ICAR-NBSS&LUP Sujala MWS Publ.113

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

KURUBARAHALLI (4D3D8G1c) MICROWATERSHED

Chikkanayakanahalli Taluk, Tumkur 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

About ICAR - NBSS&LUP

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

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

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PREFACE

In Karnataka, as in other Indian States, the livelihoods of rural people are intertwined with farming pursuits. Thechallenges 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 Kurubarahalli Microwatershed, Chikkanayakanahalli Taluk and Tumakur 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 micowatershed. 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 **S.K. SINGH**
Date: 22.09.2018 Director, ICAR - NBSS&LUP, Nagpur

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PART-A

LAND RESOURCE INVENTORY

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EXECUTIVE SUMMARY

The land resource inventory of Kurubarahalli 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 boundries. The soil map shows the geographic distribution and extent, characterstics, classification, behaviour and use potentials of the soils in the microwartershed.

The present study covers an area of 645 ha in Chikkanayakanahalli taluk of Tumkuru district, Karnataka. The climate is semiarid and categorized as drought-prone with an average annual rainfall of 700 mm, of which about 378 mm is received during south –west monsoon, 179 mm during north-east and the remaining 143 mm during the rest of the year. An area of about 81 per cent is covered by soils and five per cent by rock lands and 14 per cent by habitations and waterbodies. The salient findings from the land resource inventory are summarized briefly below.

- *The soils belong to 10 soil series and 21 soil phases (management units) and 5 land use classes.*
- *The length of crop growing period is about 120-150 days starting from 2nd week of* August *to 3rd week of November*.
- *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 250 m grid interval.*
- *Land suitability for growing 34 major agricultural and horticultural crops were assessed and maps showing the degree of suitability along with constraints were generated.*
- *About 81 per cent area in the microwatershed is suitable for agriculture.*
- *About 51 per cent of the soils are deep (100-150 cm) to very deep (>150 cm), 14 per cent moderately deep and 16 per cent moderately shallow.*
- *About 35 per cent of the area has clayey soils at the surface and 46 per cent loamy soils.*
- *About 26 per cent of the area has non-gravelly (<15% gravel) soils, 28 per cent gravelly soils (15-35 % gravel) and 27 per cent soils are very gravelly (35-60%) to extremly gravelly (60-80%).*
- *About 64 per cent has soils that are very low (<50 mm/m) to low (51-100 mm/m) in available water capacity and 5 per cent medium (101-150 mm/m) in available water capacity and about 12 per cent high (>200 mm/m).*
- *About 59 per cent of the area has very gently sloping (1-3% slope) lands and 22 per cent gently sloping (3-5%).*

- *An area of about 36 per cent has soils that are slightly eroded (e1), 36 per cent moderately eroded (e2) and 9 per cent severely eroded (e4) soils.*
- *An area of about 35 per cent has soils that are slightly acid (pH 5.0-6.5) to moderately acid, 11 per cent strongly acid (pH 5.0-5.5), 30 per cent neutral (pH 6.5-7.3) and 6 per cent slightly alkaline in soil reaction.*
- *The Electrical Conductivity (EC) of the soils are dominantly <2 dS m^{-1}indicating that the soils are non-saline.*
- *About 75 per cent of the soils are low (<0.5%) and 5 per cent are medium (0.5-0.75%) in organic carbon content.*
- *About 38 per cent area is medium (23-57 kg/ha) and 42 per cent high (>57 kg/ha) in available phosphorus content.*
- *About 17 per cent of the soils are low (<145 kg/ha), medium (145-337 kg/ha) in 63 per cent and <1 per cent of the soils are high (>337 kg/ha) in available potassium content.*
- *Available sulphur is high (>10 ppm) in about 18 per cent area, medium (10-20 ppm) in about 50 per cent area and low (<10 ppm) in about 13 per cent area.*
- *Available boron is low (0.5 ppm) in about 50 per cent area and medium (0.5-1.0 ppm) in 31 per cent area.*
- *Entire area is sufficient (>4.5 ppm) in available iron.*
- *Available manganese, copper and zinc are sufficient in all the soils of the microwatershed.*
- *The land suitability for 34 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	*37 (6)*	*256 (40)*	*Guava*	*25 (4)*	*258 (40)*
Fodder Sorghum	*37 (6)*	*256 (40)*	*Pomogranate*	*25 (4)*	*240 (37)*
Maize	*37 (6)*	*171 (27)*	*Banana*	*25 (4)*	*240 (37)*
Upland paddy	*37 (6)*	*356 (55)*	*Jackfruit*	*25 (4)*	*155 (24)*
Finger millet	*37 (6)*	*271 (42)*	*Jamun*	*25 (4)*	*198 (31)*
Redgram	*37 (6)*	*256 (40)*	*Musambi*	*25 (4)*	*240 (37)*
Horse gram	*37 (6)*	*385 (60)*	*Lime*	*25 (4)*	*240 (37)*
Field bean	*37 (6)*	*256 (40)*	*Cashew*	*25 (4)*	*258 (40)*
Cowpea	*37 (6)*	*256 (40)*	*Custard apple*	*37 (6)*	*459 (71)*
Groundnut	*37 (6)*	*374 (58)*	*Amla*	*37 (6)*	*385 (60)*
Sunflower	*25 (4)*	*240 (37)*	*Tamarind*	*25 (4)*	*198 (31)*
Onion	*37 (6)*	*176 (27)*	*Marigold*	*37 (6)*	*256 (40)*
Chilli	*37 (6)*	*256 (40)*	*Chrysanthemum*	*37 (6)*	*256 (40)*
Brinjal	*37 (6)*	*256 (40)*	*Jasmine*	*37 (6)*	*176 (27)*
Tomato	*37 (6)*	*256 (40)*	*Coconut*	*25 (4)*	*155 (24)*
Mango	*25 (4)*	*113 (17)*	*Arecanut*	*25 (4)*	*155 (24)*
Sapota	*25 (4)*	*155 (24)*	*Mulberry*	*25 (4)*	*3088)*

Apart from the individual crop suitability, a proposed crop plan has been prepared for the 5 identified LUCs by considering only the highly and moderately suitable lands for different crops and cropping systems with food, fodder, fibre and horticulture crops that helps in maintaining productivity and ecological balance in the microwatershed.

- *Maintaining soil-health is vital to crop production and conserve soil and land resource base for maintaining ecological balance and to mitigate climate change. For this, several ameliorative measures have been suggested to these problematic soils like saline/alkali, highly eroded, sandy soils etc.*
- *Soil and water conservation treatment plan has been prepared that would help in identifying the sites to be treated and also the type of structures required.*
- *As part of the greening programme, several tree species have been suggested to be planted in marginal and submarginal lands, field bunds and also in the hillocks, mounds and ridges that would help in supplementing the farm income, provide fodder and fuel and generate lot of biomass. This helps in maintaining ecological balance and contribute to mitigating 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 Kurubarahalli microwatershed in Chikkanayakanahalli Taluk, Tumkur 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

Tumkur District popularly known as *Kalpataru Nadu* (for production of Coconuts) is located 71 kms away from the capital city of Karnataka State. The study area of Kurubarahalli microwatershed (Anekatte sub-watershed) is located in the southern part of Karnataka in Chikkanayakanahalli taluk, Tumkur district, Karnataka State (Fig. 2.1). It lies between $13^0$23’ and $13^0$25’ North latitudes and $76^0$35’and $76^0$37’ East longitudes and covers an area of 645 ha. It comprises parts of Kedhigehalli, Marasandra, Chikkanahalli, Chikkanayakanahalli, Dugudihalli, Dabbekatta and Jogihalli villages. It is about 12 km south of Chikkanayakanahalli town and is surrounded by Dugudihalli, Dabbekatta on the south, Marasandra villages on the west, Chikkanahalli on the north and Chikkanayakanahalli and Jogihalli villages on the eastern side of the microwatershed.

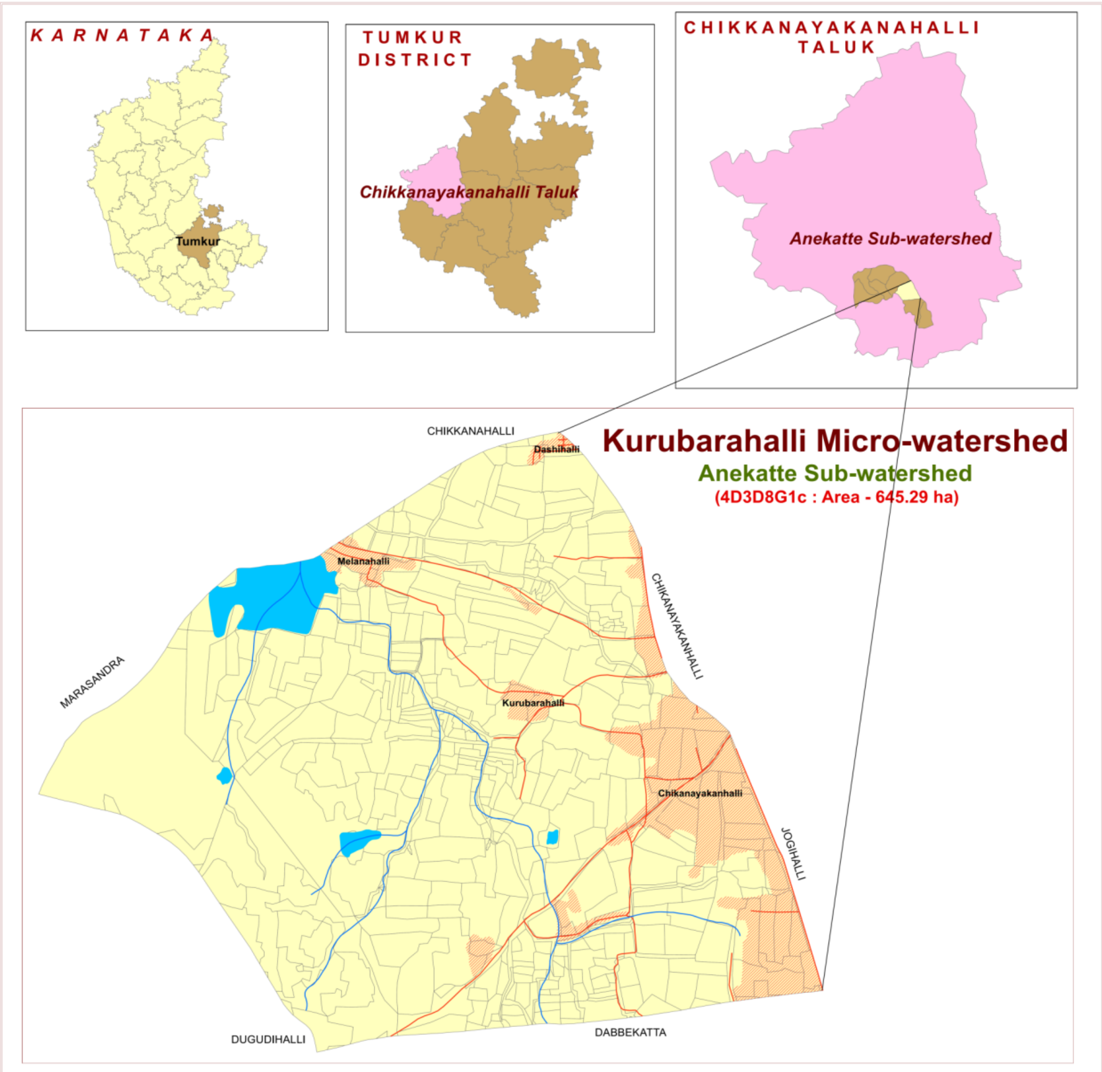


Fig. 2.1 Location map of Kurubarahalli Microwatershed

2.2 Geology

Major rock formations observed in the microwatershed are of Archaean age and comprise of (Figs. 2.2 and 2.3) granite and gneiss. They are essentially pink to gray granite gneisses. The rocks 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.

Fig. 2.2 Granite and granite gneiss rocks

Fig. 2.3 Granite rocks

2.3 Physiography

Physiographically, the area has been identified as granite gneiss landscape based on geology. It has been further divided into three landforms *viz*; mounds/ ridges, uplands and lowlands based on slope and other relief features. They have been further subdivided into four physiographic units, *viz;* summits, side slopes, very gently sloping uplands and lowlands/valleys. The elevation ranges from 788-839 m. The mounds and ridges are mostly covered by rock outcrops.

2.4 Drainage

There are no perennial rivers flowing in Chikkanayakanahalli taluk. However, the area is drained by several small seasonal streams like Tore *Halla* which joins Kare Tore and further drains to Suvarnamuki river along its course. Though, they are not perennial, during rainy season, they carry large quantities of rain water. The microwatershed area has only few small tanks which are not capable of storing water that flows during the rainy season. Due to this, the ground water recharge is very much affected in the villages. 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 met. The drainage network is dendritic to subparallel.

2.5 Climate

The district falls under semiarid tract and is categorized as drought-prone with an average annual rainfall of 700 mm (Table 2.1). Of the total rainfall, a maximum of 378 mm is received during south-west monsoon period from June to September, north-east monsoon from October to early December contributes about 179 mm and the remaining 143 mm is received during the rest of the year. The winter season is from December to February. During April and May, the temperatures reach up to 35 °C and in December and January, the temperatures will go down to 20 °C. Rainfall distribution is shown in Figure 2.4. The average Potential Evapo-Transpiration (PET) is 110 mm and varies from a low of 73 mm in December to 152 mm in the month of April. The PET is always higher than precipitation in all the months except in the months of September and October. Generally, the Length of crop Growing Period (LGP) is 120-150 days and starts from 2nd week of August to 3rd week of November.

Table 2.1 Mean Monthly Rainfall, PET, 1/2 PET in Chikkanayakanahalli Taluk, TumkurDistrict

Sl. No.	Months	Rainfall (mm)	PET	1/2 PET
1	January	3.6	78.3	39.15
2	February	6.0	102.7	51.35
3	March	17.1	142.6	71.3
4	April	40.0	151.6	75.8
5	May	76.6	149.7	74.85
6	June	75.2	121.1	60.55
7	July	73.2	107.6	53.8
8	August	87.4	105.8	52.9
9	September	142.3	101.2	50.6
10	October	126.4	100.2	50.1
11	November	42.4	85.0	42.5
12	December	10.3	73.0	36.5
Total		**700.5**		

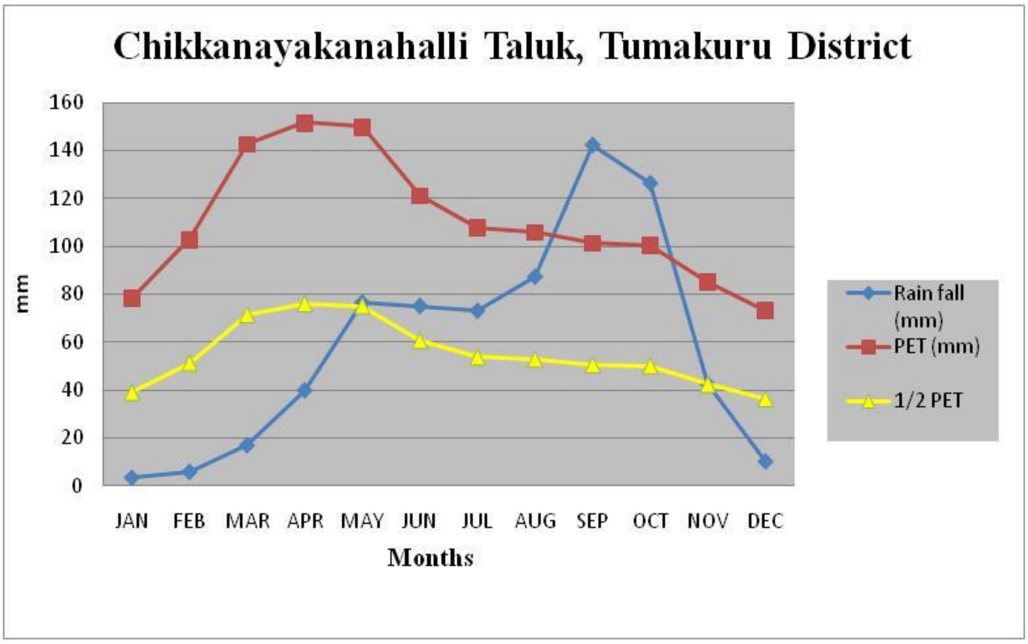


Fig 2.4 Rainfall distribution in Chikkanayakanahalli Taluk, Tumkur District

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. 2.5).

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. 2.5 Natural Vegetation of Kurubarahalli Microwatershed

2.7 Land Utilization

About 55 per cent area (Table 2.2) in Chikkanayakanahalli taluk is cultivated at present. An area of about 7 per cent is currently barren. Forests occupy an area of about 7 per cent. Most of the mounds, ridges and bouldery areas have very poor vegetative cover. Major crops grown in the area are Ragi, Groundnut, Maize, Sorghum, Sunflower, Redgram, Horsegram, Field bean, Cowpea, Mango, Banana, Mulberry and plantation crops like Coconut and Arecanut. 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 Kurubarahalli microwatershed is prepared. The current land use map generated shows the arable and non-arable lands, other land uses and different types of crops grown in the area (Fig. 2.6). The different crops and cropping systems adopted in the microwatershed is presented in Figures 2.6. a & b. Simultaneously, enumeration of wells (bore wells and open wells) and existing conservation structures in the microwatershed are made and their location in different survey numbers is located on the cadastral map. Map showing the location of wells and other water bodies in Kurubarahalli microwatershed is given in Fig. 2.7.

Table 2.2 Land Utilization in Chikkanayakanahalli Taluk

Sl. No.	Agricultural land use	Area (ha)	Per cent
1.	Total geographical area	112998	-
2.	Total cultivated area	61718	54.61
3.	Area sown more than once	8231	-
4.	Cropping intensity	-	113.33
5.	Trees and grooves	2715	2.40
6.	Forest	8235	7.28
7.	Cultivable wasteland	18164	16.07
8.	Permanent Pasture land	4500	3.98
9.	Barren land	7773	6.87
10.	Non- Agriculture land	6771	5.99

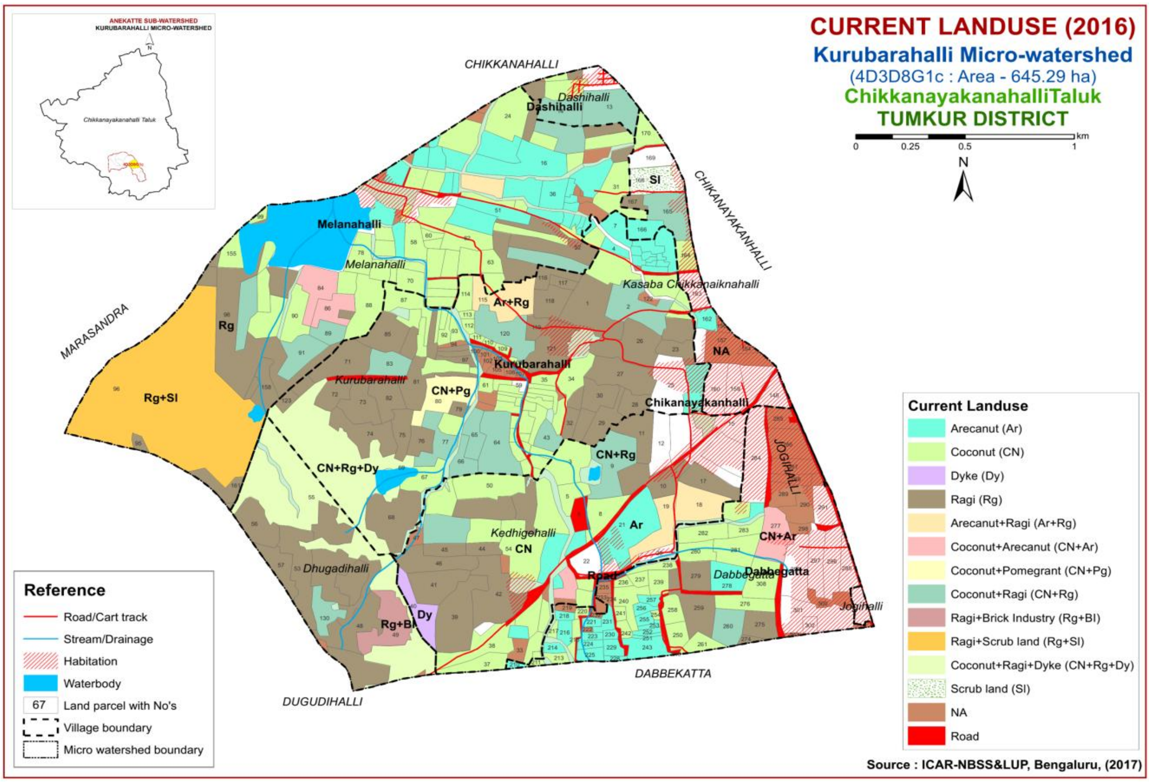


Fig. 2.6 Current Land Use – Kurubarahalli Microwatershed

Fig. 2.6.a Different crops and cropping systems in Kurubarahalli Microwatershed

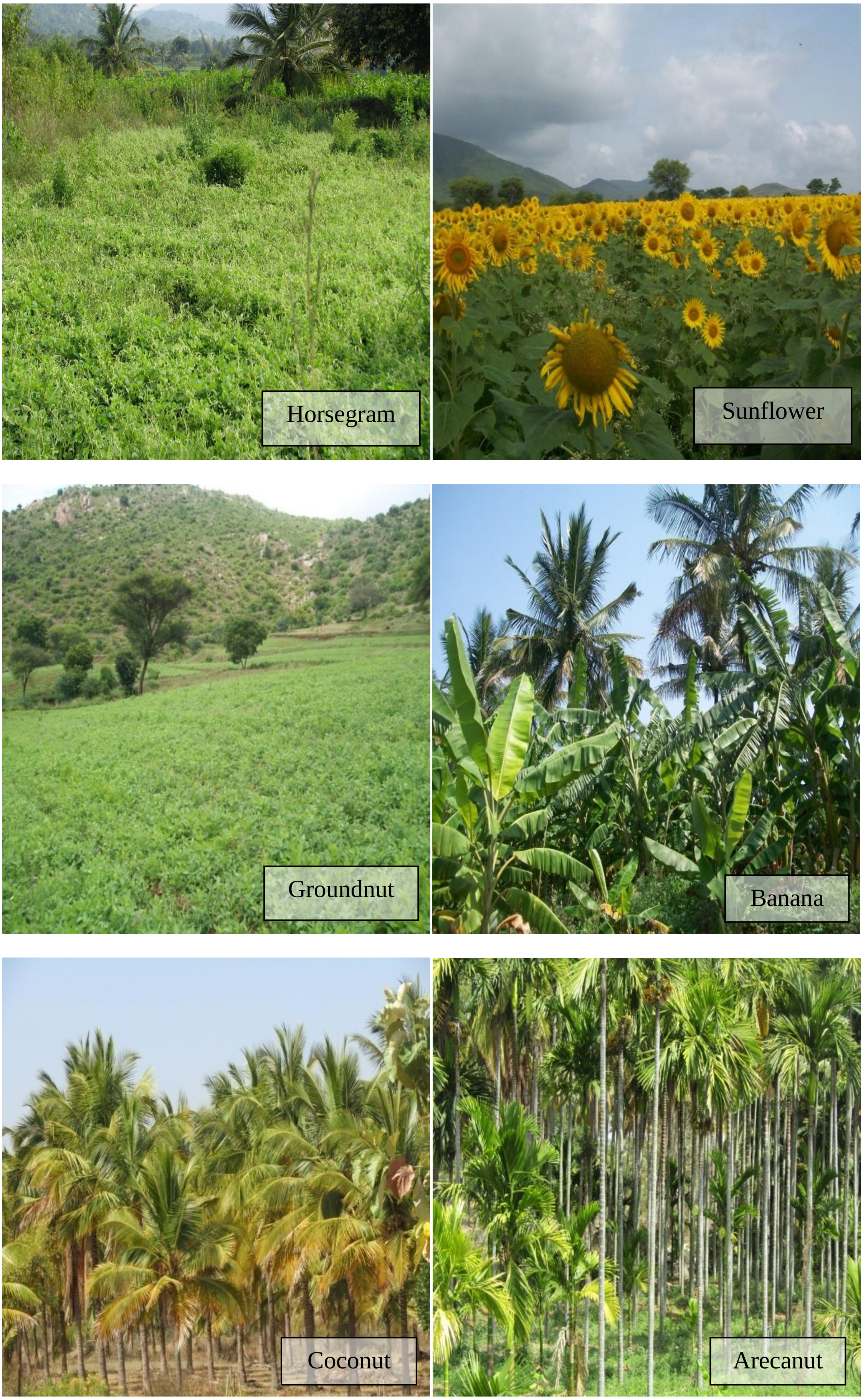


Fig. 2.6.b Different crops and cropping systems in Kurubarahalli Microwatershed

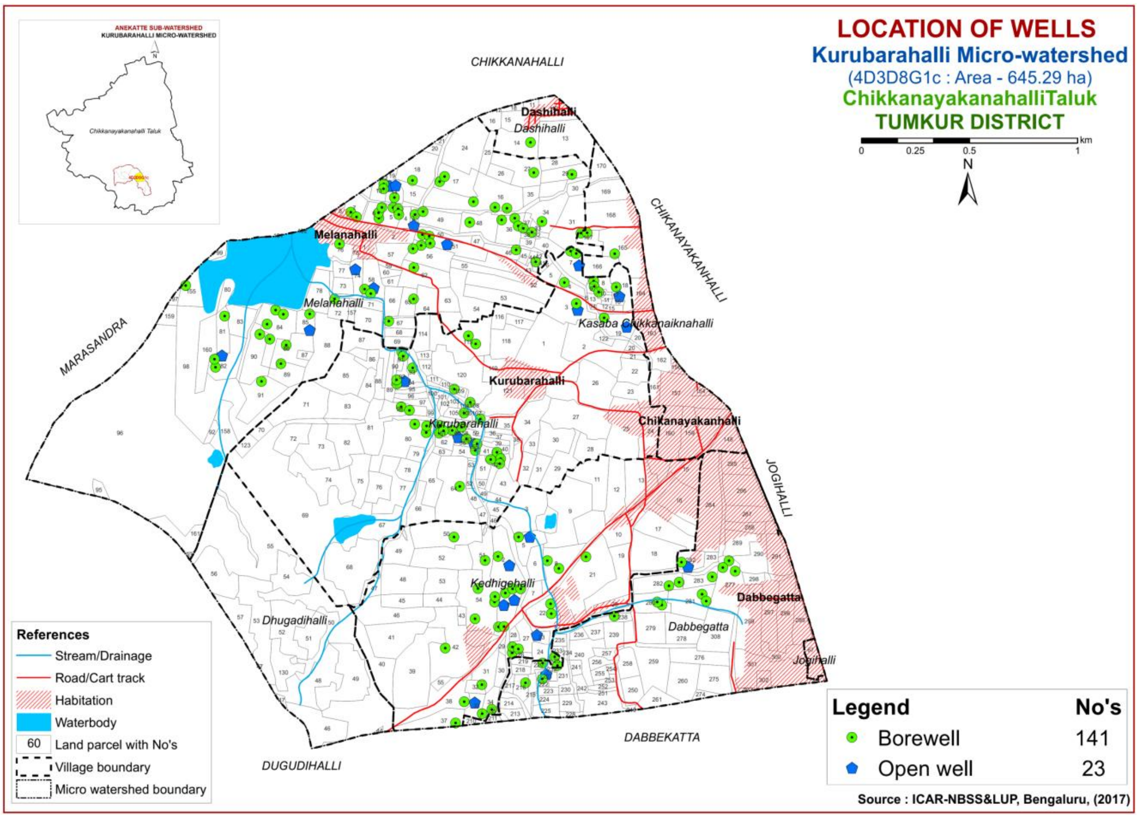


Fig. 2.7 Location of wells in Kurubarahalli Microwatershed

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 Kurubarahalli 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.) and followed by grouping of similar areas based on soil-site characteristics into homogeneous (management units) units, and showing 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 645 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 as a base. 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 the microwatershed area was visually interpreted using image interpretation elements along with the geology map 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 and is divided into landforms such as ridges, mounds, uplands and valleys based on slope and other relief features. 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

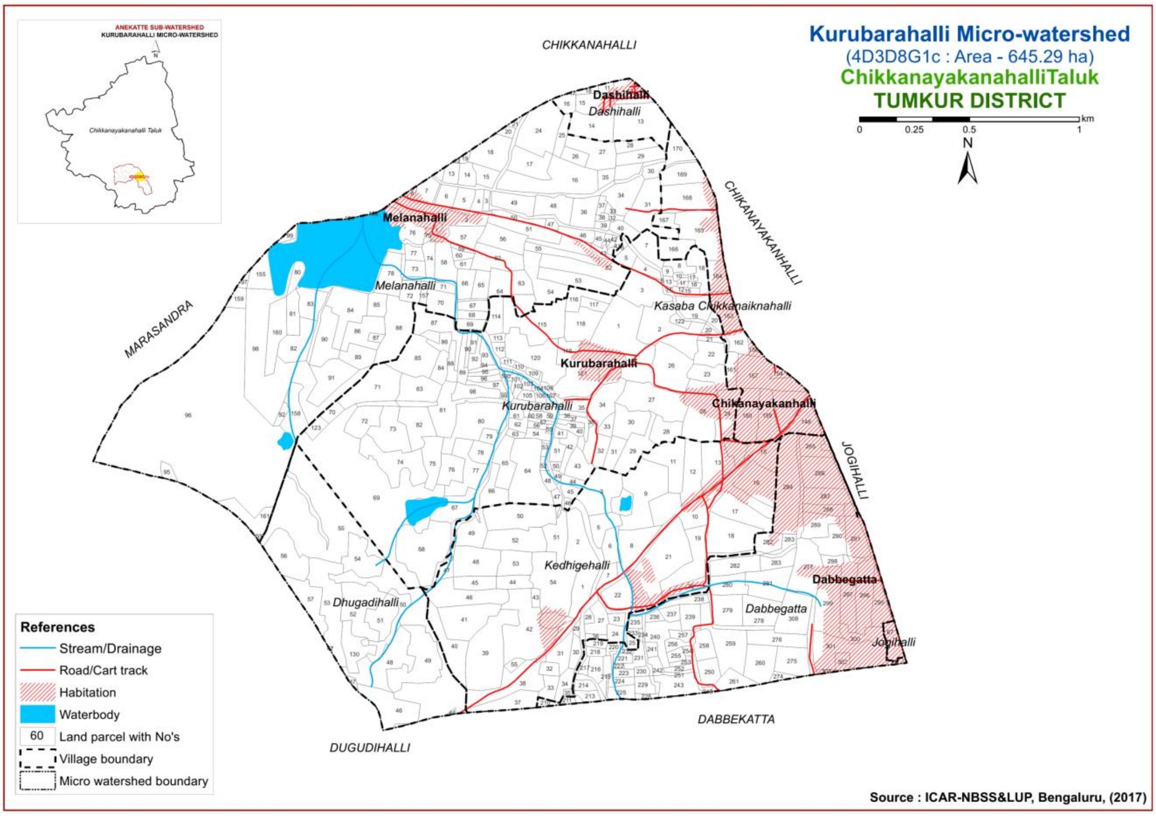


Fig. 3.1 Scanned and Digitized Cadastral map of Kurubarahalli Microwatershed

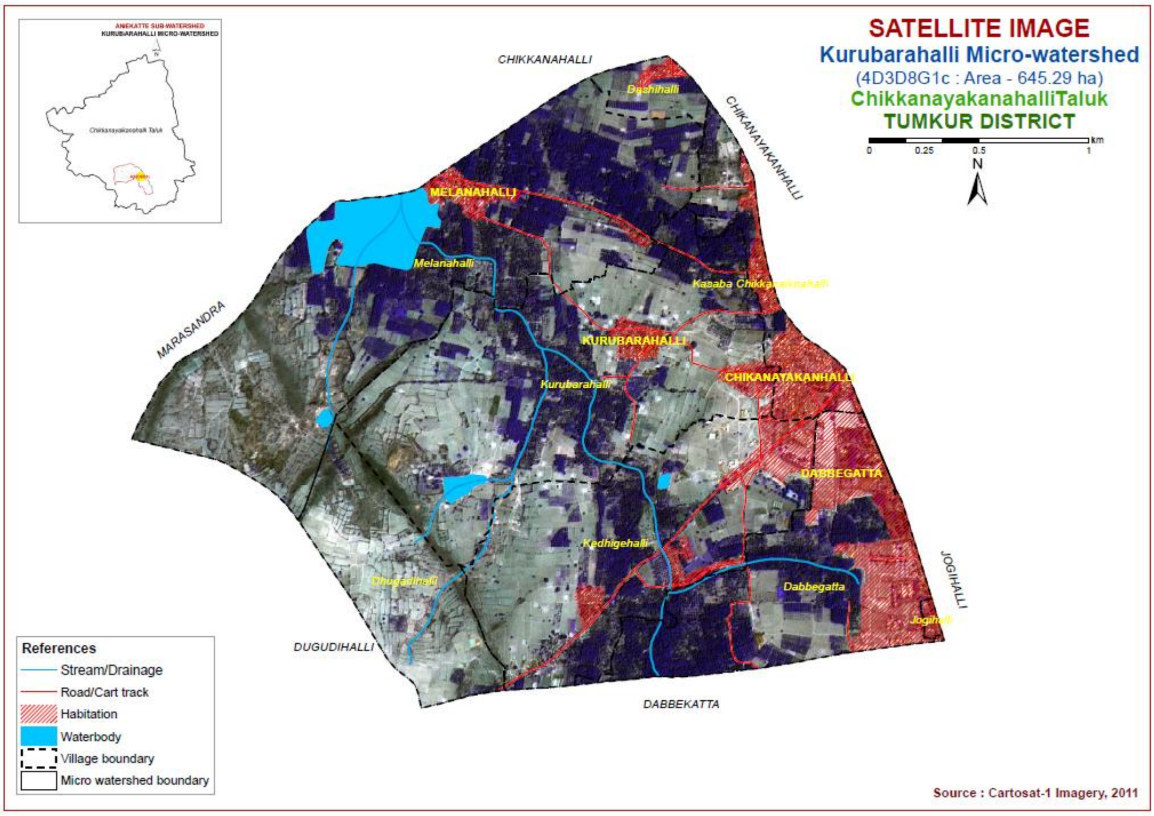


Fig. 3.2 Satellite Image of Kurubarahalli Microwatershed

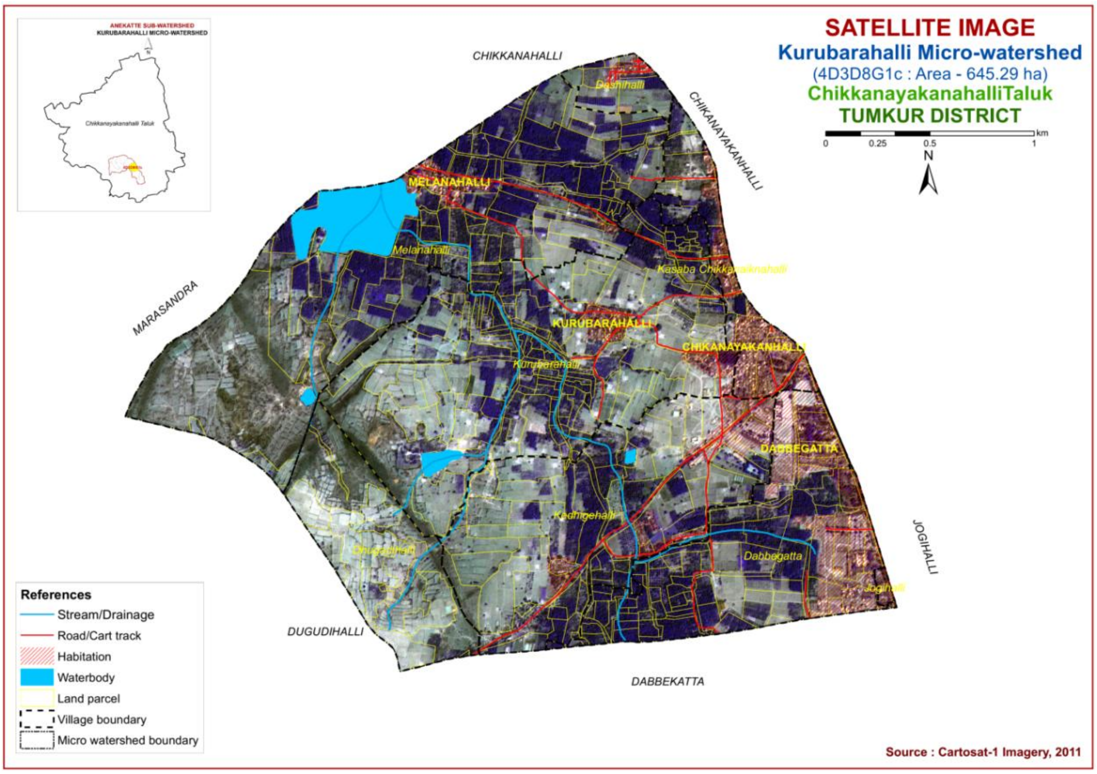


Fig. 3.3 Cadastral map overlaid on IRS PAN+LISS IV merged imagery of Kurubarahalli Microwatershed

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).

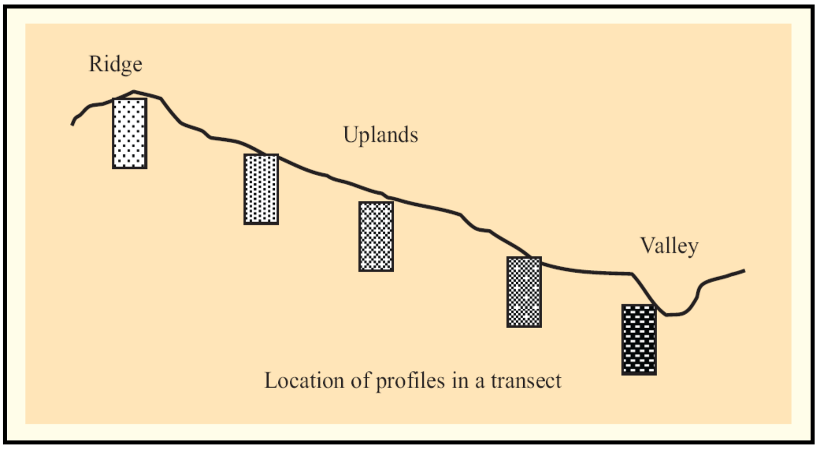


Fig. 3.4. Location of profiles in a transect

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, amount and nature of gravel present, calcareousness, 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, 10 soil series were identified in the Kurubarahalli 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 (control section)**	**Gravel (%) (control section)**	**Horizon sequence**	**Calcare-ousness**
1.	Lakkur (LKR)	50-75	2.5YR 2.5/3, 2.5/4, 3/4, 3/6	gsc	40-60	Ap-Bt-Bc-Cr	
2.	Kutegoudanahundi (KGH)	50-75	7.5YR3/2,3/3,3/4	scl	15-35	Ap-Bt-Cr	
3.	Hooradhahalli (HDH)	75-100	2.5YR2.5/4,3/4, 3/6	gsc-gc	>35	Ap-Bt-Cr	-
4.	Gollarahatti (GHT)	75-100	2.5YR3/4,3/6, 4/4,4/6	gscl	15-35	Ap-Bt-Cr	
5.	Bidanagere (BDG)	75-100	5YR3/3,3/4,4/3,5/4 2.5YR3/4	gc	35-60	Ap-Bt-Cr	-
6.	Jedigere (JDG)	100-150	5YR 4/6, 3/4, 7.5YR 3/4, 4/6	sc-c	<15	Ap-Bt-BC-Cr	-
7.	Balapur (BPR)	100-150	2.5YR2.5/4,3/4	gsc-gc	>35	Ap-Bt-Cr	
8.	Lakshmangudda (LGD)	100-150	10YR3/1,3/2,4/1,4/2, 7.5YR3/1,3/2,5/1, 2.5Y5/2,5/3,6/3	c	<15	Ap-Bss-Ck	-
9.	Nagalapur (NGP)	100-150	5YR2.5/2,3/2, 2.5YR3/6,4/6	sc-c	>35	Ap-Bt-Cr	-
10.	Thondigere (TDG)	>150	7.5YR3/3,3/4,4/6 10YR3/3,4/3, 4/4,4/6	sl, scl, sc	-	Ap-Bw-C	-

3.4 Soil Mapping

The area under each soil series was further separated into 21 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 about 19 profile pits, few mini pits 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 mini pits, road cuts, terrace cuts etc., were studied to validate the soil boundaries on the soil map. The soil map shows the geographic distribution of 21 mapping units representing 10 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 21 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 Laboratory Characterization

Soil samples for each soil series 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 (84 samples) for fertility status (major and micronutrients) at 250 m grid interval 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 Kurubarahalli Microwatershed

Soil map unit no.	Soil Series	Soil Phase	Mapping Unit Description	Area in ha (%)
SOILS OF GRANITE GNEISS LANDSCAPE				
	LKR	Lakkur soils are moderately shallow (50-75 cm), well drained, have reddish brown to dark red gravelly sandy clay soils occurring on very gently to gently sloping uplands under cultivation		**74 (11.43)**
1		LKRcB2g1	Sandy loam surface, slope 1-3%, moderate erosion, gravelly (15-35%)	26 (3.98)
2		LKRcB2g2	Sandy loam surface, slope 1-3%, moderate erosion, very gravelly (35-60%)	7 (1.09)
3		LKRcC2g2	Sandy loam surface, slope 3-5%, moderate erosion, very gravelly (35-60%)	41 (6.36)
	KGH	Kutegoudanahundi soils are moderately shallow (50-75 cm), well drained, have brown to dark brown gravelly sandy clay loam soils occurring on very gently to gently sloping uplands under cultivation		**29 (4.56)**
4		KGHcC3g2	Sandy loam surface, slope 3-5%, severe erosion, very gravelly (35-60%)	29 (4.56)
	HDH	Hooradhahalli soils are moderately deep (75-100 cm), well drained, have red to dark red and reddish brown gravelly sandy clay to clay soils occurring on very gently sloping uplands under cultivation		**20 (3.13)**
5		HDHcB2g1	Sandy loam surface, slope 1-3%, moderate erosion, gravelly (15-35%)	20 (3.13)
	GHT	Gollarahatti soils are moderately deep (75-100 cm), well drained, have dark reddish brown to dark red gravelly sandy clay loam soils occurring on very gently sloping uplands under cultivation		**21 (3.28)**
6		GHTcB2g1	Sandy loam surface, slope 1-3%, moderate erosion, gravelly (15-35%)	12 (1.82)
7		GHTcB2g2	Sandy loam surface, slope 1-3%, moderate erosion, very gravelly (35-60%)	9 (1.46)
	BDG	Bidanagere soils are moderately deep (75-100 cm), well drained, have dark reddish brown gravelly clay soils occurring on very gently to gently sloping uplands under cultivation		**50 (7.84)**
8		BDGcC2g2	Sandy loam surface, slope 3-5%, moderate erosion, very gravelly (35-60%)	17 (2.66)
9		BDGcC3g3	Sandy loam surface, slope 3-5%, severe erosion, extremely gravelly (60-80%)	25 (3.94)
10		BDGiB1	Sandy clay surface, slope 1-3%, slight erosion	8 (1.24)
	JDG	Jedigere soils are deep (100-150 cm), well drained, have dark brown to dark reddish brown sandy clay to clay soils occurring on very gently sloping uplands under cultivation		**25 (3.93)**
11		JDGiB2	Sandy clay surface, slope 1-3%, moderate erosion	25 (3.93)

	BPR	Balapur soils are deep (100-150 cm), well drained, have dark reddish brown to dark red gravelly sandy clay to clay soils occurring on very gently to gently sloping uplands under cultivation		**104 (16.05)**
12		BPRcB2g1	Sandy loam surface, slope 1-3%, moderate erosion, gravelly (15-35%)	29 (4.51)
13		BPRcB2g2	Sandy loam surface, slope 1-3%, moderate erosion, very gravelly (35-60%)	19 (2.95)
14		BPRcC2g2	Sandy loam surface, slope 3-5%, moderate erosion, very gravelly (35-60%)	26 (3.98)
15		BPRhB1g1	Sandy clay loam surface, slope 1-3%, slight erosion, gravelly (15-35%)	30 (4.61)
	LGD	Lakshmangudda soils are deep (100-150 cm), well drained, have light olive brown to very dark gray clay soils occurring on very gently uplands under cultivation		**80 (12.37)**
16		LGDiB1	Sandy clay surface, slope 1-3%, slight erosion	65 (10.02)
17		LGDiB1g1	Sandy clay surface, slope 1-3%, slight erosion, gravelly (15-35%)	15 (2.35)
	NGP	Nagalapur soils are deep (100-150 cm), well drained, have dark reddish brown to dark red gravelly sandy clay to clay soils occurring on very gently sloping uplands under cultivation		**112 (17.36)**
18		NGPmB1	Clay surface, slope 1-3%, slight erosion	65 (10.02)
19		NGPmB1g1	Clay surface, slope 1-3%, slight erosion, gravelly (15-35%)	47 (7.34)
	TDG	Thondigere soils are very deep (>150 cm), well drained, have dark brown to dark yellowish brown sandy loam to sandy clay stratified soils occurring on very gently sloping lowlands under cultivation		**5 (0.71)**
20		TDGhB1	Sandy clay loam surface, slope 1-3%, slight erosion	5 (0.71)
21		Rock outcrops	Rock lands, both massive and bouldery	33 (5.13)
22		Others	Habitation and water bodies	91 (14.12)

3.6 Land Management Units

The 21 soil phases identified and mapped in the microwatershed were grouped into 5 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 choosen for identification and delineation of LMUs. For Kurubarahalli microwatershed, five soil and site characteristics, namely soil depth, soil texture, slope, erosion and gravel content have been considered for defining LMUs. The land ManagementUnits are expected to behave similarly for a given level of management.

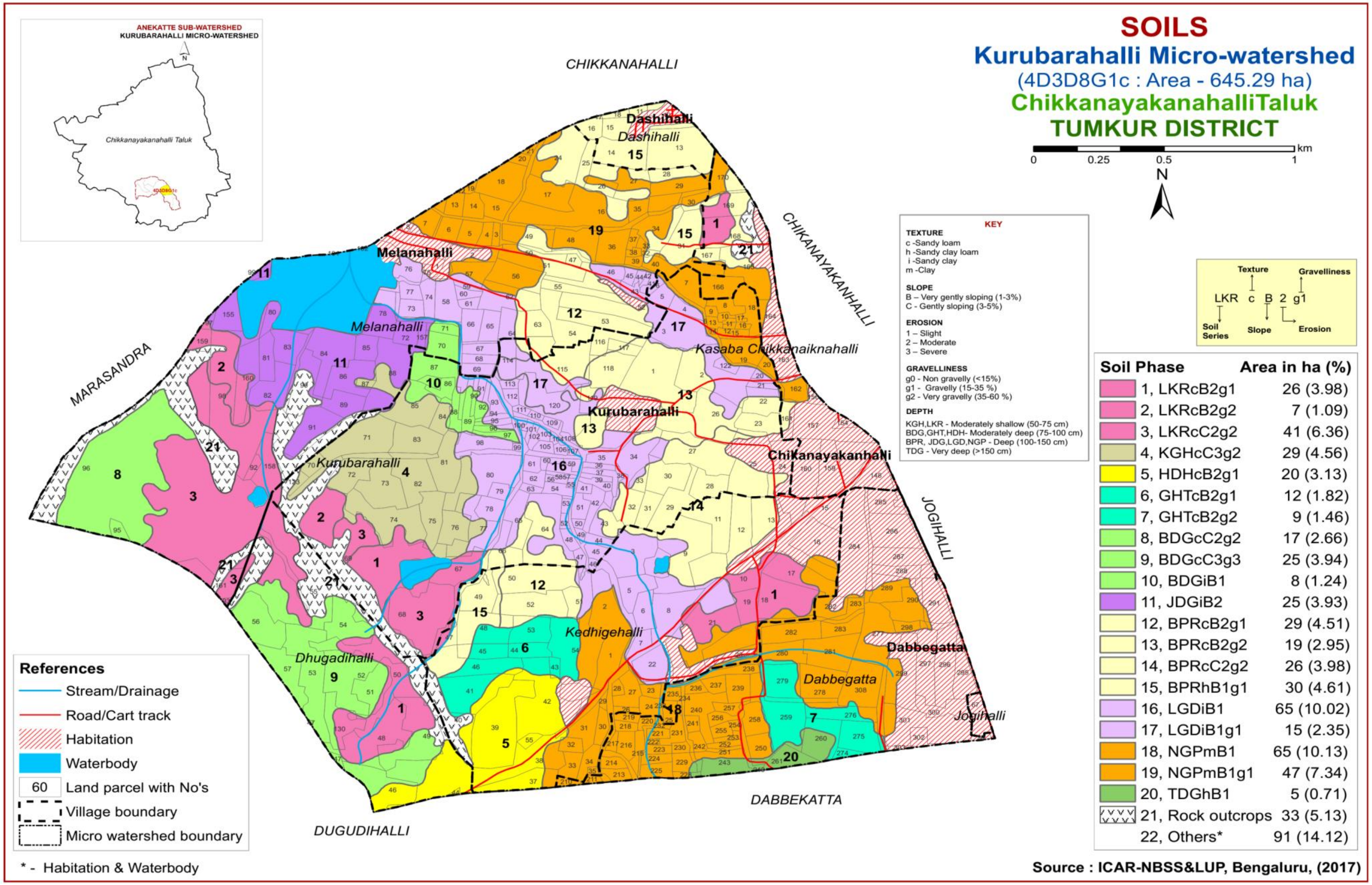


Fig. 3.5 Soil Phase or Management Units-Kurubarahalli Microwatershed

Chapter 4

THE SOILS

Detailed information pertaining to the nature, area extent and their distribution of different kinds of soils occurring in Kurubarahalli microwatershed is provided in this chapter. The microwatershed area has been identified as granite gneiss landscape based on geology. In all, 10 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 10 soil series identified followed by 21 soil phases (management units) mapped (Fig. 3.5) are furnished below. The soils in any one map unit differ from place to place in their depth, texture, slope, gravelliness, erosion or any other site characteristic that affect management. The soil phase map can be used for identifying the suitability of areas for growing specific crops or for other alternative uses and also for deciding the type of conservation structures needed. The detailed information on soil and site-characteristics like soil depth, surface soil texture, slope, erosion, gravelliness, AWC, LCC etc, with respect to each of the soil phase identified is given village/survey number wise for the microwatershed in Appendix-I.

4.1 Soils of granite gneiss landscape

In this landscape, 10 soil series are identified and mapped. Of these, Nagalapur series occupies maximum area of 112 ha (17%) followed by Balapur 104 ha (16%), Lakshmangudda 80 ha (12%), Lakkur 74 ha (11%), Bidanagere 50 ha (8%) and other series occupy minor area in the microwatershed. Brief description of each series along with number of soil phases identified is given below.

4.1.1 Lakkur (LKR) Series: Lakkur soils are moderately shallow (50-75 cm), well drained, have reddish brown to dark red gravelly sandy clay red soils. They have developed from granite gneiss and occur on nearly level to very gently and gently sloping uplands. The Lakkur series has been classified as a member of the clayey-skeletal, mixed, isohyperthermic family of Typic Rhodustalfs.

The thickness of the solum ranges from 51 to 74 cm. The thickness of A horizon ranges from 12 to 18 cm. Its colour is in 5YR and 2.5 YR hue with value 3 to 4 and chroma 4 to 6. The texture varies from loamy sand to sandy clay loam with 15 to 50 per cent gravel. The thickness of B horizon ranges from 39 to 58 cm. Its colour is in 2.5 YR hue with value 3 to 4 and chroma 4 to 6. Texture varies from sandy clay loam to sandy clay with 40 to 60 per cent gravel. The available water capacity is low (50-100 mm/m). Three phases were identified and mapped.

Landscape and soil Profile characteristics of Lakkur (LKR) Series

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

The thickness of the solum ranges from 50 to 74 cm. The thickness of A horizon ranges from 12 to 22 cm. Its colour is in 7.5 YR and 10 YR hue with value and chroma 3 to 4. The texture varies from loamy sand to sandy loam with 15 to 30 per cent gravel. The thickness of B horizon ranges from 40 to 62 cm. Its colour is in 7.5 YR hue with value and chroma 3 to 4. Its texture is sandy clay loam with gravel content of 15 to 35 per cent. The available water capacity is medium (100-150 mm/m).Only one phase was identified and mapped.

Landscape and soil Profile characteristics of Kutegoudanahundi (KGH) Series

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

The thickness of the solum ranges from 76 to 100 cm. The thickness of A horizon ranges from 11 to 19 cm. Its colour is in 5 YR and 2.5 YR hue with value 3 to 4 and chroma 3 to 6. The texture varies from loamy sand to sandy clay with 15 to 50 per cent gravel. The thickness of B horizon varies from 65 to 83 cm. Its colour is in 2.5 YR hue with value 2.5 to 3 and chroma 4 to 6. Texture is sandy clay to clay with 35 to 50 per cent gravel. The available water capacity is low (50-100 mm/m).Only one phase was identified and mapped.

