

**PREPARING ROAD MAP TO ENHANCE
FARMERS' INCOME AND WELFARE IN
KARNATAKA**

Final Report

2019

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The study entitled “Preparing Roadmap to Enhance the Farmer’s Income and Welfare in Karnataka” was assigned by The Karnataka Agricultural Prices Commission, Department of Agriculture, Government of Karnataka, Bengaluru to the Institute for Social and Economic Change (ISEC), Bangalore. Eight agro climatic zones spread across the state were to be covered to obtain primary data from farmers regarding their bench mark socio economic conditions and to estimate the income through proposed suitable IFS models. The study received immense support from the Chairman Prof. T. N. Prakash Kammardi and technical staff of the Commission namely Dr KJ Parameshwarappa, Dr Niranjana Aithal. Dr Sharanappa Awathi and we are thankful to them. We are thankful to all the eight KVKs for helping in field data collection and for their productive inputs for this study. We sincerely thank all of them for their kind support and co-operation. We hope that this report will benefit the Commission in formulating policies for the benefit of the farmers of Karnataka.

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1. INTRODUCTION

1.1. Background

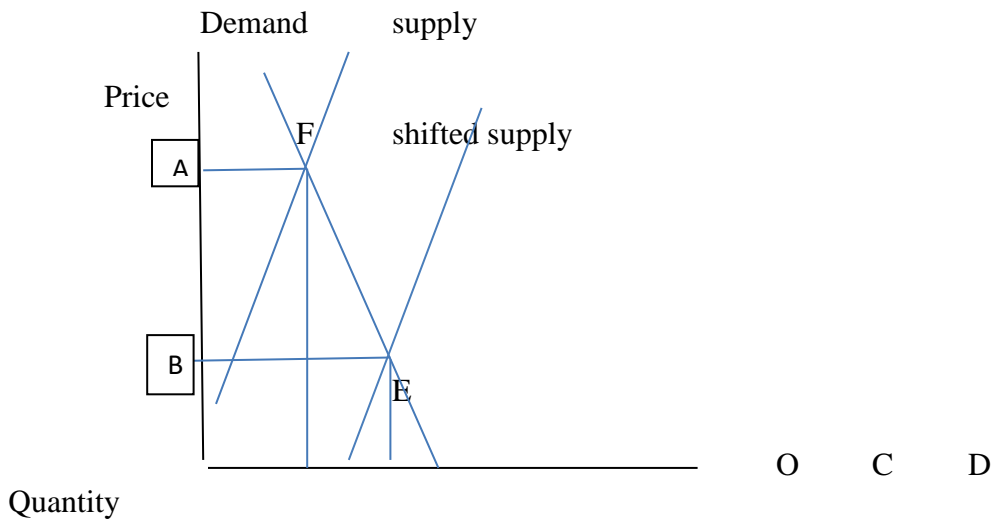
Agriculture is the most imperative sector of India's economy accounting for nearly 16 per cent of GDP. In spite of steady decline in the contribution of agriculture to GDP over the past decade, the population dependent on agriculture is still around 55 percent and plays a vital role in the overall socioeconomic development. Farming, the primary sector of India has been sustaining livelihood and providing employment opportunities for vast majority of the population.

Indian economy is largely agrarian with 55 per cent of the population dependent on agriculture and allied sectors for their livelihoods. Marginal and small land holdings (under 2 ha) comprise 85 per cent of the total operational land holdings both in terms of number and area. Considering the total area cultivated of 193.7 million ha, 45 per cent (87.7 million ha) is irrigated and the rest is rainfed. Groundwater and surface water sources irrigate about 68 per cent and 31 per cent of the irrigated area respectively. Drought and climate change are seriously affecting the water availability for agriculture. In addition to water scarcity and increasing land degradation, Indian farmers are vulnerable to impacts of climate change as their livelihood largely depends on monsoon, markets and intermediaries who are integral part of their livelihood. With the agricultural growth rate hovering around 3 per cent annually, farmers have felt severe economic distress and hence the clarion call by the Prime Minister to Double Farmers' Incomes by 2022.

