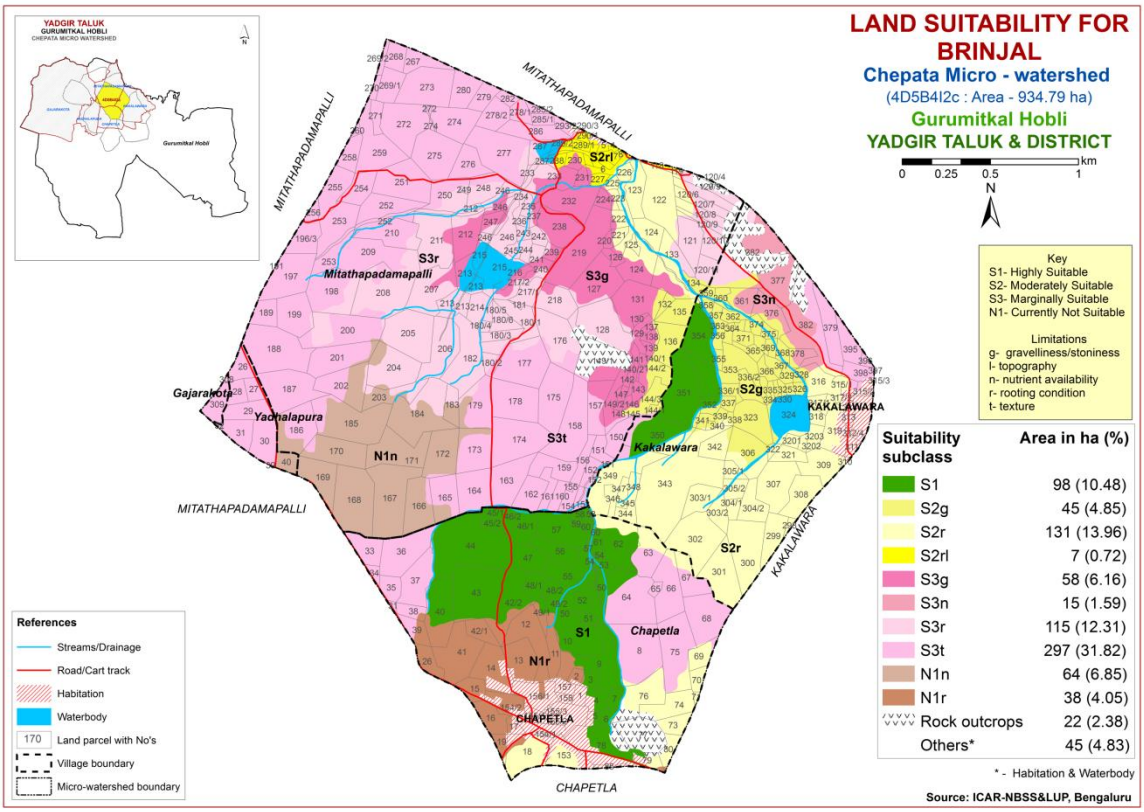


Fig 7.11 Land suitability map of Brinjal

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

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

Highly suitable (Class S1) lands for growing onion occur in an area of 98 ha (10%) and are distributed in the southern and central part of the microwatershed. An area of about 183 ha (20%) is moderately suitable (Class S2) for growing onion and are distributed in the eastern, southern and northeastern part of the microwatershed. They have minor limitations of rooting depth, gravelliness and topography. Maximum area of about 471 ha (50%) is marginally suitable (Class S3) for growing onion and is distributed in the major part of the microwatershed with moderate limitations of rooting depth, texture, calcareousness and gravelliness. Currently not suitable (Class N1) lands occur in an area of 117 ha (12%) and are distributed in the southern, eastern and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

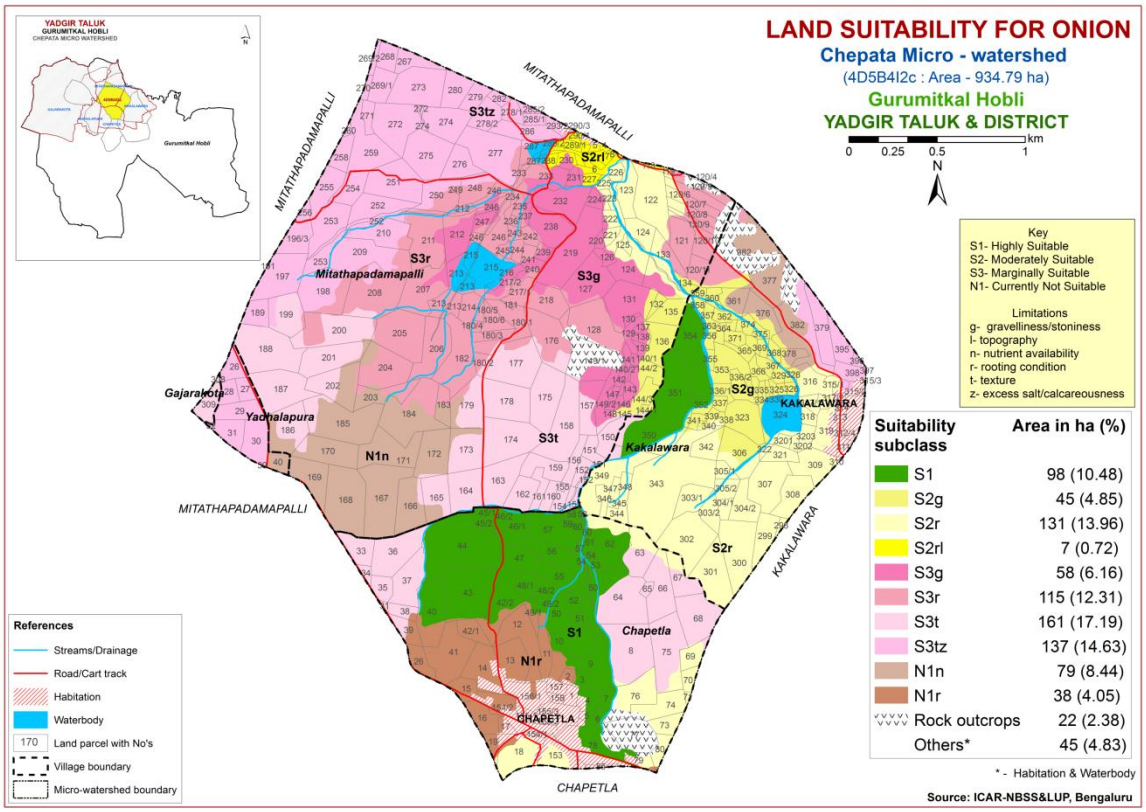


Fig 7.12 Land suitability map of Onion

7.13 Land Suitability for Bhendi (*Abelmoschus esculentus*)

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

Highly suitable (Class S1) lands for growing bhendi occur in an area of 98 ha (10%) and are distributed in the southern and central part of the microwatershed. Maximum area of about 480 ha (51%) is moderately suitable (Class S2) for growing bhendi and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, calcareousness, gravelliness and topography. An area of about 188 ha (20%) is marginally suitable (Class S3) for growing bhendi and is distributed in the eastern, central and northeastern part of the microwatershed with moderate limitations of rooting depth, nutrient availability and gravelliness. Currently not suitable (Class N1) lands occur in an area of 102 ha (11%) and are distributed in the southern and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

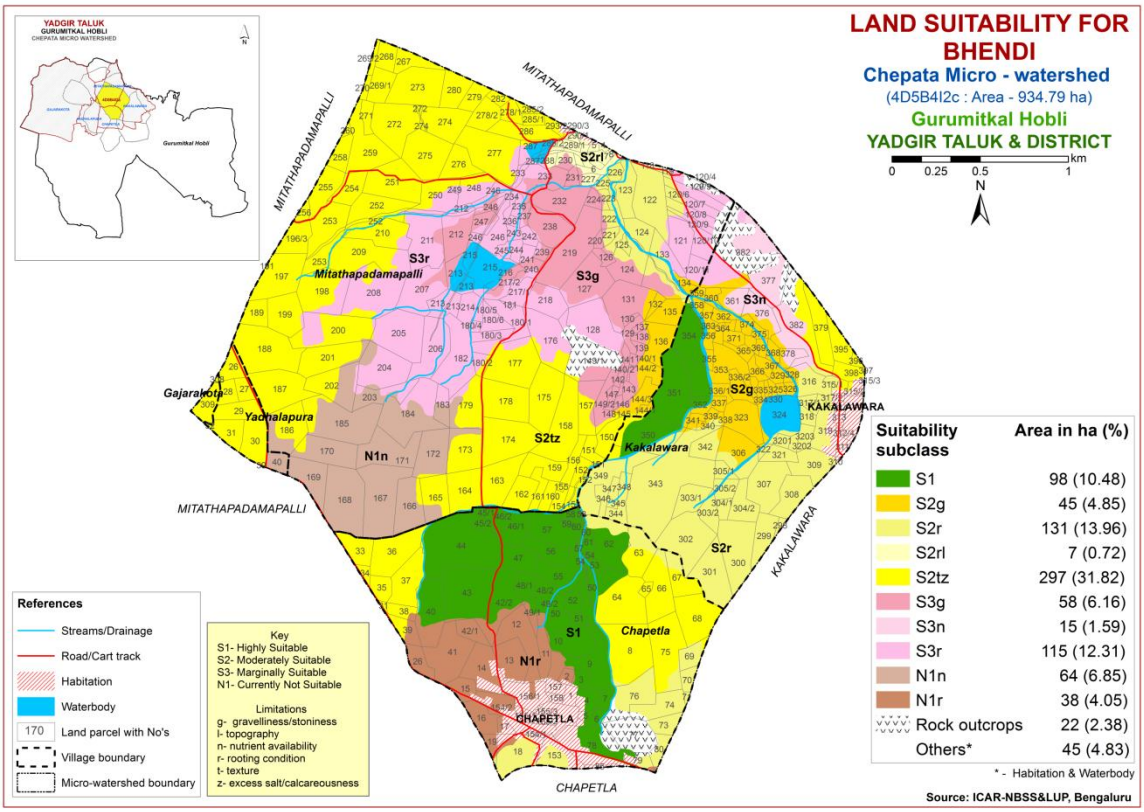


Fig 7.13 Land suitability map of Bhendi

7.14 Land Suitability for Drumstick (*Moringa oleifera*)

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

Highly suitable (Class S1) lands for growing drumstick occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. An area of about 138 ha (15%) is moderately suitable (Class S2) for growing drumstick and are distributed in the southern and northeastern part of the microwatershed. They have minor limitations of rooting depth and gravelliness. Maximum area of about 434 ha (47%) is marginally suitable (Class S3) for growing drumstick and is distributed in the major part of the microwatershed with moderate limitations of rooting depth and calcareousness. Currently not suitable (Class N1) lands occur in an area of 232 ha (25%) and are distributed in the southern, eastern, central and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

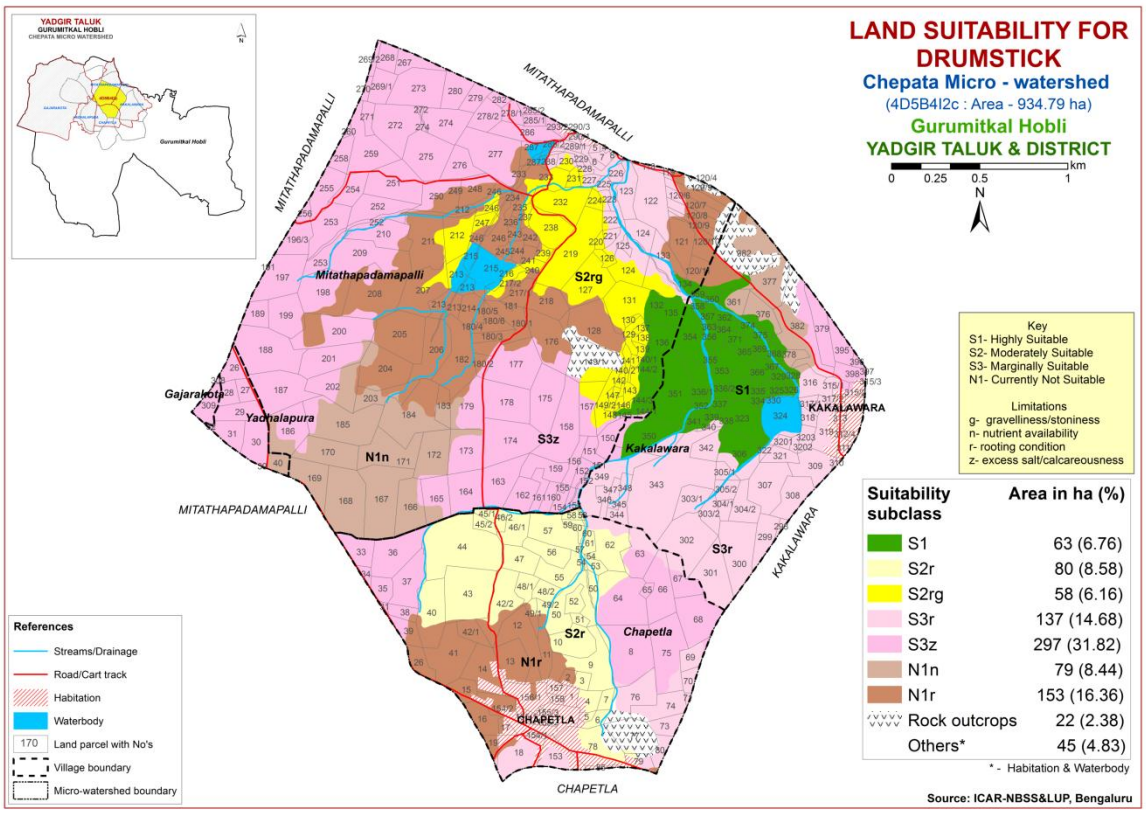


Fig 7.14 Land suitability map of Drumstick

7.15 Land Suitability for Mango (*Mangifera indica*)

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

Highly suitable (Class S1) lands for growing mango occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. Maximum area of about 450 ha (48%) is marginally suitable (Class S3) for growing mango with moderate limitations of texture, rooting depth and nutrient availability. They are distributed in the major part of the microwatershed. An area of about 354 ha (38%) is currently not suitable (Class N1) for growing mango and are distributed in the eastern, southern, central, western and northeastern part of the microwatershed with severe limitations of rooting depth and nutrient availability.

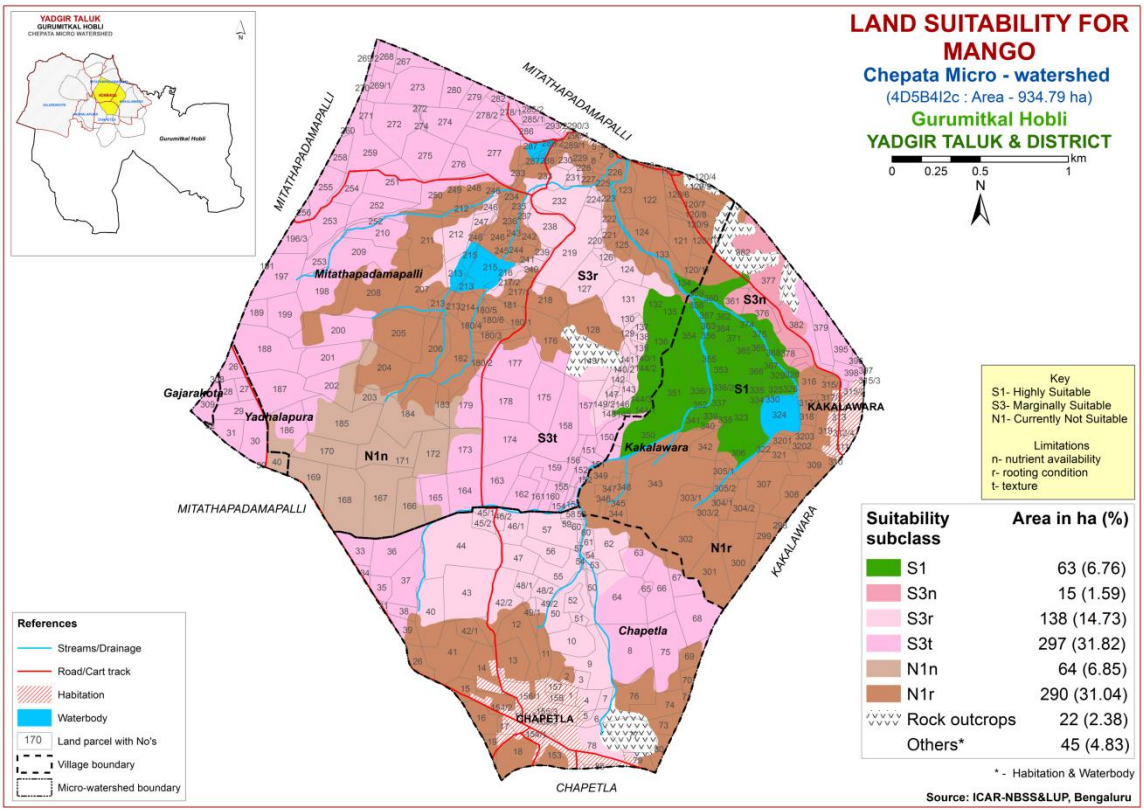


Fig. 7.15 Land suitability map of Mango

7.16 Land Suitability for Guava (*Psidium guajava*)

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

Highly suitable (Class S1) lands for growing guava occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. An area of about 138 ha (15%) is moderately suitable (Class S2) for growing guava and are distributed in the southern and northeastern part of the microwatershed. They have minor limitations of rooting depth and gravelliness. Maximum area of about 434 ha (47%) is marginally suitable (Class S3) for growing guava and is distributed in the major part of the microwatershed with moderate limitations of rooting depth and gravelliness. Currently not suitable (Class N1) lands occur in an area of 232 ha (25%) and are distributed in the southern, eastern, central and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

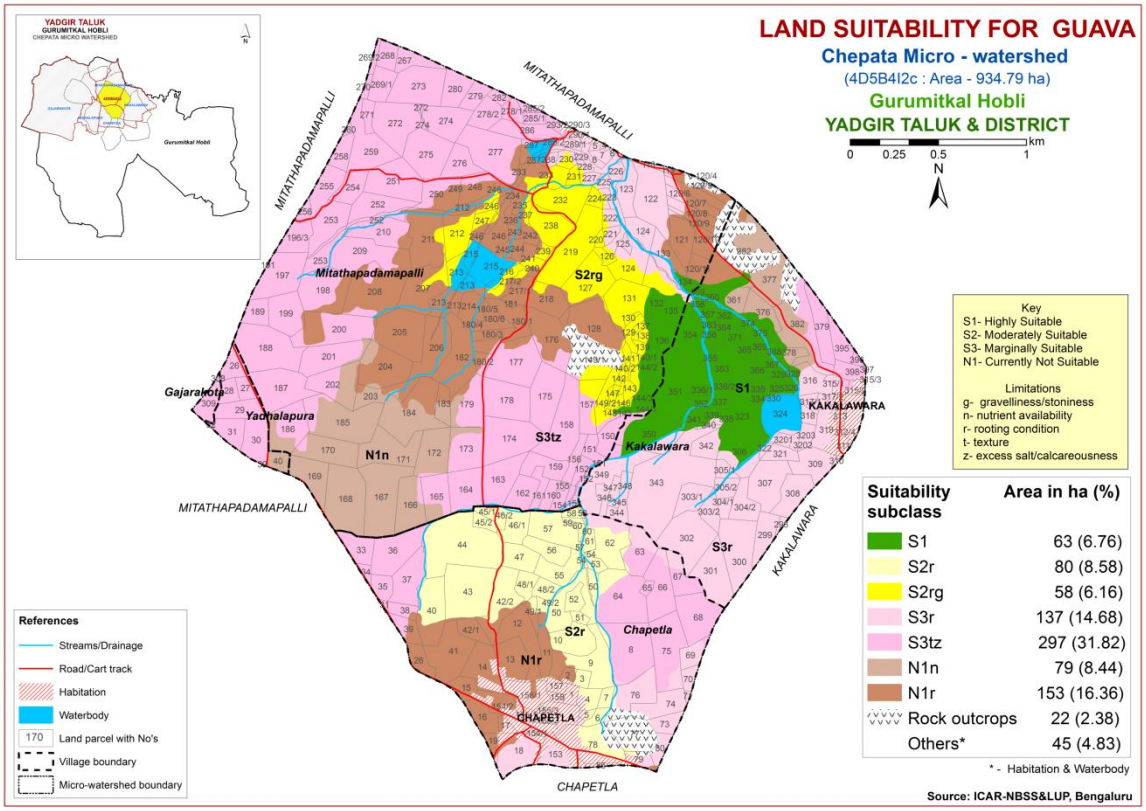


Fig. 7.16 Land suitability map of Guava

7.17 Land Suitability for Sapota (*Manilkara zapota*)

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

Highly suitable (Class S1) lands for growing guava occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. An area of about 138 ha (15%) is moderately suitable (Class S2) for growing guava and are distributed in the southern and northeastern part of the microwatershed. They have minor limitations of rooting depth and gravelliness. Maximum area of about 449 ha (48%) is marginally suitable (Class S3) for growing guava and is distributed in the major part of the microwatershed with moderate limitations of rooting depth, nutrient availability and gravelliness. Currently not suitable (Class N1) lands occur in an area of 217 ha (23%) and are distributed in the southern, northeastern, central and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

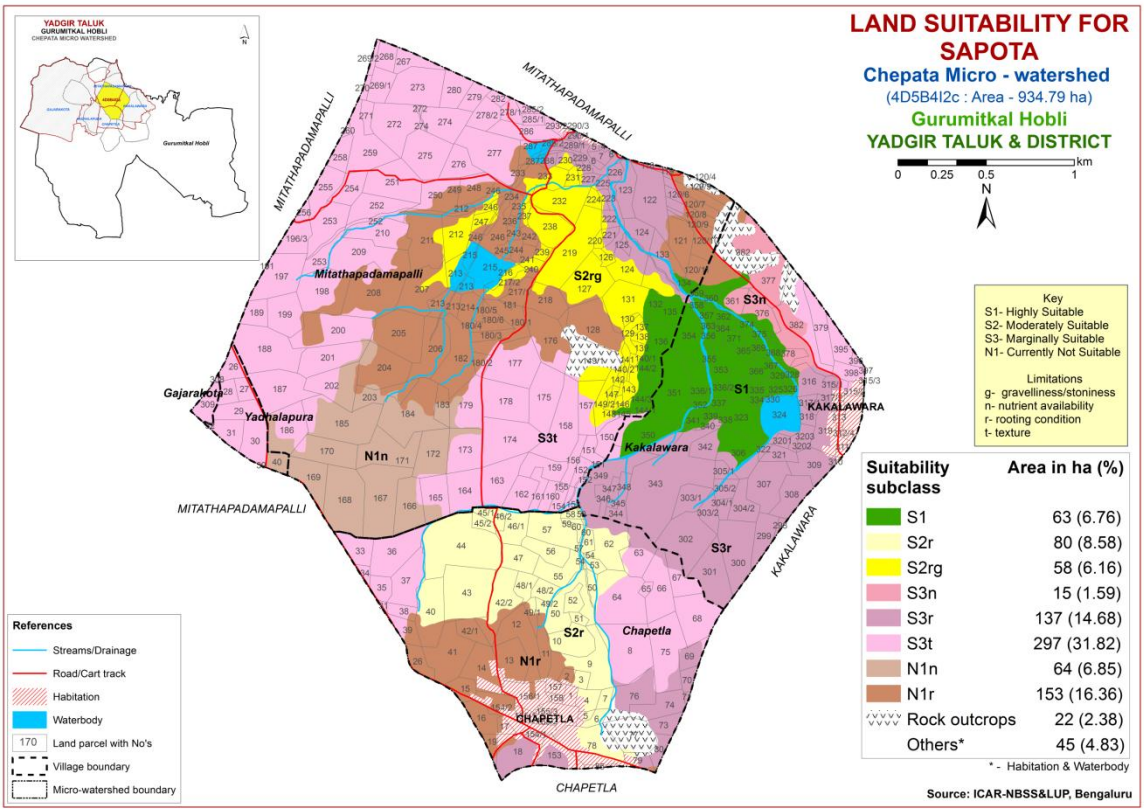


Fig. 7.17 Land suitability map of Sapota

7.18 Land Suitability for Pomegranate (*Punica granatum*)

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

Highly suitable (Class S1) lands for growing pomegranate occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. Maximum area of about 435 ha (47%) is moderately suitable (Class S2) for growing pomegranate and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, calcareousness and gravelliness. An area of about 152 ha (16%) is marginally suitable (Class S3) for growing pomegranate and is distributed in the eastern, southeastern and northeastern part of the microwatershed with moderate limitations of rooting depth and nutrient availability. Currently not suitable (Class N1) lands occur in an area of 217 ha (23%) and are distributed in the southern, central, western and northeastern part of the microwatershed with severe limitations of rooting depth and nutrient availability.