Landscape and soil profile characteristics of Hooradhahalli (HDH) Series

4.1.4 Gollarahatti (GHT) Series: Gollarahatti soils are moderately deep (75-100 cm), well drained, have dark reddish brown to dark red sandy clay loam soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands. The Gollarahatti series has been classified as a member of the fine-loamy, mixed, isohyperthermic family of Typic Rhodustalfs.

The thickness of the solum ranges from 78 to 98 cm. The thickness of A-horizon ranges from 12 to 18 cm. Its colour is in 5 YR and 2.5 YR hue with value 3 to 4 and chroma 4 to 6. Texture varies from loamy sand to sandy clay with 15 to 35 per cent gravel. The thickness of B horizon ranges from 66 to 81 cm. Its colour is in 2.5 YR hue with value 3 to 4 and chroma 4 to 6. Texture is sandy clay loam to clay with 15 to 35 per cent gravel. The available water capacity is medium (100-150 mm/m). Two phases were identified and mapped.

Landscape and soil Profile characteristics of Gollarahatti (GHT) Series

4.1.5 Bidanagere (BDG) Series: Bidanagere soils are moderately deep (75-100 cm), well drained, have dark reddish brown gravelly clay soils. They have developed from weathered granite gneiss and occur on very gently sloping uplands under cultivation. The Bidanagere soil series has been classified as a member of the clayey-skeletal, mixed, isohyperthermic family of Rhodic Paleustalfs.

The thickness of the solum ranges from 78 to 99 cm. The thickness of A-horizon ranges from 12 to 19 cm. Its colour is in 2.5 YR and 5 YR hue with value 2 to 3 and chroma 3 to 4. The texture varies from sandy clay loam to sandy clay with 10 to 20 per cent gravel. The thickness of B-horizon ranges from 68 to 85 cm. Its colour is in 2.5 YR hue with value 3 to 5 and chroma 3 to 4. Its texture is gravelly sandy clay to clay with gravel content of 35-60 per cent. The available water capacity is very low (<50 mm/m). Three phases were identified and mapped.

Landscape and soil Profile Characteristics of Bidanagere (BDG) Series

4.1.6 Jedigere (JDG) Series: Jedigere soils are deep (100-150 cm) well drained, have yellowish red to strong brown sandy clay to clay soils. They have developed from granite gneiss and occur on nearly level to very gently sloping uplands under cultivation.

The thickness of the solum ranges from 117 to 145 cm. The thickness of A horizon ranges from 13 to 21 cm. Its colour is in hue 5 YR and 7.5 YR with value 2 to 4 and chroma 2 to 6. Its texture is dominantly sandy clay and sand clay loam. The thickness of B horizon ranges from 104 to 124 cm. Its colour is in hue 5 YR and 7.5 YR with value 2 to 4 and chroma 3 to 6. Its texture is dominantly clay. The available water capacity is very high (>200 mm/m). Only one phase was identified and mapped.

Landscape and soil profile characteristics of Jedigere (JDG) Series

4.1.7 Balapur (BPR) Series: Balapur soils are deep (100-150 cm), well drained, have dark reddish brown to dark red gravelly sandy clay to clay soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands. The Balapur soil series has been classified as a member of the clayey-skeletal, mixed, isohyperthermic family of Typic Rhodustalfs.

The thickness of the solum ranges from 102 to 147 cm. The thickness of A horizon ranges from 12 to 17 cm. Its colour is in 5 YR and 2.5 YR hue with value and chroma 3 to 4. The texture ranges from loamy sand to sandy clay with 15 to 50 per cent gravel. The thickness of B horizon ranges from 90 to 132 cm. Its colour is in 2.5 YR hue with value 2.5 to 3 and chroma 4 to 6. Texture is sandy clay to clay with 35 to 50 per cent gravel. The available water capacity is low (51-100 mm/m). Four phases were identified and mapped.

Landscape and soil Profile characteristics of Balapur (BPR) Series

4.1.8 Lakshmangudda (LGD) Series: Lakshmangudda soils are deep (100-150 cm), well drained, have light olive brown to very dark gray cracking clay soils. They have developed from granite gneiss and occur on nearly level uplands. The Lakshmangudda series has been classified as a member of the fine, smectitic, isohyperthermic family of Typic Haplusterts.

The thickness of the solum ranges from 108 to 149 cm. The thickness of A horizon ranges from 16 to 20 cm. Its colour is in 7.5 YR and 10 YR hue with value and chroma 3 to 4. The texture varies from sandy clay to clay with 5 to 10 per cent gravel. The thickness of B horizon ranges from 90 to 132 cm. Its colour is in 2.5 Y, 10 YR and 7.5 YR hue with value 3 to 6 and chroma 1 to 3. Its texture is clay. The available water capacity is high (150-200 mm/m).Two phases were identified and mapped.

Landscape and soil Profile Characteristics of Lakshmangudda (LGD) Series

4.1.9 Nagalapur (NGP) Series: Nagalapur soils are deep (100-150 cm), well drained, have dark reddish brown to dark red gravelly sandy clay to clay soils. They are developed from weathered granite gneiss and occur on very gently to gently sloping uplands.

The thickness of the solum ranges from 105 to 145 cm. The thickness of A-horizon ranges from 14 to 20 cm. Its colour is in 7.5 YR hue with value and chroma 3 to 4. The texture ranges from sandy loam to sandy clay with 10 to 50 per cent gravel. The thickness of B horizon ranges from 90 to 128 cm. Its colour is in 2.5 YR, 5 YR and 7.5 YR hue with value 3 to 5 and chroma 3 to 6. Texture is sandy clay to clay with 35 to 80 per cent gravel. The available water capacity is low (51-100 mm/m).Two phases were identified and mapped.

Landscape and soil Profile Characteristics of Nagalapur (NGP) Series

4.1.10 Thondigere (TDG) Series: Thondigere soils are very deep (>150 cm), well drained, have dark brown to dark yellowish brown, sandy loam, sandy clay loam and sandy clay stratified soils. They have developed from alluvio-colluvium and occur on nearly level to very gently sloping lowlands under cultivation. The Thondigere soil series has been classified as a member of the fine-loamy, mixed, isohyperthermic family of Fluventic Haplustepts.

The thickness of the solum is more than 150 cm. The thickness of A-horizon ranges from 12 to 19 cm. Its colour is in 10 YR, 5 YR and 7.5 YR hue with value 3 to 4 and chroma 4. The texture is sandy clay loam. The thickness of B horizon is more than 150 cm. Its colour is in 10 YR and 7.5 YR hue with value 3 to 4 and chroma 3 to 6. Its texture is sandy, loamy sand, sandy clay loam, sandy clay and clay. The available water capacity is medium (101-150 mm/m). Only one phase was identified and mapped.

Landscape and soil Profile Characteristics of Thondigere (TDG) Series.

Table: 4.1 Physical and Chemical characteristics of soil series identified in Kurubarahalli microwatershed

Soil Series Table: 4.1 Physical: Lakkur (LKR), **Pedon:** RM-8.
Location: 15^{0}04'26.3"N, 75^{0}37'84.1"E, (4D4A3I1f), Belhatti village, Shirahatti taluk, Gadag distrtict
Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Clayey-skeletal, mixed, isohyperthermic Typic Rhodustalfs

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
0-21	Ap	74.00	8.34	17.66	9.62	11.57	15.76	23.13	13.92	20	sl	-	-
21-35	Bt	54.37	10.48	35.14	16.33	8.64	9.69	11.59	8.11	40	sc	-	-
35-56	Bc	48.37	13.46	38.17	10.96	7.69	9.17	11.28	9.27	60	sc	-	-

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}							%	%
0-21	8.18	-	-	0.30	0.56	0.94	-	-	0.31	0.55	0.86	12.19	0.69	100.00	4.51
21-35	8.17	-	-	0.30	0.52	1.29	-	-	0.19	0.84	1.03	22.18	0.63	100.00	3.79
35-56	7.95	-	-	0.46	0.48	1.99	-	-	0.24	0.58	0.82	22.94	0.60	100.00	2.53

Contd...

Soil Series: Hooradhahalli (HDH), **Pedon:** RM-69
Location: 13^{0}24'31"N, 76^{0}33'41"E, (4D3D8G2d), Hesarahalli village, Chikkanayakanahalli taluk, Tumukura district
Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Clayey-skeletal, mixed, isohyperthermic Rhodic Paleustalfs

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-18	Ap	72.56	15.17	12.27	4.57	8.33	17.38	23.88	18.39	35	sl	-	-
18-33	Bt1	56.29	10.75	32.96	7.88	10.24	13.41	14.43	10.34	55	scl	-	-
33-58	Bt2	46.66	10.79	42.55	10.79	9.87	8.43	9.04	8.53	55	sc	-	-
58-90	Bt3	43.09	13.63	43.27	9.90	8.25	7.32	8.76	8.87	45	c	-	-

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	6.54	-	-	0.07	0.60	0.00	2.68	1.38	0.44	0.42	4.91	5.84	0.48	84.07	7.11
18-33	5.90	-	-	0.07	0.52	0.00	3.99	1.27	0.09	0.37	5.71	8.61	0.26	66.32	4.29
33-58	6.16	-	-	0.07	0.44	0.00	4.92	1.67	0.08	0.55	7.22	10.00	0.24	72.23	5.50
58-90	6.39	-	-	0.06	0.40	0.00	4.30	2.02	0.08	0.46	6.87	9.21	0.21	74.61	5.05

Contd...

Soil Series: Gollarahatti (GHT), **Pedon:** RM-2
Location: $50^0$04'88.8"N, $75^0$37'65.2"E, (4D4A3I1f), Belhatti village, Shirahatti taluk, Gadag district.
Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Fine- loamy, mixed, isohyperthermic Typic Rhodustalfs

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
0-26	Ap	83.22	5.74	11.05	9.71	11.73	16.68	27.10	16.58	30	ls	-	-
26-63	Bt1	55.91	13.36	30.73	13.05	9.66	11.10	14.29	7.81	20	scl	-	-
63-84	Bt2	57.17	11.38	31.45	10.53	10.11	12.28	13.83	10.42	20	scl	-	-

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}							%	%
0-26	5.70	-	-	0.06	0.20	0.00	1.50	0.60	0.09	0.13	2.32	3.17	0.29	73.00	4.10
26-63	6.26	-	-	0.04	0.24	0.00	7.35	1.55	0.09	0.17	9.15	9.89	0.32	93.00	1.72
63-84	6.50	-	-	0.05	0.20	0.47	-	-	0.09	0.21	0.30	10.18	0.32	100.00	2.06

Contd...

Series: Bidanagere (BDG), **Pedon**: RM-3
Location: 13^{0}22'11"N, 76^{0}38'03"E, (4D3D8G1a), Tharabenahalli village, Chikkanayakanahalli taluk, Tumakuru district
Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Clayey-skeletal, mixed, isohyperthermic Rhodic Paleustalfs

Depth (cm)	Horizon	Size class and particle diameter (mm)								Coarse fragments w/w (%)	Texture Class (USDA)	% Moisture	
		Total			Sand								
		Sand (2.0-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2.0-1.0)	Coarse (1.0-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)			1/3 Bar	15 Bar
0-20	Ap	81.19	11.25	7.56	12.54	15.07	17.90	21.94	13.75	50	ls	-	-
20-35	Bt1	57.45	11.45	31.10	12.76	11.02	10.92	12.45	10.31	50	scl	-	-
35-92	Bt2	44.63	7.85	47.52	12.40	9.61	8.37	7.75	6.51	60	c	-	-

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}							%	%
0-20	6.24	-	-	0.06	0.60	0.00	1.61	0.26	0.10	0.01	1.98	3.76	0.50	52.56	0.35
20-35	5.99	-	-	0.02	0.40	0.00	4.25	0.46	0.08	0.28	5.07	8.02	0.26	63.18	3.46
35-92	6.70	-	-	0.03	0.20	0.00	5.45	0.31	0.10	0.22	6.09	9.90	0.21	61.48	2.24

Contd...

Soil Series: Balapur (BPR), **Pedon:** RM-78
Location: 13^{0}26'39"N, 76^{0}35'03"E, (4D3D8G2c), Kasaba, Chikkanayakanahalli taluk, Tumakuru district
Analysis at: NBSS&LUP, Regional Centre, Bengaluru **Classification:** Clayey-skeletal, mixed, isohyperthermic, Typic Rhodustalfs

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	65.66	18.66	15.68	4.14	6.16	13.33	21.82	20.20	-	sl	-	-
12-34	Bt1	61.91	11.52	26.57	2.36	6.78	12.53	21.36	18.89	-	scl	-	-
34-60	Bt2	51.81	11.24	36.94	4.66	5.70	12.23	15.96	13.26	30	sc	-	-
60-84	Bt3	46.61	9.02	44.37	14.70	6.88	7.51	8.97	8.55	55	sc	-	-
84-112	Bt4	48.75	12.92	38.33	15.73	8.13	6.87	8.23	9.79	60	sc	-	-
112-127	Bc	50.98	24.74	24.28	5.25	4.63	5.15	10.92	25.03	50	scl	-	-

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	6.64	-	-	0.03	0.56	0.00	1.90	1.32	0.21	0.03	3.46	5.45	0.35	63.48	0.51
12-34	6.99	-	-	0.02	0.48	0.00	3.66	1.90	0.07	0.08	5.70	7.82	0.29	72.93	0.96
34-60	7.29	-	-	0.02	0.40	0.00	5.13	2.08	0.11	0.20	7.52	11.19	0.30	67.18	1.75
60-84	7.50	-	-	0.02	0.32	0.00	5.83	6.36	0.13	0.23	12.55	12.38	0.28	101.43	1.83
84-112	7.54	-	-	0.02	0.24	0.00	6.02	6.59	0.11	0.25	12.96	12.77	0.33	101.49	1.97
112-127	7.90	-	-	0.02	0.20	0.00	8.04	3.62	0.07	0.32	12.04	12.47	0.51	96.56	2.55

Contd...

Series Name: Lakshmangudda (LGD), **Pedon:** R-10
Location:15^{0}18'26.5"N, 76^{0}04'20.2"E, Narasapur village, Koppal taluk and district
Analysis at: NBSS&LUP, Regional Centre, Bangalore. **Classification:** Fine smectitic, 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
0-28	Ap	35.98	16.46	47.56	4.83	8.16	6.77	9.67	6.55	-	c	29.56	20.34
28-58	BA	33.59	18.29	48.13	3.59	3.70	9.67	9.35	7.28	-	c	33.50	22.30
58-83	Bss1	31.72	18.41	49.86	3.18	5.93	6.48	9.33	6.81	-	c	34.07	23.63
83-119	Bss2	30.87	17.88	51.25	4.13	6.09	5.87	8.80	5.98	-	c	36.65	23.55

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}							%	%
0-28	8.07	-	-	0.257	0.12	4.08	-	-	0.41	0.34	-	58.10	1.22	-	0.58
28-58	8.22	-	-	0.203	0.66	6.96	-	-	0.24	0.20	-	40.30	0.84	-	0.49
58-83	8.32	-	-	0.158	0.66	5.76	-	-	0.21	0.37	-	46.20	0.93	-	0.80
83-119	8.3	-	-	0.211	0.78	6.36	-	-	0.36	0.57	-	47.20	0.92	-	1.21

Contd...

Soil Series: Thondigere (TDG), **Pedon:** RM-24
Location: 13^{0}28'21"N, 76^{0}52'50"E, (4B3D3N1b), Sanabanahalli village, Gubbi taluk, Tumakuru 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
0-17	Ap	73.83	10.36	15.81	11.20	16.19	15.99	18.84	11.61	-	sl		
17-30	A2	77.02	9.01	13.97	10.12	18.83	18.72	19.43	9.92	-	sl		
30-39	A3	76.42	8.45	15.13	7.49	13.36	15.59	26.01	13.97	-	sl		
39-50	Bw1	63.75	9.90	26.35	5.80	9.27	10.49	18.53	19.65	-	scl		
50-71	Bw2	53.49	15.81	30.70	1.44	4.72	10.57	22.28	14.48	-	scl		
71-95	Bw3	36.35	22.32	41.33	1.46	5.83	16.25	6.25	6.56	-	c		
95-114	Bc1	57.96	13.88	28.16	4.39	12.35	14.18	16.94	10.10	-	scl		
114 - >150	Bc2	50.16	16.94	32.91	3.64	12.90	11.34	13.11	9.16	-	scl		

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}							%	%
0-17	7.02	-	-	0.05	0.62	0.00	4.33	1.14	0.28	0.08	5.83	5.77	0.36	100.00	1.44
17-30	7.80	-	-	0.07	0.37	0.00	4.64	0.44	0.06	0.01	5.15	5.15	0.37	100.02	0.24
30-39	7.55	-	-	0.04	0.29	0.00	4.27	0.33	0.05	0.03	4.69	4.64	0.31	100.00	0.75
39-50	7.69	-	-	0.05	0.25	0.00	7.03	0.49	0.07	0.07	7.66	8.45	0.32	90.66	0.82
50-71	8.09	-	-	0.04	0.12	0.00	9.09	1.43	0.13	0.38	11.02	12.26	0.40	89.94	3.10
71-95	7.97	-	-	0.08	0.29	0.00	11.84	1.27	0.11	0.46	13.68	14.42	0.35	94.85	3.21
95-114	8.32	-	-	0.05	0.29	0.00	9.28	1.23	0.15	0.31	10.97	11.74	0.42	93.44	2.65
114 - >150	8.34	-	-	0.07	0.25	0.00	13.90	1.71	0.13	0.83	16.57	17.61	0.54	94.07	4.70

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 21 soil map units identified in the Kurubarahalli microwatershed are grouped under 4 land capability classes and 6 land capability subclasses. About 521 ha area (81%) in the microwatershed is suitable for agriculture and an area of 33 ha (5 %) is not suitable for agriculture (Fig. 5.1), but well suited for wildlife, recreation, installation of wind mills.

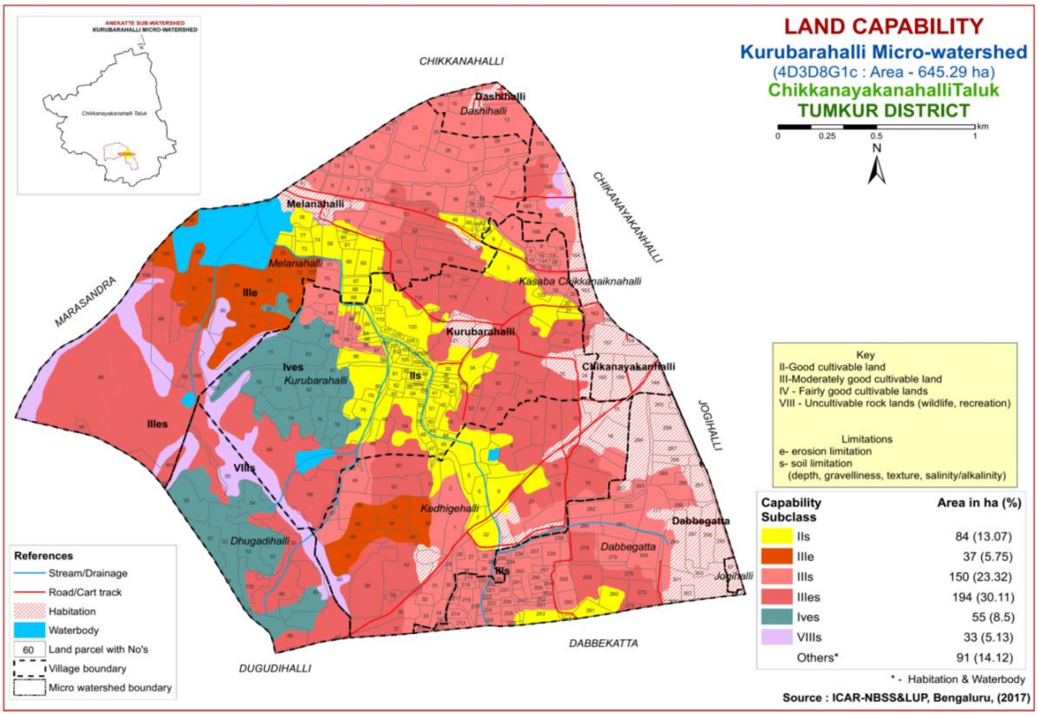


Fig. 5.1 Land Capability map of Kurubarahalli Microwatershed

Good cultivable lands (Class II) cover an area of about 13 per cent and are distributed in the central part of the microwatershed with minor problems of soil. Moderately good cultivable lands (Class III) cover an area of about 59 per cent and are distributed in all parts with moderate problems of erosion and soil. Fairly good lands (Class IV) cover an area of 9 per cent and distributed in the central and southwestern part of the microwatershed with very severe limitations of erosion and soil. Soil and other miscellaneous areas (rock lands) (VIII) covering about 5 per cent and distributed in a minor area in the western and southwestern part of the microwatershed. They have very severe limitations of soil that nearly preclude their use for any crop production.

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.

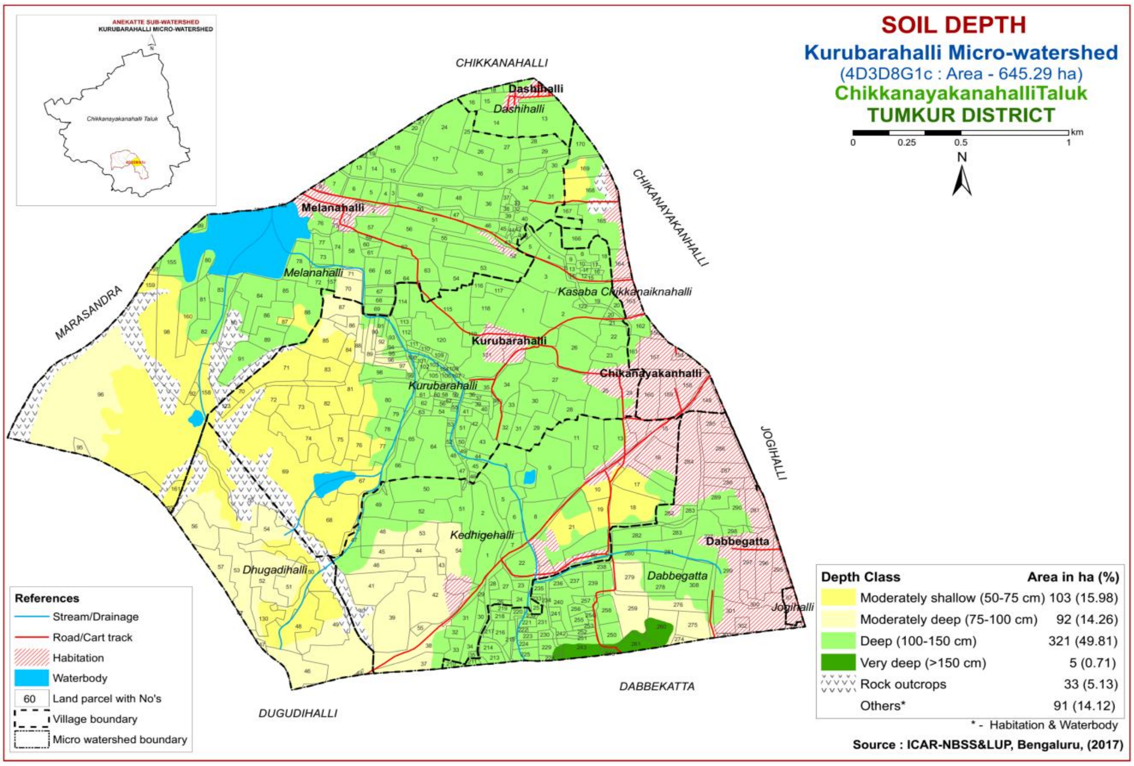


Fig. 5.2 Soil Depth map of Kurubarahalli Microwatershed

An area of 103 ha (16%) are moderately shallow (50-75 cm) and 92 ha (14%) are moderately deep and are distributed in the western, central, southwestern and a small area in the eastern part of the microwatershed. Deep (100-150 cm) soils cover an area of 321 ha (50%) and are distributed in the major part of the microwatershed, whereas very deep (>150 cm) soils occur in an area of 5 ha (<1%) and are distributed in the southeastern part of the microwatershed.

The most productive lands 326 ha (51%) with respect to soil rooting depth where all climatically adapted annual and perennial crops can be grown are very deep (>150 cm depth) and deep (100-150 cm) soils occurring in the major part of the 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.

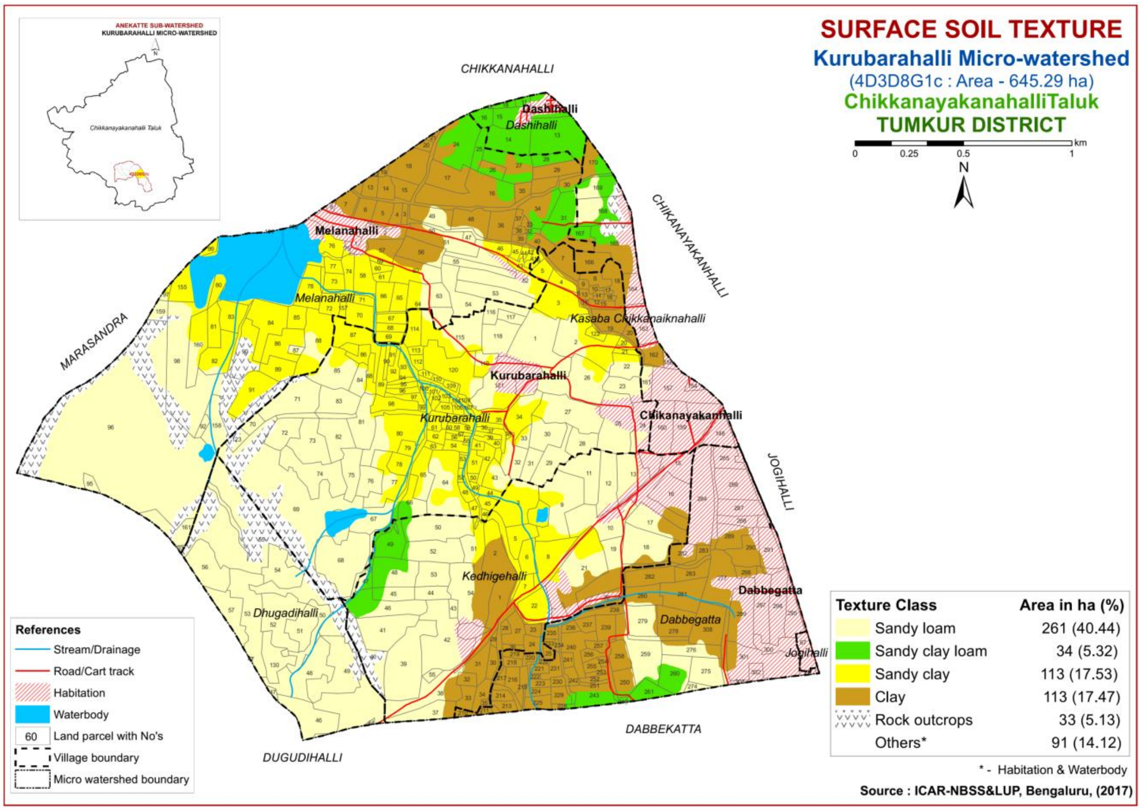


Fig. 5.3 Surface Soil Texture map of Kurubarahalli Microwatershed

An area of about 295 ha (46%) has soils that are loamy at the surface. They are distributed in the western, central, southeastern and northern part of the microwatershed. An area of about 226 ha (35%) is clayey at the surface and are distributed in the central, southeastern, eastern and northwestern part of the microwatershed. An area of 33 ha (5%) is under rock outcrops and are distributed in the western part of the microwatershed (Fig. 5.3).

The most productive lands (34%) with respect to surface soil texture are the clayey soils that have high potential for soil-water retention and availability, nutrient retention and availability, but have more problems of drainage, infiltration, workability and other physical problems. The other most productive lands (46%) are loamy soils which also have high potential for AWC, nutrient availability but have no drainage or other physical problems.

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.

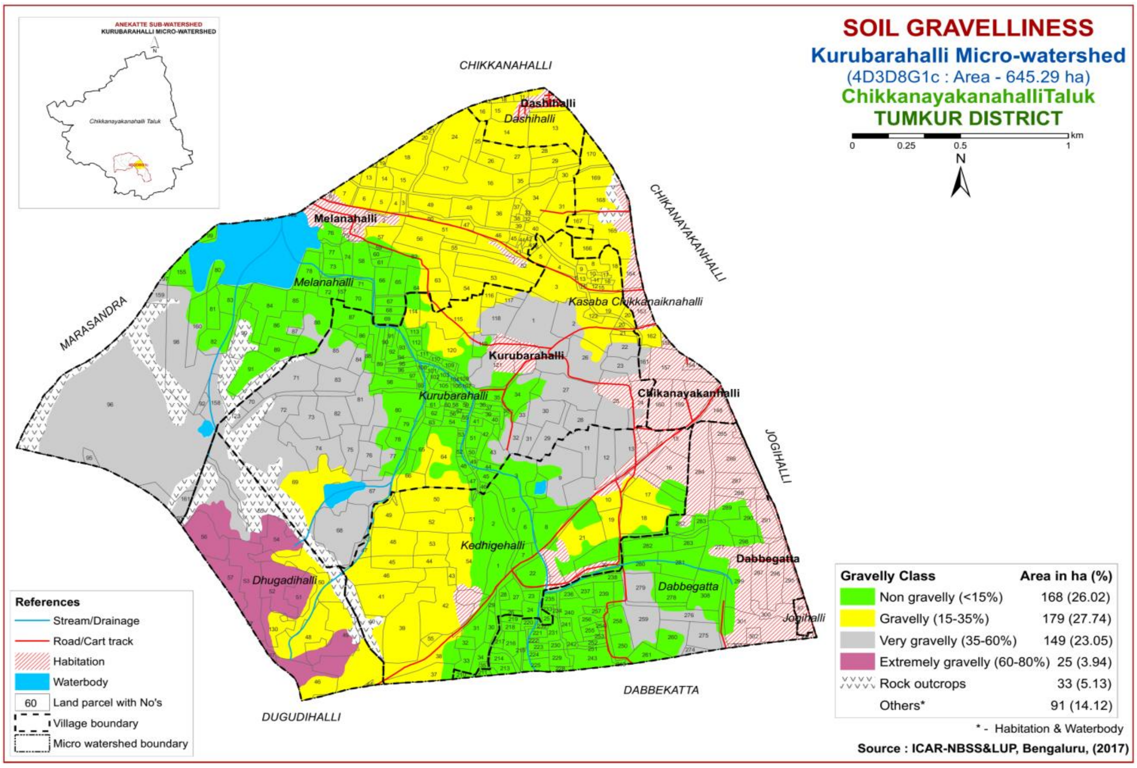


Fig. 5.4 Soil Gravelliness map of Kurubarahalli Microwatershed

An area of 179 ha (28%) are gravelly (15-35%) and are distributed in the northern, eastern and southern part of the microwaterhsed. Very gravelly soils (35-60%) occupy 149 ha (23%) area and is distributed in the central, western and small area of eastern part of the microwaterhsed. Extremely gravelly (60-80%) soils occur in an area of 25 ha (4%) and are distributed in the southwestern part of the microwaterhsed. An area of 33 ha (5%) is under rock outcrops and are distributed in the western part of the microwatershed (Fig. 5.4).

The most productive soils covering 168 ha (26%) are non gravelly (<15%) and are distributed in the northwestern, central and southeastern part of the microwatershed, where all climatically adapted long duration crops can be grown.

The most problem soils cover about 179 ha (28%) that are very gravelly (35-60%) and extremely gravelly (60-80%) where only short duration crops can be grown and that too probability of crop failure is very high.

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.

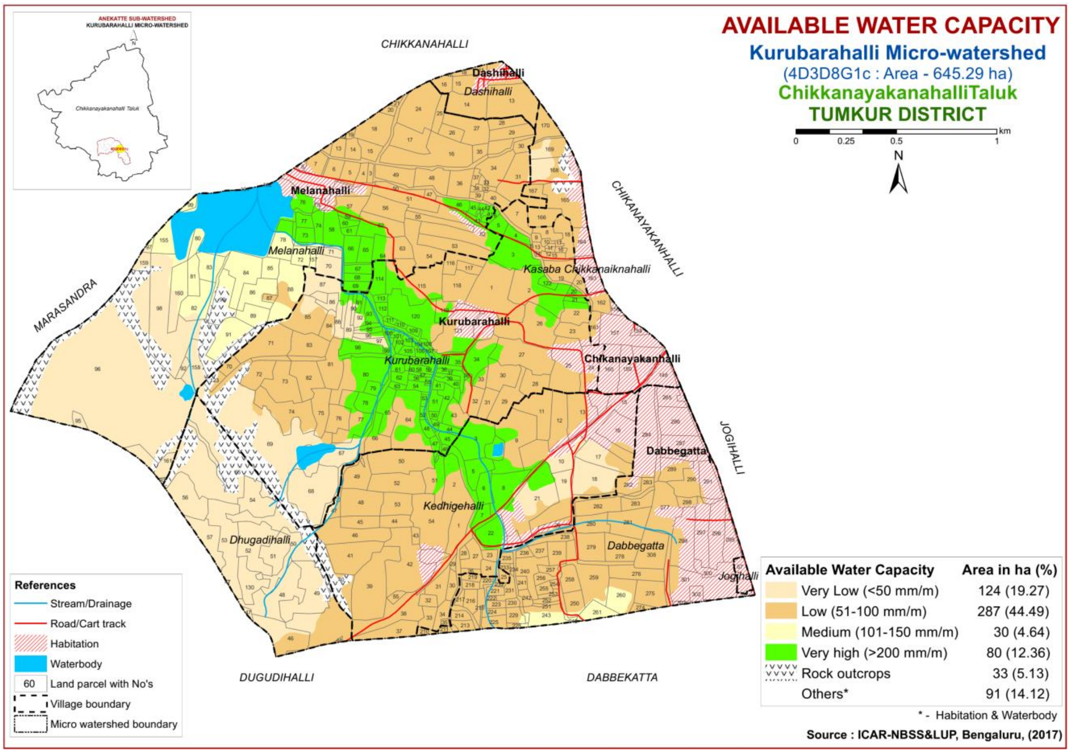


Fig. 5.5 Soil Available Water Capacity map of Kurubarahalli Microwatershed

An area of about 30 ha (5%) is medium (101-150 mm/m) in available water capacity and are distributed in the western and southeastern part of the microwateshed. An area of about 80 ha (12%) is very high (>200 mm/m) in available water capacity and are distributed in the central and northwestern part of the microwatershed. Very low (<50 mm/m) available water capacity soils occupy an area of 124 ha (19%) and are distributed in the southwestern and western part of the microwatershed. An area of about 287 ha (44%) is low (51-100 mm/m) in available water capacity and are distributed in the major part of the microwatershed. An area of 33 ha (5%) area under rock outcrops and are distributed in the small area of western part of the microwatershed (Fig. 5.5).

The most problem soils cover about 411 ha (64%) that have very low to low AWC and such suitable for growing only short duration crops. An area of about 80 ha (12%) has high potential with respect to AWC where all climatically adapted long duration annual and perennial crops can be grown.

5.6 Soil Slope

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

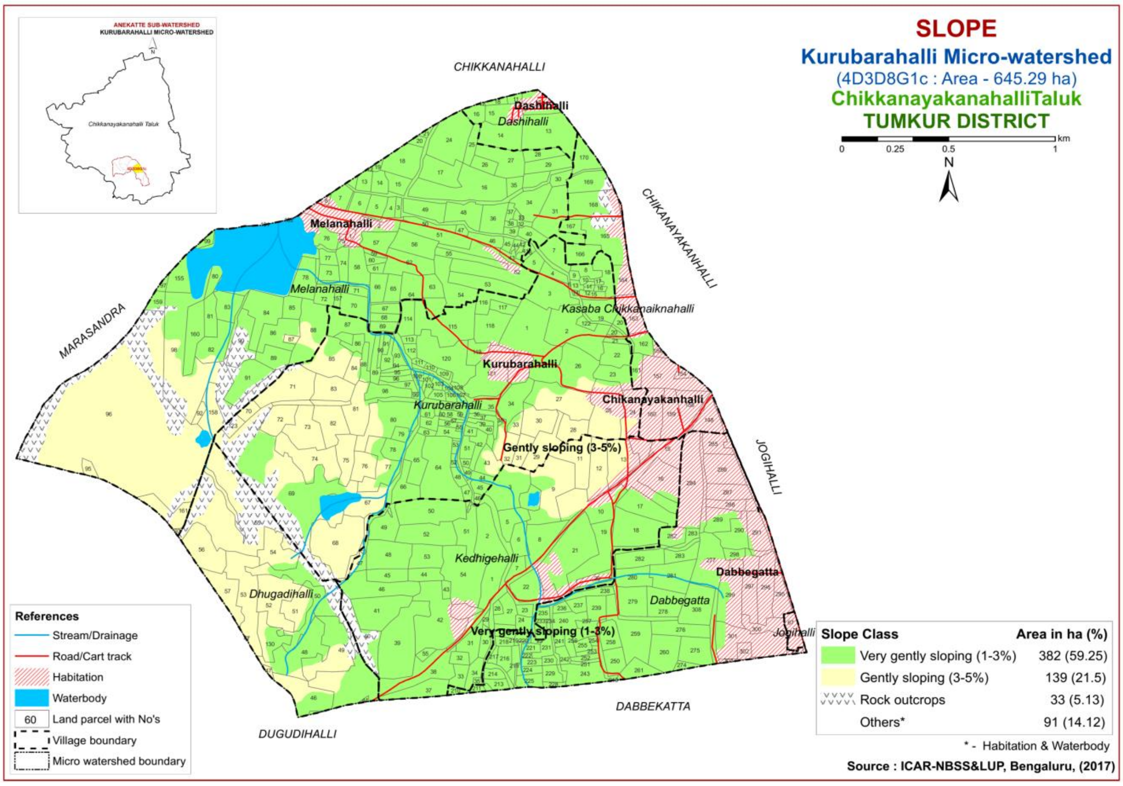


Fig. 5.6 Soil Slope map of Kurubarahalli Microwatershed

An area of about 382 ha (59%) falls under very gently sloping (1-3% slope) lands and are distributed in the major part of the microwatershed and about 139 ha (22%) is under gently sloping (3-5%) and are distributed in the western, central and eastern part of the microwatershed. An area of 33 ha (5%) is under rock outcrops and are distributed in the western part of the microwatershed.

Major area (59%) 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. An area of about 139 ha (22%) requires appropriate soil snd water conservation measures because of the slopes.

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.

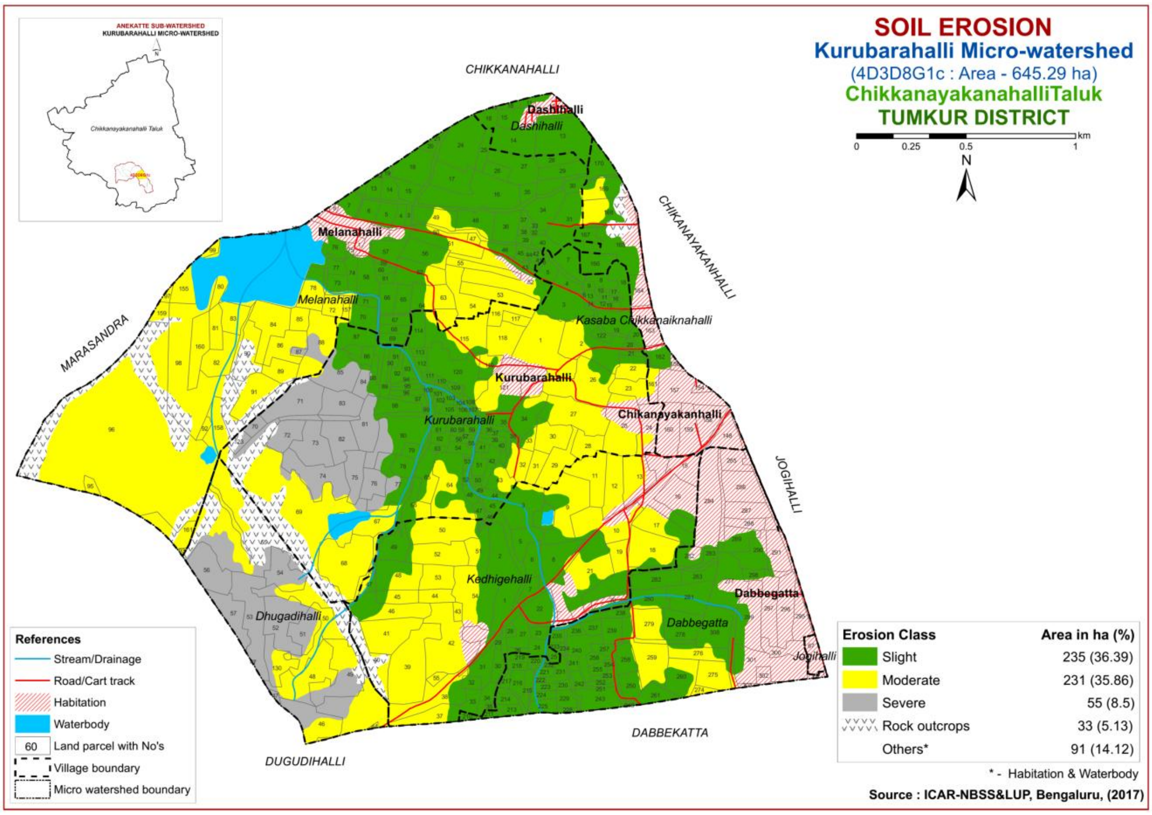


Fig. 5.7 Soil Erosion map of Kurubarahalli Microwatershed

Soils that are moderately eroded (Class e2) cover an area of about 231 ha (36%) in the microwatershed. They are distributed in the southern, western, northern and eastern part of the microwatershed. Slightly eroded (Class e1) soils cover an area of about 235 ha (36%) and are distributed in the southeastern, northern and central part of the microwatershed. An area of about 55 ha (9%) are severly eroded (Class e4) soils and are distributed in the southwestern and central part of the microwatershed.

An area of about 286 ha (44%) in the microwatershed is problematic because of moderate and severe erosion. These areas need soil and water conservation and other land development measures for restoring the soil health.

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 the area is 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 250 m interval) all over the microwatershed through land resource inventory in the year 2016 were analysed for pH, EC, organic carbon, available phosphorus and potassium, and for micronutrients like zinc, boron, copper, iron and manganese, and secondary nutrient sulphur.

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

6.1 Soil Reaction (pH)

The soil analysis of the Kurubarahalli microwatershed for soil reaction (pH) showed that an area of 225 ha (35%) is moderately to slightly acid (pH 5.5-6.5) and are distributed in the central, southern, southwestern and small area in the northern part of the microwatershed. Strongly acid (pH 5.0-5.5) soils occur in about 70 ha (11%) area and distributed in the southern, western and small area in the eastern part of the microwaterhsed. An area of 190 ha (30%) is neutral (pH 6.5-7.3) and are distributed in the northern, northwestern and southeastern part of the microwatershed. About 36 ha (6%) is slightly alkaline (pH 7.3-7.8) and are distributed in the southeastern and northwestern part of the microwatershed (Fig. 6.1).

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 and are nonsaline.

6.3 Organic Carbon

The soil organic carbon content of the microwatershed is low (<0.5%) covering an area of about 487 ha (75%) and are distributed in the major part of the microwatershed. Medium (0.5-0.75%) soil organic carbon occupy in an area of 34 ha (5%) and are distributed in the southeastern part of the microwatershed (Fig. 6.3).

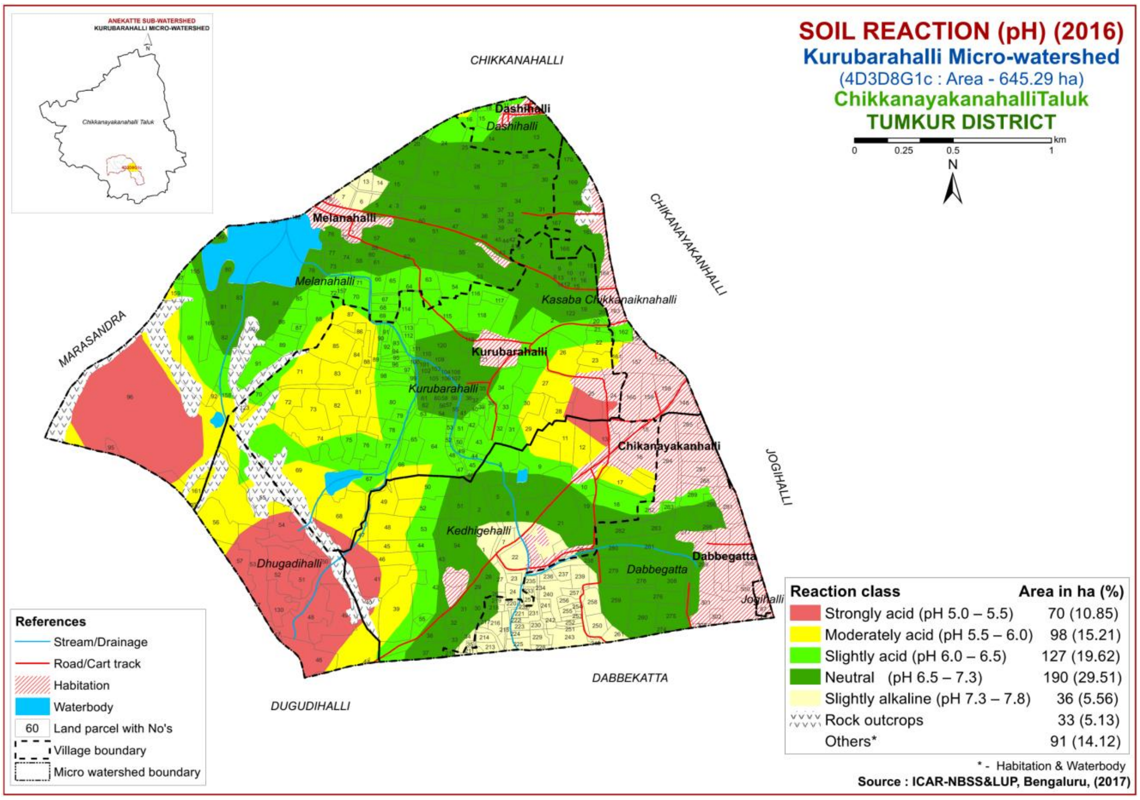


Fig. 6.1 Soil Reaction (pH) map of Kurubarahalli Microwatershed

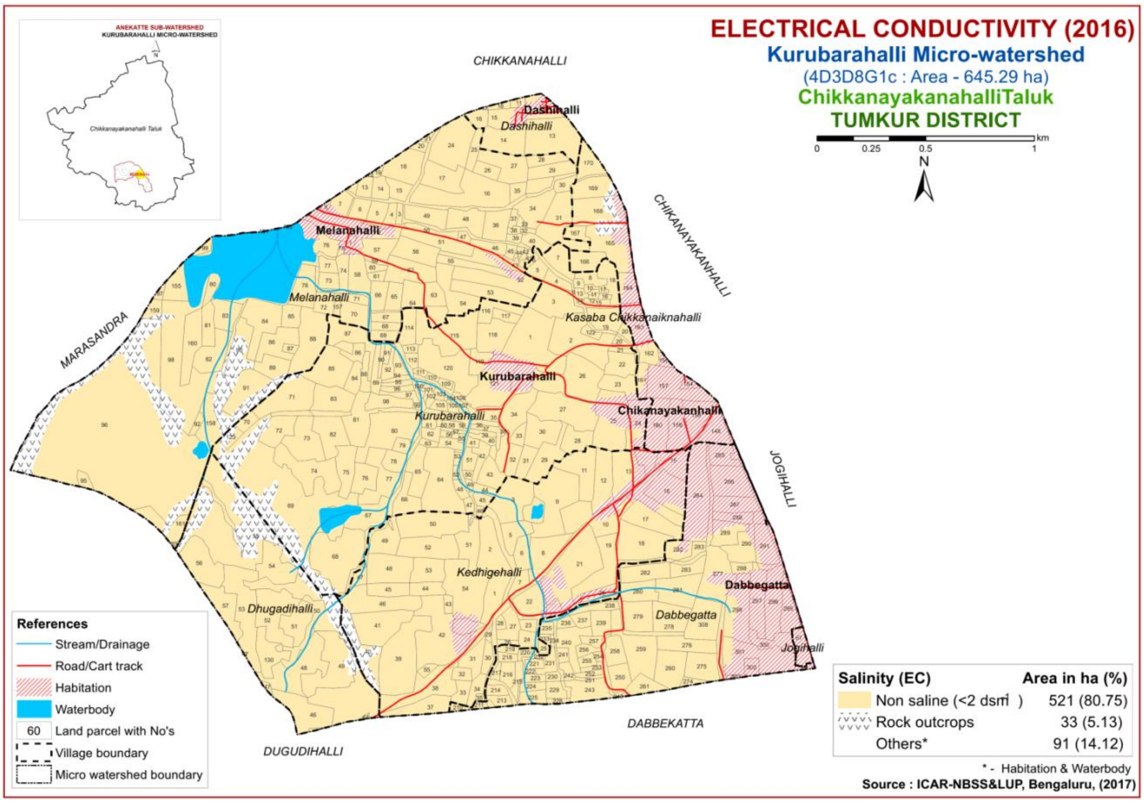


Fig. 6.2 Electrical Conductivity (EC) map of Kurubarahalli Microwatershed

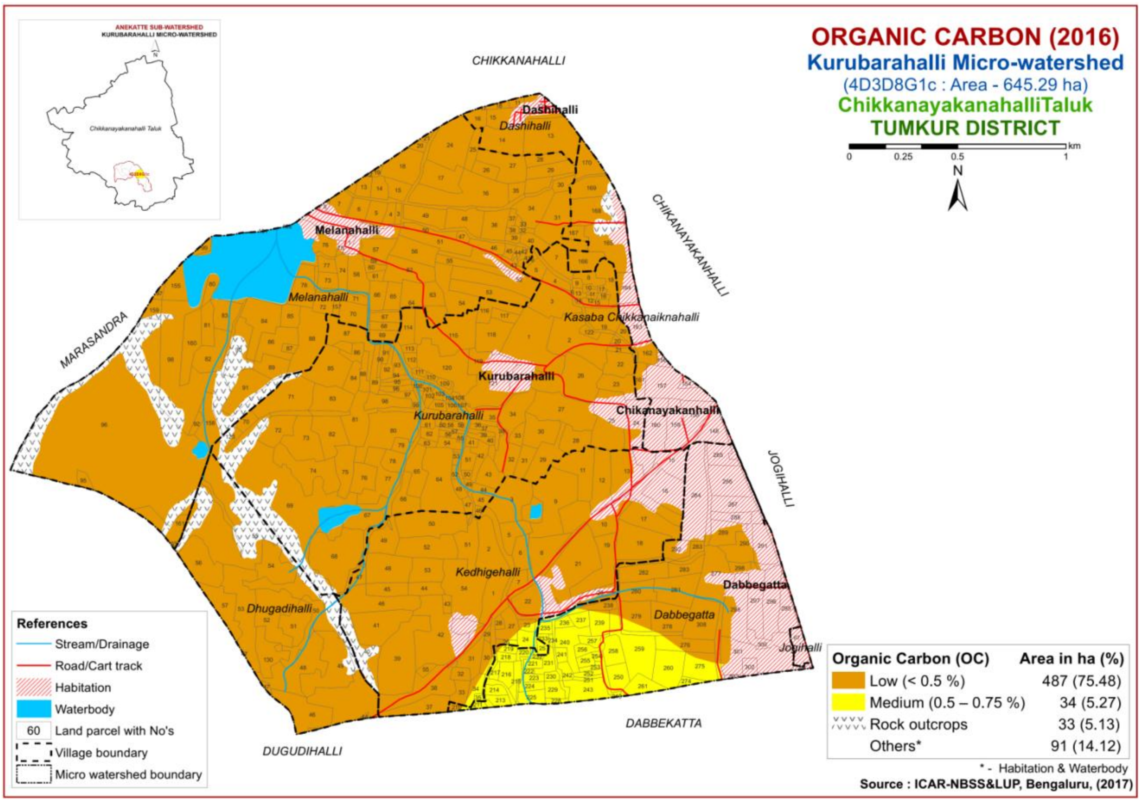


Fig. 6.3 Soil Organic Carbon map of Kurubarahalli Microwatershed

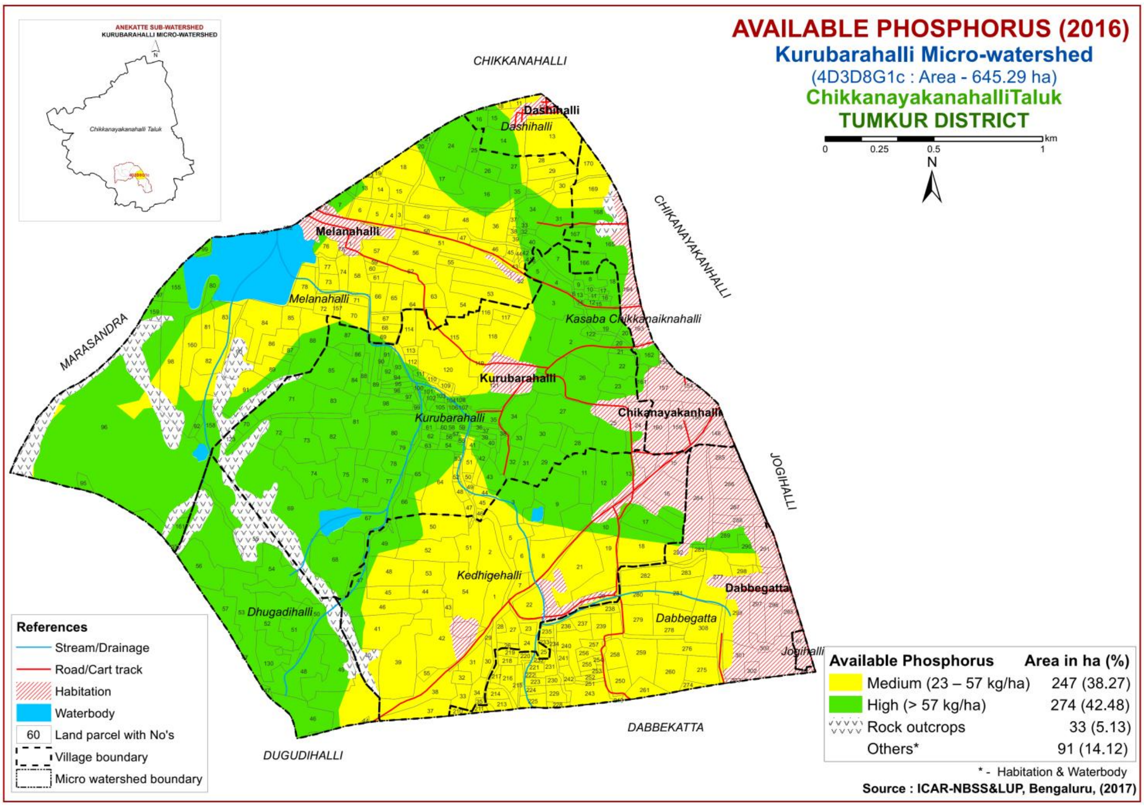


Fig. 6.4 Soil Available Phosphorus map of Kurubarahalli Microwatershed

6.4 Available Phosphorus

Available phosphorus content is medium (23-57 kg/ha) covering an area of about 247 ha (38%) and are distributed in the northern, northwestern, southern and southeastern part of the microwatershed, whereas high (>57 kg/ha) in an area of about 274 ha (42%) and are distributed in the major part of the microwaterhsed (Fig. 6.4).