About 52 per cent of the total workforce is employed in the farm sector which makes more than half of the Indian population dependent on agriculture for livelihood (NSS 66th Round) with the modest share in the GDP compared with what the labour earns in industry and services. The crop productivity has remained stagnant for many crops compared internationally with wide variation due to low soil fertility status, cultivation on marginal soils, inadequate irrigation, poor access to agricultural credit and marketing services, poor agricultural extension efforts affecting access to technology. Farmers are unable to realize the minimum support prices (MSP) due to limitation of procurement operations. The size of the holdings is also unviable inducing farmers to migrate to non farming sector. The relief measures due to natural disasters are yet to be adequate and further

suffer from procedural rigmarole. Farmers' adaptation to formal risk mitigating strategies such as crop and livestock insurance are also yet to make a mark as farmers do not receive minimum quick relief for crop loss due to natural calamities. An estimated 20 percent of the farmers are buying crop insurance. However, what percentage of them is regularly insuring their crops is crucial and the information is not available.

Agricultural strategy in the five year plans focused on food security and farmers responded to nation's needs by adopting Green Revolution technologies. India achieved substantial increase in food production during and post green revolution periods. However, the increased production did not lead to increased profits due to the 'paradox of plenty', rising costs of labour and uneconomical holdings. The concept of paradox of plenty is due to interaction of relatively inelastic demand curve cutting the relatively inelastic supply curve at both original point F and shifted supply curve point E. Thus, the total revenue which was OCFA before shift in supply, still remains higher than the total revenue due to shift in supply being ODEB. Therefore even due to shift in supply due to improved technology, the total revenue of the farmers have shown a fall rather than a rise due to the paradox of plenty.



Thus, despite green revolution, farmers are yet to receive a reasonable income for their efforts in farming. The *prima facie* evidence is the conundrum of farmers' distress across the country reflecting in farmer movements in different parts of the country on the one hand and farmer suicides on the other. Thus, enhancing incomes of the farmers and their welfare are crucial for

ensuring their income security and is gradually becoming a cause of concern for all. Unless farmers' income increases substantially, distress cannot be tackled¹. This can be achieved by increasing the gross income, reducing the costs and stabilizing their income. In what follows approaches available towards enhancing farm income.

a) Enhancing Production through Yield increase

Increase in yield or productivity of crops and other enterprises is a crucial factor to increase income. Since land available is limited, the productivity can be enhanced through increasing the net sown area or by increasing the cropping intensity. Using improved varieties and hybrids through adoption of recommended agronomic practices, planning profitable crop mix that can maximize aggregate income and reducing crop losses through integrated pest management are short/medium term options that can bring additional income.

b) Reducing cost of cultivation

The cost of cultivation has been on the rise reducing the returns to management. There are several ways of reducing the cost of cultivation. Mechanization is one method. Use of drip irrigation not only reduces the use of water, increases water use efficiency, but also saves the labor in application of water and fertilizers including labor for weeding. Other ways are use of integrated farming system where locally available inputs as well as use of biomass on the farm including livestock byproducts are used lowering the costs without compromising on the output to increase the net income. This may also avoid use of over dosage of chemical fertilizers a general tendency of farmers in search of higher productivity. Organic farming, Low External Input Sustainable Agriculture, precision farming, etc are being promoted overtime to reduce use of agrochemicals.

c) Farming systems approach

Integrated farming system (IFS) is an innovative and unique approach to promote efficient land use and animal management techniques based on biophysical resources particularly of small and

¹Chand, Ramesh (2016). Addressing Agrarian Distress: Sops versus Development, B.P. Pal Memorial Lecture, Indian Agricultural Research Institute, New Delhi, May.

marginal farmers. This paves the way for utilization of family labour for longer duration in a year. The farming systems approach has tremendous potential for enhancing income for small holders especially in rainfed areas through a better by-product management and purchased inputs can be minimized.

d) Diversified farming system

Diversification towards high value, low risk crops is useful to improve income and improve resource use efficiency. Similarly, diversification towards livestock, poultry and towards non-farm sector activities is considered ideal especially for small holders with uneconomic holding. Diversification of agriculture provides food & nutrition security, income, poverty alleviation, employment generation, efficient use of land and water resources, sustainable agricultural practice.