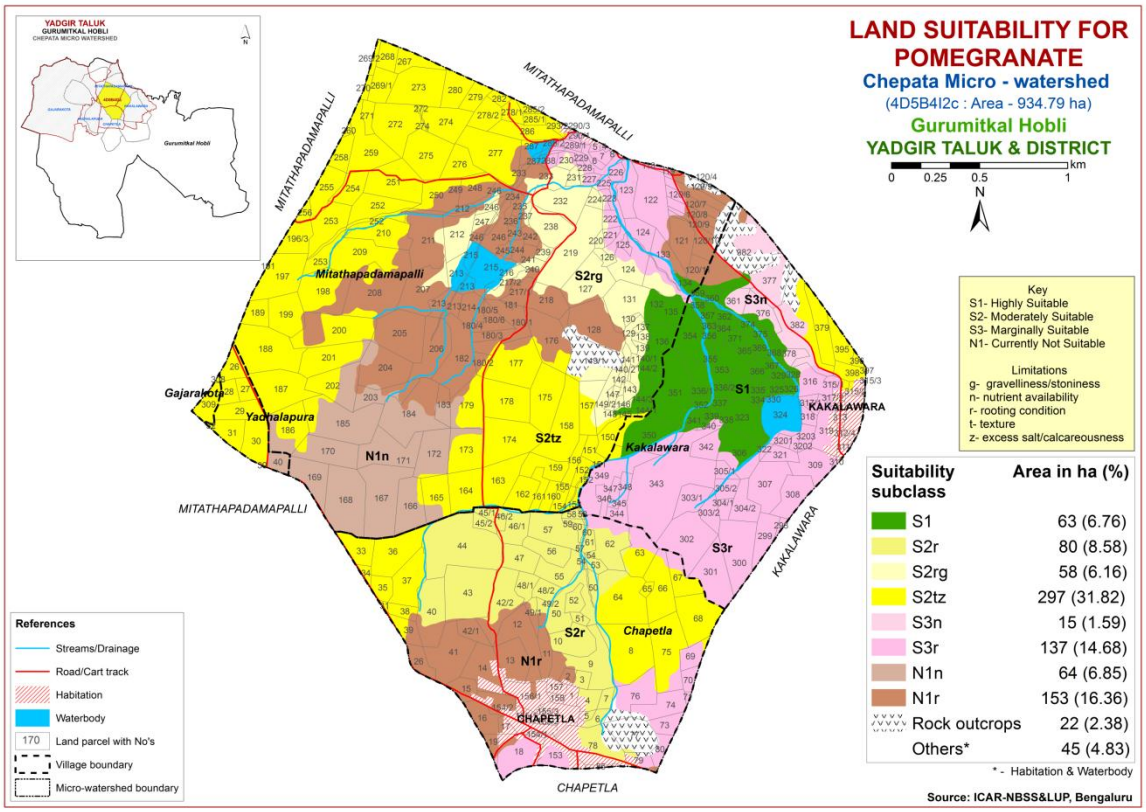


Fig 7.18 Land suitability map of Pomegranate

7.19 Land Suitability for Musambi (*Citrus limetta*)

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

Highly suitable (Class S1) lands for growing musambi occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. Maximum area of about 435 ha (47%) is moderately suitable (Class S2) for growing musambi and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, calcareousness and gravelliness. An area of about 152 ha (16%) is marginally suitable (Class S3) for growing musambi and is distributed in the eastern, southeastern and northeastern part of the microwatershed with moderate limitations of rooting depth and nutrient availability. Currently not suitable (Class N1) lands occur in an area of 217 ha (23%) and are distributed in the southern, central, western and northeastern part of the microwatershed with severe limitations of rooting depth and nutrient availability.

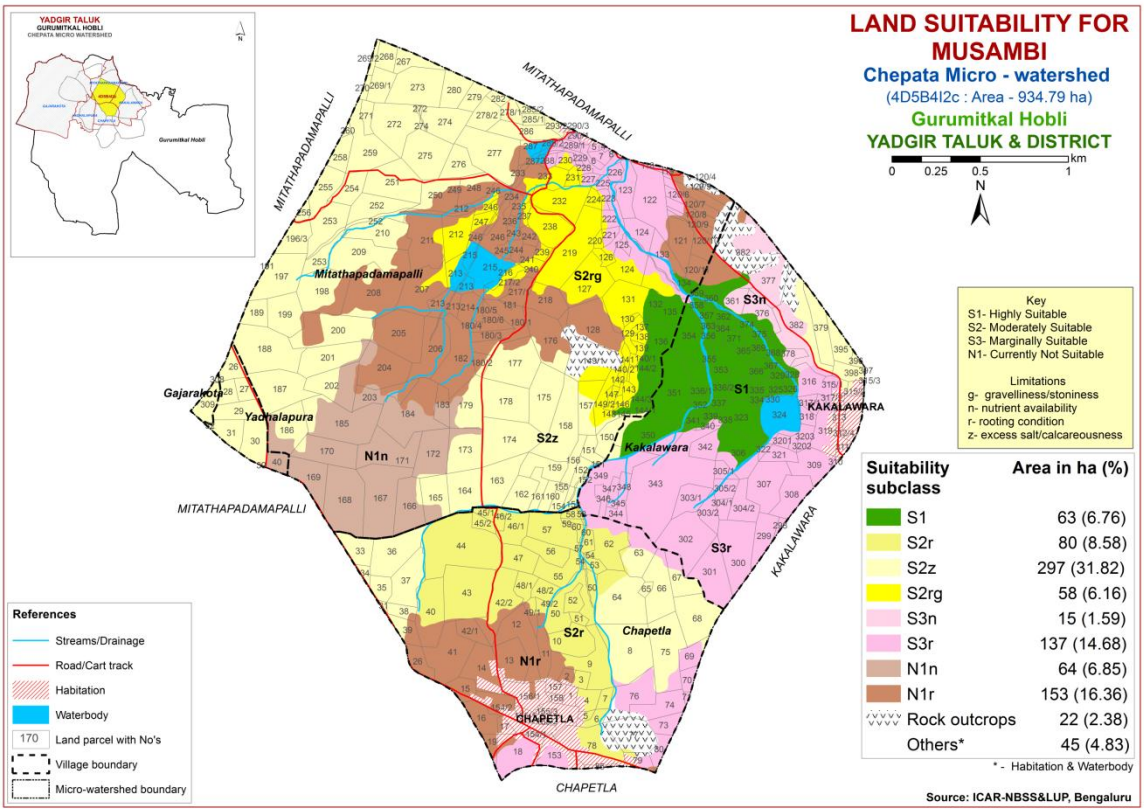


Fig. 7.19 Land suitability map of Musambi

7.20 Land Suitability for Lime (*Citrus sp*)

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

Highly suitable (Class S1) lands for growing lime occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. Maximum area of about 435 ha (47%) is moderately suitable (Class S2) for growing lime and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, calcareousness and gravelliness. An area of about 152 ha (16%) is marginally suitable (Class S3) for growing lime and is distributed in the eastern, southeastern and northeastern part of the microwatershed with moderate limitations of rooting depth and nutrient availability. Currently not suitable (Class N1) lands occur in an area of 217 ha (23%) and are distributed in the southern, central, western and northeastern part of the microwatershed with severe limitations of rooting depth and nutrient availability.

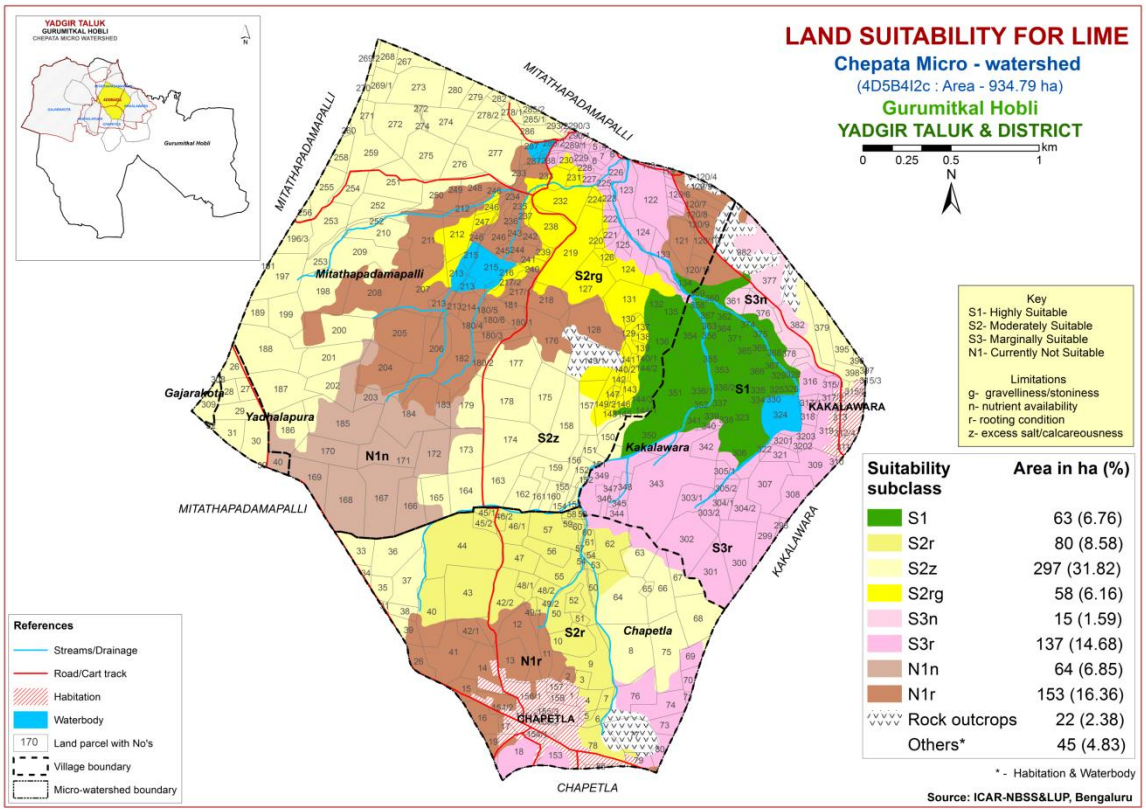


Fig. 7.20 Land suitability map of Lime

7.21 Land Suitability for Amla (*Phyllanthus emblica*)

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

Highly suitable (Class S1) lands for growing amla occur in an area of 143 ha (15%) and are distributed in the northern and eastern part of the microwatershed. An area of about 196 ha (21%) is moderately suitable (Class S2) for growing amla and are distributed in the eastern, southern and northeastern part of the microwatershed. They have minor limitations of rooting depth, topography and gravelliness. Maximum area of about 412 ha (44%) is marginally suitable (Class S3) for growing amla and is distributed in the major part of the microwatershed with moderate limitations of rooting depth, texture and calcareousness. Currently not suitable (Class N1) lands occur in an area of 117 ha (12%) and are distributed in the southern, northeastern and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

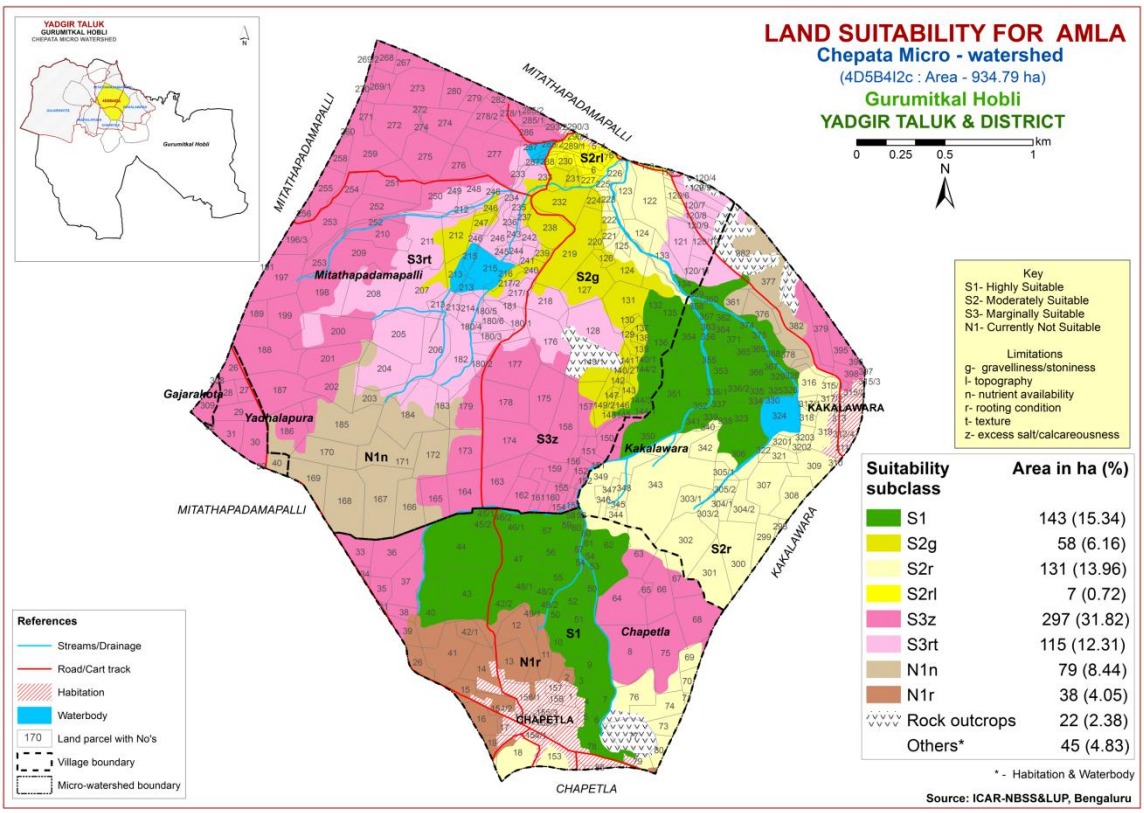


Fig. 7.21 Land suitability map of Amla

7.22 Land Suitability for Cashew (*Anacardium occidentale)*

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

There are no highly suitable (Class S1) lands available for growing cashew in the microwatershed. An area of about 63 ha (7%) is moderately suitable (Class S2) for growing cashew and are distributed in the eastern part of the microwatershed. They have minor limitation of nutrient availability. An area of about 167 ha (18%) is marginally suitable (Class S3) for growing cashew and is distributed in the southern and northeastern part of the microwatershed with moderate limitations of rooting depth, gravelliness and nutrient availability. Currently not suitable (Class N1) lands occur in a maximum area of 637 ha (68%) and are distributed in the major part of the microwatershed with severe limitations of rooting depth, texture and nutrient availability.

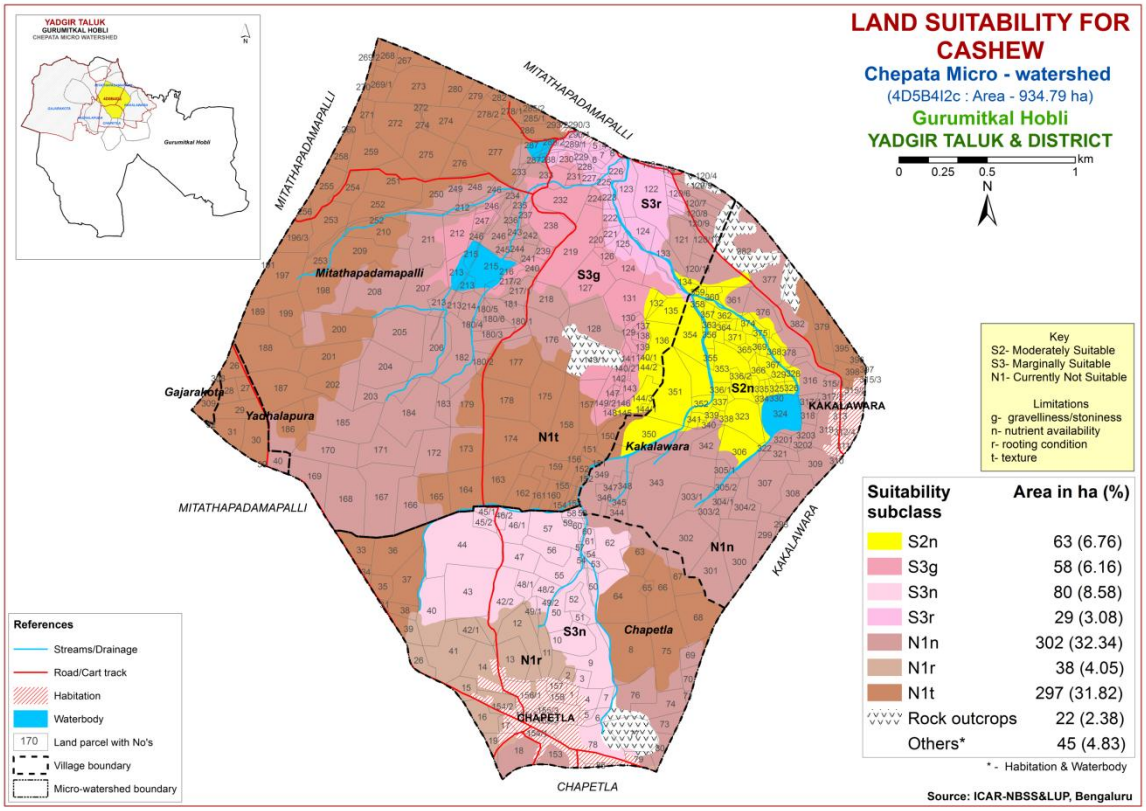


Fig. 7.22 Land suitability map of Cashew

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

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

Highly suitable (Class S1) lands for growing jackfruit occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. An area of about 138 ha (15%) is moderately suitable (Class S2) for growing jackfruit and are distributed in the southern and northeastern part of the microwatershed. They have minor limitations of rooting depth and gravelliness. Maximum area of about 434 ha (47%) is marginally suitable (Class S3) for growing jackfruit and is distributed in the major part of the microwatershed with moderate limitations of rooting depth, texture and calcareousness. Currently not suitable (Class N1) lands occur in an area of 232 ha (25%) and are distributed in the southern, northeastern, central and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

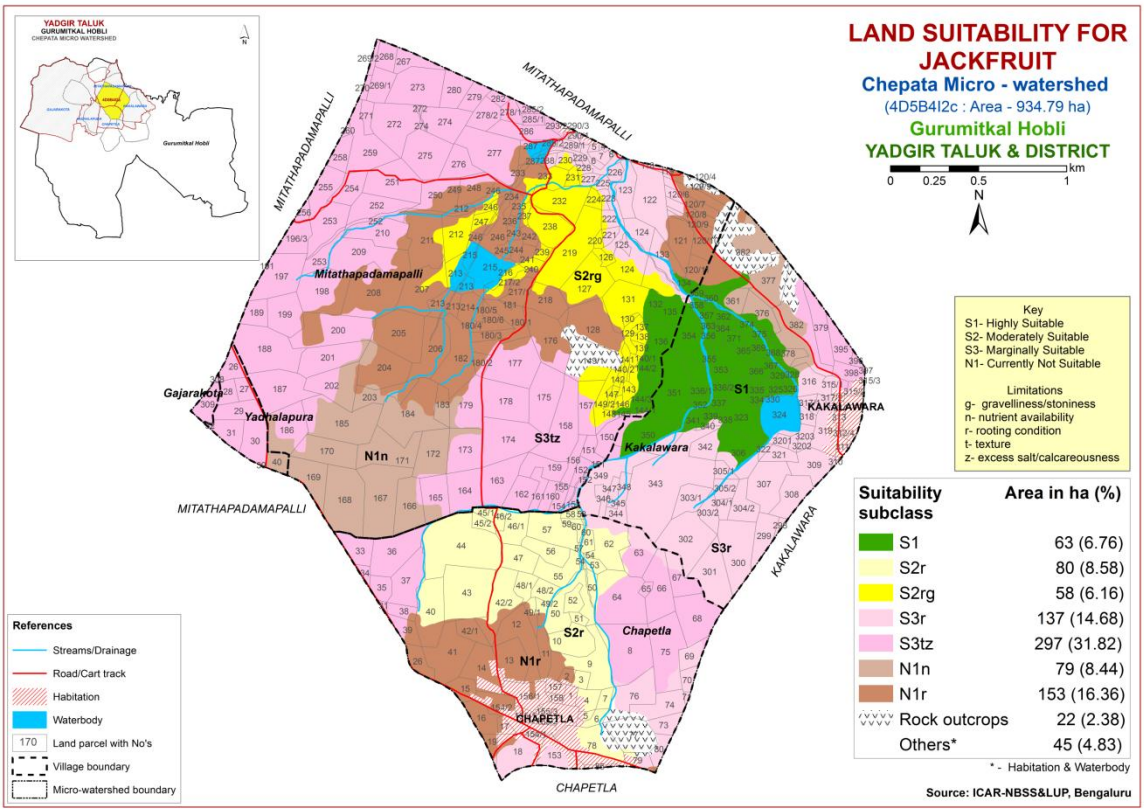


Fig. 7.23 Land suitability map of Jackfruit

7.24 Land Suitability for Jamun (*Syzygium cumini*)

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

Highly suitable (Class S1) lands for growing jamun occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. Maximum area of about 572 ha (61%) is marginally suitable (Class S3) for growing jamun and is distributed in the major part of the microwatershed with moderate limitations of rooting depth and calcareousness. Currently not suitable (Class N1) lands occur in an area of 232 ha (25%) and are distributed in the southern, northeastern, central and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

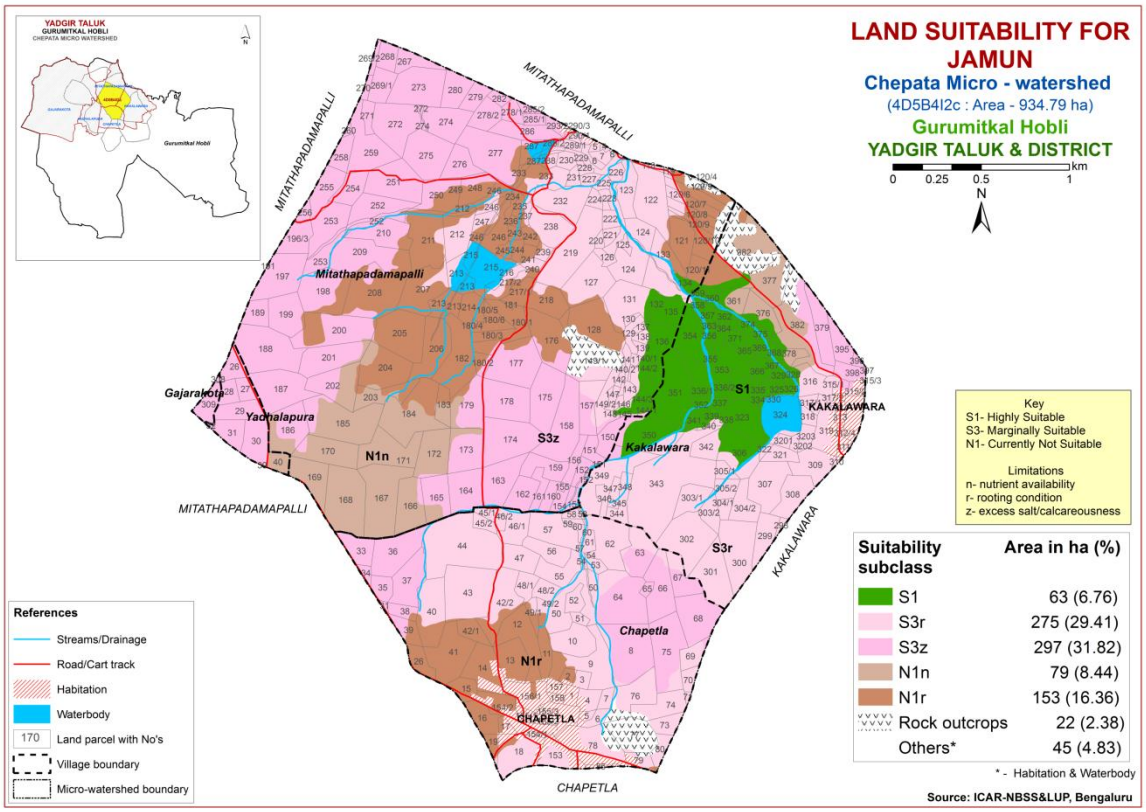


Fig. 7.24 Land suitability map of Jamun

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

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

Highly suitable (Class S1) lands for growing custard apple occur in an area of 143 ha (15%) and are distributed in the northern and eastern part of the microwatershed. Maximum area of about 493 ha (53%) is moderately suitable (Class S2) for growing custard apple and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, gravelliness, topography and calcareousness. An area of about 130 ha (14%) is marginally suitable (Class S3) for growing custard apple and is distributed in the western, central and northeastern part of the microwatershed with moderate limitations of rooting depth, texture and nutrient availability. Currently not suitable (Class N1) lands occur in an area of 102 ha (11%) and are distributed in the southern and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