6.5 Available Potassium

Available potassium content is medium (145-337 kg/ha) in an area of about 405 ha (63%) and are distributed in the major part of the microwatershed (Fig. 6.5). Low available potassium (<145 kg/ ha) occupy an area of 112 ha (17%) and are distributed in the southern, southwestern and small area in the northern part of the microwatershed, where as high available potassium (>337 kg/ha) occupy an area of 4 ha (<1%) and are distributed in a minor area in the western part of the microwatershed (Fig. 6.5).

6.6 Available Sulphur

An area of about 320 ha (50%) is medium (10-20 ppm) in available sulphur and are distributed in the major part of the microwatershed and high (>20 ppm) in an area of 117 ha (18%) and are distributed in the northern and southeastern part of the microwatershed. Low (<10 ppm) in available sulphur occupy an area of 84 ha (13%) and are distributed in the central and western part of the microwatershed (Fig. 6.6).

6.7 Available Boron

Available boron content is low (<0.5 ppm) in an area of 321 ha (50%) and are distributed in all parts of the microwatershed. An area of about 200 ha (31%) is medium (0.5-1.0 ppm) in available boron and are distributed in the southern, southeastern, southwestern, northern and northwestern part of the microwatershed (Fig. 6.7).

6.8 Available Iron

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

6.11 Available Zinc

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

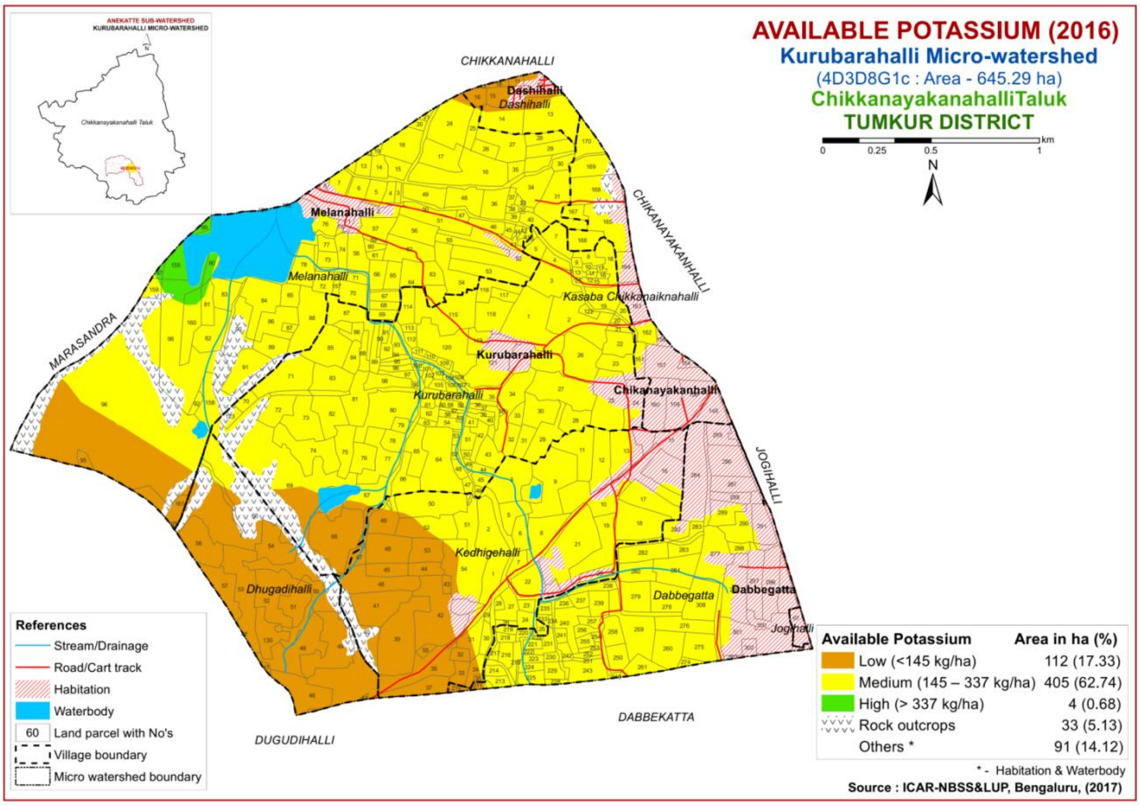


Fig. 6.5 Soil Available Potassium map of Kurubarahalli Microwatershed

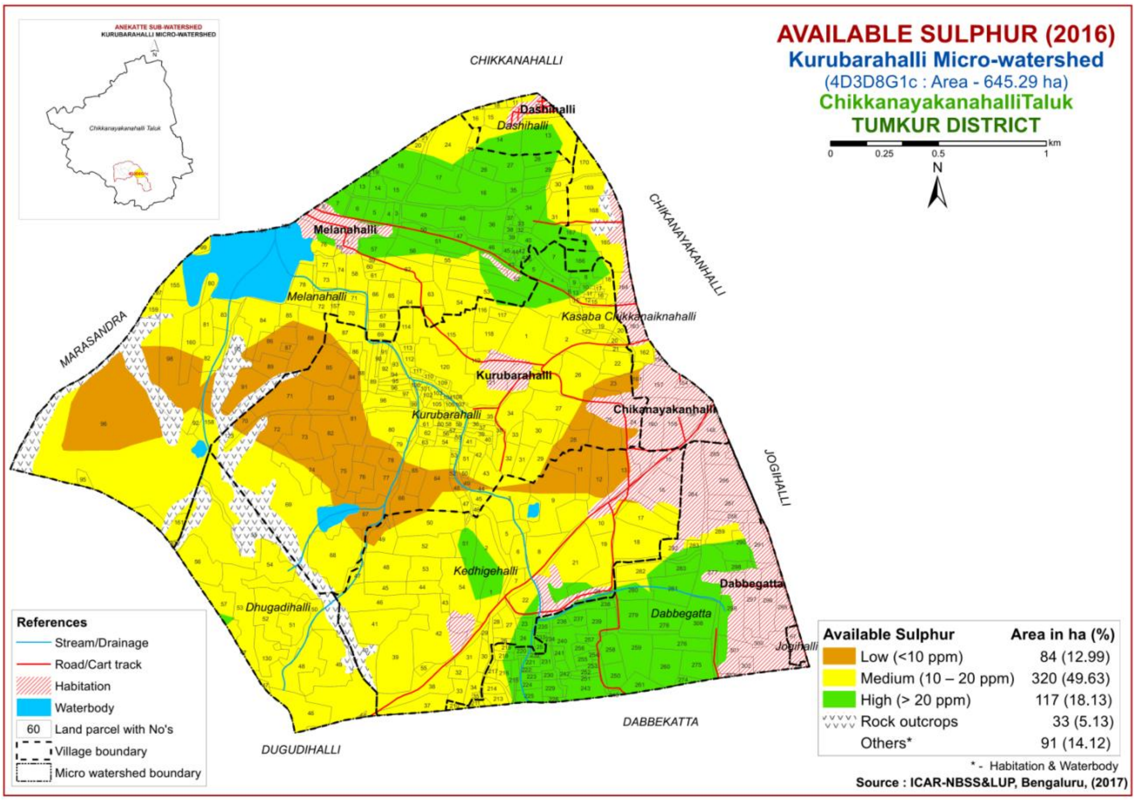


Fig. 6.6 Soil Available Sulphur map of Kurubarahalli Microwatershed

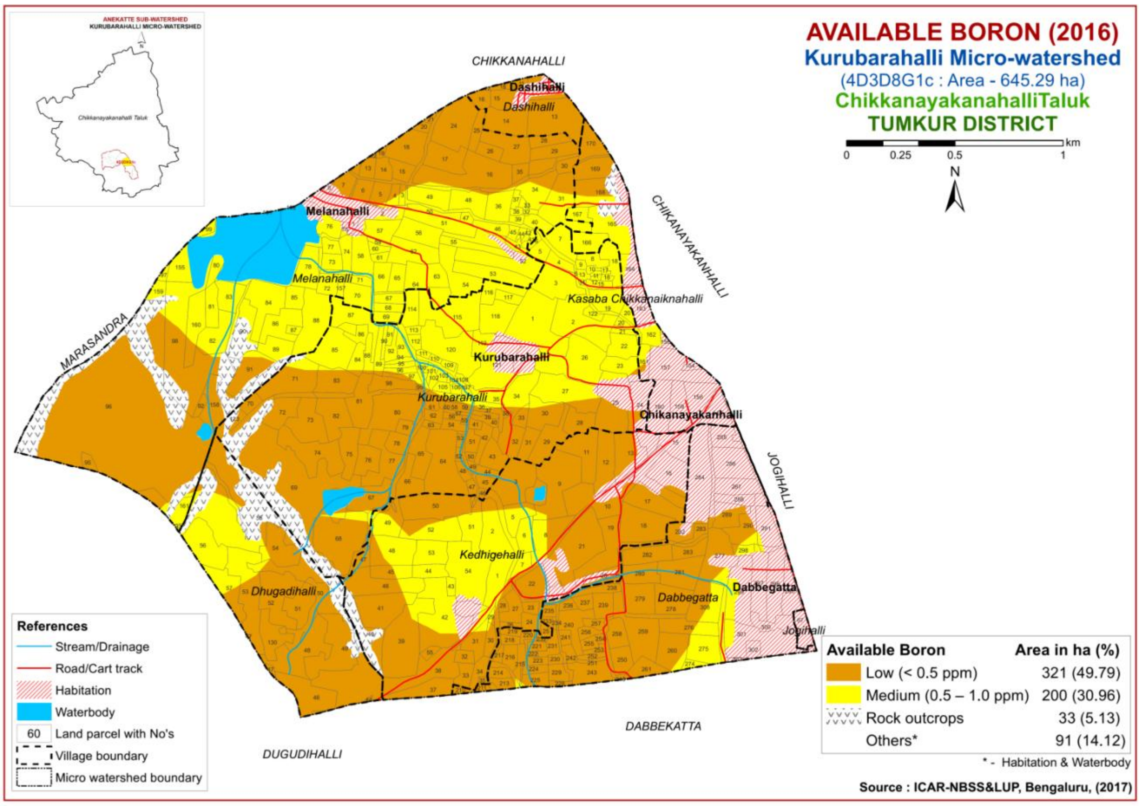


Fig. 6.7 Soil Available Boron map of Kurubarahalli Microwatershed

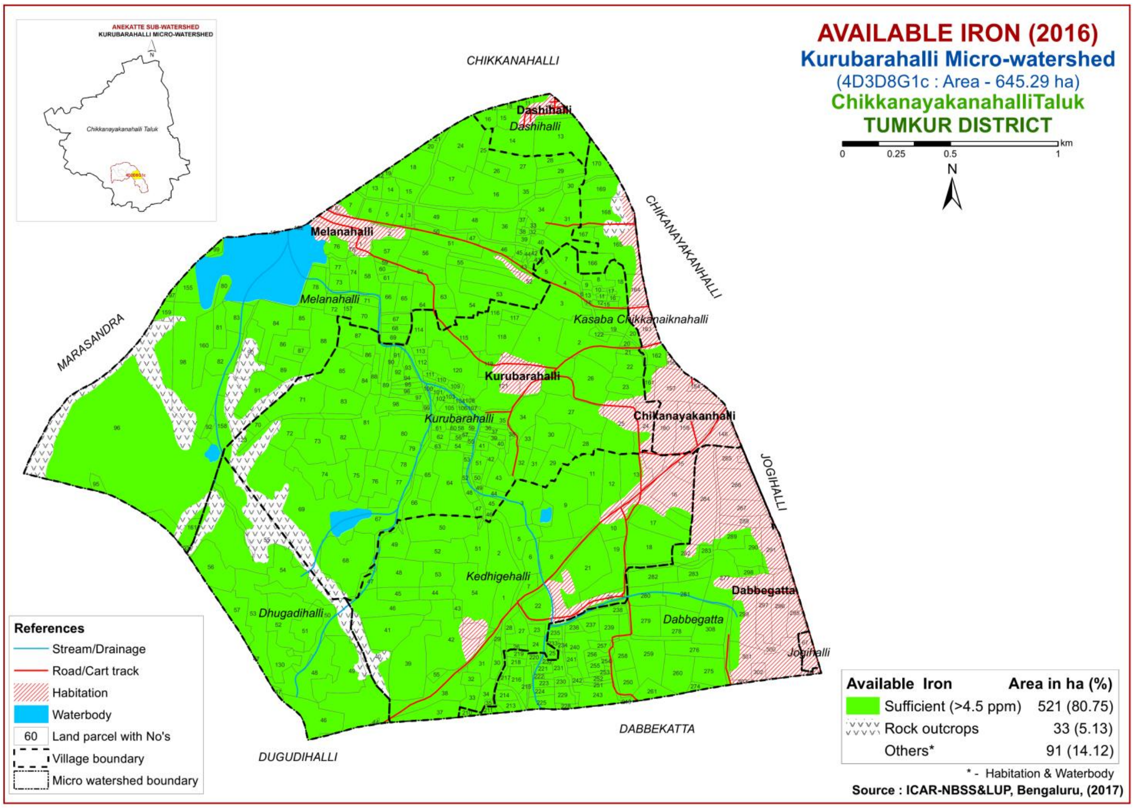


Fig. 6.8 Soil Available Iron map of Kurubarahalli Microwatershed

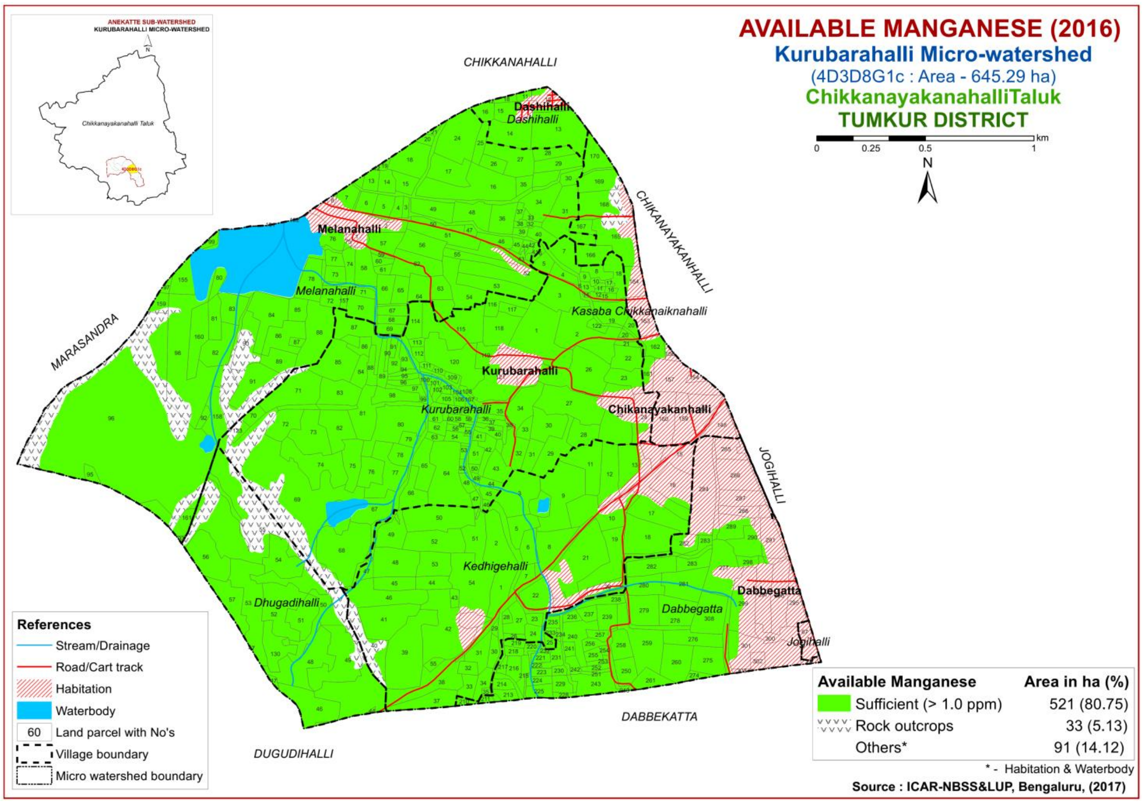


Fig. 6.9 Soil Available Manganese map of Kurubarahalli Microwatershed

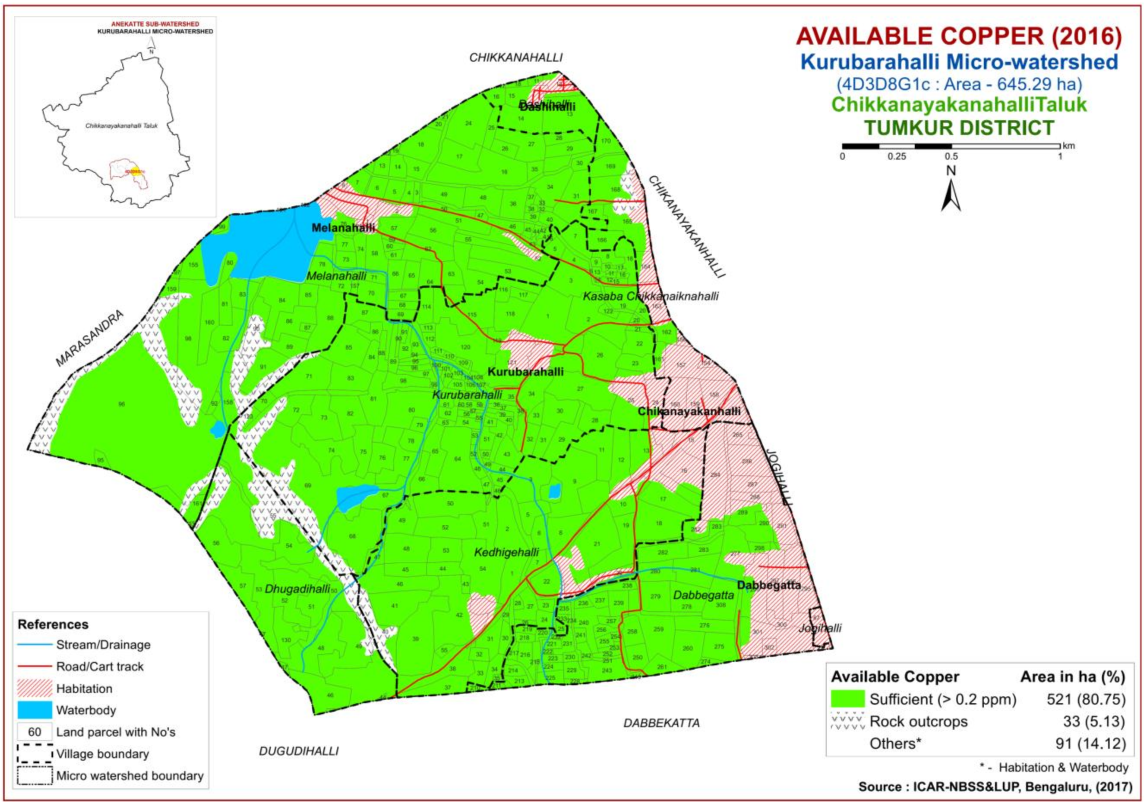


Fig. 6.10 Soil Available Copper map of Kurubarahalli Microwatershed

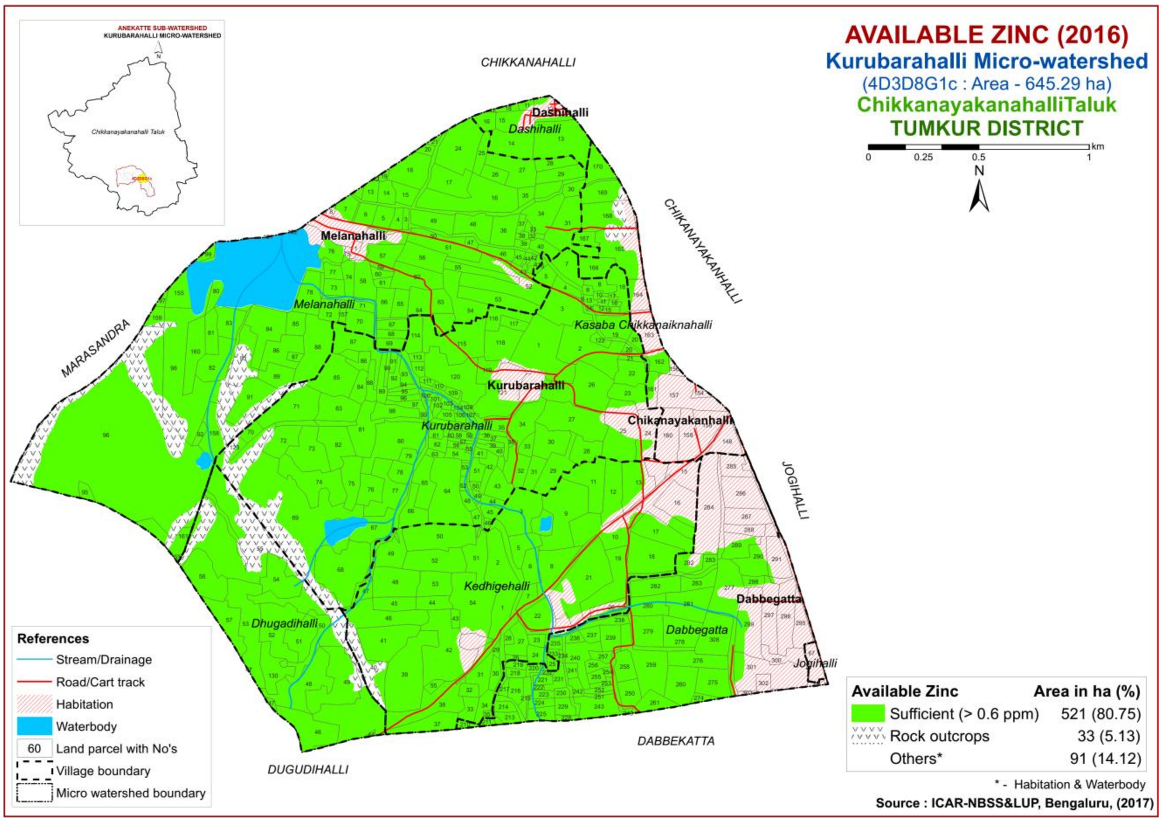


Fig. 6.11 Soil Available Zinc map of Kurubarahalli Microwatershed

Chapter 7

LAND SUITABILITY FOR MAJOR CROPS

The soil and land resource units (soil phases) of Kurubarahalli microwatershed were assessed for their suitability for growing food, fodder, fibre and other horticulture crops by following the procedure as outlined in FAO, 1976 and 1983. Crop requirements were developed for each of the crop from the available research data and also by referring to Naidu *et. al.* (2006) and Natarajan *et. al* (2015). The crop requirements were matched with the soil and land characteristics (Table 7.1) to arrive at the crop suitability. In FAO land suitability classification, two orders are recognized. Order S-Suitable and Order N-Not suitable. The orders have classes, subclasses and units. Order-S has three Classes, Class S1-Highly Suitable, Class S2-Moderately Suitable and Class S3-Marginally Suitable. Order N has two classes, N1-Currently not Suitable and N2-Permanently not Suitable. There are no subclasses within the Class S1 as they will have very minor or no limitations for crop growth. Classes S2, S3, N1 and N2 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 and 'w' for drainage and 'z' for calcareousness. These limitations are indicated as lower case letters to the class symbol. For example, moderately suitable land with the limitations of soil depth and erosion is 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 34 major annual and perennial crops were generated. The detailed information on the kind of suitability of each of the soil phase for the crops assessed are given village/ survey number wise for the microwatershed in Appendix-III.

7.1 Land Suitability for Sorghum (*Sorghum bicolor*)

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

An area of about 37 ha (6%) is highly suitable (Class S1) for growing sorghum and are distributed in the southern and western part of the microwatershed. An area of about 256 ha (40%) is moderately suitable (Class S2) for growing sorghum and are distributed in the central, northern, southern and eastern part the microwatershed.

Table 7.1 Soil-Site Characteristics of Kurubarahalli Microwatershed

Soil Map Units	Climate (P) (mm)	Growing period (Days)	Drainage Class	Soil depth(cm)	Soil texture		Gravelliness		AWC (mm/m)	Slope (%)	Erosion	pH	EC	ESP	CEC [Cmol $(p^+)kg^{-1}$]	BS (%)
					Surface	Sub-surface	Surface (%)	Sub-surface (%)								
LKRcB2g1	700	150	WD	50-75	sl	gsc	15-35	40-60	50-100	1-3	Moderate	8.18	0.30	4.51	12.19	100
LKRcB2g2	700	150	WD	50-75	sl	gsc	35-60	40-60	50-100	1-3	Moderate	8.18	0.30	4.51	12.19	100
LKRcC2g2	700	150	WD	50-75	sl	gsc	35-60	40-60	50-100	3-5	Moderate	8.18	0.30	4.51	12.19	100
KGHcC3g2	700	150	WD	50-75	sl	scl	35-60	15-35	100-150	3-5	Severe	-	-	-	-	-
HDHcB2g1	700	150	WD	75-100	sl	gsc-gc	15-35	>35	50-100	1-3	Moderate	6.54	0.07	7.11	5.84	84
GHTcB2g1	700	150	WD	75-100	sl	gscl	15-35	15-35	100-150	1-3	Moderate	5.70	0.06	4.10	3.17	73
GHTcB2g2	700	150	WD	75-100	sl	gscl	35-60	15-35	100-150	1-3	Moderate	5.70	0.06	4.10	3.17	73
BDGcC2g2	700	150	WD	75-100	sl	gc	35-60	35-60	<50	1-5	Moderate	6.24	0.06	0.35	3.76	52
BDGcC3g3	700	150	WD	75-100	sl	gc	60-80	35-60	<50	1-5	Severe	6.24	0.06	0.35	3.76	52
BDGiB1	700	150	WD	75-100	sc	gc	-	35-60	<50	1-3	Slight	6.24	0.06	0.35	3.76	52
JDGiB2	700	150	WD	100-150	sc	sc-c	-	<15	>200	1-3	Moderate	-	-	-	-	-
BPRcB2g1	700	150	WD	100-150	sl	gsc-gc	15-35	>35	51-100	1-3	Moderate	6.64	0.03	0.51	5.45	63
BPRcB2g2	700	150	WD	100-150	sl	gsc-gc	35-60	>35	51-100	1-3	Moderate	6.64	0.03	0.51	5.45	63
BPRcC2g2	700	150	WD	100-150	sl	gsc-gc	35-60	>35	51-100	3-5	Moderate	6.64	0.03	0.51	5.45	63
BPRhB1g1	700	150	WD	100-150	scl	gsc-gc	15-35	>35	51-100	1-3	Slight	6.64	0.03	0.51	5.45	63
LGDiB1	700	150	WD	100-150	sc	c	-	<15	150-200	1-3	Slight	8.07	0.25	0.58	58	-
LGDiB1g1	700	150	WD	100-150	sc	c	15-35	<15	150-200	1-3	Slight	8.07	0.25	0.58	58	-
NGPmB1	700	150	WD	100-150	c	gsc-gc	-	>35	51-100	1-3	Slight	-	-	-	-	-
NGPmB1g1	700	150	WD	100-150	c	gsc-gc	15-35	>35	51-100	1-3	Slight	-	-	-	-	-
TDGhB1	700	150	WD	>150	scl	Sl, scl, sc	-	-	101-150	1-3	Slight	7.02	0.05	1.44	5.77	100

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

They have minor limitations of gravelliness and rooting condition, texture and excess salt. Marginally suitable lands (Class S3) for growing sorghum occupy an area of about 203 ha (31%) and occur in the northeastern, southwestern and western part of the microwatershed and have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwaterhsed with severe limitations of gravelliness and topography.

Table 7.2 Crop suitability criteria for Sorghum

Crop requirement		Rating			
Soil –site characteristics	**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N)**
Slope	%	2-3	3-8	8-15	>15
LGP	Days	120-150	120-90	<90	
Soil drainage	Class	Well to mod. Well drained	Imperfect	Poorly/ excessively	V.poorly
Soil reaction	pH	6.0-8.0	5.5-5.9,8.1-8.5	<5.5,8.6-9.0	>9.0
Surface soil texture	Class	C, cl, sicl, sc	l, sil, sic	Sl, ls	S, fragmental skeletal
Soil depth	Cm	100-75	50-75	30-50	<30
Gravel content	% vol.	5-15	15-30	30-60	>60
Salinity (EC)	dS m^{-1}	2-4	4-8	8-10	>10
Sodicity (ESP)	%	5-8	8-10	10-15	>15

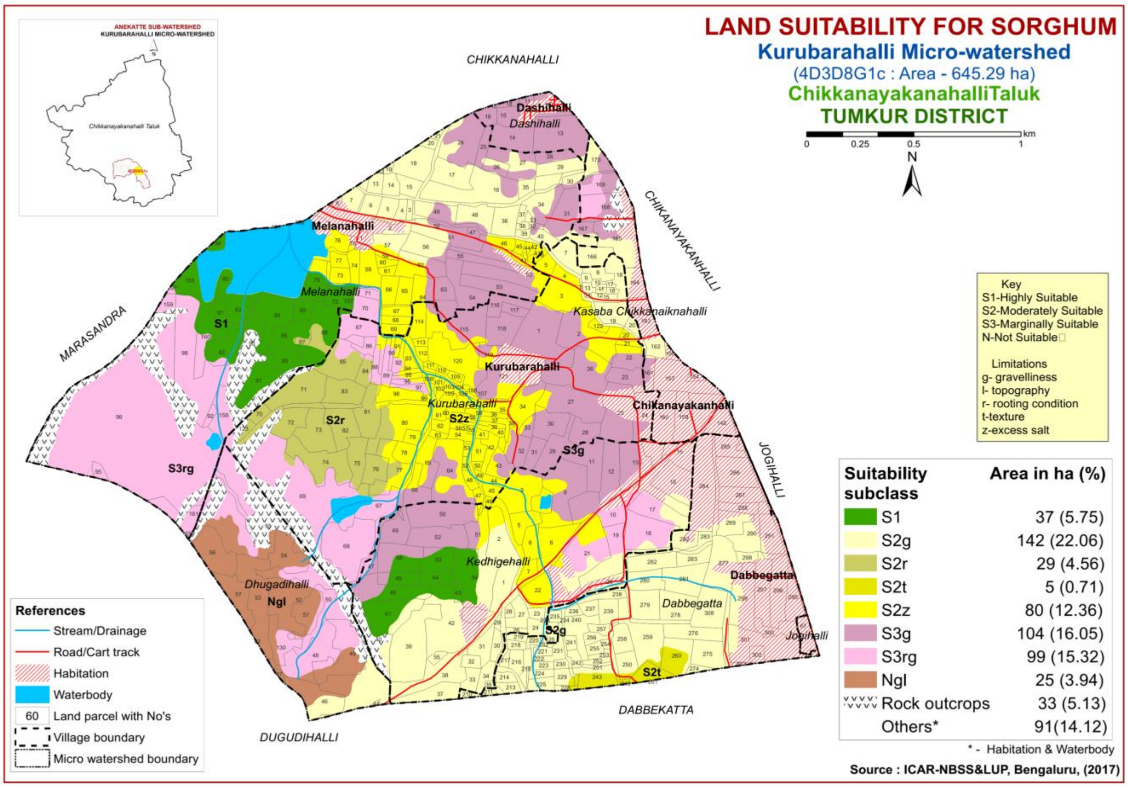


Fig. 7.1 Land Suitability map of Sorghum

7.2 Land Suitability for Fodder Sorghum (*Sorghum bicolor*)

Fodder Sorghum is one of the major fodder crop grown in South Karnataka in Tumakuru, Chikkaballapur, Mysore, Mandya, Bengaluru Rural and Kolar districts. The crop requirements for growing Fodder sorghum (Table 7.3) 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 7.2.

Table 7.3 Crop suitability criteria for Fodder Sorghum

Crop requirement		Rating			
Soil –site characteristics	**Unit**	**Highly suitable(S1)**	**Moderately suitable(S2)**	**Marginally suitable(S3)**	**Not suitable(N)**
Slope	%	2-3	3-8	8-15	>15
LGP	Days	120-150	120-90	<90	
Soil drainage	Class	Well to mod. Well drained	Imperfect	Poorly/ excessively	V.poorly
Soil reaction	pH	6.0-8.0	5.5-5.9,8.1-8.5	<5.5,8.6-9.0	>9.0
Surface soil texture	Class	C, cl, sicl, sc	l, sil, sic	Sl, ls	S,fragmental skeletal
Soil depth	Cm	100-75	50-75	30-50	<30
Gravel content	% vol.	5-15	15-30	30-60	>60
Salinity (EC)	dS m^{-1}	2-4	4-8	8-10	>10
Sodicity (ESP)	%	5-8	8-10	10-15	>15

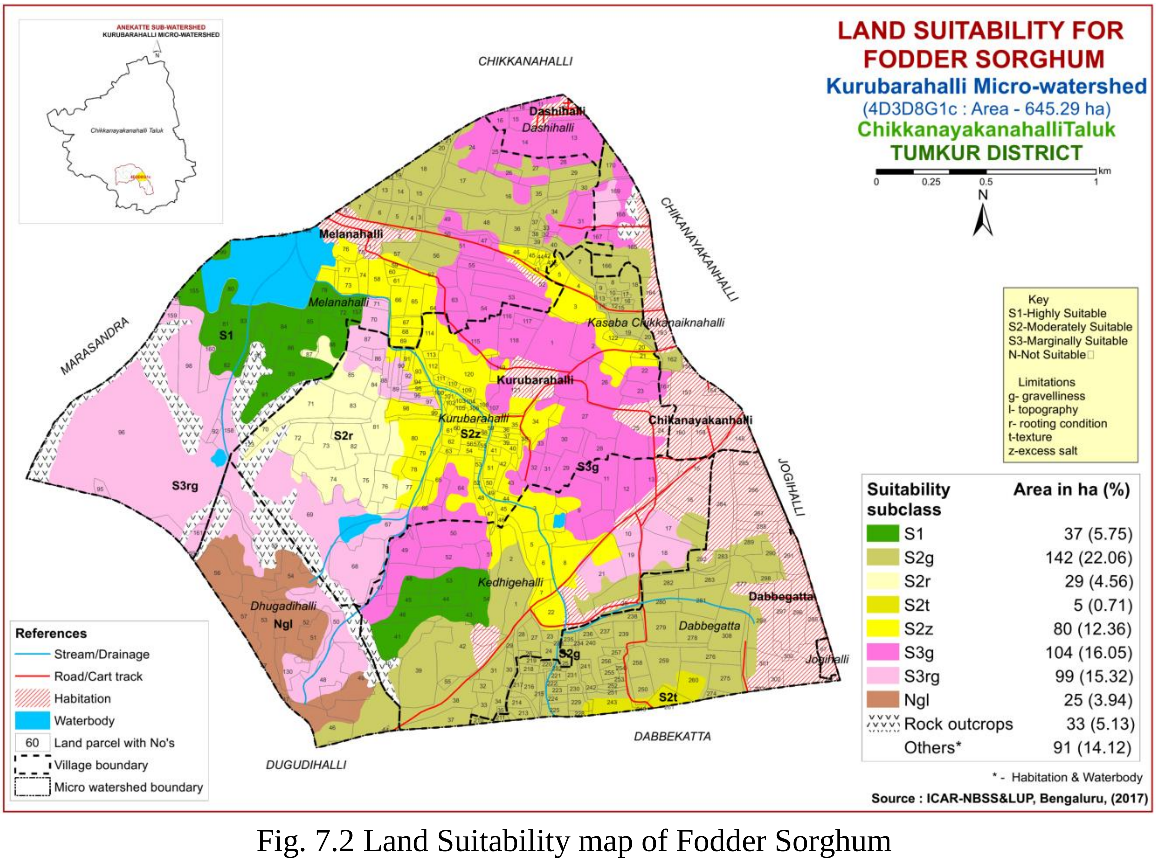


Fig. 7.2 Land Suitability map of Fodder Sorghum

An area of about 37 ha (6%) is highly suitable (Class S1) for growing fodder sorghum and are distributed in the southern and western part the microwatershed. An area of about 256 ha (40%) is moderately suitable (Class S2) for growing fodder sorghum and are distributed in the central, northern, southern and eastern part of the microwatershed. They have minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable lands (Class S3) for growing fodder sorghum occupy an area of about 203 ha (31%) and occur in the northeastern, southwestern and western part of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwaterhsed with severe limitations of gravelliness and topography.

7.3 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 7.4) 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 7.3.

An area of about 37 ha (6%) is highly suitable (Class S1) for growing maize and are distributed in the southern and western part of the microwatershed, whereas moderately suitable (Class S2) lands cover of about 171 ha (27%) are occur in the southern and northern part of the microwatershed. They have minor limitations of soil gravelliness and rooting condition. Marginally suitable lands (Class S3) for growing maize occupy major area of about 288 ha (44%) and occur in all parts of the microwatershed. They have moderate limitations of soil gravelliness, texture, rooting condition and excess salt. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.4 Crop suitability criteria for Maize

Crop requirement		Rating			
Soil–site characteristics	**Unit**	**Highly suitable(S1)**	**Moderately suitable(S2)**	**Marginally suitable(S3)**	**Not suitable(N)**
Slope	%	<3	3.5	5-8	
LGP	Days	>100	100-80	60-80	
Soil drainage	Class	Well drained	Mod. to imperfectly	Poorly/ excessively	V.poorly
Soil reaction	pH	5.5-7.5	7.6-8.5	8.6-9.0	
Surface soil texture	Class	l, cl, scl, sil	Sl, sicl, sic	C(s-s), ls	S,fragmental
Soil depth	Cm	>75	50-75	25-50	<25
Gravel content	% vol.	<15	15-35	35-50	>50
Salinity (EC)	dS m^{-1}	<1.0	1.0-2.0	2.0-4.0	
Sodicity(ESP)	%	<10	10-15	>15	

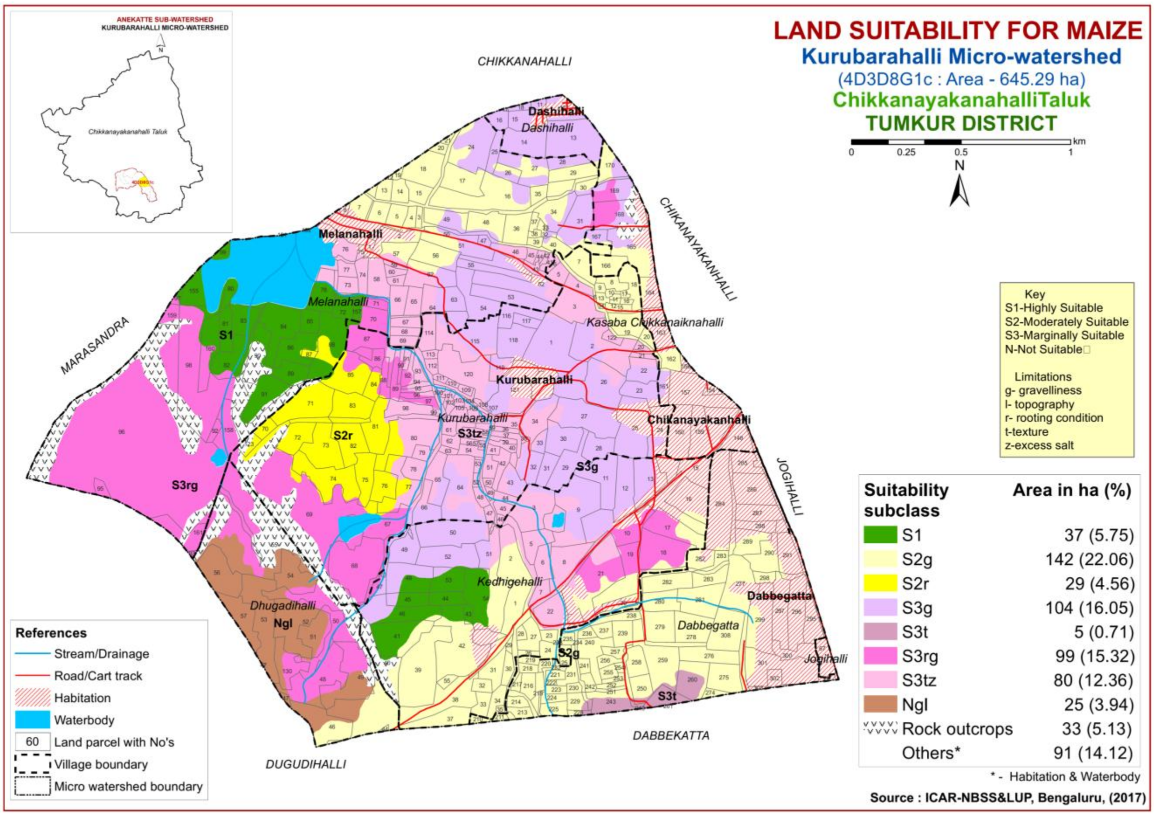


Fig. 7.3 Land Suitability map of Maize

7.4 Land Suitability for Upland Paddy (*Oryaza sativa*)

Upland paddy is one of the most important food crop grown in an area of 13.26 lakh ha in some parts of the State under rainfed condition. The crop requirements for growing Upland paddy (Table 7.5) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing Upland paddy was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.4.

An area of about 37 ha (6%) is highly suitable (Class S1) for growing Upland paddy and are distributed in the southern and western part of the microwatershed. An area of about 356 ha (55%) is moderately suitable (Class S2) for growing upland paddy and are distributed in all parts of the microwatershed. They have minor limitations gravelliness, rooting condition, texture and excess salt. An area of about 104 ha (16%) marginally suitable (Class S3) and are distributed in the central, northern and northeastern part of the microwatershed with moderate limitations of gravelliness, texture and excess salt. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.5 Land suitability criteria for Upland paddy

Crop requirement		Rating			
Soil –site characteristics	**Unit**	**Highly suitable(S1)**	**Moderately suitable(S2)**	**Marginally suitable(S3)**	**Not suitable(N)**
Slope	%	1-3	1-3	3-5	>5
Soil drainage	class	Well to mod.	poorly	Very poorly	
Soil reaction	pH	5.5-6.5	6.5-7.3,4.5-5.4	7.3-8.4	>8.4
Surface soil texture	Class	C,sic,cl,sicl,sc	Scl, sil, l	Sl, ls	S
Soil depth	Cm	>75	50-75	25-50	<25
Gravel content	% vol.	<15	15-35	35-60	60-80

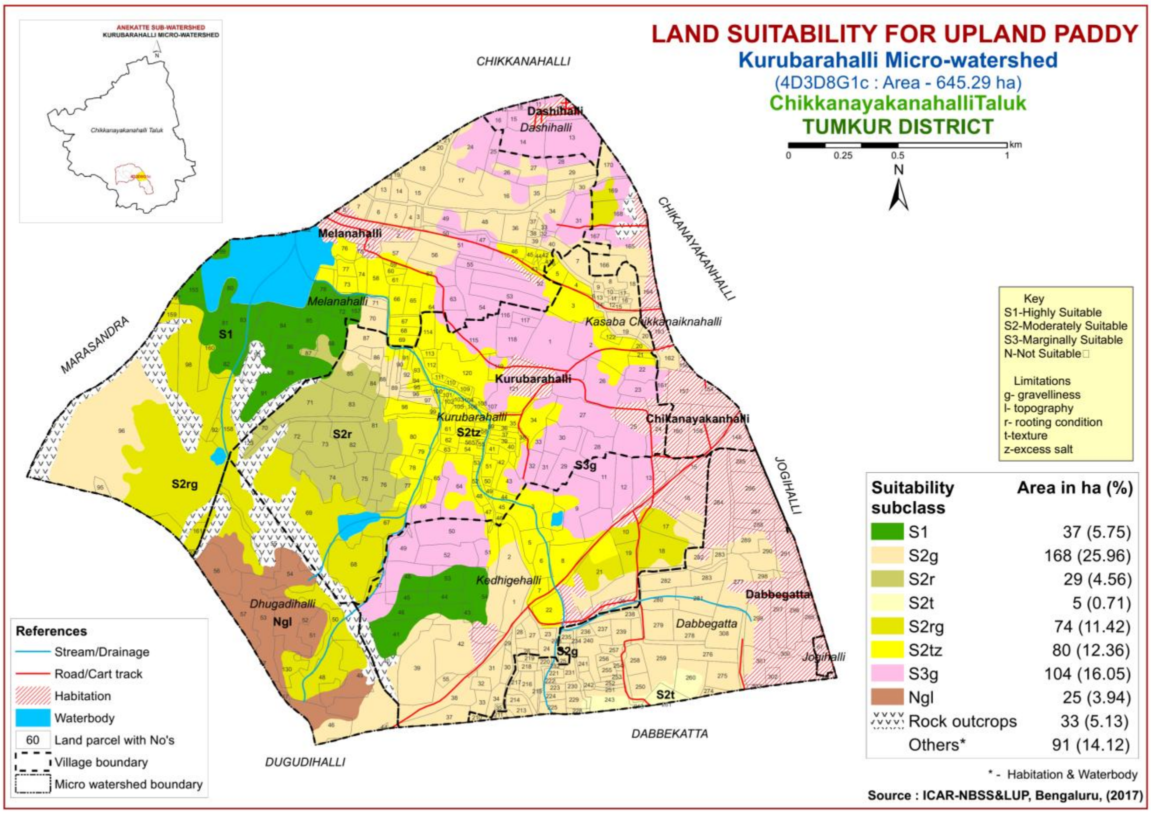


Fig. 7.4 Land Suitability map of Upland paddy

7.5 Land Suitability for Finger millet (*Eleusine coracana*)

Finger millet is one of the most important food crop grown in an area of 7.08 lakh ha in almost all the districts of south Karnataka. The crop requirements for growing Finger millet (Table 7.6) were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing Finger millet was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.5.

An area of about 37 ha (6%) is highly suitable (Class S1) for growing finger millet and are distributed in the southern and western part of the microwatershed. An area of about 271 ha (42%) is moderately suitable (Class S2) for growing finger millet and are distributed in the southern, western and northern part of the microwatershed. They have minor limitations of gravelliness and rooting condition. Marginally suitable lands (Class

S3) for growing finger millet occupy an area of about 189 ha (29%) and occur in the central and northern part of the microwatershed. They have moderate limitations of gravelliness, texture and excess salt. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table7.6 Land suitability criteria for Finger millet

Crop requirement		Rating			
Soil –site characteristics	Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Slope	%	<3	3-5	5-10	>10
LGP	Days	>110	90-110	60-90	<60
Soil drainage	class	Well to mod.drained	Imperfectly drained	Poorly/ excessively	V.poorly
Soil reaction	pH	5.5-7.3	7.3-8.4	8.4-9.0	>9.0
Surface soil texture	Class	l, sil, sl, cl, sicl, scl	sic, c, sc	ls, s,c >60%	
Soil depth	Cm	>75	50-75	25-50	<25
Gravel content	% vol.	<15	15-35	35-60	>60
Salinity (ECe)	dS m^{-1}	<1.0	1.0-2.0	2.0-4.0	
Sodicity ESP)	%	<10	10-15	15-25	>25

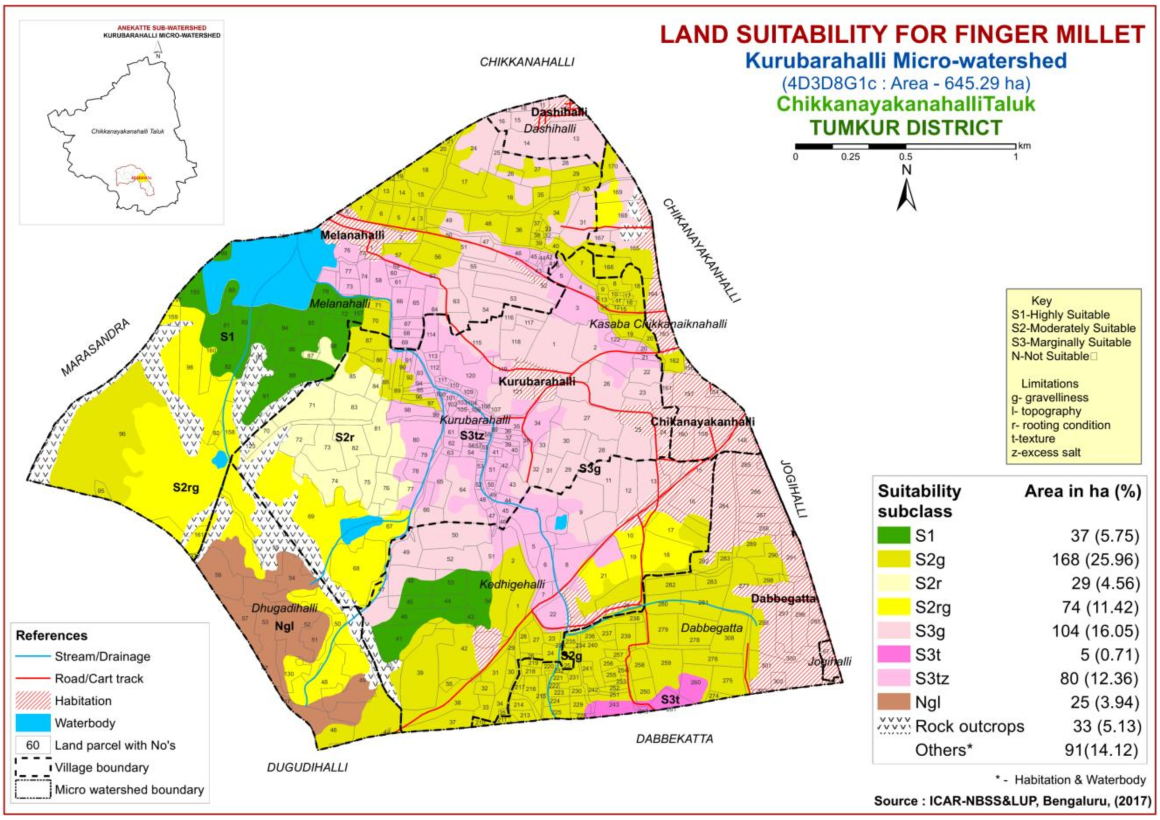


Fig. 7.5 Land Suitability map of Finger millet

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

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

Table 7.7 Land suitability criteria for Red gram

Crop requirement		Rating			
Soil –site characteristics	**Unit**	**Highly suitable(S1)**	**Moderately suitable(S2)**	**Marginally suitable(S3)**	**Not suitable(N)**
Slope	%	<3	3-5	5-10	>10
LGP	Days	>210	180-210	150-180	<150
Soil drainage	Class	Well drained	Mod. Well drained	Imperfectly drained	Poorly drained
Soil reaction	pH	6.5-7.5	5.0-6.5,7.6-8.0	8.0-9.0	>9.0
Sub Surface soil texture	Class	l, scl, sil, cl, sl	sicl, sic, c(m)	ls	-
Soil depth	Cm	>100	75-100	50-75	<50
Gravel content	% vol.	<15	15-35	3-60	>60
Salinity (EC)	dS m^{-1}	<1.0	1.0-2.0	>2.0	
Sodicity (ESP)	%	<10	10-15	>15	

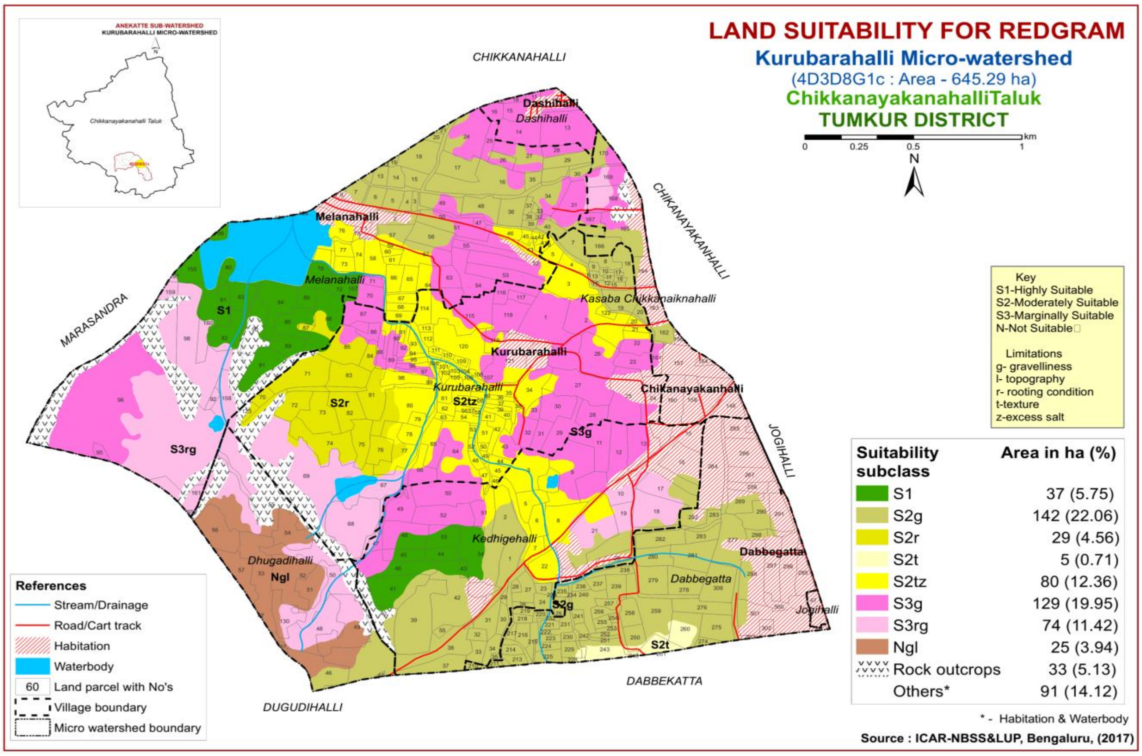


Fig. 7.6 Land Suitability map of Redgram

An area of about 37 ha (6%) is highly suitable (Class S1) for growing redgram and are distributed in the southern and western part of the microwatershed. An area of about 256 ha (40%) is moderately suitable (Class S2) for growing redgram and are distributed in the central, southern and northern part of the microwatershed. They have minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable lands (Class S3) for growing redgram occupy major area of about 203 ha (31%) and occur in the eastern, western, central and northern part of the microwatershed. They have moderate limitations of soil gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.7 Land suitability for Horsegram (*Macrotyloma uniflorum*)

Horsegram is one of the most important pulse crop grown in an area of 1.81 lakh ha in almost all the districts of the State. The crop requirements for growing horsegram were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing horsegram (Table 7.8) was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.7.