e) Risk management

Production risks are due to drought, excessive rainfall, unprecedented pest, disease attack, uncertainties due to weather, rainfall. The price risk is due to inability of the farmers to realize the expected price in the market due to factors *inter alia*, glut, scarcity, modest MSP operations, lack of procurement efforts, increase in non-farm employment opportunities resulting in neglect of farm management, lack of market information resulting in market inefficiencies, information asymmetry. The price risks are related to output marketing which include price volatility, effect of MSP operation through procurement and discrimination in price realization. Individual risks such as health issues of the farmers, access to non-farm employment opportunities, accessibility to public distribution and employment guarantee programmes are not easy to mitigate.

The target of this pilot project is the convergence of all these possibilities. This will help the farming community to get all the requirements needed for improved agriculture and thereby increasing capacity to lead farm family towards welfare. In order to achieve this, KAPC has constituted a committee of all district officers of development departments under the leadership of deputy commissioner of the concerned districts.

The KAPC in co-ordination with Institute for Social and Economic Change (ISEC), Bengaluru proposed a base line survey in selected eight villages at the rate of one village in one district. Similarly, National Bureau of Soil Survey and Land Use Planning (NBSS & LUP) has prepared soil fertility maps for all these villages. The project makes use of this survey and achieves the required goal. After the implementation of this project for a period of two years, it is proposed to develop a blue print of enhancing farmers' income and welfare in all the districts of the state. This will be placed before the government for formulating a suitable working policy.

1.2. IFS Model

There are several possibilities for increasing the income of farmers, fundamentally there are options available for enhancing income of farmers, viz., increasing the gross income, reduce the costs and stabilize the income. An important approach among various approaches to enhance farmers' income is Integrated Farming System (IFS):

In Integrated Farming system (IFS) livestock are reared in farm in close integration with crop production. Simultaneous adoption of two or more enterprises with mutual interdependence or sharing common resource is termed as IFS. Farmers have been practicing IFS, since centuries for stabilizing income and making the best use of local resources on the farm towards income, employment and welfare.

Agriculture has challenge of providing food and nutritional security at household and national levels. Declining productivity in vast tracts of rainfed/Dryland areas constituting approximately 44 per cent of net cultivated area is a matter of long term concern. Population of India has increased to 1210.2 million with a growth rate of 1.76 per cent in 2011 and is estimated to increase to 1530 million, with food production at 345 million tonnes by 2030. The average size of the landholding on the other hand has declined to 1.55ha in 2015-16 from 1.65 ha in 2011-12, which pose challenges to achieve the targets.

Farmer suicides

Farmers suicides rate in India due to crop failure are increasing at an alarming rate in recent years. In Karnataka, farmers in the command area districts are relatively prone to suicides than in the rainfed ecosystem, associated with farm credit and exposure to distress due to recurrent crop failure. Farmers are practicing mono-cropping of rice/ Sugarcane/maize in command areas at the neglect of integrated farming systems. The report on Farmer Suicides² highlights that Karnataka is turning to be a dominant state concerning farmer suicides. They have occurred in relatively well endowed Districts such as Haveri (125), Mandya (118), Mysuru (113) compared with relatively less endowed districts. The capacity of farmers to cope with risks, uncertainties, natural hazards is inherently relatively better for farmers in less endowed districts due to their endurance and tenacity experienced over time when hazards have occurred. The following factors have been responsible to be the major cause for suicides:

1. Spur of the moment triggered action responsible for 75 percent of suicides
2. Indebtedness due to crop loan (44.3%)
3. Indebtedness due to non-institutional loan (37.1%)
4. Expectation of non-institutional credit (36.9%),
5. Recovery pressure from non-institutional sources (36.1%)
6. Non-realisation of higher output (35.4%)
7. Non-realisation of higher prices (33.3%)
8. Lack of access to expected institutional credit (33.1%)
9. Crop failure due to lack of irrigation (32.2%)
10. Expectation of loan waiver (31.1%)
11. Recovery pressure from institutional sources (28.1%)
12. Indebtedness due to non-agricultural loan (27.5%),
13. Drug abuse and alcohol addiction (26.5%)