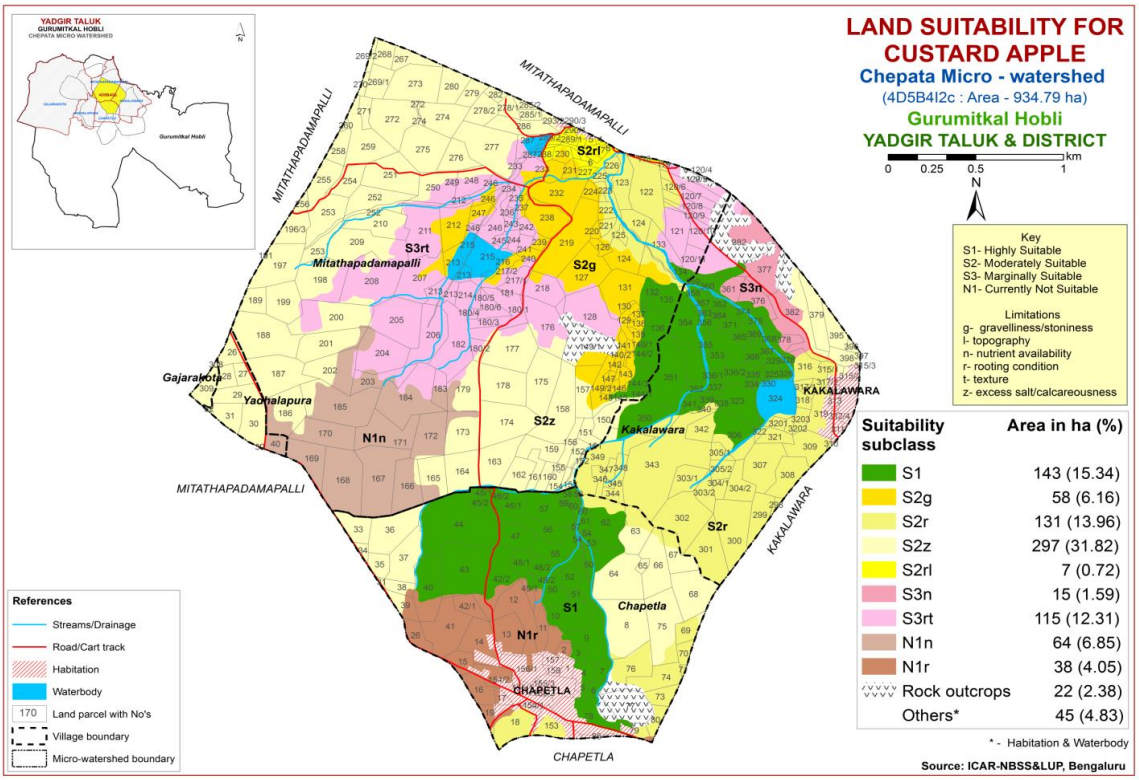


Fig. 7.25 Land suitability map of Custard Apple

7.26 Land Suitability for Tamarind (*Tamarindus indica*)

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

Highly suitable (Class S1) lands for growing tamarind occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. Maximum area of about 435 ha (47%) is marginally suitable (Class S3) for growing tamarind and is distributed in the major part of the microwatershed with moderate limitations of rooting depth and calcareousness. Currently not suitable (Class N1) lands occur in an area of 369 ha (39%) and are distributed in the southern, northeastern, eastern, central and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

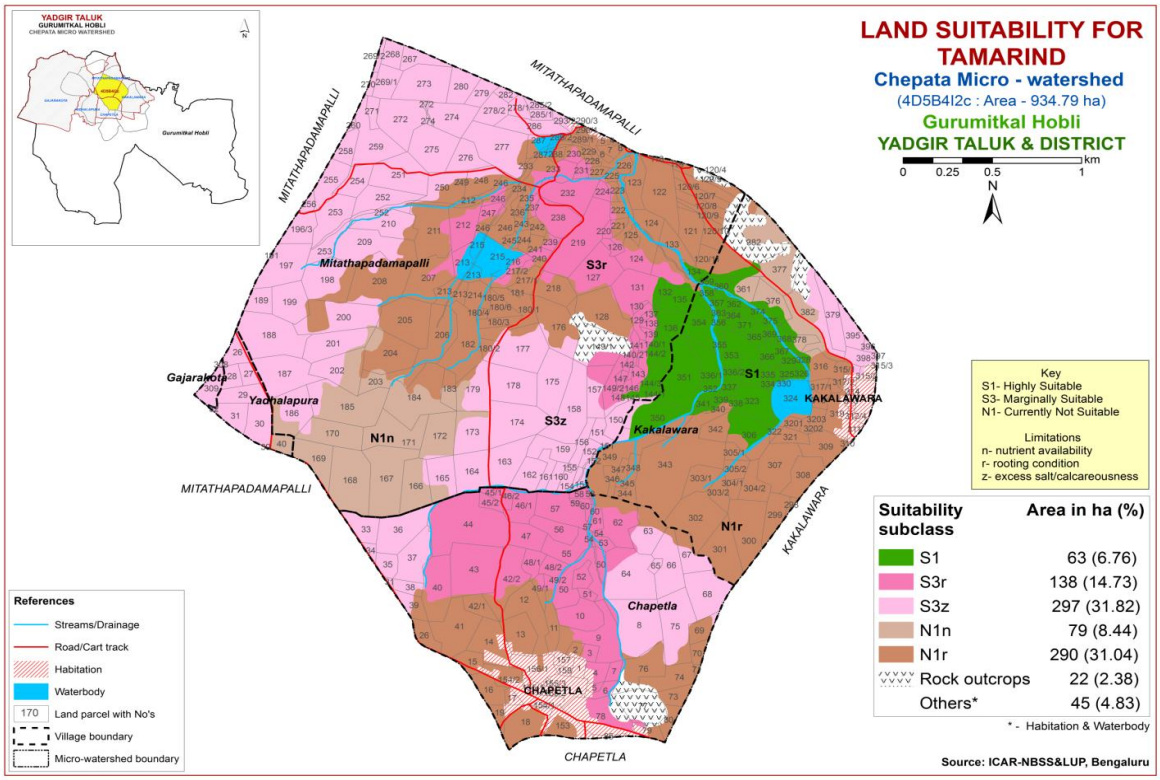


Fig. 7.26 Land suitability map of Tamarind

7.27 Land Suitability for Mulberry (*Morus nigra*)

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

Highly suitable (Class S1) lands for growing mulberry occur in an area of 63 ha (7%) and are distributed in the eastern part of the microwatershed. An area of about 138 ha (15%) is moderately suitable (Class S2) for growing mulberry and are distributed in the southern and northeastern part of the microwatershed. They have minor limitations of rooting depth and gravelliness. Maximum area of about 434 ha (47%) is marginally suitable (Class S3) for growing mulberry and is distributed in the major part of the microwatershed with moderate limitations of rooting depth, texture and calcareousness. Currently not suitable (Class N1) lands occur in an area of 232 ha (25%) and are distributed in the southern, northeastern, central and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

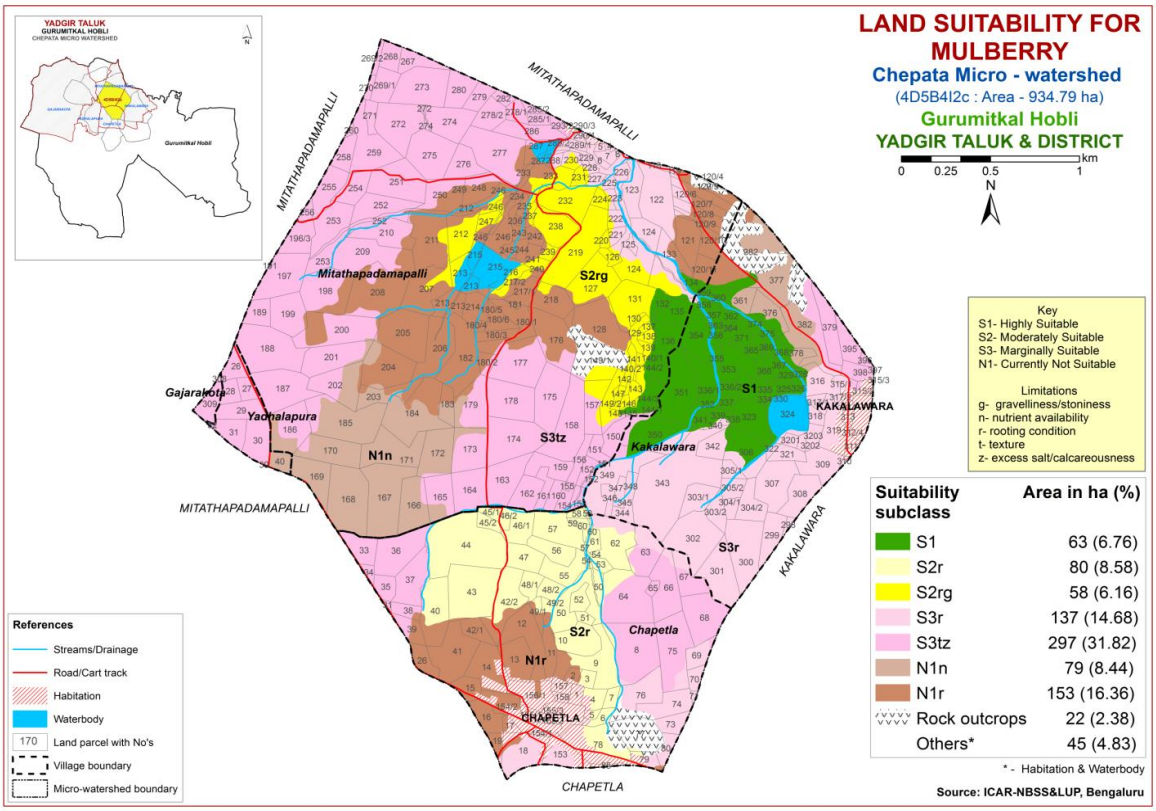


Fig 7.27 Land suitability map of Mulberry

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

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

Highly suitable (Class S1) lands for growing marigold occur in an area of 98 ha (10%) and are distributed in the southern and central part of the microwatershed. Maximum area of about 480 ha (51%) is moderately suitable (Class S2) for growing marigold and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, calcareousness, gravelliness and topography. An area of about 188 ha (20%) is marginally suitable (Class S3) for growing marigold and is distributed in the eastern, central and northeastern part of the microwatershed with moderate limitations of rooting depth, nutrient availability and gravelliness. Currently not suitable (Class N1) lands occur in an area of 102 ha (11%) and are distributed in the southern and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

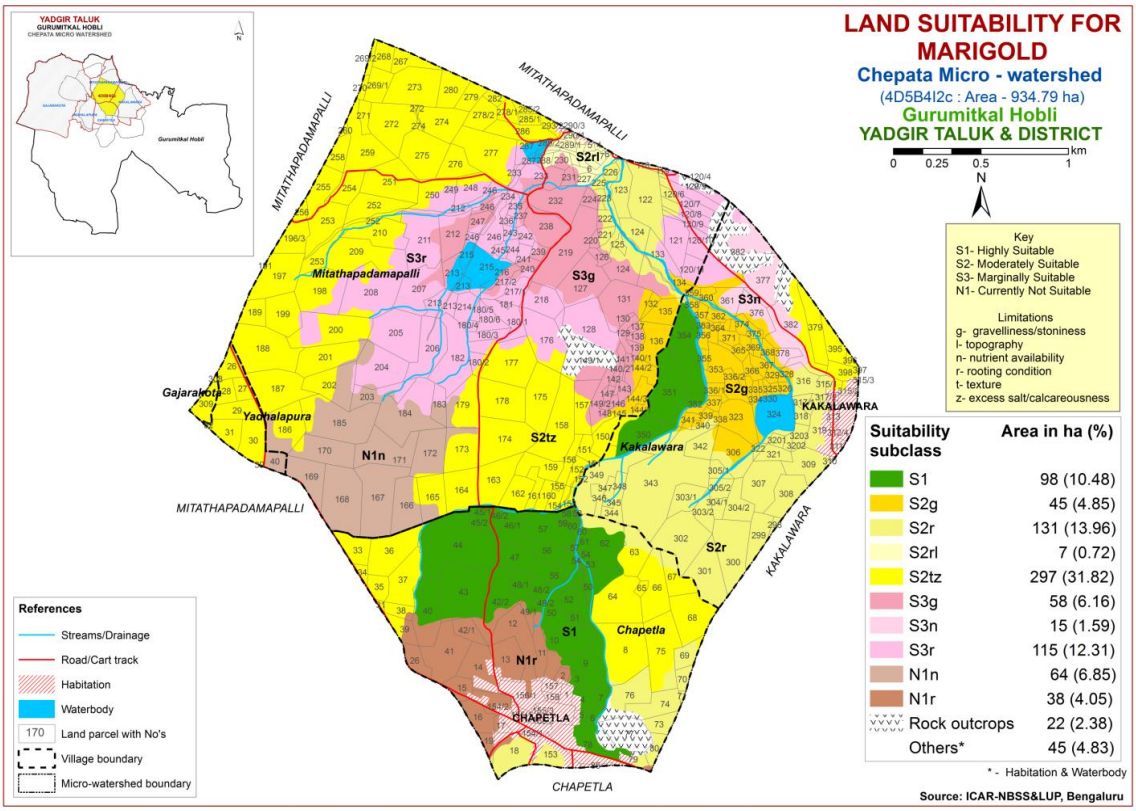


Fig. 7.28 Land suitability map of Marigold

7.29 Land Suitability for Chrysanthemum (*Dendranthema grandiflora*)

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

Highly suitable (Class S1) lands for growing chrysanthemum occur in an area of 98 ha (10%) and are distributed in the southern and central part of the microwatershed. Maximum area of about 480 ha (51%) is moderately suitable (Class S2) for growing chrysanthemum and are distributed in the major part of the microwatershed. They have minor limitations of rooting depth, texture, calcareousness, gravelliness and topography. An area of about 188 ha (20%) is marginally suitable (Class S3) for growing chrysanthemum and is distributed in the eastern, central and northeastern part of the microwatershed with moderate limitations of rooting depth, nutrient availability and gravelliness. Currently not suitable (Class N1) lands occur in an area of 102 ha (11%) and are distributed in the southern and western part of the microwatershed with severe limitations of rooting depth and nutrient availability.

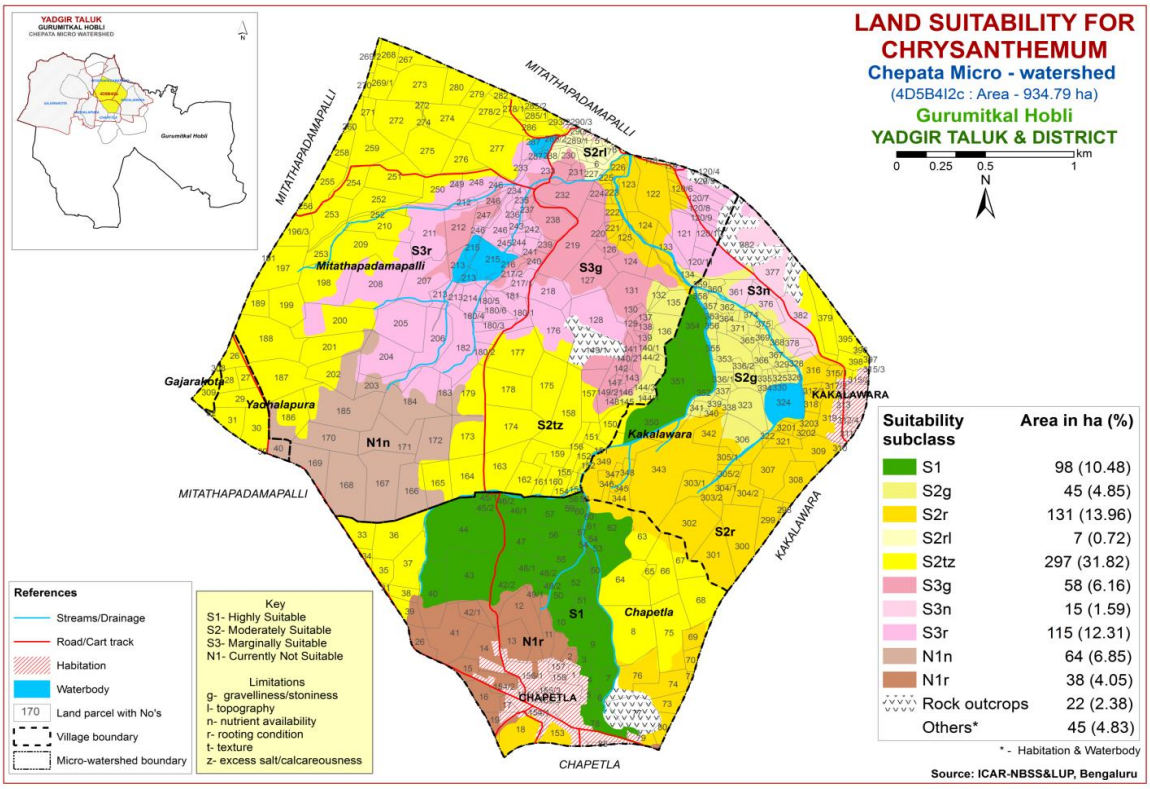


Fig. 7.29 Land suitability map of Chrysanthemum

Table 7.1 Soil-Site Characteristics of Chepata Microwatershed

Soil Map Units	Climate (P) (mm)	Growing period (Days)	Drain-age Class	Soil depth (cm)	Soil texture		Gravelliness		AWC (mm/m)	Slope (%)	Erosion	pH	EC (dSm^{-1})	ESP (%)	CEC [Cmol (p^{+})kg^{-1}]	BS (%)
					Sur-face	Sub-surface	Surface (%)	Sub-surface (%)								
BMDcB2	866	150	MW	>150	sl	scl	<15	<15	151-200	1-3	Moderate					
BMDiB2g1	866	150	MW	>150	sc	scl	15-35	<15	151-200	1-3	Moderate					
MDGhB2g1	866	150	W	100-150	scl	scl	15-35	<15	>200	1-3	Moderate	8.2	0.399	3.08	4.90	100
SHTiB2	866	150	W	75-100	sc	scl	<15	15-35	51-100	1-3	Moderate	7.26	0.199	0.86	10.60	100
SHTmB2	866	150	W	75-100	c	scl	<15	15-35	51-100	1-3	Moderate	7.26	0.199	0.86	10.60	100
BMNmA1	866	150	MW	>150	c	c	<15	<15	>200	0-1	Slight	8.2	0.284	0.65	52.70	100
BMNmB2	866	150	MW	>150	c	c	<15	<15	>200	1-3	Moderate	8.2	0.284	0.65	52.70	100
BMNmB2g1	866	150	MW	>150	c	c	15-35	<15	>200	1-3	Moderate	8.2	0.284	0.65	52.70	100
NGPmB2	866	150	MW	100-150	c	c	<15	<15	>200	1-3	Moderate	7.42	0.24	0.22	67.10	100
NGPmB2g1	866	150	MW	100-150	c	c	15-35	<15	>200	1-3	Moderate	7.42	0.24	0.22	67.10	100
GWDiB2g1	866	150	MW	75-100	sc	scl	15-35	<15	101-150	1-3	Moderate	9.89	0.74	17.40	8.35	100
KBDcC2g1	866	150	W	75-100	sl	g scl	15-35	35-60	<50	3-5	Moderate	7.84	0.604	4.27	11.50	100
YLRcC3	866	150	W	51-75	sl	c	<15	15-35	51-100	3-5	Severe	6.91	0.069	0.45	6.90	100
YLRiB2	866	150	W	51-75	sc	c	<15	15-35	51-100	1-3	Moderate	6.91	0.069	0.45	6.90	100
JNKmB2	866	150	W	50-75	c	scl	<15	<15	50-100	1-3	Moderate	8.42	0.148	0.18	14.50	100
BDPiB3	866	150	W	<25	sc	scl	<15	<15	<50	1-3	Severe	8.58	0.262	0.35	18.10	100
BDLhB2	866	150	W	25-50	scl	sl	<15	<15	<50	1-3	Moderate	6.20	0.074	0.20	0.72	93
BDLhB2g1	866	150	W	25-50	scl	sl	15-35	<15	<50	1-3	Moderate	6.20	0.074	0.20	0.72	93
BDLiB2	866	150	W	25-50	sc	sl	<15	<15	<50	1-3	Moderate	6.20	0.074	0.20	0.72	93
BDLiB3	866	150	W	25-50	sc	sl	<15	<15	<50	1-3	Severe	6.20	0.074	0.20	0.72	93

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

Table 7.2 Land suitability criteria for Sorghum

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

Table 7.3 Land suitability criteria for Maize

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

Table 7.4 Land suitability criteria for Bajra

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

Table 7.5 Land suitability criteria for Groundnut

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

Table 7.6 Land suitability criteria for Sunflower

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

Table 7.7 Land suitability criteria for Redgram

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

Table 7.8 Land suitability criteria for Bengal gram

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

Table 7.9 Land suitability criteria for Cotton

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

Table 7.10 Land suitability criteria for Chilli

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

Table 7.11 Land suitability criteria for Tomato

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

Table 7.12 Land suitability criteria for Brinjal

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

Table 7.13 Land suitability criteria for Onion

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

Table 7.14 Land suitability criteria for Bhendi

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

Table 7.15 Land suitability criteria for Drumstick

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

Table 7.16 Land suitability criteria for Mango

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

Table 7.17 Land suitability criteria for Guava

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

Table 7.18 Land suitability criteria for Sapota

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

Table 7.19 Land suitability criteria for Pomegranate

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

Table 7.20 Land suitability criteria for Musambi

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

Table 7.21 Land suitability criteria for Lime

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

Table 7.22 Land suitability criteria for Amla

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

Table 7.23 Land suitability criteria for Cashew

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

Table 7.24 Land suitability criteria for Jackfruit

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

Table 7.25 Land suitability criteria for Jamun

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

Table 7.26 Land suitability criteria for Custard apple

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

Table 7.27 Land suitability criteria for Tamarind

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

Table 7.28 Land suitability criteria for Mulberry

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

Table 7.29 Land suitability criteria for Marigold

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

Table 7.30 Land suitability criteria for Chrysanthemum

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

7.30 Land Management Units (LMUs)

The 20 soil map units identified in Chepata microwatershed have been grouped into 7 Land Management Units (LMU's) for the purpose of preparing a Proposed Crop Plan. Land Management Units are grouped based on the similarities in respect of the type of soil, the depth of the soil, the surface soil texture, gravel content, AWC, slope, erosion etc. and a Land Management Units map (Fig. 7.30) has been generated. These Land Management Units are expected to behave similarly for a given level of management.