An area of about 37 ha (6%) is highly suitable (Class S1) for growing horsegram and are distributed in the major part of the microwatershed. An area of about 385 ha (60%) is moderately suitable (Class S2) for growing horsegram and are distributed in all parts of the microwatershed. They have minor limitations of gravelliness, rooting condition, texture and excess salt. An area of about 74 ha (11%) is marginally suitable (Class S3) for growing horsegram and are distributed in the western and eastern part of the microwatershed with moderate limitations of rooting condition and gravelliness. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.8 Land suitability criteria for Horse gram

Crop requirement		Rating			
Soil –site characteristics	**Unit**	**Highly suitable (S1)**	**Moderately suitable(S2)**	**Marginally suitable(S3)**	**Not suitable(N)**
Slope	%	<3	3-5	5-10	>10
LGP	Days				
Soil drainage	Class	Well drained/ mod.well drained	imperfectly drained	Poorly drained	Very Poorly drained
Soil reaction	pH	6.0-8.5	8.5-9.0, 5.5-5.9	9.1-9.5,5.0-5.4	>9.5
Surface soil texture	Class	l, sl, scl, cl, sc	Ls, sic, sicl, c, ls	Heavy clays (>60%)	-
Soil depth	Cm	50-75	25-50	<25	-
$CaCO_3$ in root zone	% vol.	<15	15-25	25-30	>30
Salinity (ECe)	dS m^{-1}	<1.0	1.0-2.0	>2.0	
Sodicity (ESP)	%	<10	10-15	>15	-

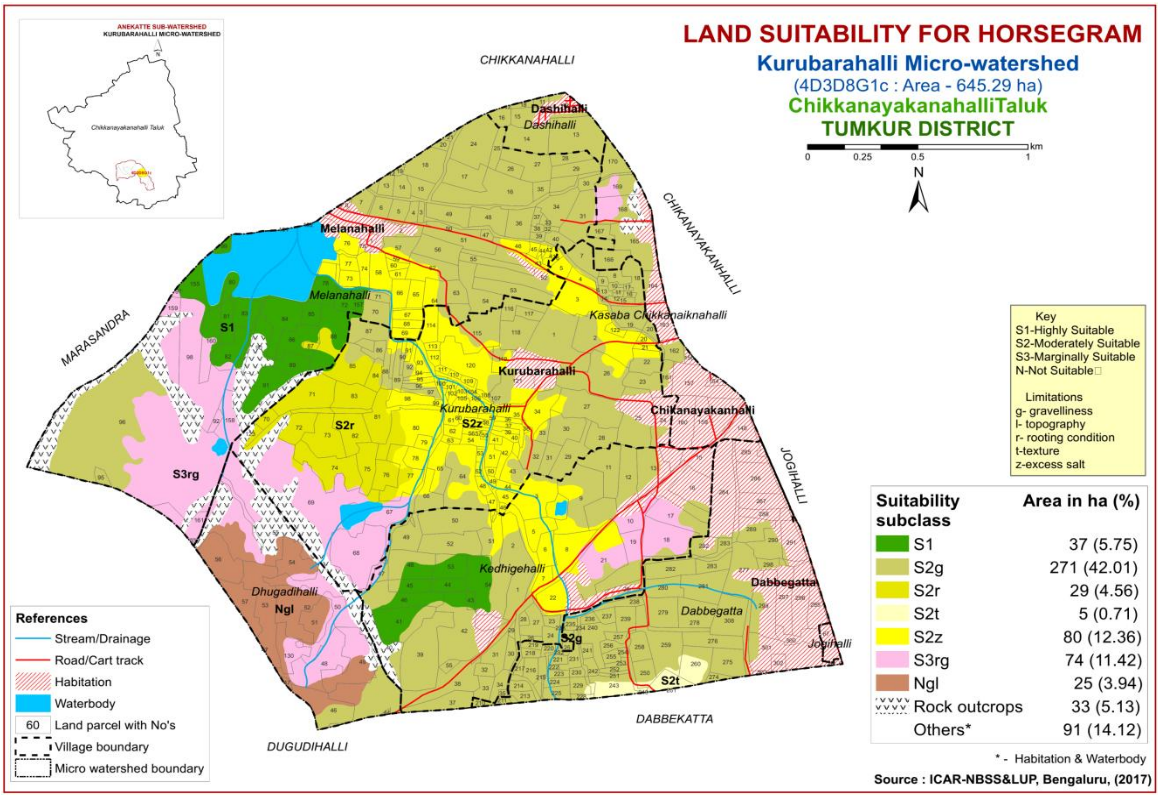


Fig. 7.7 Land Suitability map of Horsegram

7.8 Land suitability for Field Bean (*Dolichos lablab*)

Field Bean is one of the most important pulse crop grown in an area of 0.68 lakh ha in almost all the districts of the State. The crop requirements (Table 7.9) for growing field bean were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing field bean was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in the Figure 7.8.

Table 7.9 Land suitability criteria for Field Bean

Crop requirement		Rating			
Soil –site characteristics	**Unit**	**Highly suitable(S1)**	**Moderately suitable (S2)**	**Marginally suitable(S3)**	**Not suitable(N)**
Slope	%	<3	3-5	5-10	>10
LGP	Days	>120	90-120	70-90	<70
Soil drainage	Class	Well drained/ mod.welldrained	imperfectly drained	Poorly drained	V.Poorly drained
Soil reaction	pH	6.0-8.5	8.5-9.0,5.5-5.9	9.1-9.5,5.0-5.4	>9.5
Sub Surface soil texture	Class	l, sl, scl, cl, sc	sic, sicl, c	Heavy clays (>60%), ls	S
Soil depth	Cm	>75	50-75	25-50	<25
$CaCO_3$ in root zone	% vol.	<15	15-35	35-50	>50
Salinity (EC)	dS m^{-1}	<1.0	1.0-2.0	>2.0	
Sodicity (ESP)	%	<10	10-15	15-20	>20

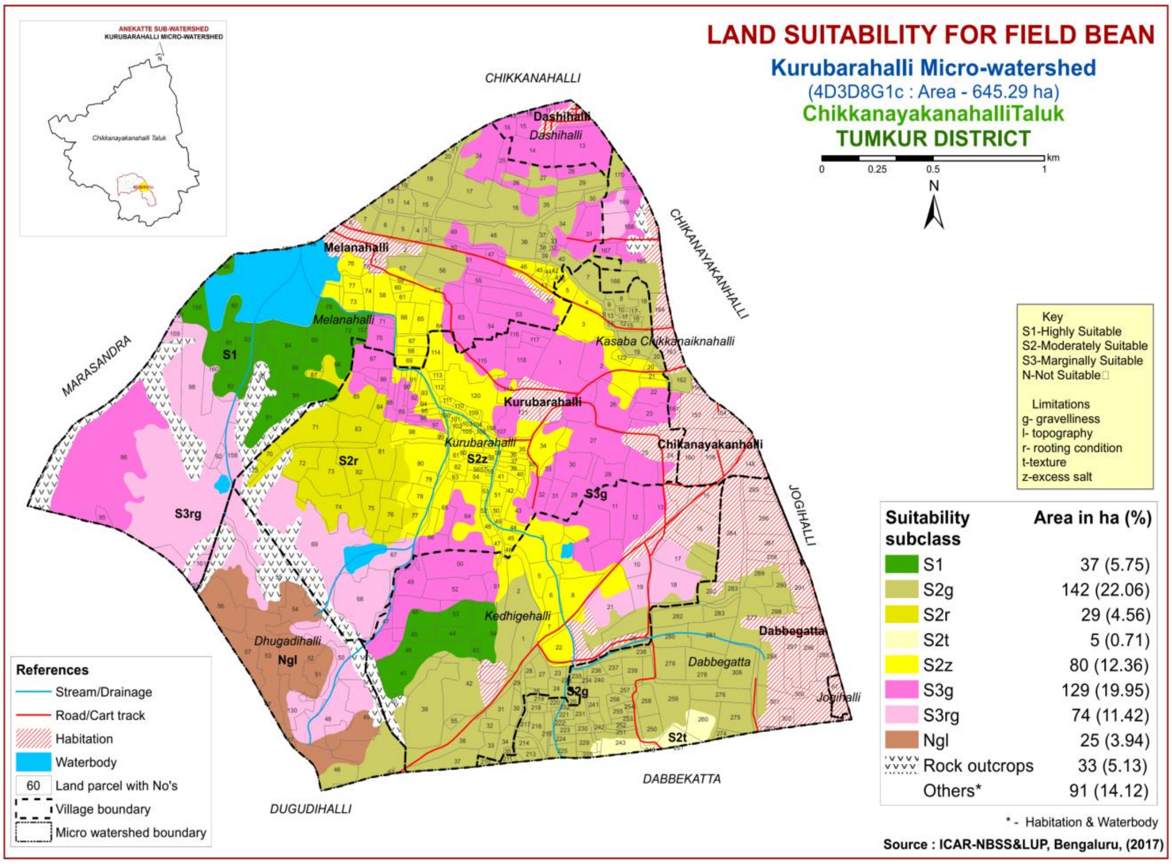


Fig. 7.8 Land Suitability map of Field Bean

An area of about 37 ha (6%) is highly suitable (Class S1) for growing field bean and are distributed in the southern and western part of the microwatershed. An area of about 256 ha (40%) is moderately suitable (Class S2) for growing field bean and are distributed in all parts of the microwatershed. They have minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable lands (Class S3) for growing field bean occupy an area of about 203 ha (31%) and occur in the central, northern, western and small area in the eastern part of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7. 9 Land Suitability for Cowpea (*Vigna radiata*)

Cowpea is one of the most important pulse crop grown in an area of 0.80 lakh ha in almost all the districts of the State. The crop requirements were matched with the soil-site characteristics (Table 7.1) for growing cowpea and a land suitability map for growing cowpea was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in (Fig. 7.9.).

An area of about 37 ha (6%) is highly suitable (Class S1) for growing Cowpea and are distributed in the southern and western part of the microwatershed. An area of about 256 ha (40%) is moderately suitable (Class S2) for growing Cowpea and are distributed in the central, northern and southern part of the microwatershed. They have minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable lands (Class S3) for growing cowpea occupy an area of about 203 ha (31%) and occur in the central, northern, western and small area in the eastern part of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

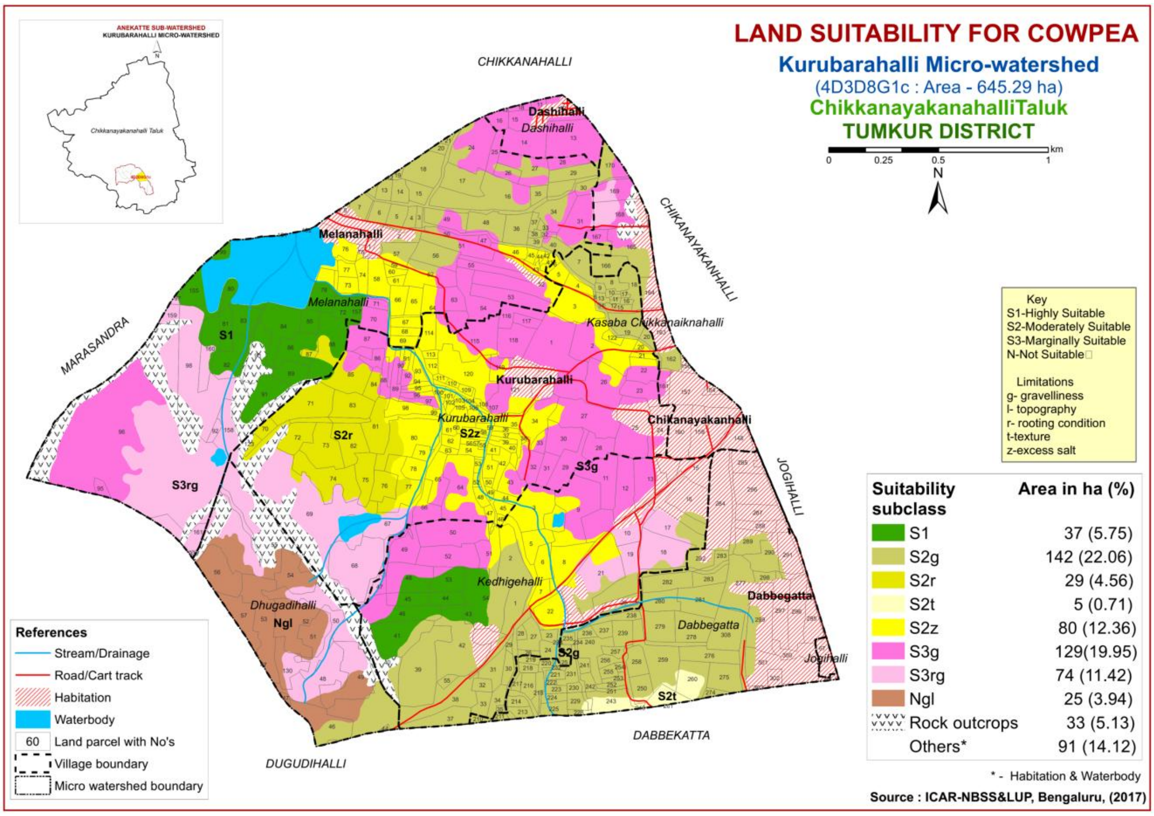


Fig. 7.9 Land Suitability map of Cowpea

7.10 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 7.10) 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 7.10.

An area of about 37 ha (6%) is highly suitable (Class S1) for growing groundnut and are distributed in the southern and western part of the microwatershed. An area of about 374 ha (58%) is moderately suitable (Class S2) for groundnut and are distributed in all parts of the microwatershed. They have minor limitations of gravelliness, rooting condition and texture. Marginally suitable lands (Class S3) for growing groundnut occupy an area of about 85 ha (13%) and are distributed in the central, northern and southeastern part of the microwatershed. They have moderate limitations of texture and excess salt. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.10 Crop suitability criteria for Groundnut

Crop requirement		Rating			
Soil–site characteristics	**Unit**	**Highly suitable(S1)**	**Moderately suitable(S2)**	**Marginally suitable(S3)**	**Not suitable(N)**
Slope	%	<3	3-5	5-10	>10
LGP	Days	100-125	90-105	75-90	
Soil drainage	Class	Well drained	Mod. Well drained	Imperfectly drained	Poorly drained
Soil reaction	pH	6.0-8.0	8.1-8.5, 5.5-5.9	>8.5, <5.5	
Surface soil texture	Class	l, cl,sil,sc,sicl	sc, sic, c,	s,ls, sl,c(>60%)	S,fragmental
Soil depth	Cm	>75	50-75	25-50	<25
Gravel content	%vol.	<35	35-50	>50	
$CaCO_3$ in root zone	%	high	Medium	Low	
Salinity (EC)	dS m^{-1}	<2.0	2.0-4.0	4.0-8.0	
Sodicity (ESP)	%	<5	5-10	>10	

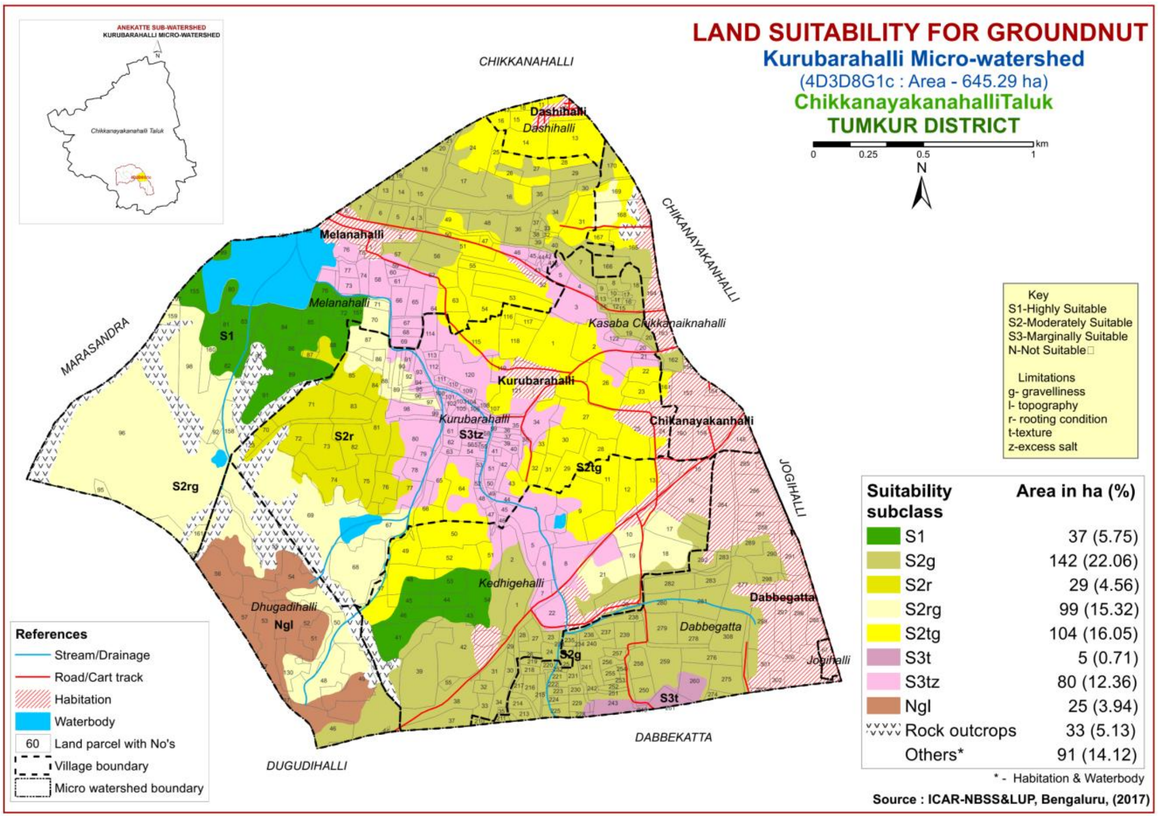


Fig. 7.10 Land Suitability map of Groundnut

7.11 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 7.11) 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 7.11.

Table 7.11 Crop suitability criteria for Sunflower

Crop requirement		Rating			
Soil–site characteristics	**Unit**	**Highly suitable(S1)**	**Moderately suitable(S2)**	**Marginally suitable(S3)**	**Not suitable(N)**
Slope	%	<3	3-5	5-10	>10
LGP	Days	>90	80-90	70-80	<70
Soil drainage	Class	Well drained	Mod. well rained	Imperfectly drained	Poorly drained
Soil reaction	pH	6.5-8.0	8.1-8.5,5.5-6.4	8.6-9.0;4.5-5.4	>9.0<4.5
Surface soil texture	Class	l, cl, sil, sc	scl, sic, c,	c (>60%), sl	ls, s
Soil depth	cm	>100	75-100	50-75	<50
Gravel content	% vol.	<15	15-35	35-60	>60
Salinity (EC)	dS m^{-1}	<1.0	1.0-2.0	>2.0	
Sodicity (ESP)	%	<10	10-15	>15	

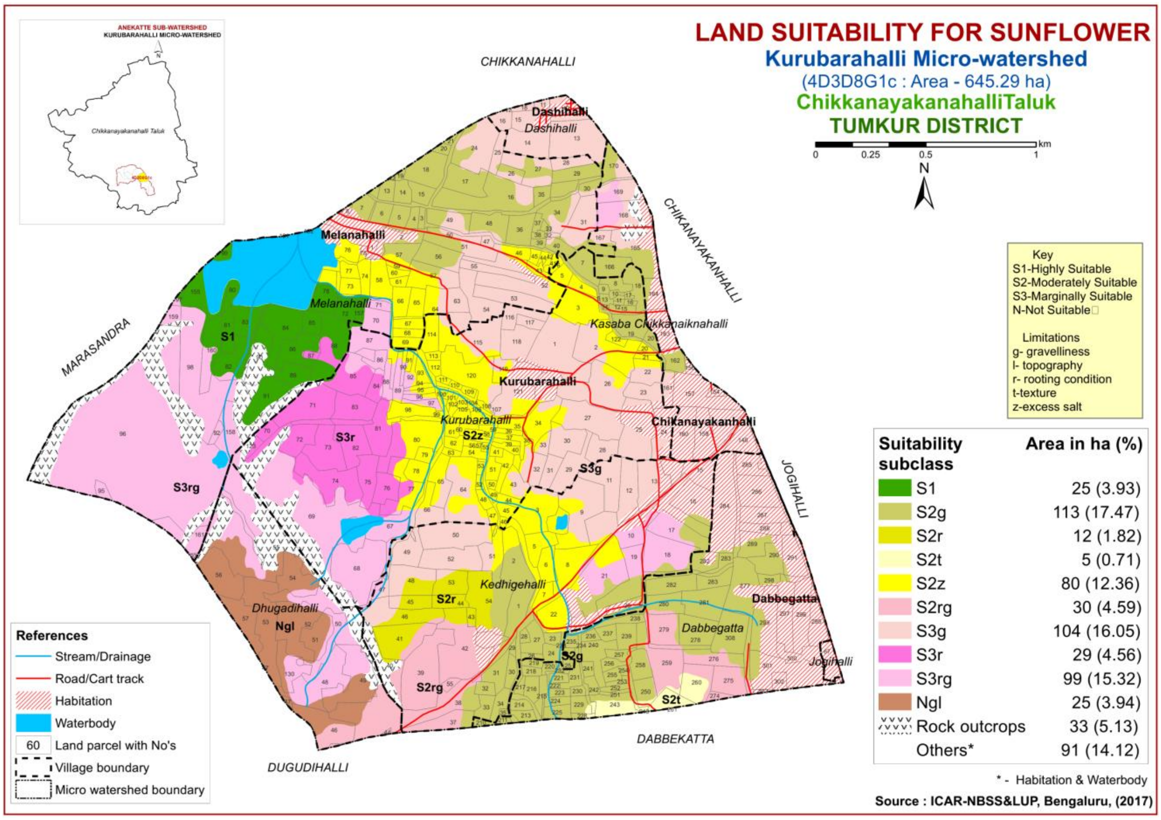


Fig. 7.11 Land Suitability map of Sunflower

An area of about 25 ha (4%) is highly suitable (Class S1) for growing sunflower and is distributed in the western part of the microwatershed. An area of about 240 ha (37%) is moderately suitable (Class S2) for sunflower and are distributed in the central, northern and southern part of the microwatershed. They have minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable lands (Class S3) occupy an area of about 232 ha (36%) for growing sunflower and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.12 Land Suitability for Onion (*Allium cepa*)

Onion is one of the most important vegetable crop grown in Raichur, Dharwad, Belgaum, Gulbarga, Bijapur, Bidar, Bellary, Chitradurga and Tumakuru districts. The crop requirements for growing onion (Table 7.12) 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 are given in Figure 7.12.

An area of about 37 ha (6%) has soils that are highly suitable (Class S1) and are distributed in the southern and western part of the microwatershed. An area of about 176 ha (27%) has soils that are moderately suitable (Class S2) for growing onion with minor limitations of gravelliness, rooting condition and texture. They are distributed in the northern, central and southern part of the microwatershed. Marginally suitable lands (Class S3) for growing onion occupy an area of about 283 ha (44%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness, rooting condition, texture and excess salt. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.12 Land suitability criteria for Onion

Crop requirement		**Rating**			
Soil –site characteristics	**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N)**
Mean temperature in growing season	^{0}C	20-30	30-35	35-40	>40
Slope	%	<3	3-5	5-10	>10
Soil drainage	Class	Well drained	Moderately /imperfectly	Poor drained	Very poorly drained
Soil reaction	pH	6.5-7.3	7.3-7.8,5.0-5.4	<5.0,7.8-8.4	>8.4
Surface soil texture	Class	scl, sil, sl	sc,sicl,c(red soil)	sc,c(black soil)	Ls
Soil depth	cm	>75	50-75	25-50	<25
Gravel content	% vol.	<15	15-35	35-60	60-80
Salinity (ECe)	dS m^{-1}	<1.0	1.0-2.0	2.0-4.0	<4
Sodicity (ESP)	%	<5	5-10	10-15	>15

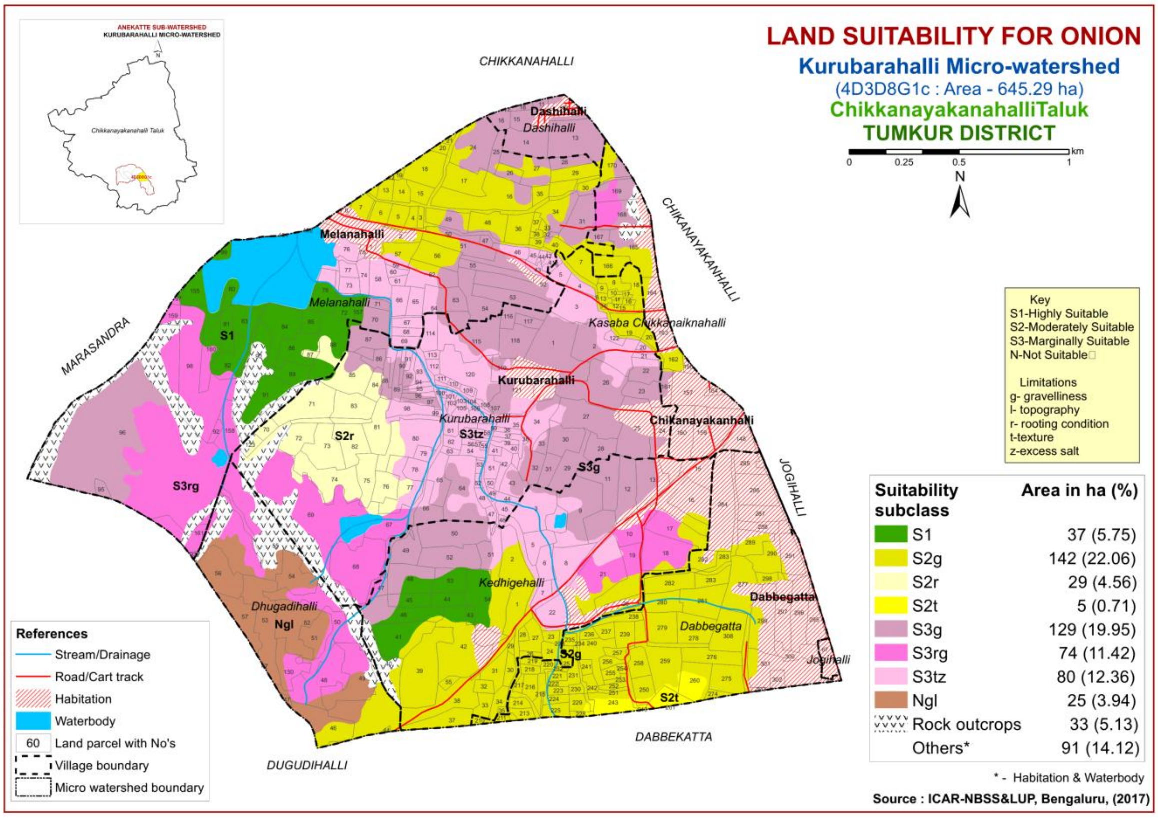


Fig. 7.12 Land Suitability map of Onion

7.13 Land Suitability for Chilli (*Capscicum annuum L.*)

Chilli is one of the most important commercial crop grown in an area of 0.89 lakh ha in all the districts of the State. The crop requirements for growing Chilli (Table 7.13) 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 7.13.

Table 7.13 Land suitability criteria for chillies

Crop requirement		Rating			
Soil –site characteristics	**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N)**
Slope	%	<3	3-5	5-10	-
LGP	Days	>150	120-150	90-120	<90
Soil drainage	class	Well drained	Mod. to imperf.drained	Poor drained/ excessively	V. poorly drained
Soil reaction	pH	6.0-7.0	7.1-8.0	8.1-9.0,5.0-5.9	>9.0
Surface soil texture	Class	L, scl, cl, sil	sl,sc,sic,c(m/k)	C(ss), ls, s	-
Soil depth	Cm	>75	50-75	25-50	<25
Gravel content	%vol.	<15	15-35	>35	-
Salinity (ECe)	dS m^{-1}	<1.0	1.0-2.0	2.0-4.0	<4
Sodicity (ESP)	%	<5	5-10	10-15	-

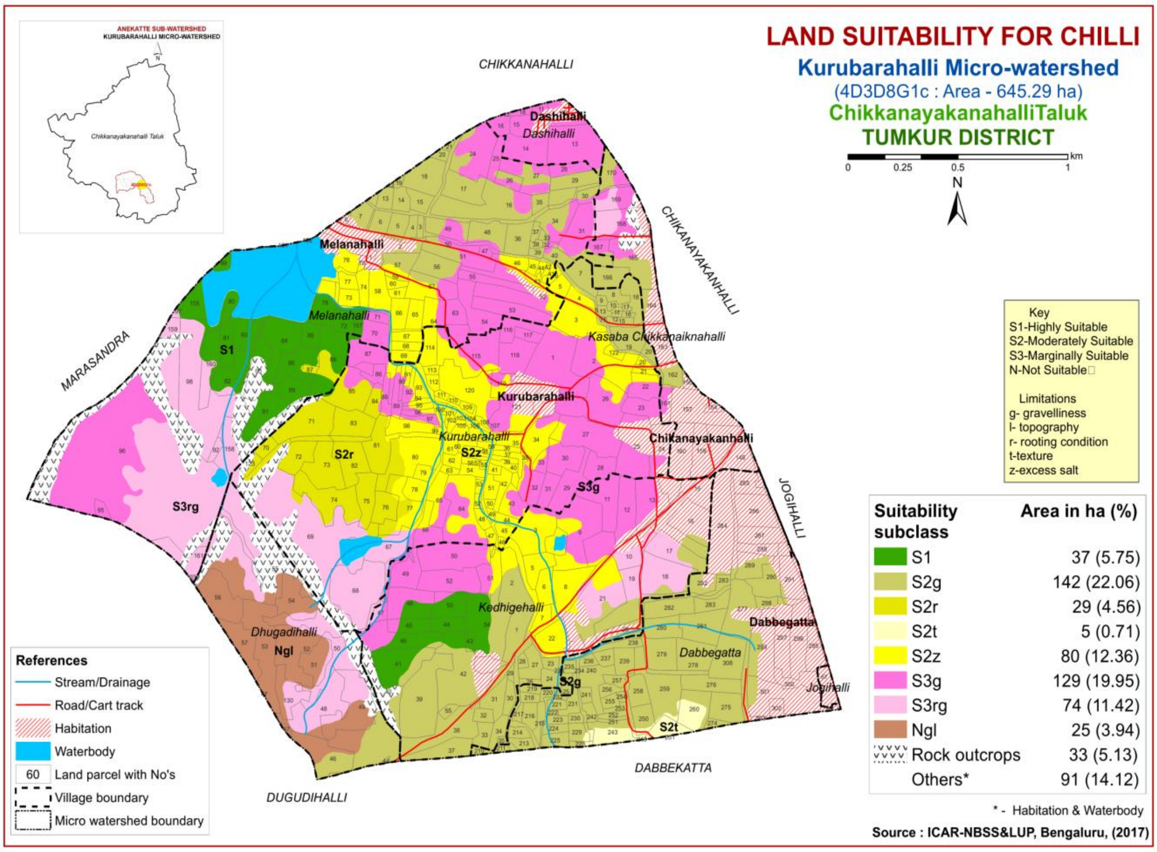


Fig. 7.13 Land Suitability map of Chilli

An area of about 37 ha (6%) has soils that are highly suitable (Class S1) and are distributed in the western and southern part of the microwatershed. An area of 256 ha (40%) has soils that are moderately suitable (Class S2) for growing Chilli and are distributed in the central, northern, eastern and southern part of the microwatershed with minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable lands (Class S3) for growing chilli occupy an area of about 203 ha (31%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.14 Land suitability for Brinjal (*Solanum melongena*)

Brinjal is one of the most important vegetable grown in all the districts. The crop requirements for growing Brinjal (Table 7.14) 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 7.14.

Table 7.14 Land suitability criteria for Brinjal

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Soil aeration	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V. Poorly drained
Nutrient availability	Texture	Class	Sl, scl, cl, sc	c (red)	ls, c(black)	-
	pH	1:2.5	6.0-7.3	7.3-8.4,5.5-6.0	8.4-9.0	>9.0
Rooting conditions	Soil depth	cm	>75	50-75	25-50	<25
	Gravel content	% vol.	<15	15-35	35-60	>60
Erosion	Slope	%	0-3	3-5	5-10	>10

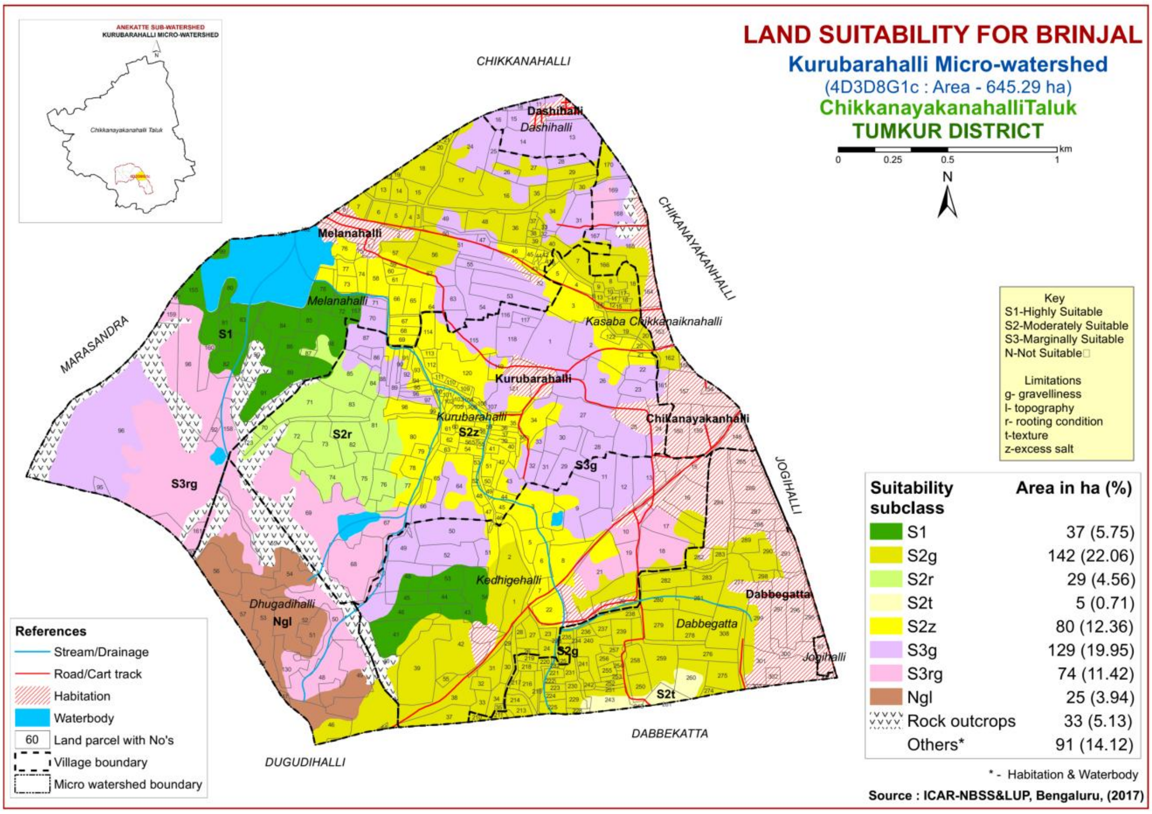


Fig. 7.14 Land Suitability map of Brinjal

An area of about 37 ha (6%) has soils that are highly suitable (Class S1) and are distributed in the southern and western part of the microwatershed. An area of about 256 ha (40%) has soils that are moderately suitable (Class S2) for growing brinjal with minor limitations of gravelliness, rooting condition, texture and excess salt. They are distributed in the northern, central and southern part of the microwatershed. Marginally suitable lands (Class S3) for growing brinjal occupy an area of about 203 ha (31%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.15 Land suitability for Tomato (*Lycopersicon esculentum*)

Tomato is one of the most important vegetable crop grown in all the districts. The crop requirements for growing Tomato (Table 7.15) 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 7.15.

Table 7.15 Land suitability criteria for Tomato

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Climate	Temperature in growing season	^{0}c	25-28	29-32 20-24	15-19 33-36	<15 >36
Soil moisture	Growing period	Days	>150	120-150	90-120	
Soil aeration	Soil drainage	class	Well drained	Moderately well drained	Poorly drained	V. poorly drained
Nutrient availability	Texture	Class	l, sl, cl, scl	sic,sicl,sc,c(m/k)	c (ss), ls	S
	pH	1:2.5	6.0-7.3	5.5-6.0,7.3-8.4	8.4-9.0	>9.0
	$CaCO_3$ in root zone	%	Non calcareous	Slightly calcareous	Strongly calcareous	
Rooting conditions	Soil depth	cm	>75	50-75	25-50	<25
	Gravel content	% vol.	<15	15-35	>35	
Soil toxicity	Salinity	ds/m	Non saline	slight	strongly	
	Sodicity (ESP)	%	<10	10-15	>15	-
Erosion	Slope	%	1-3	3-5	5-10	>10

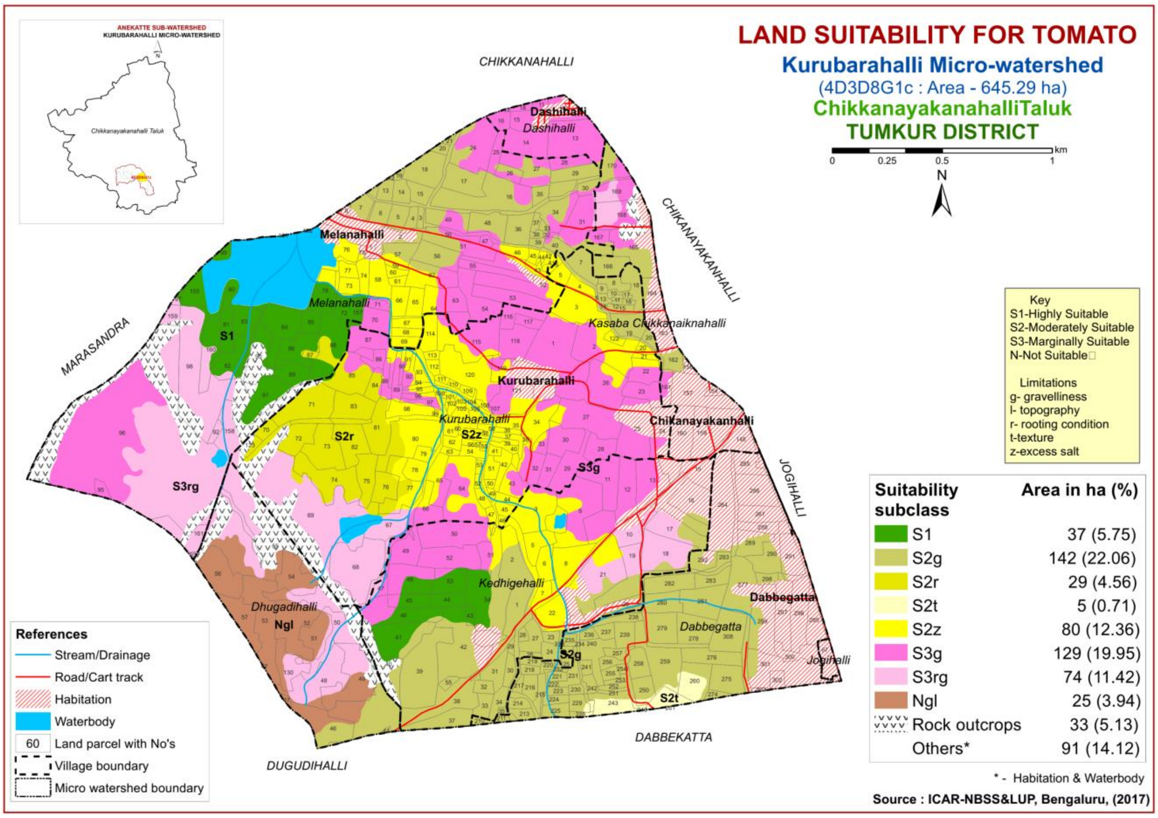


Fig. 7.15 Land Suitability map of Tomato

An area of about 37 ha (6%) has soils that are highly suitable (Class S1) and are distributed in the southern and western part of the microwatershed. An area of about 256 ha (40%) has soils that are moderately suitable (Class S2) for growing Tomato with minor limitations of gravelliness, rooting condition, texture and excess salt. They are distributed in the central, southern and northern part of the microwatershed. Marginally suitable lands (Class S3) for growing Tomato occupy an area of about 203 ha (31%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.16 Land suitability for Mango (*Mangifera indica*)

Mango is one of the most important fruit crop grown in an area of about 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 7.16.

Table 7.16 Crop suitability criteria for Mango

Crop requirement			Rating			
Soil-site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Climate	Temp. in growing season	^{0}C	28-32	24-27 33-35	36-40	20-24
	Min. temp. before flowering	^{0}C	10-15	15-22	>22	
Soil moisture	Growing period	Days	>180	150-180	120-150	<120
Soil aeration	Soil drainage	Class	Well drained	Mod. To imperf.drained	Poor drained	V.poorly drained
	Water table	M	>3	2.50-3.0	2.5-1.5	<1.5
Nutrient availability	Texture	Class	sc, l, sil, cl	sl, sc, sic, l,c	c (<60%)	c (>60%),
	pH	1:2.5	5.5-7.5	7.6-8.5,5.05.4	8.6-9.0,4.0-4.9	>9.0<4.0
	OC	%	High	medium	low	
	$CaCO_3$ in root zone	%	Non calcareous	<5	5-10	>10
Rooting conditions	Soil depth	cm	>200	125-200	75-125	<75
	Gravel content	%vol	Non-gravelly	<15	15-35	>35
Soil toxicity	Salinity	dS/m	Non saline	<2.0	2.0-3.0	>3.0
	Sodicity	%	Non sodic	<10	10-15	>15
Erosion	Slope	%	<3	3-5	5-10	

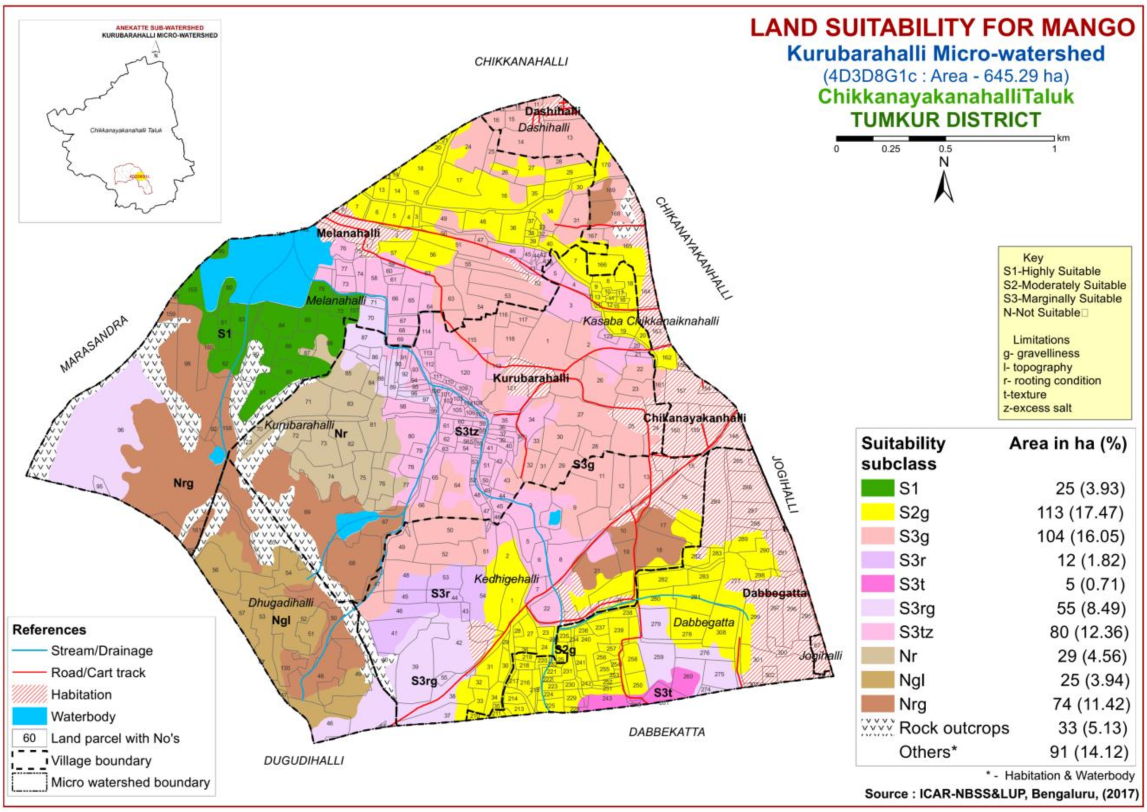


Fig. 7.16 Land Suitability map of Mango

An area of 25 ha (4%) in the microwatershed is highly suitable (Class S1) for growing mango and are distributed in the western part of the microwatershed. An area of 113 ha (17%) is moderately suitable (Class S2) for growing mango and are distributed in the northern and southeastern part the microwatershed. They have moderate limitation of gravelliness. An area of 256 ha (40%) is marginally suitable (Class S3) for growing mango and are distributed in all parts of the microwatershed with moderate limitations of gravelliness, rooting condition, texture and excess salt. An area of about 128 ha (20%) is not suitable (Class N) and are distributed in the southwestern, western, eastern and northeastern part of the microwatershed with severe limitations of gravelliness, rooting condition and topography.

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 7.17) 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 Figure7.17.

An area of about 25 ha (4%) in the microwatershed is highly suitable (Class S1) for growing sapota and are distributed in the western part of the microwatershed. An area of about 155 ha (24%) is moderately suitable (Class S2) for growing sapota and are distributed in the northern, southern and eastern part of the microwatershed. They have minor limitations of gravelliness and rooting condition. An area of about 317 ha (49%) is marginally suitable (Class S3) for growing sapota and are distributed in all parts of the microwatershed with moderate limitations of gravelliness, rooting condition, texture and excess salt. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.17 Crop suitability criteria for Sapota

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Climate	Temperature in growing season	^{0} C	28-32	33-36 24-27	37-42 20-23	>42 <18
Soil moisture	Growing period	Days	>150	120-150	90-120	<120
Soil aeration	Soil drainage	Class	Well drained	Moderately well drained	Imperfectly drained	Poorly drained
Nutrient availability	Texture	Class	scl, l, cl, sil	sl, sicl, sc	c (<60%)	ls,s,c(>60%)
	pH	1:2.5	6.0-7.5	7.6-8.0,5.0-5.9	8.1-9.0,4.5-4.9	>9.0,<4.5
	$CaCO_3$ in root zone	%	Non calcareous	<10	10-15	>15
Rooting conditions	Soil depth	cm	>150	75-150	50-75	<50
	Gravel content	% vol.	Non gravelly	<15	15-35	<35
Soil toxicity	Salinity	dS/m	Non saline	Up to 1.0	1.0-2.0	2.0-4.0
	Sodicity	%	Non sodic	10-15	15-25	>25
Erosion	Slope	%	<3	3-5	5-10	>10

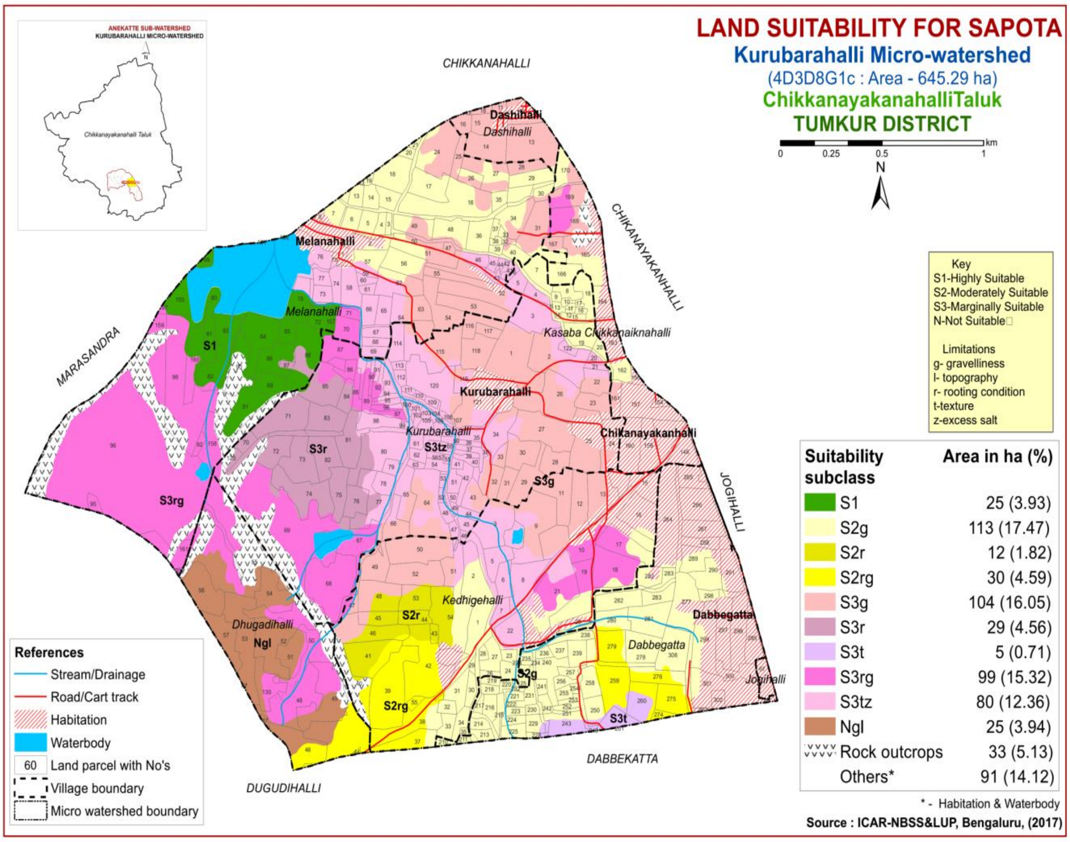


Fig. 7.17 Land Suitability map of Sapota

7.18 Land suitability for Guava (*Psidium guajava*)

Guava is one of the most important fruit crop grown in an area of 0.64 lakh ha in almost all the districts of the State. The crop requirements (Table 7.18) 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 7.18.