The following suggestions have been made to address the predicament:

Establishment of farmers welfare cell, Crop and enterprise diversification, crop insurance, Fixing MSP covering all costs, providing compensation in cash and kind for immediate needs and for investment in income generating activities, offering reservation/ giving priority to victim families

² A.V.Manjunatha and K.B.Ramappa. 2017, Farmers suicides in Karnataka, ADRTC Report, Institute for Social and Economic Change, Bengaluru.

for availing agri dev benefits for 5 years, establishing hotline for farmers during Jan and June months for farmers of Karnataka in order to provide them confidence in life, as most suicides in Karnataka have occurred during these months.

Integrated Farming System (IFS) copes with nature, making use of the existing cropping pattern, mingling with allied activities - livestock, poultry, fisheries, sericulture which serve as both source and sync for enhancing interdependence in farming for improved on farm resource utilization, reducing costs, complementing ecological process. They are combined in such a way and proportion that each component complements other, where the biomass from one component enters as input in the other. The basic principle is to enhance ecological diversity by choosing different components to address competition for water, nutrition and space through adoption of eco-friendly practices -multi-storied cropping utilizing available area effectively with high level of symbiosis, synergy and interdependence through interaction among biotic components. The whole farm productivity is expected to increase due to integration of subsystems in which various components interact effectively.

IFS is a labour intensive system, engaging farm family productively on their farm throughout the year. Using cluster approach the adoption of IFS will lead to collective efforts for purchase of inputs and marketing of their produce, thus reducing cost of production and increase in income. IFS ensure productivity, income and sustainable livelihood.

IFS plays an important role in maximizing profit and meeting production and consumption needs to meet nutritional requirements with food, nutritional, fodder, fuel, fiber, flower on the farm. Farmers would be able to aim at optimal resource utilization by recycling bio waste on the farm utilizing the family labour. The regular flow of income from complementary enterprises like dairy, sheep, goat, piggery, fisheries, apiculture, mushroom, sericulture in IFS will reduce the income uncertainty due to crop failure from vagaries of monsoon and market inefficiencies. Such integrated approaches are expected to address farmer suicide issues by livelihood enhancement activities.

1.2.1. Components of Integrated Farming System (IFS)

Farming system approach envisages the integration of field crops, vegetables, fruit cultivation, agro-forestry, dairy, sheep and goat rearing, fishery, poultry, duckery, biogas, mushroom, sericulture, bee keeping and by-product utilization with the goal of increasing the income and standard of living of small and marginal farmers. IFS can involve various combinations of enterprises like:

1. Crop cultivation- field crops
2. Crop cultivation- horticultural crops
3. Dairying
4. Sheep/goat farming
5. Fisheries
6. Sericulture
7. Agro forestry

1.2.2. Advantages of IFS

- Improvement of soil fertility leading to sustainable agriculture.
- Provision of employment to family labour towards full utilization of farm resources
- Productivity improvement along with improvement of soil fertility.
- Risk minimization through increase in diversity index in IFS farm
- Additional employment generation due to IFS activities.
- Cost reduction, as use of on-farm inputs reduces cost of external inputs. Cost reduction technique will ultimately improve net returns.
- Improved resource management, as output of enterprises is utilized with/without conversion as input
- Improved water management as IFS leads to carbon sequestration, better retention of soil moisture for longer period.

With this background, an attempt has been made to propose appropriate IFS models to selected farmers by improving standard of living, extending employment opportunities, towards sustainable ecosystem development enhancing income and welfare.

1.3. Objectives of the Study

1. Review and analysis of existing policies and programmes of both Central and State government with regard to farmers income and welfare
2. Conceptualization and strengthening the capacity of partner institutes such as KVKs and other institutes/NGOs.
3. Organizing national/stakeholders workshop and bringing out the outcome of the workshop as a joint publication with recommendations and road map for further action for enhancing farmers' income & welfare in Karnataka.
4. Design and Develop Methodology, Research tools and executes a comprehensive baseline survey on farmer's income and welfare among sample farmers of KAPC for estimating cost of cultivation and from selected villages in coordination with KVKs.
5. Developing a comprehensive development plan for selected villages and districts.
6. Developing a larger frame work for enhancing farmers' income & welfare for the districts and to the state as a whole.
7. Evaluation of development programs and assist in implementation through selected KVKs.
8. A terminal workshop and bringing out the outcome as a joint publication.