The 15 map units that have been grouped into 7 Land Management Units along with brief description of soil and site characteristics are given below.

LMU	Soil map units	Soil and site characteristics
1	64.BMDcB2 65.BMDiB2g1 149.MDGhB2g1 129.SHTiB2 112.SHTmB2	Moderately deep to very deep (75 to >150cm), 1-3 % slopes, non-gravelly to gravelly (<15-35 %), moderate erosion
2	159.BMNmA1 62.BMNmB2 63.BMNmB2g1 49.NGPmB2 146.NGPmB2g1	Deep to very deep (100 to >150cm), 0-3 % slopes, non-gravelly (<15%), slight to moderate erosion
3	150.GWDiB2g1	Moderately deep (75 - 100cm), 1-3% slopes, gravelly (15-35 %), moderate erosion
4	164.KBDcC2g1	Moderately deep (75 - 100cm), 3-5% slopes, gravelly (15-35 %), moderate erosion
5	30.YLRcC3 31.YLRiB2	Moderately shallow (50 - 75cm), 1-5% slopes, non-gravelly (<15%), moderate to severe erosion
6	152.JNKmB2	Moderately shallow (50 - 75cm), 1-3% slopes, non-gravelly (<15%), moderate erosion
7	119.BDPiB3 4.BDLhB2 162.BDLhB2g1 5.BDLiB2 6.BDLiB3	Shallow (25 – 50cm), 1-3% slopes, non- gravelly to gravelly (<15-35 %), moderate to severe erosion

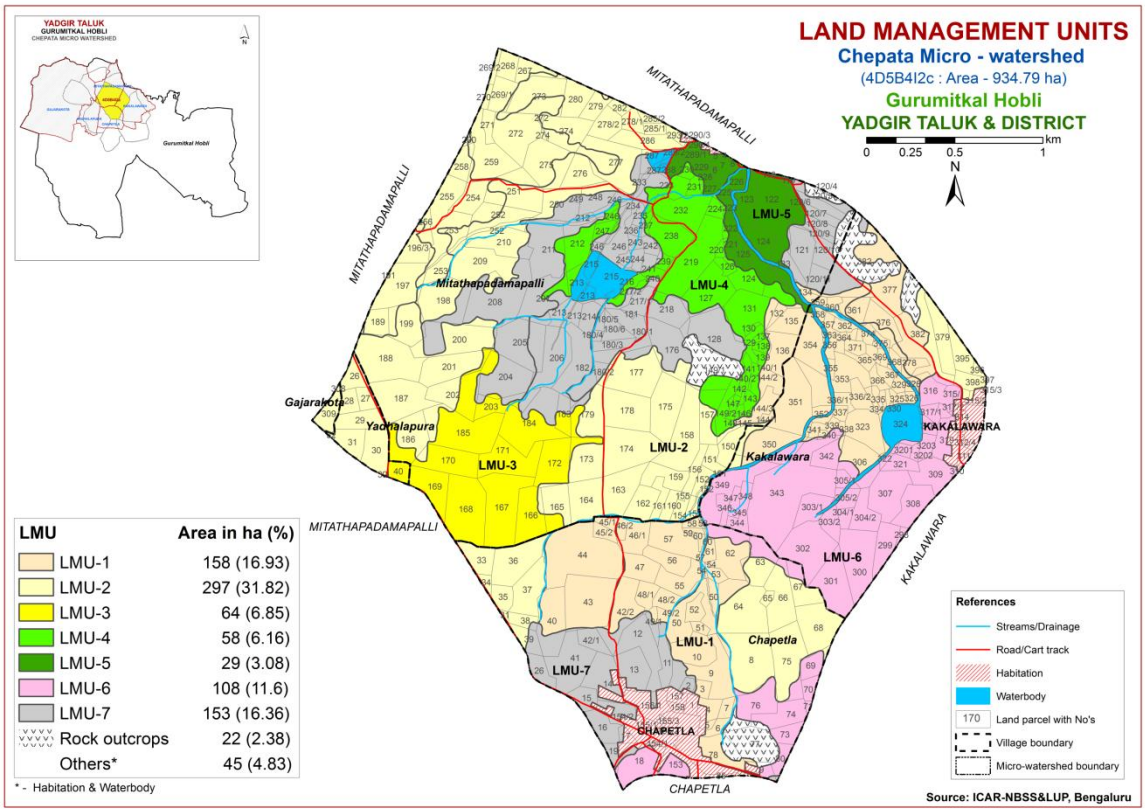


Fig. 7.3 Land Management Units Map-Chepata microwatershed

7.31 Proposed crop plan for Chepata microwatershed

After assessing the land suitability for the 29 crops, the Proposed Crop Plan has been prepared for the 7 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 Chepata microwatershed

LMU	Soil Map Units	Survey Number	Soil Characteristics	Field Crops/ Commercial crops	Horticulture Crops (Rainfed/Irrigated)	Suitable Interventions
1	64.BMDcB2 65.BMDiB2g1 149.MDGhB2g1 129.SHTiB2 112.SHTmB2 (Moderately deep to very deep, sandy clay loam soils)	**Chapetla:**5,6,7,9,10,3,4,40,42/2,43,44, 45/1,45/2,46/1,46/2,47,48/1,48/2,49/2,50,51,52,53,54,55,56,57,58,59,60, 61,62 **Kakalawara:**306,323,325,326,327,328,329,330,331,332,333,334,335,336/1,336/2,337,338,339,340,341,350,351,352,353,354,355,356,357,358,359,360,361,362,363,364,365,366,367,368,369,370,371,372,373,374,375,376,377,378 **Mitathapadamapalli:**132,134,135,136,144/1,144/2, 144/3	Moderately deep to very deep (75 to >150cm), 1-3 % slopes, non-gravelly to gravelly (<15-35 %), moderate erosion	Sunflower, Sorghum, Maize, Groundnut, Red gram, Bajra	**Fruit crops:** Mango, Musambi, Sapota, Tamarind, Pomegranate, Amla, Custard apple, Guava, Jackfruit, Jamun, Lime **Vegetables:** Tomato, Onion, Bhendi, Chilli, Brinjal, Drumstick, Coriander **Flowers:** Marigold, Chrysanthemum	Application of FYM, bio-fertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices
2	159.BMNmA1 62.BMNmB2 63.BMNmB2g1 49.NGPmB2 146.NGPmB2g1 (Deep to very deep, calcareous black clay soils)	**Chapetla:**8,31,33,34,35,36,37,38,63,64,65,66,67,68,75 **Gajarakota :**308,309 **Kakalawara :**379,395,396,397,398 **Mitathapadamapalli:**150,151,152,153,154,155,156,157,158,159,160,161,162, 163,164,165,173,174,175,177,178,179, 186,187,188,189,191,196/3,197,198,199,200,201,209,210,250,251,252253,254,255,256,258,259,260,267,268,269/1,269/2,270,271,272,273,274,275,276,277,278/1,278/2,279,280,282,285/1,285/2,286,293/2 **Yadhalapura:** 26,27,28,29,30,31,32,39	Deep to very deep (100 to >150cm), 0-3 % slopes, non-gravelly (<15%), slight to moderate erosion	Maize, Sorghum, Sunflower, Cotton, Red gram, Bengalgram, Bajra	**Fruit crops:** Lime, Musambi, Custard apple, Pomegranate **Vegetables:** Chilli, Bhendi **Flowers:** Marigold, Chrysanthemum	Application of FYM, bio-fertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices
3	150.GWDiB2g1 (Moderately deep, sodic clay soils)	**Mitathapadamapalli:**166,167,168,169,170,171,172,183,184,185,202,203 **Yadhalapura :** 40	Moderately deep (75 - 100cm), 1-3% slopes, gravelly (15-35 %), moderate	-	**Agri-Silvi-Pasture** Ber, Aonla, Acacia sp. Dhaincha, Rhodes grass, Para grass ,Bermuda grass	Application of gypsum, iron pyrites and elemental sulphur. Addition of farm yard manures,

			erosion			green manures and providing subsurface drainage
4	164.KBDcC2g1 (Moderately deep, gravelly sandy clay soils)	**Mitathapadamapalli:**126,127,129,130,131,137,138,139,140/1,140/2,141,142,143,145,146,147,148,149/2,212,216,219,220,224,230,231,232,233,237,238,239,240,247	Moderately deep (75 - 100cm), 3-5% slopes, gravelly (15-35 %), moderate erosion	Groundnut, Bajra, Horse gram, Castor, Mulberry	**Fruit crops:** Musambi, Lime, Jamun, Jackfruit, Amla, Custard apple, Tamarind **Vegetable crops:** Drumstick, Curry leaves	Drip irrigation, mulching, suitable soil and water conservation practises (Crescent Bunding with Catch Pit etc)
5	30.YLRcC3 31.YLRiB2 (Moderately shallow, red clay soils)	**Mitathapadamapalli:**4,5,6,7,8,118,119,122,123,124,125,133,221,222,223,225,226,227,228,229,288,289/1,289/2,290/1,290/2	Moderately shallow (50 - 75cm), 1-5% slopes, non-gravelly (<15%), moderate to severe erosion	Maize, Sorghum, Cotton, Bajra	**Fruit crops:** Amla, Custard apple **Vegetables:** Tomato, Onion**,** Bhendi, Chilli, Brinjal **Flowers:** Marigold, Chrysanthemum	Drip irrigation, mulching, suitable soil and water conservation practices (Crescent Bunding with Catch Pit etc)
6	152.JNKmB2 (Moderately shallow sandy clay loam soils)	**Chapetla:**153,18,69,70,71,73,74,76,79,80 **Kakalawara:**298,299,300,301,302,303/1,303/2,304/1,304/2,305/1,305/2,307,308,309,310,315/1,316,317/1,317/2,318,319,3201,3202,3203,321,322,342,343,344,345,346, 347,348,349	Moderately shallow (50 - 75cm), 1-3% slopes, non-gravelly (<15%), moderate erosion	Maize, Sorghum Groundnut, Bajra	**Fruit crops:** Amla, Custard apple **Vegetables:** Tomato, Chilli, Brinjal, Bhendi, Onion **Flowers:** Marigold, Chrysanthemum	Application of FYM, bio-fertilizers and micronutrients, drip irrigation, mulching, suitable soil and water conservation practices
7	119.BDPiB3 4.BDLhB2 162.BDLhB2g1 5.BDLiB2 6.BDLiB3 (Shallow, sandy loam soils)	**Chapetla:**11,12,13,14,15,16,19,2,26,39, 41,42/1,49/1 **Mitathapadamapalli:**120/10,120/11,120/5,120/6,120/7,120/8,120/9,121,128,176,180/1,180/2,180/3,180/4,180/5,180/6,181,182,204,205,206,207,208,211,213,214,217/1,217/2,218,234,235,236,241,242,243,244,245,246,248,249	Shallow (25 – 50cm), 1-3% slopes, non-gravelly to gravelly (<15-35 %), moderate to severe erosion	-	**Agri-Silvi-Pasture:** Hybrid Napier, *Styloxanthes hamata*, *Styloxanthes scabra*	Use of short duration varieties, sowing across the slope, drip irrigation and mulching is recommended

Chapter 8

SOIL HEALTH MANAGEMENT

8.1 Soil Health

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

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

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

The most important characteristics of a healthy soil are

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

Characteristics of Chepata microwatershed

- The soil phases identified in the microwatershed belonged to the soil series of BMN 161 ha (17%), NGP 137 ha (15%), BDL 116 ha (12%), JNK 108 (12%), SHT 80 ha (9%), GWD 64 ha (7%), BMD 63 ha (7%), KBW 58 ha (6%), BDP 38 ha (4%), YLR 29 ha (3%) and MDG 15 ha (2%).
- As per land capability classification entire area of the microwatershed falls under arable land category (Class II, III & IV). The major limitations identified in the arable lands were soil and erosion.
- On the basis of soil reaction, about 227 ha (24%) is slightly acid (pH 6.0-6.5), 632 ha (68%) neutral (pH 6.5-7.3) and 8 ha (<1%) is slightly alkaline (pH 7.3-7.8). Thus,

major area of 632 ha is neutral, 227 ha is under slightly acid and 8 ha is slightly alkaline.

Soil Health Management

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

Acid soils

Slightly acid soils occur in 227 ha area.

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 soils occur in 8 ha area.

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 cover an area about 632 ha 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 factor affecting the soil health in the microwatershed. Out of total 868 ha area in the microwatershed, an area of about 790 ha is suffering from moderate erosion and 75 ha is suffering from severe 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, raddish, potato etc) but not ideal for crops that need stagnant water like lowland paddy. Heavy textured soils are poor in water infiltration and percolation. They are prone for sheet

erosion; such soils can be improved by sand mulching. The technology that is developed by the AICRP-Dry land Agriculture, Vijayapura, Karnataka can be adopted.

- **Gravelliness:** More gravel content is favorable for run-off harvesting but poor in soil moisture storage and nutrient availability. It is a significant parameter that decides the kind of crop to be raised.
- **Land Capability Classification:** The land capability map shows the areas suitable and not suitable for agriculture and the major constraints in each of the plot/survey number. Hence, one can decide what kind of enterprise is possible in each of these units. In general, erosion and soil are the major constraints in Chepata microwatershed.
- **Organic Carbon:** The OC content (an index of available Nitrogen) is high (>0.75%) in the entire area of the microwatershed. The areas that are medium in OC needs to be further improved by applying farmyard manure and rotating crops with cereals and legumes or mixed cropping.
- **Promoting Green Manuring:** Growing of green manuring crops costs Rs. 1250/ha (green manuring seeds) and about Rs. 2000/ha towards cultivation that totals to Rs. 3250/- per ha. On the other hand, application of organic manure @ 10 tons/ha costs Rs. 5000/ha. The practice needs to be continued for 2-3 years or more. Nitrogen fertilizer needs to be supplemented by 25% in addition to the recommended level. 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 433 ha (46%), medium (23-57 kg/ha) in 241 ha (26%) area and high (>57 kg/ha) in an area of 193 ha (21%) of the microwatershed. In medium and low areas, for all the crops 25% additional P needs to be applied.
- **Available Potassium:** Available potassium is medium (145-337 kg/ha) in an area of 748 ha (80%) of the microwatershed and high (>337 kg/ha) in 120 ha (13%). In medium areas, for all the crops 25% additional potassium needs to be applied.
- **Available Sulphur:** Available sulphur is a very critical nutrient for oilseed crops. It is medium (10 - 20 ppm) in 654 ha (70%) and low (<10 ppm) in 214 ha (23%). 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 303 ha (73%) is medium (0.5 – 1.0ppm) and 564 ha (60%) is low (<0.5 ppm) in the microwatershed. For these areas, application of sodium borate @ 10 kg/ha as soil application or 0.2 % borax as foliar spray is recommended.
- **Available Iron:** All the soils in the microwatershed are sufficient (>4.5 ppm) in available iron.

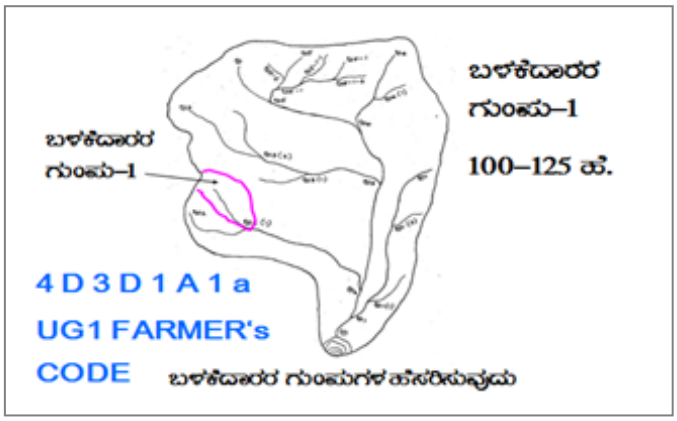
- **Available Manganese:** All the soils in the microwatershed are sufficient (>1.0 ppm) in available manganese.
- **Available Copper:** All the soils in the microwatershed are sufficient (>0.2 ppm) in available copper.
- **Available Zinc:** Maximum area of about 763 ha (82%) is deficient (<0.6 ppm) and 104 ha (11%) is sufficient in available zinc content. Application of zinc sulphate @25 kg/ha is recommended for these areas.
- **Soil Alkalinity:** An area of 8 ha (<1%) in the microwatershed has soils that are slightly alkaline. These areas need application of gypsum and wherever calcium is in excess, iron pyrites and element sulphur can be recommended. Management practices like treating repeatedly with good quality water to drain out the excess salts and provision of subsurface drainage and growing of salt tolerant crops like Casuarina, Acacia, Neem, Ber etc, are recommended.
- **Land Suitability for Various Crops:** Areas that are highly, moderately and marginally suitable for growing various crops are indicated. Along with the suitability, various constraints that are limiting the productivity are also indicated. For example, in case of cotton, rooting depth, texture and calcareousness are the major constraints in various plots. With suitable management interventions, the productivity can be enhanced. In order to increase the water holding capacity of light textured soils, growing of green manure crops and application of organic manure is recommended.

Chapter 9

SOIL AND WATER CONSERVATION TREATMENT PLAN

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

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



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

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

Steps for Survey and Preparation of Treatment Plan

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

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

9.1 Treatment Plan

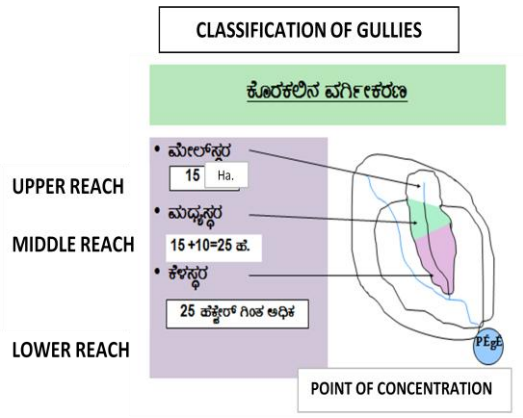
The treatment plan recommended for arable lands is briefly described below

9.1.1 Arable Land Treatment

A. BUNDING

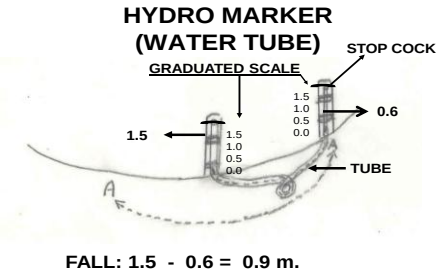
Steps for Survey and Preparation of Treatment Plan	
• Cadastral map (1:7920 scale) is enlarged to a scale of 1:2500 scale • Existing network of waterways, pothissa boundaries, grass belts, natural drainage lines/ watercourse, cut ups/ terraces are marked on the cadastral map to the scale • Drainage lines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

USER GROUP-1



Measurement of Land Slope

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



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

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

Note: (i) The above intervals are maximum.

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

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

Section of the Bund

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

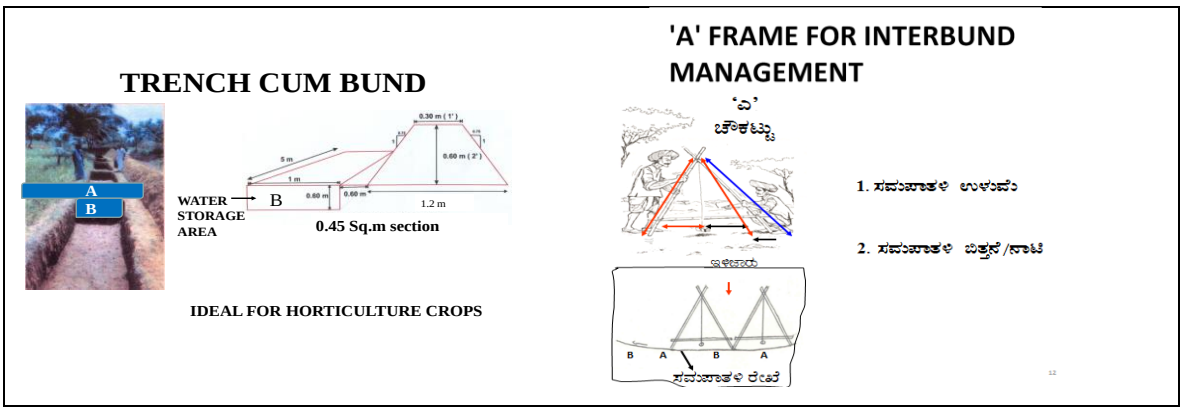
Recommended Bund Section

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

Formation of Trench cum Bund

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

Details of Borrow Pit dimensions are given below:



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

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

B. Water Ways

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

C. Farm Ponds

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

D. Diversion Channel

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

9.1.2 Non-Arable Land Treatment

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

9.1.3 Treatment of Natural Water Course/ Drainage Lines

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

9.2 Recommended Soil and Water Conservation Measures

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

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

A map (Fig. 9.1) showing soil and water conservation plan with different kinds of structures recommended has been prepared which shows the spatial distribution and extent of area. An area of about 187 ha (20%) needs trench cum bunding, 2 ha needs strengthening of existing bunds and maximum area of about 678 ha (73%) needs graded bunding.

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

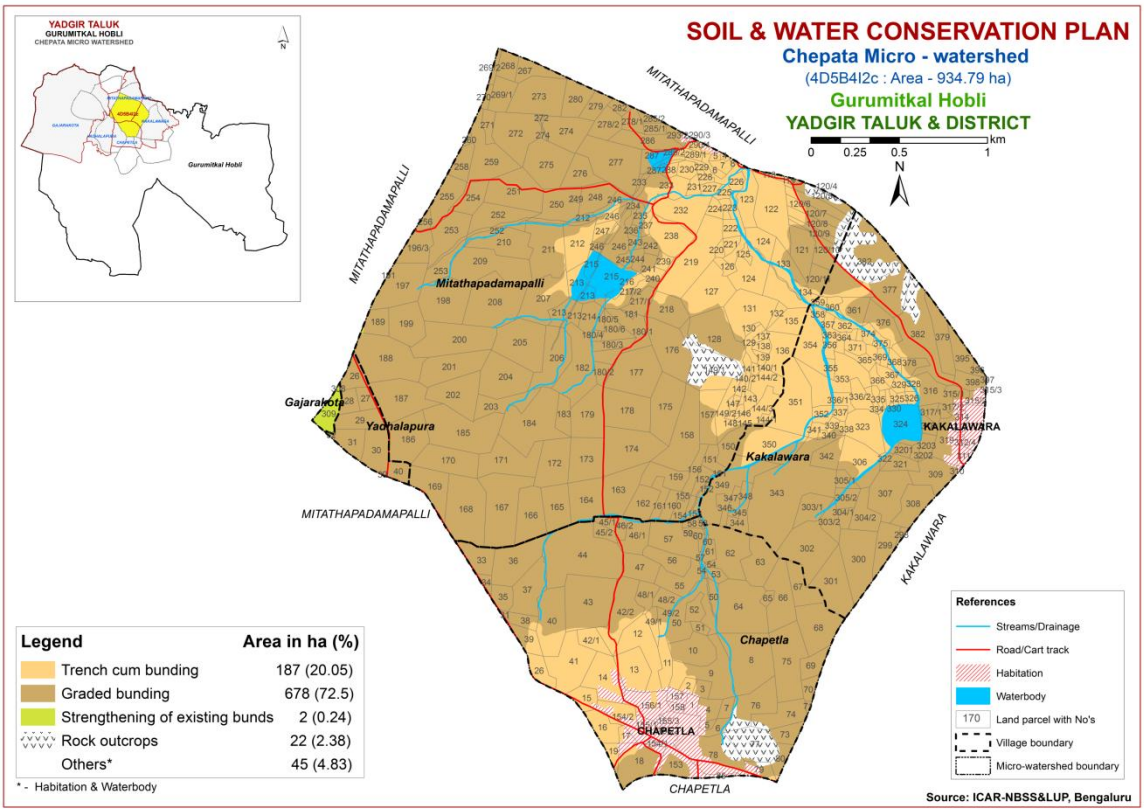


Fig. 9.1 Soil and water conservation plan map of Chepata microwatershed

9.3 Greening of microwatershed

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

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

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

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

References

1. FAO (1976) Framework for Land Evaluation, Food and Agriculture Organization, Rome.72 pp.
2. FAO (1983) Guidelines for Land Evaluation for Rainfed Agriculture, FAO, Rome, 237 pp.
3. IARI (1971) Soil Survey Manual, All India Soil and Land Use Survey Organization, IARI, New Delhi, 121 pp.
4. Katyal, J.C. and Rattan, R.K. (2003) Secondary and Micronutrients; Research Gap and Future Needs. Fert. News 48 (4); 9-20.
5. Naidu, L.G.K., Ramamurthy, V., Challa, O., Hegde, R. and Krishnan, P. (2006) Manual Soil Site Suitability Criteria for Major Crops, NBSS Publ. No. 129, NBSS & LUP, Nagpur, 118 pp.
6. Natarajan, A. and Dipak Sarkar (2010) Field Guide for Soil Survey, National Bureau of Soil Survey and Land Use Planning (ICAR), Nagpur, India.
7. Natarajan, A., Rajendra Hegde, Raj, J.N. and Shivananda Murthy, H.G. (2015) Implementation Manual for Sujala-III Project, Watershed Development Department, Bengaluru, Karnataka.
8. Sarma, V.A.K., Krishnan, P. and Budihal, S.L. (1987) Laboratory Manual, Tech. Bull. 23, NBSS &LUP, Nagpur.
9. Sehgal, J.L. (1990) Soil Resource Mapping of Different States of India; Why and How?, National Bureau of Soil Survey and Land Use Planning, Nagpur, 49 pp.
10. Shivaprasad, C.R., R.S. Reddy, J. Sehgal and M. Velayuthum (1998) Soils of Karnataka for Optimizing Land Use, NBSS Publ. No. 47b, NBSS & LUP, Nagpur, India.
11. Soil Survey Staff (2006) Keys to Soil Taxonomy, Tenth edition, U.S. Department of Agriculture/ NRCS, Washington DC, U.S.A.
12. Soil Survey Staff (2012) Soil Survey Manual, Handbook No. 18, USDA, Washington DC, USA.