Table 7.18 Crop suitability criteria for Guava

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Climate	Temperature in growing season	^0C	28-32	33-36 24-27	37-42 20-23	
Soil moisture	Growing period	Days	>150	120-150	90-120	<90
Soil aeration	Soil drainage	Class	Well drained	Mod. to imperfectly	poor	Very poor
Nutrient availability	Texture	Class	scl, l, cl, sil	sl,sicl,sic.,sc,c	c (<60%)	c (>60%)
	pH	1:2.5	6.0-7.5	7.6-8.0:5.0-5.9	8.1-8.5:4.5-4.9	>8.5:<4.5
	$CaCO_3$ in root zone	%	Non calcareous	<10	10-15	>15
Rooting conditions	Soil depth	cm	>100	75-100	50-75	<50
	Gravel content	% vol.	<15	15-35	>35	
Soil toxicity	Salinity	dS/m	<2.0	2.0-4.0	4.0-6.0	
	Sodicity	%	Non sodic	10-15	15-25	>25
Erosion	Slope	%	<3	3-5	5-10	>10

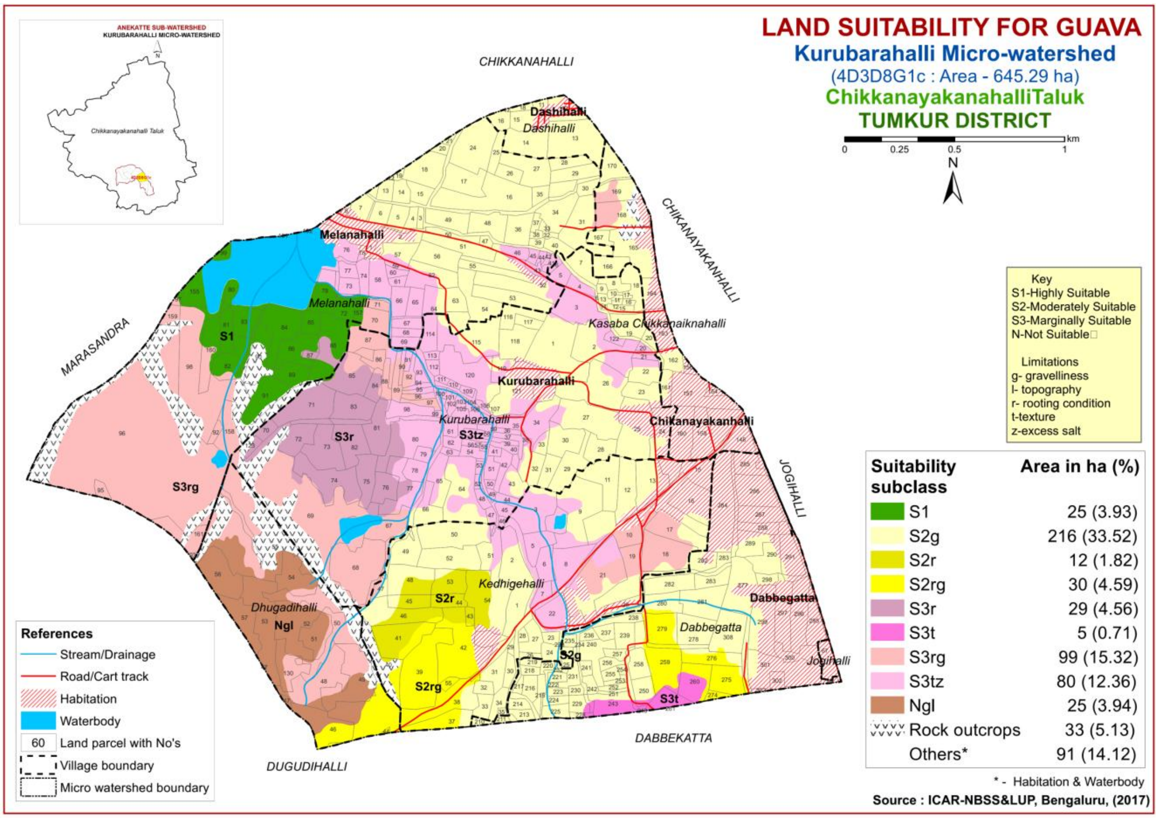


Fig. 7.18 Land Suitability map of Guava

An area of about 25 ha (4%) in the microwatershed is highly suitable (Class S1) for growing guava and are distributed in the western part of the microwatershed. An area of about 258 ha (40%) is moderately suitable (Class S2) for growing guava and are distributed in the central, northern, southern and eastern part of the microwatershed with minor limitations of gravelliness and rooting condition. Marginally suitable (Class S3) lands cover an area of about 213 ha (33%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness, rooting condition, texture and excess salt. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.19 Land Suitability for Pomegranate (*Punica granatum*)

Pomegranate is one of the commercially grown fruit crop in Karnataka in an area of 0.16 lakh ha 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) of the soils of the microwatershed and a land suitability map for growing pomegranate was generated. The area extent and their geographic distribution of different suitability subclasses in the microwatershed are given in Figure 7.19.

An area of about 25 ha (4%) is highly suitable (Class S1) for growing pomegranate and are distributed in the western part of the microwatershed. An area of about 240 ha (37%) is moderately suitable (Class S2) for growing pomegranate and are distributed in the central, eastern, southern and northern part of the microwatershed with minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable (Class S3) lands cover an area of about 232 ha (36%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.19 Crop suitability criteria for Pomegranate

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Climate	Temperature in growing season	^{0}C	30-34	35-38 25-29	39-40 15-24	-
Soil moisture	Growing period	Days	>150	120-150	90-120	<90
Soil aeration	Soil drainage	class	Well drained	imperfectly drained	-	-
Nutrient availability	Texture	Class	sl, scl, l, cl	c, sic, sicl	cl, s, ls	S, fragmental
Rooting conditions	pH	1:2.5	5.5-7.5	7.6-8.5	8.6-9.0	-
	Soil depth	cm	>100	75-100	50-75	<50
	Gravel content	% vol.	nil	15-35	35-60	>60
Soil toxicity	Salinity	dS/m	Nil	<9	>9	<50
	Sodicity	%	nil	-	-	-
Erosion	Slope	%	<3	3-5	5-10	-

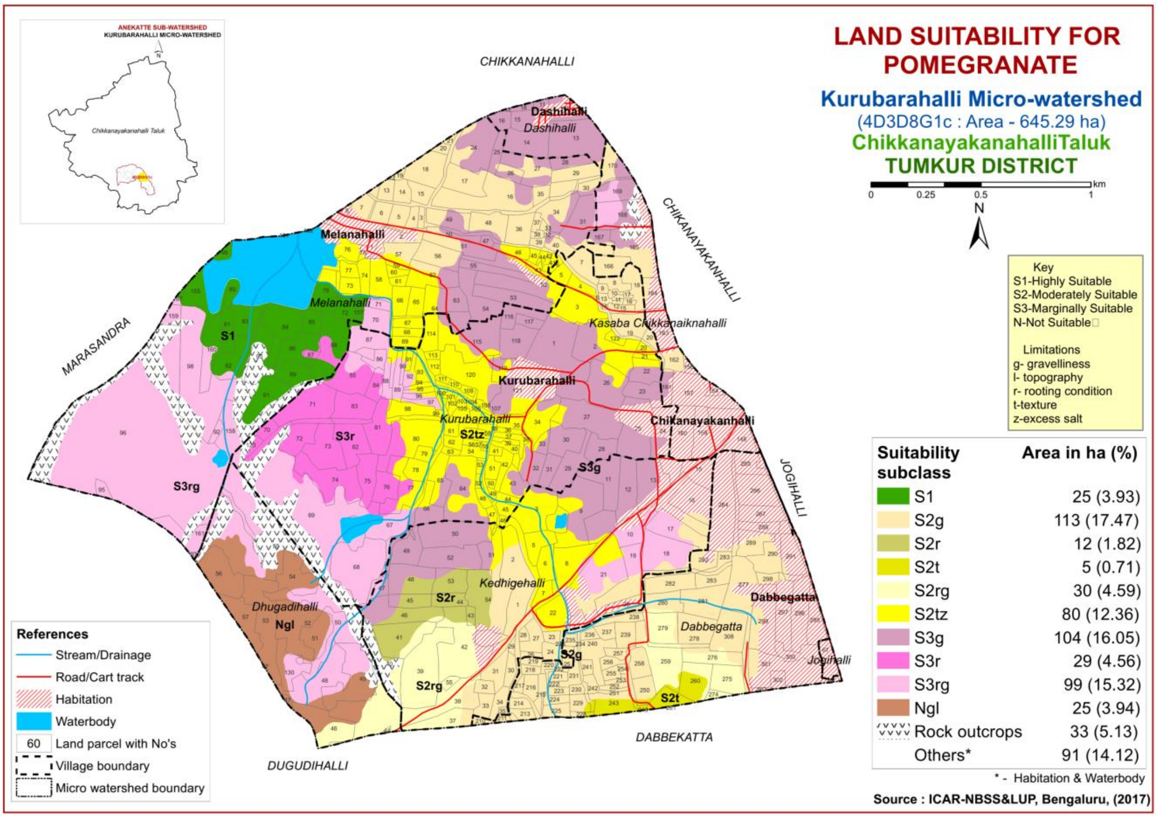


Fig. 7.19 Land Suitability map of Pomegranate

7.20 Land Suitability for Banana (*Musa paradisiaca*)

Banana is one of the major fruit crop grown in an area of 1.02 lakh ha in Karnataka State. The crop requirements for growing banana (Table 7.20) were matched with the soil-site characteristics (Table 7.1) of the soils of the microwatershed and a land suitability map for growing banana was generated. The area extent and their geographic distribution of different suitability subclasses in the microwatershed are given in Figure 7.20.

An area of about 25 ha (4%) is highly suitable (Class S1) for growing banana and are distributed in the western part of the microwatershed. An area of about 240 ha (37%) is moderately suitable (Class S2) for growing banana and are distributed in the central, northern, southern and eastern part of the microwatershed with minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable (Class S3) lands cover an area of about 232 ha (36%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.20 Crop suitability criteria for Banana

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Climate	Temperature in growing season	^0C	26-33	34-36 24-25	37-38	>38
Soil aeration	Soil drainage	Class	Well drained	Moderately to imperf. drained	Poorly drained	V.poorly drained
Nutrient availability	Texture	Class	l,cl, scl,sil	sicl,sc,c(<45%)	sic,sl,c(>45%)	ls, s
	pH	1:2.5	6.5-7.0	7.1-8.5,5.5-6.4	>8.5,<5.5	-
Rooting conditions	Soil depth	cm	>125	76-125	50-75	<50
	Stoniness	%	<10	10-15	15-35	>35
Soil toxicity	Salinity	dS/m	<1.0	1-2	>2	-
	Sodicity	%	<5	5-10	10-15	>15
Erosion	Slope	%	<3	3-5	5-15	>15

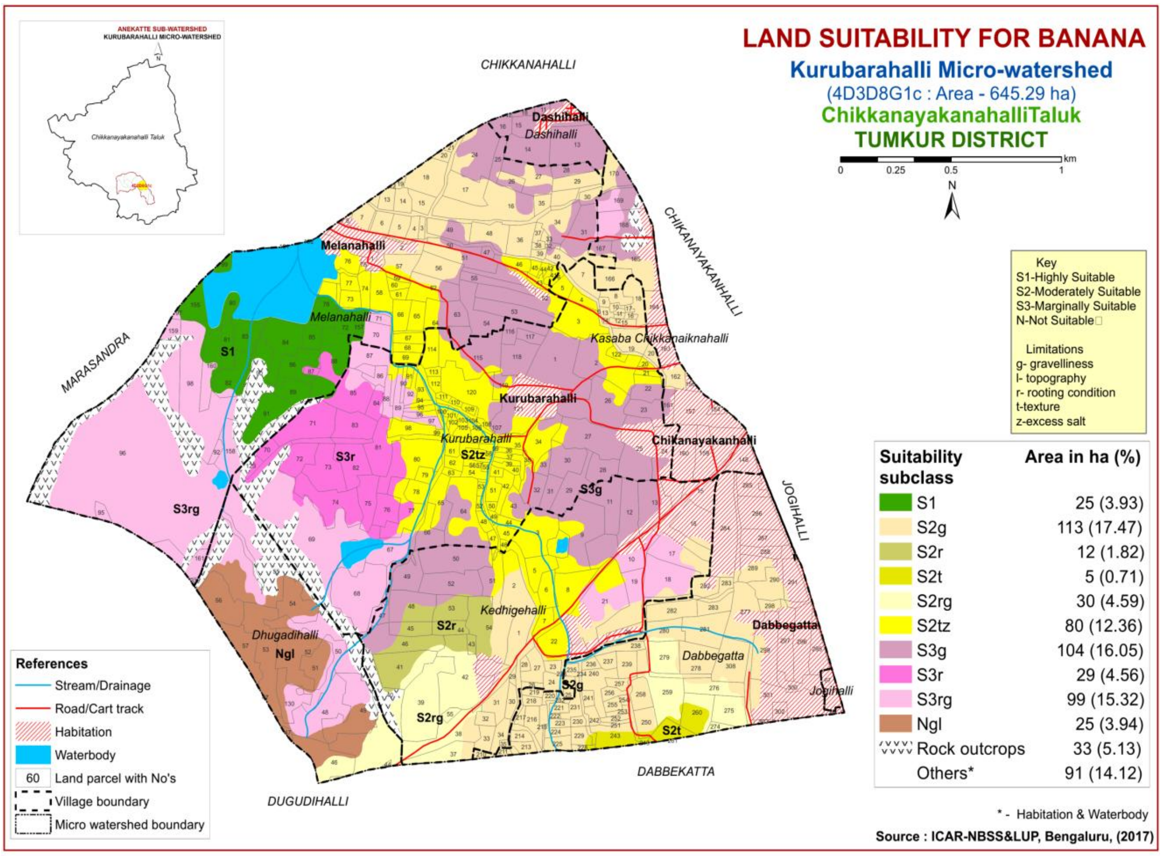


Fig. 7.20 Land Suitability map of Banana

7.21 Land Suitability for Jackfruit (*Artocarpus heterophyllus*)

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

Table 7.21 Land suitability criteria for Jackfruit

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Soil aeration	Soil drainage	class	well	Mod. well	Poorly	V. Poorly
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
Rooting conditions	Soil depth	cm	>100	75-100	50-75	<50
	Gravel content	% vol.	<15	15-35	35-60	>60
Erosion	Slope	%	0-3	3-5	>5	-

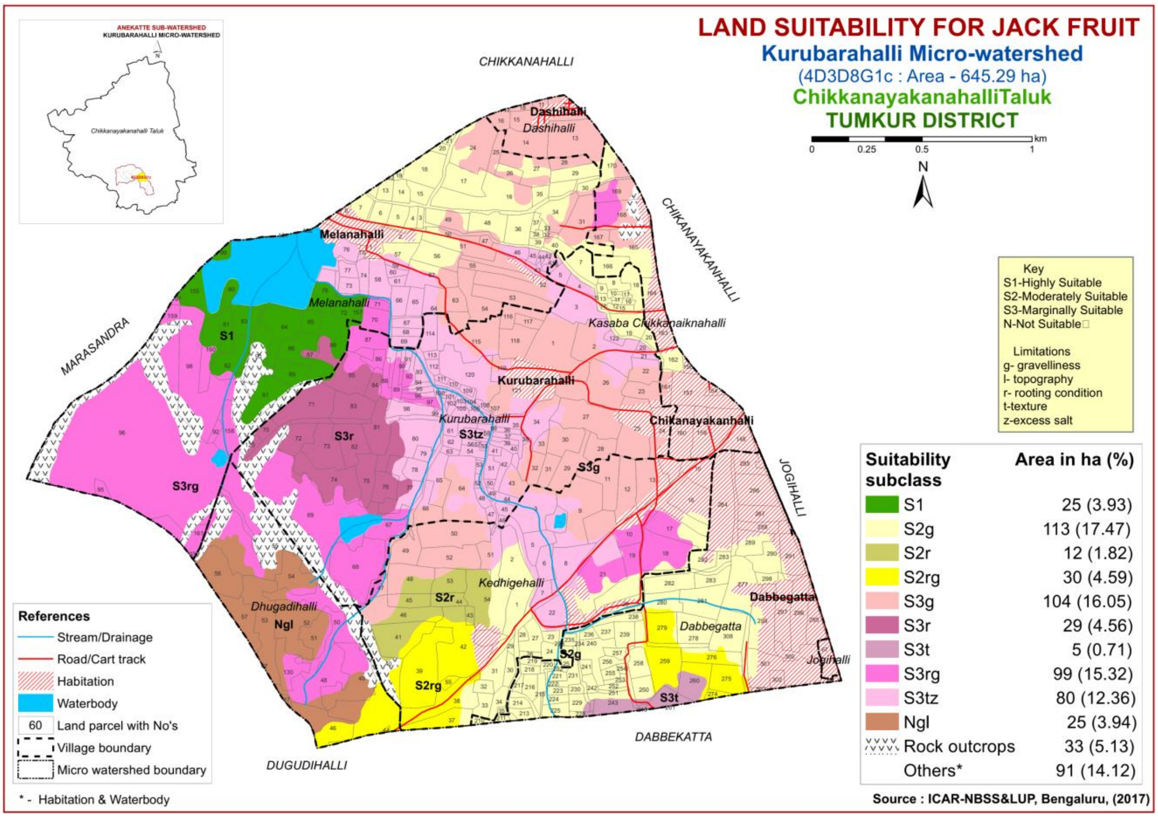


Fig. 7.21 Land Suitability map of Jackfruit

An area of about 25 ha (4%) is highly suitable (Class S1) for growing Jackfruit and are distributed in the western part of the microwatershed. An area of 155 ha (24%) is moderately suitable (Class S2) for growing jackfruit and are distributed in the northern, southern and eastern part of the microwatershed with minor limitations of gravelliness and rooting condition. Marginally suitable (Class S3) lands for growing Jackfruit occupy an area of 317 ha (49%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness, rooting condition, texture and excess salt. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.22 Land Suitability for Jamun (*Syzygium cumini*)

Jamun is an important fruit crop grown in almost all the districts of the State. The crop requirements for growing jamun were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing jamun (Table 22) was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.22.

Table 7.22 Land suitability criteria for Jamun

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable (N)
Soil aeration	Soil drainage	Class	Well	Mod. well	Poorly	V.Poorly
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
Rooting conditions	Soil depth	cm	>150	100-150	50-100	<50
	Gravel content	% vol.	<15	15-35	35-60	>60
Erosion	Slope	%	0-3	3-5	5-10	>10

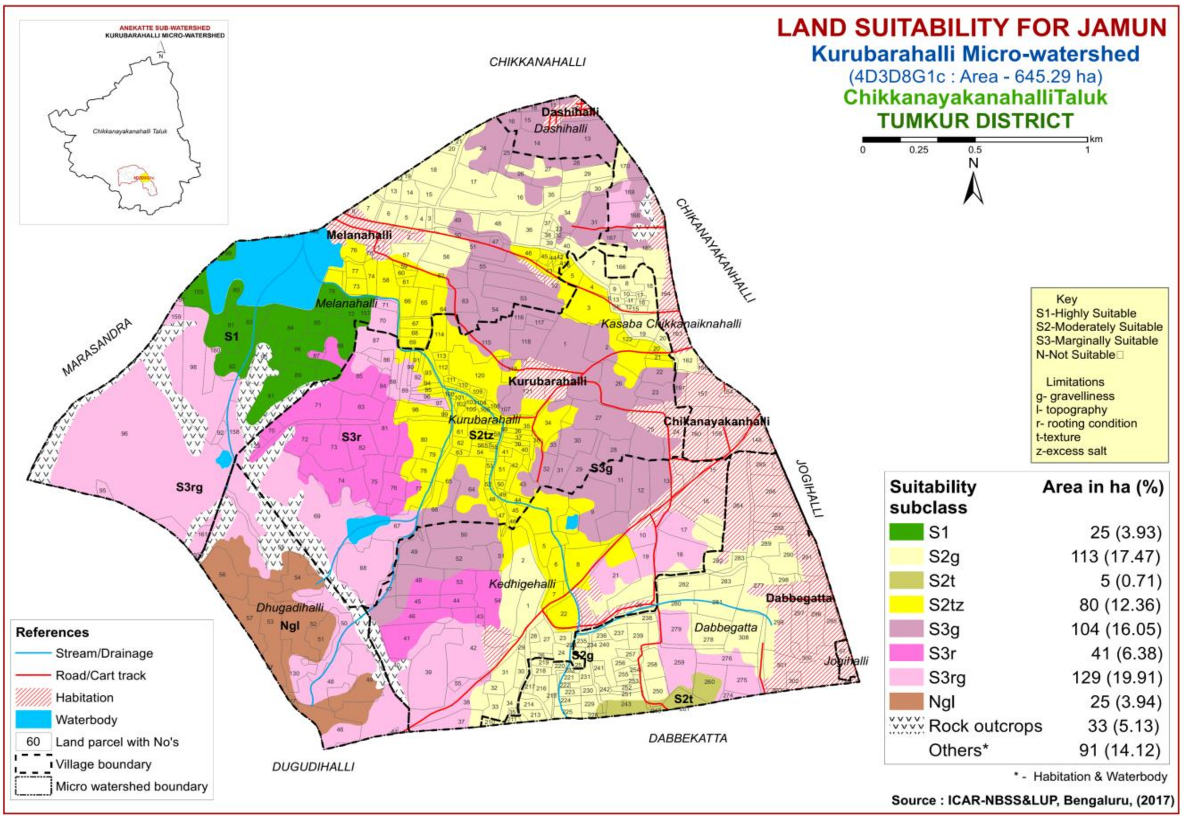


Fig. 7.22 Land Suitability map of Jamun

An area of about 25 ha (4%) is highly suitable (Class S1) for growing jamun and are distributed in the western part of the microwatershed. An area of 198 ha (31%) is moderately suitable (Class S2) for growing jamun and are distributed in the central, northern, eastern and southeastern part of the microwatershed. They have minor limitations of gravelliness and rooting condition. Marginally suitable (Class S3) lands for growing jamun occupy an area of 274 ha (42%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.23 Land Suitability for Musambi (*Citrus limetta*)

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

Table 7.23 Crop suitability criteria for Musambi

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Soil aeration	Soil drainage	Class	Well drained	Mod. to imp. drained	poorly	Very poorly
Nutrient availability	Texture	Class	scl,l,sicl,cl,s	sc, sc, c	c (>70%)	s, ls
	pH	1:2.5	6.0-7.5	5.5-6.4,7.6-8.0	4.0-5.4,8.1-8.5	<4.0,>8.5
Rooting conditions	Soil depth	Cm	>150	100-150	50-100	<50
	Gravel content	% vol.	Non gravelly	15-35	35-55	>55
Erosion	Slope	%	<3	3-5	5-10	

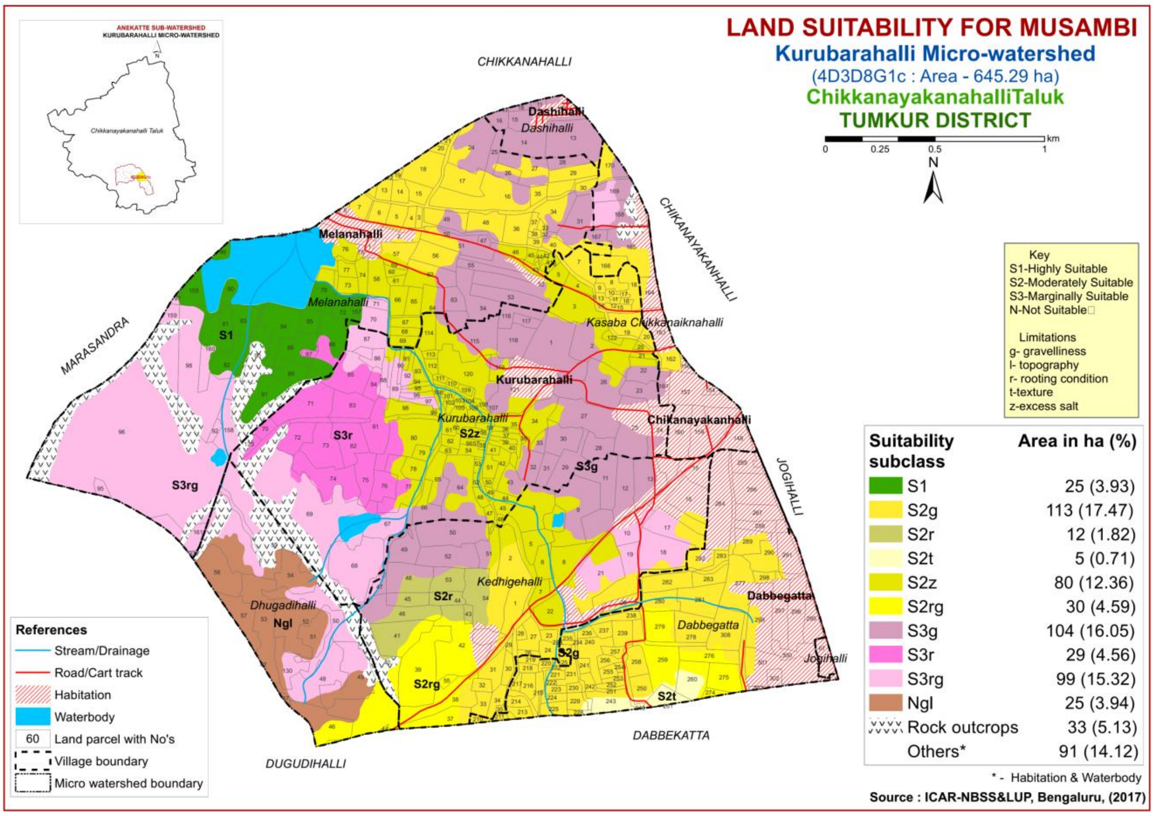


Fig. 7.23 Land Suitability map of Musambi

An area of about 25 ha (4%) is highly suitable (Class S1) for growing musambi and are distributed in the western part of the microwatershed. An area of about 240 ha (37%) is moderately suitable (Class S2) for growing musambi and are distributed in the central, southern, eastern and northern part of the microwatershed with minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable (Class S3) lands for growing musambi occupy an area of 232 ha (36%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.24 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 7.24) 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. 24.

An area of about 25 ha (4%) is highly suitable (Class S1) for growing lime and are distributed in the western part of the microwatershed. An area of about 240 ha (37%) is moderately suitable (Class S2) for growing lime and are distributed in the central, southern, eastern and northern part of the microwatershed with minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable (Class S3) lands for growing lime occupy an area of 232 ha (36%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. An area of about 25 ha (4%) is not suitable (Class N) and are distributed in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.24 Crop suitability criteria for Lime

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Climate	Temperature in growing season	^0C	28-30	31-35 24-27	36-40 20-23	>40 <20
Soil moisture	Growing period	Days	240-265	180-240	150-180	<150
Soil aeration	Soil drainage	Class	Well drained	Mod. to imp. drained	poorly	Very poorly
Nutrient availability	Texture	Class	scl,l,sicl,cl,s	sc, sc, c	c (>70%)	s, ls
	pH	1:2.5	6.0-7.5	5.5-6.4,7.6-8.0	4.0-5.4,8.1-8.5	<4.0,>8.5
	$CaCO_3$ in root zone	%	Non 34calcareous	Upto 5	5-10	>10
Rooting conditions	Soil depth	cm	>150	100-150	50-100	<50
	Gravel content	% vol.	Non gravelly	15-35	35-55	>55
Soil toxicity	Salinity	dS/m	Non saline	Upto 1.0	1.0-2.5	>2.5
	Sodicity	%	Non sodic	5-10	10-15	>15
Erosion	Slope	%	<3	3-5	5-10	

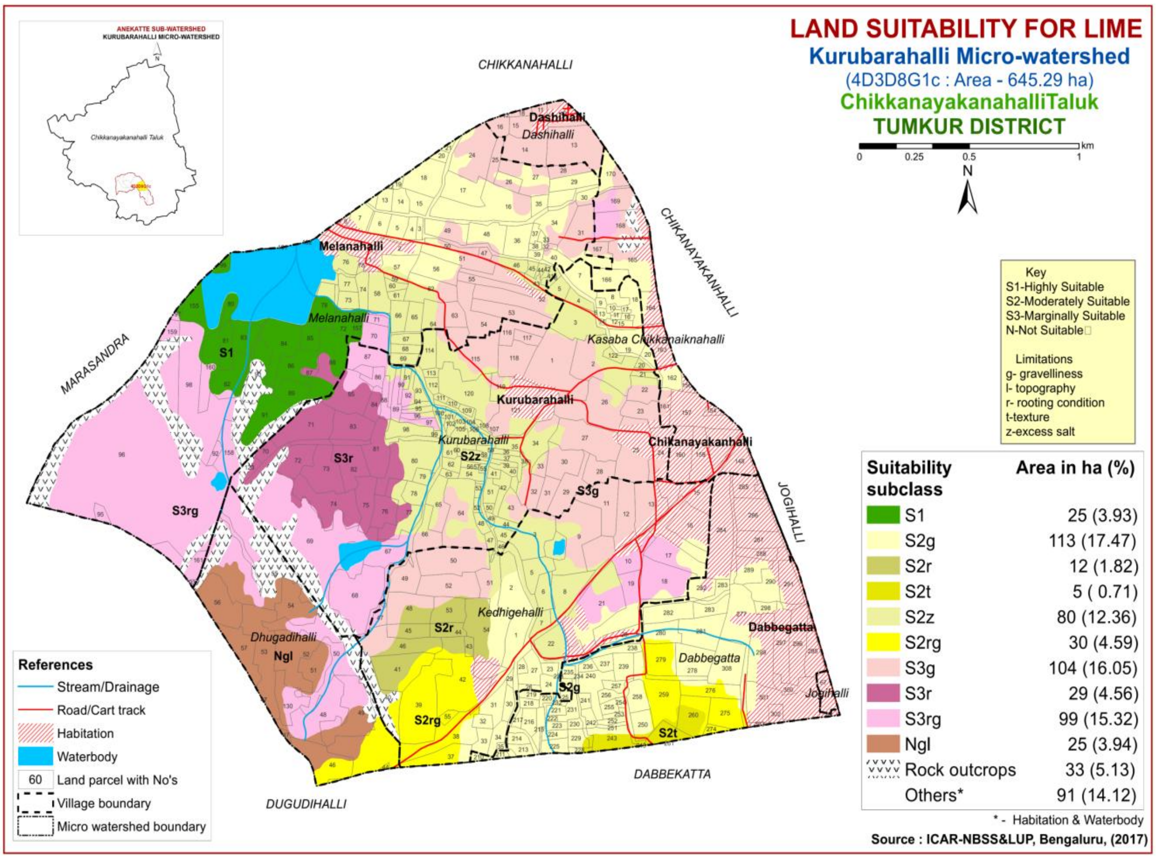


Fig. 7.24 Land Suitability map of Lime

7.25 Land Suitability for Cashew (*Anacardium occidentale)*

Cashew is one of the most important nut crop grown in an area of 1.24 lakh ha in almost all the districts of the State. The crop requirements for growing cashew were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing cashew (Table 7.25) was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.25.

An area of about 25 ha (4%) is highly suitable (Class S1) for growing cashew and are distributed in the western part of the microwatershed. An area of 258 ha (40%) is moderately suitable (Class S2) for growing cashew and are distributed in the eastern, southern and northern part of the microwatershed. They have minor limitations of gravelliness, rooting condition. Marginally suitable (Class S3) lands for growing cashew occupy an area of 128 ha (20%) and are distributed in the western, central, eastern and small area in the northern part of the microwatershed. They have moderate limitations of gravelliness and rooting condition. The not suitable (Class N) lands cover an area of about 110 ha (17%) and occur in the central, southwestern and northeastern part of the microwatershed with severe limitations of gravelliness, texture, excess salt and topography.

Table 7.25 Land suitability criteria for Cashew

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Soil aeration	Soil drainage	Class	Well drained	Mod. well drained	Poorly drained	V.Poorly drainage
Nutrient availability	Texture	Class	-	-	-	-
	pH	1:2.5	5.5-6.5	5.0-5.5,6.5-7.3	7.3-7.8	>7.8
Rooting conditions	Soil depth	cm	>100	75-100	50-75	<50
	Gravel content	%vol.	<15	15-35	35-60	>60
Erosion	Slope	%	0-3	3-10	>10	

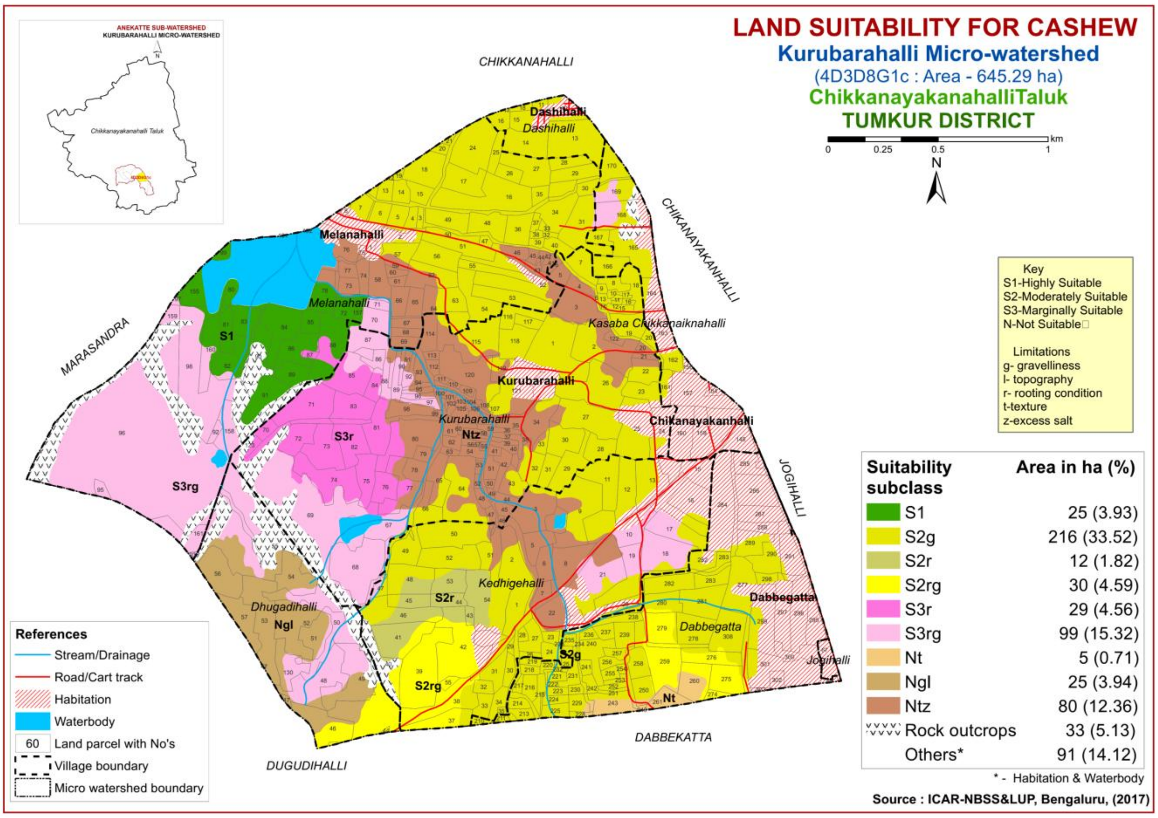


Fig. 7.25 Land Suitability map of Cashew

7.26 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 were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing custard apple (Table 26) was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.26.

An area of 37 ha (6%) is highly suitable (Class S1) for growing custard apple and are distributed in the southern and western part of the microwatershed. An area of 459 ha (71%) has soils that are moderately suitable (Class S2) for growing custard apple and are distributed in all parts of the microwatershed with minor limitations of gravelliness, rooting condition, texture and excess salt. The not suitable (Class N) lands cover an area of about 25 ha (4%) and occur in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.26 Land suitability criteria for Custard apple

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Soil aeration	Soil drainage	Class	Well drained	Mod. well drained	Poorly drained	V. Poorly drained
Nutrient availability	Texture	Class	scl, cl, sc, c (red), c (black)	-	sl, ls	-
	pH	1:2.5	6.0-7.3	7.3-8.4	5.0-5.5,8.4-9.0	>9.0
Rooting conditions	Soil depth	Cm	>75	50-75	25-50	<25
	Gravel content	% vol.	<15-35	35-60	60-80	-
Erosion	Slope	%	0-3	3-5	>5	

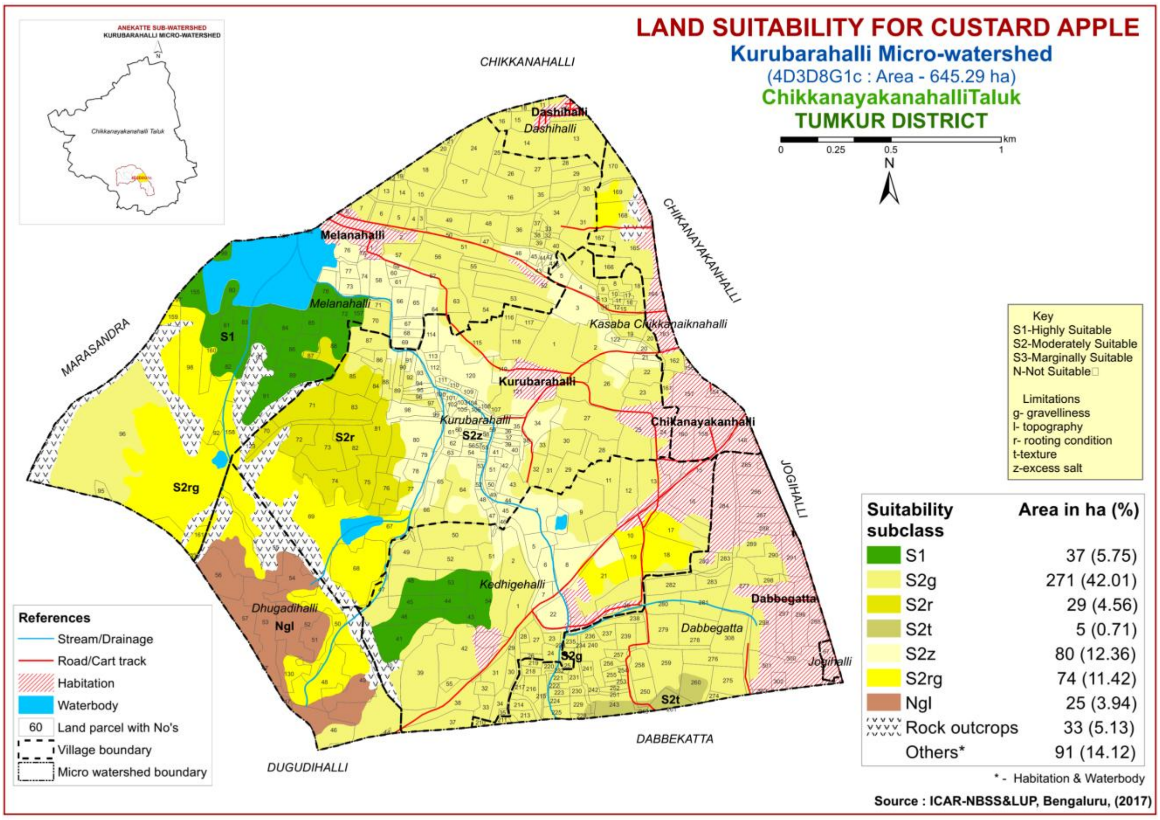


Fig. 7.26 Land Suitability map of Custard Apple

7.27 Land Suitability for Amla (*Phyllanthus emblica*)

Amla is one of the fruit and medicinal crop grown in 151 ha area in almost all the districts of the State. The crop requirements for growing amla were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing amla (Table 7.27) was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Figure 7.27.

An area of about 37 ha (6%) is highly suitable (Class S1) for growing Amla and are distributed in the western and southern part of the microwatershed. An area of about 385 ha (60%) has soils that are moderately suitable (Class S2) for growing Amla with minor limitations of gravelliness, rooting condition, texture and excess salt and are distributed in all parts of the microwatershed. Marginally suitable (Class S3) lands for growing Amla occupy an area of 74 ha (11%) and are distributed in the western, eastern and small area in the northern part of the microwatershed. They have moderate limitations of gravelliness and rooting condition. The not suitable (Class N) lands cover an area of about 25 ha (4%) and occur in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.27 Land suitability criteria for Amla

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Soil aeration	Soil drainage	Class	Well drained	Mod. well drained	Poorly drained	V. Poorly drained
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	7.8-8.4	>8.4
Rooting conditions	Soil depth	cm	>75	50-75	25-50	<25
	Gravel content	% vol.	<15-35	35-60	60-80	
Erosion	Slope	%	0-3	3-5	5-10	>10

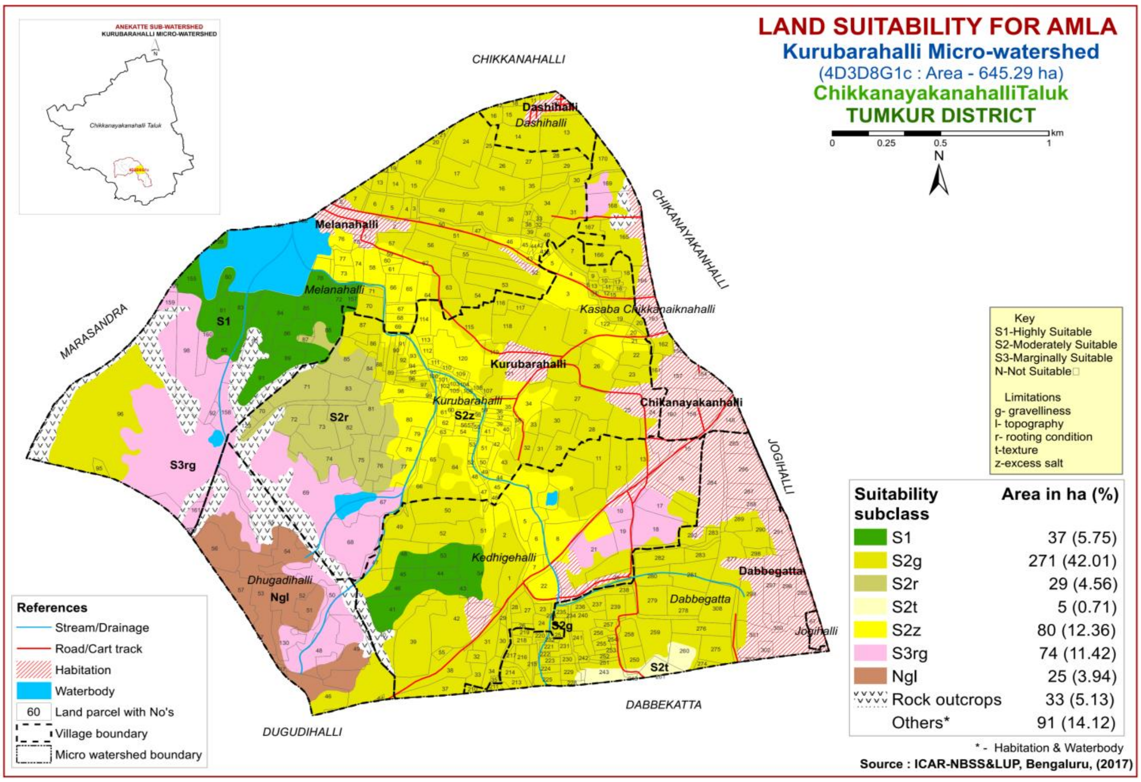


Fig. 7.27 Land Suitability map of Amla

7.28 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 were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing tamarind (Table 7.28) was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed is given in Fig. 7.28.

Table 7.28 Land suitability criteria for Tamarind

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable (S1)	Moderately suitable (S2)	Marginally suitable (S3)	Not suitable (N)
Soil aeration	Soil drainage	Class	Well drained	Mod.well drained	Poorly drained	V.Poorly drained
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
Rooting conditions	Soil depth	cm	>150	100-150	75-100	<50
	Gravel content	% vol.	<15	15-35	35-60	60-80
Erosion	Slope	%	0-3	3-5	5-10	>10

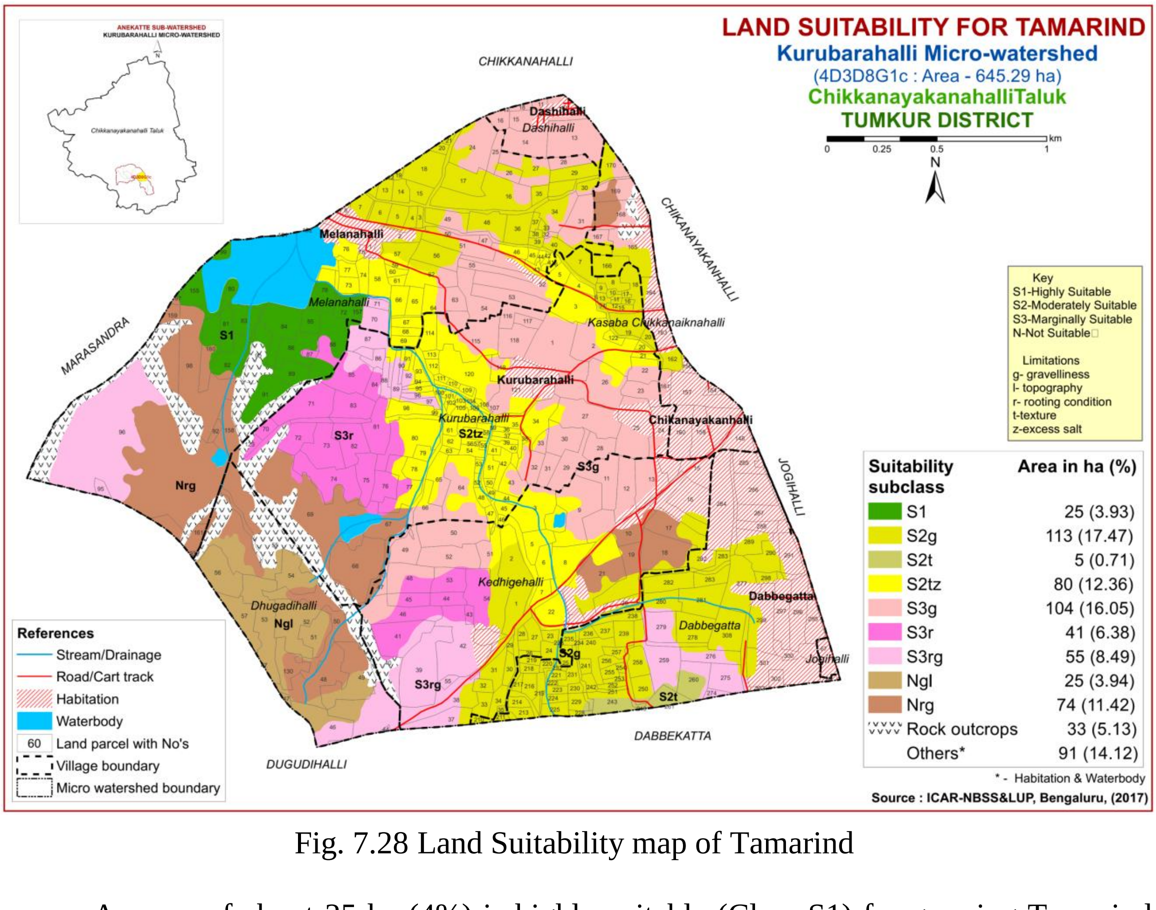


Fig. 7.28 Land Suitability map of Tamarind

An area of about 25 ha (4%) is highly suitable (Class S1) for growing Tamarind and are distributed in the western part of the microwatershed. An area of 198 ha (31%) is moderately suitable (Class S2) for growing Tamarind and are distributed in the central, southeastern and northern part of the microwatershed. They have minor limitations of gravelliness, texture and excess salt. Marginally suitable (Class S3) lands for growing Tamarind occupy an area of 200 ha (31%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. Not suitable (Class N) lands cover an area of about 99 ha (15%) and occur in the southwestern, eastern and northeastern part of the microwatershed with severe limitations of gravelliness, rooting condition and topography.

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

Marigold is one of the most important flower crop grown in an area of 1858 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 7.29.

Major area of about 37 ha (6%) is highly suitable (Class S1) for growing Marigold and are distributed in the southern and western part of the microwatershed. An area of about 256 ha (40%) is moderately suitable (Class S2) for growing Marigold and are distributed in the central, northern, southern and eastern part of the microwatershed. They have minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable (Class S3) lands for growing marigold occupy an area of 203 ha (31%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. Not suitable (Class N) lands cover an area of about 25 ha (4%) and occur in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.29 Land suitability criteria for Marigold

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Climate	Temperature in growing season		18-23	17-15 24-35	35-40 10-14	>40 <10
Soil aeration	Soil drainage	Class	Well drained	Moderately well drained	Imperfectly drained	Poorly drained
Nutrient availability	Texture	Class	l,sl,scl,cl,sil	sicl,sc,sic,c	c	ls,s
	pH	1:2.5	7.0-7.5	5.5-5.9,7.6-8.5	<5,>8.5	-
	$CaCO_3$ in root zone	%	Non calcareous	Slightly calcareous	Strongly calcareous	-
Rooting conditions	Soil depth	cm	>75	50-75	25-50	<25
	Gravel content	%vol.	<15	15-35	>35	-
Soil toxicity	Salinity	ds/m	Non saline	Slightly	Strongly	-
	Sodicity (ESP)	%	<10	10-15	>15	-
Erosion	Slope	%	1-3	3-5	5-10	-

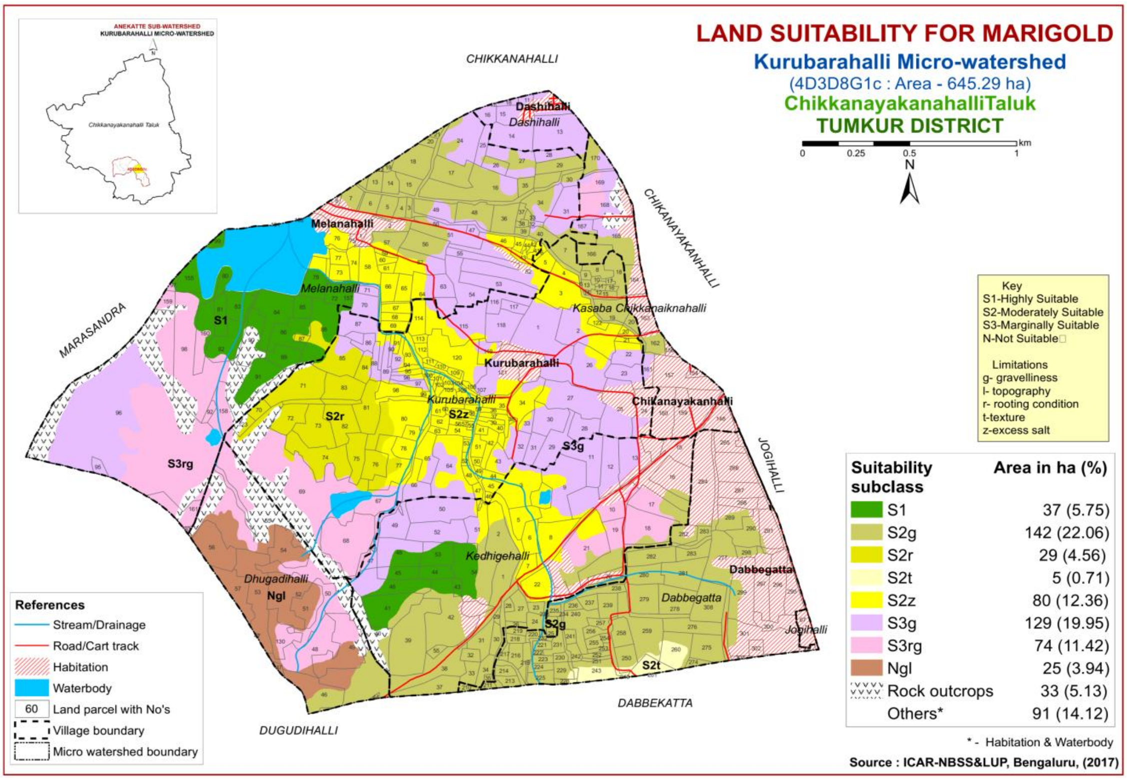


Fig. 7.29 Land Suitability map of Marigold

7.30 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 7.30.