1.4. Organization of the Report

The report is organised into six chapters. Chapter one presents background, objectives and IFS Model. The second chapter presents data, study area and methodology. The third chapter presents the socio-economic characteristics and cropping pattern of sample farmers. The fourth chapter analyses the household income of the farmers from various sources. The fifth chapter presents the quantitative framework for improving the farmers' income. The sixth chapter presents estimated farmers income and welfare in Karnataka from different interventions. The last chapter presents findings and policy suggestions.

2. METHODOLOGY

The Karnataka Agriculture Price Commission has caused for model demonstration units in eight districts wherein one ideal village has been selected with 25 households and in each village 25 farmers have been chosen totaling 200 farmers. As per the objectives, 8 KVKs were selected covering different agro-climatic zones and from each KVK one village was selected. The baseline survey of these villages has been undertaken as the first step documenting basic data of the village and villagers along with their livelihood patterns. This exercise was done with the help of a well-structured interview schedule. The interview schedule was finalized at ISEC, with the faculty of the selected KVKs and members of KAPC. Pre-testing of schedule was done and necessary changes were incorporated. Initially, data was collected from 25 selected households in each village. This report is based on the results of 200 households from 8 villages. The details of the KVKs, and villages selected across the State are presented in Table 2.1.

Table 2.1: Distribution of Sample Households (n=200 @ 25 sample farmers per village)

Sl. No.	District KVK	Taluk	Village
1	Kolar	Kolar	Byappanahalli
2	Chitradurga	Hiriyur	Shidlaiahnakote
3	Haveri	Byadagi	Khurdu Veerapur
4	Tumakuru	Tiptur	Hulukatte
5	Belagavi	Gokak	Madhuwala
6	Kalaburagi	Aland	Tellur
7	Raichur	Manvi	Jakkala Dinni
8	Mangaluru	Mangaluru	Dharegudda

The details of cropping pattern, livestock, irrigation facilities, socio-economic status of the farmers and marketing network were analyzed using the data from base line survey. From the results of the base line survey, considering the soil type, holding size, socio economic status of the farmers, pattern of rainfall, existing cropping pattern of farmers, opinions of experts, scientists, the specific Integrated Farming System model was recommended to each farmer to augment the exiting level of income.

The data on cropping pattern, crop productivity, rainfall at the district level complimented the process. The details of cropping pattern and productivity are presented in Tables 2.2. to 2.9. The

information on productivity of crops across districts facilitated to find the potential income for proposed IFS model. According to the average rainfall of taluk over years, suitable cropping pattern was suggested (Table 2.10). Secondary information on crop wise cost of cultivation was collected and utilized to estimate the average cost of cultivation, net income, and average yield per acre of proposed IFS model. District wise major proposed crops cost of cultivation data is presented in Table 2.11.

Animal husbandry is one of the most important components of IFS model; hence suitable animal husbandry enterprise was also included and suggested to farmers to augment overall income. In order to include Dairy, Poultry, Piggery, Fishery, Sheep and Goat enterprises, basic guidelines on economics includes initial investment, maintenance cost, yield etc., which was obtained from NABARD bankable project report was used to estimate the average net income from different enterprises of proposed IFS model.

2.1. Method Adopted to Estimate the Income

Various combinations of crops are identified in eight districts according to farm characteristics, resource endowments and market forces. For various combinations of existing crops, the present study proposed alternative crops along with intercrops wherever sole crops are cultivated. In order to work out the overall income for the proposed crops, the potential yield of the specific crop is selected based on the historical data. The current price of the crops has been taken into account to calculate the income. Similar method is adopted for Animal husbandry.