Appendix I

Chepata (4J2c) Microwatershed

Soil Phase Information

Village	Survey Number	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
Chapetla	1	0.79	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	2	0.65	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Not Available (NA)	Not Available	IVes	Trench cum bunding
Chapetla	3	0.88	SHTiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Chapetla	4	1.48	SHTiB2	LMU-1	Moderately deep (75-100 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
Chapetla	5	0.42	SHTiB2	LMU-1	Moderately deep (75-100 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
Chapetla	6	1	SHTiB2	LMU-1	Moderately deep (75-100 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
Chapetla	7	0.82	SHTiB2	LMU-1	Moderately deep (75-100 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
Chapetla	8	8.03	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIes	Graded bunding
Chapetla	9	5.8	SHTiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Chapetla	10	3.71	SHTiB2	LMU-1	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
Chapetla	11	1.86	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Cotton (Ct)	Not Available	IVes	Trench cum bunding
Chapetla	12	4.88	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Chapetla	13	3.75	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Chapetla	14	4.6	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Chapetla	15	1.7	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Chapetla	16	2.37	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Greengram (Gn)	Not Available	IVes	Trench cum bunding
Chapetla	17	0.7	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	18	4.93	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	19	0.91	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram+Blackgram+Jower (Rg+Bg+Jw)	Not Available	IVes	Trench cum bunding
Chapetla	26	1.78	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Chapetla	31	0.22	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Chapetla	33	2.57	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding

Village	Survey Number	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
Chapetla	34	0.59	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	35	1.55	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Chapetla	36	5.46	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	37	4.34	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	38	1.23	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	39	1.79	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Chapetla	40	5.5	SHTmB2	LMU-1	Moderately deep (75-100 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Chapetla	41	5.84	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Chapetla	42/1	1.71	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Chapetla	42/2	5.38	SHTiB2	LMU-1	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
Chapetla	43	7.91	SHTmB2	LMU-1	Moderately deep (75-100 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	44	11.83	SHTmB2	LMU-1	Moderately deep (75-100 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	45/1	0.74	SHTmB2	LMU-1	Moderately deep (75-100 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	45/2	0.93	SHTmB2	LMU-1	Moderately deep (75-100 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	46/1	2.9	SHTiB2	LMU-1	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
Chapetla	46/2	0.55	SHTiB2	LMU-1	Moderately deep (75-100 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
Chapetla	47	2.76	SHTiB2	LMU-1	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
Chapetla	48/1	1.56	SHTiB2	LMU-1	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
Chapetla	48/2	1.45	SHTiB2	LMU-1	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
Chapetla	49/1	0.95	BDPiB3	LMU-7	Very shallow (<25 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Chapetla	49/2	0.82	SHTiB2	LMU-1	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
Chapetla	50	5.33	SHTiB2	LMU-1	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
Chapetla	51	0.57	SHTiB2	LMU-1	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
Chapetla	52	1.29	SHTiB2	LMU-1	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

Village	Survey Number	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
Chapetla	53	0.79	SHTiB2	LMU-1	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
Chapetla	54	0.27	SHTiB2	LMU-1	Moderately deep (75-100 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
Chapetla	55	3	SHTiB2	LMU-1	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
Chapetla	56	2.49	SHTiB2	LMU-1	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
Chapetla	57	4.38	SHTiB2	LMU-1	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
Chapetla	58	0.58	SHTiB2	LMU-1	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
Chapetla	59	0.33	SHTiB2	LMU-1	Moderately deep (75-100 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
Chapetla	60	0.55	SHTiB2	LMU-1	Moderately deep (75-100 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
Chapetla	61	0.8	SHTiB2	LMU-1	Moderately deep (75-100 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
Chapetla	62	5.3	SHTiB2	LMU-1	Moderately deep (75-100 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIes	Graded bunding
Chapetla	63	3.88	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	64	7.89	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Chapetla	65	0.47	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIes	Graded bunding
Chapetla	66	4.9	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIes	Graded bunding
Chapetla	67	2.83	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	68	5.3	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIes	Graded bunding
Chapetla	69	1.76	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIes	Graded bunding
Chapetla	70	0.98	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIes	Graded bunding
Chapetla	71	0.18	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIes	Graded bunding
Chapetla	73	1.63	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIes	Graded bunding
Chapetla	74	3.43	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	75	6.99	BMNmB2	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIes	Graded bunding
Chapetla	76	4.67	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	77	4.29	RO	RO	RO	RO	RO	RO	RO	RO	Rockout crop (Rc)	Not Available	RO	RO

Village	Survey Number	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
Chapetla	78	6.45	Habitation	Others	Others	Others	Others	Others	Others	Others	Redgram+Cotton (Rg+Ct)	Not Available	Others	Others
Chapetla	79	1.36	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Habitation+Not Available (Hb+NA)	Not Available	IIes	Graded bunding
Chapetla	80	1.3	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Cotton (Rg+Ct)	Not Available	IIes	Graded bunding
Chapetla	85	0.3	Habitation	Others	Others	Others	Others	Others	Others	Others	Redgram (Rg)	Not Available	Others	Others
Chapetla	153	3	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Chapetla	154/1	0.24	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	154/2	3.86	Habitation	Others	Others	Others	Others	Others	Others	Others	Not Available (NA)	Not Available	Others	Others
Chapetla	155/1	0.85	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	155/2	0.12	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	155/3	0.07	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	156/1	3.19	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	156/2	0.06	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	156/3	0.04	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	156/4	0.04	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	157	0.83	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Chapetla	158	0.47	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Gajarakota	308	0.09	BMNmA1	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Jowar+Redgram (Jw+Rg)	Not Available	IIs	Strengthening of existing bunds
Gajarakota	309	2.06	BMNmA1	LMU-2	Very deep (>150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Nearly level (0-1%)	Slight	Cotton+Jowar+Redgram (Ct+Jw+Rg)	Not Available	IIs	Strengthening of existing bunds
Kakalawara	298	0.33	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	299	2.74	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	300	6.27	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	301	5.37	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	302	6.71	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding

Village	Survey Number	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
Kakalawara	303/1	2.57	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	303/2	1.71	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	304/1	0.85	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Sorghum (Sg)	Not Available	IIes	Graded bunding
Kakalawara	304/2	2.66	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Bengalgram (Bg)	Not Available	IIes	Graded bunding
Kakalawara	305/1	0.99	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Sorghum (Sg)	Not Available	IIes	Graded bunding
Kakalawara	305/2	1.43	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Sorghum (Sg)	Not Available	IIes	Graded bunding
Kakalawara	306	4.64	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Kakalawara	307	5.02	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	308	3.45	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	309	3.43	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	310	0.17	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	311	0.7	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Kakalawara	312/1	0.07	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Kakalawara	312/2	0.05	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Kakalawara	312/3	0.05	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Kakalawara	312/4	0.11	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Kakalawara	313	0.35	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Kakalawara	314	0.31	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Kakalawara	315/1	0.92	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Habitation (Hb)	Not Available	IIes	Graded bunding
Kakalawara	315/2	1.02	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Kakalawara	315/3	0.08	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Kakalawara	315/4	0.32	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Kakalawara	316	2.95	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Graded bunding
Kakalawara	317/1	0.89	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Graded bunding

Village	Survey Number	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
Kakalawara	317/2	0.43	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Graded bunding
Kakalawara	318	0.83	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Graded bunding
Kakalawara	319	3.08	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Habitation (Hb)	Not Available	IIes	Graded bunding
Kakalawara	321	1.45	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	322	0.4	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	323	3.92	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy (Rg+Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	324	5.09	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody (Wb)	Not Available	Others	Others
Kakalawara	325	0.35	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Kakalawara	326	0.47	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Kakalawara	327	0.19	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	328	0.19	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	329	0.68	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	330	0.31	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Kakalawara	331	0.07	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Sorghum (Sg)	Not Available	IIes	Trench cum bunding
Kakalawara	332	0.29	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Sorghum (Sg)	Not Available	IIes	Trench cum bunding
Kakalawara	333	0.28	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Sorghum (Sg)	Not Available	IIes	Trench cum bunding
Kakalawara	334	0.44	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Sorghum (Sg)	Not Available	IIes	Trench cum bunding
Kakalawara	335	0.47	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Kakalawara	336/1	0.93	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	336/2	1.61	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Kakalawara	337	0.66	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	338	0.42	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	339	0.48	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	340	0.27	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding

Village	Survey Number	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
Kakalawara	341	0.61	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	342	2.19	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	343	16.29	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Scrub land (Rg+Sl)	Not Available	IIes	Graded bunding
Kakalawara	344	1.08	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	345	0.27	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	346	0.89	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Kakalawara	347	0.66	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	348	0.95	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Kakalawara	349	6.24	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	350	6.11	BMDcB2	LMU-1	Very deep (>150 cm)	Sandy loam	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Trench cum bunding
Kakalawara	351	7.1	BMDcB2	LMU-1	Very deep (>150 cm)	Sandy loam	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut (Rg+Gn)	Not Available	IIes	Trench cum bunding
Kakalawara	352	1.09	BMDcB2	LMU-1	Very deep (>150 cm)	Sandy loam	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Trench cum bunding
Kakalawara	353	5.91	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Groundnut+Sorghum+Scrub land (Rg+Gn)	Not Available	IIes	Trench cum bunding
Kakalawara	354	4.11	BMDcB2	LMU-1	Very deep (>150 cm)	Sandy loam	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Sorghum+Scrub land (Sg+Sl)	Not Available	IIes	Trench cum bunding
Kakalawara	355	0.54	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	356	0.96	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	357	0.72	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	358	0.67	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Kakalawara	359	0.44	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Kakalawara	360	0.92	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Kakalawara	361	2.06	MDGhB2g1	LMU-1	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding
Kakalawara	362	0.86	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	363	0.25	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	364	0.37	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding

Village	Survey Number	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
Kakalawara	365	0.84	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Sorghum (Sg)	Not Available	IIes	Trench cum bunding
Kakalawara	366	0.81	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Sorghum (Sg)	Not Available	IIes	Trench cum bunding
Kakalawara	367	0.81	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	368	0.84	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	369	0.57	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	370	0.53	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	371	0.91	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	372	0.28	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	373	0.21	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	374	0.74	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	375	0.62	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Trench cum bunding
Kakalawara	376	2.75	MDGhB2g1	LMU-1	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	377	4.48	MDGhB2g1	LMU-1	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	378	1.19	MDGhB2g1	LMU-1	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Graded bunding
Kakalawara	379	3.35	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	382	21.07	RO	RO	RO	RO	RO	RO	RO	RO	Redgram+Groundnut+Scrub land+Forest (Rg+Gn+Sl+Fo)	Not Available	RO	RO
Kakalawara	395	2.07	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	396	0.36	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	397	0.01	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	398	1.55	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Sorghum (Rg+Sg)	Not Available	IIes	Graded bunding
Kakalawara	3201	0.58	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Kakalawara	3202	0.43	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Kakalawara	3203	1.08	JNKmB2	LMU-6	Moderately shallow (50-75 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIes	Graded bunding
Mitathapa damapalli	4	0.17	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Habitation+Not Available (Hb+NA)	Not Available	IVes	Trench cum bunding

Village	Survey Number	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
Mitathapa damapalli	5	0.31	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Habitation+Not Available (Hb+NA)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	6	0.58	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Scrub land (Sl)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	7	0.68	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Paddy (Pd)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	8	0.12	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Habitation+Not Available (Hb+NA)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	118	0.43	YLRiB2	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	Trench cum bunding
Mitathapa damapalli	119	0.17	YLRiB2	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	Trench cum bunding
Mitathapa damapalli	120/10	2.29	BDLhB2	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	120/11	1.54	BDLhB2	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	120/4	0.23	RO	RO	RO	RO	RO	RO	RO	RO	Redgram (Rg)	Not Available	RO	RO
Mitathapa damapalli	120/5	2.05	BDLhB2	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	120/6	2.01	BDLhB2	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Scrub land (Rg+Sl)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	120/7	2.02	BDLhB2	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	120/8	1.83	BDLhB2	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	120/9	0.96	BDLhB2	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	121	3.1	BDLhB2	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	122	6.16	YLRiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Trench cum bunding
Mitathapa damapalli	123	2.75	YLRiB2	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	Trench cum bunding
Mitathapa damapalli	124	5.85	YLRiB2	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	Trench cum bunding
Mitathapa damapalli	125	0.49	YLRiB2	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	Trench cum bunding
Mitathapa damapalli	126	0.72	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	127	5.52	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	128	6.6	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	129	1.01	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	130	0.31	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding

Village	Survey Number	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
Mitathapa damapalli	131	5.37	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	132	0.58	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Mitathapa damapalli	133	5.51	YLRiB2	LMU-5	Moderately shallow (50-75 cm)	Sandy clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Trench cum bunding
Mitathapa damapalli	134	0.79	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Mitathapa damapalli	135	2.28	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Trench cum bunding
Mitathapa damapalli	136	3.01	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Trench cum bunding
Mitathapa damapalli	137	0.35	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	138	0.67	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	139	0.46	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	140/1	0.33	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	140/2	0.17	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	141	0.6	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	142	0.16	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Fallow Land (Fl)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	143	0.66	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	144/1	0.49	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Mitathapa damapalli	144/2	2.15	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIes	Trench cum bunding
Mitathapa damapalli	144/3	2.23	BMDiB2g1	LMU-1	Very deep (>150 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Trench cum bunding
Mitathapa damapalli	145	0.11	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Not Available (NA)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	146	0.21	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	147	0.33	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Jowar (Jw)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	148	0.21	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	149/1	6.18	RO	RO	RO	RO	RO	RO	RO	RO	Scrub land (Sl)	Not Available	RO	RO
Mitathapa damapalli	149/2	2.38	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	150	2.04	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding

Village	Survey Number	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
Mitathapa damapalli	151	1.24	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	152	1.29	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	153	0.86	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIes	Graded bunding
Mitathapa damapalli	154	0.97	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	155	0.17	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIes	Graded bunding
Mitathapa damapalli	156	1.44	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	157	3.27	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	158	6.79	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	159	2.72	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	160	1.13	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	161	1.34	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	162	2.7	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	163	4.79	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	164	4.33	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Groundnut (Gn)	Not Available	IIes	Graded bunding
Mitathapa damapalli	165	3.73	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	166	4.57	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IVes	Graded bunding
Mitathapa damapalli	167	8.25	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IVes	Graded bunding
Mitathapa damapalli	168	7.94	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IVes	Graded bunding
Mitathapa damapalli	169	3.92	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IVes	Graded bunding
Mitathapa damapalli	170	4.81	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Scrub land (Rg+Sl)	Not Available	IVes	Graded bunding
Mitathapa damapalli	171	5.54	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IVes	Graded bunding
Mitathapa damapalli	172	4.59	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	1 Borewell	IVes	Graded bunding
Mitathapa damapalli	173	4.56	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	174	6.93	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding

Village	Survey Number	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
Mitathapa damapalli	175	5.68	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	176	5.85	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	177	6.49	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	178	5.53	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	179	4.59	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	180/1	3.75	BDLhB2g1	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Gravelly (15-35%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	180/2	1	BDLhB2g1	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Gravelly (15-35%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	180/3	1.27	BDLhB2g1	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Gravelly (15-35%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	180/4	0.43	BDLhB2g1	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Gravelly (15-35%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	180/5	0.43	BDLhB2g1	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Gravelly (15-35%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	1 Borewell	IIIes	Graded bunding
Mitathapa damapalli	180/6	1.65	BDLhB2g1	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Gravelly (15-35%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	181	0.16	BDLhB2g1	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Gravelly (15-35%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	182	6.25	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	1 Borewell	IIIes	Graded bunding
Mitathapa damapalli	183	1.64	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IVes	Graded bunding
Mitathapa damapalli	184	8.22	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IVes	Graded bunding
Mitathapa damapalli	185	8.66	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IVes	Graded bunding
Mitathapa damapalli	186	5.24	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	187	6.1	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	188	7.99	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	189	1.95	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	191	0.03	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	196/3	2.79	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	197	5.56	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Bengalgram (Rg+Bg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	198	6.38	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding

Village	Survey Number	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
Mitathapa damapalli	199	4.18	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	200	7.21	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	201	5.09	BMNmB2g1	LMU-2	Very deep (>150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	202	5	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Graded bunding
Mitathapa damapalli	203	3.05	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IVes	Graded bunding
Mitathapa damapalli	204	5.8	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	205	6.57	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Scrub land (Rg+Sl)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	206	5.03	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy (Rg+Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	207	5.46	BDLiB3	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	208	7.97	BDLiB3	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	209	6.97	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	210	4.01	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	211	6.15	BDLiB3	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Redgram+Paddy (Rg+Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	212	4.04	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	213	4.54	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	214	1.74	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	215	4.71	Waterbody	Others	Others	Others	Others	Others	Others	Others	Waterbody (Wb)	1 Borewell	Others	Others
Mitathapa damapalli	216	1.06	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	217/1	1.78	BDLhB2g1	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Gravelly (15-35%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	217/2	1.72	BDLhB2g1	LMU-7	Shallow (25-50 cm)	Sandy clay loam	Gravelly (15-35%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	218	3.25	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	219	7.94	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram+Scrub land (Rg+Sl)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	220	0.43	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Groundnut (Gn)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	221	0.73	YLRiB2	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	Trench cum bunding

Village	Survey Number	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
Mitathapa damapalli	222	0.92	YLRiB2	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	Trench cum bunding
Mitathapa damapalli	223	0.54	YLRiB2	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	Trench cum bunding
Mitathapa damapalli	224	0.8	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	225	0.62	YLRiB2	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	Trench cum bunding
Mitathapa damapalli	226	0.75	YLRiB2	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	Trench cum bunding
Mitathapa damapalli	227	0.69	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Paddy (Pd)	1 Borewell	IVes	Trench cum bunding
Mitathapa damapalli	228	0.37	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Paddy (Pd)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	229	0.23	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Paddy (Pd)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	230	0.97	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	231	0.68	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	232	4.74	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram+Paddy+Groundnut+Jower (Rg+Pd+Gn+Jw)	1 Borewell	IIIes	Trench cum bunding
Mitathapa damapalli	233	3.75	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	1 Borewell	IIIes	Trench cum bunding
Mitathapa damapalli	234	0.59	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	235	0.7	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	236	0.39	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	237	0.51	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Jowar (Jw)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	238	3.89	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Groundnut+Jower(Gn+Jw)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	239	0.72	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Paddy (Pd)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	240	0.59	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Redgram (Rg)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	241	0.67	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	242	0.8	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	243	0.64	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	244	0.8	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	245	0.56	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIIes	Graded bunding

Village	Survey Number	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
Mitathapa damapalli	246	4.28	BDLiB2	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Paddy (Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	247	1.38	KBDcC2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Very low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Not Available (NA)	Not Available	IIIes	Trench cum bunding
Mitathapa damapalli	248	2.79	BDLiB3	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Paddy (Pd)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	249	0.16	BDLiB3	LMU-7	Shallow (25-50 cm)	Sandy clay	Non gravelly (<15%)	Very low (<50 mm/m)	Very gently sloping (1-3%)	Severe	Not Available (NA)	Not Available	IIIes	Graded bunding
Mitathapa damapalli	250	3.77	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Paddy (Rg+Pd)	Not Available	IIes	Graded bunding
Mitathapa damapalli	251	5.86	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	252	4.5	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Not Available (NA)	Not Available	IIes	Graded bunding
Mitathapa damapalli	253	5.91	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	254	2.5	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	255	3.15	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	256	0.64	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	258	1.85	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	259	5.45	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	260	0.25	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	267	1.95	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	268	1.61	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	269/1	2.29	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	269/2	0.55	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	270	0.5	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	271	1.1	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Mitathapa damapalli	272	5.84	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Mitathapa damapalli	273	5.98	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	274	4.26	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	275	5.67	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Jowar (Rg+Jw)	Not Available	IIes	Graded bunding

Village	Survey Number	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
Mitathapa damapalli	276	2.7	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	277	7.43	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Scrub land (Rg+Sl)	Not Available	IIes	Graded bunding
Mitathapa damapalli	278/1	1.27	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	278/2	2.38	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	279	1.67	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	280	2.72	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	282	0.71	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	285/1	0.82	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	285/2	0.51	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	286	3	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Mitathapa damapalli	287	1.46	Waterbody	Others	Others	Others	Others	Others	Others	Others	Not Available (NA)	Not Available	Others	Others
Mitathapa damapalli	288	0.72	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Redgram (Rg)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	289/1	0.52	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Scrub land (Sl)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	289/2	0.68	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Scrub land (Sl)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	290/1	0.29	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Not Available (NA)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	290/2	0.12	YLRcC3	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Non gravelly (<15%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Not Available (NA)	Not Available	IVes	Trench cum bunding
Mitathapa damapalli	290/3	0.04	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Mitathapa damapalli	290/4	0.04	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Mitathapa damapalli	291/3	0.02	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation (Hb)	Not Available	Others	Others
Mitathapa damapalli	293/2	0.78	NGPmB2	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram+Habitation (Rg+Hb)	Not Available	IIes	Graded bunding
Yadhalapura	26	1.89	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Yadhalapura	27	1.25	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Yadhalapura	28	1.34	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Yadhalapura	29	2.77	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding

Village	Survey Number	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
Yadhalapura	30	3.35	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar (Jw)	Not Available	IIes	Graded bunding
Yadhalapura	31	2.25	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Yadhalapura	32	0.12	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Redgram (Rg)	Not Available	IIes	Graded bunding
Yadhalapura	39	0.02	NGPmB2g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Moderate	Cotton (Ct)	Not Available	IIes	Graded bunding
Yadhalapura	40	1.36	GWDiB2g1	LMU-3	Moderately deep (75-100 cm)	Sandy clay	Gravelly (15-35%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Moderate	Jowar+Redgram (Jw+Rg)	Not Available	IVes	Graded bunding