Major area of about 37 ha (6%) is highly suitable (Class S1) for growing chrysanthemum and are distributed in the western and southern part of the microwatershed. An area of about 256 ha (40%) is moderately suitable (Class S2) for growing chrysanthemum and are distributed in the central, southern, eastern and northern part of the microwatershed. They have minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable (Class S3) lands for growing chrysanthemum occupy an area of 203 ha (31%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness and rooting condition. The not suitable (Class N) lands cover an area of about 25 ha (4%) and occur in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

Table 7.30 Land suitability criteria for Chrysanthemum

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Climate	Temperature in growing season		18-23	17-15 24-35	35-40 10-14	>40 <10
Soil aeration	Soil drainage	Class	Well drained	Moderately well drained	Imperfectly drained	Poorly drained
Nutrient availability	Texture	Class	l,sl,scl,cl,sil	sicl,sc,sic,c	c	ls, s
	pH	1:2.5	7.0-7.5	5.5-5.9,7.6-8.5	<5,>8.5	
	$CaCO_3$ in root zone	%	Non calcareous	Slightly calcareous	Strongly calcareous	
Rooting conditions	Soil depth	cm	>75	50-75	25-50	<25
	Gravel content	% vol.	<15	15-35	>35	
Soil toxicity	Salinity	ds/m	Non saline	slightly	strongly	
	Sodicity(ESP)	%	<10	10-15	>15	-
Erosion	Slope	%	1-3	3-5	5-10	

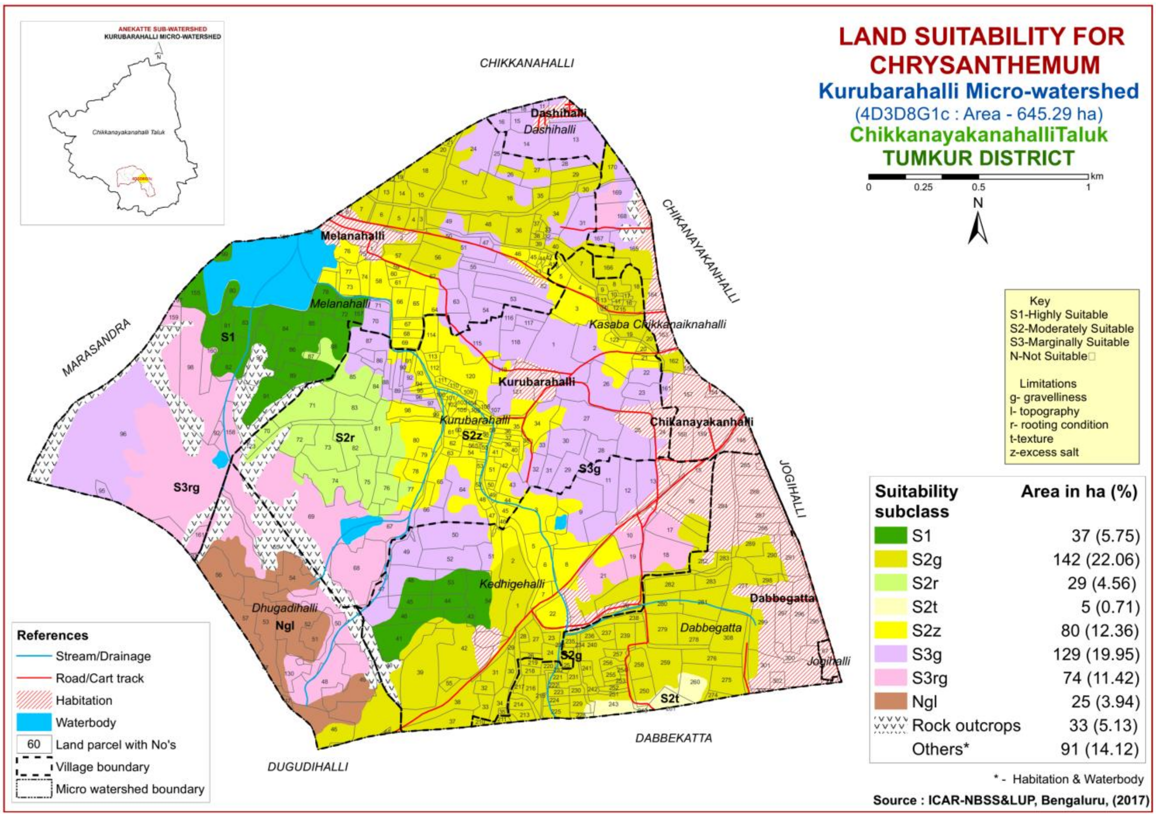


Fig. 7.30 Land Suitability map of Chrysanthemum

7. 31 Land Suitability for Jasmine *(Jasminum sp.)*

Jasmine is one of the most important flower crop grown in an area of 6146 ha in almost all the districts of the State. The crop requirements (Table 7.31) for growing Jasmine were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing Jasmine was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed are given in Figure 7.31.

Table 7.31 Land suitability criteria for jasmine (irrigated)

Crop requirement			Rating			
Soil –site characteristics		Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable(N)
Climate	Temperature in growing season		18-23	17-15 24-35	35-40 10-14	
Soil aeration	Soil drainage	Class	Well drained	Moderately drained	Imperfectly drained	Poorly drained
Nutrient availability	Texture	Class	scl,l,scl,cl,sil	sicl,sc,sic,c(m/k)	c(ss),	ls, s
	pH	1:2.5	6.0-7.5	5.5-5.9,7.6-8.5	<5,>8.5	
	$CaCO_3$ in root zone	%	Non calcareous	Slightly calcareous	Strong calcareous	
Rooting conditions	Soil depth	cm	>75	50-75	25-50	<25
	Gravel content	% vol.	<15	15-35	>35	
Soil toxicity	Salinity	ds/m	Non saline	Slight	Strongly	
	Sodicity	%	Non sodic	Slight	Strongly	
Erosion	Slope	%	1-3	3-5	5-10	

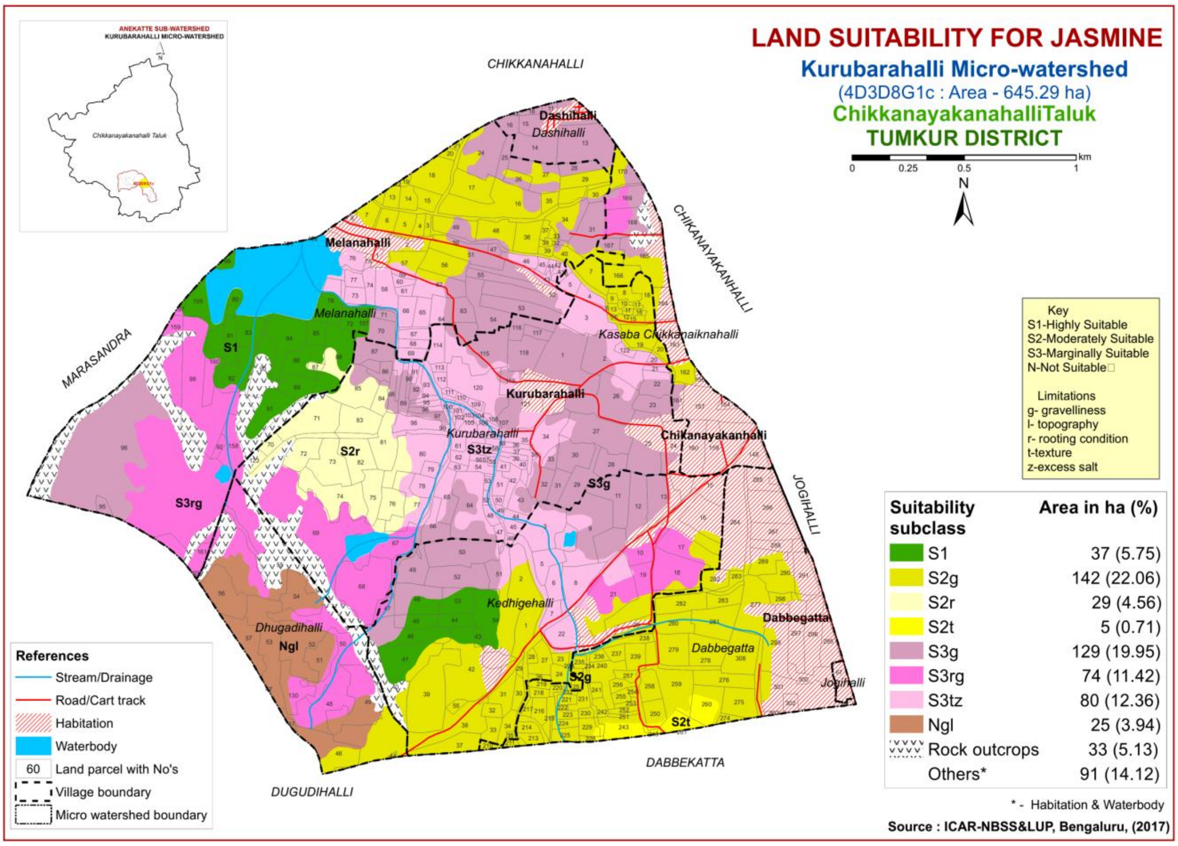


Fig. 7.31 Land Suitability map of Jasmine

7.32 Land Suitability for Coconut (*Cocos nucifera*)

Coconut is one of the most important nut crop grown in almost all the districts of the State. The crop requirements (Table 7.32) for growing coconut were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing coconut was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed are given in Figure 7.32.

Table 7.32 Land suitability criteria for Coconut

Crop requirement		Rating			
Soil –site characteristics	**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N)**
Slope	%	0-3	3-5	5-10	>10
Soil drainage	class	Well drained	Mod. drained	Poorly	Very poorly
Soil reaction	pH	5.1-6.5	6.6-7.5	7.6-8.5	-
Surface soil texture	Class	sc, cl, scl	c (red), sl	c (black), ls	-
Soil depth	cm	>100	75-100	50-75	<50
Gravel content	% vol.	<15	15-35	35-60	>60

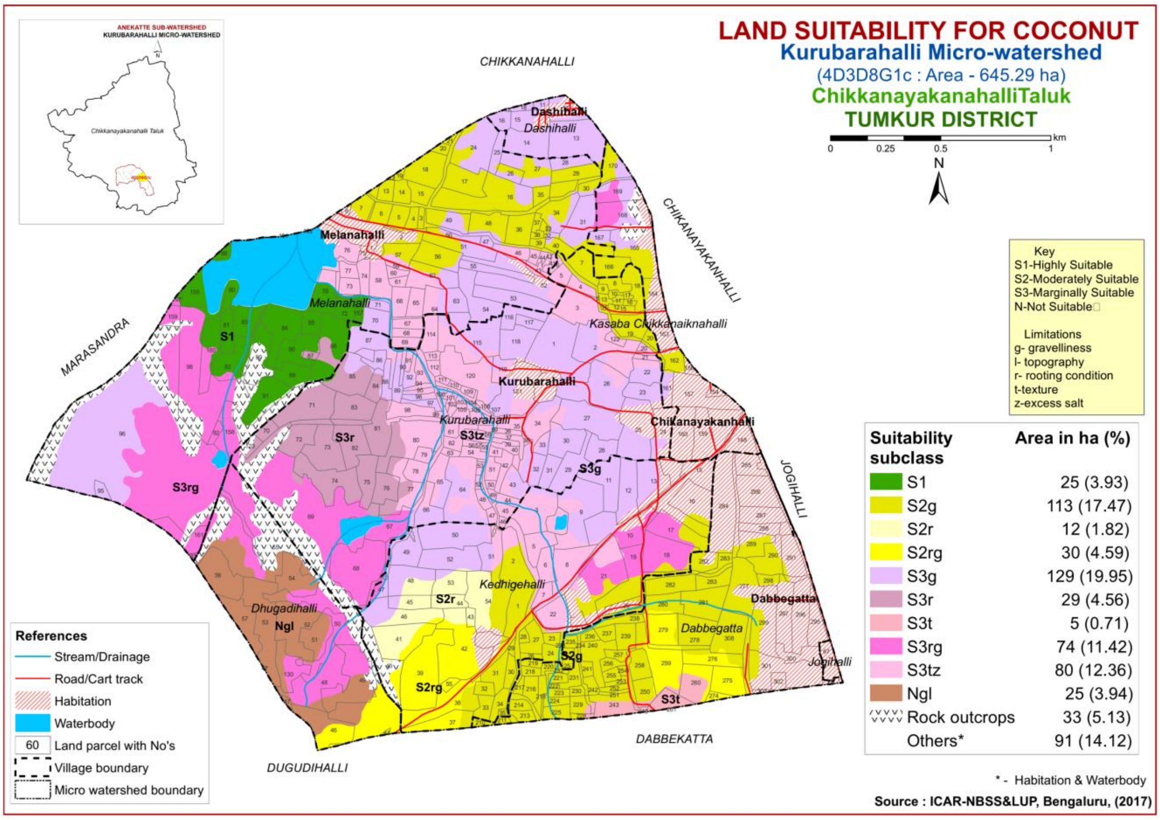


Fig. 7.32 Land Suitability map of Coconut

An area of about 25 ha (4%) is highly suitable (Class S1) for growing Coconut and are distributed in the western part of the microwatershed. An area of about 155 ha (24%) is moderately suitable (Class S2) for growing Coconut and are distributed in the eastern, southern and northern part of the microwatershed. They have minor limitations of gravelliness and rooting condition. Marginally suitable (Class S3) lands for growing coconut occupy an area of about 317 ha (49%) and are distributed in all parts of the microwatershed. They have moderate limitations of gravelliness, rooting condition, texture and excess salt. The not suitable (Class N) lands cover an area of about 25 ha

(4%) and occur in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.33 Land Suitability for Arecanut (*Areca catechu*)

Arecanut (Beetle nut) is one of the most important nut crop grown in almost all the districts of the State. The crop requirements (Table 7.33) for growing Arecanut were matched with the soil-site characteristics (Table 7.1) and a land suitability map for growing Arecanut was generated. The area extent and their geographical distribution of different suitability subclasses in the microwatershed are given in Figure 7.33.

Table 7.33 Land suitability criteria for Arecanut

Crop requirement		Rating			
Soil –site characteristics	Unit	Highly suitable(S1)	Moderately suitable(S2)	Marginally suitable(S3)	Not suitable (N)
Slope	%	0-3	3-5	5-10	>10
Soil drainage	class	Well drained	Mod. to poorly drained	-	Very poorly
Soil reaction	pH	5.0-6.5	6.6-7.5	7.6-8.5	
Surface soil texture	Class	sc, cl, scl	c (red), sl	c (black), ls	-
Soil depth	cm	>100	75-100	50-75	<50
Gravel content	% vol.	<15	15-35	35-60	>60

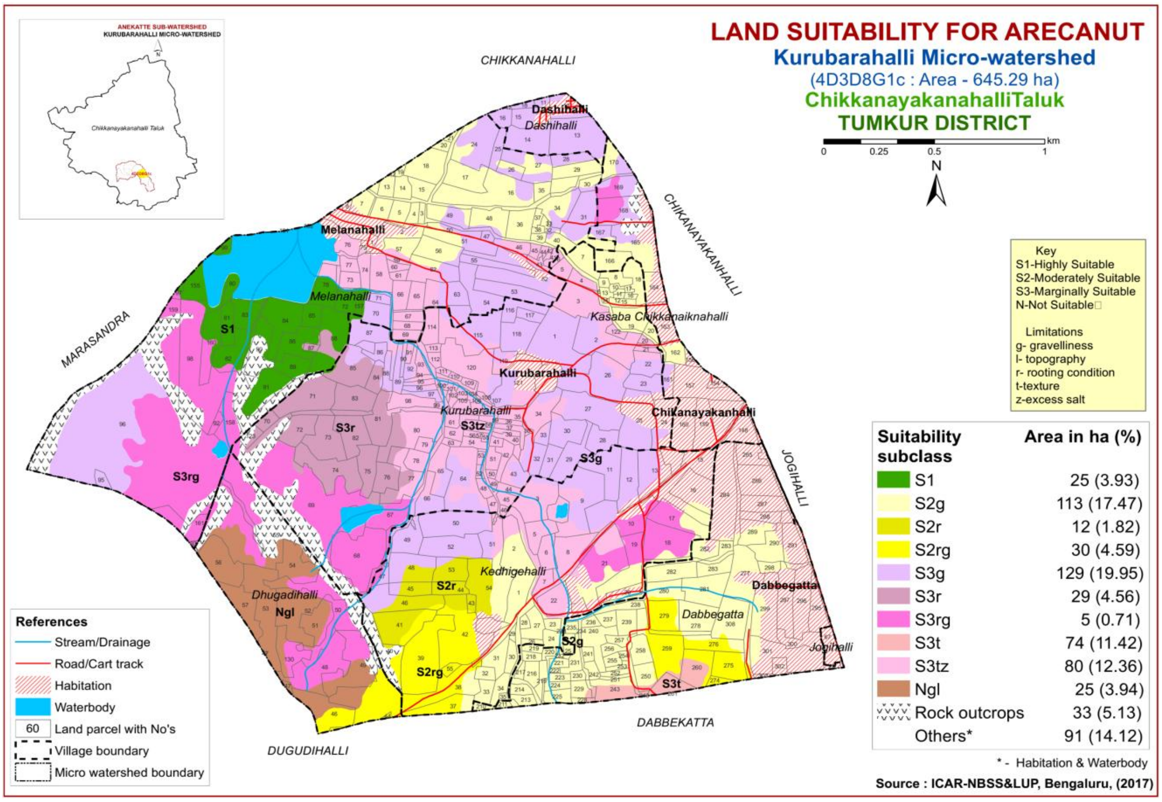


Fig. 7.33 Land Suitability map of Arecanut

An area of about 25 ha (4%) is highly suitable (Class S1) for growing Arecanut and are distributed in the southern and western part of the microwatershed. An area of about 155 ha (24%) is moderately suitable (Class S2) for growing Arecanut and are distributed in the central, northern, southwestern and western part of the microwatershed. They have minor limitations of gravelliness, rooting condition, texture and excess salt. Marginally suitable (Class S3) lands for growing Arecanut occupy an area of about 317 ha (49%) and are distributed in the western and northern part of the microwatershed. They have moderate limitations of gravelliness and rooting condition. The not suitable (Class N) lands cover an area of about 25 ha (4%) and occur in the southwestern part of the microwatershed with severe limitations of gravelliness and topography.

7.34 Land Suitability for Mulberry (*Morus nigra*)

Mulbery is one of the most important leaf crop grown for rearing silkworms in about 1.66 lakh ha in all districts of the State. The crop requirements for growing mulberry (Table 7.34) 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 7.34.

Highly suitable (Class S1) lands occupy an area of about 25 ha (4%) for growing mulberry and occur in the southern and western part of the microwatershed. Moderately suitable (Class S2) lands occupy an area of about 308 ha (48%) and occur in the northern, eastern and central part of the microwatershed. They have minor limitations of rooting condition and gravelliness. Marginally suitable (Class S3) lands cover an area of about 188 ha (29%) and occur in all parts of the microwatershed. They have moderate limitations of rooting condition, texture and excess salt.

Table 7.34 Land suitability criteria for Mulberry

Crop requirement			**Rating**			
Soil –site characteristics		**Unit**	**Highly suitable (S1)**	**Moderately suitable (S2)**	**Marginally suitable (S3)**	**Not suitable (N)**
Soil aeration	Soil drainage	Class	Well drained	Moderately well drained	Poorly drained	V. Poorly drained
Nutrient availability	Texture	Class	sc, cl, scl	c (red)	sl,ls,c(black),	-
	pH	1:2.5	-	-	-	-
Rooting conditions	Soil depth	cm	>100	75-100	50-75	<50
	Gravel content	% vol.	0-35	35-60	60-80	>80
Erosion	Slope	%	0-3	3-5	5-10	>10

Note: Suitability evaluation only for Mulberry leaf not for Silk worm rearing

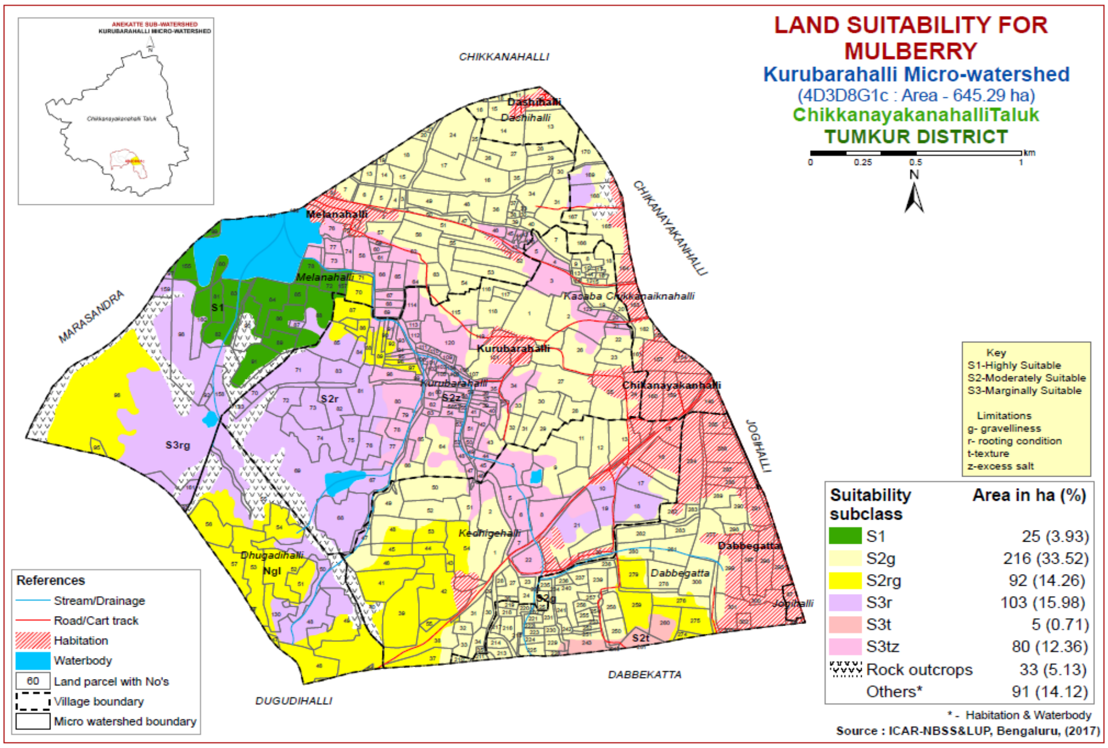


Fig. 7.34 Land Suitability map of Mulberry

7.35 Land Use Classes (LUCs)

The 21 soil map units identified in Kurubarahalli microwatershed have been regrouped into 5 Land Use Classes (LUC's) for the purpose of preparing a Proposed Crop Plan. Land Use Classes are grouped based on the similarities in respect of the type of soil, the depth of the soil, the surface soil texture, gravel content, AWC, slope, erosion etc. and a Land Use Classes map (Fig. 7.35) has been generated. These Land Use Classes are expected to behave similarly for a given level of management.

LUCs	Soil map units	Soil and site characteristics
1	20 TDGhB1	Very deep (>150 cm), black sandy loam to sandy clay lowland soils with slopes of 1-3%, slight erosion
2	5 HDHcB2g1, 8 BDGcC2g2 9 BDGcC3g3, 10 BDGiB1 12 BPRcB2g1, 13 BPRcB2g2 14 BPRcC2g2, 15 BPRhB1g1 18 NGPmB1, 19 NGPmB1g1	Moderately deep to deep (75-150 cm), gravelly red clay to loamy soils with slopes of 1-5%, slight to severe erosion and gravelly to extremely gravelly (60-80%)
3	16 LGDiB1, 17 LGDiB1g1	Deep (100-150 cm), calcareous black clayey soils with slopes of 1-3%, slight erosion and gravelly
4	6 GHTcB2g1, 7 GHTcB2g2 11 JDGiB2	Moderately deep to deep (75-150 cm), red clay to loamy soils with slopes of 1-3%, moderate erosion and gravelly to very gravelly (35-60%)
5	1 LKRcB2g1, 2 LKRcB2g2 3 LKRcC2g2, 4 KGHcC3g2	Moderately shallow (50-75 cm), red loamy soils with slopes of 1 3-5%, moderate to severe erosion and gravelly to very gravelly (35-60%)

The map units that have been grouped into five land use classes along with brief description of soil and site characteristics are given below.

7.36 Proposed Crop Plan for Kurubarahalli Microwatershed

After assessing the land suitability for the 34 crops, the proposed crop plan has been prepared for the 5 identified LUCs by considering only the highly (Class S1) and moderately (Class S2) suitable lands for each of the 34 crops. The resultant proposed crop plan is presented below in Table 7.35.

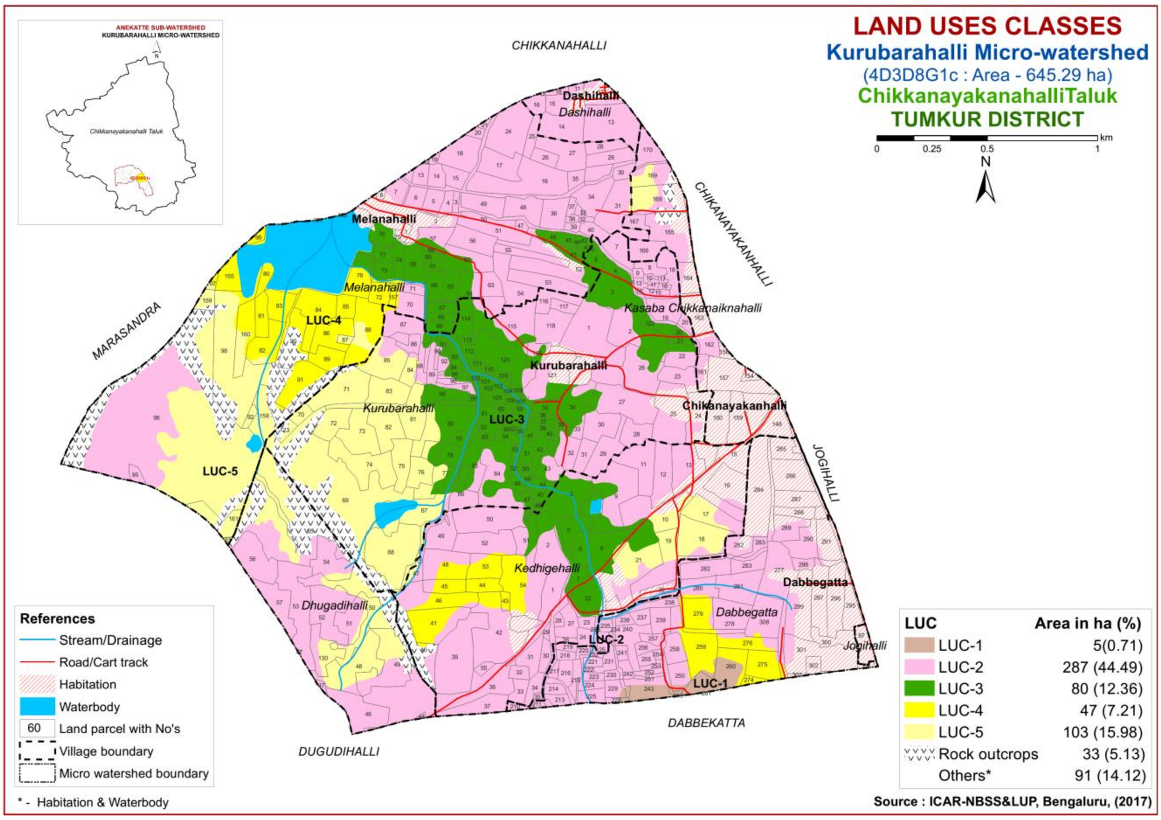


Fig. 7.35 Land Use Classes Map-Kurubarahalli Microwatershed

Table 7.35 Proposed Crop Plan for Kurubarahalli Microwatershed

LUC No	Mapping Units	Survey Number	Soil Characters	Field Crops	Forestry/ Grasses	Horticulture Crops with suitable interventions	Suitable Interventions
LUC 1 5 ha (0.71%)	20 TDGhB1	Dabbegatta: 243,249,260,261	Very deep (>150 cm), black sandy loam to sandy clay soils and lowland soils	**Sole crop**: Sorghum, Fodder sorghum, Redgram, Field bean, Horse gram **Intercropping:** Redgram+Fodder sorghum	Hebbevu, Silveroak **Grasses:** *Styloxanthes hamata*, *Styloxanthes scabra*, Hybrid napier	**Vegetables:** Chillies, Cucurbits **Flower crops:** Marigold, Chrysanthemum **Fruit crops/ Plantation crops:** Pomegranate, Tamarind, Custard Apple, Amla, Lime, Musambi Arecanut, Coconut	Application of FYM and micronutrients, drip irrigation, Mulching, suitable conservation practises
LUC 2 287 ha (44%)	5 HDHcB2g1 8 BDGcC2g2 9 BDGcC3g3 10 BDGiB1 12 BPRcB2g1 13 BPRcB2g2 14 BPRcC2g2 15 BPRhB1g1 18 NGPmB1 19 NGPmB1g1	Dabbegatta:210,211,213,214,215,216,217,218,19,220,221,222,223,224,225,228,229,230,231,232,33,234,235,236,237,238,239,240,241,242,250,251,52,253,254,255,256,257,258,277,278,280,281,282,83,289,290,298,308 Dashihalli:11,13,14,15,16, 17,18 Dhugadihalli:44,46,47,49,51,52,53,54,56,57 Kasaba Chikkanaiknahalli:156,157,161, 162,163,164,165,166,167,168,169,170, Kedhigehalli:1,2,9,10,11,12,13,19,23,24,25, 26,27,28,29,30,31,3233,34,35,37,38,39,42,47,48,49,50,52,55 Kurubarahalli:1,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,22,23,25,26,27,28,29,30,31,32,33,43,64,66,86,87,88,89,90,92,96,97,115, 116,117,118	Moderately deep to deep (75-150 cm), gravelly red clay to loamy soils	**Sole crop**: Upland paddy, Ragi, Maize, Sorghum, Groundnut, Fieldbean, Cowpea, Fodder sorghum, Horsegram	Glyricidia, **Grasses:** *Styloxanthes hamata*, *Styloxanthes scabra*, Hybrid Napier	**Vegetables:** Tomato, Brinjal, Drumstick, Chillies, Curry leaf **Flower crops:** Chrysanthemum, Marigold, Crossandra, **Fruit crops:** Tamarind, Custard Apple, Amla, Lime, Musambi	Drip irrigation, Mulching, suitable conservation practices (Crescent Bunding with Catch Pit etc)

		Melanahalli:3,4,5,6,7,12,13,14,15,16,17,18, 19,20,21,24,25,26,27,28,2930,31,32,33,34,3 5,36,37,38,39,40,47,48,49,50,51,52,53,54,5 5,56,57,63, 64,70,71,95					
LUC 3 80 ha (12%)	16 LGDiB1 17 LGDiB1g1	Kedhigehalli:3,4_TANK,5,6,7,8,22,51 Kurubarahalli:2,3,4,5,21,34,35,36,37,38,39, 40,41,42,44,45,46,47,48,49,50,51,52,53,54, 55,56,57,58,59,60,61,62,63,65,77,78,79,80, 91,93,94,95,98,99,100,101,102,103, 104,105,106,107,108,109,110,111, 112,113,114,119, 120,122 Melanahalli:41,42,43,44,45,46,58,59,60,61, 62,65,66,67,68,69,73,74, 76,77	Deep (100-150 cm),calcareous black clayey soils	**Sole crop**: Sorghum, Sunflower, Fodder sorghum, Redgram, Field bean, Horse gram **Intercropping:** Redgram +Fodder sorghum	Hebbevu, Silveroak **Grasses:** *Styloxanthes hamata*, *Styloxanthes scabra*, Hybrid napier	**Vegetables:** Brinjal, Tomato, Chillies, Cucurbits **Flower crops:** Marigold, Chrysanthemum **Fruit crops/ Plantation crops:** Pomegranate, Tamarind, Custard Apple, Amla, Lime, Musambi Arecanut, Coconut	Application of gypsum, FYM and micronutrients, drip irrigation, Mulching, suitable conservation practises
LUC 4 47 ha (12%)	6 GHTcB2g1 7 GHTcB2g2 11 JDGiB2	Dabbegatta:259,274,275,276, 279 Kedhigehalli:41,43,44,45,46,53, 54 Melanahalli:72,78,80,81,82,83, 84,85,86,88,89,91,97,99,155,157,160	Moderately deep to deep (75-150 cm), red clay to loamy soils	**Sole crop**: Upland paddy, Ragi, Maize, Sorghum, Groundnut, Fieldbean, Cowpea, Fodder sorghum, Horsegram	Glyricidia, **Grasses:** *Styloxanthes hamata*, *Styloxanthes scabra*, Hybrid Napier	**Vegetables:** Tomato, Brinjal, Drumstick, Chillies, Curry leaf **Flower crops:** Chrysanthemum, Marigold, Crossandra, **Fruit crops:** Tamarind, Custard Apple, Amla, Lime, Musambi	Drip irrigation, Mulching, suitable conservation practices (Crescent Bunding with Catch Pit etc)
LUC 5 103 (16%)	1 LKRcB2g1 2 LKRcB2g2 3 LKRcC2g2 4 KGHcC3g2	Dhugadihalli:48,50,130 Kedhigehalli:17,18,21 Kurubarahalli:67,68,70,71,72,73, 74,75,76,81,82,83, 84,85 Melanahalli:87,92,93,96,98,158,159,161	Moderately shallow (50-75 cm), red loamy soils	**Sole crops:** Ragi, Groundnut, Fodder sorghum, Cowpea, Horsegram	Glyricidia, **Grasses** *Styloxanthes hamata*, *Styloxanthes scabra*	**Vegetables:** Tomato, Onion, Chillies, Curry leaf, **Fruit crops:** Custard apple, Amla, Bael	Drip irrigation, Mulching, suitable conservation practices (Crescent Bunding with Catch Pit etc)

Chapter 8

SOIL HEALTH MANAGEMENT

8.1 Soil 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 unfavourable conditions occur

Characteristics of Kurubarahalli Microwatershed

- The soil phases identified in the microwatershed belonged to the soil series of Nagalapur (NGP) 112 ha (17%) followed by Balapur (BPR) 104 ha (16%), Lakshmangudda (LGD) 80 ha (12%), Lakkur (LKR) 74 ha (11%), Bidanagere (BDG) 50 ha (8%), Kutegoudanahundi (KGH) 29 ha (5%), Jedigere (JDG) 25 ha (4%), Gollarahatti (GHT) 21 ha (3%), and Hooradhahalli (HDH) 20 ha (3%), Thondigere (TDG) 5 ha (0.71%).
- As per land capability classification, major area in the microwatershed falls under arable land category (Class II, III & IV) and an area of 33 ha (5%) are not suitable for

agriculture but well suited for recreation and installation of wind mills. The major limitations identified in the arable lands were soil and erosion.

- On the basis of soil reaction, an area of about 190 ha (30%) is neutral (pH 6.5-7.3), 36 ha (6%) area is slightly alkaline (pH 7.3-7.8), 70 ha (11%) area is strongly acid and about 225 ha (35%) is under slightly to moderately acid (pH 5.5-6.5).

- **Soil Health Management**

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

Acid soils

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

Liming materials:

1. $CaCO_3$ (Calcium Carbonate). More than 90% use in India.
2. Dolomite [Ca Mg $(Co_3)_2$]
3. Quick lime (Cao)
4. Slaked lime [Ca $(OH)_2$]

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

Alkaline soils

(Slightly alkaline to moderately alkaline soils)

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

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 645 ha area in the microwatershed, an area of about 286 ha is suffering from moderate to severe erosion. The areas suffering from severe and moderate erosion need immediate soil and water conservation and, other land development and land husbandry practices for restoring soil health.

Dissemination of Information and Communication of Benefits

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

Inputs for Net Planning 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-Dryland Agriculture, Vijayapura, Karnataka can be adopted.

- **Gravelliness:** More gravel content is favorable for run-off harvesting but poor in soil moisture storage and nutrient availability. It is a significant parameter that decides the kind of crop to be raised.
- **Land Capability Classification:** The land capability map shows the areas suitable and not suitable for agriculture and the major constraints in each of the plot/survey number. Hence, one can decide what kind of enterprise is possible in each of these units. In general, erosion and soil are the major constraints in Kurubarahalli microwatershed.
- **Organic Carbon:** The OC content (an index of available Nitrogen) is medium (0.5-0.75%) in about 34 ha (5%) and low (<0.5%) in about 487 (75%) area. The areas that are low and medium in OC needs to be further improved by applying farmyard manure and rotating crops with cereals and legumes or mixed cropping.
- **Promoting green manuring:** Growing of green manuring crops costs Rs. 1250/ha (green manuring seeds) and about Rs. 2000/ha towards cultivation that totals to Rs. 3250/- per ha. On the other hand, application of organic manure @ 10 tons/ha costs Rs. 5000/ha. The practice needs to be continued for 2-3 years or more. Nitrogen fertilizer needs to be supplemented by 25% in addition to the recommended level in 521 ha area where OC is medium (0.5-0.75%) and low (<0.5%). For example, for rainfed maize, recommended level is 50 kg N per ha and an additional 12 kg /ha needs to be applied for all the crops grown in these plots.
- **Available Phosphorus**: Available Phosphorus is medium (23-57 kg/ha) in an area of 247 ha (38%) in the microwatershed. In 274 ha (42%) area, the available phosphorus is high (>57 kg/ha) in the microwatershed. In areas where available phosphorous is medium, 25% additional P needs to be applied for all the crops.
- **Available Potassium:** Available potassium is medium (145-337 kg/ha) in an area of 405 ha (63%) in the microwatershed and about 112 ha (17%) area is low (<145 kg/ha) in available potassium and an area of about 4 ha (0.68%) is high (>337 kg/ha) in available potassium. Hence, in all these plots, where available potassium is low and medium, for all the crops, additional 25 % potassium may be applied.
- **Available Sulphur:** Available sulphur is a very critical nutrient for oilseed crops. It is medium in 320 ha (50%) and low (<10 ppm) in 84 ha (13%) area. High (>20 ppm) in an area of about 117 ha (18%). The areas which are medium and low in available sulphur need to be applied with magnesium sulphate or gypsum or Factamphos (p) fertitilizer (13% sulphur) for 2-3 years for the deficiency to be corrected.
- **Available Boron:** Available boron content is low in an area of 321 ha (50%) and medium in 200 ha (31%). For all these areas application of sodium borate @10 kg/ha as soil application or 0.2% borax as foliar application is recommended.
- **Available Iron:** Entire area is sufficient in available iron in the microwatershed.
- **Available manganese:** Entire area in the microwatershed is sufficient in available manganese.
- **Available copper:** Entire area is sufficient in available copper in the microwatershed.

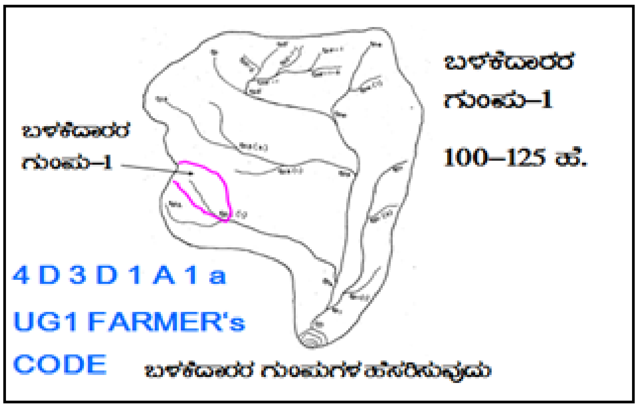
- **Available Zinc:** Entire area is sufficient in available zinc in the microwatershed.
- **Soil acidity:** The microwatershed has 295 ha (46%) area with soils that are strongly to slightly acid. These areas need application of lime (Calcium Carbonate).
- **Soil Alkalinity:** The microwatershed has 36 ha (6%) area with 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, Acasia, 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, gravel content, rooting depth and salinity/alkalinity are the major constraints in various plots. With suitable management interventions, the productivity can be enhanced. In order to increase the water holding capacity of light textured soils, growing of green manure crops and application of organic manure is recommended.

Chapter 9

SOIL AND WATER CONSERVATION TREATMENT PLAN

For preparing soil and water conservation treatment plan for Kurubarahalli 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
- Soil gravelliness
- Available water capacity
- Soil slope
- Soil erosion
- 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

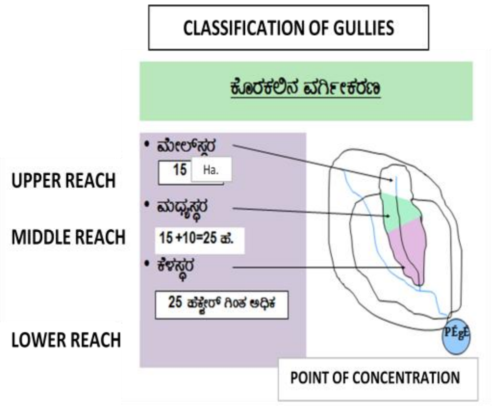
The treatment plan recommended for arable lands is briefly described below.

9.1.1 Arable Land Treatment

A. BUNDING

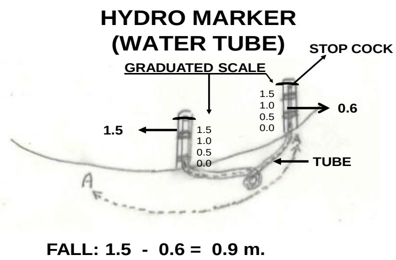
Steps for Survey and Preparation of Treatment Plan	
• Cadastral map (1:7920 scale) is enlarged to a scale of 1:2500 scale • Existing network of waterways, pothissa boundaries, grass belts, natural drainage lines/ watercourse, cut ups/ terraces are marked on the cadastral map to the scale • Drainage lines 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 25 ha 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.

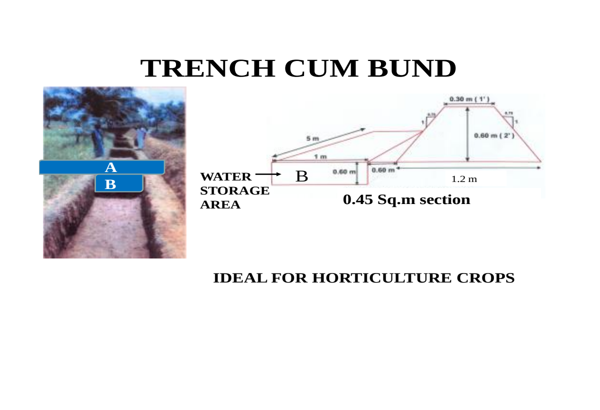
Recommended Bund Section

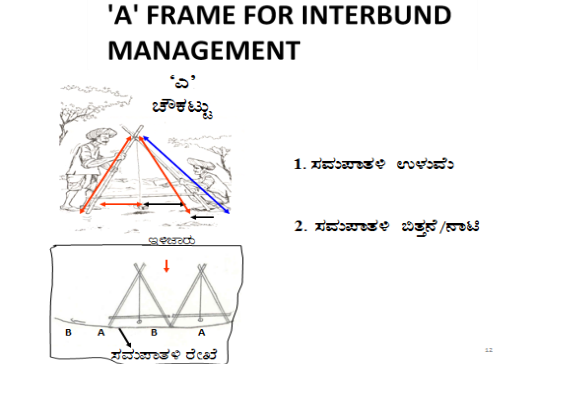
Top width (m)	Base width (m)	Height (m)	Side slope (Z:1;H:V)	Cross section (sq m)	Soil Texture	Remarks
0.3	0.9	0.3	01:01	0.18	Sandy loam	Vegetative bund
0.3	1.2	0.3	1.5:1	0.225	Sandy clay	
0.3	1.2	0.5	0.9:1	0.375	Red gravelly soils	
0.3	1.2	0.6	0.75:1	0.45		
0.3	1.5	0.6	01:01	0.54	Red sandy loam	
0.3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

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 are formed in the field.

9.1.3 Treatment of Natural Water Course/ Drainage Lines

a) The cadastral map has to be updated as regards the network of drainge 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 the 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 the available geological maps.

g) Rainfall intensity data of the nearest Rain Gauge Station is considered for Hydrologic Designs.

h) Silt load to the Storage/Recharge structures is reduced by providing vegetative, boulder and earthen checks in the natural water course. Location and design details are given in the Manual.

9.2 Recommended Soil and Water Conservation Measures

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

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

A map (Fig. 9.1) showing soil and water conservation plan with different kinds of structures recommended has been generated which shows the spatial distribution and extent of area. A maximum area of about 437 ha (68%) requires Trench cum Bunding and about 84 ha (13%) area requires graded Bunding. The conservation plan generated may be presented to all the stakeholders including the farmers and after considering their suggestions, the conservation plan for the microwatershed may be finalised in a participatory approach.

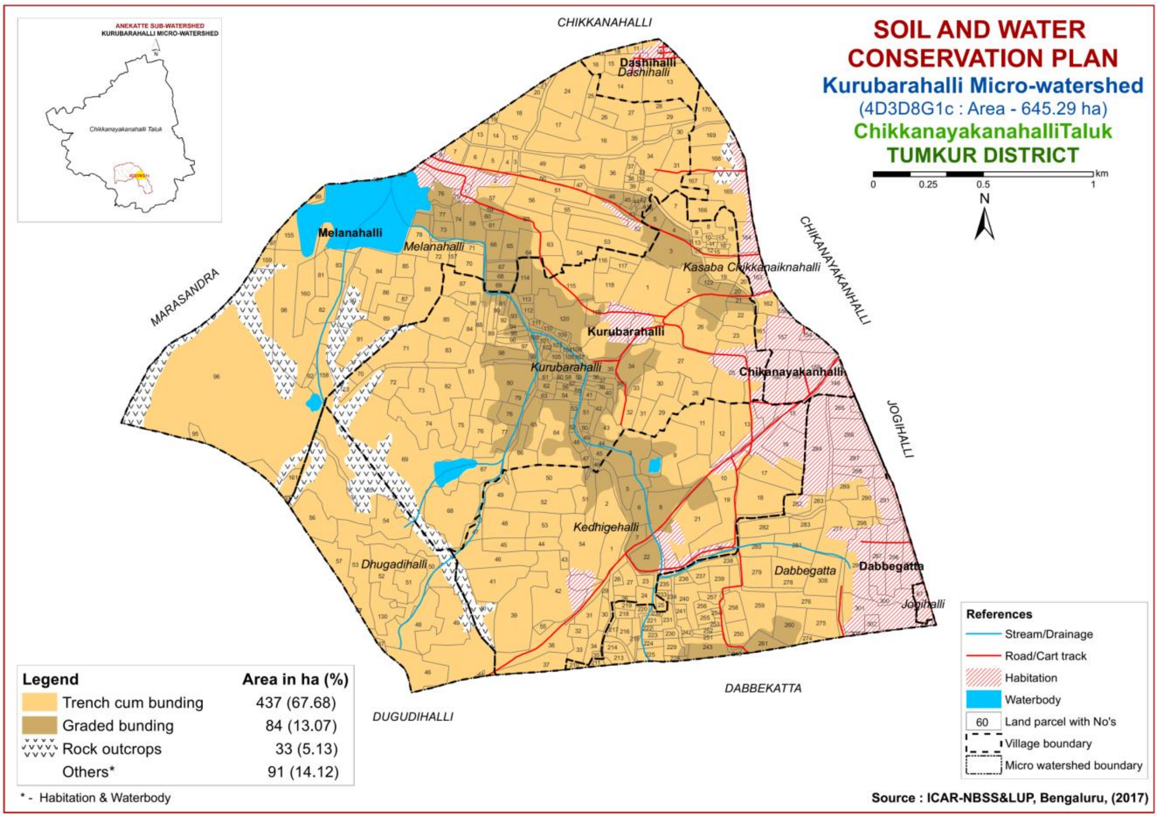


Fig. 7.36 Soil and Water Conservation Plan map of Kurubarahalli Microwatershed

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 for growing annual and perennial crops. The method of planting these trees is given below.

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

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

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

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13.