Appendix II

Chepata (4J2c) Microwatershed

Soil Fertility Information

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Chapetla	1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	3	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	4	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	5	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	6	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	7	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	8	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	9	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	10	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	11	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	12	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	13	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	14	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	15	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	16	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	17	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	18	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	19	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	26	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	31	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	33	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	34	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Chapetla	35	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	36	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	37	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	38	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	39	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	40	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	41	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	42/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	42/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	43	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	44	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	45/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	45/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	46/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	46/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	47	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	48/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	48/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	49/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	49/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	50	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	51	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	52	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	53	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Chapetla	54	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	55	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	56	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	57	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	58	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	59	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	60	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	61	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	62	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	63	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	64	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	65	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	66	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	67	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	68	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	69	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	70	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Chapetla	71	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Chapetla	73	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Chapetla	74	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	75	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	76	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	77	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Chapetla	78	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	79	Neutral (pH 6.5 –	Non saline	High (>	Low (< 23	Medium (145 –	Medium (10 –	Low (< 0.5	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
		7.3)	(<2 dsm)	0.75 %)	kg/ha)	337 kg/ha)	20 ppm)	ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Chapetla	80	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Chapetla	85	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	153	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Chapetla	154/1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	154/2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	155/1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	155/2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	155/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	156/1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	156/2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	156/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	156/4	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	157	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	158	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Gajarakota	308	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Gajarakota	309	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kakalawara	298	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	299	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	300	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	301	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	302	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kakalawara	303/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kakalawara	303/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	304/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	304/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	305/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Kakalawara	305/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	306	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	307	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	308	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	309	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	310	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	311	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	312/1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	312/2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	312/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	312/4	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	313	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	314	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	315/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	315/2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	315/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	315/4	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	316	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	317/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	317/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	318	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	319	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	321	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	322	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	323	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	324	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Kakalawara	325	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	326	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	327	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	328	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	329	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	330	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	331	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	332	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	333	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	334	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	335	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	336/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	336/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	337	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	338	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	339	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	340	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	341	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	342	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	343	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	344	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kakalawara	345	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kakalawara	346	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kakalawara	347	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Kakalawara	348	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kakalawara	349	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	350	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	351	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	352	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	353	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	354	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	355	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	356	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	357	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	358	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	359	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	360	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	361	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	362	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	363	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	364	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	365	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	366	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	367	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	368	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	369	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	370	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	371	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Kakalawara	372	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	373	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	374	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	375	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	376	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	377	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	378	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	379	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	382	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Kakalawara	395	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	396	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	397	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Kakalawara	398	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	3201	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	3202	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Kakalawara	3203	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	4	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	5	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	6	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	7	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	8	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	118	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	119	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	120/10	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada	120/1	Neutral (pH 6.5 –	Non saline	High (>	Medium (23 –	Medium (145 –	Medium (10 –	Low (< 0.5	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
mapalli	1	7.3)	(<2 dsm)	0.75 %)	57 kg/ha)	337 kg/ha)	20 ppm)	ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Mitathapada mapalli	120/4	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mitathapada mapalli	120/5	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	120/6	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	120/7	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	120/8	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	120/9	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	121	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	122	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	123	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	124	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	125	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	126	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	127	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	128	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	129	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	130	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	131	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	132	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	133	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	134	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	135	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	136	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	137	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada	138	Neutral (pH 6.5 –	Non saline	High (>	Medium (23 –	Medium (145 –	Medium (10 –	Low (< 0.5	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
mapalli		7.3)	(<2 dsm)	0.75 %)	57 kg/ha)	337 kg/ha)	20 ppm)	ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Mitathapada mapalli	139	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	140/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	140/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	141	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	142	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	143	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	144/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	144/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	144/3	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	145	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	146	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	147	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	148	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	149/1	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO	RO
Mitathapada mapalli	149/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	150	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	151	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	152	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	153	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	154	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	155	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	156	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	157	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada	158	Neutral (pH 6.5 –	Non saline	High (>	Medium (23 –	Medium (145 –	Medium (10 –	Low (< 0.5	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
mapalli		7.3)	(<2 dsm)	0.75 %)	57 kg/ha)	337 kg/ha)	20 ppm)	ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Mitathapada mapalli	159	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	160	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	161	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	162	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	163	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	164	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	165	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	166	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	167	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	168	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	169	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	170	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	171	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	172	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	173	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	174	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	175	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	176	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	177	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	178	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	179	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	180/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	180/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada	180/3	Neutral (pH 6.5 –	Non saline	High (>	High (> 57	Medium (145 –	Medium (10 –	Low (< 0.5	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
mapalli		7.3)	(<2 dsm)	0.75 %)	kg/ha)	337 kg/ha)	20 ppm)	ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Mitathapada mapalli	180/4	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	180/5	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	180/6	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	181	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	182	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	183	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	184	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	185	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	186	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	187	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	188	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	189	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	191	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	196/3	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	197	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	198	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	199	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	200	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	201	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	202	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Mitathapada mapalli	203	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	204	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	205	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada	206	Neutral (pH 6.5 –	Non saline	High (>	Medium (23 –	Medium (145 –	Low (<10	Low (< 0.5	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
mapalli		7.3)	(<2 dsm)	0.75 %)	57 kg/ha)	337 kg/ha)	ppm)	ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Mitathapada mapalli	207	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	208	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	209	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	210	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	211	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	212	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	213	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	214	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	215	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Mitathapada mapalli	216	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	217/1	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	217/2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	218	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	219	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	220	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	221	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	222	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	223	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	224	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	225	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	226	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	227	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	228	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada	229	Slightly acid (pH	Non saline	High (>	High (> 57	Medium (145 –	Medium (10 –	Low (< 0.5	Sufficient	Sufficient (>	Sufficient (>	Sufficient (>

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
mapalli		6.0 – 6.5)	(<2 dsm)	0.75 %)	kg/ha)	337 kg/ha)	20 ppm)	ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Mitathapada mapalli	230	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	231	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	232	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	233	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	234	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	235	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	236	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	237	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	238	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	239	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	240	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	241	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	242	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	243	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	244	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	245	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	246	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	247	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	248	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	249	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	250	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	251	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	252	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada	253	Slightly acid (pH	Non saline	High (>	Low (< 23	Medium (145 –	Low (<10	Low (< 0.5	Sufficient	Sufficient (>	Sufficient (>	Deficient (<

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
mapalli		6.0 – 6.5)	(<2 dsm)	0.75 %)	kg/ha)	337 kg/ha)	ppm)	ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Mitathapada mapalli	254	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	255	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	256	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	258	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	259	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	260	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)
Mitathapada mapalli	267	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	268	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	269/1	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	269/2	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	270	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	271	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	272	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	273	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	274	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	275	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	276	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)
Mitathapada mapalli	277	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	278/1	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	278/2	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	279	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	280	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	282	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada	285/1	Slightly acid (pH	Non saline	High (>	High (> 57	Medium (145 –	Medium (10 –	Low (< 0.5	Sufficient	Sufficient (>	Sufficient (>	Sufficient (>

Village	Survey No	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
mapalli		6.0 – 6.5)	(<2 dsm)	0.75 %)	kg/ha)	337 kg/ha)	20 ppm)	ppm)	(>4.5 ppm)	1.0 ppm)	0.2 ppm)	0.6 ppm)
Mitathapada mapalli	285/2	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	286	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	287	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Mitathapada mapalli	288	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	289/1	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	289/2	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	290/1	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	290/2	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Mitathapada mapalli	290/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Mitathapada mapalli	290/4	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Mitathapada mapalli	291/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Mitathapada mapalli	293/2	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 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)	Sufficient (> 0.6 ppm)
Yadhalapura	26	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Yadhalapura	27	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Yadhalapura	28	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Yadhalapura	29	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Yadhalapura	30	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Yadhalapura	31	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Yadhalapura	32	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Yadhalapura	39	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)
Yadhalapura	40	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	High (> 0.75 %)	Low (< 23 kg/ha)	High (> 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Deficient (< 0.6 ppm)

Appendix III

Chepata (4J2c) Microwatershed

Soil Suitability Information

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Chapetla	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
Chapetla	2	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
Chapetla	3	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	4	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	5	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	6	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	7	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	8	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	9	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	10	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	11	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
Chapetla	12	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
Chapetla	13	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
Chapetla	14	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
Chapetla	15	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
Chapetla	16	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
Chapetla	17	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
Chapetla	18	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Chapetla	19	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
Chapetla	26	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
Chapetla	31	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	33	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	34	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Chapetla	35	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	36	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	37	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	38	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	39	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	N1r
Chapetla	40	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	41	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	N1r
Chapetla	42/1	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	N1r
Chapetla	42/2	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	43	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	44	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	45/1	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	45/2	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	46/1	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	46/2	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	47	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	48/1	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	48/2	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	49/1	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	N1r
Chapetla	49/2	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	50	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	51	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	52	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	53	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	54	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	55	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Chapetla	56	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	57	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	58	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	59	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	60	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	61	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	62	S3r	S1	S2r	S2t	S2r	S3t	S3r	S2r	S3t	S2rt	S2rt	S1	S2r	S1	S3n	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S1	S1	S1	S2r	S2r
Chapetla	63	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	64	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	65	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	66	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	67	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	68	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	69	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Chapetla	70	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Chapetla	71	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Chapetla	73	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Chapetla	74	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Chapetla	75	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Chapetla	76	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Chapetla	77	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	RO
Chapetla	78	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
Chapetla	79	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Chapetla	80	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Chapetla	85	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
Chapetla	153	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Chapetla	154/1	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
Chapetla	154/2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	155/1	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
Chapetla	155/2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	155/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	156/1	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
Chapetla	156/2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	156/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Chapetla	156/4	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
Chapetla	157	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
Chapetla	158	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
Gajarakota	308	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Gajarakota	309	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Kakalawara	298	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	299	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	300	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	301	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	302	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	303/1	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	303/2	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	304/1	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	304/2	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	305/1	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	305/2	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	306	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	307	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Kakalawara	308	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	309	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	310	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	311	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
Kakalawara	312/1	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
Kakalawara	312/2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	312/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	312/4	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
Kakalawara	313	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
Kakalawara	314	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
Kakalawara	315/1	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	315/2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	315/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kakalawara	315/4	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
Kakalawara	316	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	317/1	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	317/2	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	318	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	319	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	321	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	322	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	323	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	324	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
Kakalawara	325	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	326	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	327	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Kakalawara	328	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	329	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	330	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	331	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	332	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	333	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	334	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	335	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	336/1	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	336/2	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	337	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	338	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	339	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	340	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	341	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	342	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	343	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	344	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	345	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	346	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	347	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	348	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	349	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	350	S1	S1	S1	S2t	S1	S3t	S1	S1	S3t	S2t	S2t	S1	S1	S1	S2n	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Kakalawara	351	S1	S1	S1	S2t	S1	S3t	S1	S1	S3t	S2t	S2t	S1	S1	S1	S2n	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Kakalawara	352	S1	S1	S1	S2t	S1	S3t	S1	S1	S3t	S2t	S2t	S1	S1	S1	S2n	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Kakalawara	353	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	354	S1	S1	S1	S2t	S1	S3t	S1	S1	S3t	S2t	S2t	S1	S1	S1	S2n	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Kakalawara	355	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	356	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	357	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	358	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	359	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	360	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	361	S3n	S2n	S3n	S2tn	N1n	S3tn	N1n	S3n	S3t	S3n	S2tn	N1n	N1n	S3n	N1n	N1n	S3n	S3n	N1n	S3n	S3n	S3n	S3n	S3n	S2n	S3n	S3n	N1n	N1n
Kakalawara	362	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	363	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	364	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	365	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	366	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	367	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	368	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	369	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	370	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	371	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	372	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	373	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	374	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	375	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Kakalawara	376	S3n	S2n	S3n	S2tn	N1n	S3tn	N1n	S3n	S3t	S3n	S2tn	N1n	N1n	S3n	N1n	N1n	S3n	S3n	N1n	S3n	S3n	S3n	S3n	S3n	S2n	S3n	S3n	N1n	N1n
Kakalawara	377	S3n	S2n	S3n	S2tn	N1n	S3tn	N1n	S3n	S3t	S3n	S2tn	N1n	N1n	S3n	N1n	N1n	S3n	S3n	N1n	S3n	S3n	S3n	S3n	S3n	S2n	S3n	S3n	N1n	N1n
Kakalawara	378	S3n	S2n	S3n	S2tn	N1n	S3tn	N1n	S3n	S3t	S3n	S2tn	N1n	N1n	S3n	N1n	N1n	S3n	S3n	N1n	S3n	S3n	S3n	S3n	S3n	S2n	S3n	S3n	N1n	N1n

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Kakalawara	379	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Kakalawara	382	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	RO
Kakalawara	395	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Kakalawara	396	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Kakalawara	397	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Kakalawara	398	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Kakalawara	3201	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	3202	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Kakalawara	3203	N1r	S2r	S3r	S2rt	S3r	S3t	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	N1n	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	4	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	5	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	6	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	7	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	8	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	118	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	119	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	120/10	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	120/11	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	120/4	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	RO
Mitathapadamapalli	120/5	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	120/6	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	120/7	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	120/8	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mitathapadamapalli	120/9	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	121	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	122	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	123	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	124	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	125	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	126	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	127	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	128	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	129	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	130	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	131	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	132	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Mitathapadamapalli	133	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	134	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Mitathapadamapalli	135	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Mitathapadamapalli	136	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Mitathapadamapalli	137	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	138	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	139	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	140/1	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mitathapadamapalli	140/2	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	141	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	142	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	143	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	144/1	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Mitathapadamapalli	144/2	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Mitathapadamapalli	144/3	S1	S2g	S1	S2tg	S1	S3t	S1	S1	S3t	S2tg	S2tg	S1	S1	S1	S2n	S1	S1	S1	S2g	S2g	S2g	S2g	S2g	S1	S1	S2g	S2g	S1	S1
Mitathapadamapalli	145	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	146	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	147	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	148	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	149/1	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
Mitathapadamapalli	149/2	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	150	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	151	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	152	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	153	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	154	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	155	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	156	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	157	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mitathapadamapalli	158	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	159	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	160	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	161	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	162	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	163	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	164	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	165	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	166	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	167	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	168	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	169	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	170	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	171	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	172	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	173	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	174	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	175	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	176	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	177	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	178	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mitathapadamapalli	179	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	180/1	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	180/2	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	180/3	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	180/4	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	180/5	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	180/6	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	181	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	182	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	183	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	184	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	185	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	186	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	187	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	188	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	189	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	191	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	196/3	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	197	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	198	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	199	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mitathapadamapalli	200	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	201	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3tz	S3t	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	202	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	203	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n
Mitathapadamapalli	204	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	205	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	206	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	207	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	208	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	209	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	210	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	211	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	212	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	213	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	214	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	215	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
Mitathapadamapalli	216	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	217/1	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	217/2	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	218	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	219	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mitathapadamapalli	220	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	221	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	222	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	223	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	224	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	225	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	226	N1r	S2rt	S3r	S2r	S3r	S2r	N1r	S3r	S3t	S3r	S3r	S2r	S3r	S2r	S3r	S3r	S3r	S3t	S2r	S2r	S2r	S2r	S2r	S3r	S2r	S2r	S2r	S3r	S3r
Mitathapadamapalli	227	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	228	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	229	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	230	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	231	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	232	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	233	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	234	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	235	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	236	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	237	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	238	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	239	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	240	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mitathapadamapalli	241	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	242	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	243	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	244	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	245	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	246	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	247	S3r	S2g	S2rg	S2gt	S2rg	S3t	S3r	S2rg	S3t	S2rg	S2rg	S2g	S2rg	S2g	S3g	S3r	S2rg	S2g	S3g	S3g	S3g	S3g	S3g	S2rg	S2g	S3g	S3g	S2rg	S2rg
Mitathapadamapalli	248	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	249	N1r	S3rt	N1r	S3rt	N1r	N1t	N1r	N1r	N1t	N1r	N1r	S3rt	N1r	S3rt	N1n	N1r	N1r	S3r	S3r	S3r	S3r	S3r	S3r	N1r	S3r	S3r	S3r	N1r	N1r
Mitathapadamapalli	250	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	251	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	252	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	253	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	254	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	255	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	256	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	258	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	259	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	260	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	267	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	268	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mitathapadamapalli	269/1	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	269/2	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	270	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	271	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	272	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	273	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	274	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	275	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	276	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	277	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	278/1	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	278/2	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	279	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	280	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	282	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	285/1	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	285/2	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	286	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Mitathapadamapalli	287	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
Mitathapadamapalli	288	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	289/1	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r

Village	Survey Number	Mango	Maize	Sapota	Sorghum	Guava	Cotton	Tamarind	Lime	Bengal gram	Sunflower	Red gram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Bajra	Brinjal	Bhendi	Drumstick	Mulberry
Mitathapadamapalli	289/2	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	290/1	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	290/2	N1r	S2rl	S3r	S2rl	S3r	S3l	N1r	S3r	S3t	S3r	S3r	S2rl	S3r	S2rl	S3r	S3r	S3r	S3t	S2rl	S2rl	S2rl	S2rl	S2rl	S3r	S2rl	S2rl	S2rl	S3r	S3r
Mitathapadamapalli	290/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Mitathapadamapalli	290/4	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
Mitathapadamapalli	291/3	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Mitathapadamapalli	293/2	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Yadhalapura	26	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Yadhalapura	27	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Yadhalapura	28	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Yadhalapura	29	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Yadhalapura	30	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Yadhalapura	31	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Yadhalapura	32	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Yadhalapura	39	S3t	S2tz	S3t	S2z	S3tz	S2z	S3z	S2z	S2z	S2z	S2tz	S3z	S3tz	S2z	N1t	S3z	S2z	S3t	S3tz	S2tz	S3t	S2tz	S2tz	S2tz	S2tz	S3t	S2tz	S3z	S3tz
Yadhalapura	40	N1n	S3nz	N1n	S3nz	N1n	S3nz	N1n	N1n	S3nz	N1n	S3nz	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	N1n	S3nz	N1n	N1n	N1n	N1n

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 Chepatla is located at North latitude 16^0 54' 43.393" and 16^0 52' 30.815" and East longitude 77^0 21' 20.618" and 77^0 19' 4.801" covering an area of about 934.31 ha coming unde Cheptala, Mitathapadamapalli and Kakalawara villages of Yadagiri taluk.*
- *Socio-economic analysis of Chepatla micro watersheds of Mothakapalli sub-watershed, Yadgiri taluk & District indicated that, out of the total sample of 35 farmers were sampled in Chepatla micro-watershed among households surveyed 13 (37.14%) were marginal, 11 (31.43%) were small, 5 (14.29 %) were semi medium, 1 (2.86 %) were medium farmers. 5 landless farmers were also interviewed for the survey.*
- *The population characteristics of households indicated that, there were 88 (56.77%) men and 67 (43.23%) were women. The average population of landless was 3.4 marginal farmers were 4.1, small farmers were 5.2, semi medium farmers were 4.6 and medium farmers were 5.*
- *Majority of the respondents (48.39%) were in the age group of 16-35 years.*
- *Education level of the sample households indicated that, there were 58.06 per cent illiterates, 36.78 per cent pre university education and 7.10 per cent attained graduation.*
- *About, 88.57 per cent of household heads practicing agriculture and 11.43 per cent of the household heads were engaged as agricultural labourers.*
- *Agriculture was the major occupation for 21.29 per cent of the household members.*
- *In the study area, 28.57 per cent of the households possess katcha house and 2.86 per cent possess pucca house.*
- *The durable assets owned by the households showed that, 94.29 per cent possess TV, 2.86 per cent possess mixer grinder, 94.29 per cent possess mobile phones and 25.71 per cent possess motor cycles.*
- *Farm implements owned by the households indicated that, 34.29 per cent of the households possess plough, 5.71 per cent possess bullock cart and 14.29 per cent possess sprayer.*
- *Regarding livestock possession by the households, 5.71 per cent possess local cow and 2.86 per cent possess buffalo.*
- *The average labour availability in the study area showed that, own men and women labour availability in the micro watershed was 10.60 each, while the hired labour (men) availability was 1.97.*
- *Further, 100.00 per cent of the households opined that hired labour was inadequate during the agricultural season.*

- *Out of the total land holding of the sample respondents 91.08 per cent (37.52 ha) of the area is under dry condition and the remaining 8.92 per cent area is irrigated land.*
- *Bore/open well was the major source of irrigation for 2.86 per cent of the households.*
- *The major crops grown by sample farmers are Red gram, Sorghum, Green gram, Groundnut and Cotton and cropping intensity was recorded as 100.00 per cent.*
- *Out of the sample households 80.00 percent possessed bank account and 80.00 per cent of them have savings in the account.*
- *About 48.57 per cent of the respondents borrowed credit from various sources.*
- *Among the credit borrowed by households, 10.71 per cent have borrowed loan from commercial banks and 3.57 per cent from co-operative/Grameena bank.*
- *Majority of the respondents (100.00%) have borrowed loan for agriculture purpose.*
- *Regarding the opinion on institutional sources of credit, 100.00 per cent of the households opined that credit helped to perform timely agricultural operations.*
- *The per hectare cost of cultivation for Red gram, Sorghum, Green gram, Groundnut and Cotton was Rs.28923.01, 14967.25, 37587.66, 21455.60 and 24430.21 with benefit cost ratio of 1:2.50, 1: 2.00, 1: 1.50, 1: 4.80 and 1:2.70 respectively.*
- *Further, 77.14 per cent of the households opined that dry fodder was adequate and 2.86 per cent of the households have opined that the green fodder was adequate.*
- *The average annual gross income of the farmers was Rs. 123320.03 in micro-watershed, of which Rs. 63691.43 comes from agriculture.*
- *Sampled households have grown 25 horticulture trees and 30 forestry trees together in the fields and back yards.*
- *Households have an average investment capacity of Rs. 857.14 for land development.*
- *Source of funds for additional investment is concerned, 2.86 per cent depends on own funds and 5.71 per cent depends on bank loan for land development activities.*
- *Regarding marketing channels, 22.86 per cent of the households have sold agricultural produce to the local/village merchants, while, 60.00 per cent have sold in regulated markets.*
- *Further, 85.71 per cent of the households have used tractor for the transport of agriculture commodity.*
- *Majority of the farmers (85.71%) have experienced soil and water erosion problems in the watershed and 82.86 per cent of the households were interested towards soil testing.*

- *Fire was the major source of fuel for domestic use for 97.14 per cent of the households and 2.86 per cent households has LPG connection.*
- *Piped supply was the major source for drinking water for 94.29 per cent of the households.*
- *Electricity was the major source of light for 100.00 per cent of the households.*
- *In the study area, 71.43 per cent of the households possess toilet facility.*
- *Regarding possession of PDS card, 100.00 per cent of the households possessed BPL card.*
- *Households opined that, the requirement of cereals (94.29%), pulses (82.86%) and oilseeds (11.43%) are adequate for consumption.*
- *Farming constraints experienced by households in the micro watersheds were lower fertility status of the soil (91.43%) wild animal menace on farm field (77.14%), frequent incidence of pest and diseases (22.86%), inadequacy of irrigation water (25.71%), high cost of fertilizers and plant protection chemicals (22.86%), high rate of interest on credit (14.29%), low price for the agricultural commodities (8.57%), lack of marketing facilities in the area (17.14%), inadequate extension services (20.00%), lack of transport for safe transport of the agricultural produce to the market (40.00%) and Less rainfall (45.71%) and Source of Agri-technology information (Newspaper/ TV/Mobile) (37.14%).*

Chapter 2

INTRODUCTION

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

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

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

Scope and importance of survey

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

Chapter 3

METHODOLOGY

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

1. Description of the study area

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

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

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

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

The study was conducted in Chepatla micro-watershed (Mothakapalli sub-watershed, Yadgiri taluk & District) is located at North latitude 160 54’ 43.393" and 160 52' 30.815" and East longitude 770 21’ 20.618" and 770 19’ 4.801”covering an area of about 934.31 ha bounded by unde Cheptala, Mitathapadamapalli and Kakalawara 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 35 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 Chepatla Micro watershed is presented in Table 1 and it indicated that 35 farmers were sampled in Chepatla micro-watershed among households surveyed 13 (37.14%) were marginal, 11 (31.43%) were small, 5 (14.29 %) were semi medium, 1 (2.86 %) were medium farmers. 5 landless farmers were also interviewed for the survey.