Appendix I

Kurubarahalli Microwatershed

Soil Phase Information

Village	Sy.No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	WELLS	Land Capability	Conservation Plan
Dabbegatta	20	0.15	Habitation	Others	Others	Others	Others	Others	Others	Others	NA	Not Available	Others	Others
Dabbegatta	210	0.28	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	211	0.23	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	213	0.5	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	214	0.46	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	215	0.54	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	216	0.72	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	1 Borewell	IIIs	TCB
Dabbegatta	217	0.25	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	218	0.36	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	219	0.35	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Dabbegatta	220	0.28	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Borewell	IIIs	TCB
Dabbegatta	221	0.39	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	1 Borewell, 1 Open well	IIIs	TCB
Dabbegatta	222	0.12	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Dabbegatta	223	0.36	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	224	0.48	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	225	0.76	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	228	0.25	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	229	0.67	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	230	0.3	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	231	0.66	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	232	0.14	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Dabbegatta	233	0.22	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Dabbegatta	234	0.1	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB

Village	Sy.No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	WELLS	Land Capability	Conservation Plan
Dabbegatta	235	0.36	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Dabbegatta	236	0.35	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	237	0.56	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	238	0.74	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Borewell	IIIs	TCB
Dabbegatta	239	1.07	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	240	1.67	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	241	0.35	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	242	0.43	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	243	1.8	TDGhB1	LMU-1	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIs	GB
Dabbegatta	249	0	TDGhB1	LMU-1	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIs	GB
Dabbegatta	250	1.11	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	251	0.2	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	252	0.33	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	253	0.26	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	254	0.16	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	255	0.43	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	256	0.46	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	257	0.45	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	258	1.14	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dabbegatta	259	3.32	GHTcB2g2	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Dabbegatta	260	2.23	TDGhB1	LMU-1	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Slight	Coconut+Ragi (CN+Rg)	Not Available	IIs	GB
Dabbegatta	261	1.16	TDGhB1	LMU-1	Very deep (>150 cm)	Sandy clay loam	Non gravelly (<15%)	Medium (101-150 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Dabbegatta	274	0.34	GHTcB2g2	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Dabbegatta	275	1.86	GHTcB2g2	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB

Village	Sy.No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	WELLS	Land Capability	Conservation Plan
Dabbegatta	276	1.76	GHTcB2g2	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Coconut (CN)	Not Available	IIIes	TCB
Dabbegatta	277	3.17	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut+Arecanut (CN+Ar)	3 Borewell	IIIs	TCB
Dabbegatta	278	2.12	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Dabbegatta	279	1.92	GHTcB2g2	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Dabbegatta	280	1.51	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	2 Borewell	IIIs	TCB
Dabbegatta	281	2.52	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	2 Borewell	IIIs	TCB
Dabbegatta	282	2.75	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	3 Borewell, 1 Open well	IIIs	TCB
Dabbegatta	283	1.45	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Borewell	IIIs	TCB
Dabbegatta	284	4.61	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Dabbegatta	285	1.16	Habitation	Others	Others	Others	Others	Others	Others	Others	NA	Not Available	Others	Others
Dabbegatta	286	2.4	Habitation	Others	Others	Others	Others	Others	Others	Others	NA	Not Available	Others	Others
Dabbegatta	287	1.5	Habitation	Others	Others	Others	Others	Others	Others	Others	NA	Not Available	Others	Others
Dabbegatta	288	0.84	Habitation	Others	Others	Others	Others	Others	Others	Others	NA	Not Available	Others	Others
Dabbegatta	289	1.51	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Dabbegatta	290	1.96	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Dabbegatta	291	1.61	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Dabbegatta	295	1.43	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Dabbegatta	296	2.43	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Dabbegatta	297	2.25	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Dabbegatta	298	0.5	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Dabbegatta	299	3.22	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Dabbegatta	300	1.19	Habitation	Others	Others	Others	Others	Others	Others	Others	NA	Not Available	Others	Others
Dabbegatta	301	3.97	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Dabbegatta	302	0.54	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Dabbegatta	303	0.13	Habitation	Others	Others	Others	Others	Others	Others	Others	NA	Not Available	Others	Others
Dabbegatta	308	2.61	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dashihalli	11	0.3	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Ragi (Rg)	Not Available	IIIs	TCB
Dashihalli	12	1.44	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Dashihalli	13	4.18	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut+Ragi (CN+Rg)	Not Available	IIIs	TCB
Dashihalli	14	2.4	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut+Ragi (CN+Rg)	1 Borewell	IIIs	TCB
Dashihalli	15	1.61	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dashihalli	16	0.73	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Ragi (Rg)	Not Available	IIIs	TCB

Village	Sy.No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	WELLS	Land Capability	Conservation Plan
Dashihalli	17	0.03	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Dashihalli	18	0.28	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Dhugadihalli	44	0.07	HDHcB2g1	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	NA	Not Available	IIIes	TCB
Dhugadihalli	46	2.92	BDGcC3g3	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Extremely gravelly (60-80%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Severe	Ragi (Rg)	Not Available	Ives	TCB
Dhugadihalli	47	0.19	BDGcC3g3	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Extremely gravelly (60-80%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Severe	NA	Not Available	Ives	TCB
Dhugadihalli	48	3.77	LKRcB2g1	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Very Low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Dhugadihalli	49	4.06	BDGcC3g3	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Extremely gravelly (60-80%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Severe	Ragi+Brick Industry (Rg+BI)	Not Available	Ives	TCB
Dhugadihalli	50	1.43	LKRcB2g1	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Very Low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Dhugadihalli	51	1.87	BDGcC3g3	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Extremely gravelly (60-80%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Severe	Ragi (Rg)	Not Available	Ives	TCB
Dhugadihalli	52	3.49	BDGcC3g3	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Extremely gravelly (60-80%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Severe	Ragi (Rg)	Not Available	Ives	TCB
Dhugadihalli	53	4.34	BDGcC3g3	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Extremely gravelly (60-80%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Severe	Ragi (Rg)	Not Available	Ives	TCB
Dhugadihalli	54	2.36	BDGcC3g3	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Extremely gravelly (60-80%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Severe	Ragi (Rg)	Not Available	Ives	TCB
Dhugadihalli	55	20.78	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Coconut+Ragi +Dyke(CN+Rg+Dy)	Not Available	VIIIs	Rock outcrops
Dhugadihalli	56	2.89	BDGcC3g3	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Extremely gravelly (60-80%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Severe	Ragi (Rg)	Not Available	Ives	TCB
Dhugadihalli	57	2.11	BDGcC3g3	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Extremely gravelly (60-80%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Severe	Ragi (Rg)	Not Available	Ives	TCB
Dhugadihalli	130	1.83	LKRcB2g1	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Very Low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Coconut+Ragi (CN+Rg)	Not Available	IIIes	TCB
Jogihalli	67	1.14	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Kasaba Chik kanaiknahalli	148	1.42	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Kasaba Chik kanaiknahalli	154	0.33	Habitation	Others	Others	Others	Others	Others	Others	Others	NA	Not Available	Others	Others
Kasaba Chik kanaiknahalli	156	0.3	Habitation	Others	Others	Others	Others	Others	Others	Others	NA	Not Available	Others	Others
Kasaba Chik kanaiknahalli	157	3.11	Habitation	Others	Others	Others	Others	Others	Others	Others	NA	Not Available	Others	Others
Kasaba Chik kanaiknahalli	158	1.68	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Kasaba Chik kanaiknahalli	159	1.9	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Kasaba Chik kanaiknahalli	160	2.42	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Kasaba Chik kanaiknahalli	161	0.83	BPRcB2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Habitation	Not Available	IIIes	TCB

Village	Sy.No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	WELLS	Land Capability	Conservation Plan
Kasaba Chik kanaiknahalli	162	0.89	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Kasaba Chik kanaiknahalli	163	1.66	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Kasaba Chik kanaiknahalli	164	1.22	Habitation	Others	Others	Others	Others	Others	Others	Others	Coconut (CN)	Not Available	Others	Others
Kasaba Chik kanaiknahalli	165	3.41	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut+Ragi (CN+Rg)	1 Borewell	IIIs	TCB
Kasaba Chik kanaiknahalli	166	1.4	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Kasaba Chik kanaiknahalli	167	0.68	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Ragi (Rg)	2 Borewell	IIIs	TCB
Kasaba Chik kanaiknahalli	168	2.99	LKRcB2g1	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Very Low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Scrub land (Sl)	Not Available	IIIes	TCB
Kasaba Chik kanaiknahalli	169	1.78	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Habitation	Not Available	IIIs	TCB
Kasaba Chik kanaiknahalli	170	1.39	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Kedhigehalli	1	1.83	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	5 Borewell, 2 Open well	IIIs	TCB
Kedhigehalli	2	2.58	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Open well,1 Borewell	IIIs	TCB
Kedhigehalli	3	3.06	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kedhigehalli	4	0.91	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kedhigehalli	5	1.35	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Borewell, 1 Open well	IIs	GB
Kedhigehalli	6	1.12	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Road	Not Available	IIs	GB
Kedhigehalli	7	0.63	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIs	GB
Kedhigehalli	8	2.29	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	2 Borewell	IIs	GB
Kedhigehalli	9	4.47	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Coconut+Ragi (CN+Rg)	Not Available	IIIes	TCB
Kedhigehalli	10	3.6	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kedhigehalli	11	2.6	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kedhigehalli	12	2.3	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Habitation	Not Available	IIIes	TCB
Kedhigehalli	13	2.43	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Habitation	Not Available	IIIes	TCB
Kedhigehalli	14	0.82	Habitation	Others	Others	Others	Others	Others	Others	Others	Waterbody	Not Available	Others	Others
Kedhigehalli	15	3.32	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Kedhigehalli	16	2.49	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Kedhigehalli	17	2.37	LKRcB2g1	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Very Low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB

Village	Sy.No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	WELLS	Land Capability	Conservation Plan
Kedhigehalli	18	3.31	LKRcB2g1	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Very Low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Arecanut+Ragi (Ar+Rg)	Not Available	IIIes	TCB
Kedhigehalli	19	2.85	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut+Ragi (Ar+Rg)	Not Available	IIIs	TCB
Kedhigehalli	20	0.74	Habitation	Others	Others	Others	Others	Others	Others	Others	Habitation	Not Available	Others	Others
Kedhigehalli	21	5.53	LKRcB2g1	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Gravelly (15-35%)	Very Low (<50 mm/m)	Very gently sloping (1-3%)	Moderate	Arecanut (Ar)	1 Borewell	IIIes	TCB
Kedhigehalli	22	1.71	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Habitation	2 Borewell	IIs	GB
Kedhigehalli	23	0.41	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Open well	IIIs	TCB
Kedhigehalli	24	0.62	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Kedhigehalli	25	0.3	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	2 Borewell	IIIs	TCB
Kedhigehalli	26	0.25	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	1 Borewell	IIIs	TCB
Kedhigehalli	27	1.09	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut+Areca nut (CN+Ar)	2 Borewell	IIIs	TCB
Kedhigehalli	28	0.26	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Kedhigehalli	29	0.17	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Kedhigehalli	30	0.61	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Kedhigehalli	31	1.22	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Kedhigehalli	32	0.52	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	1 Borewell	IIIs	TCB
Kedhigehalli	33	0.76	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	1 Open well	IIIs	TCB
Kedhigehalli	34	0.74	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Borewell	IIIs	TCB
Kedhigehalli	35	0.13	NGPmB1	LMU-2	Deep (100-150 cm)	Clay	Non gravelly (<15%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Borewell	IIIs	TCB
Kedhigehalli	37	1.83	HDHcB2g1	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Coconut (CN)	1 Borewell	IIIes	TCB
Kedhigehalli	38	3.37	HDHcB2g1	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Coconut (CN)	1 Borewell	IIIes	TCB
Kedhigehalli	39	5.39	HDHcB2g1	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kedhigehalli	40	2.61	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Dyke (Dy)	Not Available	VIIIs	Rock outcrops
Kedhigehalli	41	3.25	GHTcB2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIe	TCB
Kedhigehalli	42	5.19	HDHcB2g1	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	1 Borewell	IIIes	TCB
Kedhigehalli	43	0.34	GHTcB2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	NA	Not Available	IIIe	TCB

Village	Sy.No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	WELLS	Land Cap ability	Conserva tion Plan
Kedhigehalli	44	0.97	GHTcB2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIe	TCB
Kedhigehalli	45	1.18	GHTcB2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIe	TCB
Kedhigehalli	46	3.06	GHTcB2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIe	TCB
Kedhigehalli	47	0.51	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Kedhigehalli	48	2.7	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut+Ragi (CN+Rg)	Not Available	IIIs	TCB
Kedhigehalli	49	1.65	BPRhB1g1	LMU-2	Deep (100-150 cm)	Sandy clay loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Kedhigehalli	50	3.51	BPRcB2g1	LMU-2	Deep (100-150 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Coconut (CN)	1 Borewell	IIIes	TCB
Kedhigehalli	51	1.87	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Ragi (Rg)	1 Borewell	IIs	GB
Kedhigehalli	52	2.71	BPRcB2g1	LMU-2	Deep (100-150 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kedhigehalli	53	1.67	GHTcB2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Coconut (CN)	Not Available	IIIe	TCB
Kedhigehalli	54	4.46	GHTcB2g1	LMU-4	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Coconut (CN)	4 Borewell	IIIe	TCB
Kedhigehalli	55	0.33	HDHcB2g1	LMU-2	Moderately deep (75-100 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Habitation	Not Available	IIIes	TCB
Kurubarahalli	1	5.28	BPRcB2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	2	4.35	LGDiB1g1	LMU-3	Deep (100-150 cm)	Sandy clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut+Ragi (CN+Rg)	Not Available	IIs	GB
Kurubarahalli	3	2.6	LGDiB1g1	LMU-3	Deep (100-150 cm)	Sandy clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Open well, 1 Borewell	IIs	GB
Kurubarahalli	4	0.6	LGDiB1g1	LMU-3	Deep (100-150 cm)	Sandy clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	1 Borewell	IIs	GB
Kurubarahalli	5	0.65	LGDiB1g1	LMU-3	Deep (100-150 cm)	Sandy clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	6	1.08	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Waterbody	Not Available	IIIs	TCB
Kurubarahalli	7	1.36	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	1 Open well, 2 Borewell	IIIs	TCB
Kurubarahalli	8	0.68	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	2 Borewell	IIIs	TCB
Kurubarahalli	9	0.21	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	1 Borewell	IIIs	TCB
Kurubarahalli	10	0.18	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	1 Borewell	IIIs	TCB
Kurubarahalli	11	0.1	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Kurubarahalli	12	0.11	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB

Village	Sy.No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	WELLS	Land Capability	Conservation Plan
Kurubarahalli	13	0.25	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Kurubarahalli	14	0.08	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIIs	TCB
Kurubarahalli	15	0.38	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Kurubarahalli	16	0.16	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Kurubarahalli	17	0.11	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	1 Open well	IIIs	TCB
Kurubarahalli	18	1.3	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Arecanut (Ar)	Not Available	IIIs	TCB
Kurubarahalli	19	1.48	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Open well,1 Borewell	IIIs	TCB
Kurubarahalli	20	0.58	NGPmB1g1	LMU-2	Deep (100-150 cm)	Clay	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIIs	TCB
Kurubarahalli	21	0.25	LGDiB1g1	LMU-3	Deep (100-150 cm)	Sandy clay	Gravelly (15-35%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	22	1.45	BPRcB2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	23	1.42	BPRcB2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	24	2.06	Habitation	Others	Others	Others	Others	Others	Others	Others	Arecanut (Ar)	Not Available	Others	Others
Kurubarahalli	25	3.99	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Habitation	Not Available	IIIes	TCB
Kurubarahalli	26	4.36	BPRcB2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	27	3.77	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	28	1.37	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	29	2.06	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	30	1.95	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	31	0.95	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	32	0.87	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	33	0.53	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	34	2.69	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	35	0.6	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	36	0.27	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	37	0.5	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB

Village	Sy.No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	WELLS	Land Capability	Conservation Plan
Kurubarahalli	38	0.15	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIs	GB
Kurubarahalli	39	0.26	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	40	0.39	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	41	0.25	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	42	0.78	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	4 Borewell	IIs	GB
Kurubarahalli	43	1.27	BPRcC2g2	LMU-2	Deep (100-150 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Moderate	Coconut+Ragi (CN+Rg)	Not Available	IIIes	TCB
Kurubarahalli	44	0.42	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	45	0.45	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	46	0.16	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	47	0.3	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	48	0.42	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	49	0.17	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	50	0.17	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	51	0.6	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	52	0.22	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	53	0.21	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	54	0.53	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	55	0.13	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	2 Borewell, 1 Open well	IIs	GB
Kurubarahalli	56	0.25	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	57	0.18	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	1 Borewell, 1 Open well	IIs	GB
Kurubarahalli	58	0.37	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	Not Available	IIs	GB
Kurubarahalli	59	0.25	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Habitation	Not Available	IIs	GB
Kurubarahalli	60	0.28	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	2 Borewell	IIs	GB
Kurubarahalli	61	0.44	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut (CN)	3 Borewell	IIs	GB

Village	Sy.No	Area (ha)	Soil Phase	LMU	Soil Depth	Surface Soil Texture	Soil Gravelliness	Available Water Capacity	Slope	Soil Erosion	Current Land Use	WELLS	Land Capability	Conservation Plan
Kurubarahalli	62	0.5	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIs	GB
Kurubarahalli	63	0.26	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	NA	Not Available	IIs	GB
Kurubarahalli	64	4.4	BPRcB2g1	LMU-2	Deep (100-150 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Coconut+Ragi (CN+Rg)	1 Borewell	IIIes	TCB
Kurubarahalli	65	1.7	LGDiB1	LMU-3	Deep (100-150 cm)	Sandy clay	Non gravelly (<15%)	Very high (>200 mm/m)	Very gently sloping (1-3%)	Slight	Coconut+Ragi (CN+Rg)	Not Available	IIs	GB
Kurubarahalli	66	1.45	BPRcB2g1	LMU-2	Deep (100-150 cm)	Sandy loam	Gravelly (15-35%)	Low (51-100 mm/m)	Very gently sloping (1-3%)	Moderate	Coconut+Ragi (CN+Rg)	Not Available	IIIes	TCB
Kurubarahalli	67	1.96	LKRcC2g2	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Very gravelly (35-60%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Coconut (CN)	Not Available	IIIes	TCB
Kurubarahalli	68	5.09	LKRcC2g2	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Very gravelly (35-60%)	Very Low (<50 mm/m)	Gently sloping (3-5%)	Moderate	Ragi (Rg)	Not Available	IIIes	TCB
Kurubarahalli	69	17.92	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Coconut+Ragi +Dyke (CN+Rg+Dy	Not Available	VIIIs	Rock outcrops
Kurubarahalli	70	0.57	KGHcC3g2	LMU-5	Moderately shallow (50-75 cm)	Sandy loam	Very gravelly (35-60%)	Low (51-100 mm/m)	Gently sloping (3-5%)	Severe	Ragi (Rg)	Not Available	Ives	TCB

Appendix II

Kurubarahalli 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
Dabbegatta	20	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	210	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Dabbegatta	211	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	213	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	214	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	215	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	216	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	217	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	218	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	219	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	220	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	221	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	222	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	223	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	224	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	225	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	228	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	229	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	230	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	231	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	232	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	233	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	234	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 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
Dabbegatta	235	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	236	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	237	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	238	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	239	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	240	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	241	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	242	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	243	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	249	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	250	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	251	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	252	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	253	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	254	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	255	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	256	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	257	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	258	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	259	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	260	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	261	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	274	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	275	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 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
Dabbegatta	276	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	277	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	278	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	279	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	280	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	281	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	282	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Dabbegatta	283	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	284	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	285	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	286	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	287	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	288	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	289	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Dabbegatta	290	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	291	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	295	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	296	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	297	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	298	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dabbegatta	299	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	300	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	301	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	302	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	303	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	308	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dashihalli	11	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Dashihalli	12	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dashihalli	13	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dashihalli	14	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dashihalli	15	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dashihalli	16	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)

Village	Survey No.	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Dashihalli	17	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dashihalli	18	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Dhugadihalli	44	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Dhugadihalli	46	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dhugadihalli	47	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dhugadihalli	48	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dhugadihalli	49	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dhugadihalli	50	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dhugadihalli	51	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dhugadihalli	52	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dhugadihalli	53	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dhugadihalli	54	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Dhugadihalli	55	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops
Dhugadihalli	56	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dhugadihalli	57	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Dhugadihalli	130	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Jogihalli	67	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chik kanaiknahalli	148	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chik kanaiknahalli	154	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chik Kanaiknahalli	156	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chik kanaiknahalli	157	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chik kanaiknahalli	158	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chik kanaiknahalli	159	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chik kanaiknahalli	160	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chik kanaiknahalli	161	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Others	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 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
Kasaba Chik kanaiknahalli	162	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kasaba Chik kanaiknahalli	163	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chik kanaiknahalli	164	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chik kanaiknahalli	165	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kasaba Chik kanaiknahalli	166	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kasaba Chik kanaiknahalli	167	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kasaba Chik kanaiknahalli	168	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kasaba Chik kanaiknahalli	169	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kasaba Chik kanaiknahalli	170	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	1	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	2	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	3	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	4	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	5	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	6	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	7	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	8	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	9	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	10	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	11	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	12	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	13	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	14	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kedhigehalli	15	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kedhigehalli	16	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kedhigehalli	17	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	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)

Village	Survey No.	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Kedhigehalli	18	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	19	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	20	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kedhigehalli	21	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	22	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	23	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	24	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	25	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	26	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	27	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	28	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	29	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	30	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	31	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	32	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Kedhigehalli	33	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Kedhigehalli	34	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	35	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Medium (0.5 – 0.75 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	37	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Kedhigehalli	38	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Kedhigehalli	39	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Kedhigehalli	40	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops
Kedhigehalli	41	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Kedhigehalli	42	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	43	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 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
Kedhigehalli	44	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	45	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Kedhigehalli	46	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Kedhigehalli	47	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Kedhigehalli	48	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	49	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	50	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kedhigehalli	51	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	52	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	53	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	54	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kedhigehalli	55	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Low (<145 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)
Kurubarahalli	1	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	2	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	3	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	4	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	5	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	6	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	7	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	8	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	9	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	10	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	11	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	12	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 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
Kurubarahalli	13	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	14	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	15	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	16	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	17	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	18	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	19	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	20	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	21	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	22	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	23	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	24	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kurubarahalli	25	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	26	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	27	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	28	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	29	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	30	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	31	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	32	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	33	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	34	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	35	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	36	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	37	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)

Village	Survey No.	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Kurubarahalli	38	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	39	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	40	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	41	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	42	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	43	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	44	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	45	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	46	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	47	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	48	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	49	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	50	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	51	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	52	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	53	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	54	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	55	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	56	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	57	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	58	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	59	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	60	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	61	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)

Village	Survey No.	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Kurubarahalli	62	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	63	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	64	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	65	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	66	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	67	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	68	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Kurubarahalli	69	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops
Kurubarahalli	70	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	71	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	72	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	73	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	74	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	75	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	76	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	77	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	78	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	79	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	80	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	81	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	82	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	83	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	84	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	85	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 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
Kurubarahalli	86	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	87	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	88	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	89	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	90	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	91	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	92	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	93	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	94	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	95	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	96	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	97	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	98	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	99	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Kurubarahalli	100	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	101	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	102	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	103	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	104	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	105	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	106	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	107	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	108	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	109	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 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
Kurubarahalli	110	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	111	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	112	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	113	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	114	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	115	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	116	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	117	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	118	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	119	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	120	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	121	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kurubarahalli	122	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Kurubarahalli	123	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops
Melanahalli	1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	2	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	3	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	4	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	5	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	6	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	7	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	8	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	12	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	13	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	14	Slightly alkaline (pH 7.3 – 7.8)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	15	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 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
Melanahalli	16	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	17	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	18	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	19	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	20	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Melanahalli	21	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Melanahalli	24	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Melanahalli	25	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Melanahalli	26	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	27	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	28	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	29	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	30	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Melanahalli	31	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	32	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	33	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	34	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	35	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	36	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	37	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	38	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	39	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	40	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	41	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 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
Melanahalli	42	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	43	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	44	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	45	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	46	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	47	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	48	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	49	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	50	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	51	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	52	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	53	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	54	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	55	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	56	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	57	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	High (> 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	58	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	59	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	60	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	61	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	62	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	63	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	64	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	65	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 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
Melanahalli	66	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	67	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	68	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	69	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	70	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	71	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	72	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	73	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	74	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	75	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	76	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	77	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	78	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	79	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	80	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 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)	Sufficient (> 0.6 ppm)
Melanahalli	81	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	82	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	83	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	84	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	85	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	86	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	87	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	88	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	89	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	90	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops

Village	Survey No.	Soil Reaction	Salinity	Organic Carbon	Available Phosphorus	Available Potassium	Available Sulphur	Available Boron	Available Iron	Available Manganese	Available Copper	Available Zinc
Melanahalli	91	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	92	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Melanahalli	93	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	95	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 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)
Melanahalli	96	Strongly acid (pH 5.0 – 5.5)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Melanahalli	97	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 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)	Sufficient (> 0.6 ppm)
Melanahalli	98	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Low (<10 ppm)	Low (< 0.5 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	99	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 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)	Sufficient (> 0.6 ppm)
Melanahalli	101	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	102	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	155	Neutral (pH 6.5 – 7.3)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 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)	Sufficient (> 0.6 ppm)
Melanahalli	157	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	158	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	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)
Melanahalli	159	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	160	Slightly acid (pH 6.0 – 6.5)	Non saline (<2 dsm)	Low (< 0.5 %)	Medium (23 – 57 kg/ha)	Medium (145 – 337 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)
Melanahalli	161	Moderately acid (pH 5.5 – 6.0)	Non saline (<2 dsm)	Low (< 0.5 %)	High (> 57 kg/ha)	Low (<145 kg/ha)	Medium (10 – 20 ppm)	Medium (0.5 – 1.0 ppm)	Sufficient (>4.5 ppm)	Sufficient (> 1.0 ppm)	Sufficient (> 0.2 ppm)	Sufficient (> 0.6 ppm)

Appendix III

Kurubarahalli Microwatershed
Soil Suitability Information

Village	Sy.No	Mango	Maize	Sapota	Sorgham	Coconut	Guava	Tamarind	Lime	Sunflower	Redgram	Amla	Jackfruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Banana	Horsegram	Field-bean	Arecanut	Finger-Millet	Brinjal	FodderSorghum	Upland-Paddy	Jasmine	Cowpea	Mulberry
Dabbegatta	20	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	210	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	211	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	213	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	214	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	215	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	216	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	217	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	218	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	219	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	220	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	221	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	222	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	223	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	224	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	225	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	228	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	229	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	230	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	231	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	232	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	233	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	234	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	235	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	236	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	237	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	238	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	239	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	240	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	241	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	242	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	243	S3t	S3t	S3t	S2t	S3t	S3t	S2t	S2t	S2t	S2t	S2t	S3t	S2t	Nt	S2t	S2t	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S3t	S3t	S2t	S2t	S2t	S2t	S2t	S3t
Dabbegatta	249	S3t	S3t	S3t	S2t	S3t	S3t	S2t	S2t	S2t	S2t	S2t	S3t	S2t	Nt	S2t	S2t	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S3t	S3t	S2t	S2t	S2t	S2t	S2t	S3t
Dabbegatta	250	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	251	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	252	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	253	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	254	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	255	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	256	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	257	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	258	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g

Village	Sy.No	Mango	Maize	Sapota	Sorghum	Coconut	Guava	Tamarind	Lime	Sunflower	Red gram	Amla	Jack fruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Banana	Horse gram	Field-bean	Areca nut	Finger-Millet	Brinjal	FodderSorghum	Upland-Paddy	Jasmine	Cow pea	Mulberry
Dabbegatta	259	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Dabbegatta	260	S3t	S3t	S3t	S2t	S3t	S3t	S2t	S2t	S2t	S2t	S2t	S3t	S2t	Nt	S2t	S2t	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S3t	S3t	S2t	S2t	S2t	S2t	S2t	S3t
Dabbegatta	261	S3t	S3t	S3t	S2t	S3t	S3t	S2t	S2t	S2t	S2t	S2t	S3t	S2t	Nt	S2t	S2t	S3t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S2t	S3t	S3t	S2t	S2t	S2t	S2t	S2t	S3t
Dabbegatta	274	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Dabbegatta	275	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Dabbegatta	276	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Dabbegatta	277	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	278	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	279	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Dabbegatta	280	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	281	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	282	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	283	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	284	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	285	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	286	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	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	Others	Others	Others	Others	Others
Dabbegatta	288	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	289	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	290	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	291	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	295	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	296	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	297	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	298	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dabbegatta	299	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	300	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	301	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	302	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	303	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Dabbegatta	308	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Dashihalli	11	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Dashihalli	12	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others

Village	Sy.No	Mango	Maize	Sapota	Sorgham	Coconut	Guava	Tamarind	Lime	Sunflower	Red gram	Amla	Jack fruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Banana	Horse gram	Field-bean	Areca nut	Finger-Millet	Brinjal	FodderSorghum	Upland-Paddy	Jasmine	Cow pea	Mulberry
Dashihalli	13	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Dashihalli	14	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Dashihalli	15	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Dashihalli	16	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Dashihalli	17	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Dashihalli	18	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Dhugadihalli	44	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Dhugadihalli	46	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	S2rg
Dhugadihalli	47	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	S2rg
Dhugadihalli	48	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Dhugadihalli	49	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	S2rg
Dhugadihalli	50	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Dhugadihalli	51	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	S2rg
Dhugadihalli	52	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	S2rg
Dhugadihalli	53	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	S2rg
Dhugadihalli	54	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	S2rg
Dhugadihalli	55	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops	Rock outcrops
Dhugadihalli	56	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	S2rg
Dhugadihalli	57	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	Ngl	S2rg
Dhugadihalli	130	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Jogihalli	67	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chikkanaiknahalli	148	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chikkanaiknahalli	154	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chikkanaiknahalli	156	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chikkanaiknahalli	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	Others	Others	Others	Others	Others
Kasaba Chikkanaiknahalli	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	Others	Others	Others	Others	Others
Kasaba Chikkanaiknahalli	159	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chikkanaiknahalli	160	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chikkanaiknahalli	161	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kasaba Chikkanaiknahalli	162	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kasaba Chikkanaiknahalli	163	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chikkanaiknahalli	164	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kasaba Chikkanaiknahalli	165	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g

Village	Sy.No	Mango	Maize	Sapota	Sorgham	Coconut	Guava	Tamarind	Lime	Sunflower	Red gram	Amla	Jack fruit	Custard-apple	Cashew	Jamun	Musambi	Ground nut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Banana	Horse gram	Field-bean	Areca nut	Finger-Millet	Brinjal	FodderSorghum	Upland-Paddy	Jasmine	Cow pea	Mulberry
Kasaba Chik kanaiknahalli	166	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kasaba Chik kanaiknahalli	167	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kasaba Chik kanaiknahalli	168	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Kasaba Chik kanaiknahalli	169	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kasaba Chik kanaiknahalli	170	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	1	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	2	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	3	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kedhigehalli	4	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kedhigehalli	5	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kedhigehalli	6	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kedhigehalli	7	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kedhigehalli	8	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kedhigehalli	9	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kedhigehalli	10	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kedhigehalli	11	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kedhigehalli	12	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kedhigehalli	13	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kedhigehalli	14	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kedhigehalli	15	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kedhigehalli	16	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kedhigehalli	17	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Kedhigehalli	18	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Kedhigehalli	19	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	20	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kedhigehalli	21	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Kedhigehalli	22	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kedhigehalli	23	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	24	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	25	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	26	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	27	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	28	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	29	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	30	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	31	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	32	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	33	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g

Village	Sy.No	Mango	Maize	Sapota	Sorghum	Coconut	Guava	Tamarind	Lime	Sunflower	Red gram	Amla	Jack fruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Banana	Horse gram	Field-bean	Areca nut	Finger-Millet	Brinjal	FodderSorghum	Upland-Paddy	Jasmine	Cow pea	Mulberry
Kedhigehalli	34	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	35	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kedhigehalli	37	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Kedhigehalli	38	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Kedhigehalli	39	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Kedhigehalli	40	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC
Kedhigehalli	41	S3r	S1	S2r	S1	S2r	S2r	S3r	S2r	S2r	S1	S1	S2r	S1	S2r	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S2r	S1	S1	S2r	S1	S1	S1	S1	S1	S1	S2rg
Kedhigehalli	42	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Kedhigehalli	43	S3r	S1	S2r	S1	S2r	S2r	S3r	S2r	S2r	S1	S1	S2r	S1	S2r	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S2r	S1	S1	S2r	S1	S1	S1	S1	S1	S1	S2rg
Kedhigehalli	44	S3r	S1	S2r	S1	S2r	S2r	S3r	S2r	S2r	S1	S1	S2r	S1	S2r	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S2r	S1	S1	S2r	S1	S1	S1	S1	S1	S1	S2rg
Kedhigehalli	45	S3r	S1	S2r	S1	S2r	S2r	S3r	S2r	S2r	S1	S1	S2r	S1	S2r	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S2r	S1	S1	S2r	S1	S1	S1	S1	S1	S1	S2rg
Kedhigehalli	46	S3r	S1	S2r	S1	S2r	S2r	S3r	S2r	S2r	S1	S1	S2r	S1	S2r	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S2r	S1	S1	S2r	S1	S1	S1	S1	S1	S1	S2rg
Kedhigehalli	47	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kedhigehalli	48	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kedhigehalli	49	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kedhigehalli	50	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kedhigehalli	51	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kedhigehalli	52	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kedhigehalli	53	S3r	S1	S2r	S1	S2r	S2r	S3r	S2r	S2r	S1	S1	S2r	S1	S2r	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S2r	S1	S1	S2r	S1	S1	S1	S1	S1	S1	S2rg
Kedhigehalli	54	S3r	S1	S2r	S1	S2r	S2r	S3r	S2r	S2r	S1	S1	S2r	S1	S2r	S3r	S2r	S1	S1	S1	S1	S1	S1	S2r	S2r	S1	S1	S2r	S1	S1	S1	S1	S1	S1	S2rg
Kedhigehalli	55	S3rg	S2g	S2rg	S2g	S2rg	S2rg	S3rg	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2rg	S3rg	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg	S2rg	S2g	S2g	S2rg	S2g	S2g	S2g	S2g	S2g	S2g	S2rg
Kurubarahalli	1	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	2	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	3	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	4	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	5	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	6	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	7	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	8	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	9	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	10	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	11	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	12	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	13	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	14	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	15	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	16	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	17	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	18	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	19	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	20	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Kurubarahalli	21	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	22	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	23	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	24	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kurubarahalli	25	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g

Village	Sy.No	Mango	Maize	Sapota	Sorghum	Coconut	Guava	Tamarind	Lime	Sunflower	Red gram	Amla	Jack fruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Banana	Horse gram	Field-bean	Arecanut	Finger-Millet	Brinjal	FodderSorghum	Upland-Paddy	Jasmine	Cowpea	Mulberry
Kurubarahalli	26	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	27	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	28	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	29	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	30	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	31	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	32	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	33	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	34	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	35	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	36	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	37	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	38	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	39	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	40	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	41	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	42	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	43	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	44	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	45	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	46	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	47	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	48	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	49	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	50	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	51	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	52	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	53	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	54	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	55	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	56	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	57	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	58	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	59	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	60	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	61	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	62	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	63	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	64	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	65	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	66	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	67	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Kurubarahalli	68	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Kurubarahalli	69	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC
Kurubarahalli	70	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	71	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	72	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r

Village	Sy.No	Mango	Maize	Sapota	Sorghum	Coconut	Guava	Tamarind	Lime	Sunflower	Red gram	Amla	Jack fruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Banana	Horse gram	Field-bean	Areca nut	Finger-Millet	Brinjal	FodderSorghum	Upland-Paddy	Jasmine	Cow pea	Mulberry
Kurubarahalli	73	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	74	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	75	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	76	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	77	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	78	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	79	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	80	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	81	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	82	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	83	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	84	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	85	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Kurubarahalli	86	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Kurubarahalli	87	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Kurubarahalli	88	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Kurubarahalli	89	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Kurubarahalli	90	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Kurubarahalli	91	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	92	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Kurubarahalli	93	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	94	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	95	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	96	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Kurubarahalli	97	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Kurubarahalli	98	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	99	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	100	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	101	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	102	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	103	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	104	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	105	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	106	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	107	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	108	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	109	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	110	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	111	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	112	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	113	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	114	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	115	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	116	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	117	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	118	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Kurubarahalli	119	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz

Village	Sy.No	Mango	Maize	Sapota	Sorghum	Coconut	Guava	Tamarind	Lime	Sunflower	Red gram	Amla	Jack fruit	Custard-apple	Cashew	Jamun	Musambi	Ground nut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Banana	Horse gram	Field-bean	Areca nut	Finger-Millet	Brinjal	FodderSorghum	Upland-Paddy	Jasmine	Cowpea	Mulberry
Kurubarahalli	120	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	121	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Kurubarahalli	122	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Kurubarahalli	123	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC
Melanahalli	1	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	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	Others	Others	Others	Others	Others
Melanahalli	3	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	4	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	5	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	6	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	7	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	8	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	12	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	13	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	14	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	15	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	16	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	17	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	18	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	19	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	20	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	21	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	24	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	25	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	26	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	27	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	28	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	29	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	30	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	31	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	32	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	33	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	34	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	35	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	36	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	37	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	38	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	39	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	40	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	41	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	42	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	43	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	44	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz

Village	Sy.No	Mango	Maize	Sapota	Sorghum	Coconut	Guava	Tamarind	Lime	Sunflower	Red gram	Amla	Jack fruit	Custard-apple	Cashew	Jamun	Musambi	Groundnut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Banana	Horse gram	Field-bean	Areca nut	Finger-Millet	Brinjal	FodderSorghum	Upland-Paddy	Jasmine	Cow pea	Mulberry
Melanahalli	45	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	46	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	47	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	48	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	49	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	50	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	51	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	52	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	53	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	54	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	55	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	56	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	57	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g	S2g
Melanahalli	58	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	59	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	60	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	61	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	62	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	63	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	64	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S2g	S3g	S2g	S2g	S3g	S3g	S2tg	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S3g	S2g
Melanahalli	65	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	66	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	67	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	68	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	69	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	70	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Melanahalli	71	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Melanahalli	72	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	73	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	74	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	75	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	76	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	77	S3tz	S3tz	S3tz	S2z	S3tz	S3tz	S2tz	S2z	S2z	S2tz	S2z	S3tz	S2z	Ntz	S2tz	S2z	S3tz	S3tz	S2z	S2z	S2z	S2z	S2tz	S2tz	S2z	S2z	S3tz	S3tz	S2z	S2z	S2tz	S3tz	S2z	S3tz
Melanahalli	78	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	79	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	80	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	81	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	82	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	83	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	84	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	85	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	86	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	87	Nr	S2r	S3r	S2r	S3r	S3r	S3r	S3r	S3r	S2r	S2r	S3r	S2r	S3r	S3r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r	S3r	S2r	S2r	S3r	S2r	S2r	S2r	S2r	S2r	S2r	S3r
Melanahalli	88	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	89	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1

Village	Sy.No	Mango	Maize	Sapota	Sorghum	Coconut	Guava	Tamarind	Lime	Sunflower	Red gram	Amla	Jack fruit	Custard-apple	Cashew	Jamun	Musambi	Ground nut	Onion	Chilly	Tomato	Marigold	Chrysanthemum	Pomegranate	Banana	Horse gram	Field-bean	Areca nut	Finger-Millet	Brinjal	FodderSorghum	Upland-Paddy	Jasmine	Cow pea	Mulberry
Melanahalli	90	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC	ROC
Melanahalli	91	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	92	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Melanahalli	93	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Melanahalli	95	S3rg	S3rg	S3rg	S3rg	S3g	S3rg	S3rg	S3rg	S3rg	S3g	S2g	S3rg	S2g	S3rg	S3rg	S3rg	S2rg	S3g	S3g	S3g	S3g	S3g	S3rg	S3rg	S2g	S3g	S3g	S2g	S3g	S3rg	S2g	S3g	S3g	S2rg
Melanahalli	96	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Melanahalli	97	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	98	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Melanahalli	99	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	101	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	102	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others	Others
Melanahalli	155	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	157	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	158	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Melanahalli	159	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r
Melanahalli	160	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Melanahalli	161	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	Nrg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S3rg	S2rg	S3rg	S3rg	S2rg	S3rg	S3rg	S3r

PART-B

SOCIO-ECONOMIC STATUS OF FARM HOUSEHOLDS

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Chapter 1

EXECUTIVE SUMMARY

Baseline socioeconomic characterisation is prerequisite to prepare action plan for program implementation and to assess the project performance before making any changes in the watershed development program. The baseline provides appropriate policy direction for enhancing productivity and sustainability in agriculture.

Methodology: *Kurubarahalli Micro-watershed (Anekatte sub-watershed, Chikkanayaka-nahalli taluk, Tumkur district) is located in between $13^{0}23'$ – $13^{0}25'$ North latitudes and $76^{0}35'$ – $76^{0}37'$ East longitudes, covering an area of about 645.29 ha, bounded by Kedhigehalli, Marasandra, Chikkanahalli, Chikkanayakanahalli, Dugudihalli, Dabbekatta and Jogihalli villages with length of growing period (LGP) 120-150 days.We used soil resource map as basis for sampling farm households to test the hypothesis that soil quality influence crop selection, and conservation investment of farm households. The level of technology adoption and productivity gaps and livelihood patterns were analyses. The cost of soil degradation and ecosystem services were quantified.*

Results: *The socio-economic outputs for the Kurubarahalli Microwatershed Anekatte sub-watershed, Chikkanayakanahalli taluk, Tumkur district) are presented here.*

Social Indicators;

- *Male and female ratio is 57.4 to 42.6 per cent to the total sample population.*
- *Younger age 18 to 50 years group of population is around 51.1 per cent to the total population.*
- *Literacy population is around 80.9 per cent.*
- *Social groups belong to other backward caste (OBC) is around 50 per cent.*
- *Liquefied petroleum gas (LPG) is the source of energy for a cooking among all sample households.*
- *About 66.6 per cent of households have a yashaswini health card.*
- *Majority of farm households (50 %) are having MGNREGA card for rural employment.*
- *Dependence on ration cards for food grains through public distribution system is around 80 per cent.*
- *Swach bharath program providing closed toilet facilities around 90 per cent of sample households.*
- *Institutional participation is only 2.1 per cent of sample households.*
- *Women participation in decisions making are around 36 per cent of households were found.*

Economic Indicators;

- *The average land holding is 0.44 ha indicates that majority of farm households are belong to marginal farmers. The dry land account for 90.9 % and irrigated land 9.1 % of total cultivated land area among the sample farmers.*
- *Agriculture is the main occupation among 63.8 per cent and agriculture is the main and non agriculture labour is subsidiary occupation for 30.5 per cent of sample households.*
- *The average value of domestic assets is around Rs.14420 per household. Mobile and Mixer/grinder are popular media mass communication.*
- *The average value of farm assets is around Rs.1004 per household, about 70 per cent of sample farmers own plough.*
- *The average value of livestock is around Rs.22810 per household; about 79 per cent of household are having livestock.*
- *The average per capita food consumption is around 694.5 grams (1481.6 kilo calories) against national institute of nutrition (NIN) recommendation at 827.7 gram. Around 90 per cent of sample households are consuming less than the NIN recommendation.*
- *The annual average income is around Rs. 25543 per household. Above 90 per cent of farm households are below poverty line.*
- *The per capita average monthly expenditure is around Rs.1228.*

Environmental Indicators-Ecosystem Services;

- *The value of ecosystem service helps to support investment to decision on soil and water conservation and in promoting sustainable land use.*
- *The onsite cost of different soil nutrients lost due to soil erosion is around Rs. 790 per ha/year. The total cost of annual soil nutrients is around Rs. 411588 per year for the total area of 445.72 ha.*
- *The average value of ecosystem service for food grain production is around Rs 28081/ ha/year. Per hectare food grain production services is maximum in coconut (Rs. 74436) followed by ragi (Rs. 6316) and green gram (Rs. 3490).*
- *The average value of ecosystem service for fodder production is around Rs. 3647/ ha/year. Per hectare fodder production services is maximum in maize (Rs. 5325) followed by ragi (Rs. 1968).*
- *The data on water requirement for producing one quintal of grain is considered for estimating the total value of water required for crop production. The per hectare value of water used and value of water was maximum in coconut (Rs. 265476) followed by green gram (Rs. 43584) and ragi (Rs. 13608).*

Economic Land Evaluation;

- *The major cropping pattern ragi (50.2 %) followed by green gram (45.2 %) and coconut (4.6 %).*
- *In Kurubarahalli Microwatershed, major soil is Kutegoudanahundi (KGH) series is having moderately shallow soil depth cover around 50 % of area. On this soil farmers are presently growing green gram (50 %) and ragi (4.56 %), soils of Bidanagere (BDG) are also having moderately deep soil depth cover 7.84 % of area, the crops are green gram (50 %) and ragi (50 %). Balapur (BPR) soil series having deep soil depth cover around 16.05 % of areas, crops are green gram (44.5 %) and ragi (55.5 %). Lakshmanagudda (LGD) soil series having deep soil depth cover around 12.37 % of area, crops are coconut (16.7 %), green gram (33.3 %) and ragi (50 %).*
- *The cost of cultivation and benefit cost ratio (BCR) of ragi range between Rs.60787/ha in BDG soil (with BCR of 1.06) and Rs 12124/ha in LDG soil (with BCR of 1.87).*
- *In green gram the cost of cultivation ranges between Rs.54821/ha in BDG soil (with BCR of 1.13) and Rs. 16307/ha in LGD soil (with BCR of 1.88).*
- *In coconut the cost of cultivation in LGD soil is Rs 44124/ha (with BCR of 2.69).*
- *The land management practices reported by the farmers are crop rotation, tillage practices, fertilizer application and use of farm yard manure (FYM). Due to higher wages farmer are following labour saving strategies is not prating soil and water conservation measures. Less ownership of livestock limiting application of FYM.*
- *It was observed soil quality influences on the type and intensity of land use. More fertilizer applications in deeper soil to maximize returns.*

Suggestions;

- *Involving farmers is watershed planning helps in strengthing institutional participation.*
- *The per capita food consumption and monthly income is very low. Diversifying income generation activities from crop and livestock production in order to reduce risk related to drought and market prices.*
- *Majority of farmers reported that they are not getting timely support/extension services from the concerned development departments.*
- *By strengthing agricultural extension for providing timely advice improved technology there is scope to increase in net income of farm households.*
- *By adopting recommended package of practices by following the soil test fertiliser recommendation, there is scope to increase yield in ragi (71.7 to 30.6 %), green gram (42.2 to 27.4 %), and coconut (45.8 %).*

- ***Chapter 2***

INTRODUCTION

Watershed Development program aim to restore degraded watersheds in rainfed regions to increase their capacity to capture and store rain water, reduce soil erosion, and improved soil nutrients and carbon contents so they can produce greater agricultural yields and other benefits. As majority of rural poor live in these regions and dependent on natural resources for their livelihood and sustenance, improvements in agricultural yields improve human welfare and simultaneously improve national food security.

Sujala–III watershed development project conceptualised and implemented by the Watershed Development Department of Government of Karnataka with tripartite cost-sharing arrangements. The World Bank through International Development Association provided major portion of plan outlay as a loan to Government of India and in turn loan to Government of Karnataka.

The objectives of Sujala-III is to demonstrate more effective watershed management through greater integration of programs related to rain fed agriculture, innovative and science based approaches and strengthened institutions and capacities. The project is implemented in 11 districts of Bidar, Vijayapura, Gulbarga, Yadgir, Koppal, Gadag, Raichur, Davanagere, Tumkur, Chikkamangalur and Chamarajanagar which have been identified by the Watershed Development Department based on rainfall and socio-economic conditions. The project will be implemented over six years and linked with the centrally financed integrated watershed management programme.

Economic evaluations can better guide in watershed planning and implementation, as well as raise awareness of benefits of ecosystem restoration for food security and poverty alleviation program. The present study aims to characterize socio-economic status of farm households, assess the land and water use status, evaluate the economic viability of land use, prioritize farming constraints and suggest the measures for soil and water conservation for sustainable agriculture.

Objectives of the study

1. To characterize socio-economic status of farm households
2. To evaluate the economic viability of land use and land related constraints
3. To estimate the ecosystem service provided by the watershed and
4. To suggest alternatives for sustainable agriculture production.

Chapter 3

METHODOLOGY

Study area

Kurubarahalli Microwatershed is located in Central Dry Zone of Karnataka (Figure 1)**:** The zone covers the entire Chitradurga district, parts of Tumkur (6 taluks) and one taluk each in Chikmagalur and Hassan districts. The zone has an area of 1.98 M ha with 0.93 M ha under cultivation of which 0.18 M ha enjoys irrigation facilities. The major soil type is red loam with sporadic occurrence of shallow to deep black soils in Chitradurga district. The elevation ranges from 450 to 900 m MSL with most parts lying at an elevation of 800-900 m MSL. This is the driest zone in the state with annual average rainfall ranging from 450 to 715 mm. More than 55 per cent of the rains in this zone are received during pre-monsoon period and southwest monsoon making it a predominantly kharif area. Ragi, sorghum, rice, oilseeds and pulses are the major crops cultivated in the zone. It's represented Agro Ecological Sub Region (AESR) 8.2 having LGP 120-150 days.

Kurubarahalli Microwatershed (Anekatte sub-watershed, Chikkanayakanahalli taluk, Tumkur district) is located in between $13^{0}23'$ – $13^{0}25'$ North latitudes and $76^{0}35'$ – $76^{0}37'$ East longitudes, covering an area of about 645.29 ha, bounded by Kedhigehalli, Marasandra, Chikkanahalli, Chikkanayakanahalli, Dugudihalli, Dabbekatta and Jogihalli villages.

Sampling Procedure:

In this study we have followed soil variability as criterion for sampling the farm households. In each Microwatershed the survey numbers and associated soil series are listed. Minimum three farm households for each soil series were taken and summed up to arrive at total sample for analysis.

Sources of data and analysis:

For evaluating the specific objectives of the study, primary data was collected from the sample respondents by personal interview method with the help of pre-tested questionnaire. The data on socio-economic characteristics of respondents such as family size and composition, land holdings, asset position, occupational pattern and education level was collected. The present cropping pattern and the level of input use and yields collected during survry. The data collected from the representative farm households were analysed using Automated Land Potential Evalution System (Figure 2).

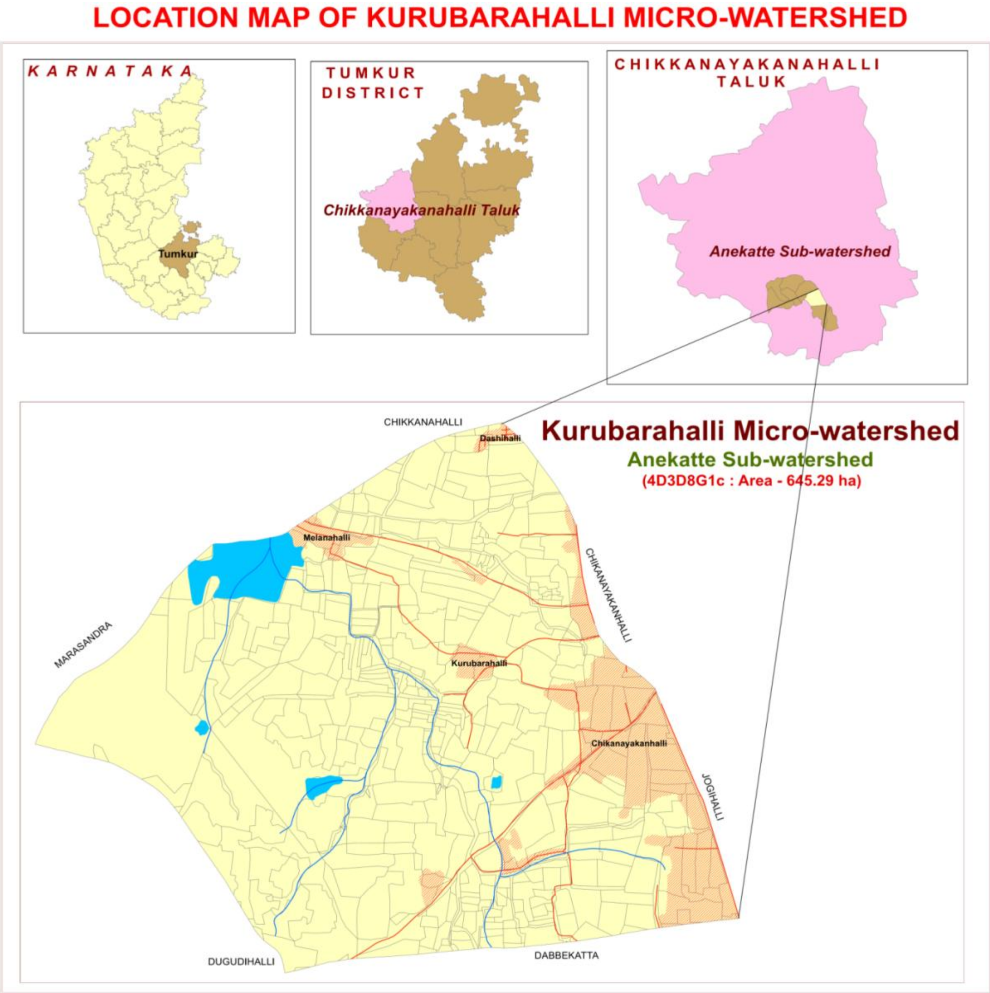

Figure 1: Location of study area

Steps followed in socio-economic assessment

1. •After the completion of soil profile study link the cadastral number to the soil profile in the micro watershed.
2. • Download the names of the farmers who are owning the land for each cadastral number in the Karnataka BHOOMI Website.
3. • Compiling the names of the farmers representing for all the soil profiles studied in the micro watershed for socio-economic Survey.
4. • Conducting the socioeconomic survey of selected farm households in the micro watershed .
5. • Farm households database created using the Automated Land Potential Evaluation System (ALPES) for analysis of socio economic status for each micro watershed .
6. • Synthesis of tables and preparation of report for each micro watershed .

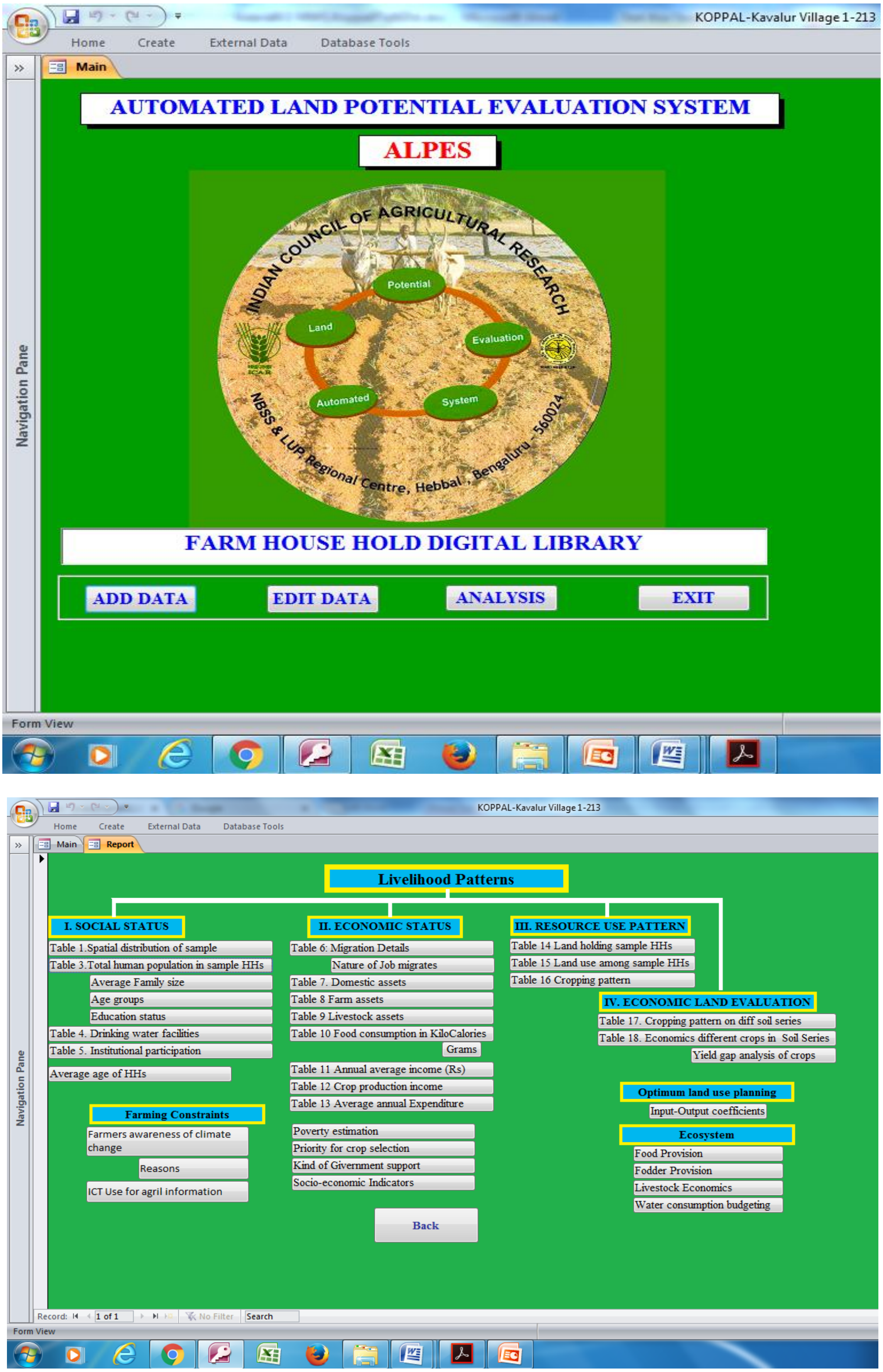

Figure 2: ALPES FRAMEWORK

The sample farmers were post classified in to marginal and small (0.0 to <=2 ha), medium and semi medium (>2 to <=10 ha) and large (>10 ha). The steps involved in estimation of soil potential involve estimation of total cost of cultivation, the yield/gross returns and net income per hectare. The cost of inputs such seed, manure and fertilizer, plant protection chemicals, payment towards human and bullock labour and interest on working capita are included under operational costs. In the case of perennial crops, the cost of establishment was estimated by using actual physical requirements and prevailing market prices. Estimation cost included maintenance cost up to bearing period. The value of main product and by product from the crop enterprise at the market rates were the gross returns of the crop. Net returns were worked out by deducting establishment and maintained cost from gross returns.

Operational Cost = cost of seeds, fertilizers, pesticides. Cost of human and bullock labour, cost of machinery, cost of irrigation water + interest on working capital.
Gross returns = Yield (Quintals/hectare)*Price (Rs/Quintal)
Net returns = Gross returns-Operational cost.
Benefit Cost Ratio = Net returns/Total cost.

Economic suitability classes: once each land use –land area combination has been assigned an economic value by the land evaluation, the question arises as to its ‘suitability’, that is, the degree to which it satisfies the land user. The FAO framework defines two suitability orders: ’S’(suitable if benefit cost ratio (BCR)>1) and ‘N’(not suitable if (BCR<1), which are dived into five economic suitability classes:’S1’(highly suitable if BCR>3), ’S2’(suitable if BCR>2 and <3),’S3’(Marginally suitable if BCR >1 and <2), ‘N1’(Not suitable for economic reasons but physically suitable) and ‘N2’(not suitable for physical reasons). The limit between ‘S3’ and ‘N1’must be at least at the point of financial feasibility (i.e. net returns, NPV, or IRR>0 and BCR>1). The other limits depend on social factors such as farm size, family size, alternative employment or investment possibilities and wealth expectations; these need to be specified for the Soil series.

Economic Valuation of Soil ecosystem services:

The replacement cost approach was followed for estimating the onsite cost of soil erosion, Market price method was followed for estimating the value of food and fodder production. Value transfer menthods was followed for estimating the value of water demand by different crops in the micro watershed.

Steps followed in Replacement cost methods for estimation of onsite cost of soil erosion.

1
- Collect the Soil Map Units (SMU) / Land Use Type (LUT) with soil fertility analysis.

2
- Integrate the erosion rates per SMU/LUT.

3
- Estimate the nutrients lost per tone of soil erosion for each SMU/LUT.

4
- Estimate the value of soil nutrients lost per ton of soil erosion for each SMU/LUT by taking the market price of soil nutrients.

RESULTS AND DISCUSSIONS

The demographic information shows that the household population dynamics encompasses the socioeconomic status of the farmer. For a rural family, the household size should be optimal to earn a comfortable livelihood through farm and non-farm wage earning. The total number of population in watershed area was 47, out of which 57.4 per cent were males and 42.6 per cent females. Average family size of the households is 4.7. Age is an important factor, which affects the potential employment and mobility status of respondents. The data on age wise distribution of farmers in the sample households indicated that majority of the farmers are coming under the age group of 30 to 50 years (29.8 %) followed by 18 to 30 years (21.3 %), 0 to 18 years (21.3 %) and more than 50 years (27.1 %). Hence, in the study area in general, the respondents were of young and middle age, indicating thereby that the households had almost settled with whatever livelihood options they were practicing and sample respondents were young by age who could venture into various options of livelihood sources. Data on literacy indicated that 19.1 per cent of respondents were illiterate and 80.9 per cent literate (Table 1).

Table 1: Human population among sample households in Kurubarahalli Micro watershed

Particulars	**Units**	**Value**
Total human population in sample HHs	Number	47
Male	% to total Population	57.4
Female	% to total Population	42.6
Average family size	Number	4.7
Age group		
0 to 18 years	% to total Population	21.3
18 to 30 years	% to total Population	21.3
30 to 50 years	% to total Population	29.8
>50 years	% to total Population	27.7
Average age	Age in years	37.1
Education Status		
Illiterates	% to total Population	19.1
Literates	% to total Population	80.9
Primary School (<5 class)	% to total Population	21.3
Middle School (6- 8 class)	% to total Population	6.4
High School (9- 10 class)	% to total Population	36.2
Others	% to total Population	17.0

The ethnic groups among the sample farm households found to be 50.0 per cent belonging to other backward caste (OBC) followed by 50.0 per cent belonging to general castes (Table 2 and Figure 3). About 100 per cent of sample households are using LPG gas as source of fuel for cooking. All the sample farmers are having electricity connection. About 66.6 per cent are sample households having health cards. Majority (50 %) are having MNREGA job cards for employment generation. About 80.0 per cent of farm households are having ration cards for taking food grains from public distribution system. About 90.0 per cent of farm households are having toilet facilities.

Table 2: Basic needs of sample households in Kurubarahalli Microwatershed

Particulars	**Units**	**Value**
Social groups		
OBC	% of Households	50.0
Others	% of Households	50.0
Types of fuel use for cooking		
Gas	% of Households	100.0
Energy supply for home		
Electricity	% of Households	100.0
Number of households having Health card		
Yes	% of Households	66.6
No	% of Households	33.3
MGNREGA Card		
Yes	% of Households	50.0
No	% of Households	50.0
Ration Card		
Yes	% of Households	80.0
No	% of Households	20.0
Households with toilet		
Yes	% of Households	90.0
No	% of Households	10.0
Drinking water facilities		
Tube well	% of Households	100.0

The data collected on the source of drinking water in the study area is presented in Table 2. Majority of the sample respondents are having Tube well source for water supply for domestic purpose (100.0 %).

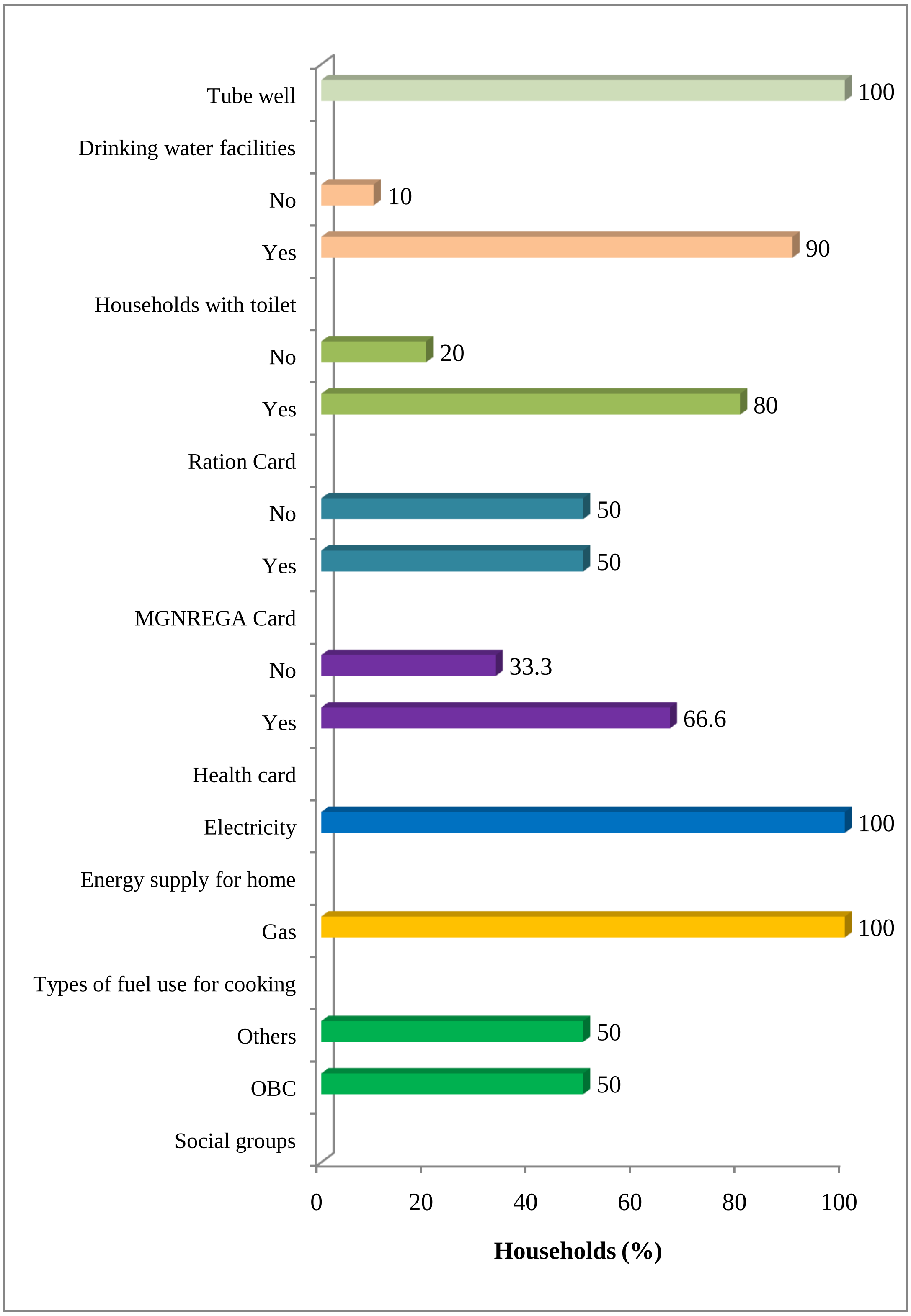

Figure 3: Basic needs of sample households in Kurubarahalli Microwatershed

Only 2.1 percent of the farmers are participating in community based organizations (Table 3). All of them were participating in credit co-operatives societies.

Table 3: Institutional participation among the sample population in Kurubarahalli Microwatershed

Particulars	Units	Value
No. of people participating	% to total	2.1
Co-operative Societies - Credit	% of total	2.1
No. of people not participating	% to total	97.9

The occupational pattern (Table 4) among sample households shows that agriculture is the main occupation around 63.8 per cent of farmers followed by subsidiary occupations like agricultural labour (30.5%) and private services is (2.5%) each.

Table 4: Occupational pattern in sample population in Kurubarahalli Microwatershed

Occupation		% to total
Main	**Subsidiary**	
Agriculture	Agriculture	63.8
	Agriculture Labour	30.5
	Private service	2.7
Private service		2.7
Grand total		100
Family labour availability		**Man days/month**
Male		37.5
Female		25.0
Total		62.5

The important assets especially with reference to domestic assets were analyzed and are given in Table 5 and Figure 4. The important domestic assets possessed by all categories of farmers are mobile phones (100 %) followed by mixer/grinder (100 %), television (90%) and motorcycle (40 %). The average value of domestic assets is around Rs 14420 per households.

Table 5: Domestic assets among the sample households in Kurubarahalli Microwatershed

Particulars	% of households	Average value in Rs
Mixer/grinder	100.0	3000
Mobile Phone	100.0	2900
Motorcycle	40.0	45000
Television	90.0	6778
Average Value	14420	

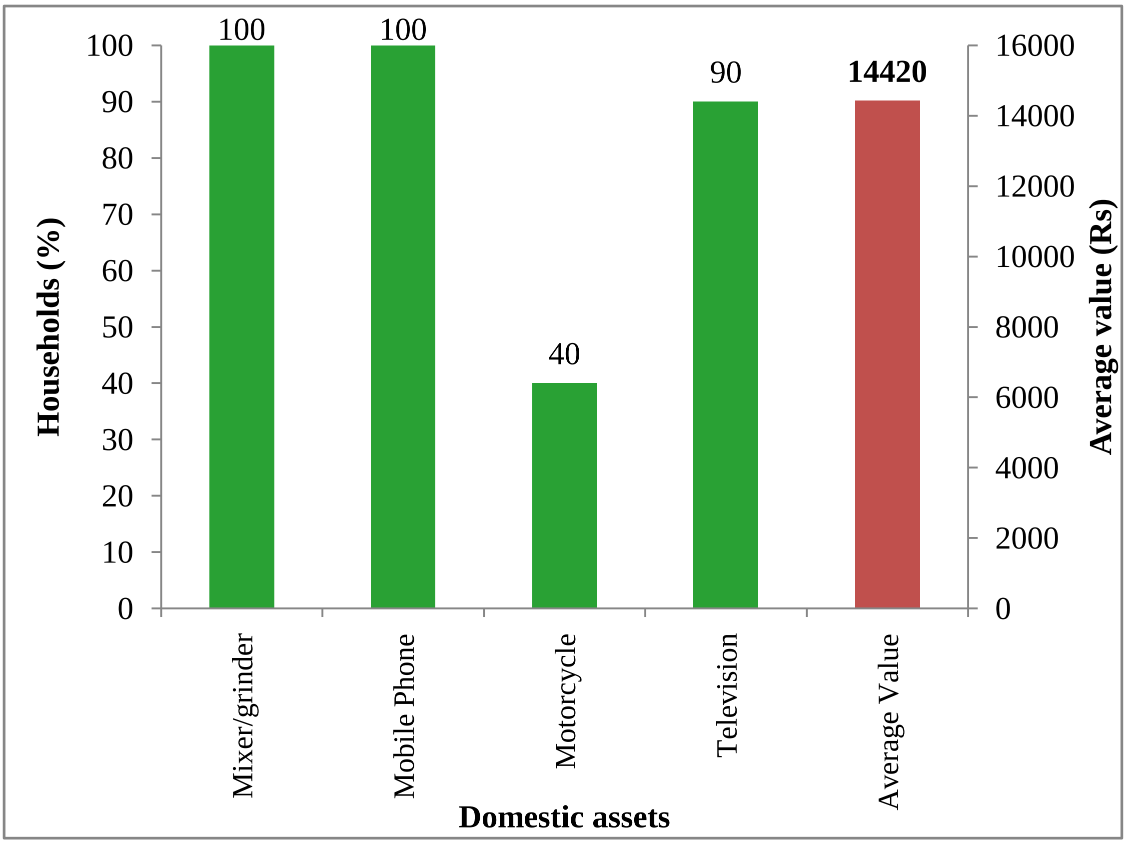

Figure 4: Domestic assets among the sample households in Kurubarahalli Micro watershed

The most popularly owned farm equipments were sickles, plough, cattle shed; pump sets, chaff cutter, bullock cart, sprayer and thresher. Plough and sickle were commonly present in all the sampled farmers; these were primary implements in agriculture. The per cent of households owned plough (70 %) and weeder (80 %) was found highest among the sample farmers. The average value of farm assets is around Rs. 1004 per households (Table 6).

Table 6: Farm assets among samples households in Kurubarahalli Microwatershed

Particulars	% of households	Average value in Rs
Plough	70.0	1929
Weeder	80	78
Average value	1004	

Livestock is an integral component of the conventional farming systems (Table 7 and Figure 5). The highest livestock population is crossbred milching cow were around 27.3 per cent followed by crossbred bullocks (18.2 %), mulching buffalos (18.2 %), local dry cow (9.1 %), local mulching cow (9.1 %), crossbred dry cow (9.1 %) and dry buffalo is (9.1 %). The average value of livestock was Rs 22810 per household.

Table 7: Livestock assets among sample households in Kurubarahalli Micro-watershed

Particulars	% of livestock population	Average value in Rs
Local Dry Cow	9.1	5000
Local Milching Cow	9.1	20000
Crossbred Dry Cow	9.1	18000
Crossbred Milching Cow	27.3	36667
Dry Buffalos	9.1	15000
Milching Buffalos	18.2	25000
Bullocks	18.2	40000
Average value	22810	

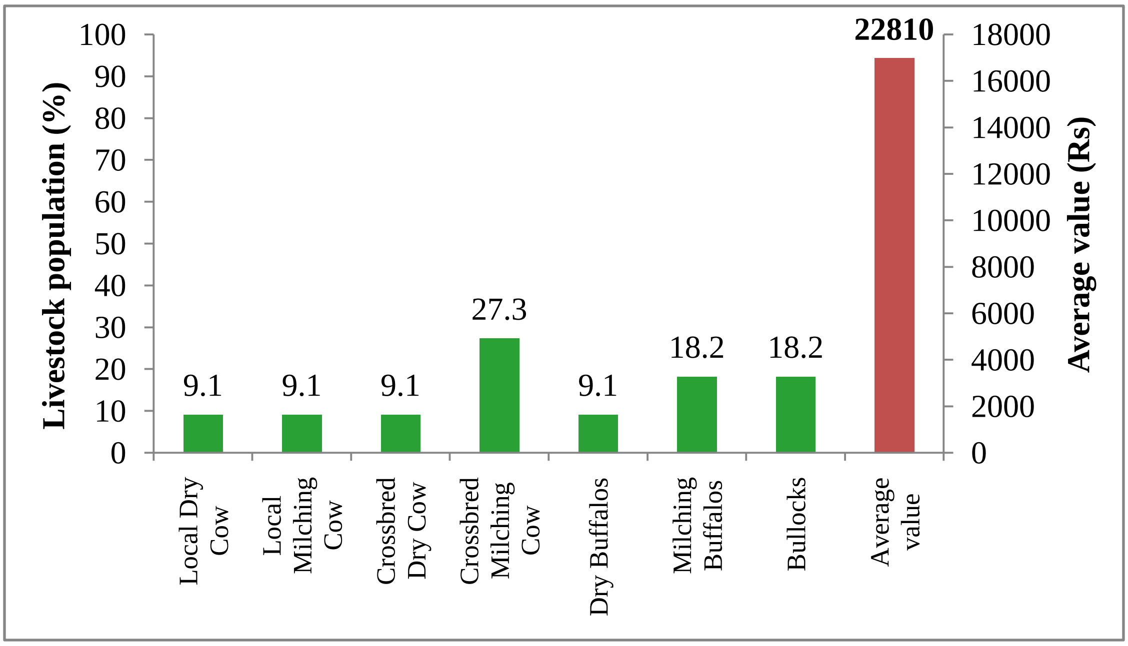

Figure 5: Livestock assets among sample households in Kurubarahalli Micro-watershed

Table 8: Milk produced and fodder availability of sample households in Kurubarahalli Microwatershed

Particulars	
Name of the Live stock	**Ltr./Lactation/animal**
Crossbred Milching Cow	780
Local Milching Cow	360
Milching Buffalos	630
Average Milk Produced	590
Fodder produces	**Fodder yield (kg/ha.)**
Ragi	1250
Livestock having households (%)	79.0
Livestock population (Numbers)	16

Average milk produced in sample households is 590 litters/ annum. Among the farm households, ragi is the main crops for domestic food and fodder for animals. About 1250 kg /ha of average fodder is available per season for the livestock feeding (Table 8).

A woman participation in decision making is in this Microwatershed is presented in Table 9. About 100 per cent of women taking decision in her family and agriculture related activities, 22.2 per cent of women participation in local organization activities and 11.1 per cent of women elected as panchayat member

Table 9: Women empowerment of sample households in Kurubarahalli Microwatershed

% to Grand Total

Particulars	**Yes**	**No**
Women participation in local organization activities	22.2	77.8
Women elected as panchayat member	11.1	88.9
Women earning for her family requirement	11.1	88.9
Women taking decision in her family and agriculture related activities	100	0.0

The food intake in terms of kilo calorie (kcal) per person per day was calculated and presented in the Table 10 and Figure 6. More quantity of cereals is consumed by sample farmers which accounted for 997.5 kcal per person. The other important food items consumed was pulses 87.3 kcal followed by cooking oil 175.43 kcal, milk 163.84 kcal, vegetables 15.6 kcal, egg 35 kcal and meat 7 kcal. In the sampled households, farmers were consuming less (1481.6 kcal) than NIN- recommended food requirement (2250 kcal).

Table 10: Per capita daily consumption of food among the sample households in Kurubarahalli Microwatershed

Particulars	**NIN recommendation (gram/ per day/ person)**	**Present level of consumption (gram/ per day/ person)**	**Kilo Calories /day/person**
Cereals	396	293.4	997.5
Pulses	43	25.4	87.3
Milk	200	252.1	163.8
Vegetables	143	64.8	15.6
Cooking Oil	31	30.8	175.4
Egg	0.5	23.3	35.0
Meat	14.2	4.7	7.0
Total	827.7	694.5	1481.6
Threshold of NIN recommendation		**827 gram***	**2250 Kcal***
% Below NIN		90	90
% Above NIN		10	10

Note: * day/person

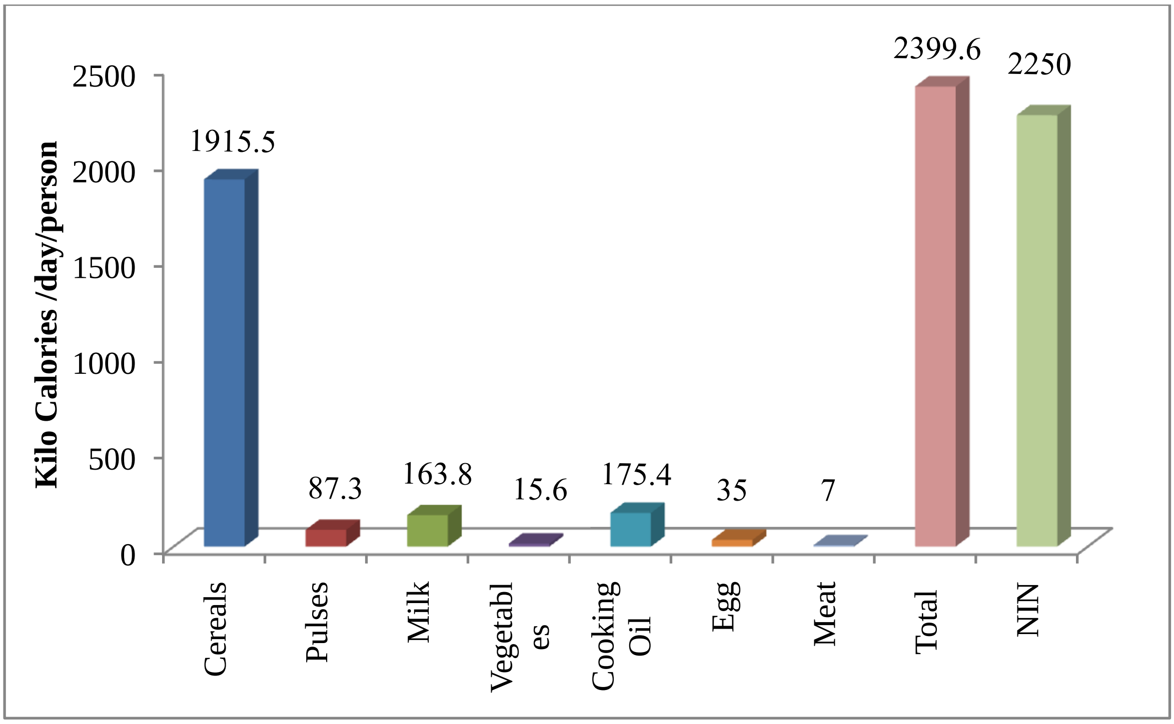

Figure6: Per capita daily consumption of food among the sample households in Kurubarahalli Microwatershed

Annual income of the sample HHs: The average annual household income is around Rs 25543. Major source of income to the farmers in the study area is from followed by livestock (Rs 13944) followed by the crop production (Rs. 11599). The monthly per capita income is Rs.452.90 for considering above poverty line. Due to the fact that erratic rainfall and shortage of water, farmers are diverting from crop production activities to enable the household for a comfortable livelihood. The incomes from the other aforesaid sources are very meagre (Table 11).

Table 11: Annual average income of HHs from various sources in Kurubarahalli Microwatershed

Particulars	Income *
Nonfarm income (Rs)	0 (0)
Livestock income (Rs)	13944 (50)
Crop Production (Rs)	11599 (100)
Total Annual Income (Rs)	***25543***
Average monthly per capita income (Rs)	453
Threshold for Poverty level (Rs 975 per month/person)	
% of households below poverty line	90.0
% of households above poverty line	10.0

The average annual expenditure of farm households indicated that farmers in the study area spend highest on food (Rs. 52308) followed by education, clothing, social function and health. Now a day's education is most important among all of us. In today's competitive world, education is a necessity for man after food, clothing, and shelter. It is the only fundamental way by which a desired change in the society can happen. The average per capita monthly expenditure is around Rs 1228 and about 90 per cent of farm households are below poverty line and 10 per of farm households are above poverty line (Table 12 and Figure 7).

Table 12: Average annual expenditure of sample HHs in Kurubarahalli Microwatershed

Particulars	Value in Rupees	Per cent
Food	52308	75.5
Education	4700	6.8
Clothing	3350	4.8
Social functions	3000	4.3
Health	5900	8.5
Total Expenditure (Rs/year)	69258	100.0
Monthly per capita expenditure (Rs)	1228	

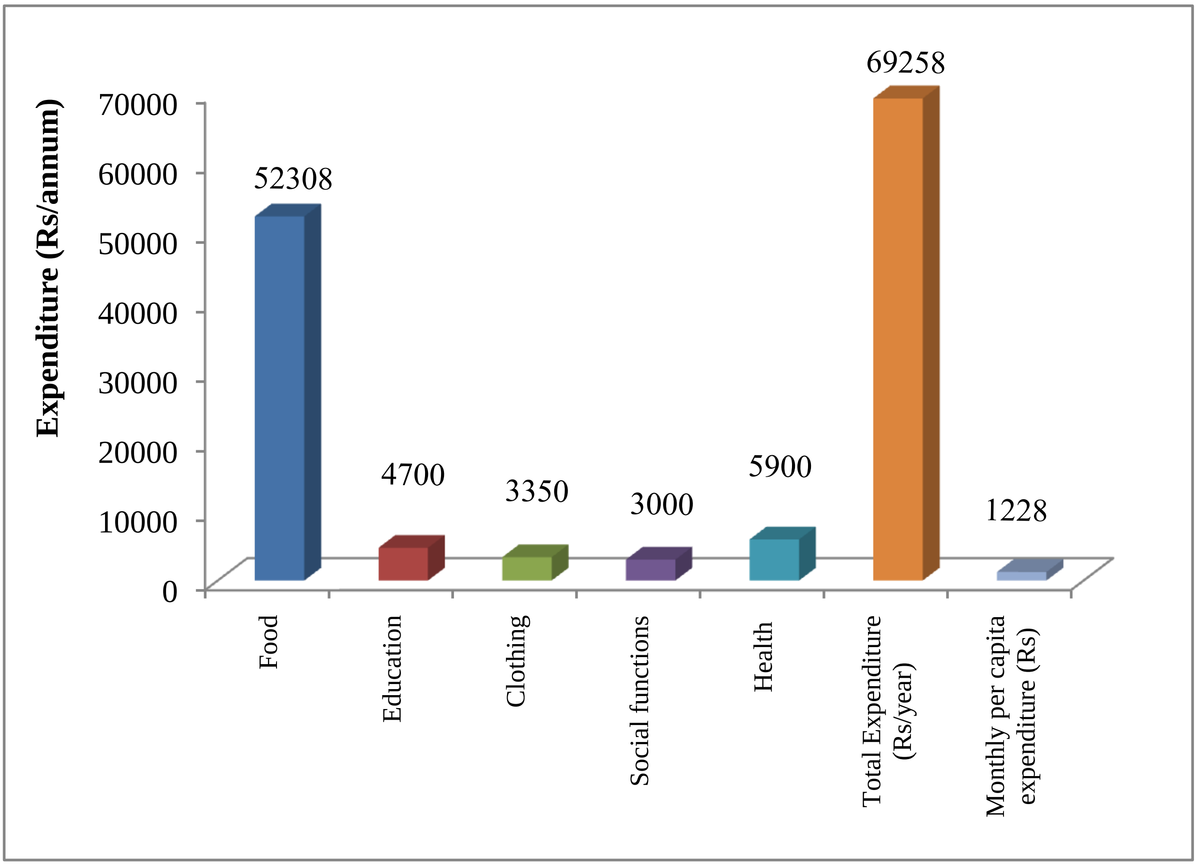

Figure 7: Average annual expenditure of sample HHs in Kurubarahalli Microwatershed

Land use: The total land holding in the Kurubarahalli Microwatershed is 4.4 ha (Table 13). Of which 4.0 ha is rain fed land and 0.4 ha is irrigated land. The average land holding per household is worked out to be 0.4 ha.

Table 13: Land use among samples households in Kurubarahalli Microwatershed

Particulars	Per cent	Area in ha
Irrigated land	9.1	0.4
Rain fed Land	90.9	4.0
Fallow Land	0.0	0.0
Total land holding	100.0	4.4
Average land holding	0.4	

In the Microwatershed, the prevalent present land uses under perennial plants are coconut (61.5%) followed by neem trees (33.8 %) and teak (4.6 %) (Table14).

Table 14: Number of trees/plants covered in sample farm households in Kurubarahalli Microwatershed

Particulars	Number of Plants/trees	Per cent
Coconut	40	61.5
Neem trees	22	33.8
Teak	3	4.6
Grand Total	65	100.0

The land use decisions are usually based on experience of farmers, tradition, expected profit, personal preferences, resources and social requirements.

The present dominant crops grown in dry lands in the study area were by green gram (45.2 %), followed by ragi (5.1 %) and coconut 4.6 per cent which are taken during kharif, ragi 45.2 per cent during ragi season, receptivity. The cropping intensity was 182.4 per cent (Table 15 and Figure 8).

Table 15: Present cropping pattern and cropping intensity in Kurubarahalli Microwatershed

% to Grand Total

crops	Kharif	Rabi	Grand Total
Coconut	4.6	0.00	4.6
Green gram	45.2	0.0	45.2
Ragi	5.1	45.2	50.2
Grand Total	54.8	45.2	100.0
Cropping intensity	182.4		

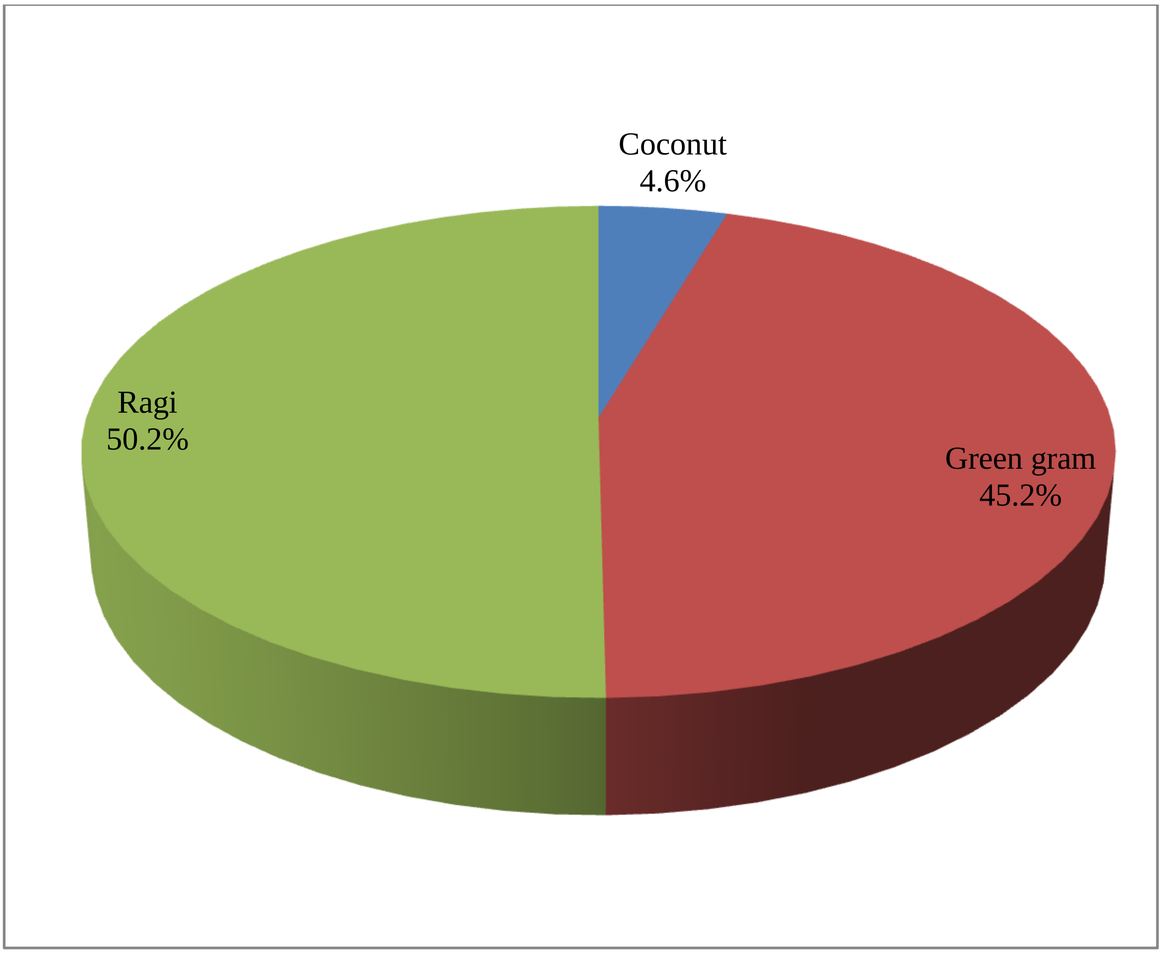

Figure8: Present cropping pattern in Kurubarahalli Microwatershed

Economic land evaluation

The main purpose to characterise the socio-economic systems in the watershed is to identify the existing production constraints and propose the potential/alternate options for agro-technology transfer and for bridging the adoption and yield gap.

In Kurubarahalli Microwatershed, 10 soil series are identified and mapped (Table 16). The distribution of major soil series are Lakkur covering an area around 74 ha (11.4 %) followed by Kotegoudanahundi 29 ha (4.5%), Hooradahalli 20 ha (3.1 %), Gollarahatti 21 ha (3.2 %), Bidanagere 50 ha (7.8 %), Jedigere 25 ha (3.9 %), Balapur 104 ha (16.0 %), Lakshmangudda 80 ha (12.3 %), Nagalapur 112 (17.3 %) and Thondigere 5 ha (0.7 %).

Table 16: Distribution of soil series Kurubarahalli Microwatershed

Soil No	Soil Series	Mapping Unit Description	Area in ha (%)
SOILS OF GRANITE GNEISS LANDSCAPE			
1	LKR	Lakkur soils are moderately shallow (50-75 cm), well drained, have reddish brown to dark red gravelly sandy clay loam to sandy clay soils occurring on very gently to gently sloping uplands under cultivation	74 (11.4)
2	KGH	Kutegoudanahundi soils are moderately shallow (50-75 cm), well drained, have brown to dark brown gravelly sandy clay loam soils occurring on very gently to gently sloping uplands under cultivation	29 (4.5)
3	HDH	Hooradhahalli soils are moderately deep (75-100 cm), well drained, have red to dark red and reddish brown gravelly sandy clay loam to sandy clay soils occurring on very gently sloping uplands under cultivation	20 (3.1)
4	GHT	Gollarahatti soils are moderately deep (75-100 cm), well drained, have dark reddish brown to dark red gravelly sandy clay loam soils occurring on very gently sloping uplands under cultivation	21 (3.2)
5	BDG	Bidanagere soils are moderately deep (75-100 cm), well drained, have dark reddish brown gravelly sandy clay loam to sandy clay soils occurring on very gently to gently sloping uplands under cultivation	50 (7.8)
6	JDG	Jedigere soils are deep (100-150 cm), well drained, have dark brown to dark reddish brown sandy clay to clay soils occurring on very gently sloping uplands under cultivation	25 (3.9)
7	BPR	Balapur soils are deep (100-150 cm), well drained, have dark reddish brown to dark red gravelly sandy clay to clay soils occurring on very gently to gently sloping uplands under cultivation	104 (16.0)
8	LGD	Lakshmangudda soils are deep (100-150 cm), well drained, have light olive brown to very dark gray calcareous clay soils occurring on very gently uplands under cultivation	80 (12.3)
9	NGP	Nagalapur soils are deep (100-150 cm), well drained, have dark reddish brown to dark red gravelly sandy clay to clay soils occurring on very gently sloping uplands under cultivation	112 (17.3)
10	TDG	Thondigere soils are very deep (>150 cm), well drained, have dark brown to dark yellowish brown sandy loam to sandy clay soils occurring on very gently sloping lowlands under cultivation	5 (0.7)
Rock outcrops			33(5.1)
Others			91(14.1)

Present cropping pattern on different soil series are given in Table 17. Crops grown on Kutegoudanahundi soils are green gram and ragi. Green gram and ragi are grown on Bidanagere soils. Green gram and ragi on Balapur soils are grow. Coconut, green gram and ragi on Lakshmangudda soils are grow.

Table 17: Cropping pattern on major soil series in Kurubarahalli Microwatershed

(Area in per cent)

Soil Series	Soil Depth	Crops	Dry		Irrigated	Grand total
			Kharif	Rabi	Kharif	
KGH	Moderately shallow (50-75 cm)	Green gram	50	0.0	0.0	50
		Ragi	0.0	50	0.0	50
BDG	Moderately deep (75-100 cm)	Green gram	50	0.0	0.0	50
		Ragi	0.0	50	0.0	50
BPR	Deep (100-150 cm)	Green gram	44.5	0.0	0.0	44.5
		Ragi	11.0	44.5	0.0	55.5
LGD	Deep (100-150 cm)	Coconut	0.0	0.0	16.7	16.7
		Green gram	33.3	0.0	0.0	33.3
		Ragi	0.0	33.3	16.7	50

Land is used for agricultural use for growing cereals, pulse, oilseeds and agricultural crops. The soil/ land potential are measures in terms of physical yield and net income. The alternative land use options for each Microwatershed are given below (Table 18).

Table 18: Alternative land use options for different size group of farmers (Benefit Cost Ratio) in Kurubarahalli Microwatershed.

Soil Series	Small Farmers
KGH	Green gram (1.2),Ragi (1.80)
BDG	Green gram (1.03), Ragi (1.44)
BPR	Green gram (1.01), Ragi (1.85)
LGD	Coconut (2.53), Green gram (1.18), Ragi (1.98) Sorghum (1.39)

The productivity of different crops grown in Kurubarahalli micro-watershed under potential yield of the crops is given in Table 19.

The data on cost of cultivation and benefit cost ratio (BCR) of different crops is given in Table 19. The total cost of cultivation in study area ragi range between Rs.60787/ha in BDG soil (with BCR of 1.06) and Rs 12124/ha in LDG soil (with BCR of 1.87), green gram the cost of cultivation ranges between Rs.54821/ha in BDG soil (with BCR of 1.13) and Rs. 16307/ha in LGD soil (with BCR of 1.88) and coconut the cost of cultivation in LGD soil is Rs.44124/ha (with BCR of 2.69).

The data on FYM, Nitrogen, Phosphorus and Potash application by the farmers to different crops and recommended FYM for different crops is given in Table 19. There is a huge gap between FYM application by farmers and recommended FYM in all the crops across the soils. There is a larger yield gap in crops grown across different soil series. Adequate knowledge about recommended package of practices is the pre-requisite for their use in cultivation of crops. It is a fact that, recommended practices are major contributing factors to yield. Inadequate knowledge about recommended practices leads to their improper adoption. Strengthening of extension services by concerned agency is required to increase adoption of recommended cultivation practices and ultimately reducing the gap. By adopting soil-test fertiliser recommendation, there is scope to increase yield and income to a maximum of Rs 89253 in coconut and a minimum of Rs 7493 in green gram cultivation.

Table 19: Economic land evaluation and bridging yield gap for different crops in Kurubarahalli Microwatershed

Particulars	**KGH (50-75 cm)**		**BDG (75-100 cm)**		**BPR (100-150 cm)**		**LGD (100-150 cm)**		
	Green gram	**Ragi**	**Green gram**	**Ragi**	**Green gram**	**Ragi**	**Coco nut**	**Green gram**	**Ragi**
Total cost (Rs/ha)	24846	19626	54821	60787	26286	15045	44124	16307	12124
Gross Return (Rs/ha)	38948	28764	61750	64220	30636	23740	118560	30628	22724
Net returns (Rs/ha)	14102	9137	6929	3433	4350	8695	74436	14321	10600
BCR	1.57	1.46	1.13	1.06	1.24	1.62	2.69	1.88	1.87
Farmers Practices (FP)									
FYM (t/ha)	2.2	0.0	7.1	0.0	2.9	0.4	5.0	1.3	1.9
Nitrogen (kg/ha)	34.6	34.6	62.5	62.5	28.0	24.0	11.3	31.9	21.6
Phosphorus (kg/ha)	59.2	59.2	112.5	112.5	38.5	33.0	28.8	35.0	31.9
Potash (kg/ha)	3.5	3.5	30.4	30.4	18.0	15.4	37.5	6.3	21.9
Grain (Qtl/ha)	6.3	11.8	12.5	21.4	4.9	9.9	100.0	5.0	8.8
Price of Yield (Rs/Qtl)	5000	2333	5000	2500	5000	2357	1200	5000	2500
Soil test based fertilizer Recommendation (STBR)									
FYM (t/ha)	7.4	8.6	7.4	8.6	7.4	8.6	10.0	7.4	8.6
Nitrogen (kg/ha)	23.2	92.6	23.2	92.6	23.2	92.6	128.1	23.2	92.6
Phosphorus (kg/ha)	27.8	32.4	27.8	32.4	30.9	35.5	65.0	27.8	37.8
Potash (kg/ha)	37.1	44.5	37.1	44.5	37.1	44.5	245.0	37.1	44.5
Grain (Qtl/ha)	8.6	30.9	8.6	30.9	8.6	30.9	184.5	8.6	30.9
% of Adoption/yield gap (STBR-FP) / (STBR)									
FYM (%)	69.9	100.0	3.6	100.0	61.2	95.9	50.0	83.1	78.3
Nitrogen (%)	-49.6	62.6	-169.9	32.5	-20.9	74.1	91.2	-37.7	76.7
Phosphorus (%)	-113.2	-82.7	-304.9	-247.0	-24.8	7.0	55.8	-26.0	15.7
Potash (%)	90.6	92.2	18.1	31.7	51.5	65.4	84.7	83.1	0.0
Grain (%)	27.4	61.7	-44.6	30.6	43.1	68.1	45.8	42.2	71.7
Value of yield and Fertilizer (Rs)									
Additional Cost (Rs/ha)	4332	8981	-3798	5765	4520	9802	12148	6354	8336
Additional Benefits (Rs/ha)	11825	44426	-19275	23616	18622	49526	101400	18225	55313
Net change Income (Rs/ha)	7493	35446	-15477	17851	14102	39724	89253	11871	46976

Economic valuation of Ecosystem Services (ES) was aimed at combining use and non-use values to determine Total Economic Value (TEV) of ES. Ecosystem Services (ES) were valued based on their annual flow or utilization in common monetary units, Rs/year. The valuation of ES was based on market price in 2017 or market cost approaches whichever is applicable, and in other cases on value or benefit transfer from previous valuation studies.

The onsite cost of different soil nutrients lost due to soil erosion is given in Table 20 and Figure 9. The average value of soil nutrient loss is around Rs 790 per ha/year. The total cost of annual soil nutrients is around Rs 411588 per year for the total area of 445.72 ha.

Table 20: Estimation of onsite cost of soil erosion in Kurubarahalli Microwatershed

Particulars	Quantity(kg)		Value (Rs)	
	Per ha	Total	Per ha	Total
Organic matter	96.64	50349	608.83	317200
Phosphorus	0.48	253	21.33	11113
Potash	1.09	568	21.81	11365
Iron	0.23	118	10.88	5670
Manganese	0.40	210	110.70	57674
Cupper	0.02	8	8.50	4429
Zinc	0.01	5	0.39	203
Sulphur	0.18	95	7.31	3810
Boron	0.01	3	0.24	123
Total	99.06	51609	790.00	411588

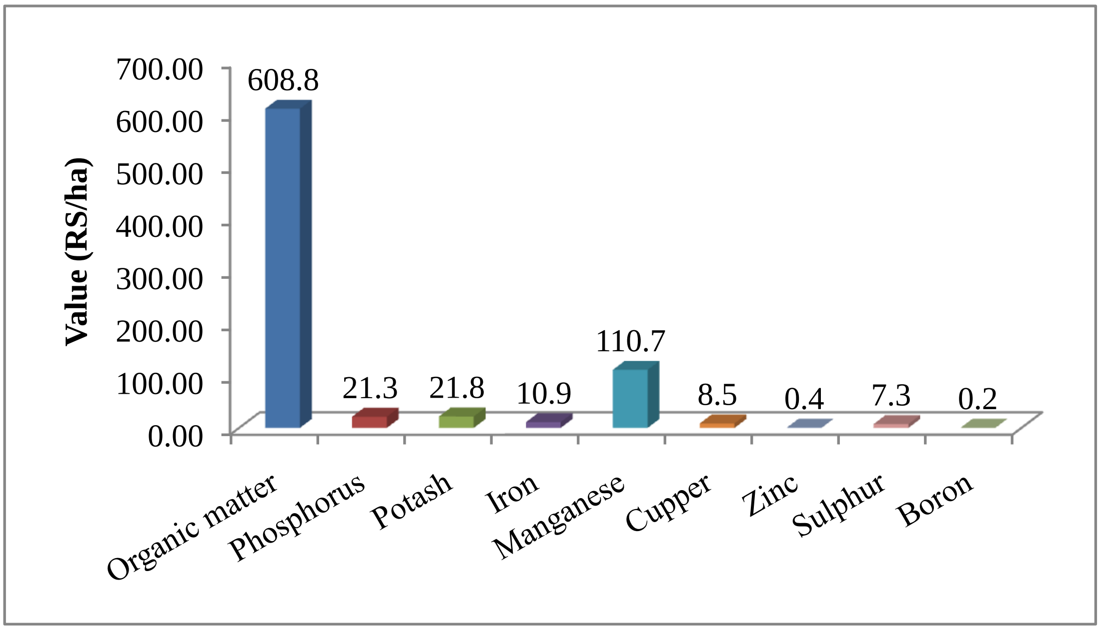

Figure 9: Estimation of onsite cost of soil erosion in Kurubarahalli Microwatershed

The average value of ecosystem service for food grain production is around Rs. 28081/ ha/year (Table 21 and Figure 10). Per hectare food grain production services is maximum in coconut (Rs 74436) followed by ragi (Rs. 6316) and green gram (Rs. 3490).

Table 21: Ecosystem services of food grain production in Kurubarahalli Microwatershed

Production items	Crops	Area in ha	Yield (Qtl/ha)	Price (Rs/Qtl)	Gross Returns (Rs/ha)	Cost of Cultivation (Rs/ha)	Net Returns (Rs/ha)
Cereals	Ragi	4.8	11.1	2400	26725	20409	6316
Pulses	Green gram	4.0	6.3	5000	31555	28065	3490
Oil seeds	Coconut	0.4	98.8	1200	118560	44124	74436
Average value		9.2	38.7	2866	58946	30866	28081

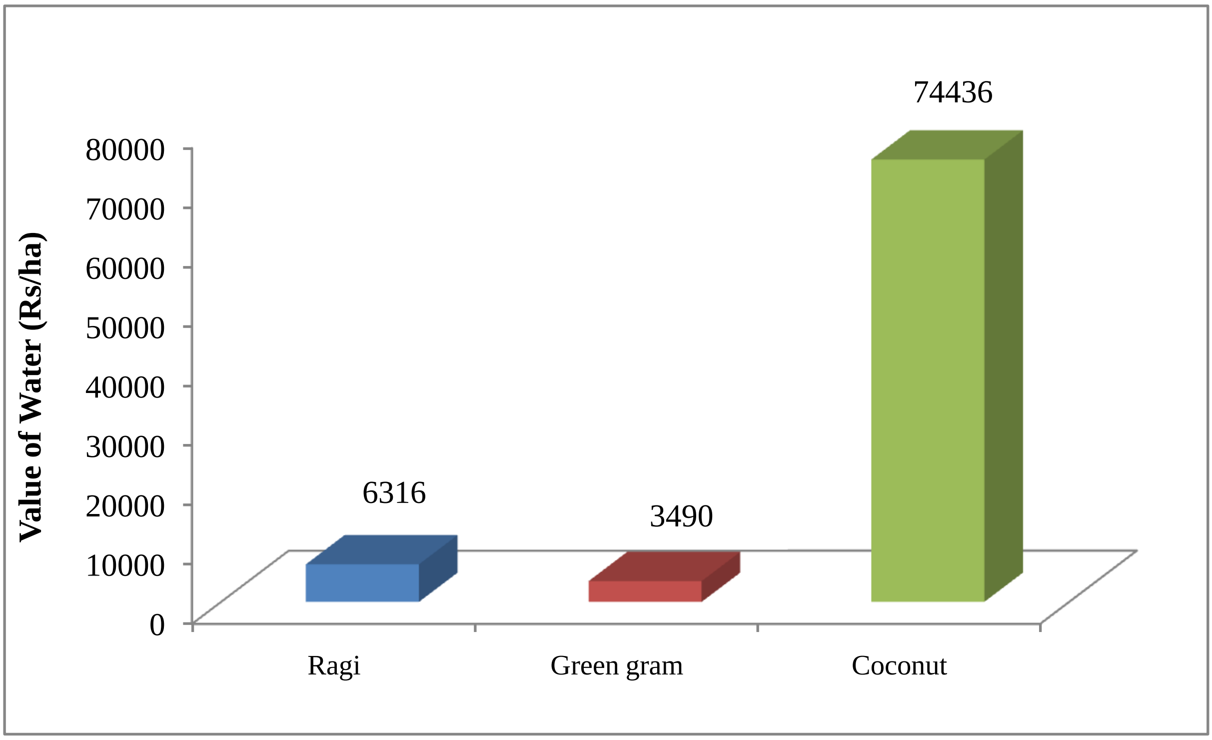

Figure 10: Ecosystem services of food grain production in Kurubarahalli Microwatershed

The average value of ecosystem service for fodder production is around Rs 3647/ ha/year (Table 22). Per hectare fodder production services is maximum in ragi (Rs 1968) followed by green gram (Rs 5325).

Table 22: Ecosystem services of fodder production in Kurubarahalli Microwatershed

Production items	Crops	Area in ha	Yield (Qtl/ha)	Price (Rs/Qtl)	Net Returns (Rs/ha)
Cereals	Ragi	4.8	2.6	760	1968
Pulses	Green gram	4.0	5.1	1050	5325
Average value		8.8	3.9	905	3647

The water demand for production of different crops was worked out in arriving at the ecosystem services of water support to crop growth. The data on water requirement for producing one quintal of grain is considered for estimating the total value of water required for crop production. Per hectare value of water used and value of water was maximum (Table 23 and Figure 11) in coconut (Rs. 265476), green gram (Rs. 43584) and ragi (Rs. 13608).

Table 23: Ecosystem services of water supply in Kurubarahalli Microwatershed

Crops	Yield (Qtl/ha)	Virtual water (cubic meter) per ha	Value of Water (Rs/ha)	Water consumption (Cubic meters/Qtl)
Coconut	98.8	26548	265476	269
Green gram	6.3	4358	43584	691
Ragi	11.1	1361	13608	122
Average value	116.2	10755.7	107556	361

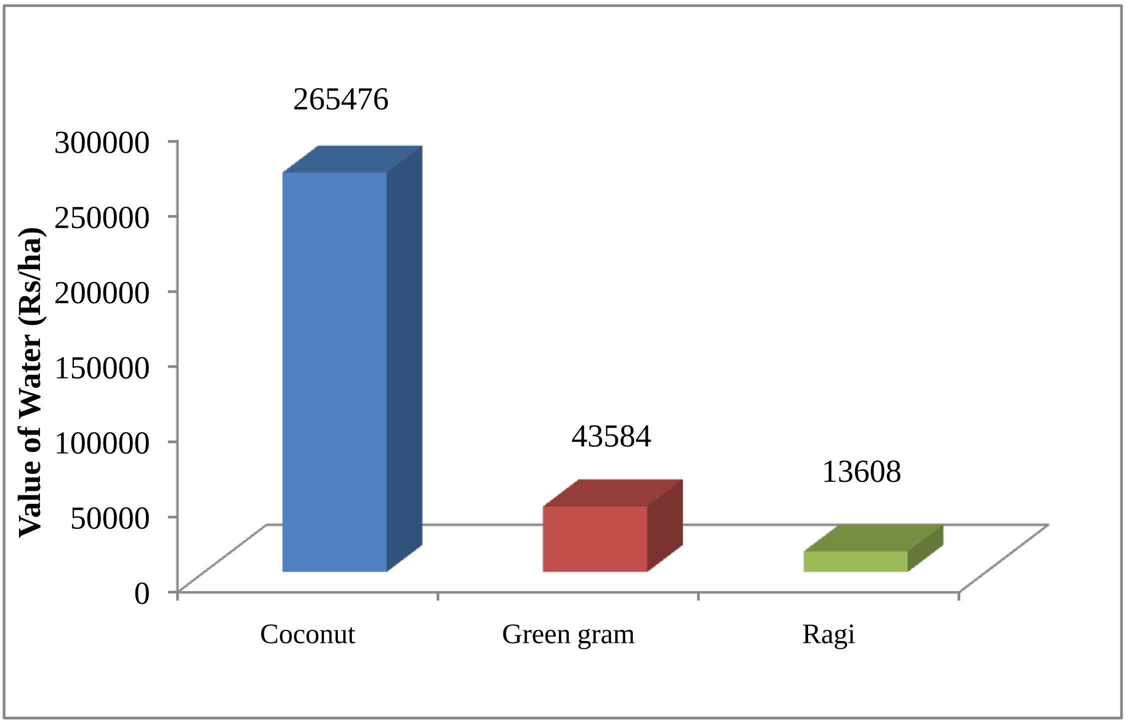

Figure 11: Ecosystem services of water supply in Kurubarahalli Microwatershed

The main farming constraints in Kurubarahalli Microwatershed to be found are less rainfall, lack of good quality seeds, lack of storage, damage of crops by wild animals and non availability of plant protection chemicals. Majority of farmers depend up on money lender of the sources of loan for purpose of crop production. Farmers to sell the agriculture produce through village market and the farmers getting the agriculture related information on newspaper. Farmers reported that they are not getting timely support/extension services from the concerned development department (Table 24).

Table 24: Farming constraints related land resources of sample households in Kurubarahalli Micro-watershed

Sl. No.	Particulars	Per cent
1	Less Rainfall	100.0
2	Non availability Fertilizers	11.1
3	Damage of crops by Wild Animals	100.0
4	Non availability of Plant Protection Chemicals	11.1
5	**Source of loan**	
	Money Leander	100.0
6	**Market for selling**	
	Village market	100.0
7	**Sources of Agri-Technology information**	
	Newspaper	100.0

The findings of the study would be very much useful to the planners and policy makers of the study area to identify the irrationality in the existing production pattern and to suggest appropriate production plans for efficient utilization of their scarce resources resulting in increased net farm incomes and employment. The study also throws light on future potentialities of increasing net farm income and employment under different situations viz., with existing and recommended technology.