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

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Farmers	5	14.3	13	37.1	11	31.4	5	14.3	1	2.86	35	100

Population characteristics: The population characteristics of households sampled for socio-economic survey in Chepatla Micro watershed is presented in Table 2. The data indicated that, there were 88 (56.77%) men and 67 (43.23%) were women. The average population of landless was 3.4 marginal farmers were 4.1, small farmers were 5.2, semi medium farmers were 4.6 and medium farmers were 5.

Table 2. Population characteristics in Chepatla micro-watershed

Sl.No.	Particulars	LL (17)		MF (53)		SF (57)		SMF (23)		MDF (5)		All (155)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Men	9	52.9	30	57	31	54	15	65.2	3	60	88	56.8
2	Women	8	47.1	23	43	26	46	8	34.8	2	40	67	43.2
Total		17	100	53	100	57	100	23	100	5	100	155	100
Average		3.4		4.1		5.2		4.6		5.0		4.4	

Age wise classification of population: The age wise classification of household members in Chepatla Micro watershed is presented in Table 3. The indicated that, 14 (9.03%) of population were 0-15 years of age, 75 (48.39%) were 16-35 years of age, 49(31.61%) were 36-60 years of age and 17 (10.97 %) were above 61 years of age.

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

Sl.No.	Particulars	LL (17)		MF (53)		SF (57)		SMF (23)		MDF (5)		All (155)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	0-15 years of age	4	23.5	7	13.2	3	5.26	0	0	0	0	14	9.03
2	16-35 years of age	5	29.4	24	45.3	35	61.4	9	39.13	2	40	75	48.39
3	36-60 years of age	6	35.3	19	35.9	14	24.6	7	30.43	3	60	49	31.61
4	> 61 years	2	11.8	3	5.66	5	8.77	7	30.43	0	0	17	10.97
Total		17	100	53	100	57	100	23	100	5	100	155	100

Education level of household members: Education level of household members in Chepatla Micro watershed is presented in Table 4. The results indicated that, there were 58.06 per cent of illiterates, 11.61 per cent of them had primary school education, 1.94 per cent middle school education, and 11.61 per cent high school education, 5.81 per cent of them had PUC education, 0.65 per cent of them had Diploma, 7.10 per cent attained graduation, and 2.58 them had other education.

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

Sl.No.	Particulars	LL (17)		MF (53)		SF (57)		SMF (23)		MDF (5)		All (155)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Illiterate	11	64.7	27	50.9	35	61.4	12	52.2	5	100	90	58.1
2	Primary School	3	17.7	9	17	6	10.5	0	0	0	0	18	11.6
3	Middle School	0	0	1	1.89	2	3.51	0	0	0	0	3	1.94
4	High School	0	0	2	3.77	8	14	8	34.8	0	0	18	11.6
5	PUC	0	0	6	11.3	2	3.51	1	4.35	0	0	9	5.81
6	Diploma	0	0	1	1.89	0	0	0	0	0	0	1	0.65
7	Degree	1	5.88	6	11.3	2	3.51	2	8.7	0	0	11	7.1
8	Masters	0	0	0	0	1	1.75	0	0	0	0	1	0.65
9	Others	2	11.8	1	1.89	1	1.75	0	0	0	0	4	2.58
Total		17	100	53	100	57	100	23	100	5	100	155	100

Occupation of head of households: The data regarding the occupation of the household heads in Chepatla Micro watershed is presented in Table 5. The results indicate that, 88.57 per cent of households heads were practicing agriculture, 11.43 per cent of the household heads were agricultural Labour.

Table 5: Occupation of heads of households in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Agriculture	2	40	13	100	10	90.91	5	100	1	100	31	88.57
2	Agricultural Labour	3	60	1	7.7	0	0	0	0	0	0	4	11.43
Total		5	100	14	100	10	100	5	100	1	100	35	100

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

Sl.No.	Particulars	LL (17)		MF (53)		SF (57)		SMF (23)		MDF (5)		All (155)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Agriculture	2	11.8	13	24.5	12	21.05	5	21.74	1	20	33	21.3
2	Agricultural Labour	13	76.5	37	69.8	38	66.67	17	73.91	4	80	109	70.3
3	Household industry	0	0	0	0	0	0	1	4.35	0	0	1	0.65
4	Private Service	0	0	0	0	2	3.51	0	0	0	0	2	1.29
5	Student	0	0	2	3.77	3	5.26	0	0	0	0	5	3.23
6	Housewife	0	0	0	0	2	3.51	0	0	0	0	2	1.29
7	Children	2	11.8	1	1.89	0	0	0	0	0	0	3	1.94
Total		17	100	53	100	57	100	23	100	5	100	155	100

Occupation of the members of the household: The data regarding the occupation of the household members in Chepatla Micro watershed is presented in Table 6. The results indicate that, agriculture was the major occupation for 21.29 per cent of the household

members, 70.32 per cent were agricultural labour, 0.65 per cent were household industry, 1.29 per cent were working in private sector, 3.23 per cent were working in pursuing education, 1.29 per cent were involved as housewife, and 1.94 per cent were childrens.

Institutional Participation of household members: The data regarding the institutional participation of the household members in Chepatla Micro watershed is presented in Table 7. The results show that, out of the total family members in the households 100 per cent of them are participating in any of the institutions.

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

Sl.No.	Particulars	LL (17)		MF (53)		SF (57)		SMF (23)		MDF (5)		All (155)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	No Participation	17	100	53	100	57	100	23	100	5	100	155	100
Total		17	100	53	100	57	100	23	100	5	100	155	100

Type of house owned: The data regarding the type of house owned by the households in Chepatla Micro watershed is presented in Table 8. The results indicate that, 68.57 percent possess thatched house, 28.57 per cent of the households possess katcha house, 2.86 per cent possess pacca house.

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

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Thatched	3	60	11	85	7	63.64	2	40	1	100	24	68.57
2	Katcha	2	40	2	15	4	36.36	2	40	0	0	10	28.57
3	Pucca/RCC	0	0	0	0	0	0	1	20	0	0	1	2.86
Total		5	100	13	100	11	100	5	100	1	100	35	100

Durable assets owned by the households: The data regarding the Durable Assets owned by the households in Chepatla Micro watershed is presented in Table 9. The result shows that, 94.29 per cent possess TV, 2.86 per cent possess mixer grinder, 25.71 per cent possess motor cycle, 94.29 per cent possess mobile phones.

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

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Television	3	60	13	100	11	100	5	100	1	100	33	94.29
2	Mixer/Grinder	0	0	0	0	1	9.09	0	0	0	0	1	2.86
3	Motor Cycle	0	0	2	15	4	36.4	3	60	0	0	9	25.71
4	Mobile Phone	5	100	13	100	9	81.8	5	100	1	100	33	94.29

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

Average Value (Rs.)

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
1	Television	10666	8	6772	6300	7000	23
2	Mixer/Grinder	0	0	1200	0	0	1200
3	Motor Cycle	0	65000	58750	61333	0	61000
4	Mobile Phone	4600	3000	4300	2700	2000	3609

Average value of durable assets: The data regarding the average value of durable assets owned by the households in Chepatla Micro watershed is presented in Table 10. The result shows that, the average value of television was Rs.23.00, mixer grinder was Rs.1200.00, motor cycle was Rs. 61000.00, mobile phone was Rs.3609.00.

Farm implements owned: The data regarding the farm implements owned by the households in Chepatla Micro watershed is presented in Table 11. About 5.71 per cent of the households possess Bullock Cart, 34.29 per cent possess plough and 17.14 per cent possess Seed/Fertilizer Drill and Sprinkler, 14.29 per cent possess Sprayer, 14.29 per cent possess weeder.

Table 11. Farm implements owned in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Bullock Cart	0	0	1	7.69	1	9.09	0	0	0	0	2	5.71
2	Plough	0	0	4	30.8	5	45.45	2	40	1	100	12	34.29
3	Seed/Fertilizer Drill	0	0	3	23.1	0	0	2	40	1	100	6	17.14
4	Sprayer	0	0	3	23.1	1	9.09	1	20	0	0	5	14.29
5	Weeder	0	0	3	23.1	2	18.18	0	0	0	0	5	14.29
6	Blank	5	100	8	61.5	6	54.55	3	60	0	0	22	62.86

Average value of farm implements: The data regarding the average value of farm Implements owned by the households in Chepatla Micro watershed is presented in Table 12. The results show that the average value of plough was Rs.8208.00, bullock Cart was Rs.11000.00, seed/fertilizer drill was Rs.2140.00, sprayer and weeder was Rs.172.00.

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

Average Value (Rs.)

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
1	Bullock Cart	0	7000	15000	0	0	11000
2	Plough	0	4125	14200	3750	3500	8208
3	Seed/Fertilizer Drill	0	3266	0	3750	3000	3383
4	Sprayer	0	1900	2500	2500	0	2140
5	Weeder	0	153	200	0	0	172

Livestock possession by the households: The data regarding the Livestock possession by the households in Chepatla Micro watershed is presented in Table 13. The results indicate that, 25.71 per cent of the households possess bullocks, 5.71 per cent possess local cow, 2.86 per cent possess buffalo.

Table 13. Livestock possession by households in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Bullock	0	0	4	31	2	18.18	2	40	1	100	9	25.71
2	Local cow	0	0	1	7.7	1	9.09	0	0	0	0	2	5.71
3	Buffalo	0	0	1	7.7	0	0	0	0	0	0	1	2.86
4	blank	5	100	8	62	9	81.82	3	60	0	0	25	71.43

Average Labour availability: The data regarding the average labour availability in Chepatla Micro watershed is presented in Table 14. The indicated that, own labour men

available in the micro watershed was 1.97, women available in the micro watershed was 1.34, hired labour (men) available was 8.37 and hired labour (women) available was 9,26.

Table 14. Average labour availability in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
		N	N	N	N	N	N
1	Hired labour Female	3	7.54	12.36	12	15	9.26
2	Own Labour Female	0.6	1	2	1.4	2	1.34
3	Own labour Male	0.6	1.77	2.55	2.4	3	1.97
4	Hired labour Male	3	6.92	11.27	10.8	10	8.37

Adequacy of hired labour: The data regarding the adequacy of hired labour in Chepatla Micro watershed is presented in Table 15. The results indicate that, 100.00 per cent of the household opined that hired labour was Inadequate.

Table 15. Adequacy of hired labour in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
2	Inadequate	5	100	13	100	11	100	5	100	1	100	35	100

Distribution of land (ha): The results (Table 16) indicate that, 34.17 ha (91.08%) of dry land and 3.35 ha (8.92 %) of irrigated land.

Table 16. Distribution of land (ha) in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Dry	0	0	8.1	95.24	15.19	94.3	10.88	100	0	0	34.17	91.08
2	Irrigated	0	0	0.4	4.76	0.92	5.7	0	0	2.02	100	3.35	8.92
Total		0	100	8.5	100	16.11	100	10.88	100	2.02	100	37.52	100

Average value of land (ha): The results (Table 17) show that the average value of dry land was Rs.315954.05 and the average value of irrigated land was Rs.418137.85.

Table 17. Average value of land (ha) in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
		N	N	N	N	N	N
1	Dry	0	617191.4	256674.7	174525.9	0	315954.1
2	Irrigated	0	1235000	544052.9	0	197600	418137.9

Table 18. Source of irrigation in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Tank	0	0	0	0	1	9.09	0	0	0	0	1	2.86

Source of irrigation: The data regarding the source of irrigation in Chepatla Micro watershed is presented in Table 18. The results indicate that, tank was major source of irrigation for 2.86 per cent of the households.

Depth of water (Avg. In meters): The data regarding the depth of water in Chepatla Micro watershed is presented in Table 19. The results revealed that, the depth of tank was 2.18 meter.

Table 19. Depth of water (Avg. In meters) in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
		N	N	N	N	N	N
1	Tank	0	0	6.93	0	0	2.18

Irrigated Area (ha): The data regarding the irrigated area (ha) in Chepatla Micro watershed is presented in Table 20. The results indicate that, the availability of irrigation water was used for kharif crops was 0.92 ha.

Table 20. Irrigated Area (ha) in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
1	Kharif	0	0	0.92	0	0	0.92
Total		0	0	0.92	0	0	0.92

Cropping pattern: The data regarding the cropping pattern in Chepatla Micro watershed is presented in Table 21. The results indicate that, farmers have grown Red gram (togari) (27.59 ha), Groundnut (2.54ha), Greengram (2.45 ha) Sorghum (4.56 ha), and Cotton (2.02 ha).

Table 21. Cropping pattern in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
1	Kharif - Red gram (togari)	0	6.92	12.01	6.64	2.02	27.59
2	Kharif - Groundnut	0	0.92	1.62	0	0	2.54
3	Kharif - Greengram	0	1.21	1.23	0	0	2.45
4	Kharif - Sorghum	0	1.07	1.26	2.23	0	4.56
5	Kharif - Cotton	0	0	0	2.02	0	2.02
Total		0	10.13	16.11	10.89	2.02	39.15

Cropping intensity: The data regarding the cropping intensity in Chepatla Micro watershed is presented in Table 22. The results indicate that, the cropping intensity was 100.00 per cent.

Table 22. Cropping intensity (%) in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
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 Chepatla micro-watershed is presented in Table 23. The results indicate that, 80.00 cent of the households posses bank account and 80.00 per cent of them have savings.

Table 23. Possession of Bank account and savings in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Account	0	0	12	92.31	11	100	4	80	1	100	28	80
2	Savings	0	0	12	92.31	11	100	4	80	1	100	28	80

Borrowing status: The data regarding the borrowing status in Chepatla micro-watershed is presented in Table 24. The results indicate that, 48.57 percent of the sample farmers have borrowed credit from different sources.

Table 24. Borrowing status in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Credit Availed	0	0	1	7.69	11	100	4	80	1	100	17	48.57

Source of credit: The results (Table 25) show that, 10.71 per cent have borrowed loan from commercial banks and 3.57 per cent have borrowed loan from Grameena Bank.

Table 25. Source of credit borrowed by households in Chepatla micro-watershed

Sl.No.	Particulars	LL (0)		MF (12)		SF (11)		SMF (4)		MDF (1)		All (28)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Commercial Bank	0	0	1	8.33	2	18.2	0	0	0	0	3	10.71
2	Grameena Bank	0	0	1	8.33	0	0	0	0	0	0	1	3.57

Avg. Credit amount: The data regarding the avg. Credit amount in Chepatla micro-watershed is presented in Table 26. The results show that, farmers have borrowed Avg. Credit of Rs.3035.71 from different sources.

Table 26. Avg. Credit amount in Chepatla micro-watershed

Sl.No.	Particulars	LL (0)	MF (12)	SF (11)	SMF (4)	MDF (1)	All (28)
		N	N	N	N	N	N
1	Average Credit	0	2916.67	4545.45	0	0	3035.71

Purpose of credit borrowed (institutional Source): The data regarding the purpose of credit borrowed - Institutional Credit in Chepatla micro-watershed is presented in Table 27. The results indicate that, 100.00 per cent of the households have borrowed loan for agriculture production.

Table 27. Purpose of credit borrowed (institutional Source) by households in Chepatla micro-watershed

SN	Particulars	MF (2)		SF (2)		All (4)	
		N	%	N	%	N	%
1	Agriculture production	2	100	2	100	4	100

Repayment status of household (institutional Source): The results (Table 28) indicate that 100.00 per cent have unpaid.

Table 28. Repayment status of household (institutional Source) in Chepatla micro-watershed

Sl.No.	Particulars	MF (2)		SF (2)		All (4)	
		N	%	N	%	N	%
1	Un paid	2	100	2	100	4	100

Opinion regarding institutional sources of credit: The results (Table 29) indicate that, 100.00 per cent of the households opined that credit helped to perform timely agricultural operations.

Table 29. Opinion regarding institutional sources of credit in Chepatla micro-watershed

Sl.No.	Particulars	MF (2)		SF (2)		All (4)	
		N	%	N	%	N	%
1	Helped to perform timely agricultural operations	2	100	2	100	4	100

Cost of Cultivation of Red gram: The data regarding the cost of cultivation (Rs/ha) of Red gram in Chepatla micro watershed is presented in Table 30.a. The results indicate that, the total cost of cultivation (Rs/ha) for Red gram was Rs. 28923.01. The gross income realized by the farmers was Rs. 71345.91. The net income from Red gram cultivation was Rs.42422.90, thus the benefit cost ratio was found to be 1:2.50.

Table 30(a). Cost of Cultivation of Red gram in Chepatla micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	41.66	9240.78	31.95
2	Bullock		Pairs/day	1.36	746.93	2.58
3	Tractor		Hours	2.64	1978.06	6.84
4	Machinery		Hours	0.21	123.32	0.43
5	Seed Main Crop (Establishment and Maintenence)		Kgs (Rs.)	10.89	1343.6	4.65
6	FYM		Quintal	10.27	1438.38	4.97
7	Fertilizer + micronutrients		Quintal	4.03	3048.53	10.54
8	Pesticides (PPC)		Kgs / liters	2	2207.55	7.63
9	Depreciation charges			0	90.51	0.31
II	**Cost B1**					
10	Interest on working capital				965.71	3.34
11	**Cost B1 = (Cost A1 + sum of 15 and 16)**				21183.37	73.24
III	**Cost B2**					
12	Rental Value of Land				158.33	0.55
13	**Cost B2 = (Cost B1 + Rental value)**				21341.7	73.79
IV	**Cost C1**					
14	Family Human Labour			19.06	4942.45	17.09
15	**Cost C1 = (Cost B2 + Family Labour)**				26284.15	90.88
V	**Cost C2**					
16	Risk Premium				9.5	0.03
17	**Cost C2 = (Cost C1 + Risk Premium)**				26293.65	90.91
VI	**Cost C3**					
18	Managerial Cost				2629.36	9.09
19	**Cost C3 = (Cost C2 + Managerial Cost)**				28923.01	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		15.37	69842.89	
		b) Main Crop Sales Price (Rs.)			4545	
	By Product	e) Main Product (q)		14.45	1503.02	
		f) Main Crop Sales Price (Rs.)			104	
b.	Gross Income (Rs.)				71345.91	
c.	Net Income (Rs.)				42422.9	
d.	Cost per Quintal (Rs./q.)				1882.15	
e.	Benefit Cost Ratio (BC Ratio)				1:2.5	

Cost of Cultivation of Sorghum: The data regarding the cost of cultivation (Rs/ha) of Sorghum in Chepatla micro watershed is presented in Table 30.b. The results indicate that, the total cost of cultivation (Rs/ha) for Sorghum was Rs. 14967.25. The gross income realized by the farmers was Rs. 29729.82. The net income from Sorghum cultivation was Rs.14762.57, thus the benefit cost ratio was found to be 1:2.00.

Table 30(b). Cost of Cultivation of Sorghum in Chepatla micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	24.7	4023.85	26.88
2	Tractor		Hours	2.25	1684.09	11.25
3	Machinery		Hours	0.45	269.45	1.8
4	Seed Main Crop (Establishment and Maintenence)		Kgs (Rs.)	13.47	1347.27	9
5	FYM		Quintal	8.98	1796.36	12
6	Fertilizer + micronutrients		Quintal	1.8	2514.91	16.8
7	Pesticides (PPC)		Kgs / liters	0.45	336.82	2.25
8	Depreciation charges			0	0.01	0
II	**Cost B1**					
9	Interest on working capital				720.64	4.81
10	**Cost B1 = (Cost A1 + sum of 15 and 16)**				12693.42	84.81
III	**Cost B2**					
11	Rental Value of Land				166.67	1.11
12	**Cost B2 = (Cost B1 + Rental value)**				12860.08	85.92
IV	**Cost C1**					
13	Family Human Labour			6.74	736.51	4.92
14	**Cost C1 = (Cost B2 + Family Labour)**				13596.59	90.84
V	**Cost C2**					
15	Risk Premium				10	0.07
16	**Cost C2 = (Cost C1 + Risk Premium)**				13606.59	90.91
VI	**Cost C3**					
17	Managerial Cost				1360.66	9.09
18	**Cost C3 = (Cost C2 + Managerial Cost)**				14967.25	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		13.47	28292.73	
		b) Main Crop Sales Price (Rs.)			2100	
	By Product	e) Main Product (q)		17.96	1437.09	
		f) Main Crop Sales Price (Rs.)			80	
b.	Gross Income (Rs.)				29729.82	
c.	Net Income (Rs.)				14762.57	
d.	Cost per Quintal (Rs./q.)				1110.93	
e.	Benefit Cost Ratio (BC Ratio)				1:2	

Cost of Cultivation of Green gram: The data regarding the cost of cultivation (Rs/ha) of Green gram in Chepatla micro watershed is presented in Table 30.c. The results indicate, the total cost of cultivation (Rs/ha) for Green gram was Rs.37587.66. The gross income realized by the farmers was Rs. 57416.67. The net income from Green gram cultivation was Rs. 19829.00, thus the benefit cost ratio was found to be 1:1.50.

Table 30(c). Cost of Cultivation of Green gram in Chepatla micro-watershed

Sl.No	Particulars	Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**				
1	Hired Human Labour	Man days	49.71	11242.83	29.91
2	Bullock	Pairs/day	4.92	2705.08	7.2
3	Tractor	Hours	6.55	4833.29	12.86
5	Seed Main Crop (Establishment and Maintenence)	Kgs (Rs.)	7.38	885.3	2.36
6	Fertilizer + micronutrients	Quintal	4.38	3887	10.34
7	Pesticides (PPC)	Kgs / liters	3.01	3230.5	8.59
8	Irrigation	Number	0	0	0
9	Depreciation charges		0	0.03	0
10	Land revenue and Taxes		0	0	0
II	**Cost B1**				
11	Interest on working capital			961.54	2.56
12	**Cost B1 = (Cost A1 + sum of 15 and 16)**			27745.57	73.82
III	**Cost B2**				
13	Rental Value of Land			111.11	0.3
14	**Cost B2 = (Cost B1 + Rental value)**			27856.69	74.11
IV	**Cost C1**				
15	Family Human Labour		23.93	6303.92	16.77
16	**Cost C1 = (Cost B2 + Family Labour)**			34160.6	90.88
V	**Cost C2**				
17	Risk Premium			10	0.03
18	**Cost C2 = (Cost C1 + Risk Premium)**			34170.6	90.91
VI	**Cost C3**				
19	Managerial Cost			3417.06	9.09
20	**Cost C3 = (Cost C2 + Managerial Cost)**			37587.66	100
VII	**Economics of the Crop**				
a.	Main Product	a) Main Product (q)	11.48	57416.67	
		b) Main Crop Sales Price (Rs.)		5000	
b.	Gross Income (Rs.)			57416.67	
c.	Net Income (Rs.)			19829	
d.	Cost per Quintal (Rs./q.)			3273.24	
e.	Benefit Cost Ratio (BC Ratio)			1:1.5	

Cost of Cultivation of Groundnut: The data regarding the cost of cultivation (Rs/ha) of Groundnut in Chepatla micro watershed is presented in Table 30.d. The results indicate that, the total cost of cultivation (Rs/ha) for Groundnut was Rs. 21455.60. The gross income realized by the farmers was Rs.103406.77. The net income from Groundnut cultivation was Rs. 81951.17, thus the benefit cost ratio was found to be 1:4.80.

Table 30(d). Cost of Cultivation of Groundnut in Chepatla micro-watershed

Sl.No	Particulars		Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**					
1	Hired Human Labour		Man days	26.28	5913.72	27.56
2	Bullock		Pairs/day	1.24	679.25	3.17
3	Tractor		Hours	2.18	1632.16	7.61
4	Machinery		Hours	0	0	0
5	Seed Main Crop (Establishment and Maintenence)		Kgs (Rs.)	7.76	931.64	4.34
6	Fertilizer + micronutrients		Quintal	3.41	2326.1	10.84
7	Pesticides (PPC)		Kgs / liters	1.71	1876.17	8.74
8	Irrigation		Number	0	0	0
9	Depreciation charges			0	45.71	0.21
II	**Cost B1**					
10	Interest on working capital				617.27	2.88
11	**Cost B1 = (Cost A1 + sum of 15 and 16)**				14022	65.35
III	**Cost B2**					
12	Rental Value of Land				166.67	0.78
13	**Cost B2 = (Cost B1 + Rental value)**				14188.67	66.13
IV	**Cost C1**					
14	Family Human Labour			20.53	5306.42	24.73
15	**Cost C1 = (Cost B2 + Family Labour)**				19495.09	90.86
V	**Cost C2**					
16	Risk Premium				10	0.05
17	**Cost C2 = (Cost C1 + Risk Premium)**				19505.09	90.91
VI	**Cost C3**					
18	Managerial Cost				1950.51	9.09
19	**Cost C3 = (Cost C2 + Managerial Cost)**				21455.6	100
VII	**Economics of the Crop**					
a.	Main Product	a) Main Product (q)		20.51	102553.97	
		b) Main Crop Sales Price (Rs.)			5000	
	By Product	e) Main Product (q)		8.53	852.8	
		f) Main Crop Sales Price (Rs.)			100	
b.	Gross Income (Rs.)				103406.77	
c.	Net Income (Rs.)				81951.17	
d.	Cost per Quintal (Rs./q.)				1046.06	
e.	Benefit Cost Ratio (BC Ratio)				1:4.8	

Cost of Cultivation of Cotton: The data regarding the cost of cultivation (Rs/ha) of Cotton in Chepatla micro watershed is presented in Table 30.e. The results indicate that, the total cost of cultivation (Rs/ha) for Cotton was Rs.24430.21. The gross income realized by the farmers was Rs. 66690.00. The net income from Cotton cultivation was Rs. 42259.79, thus the benefit cost ratio was found to be 1:2.70.

Table 30(e). Cost of Cultivation of Cotton in Chepatla micro-watershed

Sl.No	Particulars	Units	Phy Units	Value(Rs.)	% to C3
I	**Cost A1**				
1	Hired Human Labour	Man days	26.68	5779.8	23.66
2	Bullock	Pairs/day	13.34	7335.9	30.03
3	Tractor	Hours	0.99	741	3.03
5	Seed Main Crop(Establishment and Maintenance)	Kgs (Rs.)	2.47	617.5	2.53
8	Fertilizer + micronutrients	Quintal	4.94	3705	15.17
9	Pesticides (PPC)	Kgs / liters	0.99	1185.6	4.85
10	Depreciation charges		0	79.04	0.32
II	**Cost B1**				
11	Interest on working capital			662.17	2.71
12	**Cost B1 = (Cost A1 + sum of 15 and 16)**			20106.01	82.3
III	**Cost B2**				
13	Rental Value of Land			166.67	0.68
14	**Cost B2 = (Cost B1 + Rental value)**			20272.68	82.98
IV	**Cost C1**				
15	Family Human Labour		6.42	1926.6	7.89
16	**Cost C1 = (Cost B2 + Family Labour)**			22199.28	90.87
V	**Cost C2**				
17	Risk Premium			10	0.04
18	**Cost C2 = (Cost C1 + Risk Premium)**			22209.28	90.91
VI	**Cost C3**				
19	Managerial Cost			2220.93	9.09
20	**Cost C3 = (Cost C2 + Managerial Cost)**			24430.21	100
VII	**Economics of the Crop**				
a.	Main Product	a) Main Product (q)	14.82	66690	
		b) Main Crop Sales Price (Rs.)		4500	
b.	Gross Income (Rs.)			66690	
c.	Net Income (Rs.)			42259.79	
d.	Cost per Quintal (Rs./q.)			1648.46	
e.	Benefit Cost Ratio (BC Ratio)			1:2.7	

Adequacy of fodder: The data regarding the adequacy of fodder in Chepatla Micro watershed is presented in Table 31. The results indicate that, 77.14 per cent of the households opined that dry fodder was adequate and 2.86 percent of them opined that green fodder was adequate and 2.86 percent of them opined green fodder was inadequate.

Table 31. Adequacy of fodder in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Adequate-Dry Fodder	0	0	12	92.31	11	100	4	80	0	0	27	77.14
3	Adequate-Green Fodder	0	0	0	0	0	0	0	0	1	100	1	2.86
4	Inadequate-Green Fodder	0	0	0	0	1	9.09	0	0	0	0	1	2.86

Average annual gross income: The data regarding the annual gross income in Chepatla Micro watershed is presented in Table 32. The results indicate that, the farmers have annual gross income of Rs. 123320.03 in micro-watershed, of which Rs. 63691.43 is from agriculture itself.

Table 32. Average annual gross income in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	Service/salary	0	6153.85	31818.3	8000	0	13428.6
2	Wage	22000	40769.2	61545.5	22000	150000	45057.1
3	Agriculture	5000	38546.2	99827.3	94000	135000	63691.4
4	Dairy Farm	0	3076.92	0	0	0	1142.86
Income(Rs.)		27000	88546.2	193191	124000	285000	123320

Average annual Expenditure: The data regarding the average annual expenditure in Chepatla Micro watershed is presented in Table 33. The results indicate that, the farmers have annual gross expenditure of Rs. 400202.81 in micro-watershed, of which Rs. 26430.00 is from agriculture itself.

Table 33. Average annual Expenditure in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	Service/salary	0	25000	32333.3	2000	0	3542.86
2	Wage	5000	21700	34428.6	18500	70000	16714.3
3	Agriculture	5000	14500	42140.9	39600	70000	26430
4	Dairy Farm	0	20000	0	0	0	571.43
Total		10000	81200	108903	60100	140000	400203

Horticulture species grown: The data regarding horticulture species grown in Chepatla Micro watershed is presented in Table 34. The results indicate that, the total number of horticultural trees grown (both field and backyard) by the sampled households were clustered apple (25).

Table 34. Horticulture species grown in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		F	B	F	B	F	B	F	B	F	B	F	B
1	Custard apple	0	0	10	0	15	0	0	0	0	0	25	0

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

Forest species grown: The data regarding forest species grown in Chepatla Micro watershed is presented in Table 35. The results indicate that, households have planted 30 neem trees and backyard.

Table 35. Forest species grown in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		F	B	F	B	F	B	F	B	F	B	F	B
1	Neem	0	0	17	0	9	0	4	0	0	0	30	0

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

Average additional investment capacity: The data regarding average additional investment capacity in Chepatla Micro watershed is presented in Table 36. The results indicate that, households have an average investment capacity of Rs. 857.14 for land development.

Table 36. Average additional investment capacity of households in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)	MF (13)	SF (11)	SMF (5)	MDF (1)	All (35)
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	Land development	0	769.23	909.09	2000	0	857.14

Source of funds for additional investment: The data regarding source of funds for additional investment in Chepatla Micro watershed is presented in Table 37. The results indicate that, the sources of finance raised from Government subsidy and from own sources for land development were 5.71 and 2.86 per cent.

Table 37. Source of funds for additional investment in Chepatla micro-watershed

Sl.No	Item	Land development	
		N	%
1	Government subsidy	2	5.71
2	Own	1	2.86

Marketing of agricultural produce: The data regarding marketing of the agricultural produce in Chepatla Micro watershed is presented in Table 38. The results indicated that, 100.00 percent of output of cotton was sold in the market with average price of Rs. 4500.00; 74.07 percent of output of greengram was sold in the market with average price of Rs. 5000.00, 93.0 percent of output of redgram was sold in the market with average price of Rs. 4545, 81.82 percent of output of groundnut was sold in the market with average price of Rs. 5000.00 and 72.73 percent of output of sorghum was sold in the market with average price of Rs. 2100.00.

Table 38. Marketing of agricultural produce in Chepatla micro-watershed

Sl.No	Crops	Output obtained (q)	Output retained (q)	Output sold (q)	Output sold (%)	Avg. Price obtained (Rs/q)
1	Cotton	30	0	30	100	4500
2	Greengram	27	7	20	74	5000
3	Redgram	395	26	369	93	4545
4	Groundnut	55	10	45	82	5000
5	Sorghum	55	15	40	73	2100

Marketing channels used for sale of agricultural produce: The data regarding marketing channels used for sale of agricultural produce in Chepatla Micro watershed is presented in Table 39. The results indicated that, 22.86 cent of the households have sold agricultural produce to the local/village merchants and 60.00 per cent of regulated market.

Table 39. Marketing channels used for sale of agricultural produce in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Local/village Merchant	0	0	4	31	3	27.3	1	20	0	0	8	22.86
2	Regulated Market	0	0	8	62	8	72.7	4	80	1	100	21	60

Mode of transport of agricultural produce: The data regarding mode of transport of agricultural produce in Chepatla Micro watershed is presented in Table 40. The results indicated that, 85.71 cent of the households have used tractor for the transport of agriculture commodity.

Table 40. Mode of transport of agricultural produce in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Tractor	0	0	13	100	11	100	5	100	1	100	30	85.71

Incidence of soil and water erosion problems: The data regarding incidence of incidence of soil and water erosion problems in Chepatla Micro watershed is presented in Table 41. The results indicate that, 85.71 per cent of the households have experienced soil and water erosion problems.

Table 41. Incidence of soil and water erosion problems in Chepatla micro-watershed

Sl.No	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Soil and water erosion problems in the farm	0	0	13	100	11	100	5	100	1	100	30	85.71

Interest towards soil testing: The data regarding Interest shown towards soil testing in Chepatla Micro watershed is presented in Table 42. The results indicated that, 82.86 per cent of the households were interested towards soil testing.

Table 42. Interest regarding soil testing in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Interest in soil test	0	0	13	100	11	100	4	80	1	100	29	82.86

Usage pattern of fuel for domestic use: The data on usage pattern of fuel for domestic use in Chepatla Micro watershed is presented in Table 43. The results indicated that, firewood was the major source of fuel for domestic use for 97.14 per cent of the households followed by LPG (2.86%).

Table 43. Usage pattern of fuel for domestic use in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Fire Wood	5	100	13	100	11	100	4	80	1	100	34	97.14
2	LPG	0	0	0	0	0	0	1	20	0	0	1	2.86

Source of drinking water: The data on source of drinking water in Chepatla Micro watershed is presented in Table 44. The results indicated that piped waters supply (94.29 %) and bore well water (5.71%).

Table 44. Source of drinking water in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Piped supply	5	100	12	92.3	10	90.91	5	100	1	100	33	94.29
2	Bore Well	0	0	1	7.69	1	9.09	0	0	0	0	2	5.71

Source of light: The data on source of light in Chepatla Micro watershed is presented in Table 45. The results indicated that, electricity was the major source of light for 100.00 per cent of the households.

Table 45. Source of light in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Electricity	5	100	13	100	11	100	5	100	1	100	35	100

Existence of sanitary toilet facility: The data on availability of toilet facility in Chepatla Micro watershed is presented in Table 46. The results indicated that, 71.43 per cent of the households possess toilets.

Table 46. Existence of sanitary toilet facility in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Sanitary toilet facility	5	100	13	100	1	9.09	5	100	1	100	25	71.4

Possession of PDS card: The data regarding possession of PDS card in Chepatla Micro watershed is presented in Table 47. The results indicated that, 100.00per cent of the households possessed BPL card.

Table 47. Possession of PDS card in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	BPL	5	100	13	100	11	100	5	100	1	100	35	100

Participation in NREGA programme: The data regarding Participation in NREGA programme in Chepatla Micro watershed is presented in Table 48. The results indicated that, only 2.86 percent of the participate have participated in NREGA programme.

Table 48. Participation in NREGA programme in Chepatla micro-watershed

Sl.No	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Participation in NREGA programme	0	0	0	0	0	0	1	20	0	0	1	2.86

Adequacy of food items: The data regarding adequacy of food items in Chepatla Micro watershed is presented in Table 49. The results indicated that, the extent of adequacy of food items for cereals, pulses, Oilseeds and vegetables were 94.29, 82.86, 11.43, 20.00 per cent respectively, similarly for Fruits (11.43%), milk (8.57%), Egg (14.29%) and Meat (8.57%).

Table 49. Adequacy of food items in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Cereals	3	60	13	100	11	100	5	100	1	100	33	94.29
2	Pulses	2	40	13	100	8	72.73	5	100	1	100	29	82.86
3	Oilseed	1	20	2	15.4	1	9.09	0	0	0	0	4	11.43
4	Vegetables	2	40	3	23.1	1	9.09	1	20	0	0	7	20
5	Fruits	0	0	1	7.69	1	9.09	1	20	1	100	4	11.43
6	Milk	1	20	0	0	1	9.09	1	20	0	0	3	8.57
7	Egg	0	0	2	15.4	1	9.09	1	20	1	100	5	14.29
8	Meat	0	0	2	15.4	0	0	1	20	0	0	3	8.57

Table 50. Inadequacy of food items in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Cereals	2	40	0	0	0	0	0	0	0	0	2	5.71
2	Pulses	3	60	0	0	3	27.27	0	0	0	0	6	17.14
3	Oilseed	4	80	11	84.6	9	81.82	4	80	1	100	29	82.86
4	Vegetables	2	40	7	53.9	7	63.64	4	80	1	100	21	60
5	Fruits	3	60	6	46.2	6	54.55	3	60	0	0	18	51.43
6	Milk	2	40	8	61.5	5	45.45	4	80	1	100	20	57.14
7	Egg	5	100	10	76.9	10	90.91	3	60	0	0	28	80
8	Meat	5	100	9	69.2	7	63.64	3	60	0	0	24	68.57

Inadequacy of food items: The data regarding in adequacy of food items in Chepatla Micro watershed is presented in Table 50. The results indicated that, the extent of in adequacy of food items for cereals, pulses, Oilseeds and vegetables were 5.71, 17.14, 82.86, 60.00 per cent respectively, similarly for fruits (51.43%), milk (57.14%), egg (80.00%) and meat (68.57%).

Response on market surplus of food items: The data regarding adequacy of food items in Chepatla Micro watershed is presented in Table 51. The results indicated that, the extent of adequacy of food items for Oilseeds were 2.86 per cent respectively, similarly for fruits (2.86%) and meat (2.86%).

Table 51. Response on market surplus of food items in Chepatla micro-watershed

Sl.No.	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)
		N	%	N	%	N	%	N	%	N	%	%
1	Oilseed	0	0	0	0	1	9.09	0	0	0	0	2.86
2	Fruits	0	0	1	7.69	0	0	0	0	0	0	2.86
3	Meat	0	0	0	0	1	9.09	0	0	0	0	2.86

Farming constraints: The data regarding farming constraints experienced by households in Chepatla Micro watershed is presented in Table 52. The results indicated that, lower fertility status of the soil was the constraint experienced by (91.43 %) per cent of the households, wild animal menace on farm field (77.14%), frequent incidence of pest and diseases (22.86%), inadequacy of irrigation water (25.71%), high cost of fertilizers and plant protection chemicals (22.86%), high rate of interest on credit (14.29%), low price for the agricultural commodities (8.57 %), lack of marketing facilities in the area (17.14%), inadequate extension services (20.00 %), lack of transport for safe transport of the agricultural produce to the market (40.00%), less rainfall (45.71%), source of agri-technology information (Newspaper/Tv/Mobile) (37.14%).

Table 52. Farming constraints experienced in Chepatla micro-watershed

SN	Particulars	LL (5)		MF (13)		SF (11)		SMF (5)		MDF (1)		All (35)	
		N	%	N	%	N	%	N	%	N	%	N	%
1	Lower fertility status of the soil	1	20	13	100	12	109.09	5	100	1	100	32	91.43
2	Wild animal menace on farm field	0	0	10	76.92	11	100	5	100	1	100	27	77.14
3	Frequent incidence of pest and diseases	0	0	2	15.38	4	36.36	2	40	0	0	8	22.86
4	Inadequacy of irrigation water	0	0	6	46.15	2	18.18	0	0	1	100	9	25.71
5	High cost of Fertilizers and plant protection chemicals	0	0	4	30.77	2	18.18	2	40	0	0	8	22.86
6	High rate of interest on credit	0	0	2	15.38	2	18.18	1	20	0	0	5	14.29
7	Low price for the agricultural commodities	0	0	1	7.69	1	9.09	1	20	0	0	3	8.57
8	Lack of marketing facilities in the area	0	0	3	23.08	3	27.27	0	0	0	0	6	17.14
9	Inadequate extension services	1	20	3	23.08	2	18.18	1	20	0	0	7	20
10	Lack of transport for safe transport of the Agril produce to the market.	0	0	6	46.15	5	45.45	1	20	2	200	14	40
11	Less rainfall	0	0	6	46.15	7	63.64	3	60	0	0	16	45.71
12	Source of Agri-technology information	0	0	6	46.15	4	36.36	2	40	1	100	13	37.14

Chapter 5

SUMMARY AND IMPLICATIONS

In order to assess the socio-economic condition of the farmers in the watershed 35 households located in the micro watershed were interviewed for the survey. The study was conducted in Chepatla micro-watershed (Mothakapalli sub-watershed, Yadgiri taluk & District) is located at North latitude 16^0 54' 43.393" and 16^0 52' 30.815" and East longitude 77^0 21' 20.618" and 77^0 19' 4.801"covering an area of about 934.31 ha bounded by unde Cheptala, Mitathapadamapalli and Kakalawara Villages.

Socio-economic analysis of Chepatla micro watersheds of Mothakapalli sub-watershed, Yadgiri taluk & District indicated that, out of the total sample of 35 farmers were sampled in Chepatla micro-watershed among households surveyed 13(37.14%) were marginal, 11(31.43%) were small, 5(14.29 %) were semi medium, 1(2.86 %) were medium farmers. 5 landless farmers were also interviewed for the survey. The population characteristics of households indicated that, there were 88 (56.77%) men and 67 (43.23%) were women. The average population of landless was 3.4 marginal farmers were 4.1, small farmers were 5.2, semi medium farmers were 4.6 and medium farmers were 5. Majority of the respondents (48.39%) were in the age group of 16-35 years.

Education level of the sample households indicated that, there were 58.06 per cent illiterates, 36.78 per cent pre university education and 7.10 per cent attained graduation.

About, 88.57 per cent of household heads practicing agriculture and 11.43 per cent of the household heads were engaged as agricultural labourers.

Agriculture was the major occupation for 21.29 per cent of the household members. In the study area, 28.57 per cent of the households possess katcha house and 2.86 per cent possess pucca house. The durable assets owned by the households showed that, 94.29 per cent possess TV, 2.86 per cent possess mixer grinder, 94.29 per cent possess mobile phones and 25.71 per cent possess motor cycles. Farm implements owned by the households indicated that, 34.29 per cent of the households possess plough, 5.71 per cent possess bullock cart and 14.29 per cent possess sprayer. Regarding livestock possession by the households, 5.71 per cent possess local cow and 2.86 per cent possess buffalo.

The average labour availability in the study area showed that**,** own men and women labour availability in the micro watershed was 10.60 each, while the hired labour (men) availability was 1.97. Further, 100.00 per cent of the households opined that hired labour was inadequate during the agricultural season. Out of the total land holding of the sample respondents 91.08 per cent (37.52 ha) of the area is under dry condition and the remaining 8.92 per cent area is irrigated land. Bore/open well was the major source of

irrigation for 2.86 per cent of the households. The major crops grown by sample farmers are Red gram, Sorghum, Green gram, Groundnut and Cotton and cropping intensity was recorded as 100.00 per cent.

Out of the sample households 80.00 percent possessed bank account and 80.00 per cent of them have savings in the account. About 48.57 per cent of the respondents borrowed credit from various sources. Among the credit borrowed by households, 10.71 per cent have borrowed loan from commercial banks and 3.57 per cent from co-operative/Grameena bank. Majority of the respondents (100.00%) have borrowed loan for agriculture purpose. Regarding the opinion on institutional sources of credit, 100.00 per cent of the households opined that credit helped to perform timely agricultural operations.

The per hectare cost of cultivation for Red gram, Sorghum, Green gram, Groundnut and Cotton was Rs.28923.01 , 14967.25, 37587.66, 21455.60 and 24430.21 with benefit cost ratio of 1:2.50, 1: 2.00, 1: 1.50, 1: 4.80 and 1:2.70 respectively. Further, 77.14 per cent of the households opined that dry fodder was adequate and 2.86 per cent of the households have opined that the green fodder was adequate.

The average annual gross income of the farmers was Rs. 123320.03 in micro-watershed, of which Rs. 63691.43 comes from agriculture. Sampled households have grown 25 horticulture trees and 30 forestry trees together in the fields and back yards. Households have an average investment capacity of Rs. 857.14 for land development.

Source of funds for additional investment is concerned, 2.86 per cent depends on own funds and 5.71 per cent depends on bank loan for land development activities. Regarding marketing channels, 22.86 per cent of the households have sold agricultural produce to the local/village merchants, while, 60.00 per cent have sold in regulated markets. Further, 85.71 per cent of the households have used tractor for the transport of agriculture commodity.

Majority of the farmers (85.71%) have experienced soil and water erosion problems in the watershed and 82.86 per cent of the households were interested towards soil testing. Fire was the major source of fuel for domestic use for 97.14 per cent of the households and 2.86 per cent households has LPG connection. Piped supply was the major source for drinking water for 94.29 per cent of the households. Electricity was the major source of light for 100.00 per cent of the households. In the study area, 71.43 per cent of the households possess toilet facility. Regarding possession of PDS card, 100.00 per cent of the households possessed BPL card.

Households opined that, the requirement of cereals (94.29%), pulses (82.86%) and oilseeds (11.43%) are adequate for consumption. Farming constraints experienced by households in the micro watersheds were lower fertility status of the soil (91.43%) wild animal menace on farm field (77.14%), frequent incidence of pest and diseases (22.86%),

inadequacy of irrigation water (25.71%), high cost of fertilizers and plant protection chemicals (22.86%), high rate of interest on credit (14.29%), low price for the agricultural commodities (8.57%), lack of marketing facilities in the area (17.14%), inadequate extension services (20.00%), lack of transport for safe transport of the agricultural produce to the market (40.00%), Less rainfall (45.71%) and Source of Agri-technology information (Newspaper/ TV/Mobile) (37.14%).

Implications of the survey

- ✓ Result indicated that, there were 58.06 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, 28.57 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 34.17ha (91.08 %) of dry land and 3.35ha (8.92 %) 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.
- ✓ Tank was major source of irrigation for 2.18 per cent of the households. hence, in order to increase the area under irrigation as well as to increase the water use efficiency farmers may trained on drip irrigation and provide the information on subsidy for drip irrigation equipment's along with the information on different agencies which provides the financial assistance for drip irrigation.
- ✓ The cropping intensity in the micro watershed was found to be (100.00 %) hence, care must be taken by the implementing agency to bring uncultivated land into cultivation through suitable measures.
- ✓ Many of the household members have borrowed loan from cooperative banks which has higher rate of interest hence, farmers may be sensitized on the different sources of credit with lesser interest rate such SHGs etc.
- ✓ The results indicated the non availability of both green and dry fodder throughout the year hence, fodder development activities can be taken up in the micro watershed.
- ✓ The average annual gross income of the households Rs.63691.43 from agriculture, Rs.0.00 from business and Rs. 45057.14 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, 85.71 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, 82.86 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 (91.43%), wild animal menace on farm field (77.14%), frequent incidence of pest and diseases (22.86%), high cost of fertilizers

and plant protection chemicals (22.86%), high rate of interest on credit (14.29%), low price for the agricultural commodities (8.57%), lack of marketing facilities in the area (17.14%), inadequate extension services (20.00%), lack of transport for safe transport of the agricultural produce to the market (40.00%) were the major farming constraints experienced hence, these constraints must be addressed immediately for the welfare of the farmers. Awareness to be created among the farmers to approach nearest KVKs/RSKs and other developmental departments for technical and for subsidized inputs and utilize the well established regulated markets, approaching the contract firms, direct markets to avoid the involvement of middlemen.