Table 2.2: Area, Production and Productivity of Major Crops of Kolar District during 2005-06 to 2015-16

(Area: ha, Production: tonnes, Yield: Tonnes/ha)

Year	Redgram			Ragi			Sunflower			Horse gram			Tomato		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
2005-06	8991	5091	0.57	106687	194313	1.82	6329	11571	1.83	6593	3116	0.47	11480	416603	36.29
2006-07	6166	3321	0.54	62518	73322	1.17	2761	4112	1.49	16903	5199	0.31	14397	534068	37.10
2007-08	3195	1685	0.53	60690	73282	1.21	117	106	0.91	4417	1688	0.38	11655	444600	38.15
2008-09	3200	2803	0.88	63861	103342	1.62	50	31	0.62	5027	1231	0.24	6624	372854	56.29
2009-10	1852	1510	0.82	50637	68803	1.36	51	20	0.39	6017	1832	0.30	7690	439022	57.09
2010-11	4086	7503	1.84	57494	109228	1.90	46	22	0.48	7082	4164	0.59	9695	547753	56.50
2011-12	3401	5208	1.53	60273	118555	1.97	12	7	0.58	7341	5090	0.69	9695	547753	56.50
2012-13	3829	4420	1.15	57335	137786	2.40	4	4	1.00	7471	3649	0.49	9695	547753	56.50
2013-14	2506	1895	0.76	55136	123906	2.25	0	0	0.00	12330	10274	0.83	1228	72433	58.98
2014-15	4657	4929	1.06	52491	70931	1.35	0	0	0.00	10096	6518	0.65	0	0	0.00
2015-16	2637	1816	0.69	58368	65842	1.13	0	0	0.00	9481	7197	0.76	0	0	0.00
Year	Potato			All Vegetables			Mango			Sapota			Grapes		
2005-06	9118	186300	20.43	43643	972661	22.29	44951	434552	9.67	5159	50867	9.86	340	7417	21.81
2006-07	11356	197773	17.42	50938	1132767	22.24	48856	475791	9.74	5921	62743	10.60	555	10779	19.42
2007-08	8740	186860	21.38	38108	937512	24.60	39090	149095	3.81	3187	31320	9.83	169	3340	19.76
2008-09	5535	97185	17.56	31743	806561	25.41	40769	464115	11.38	3312	51411	15.52	181	3702	20.45
2009-10	6154	94223	15.31	33274	879002	26.42	43177	485668	11.25	3362	49508	14.73	181	3702	20.45
2010-11	6951	107929	15.53	36084	993502	27.53	44102	510633	11.58	3403	52320	15.37	183	3720	20.33

2011-12	6951	107928	15.53	35489	981610	27.6 6	45252	36201 6	8.00	3403	52320	15.37	230	4491	19.53
2012-13	6951	107928	15.53	36084	993487	27.5 3	46772	37417 6	8.00	3403	52320	15.37	183	3720	20.33
2013-14	6951	107928	15.53	16432	250930	15.2 7	46772	37417 6	8.00	348	4341	12.47	452	9664	21.38
2014-15	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
2015-16	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00

Source: Directorate of Economics and Statistics

Table 2.3: Area, Production and Productivity of Major Crops of Chitradurga District during 2005-06 to 2015-16

(Area: ha, Production: tonnes, Yield: Tonnes/ha)

Year	Arecanut			Onion			Ragi			Bajra		
2005-06	12688	59389	4.68	14904	143416	9.62	56183	74975	1.33	4772	4053	0.85
2006-07	14820	14276	0.96	14255	103526	7.26	40512	42521	1.05	1087	555	0.51
2007-08	15318	71699	4.68	14565	97445	6.69	58977	77696	1.32	2293	2208	0.96
2008-09	15465	72387	4.68	15328	89073	5.81	65696	62706	0.95	1582	601	0.38
2009-10	16545	77443	4.68	22226	128433	5.78	50036	68183	1.36	1278	694	0.54
2010-11	16229	160667	9.90	15912	97063	6.10	55520	91091	1.64	1508	825	0.55
2011-12	16363	132511	8.10	15142	85600	5.65	41177	38596	0.94	1612	906	0.56
2012-13	17251	138455	8.03	11891	65530	5.51	47169	53786	1.14	1330	699	0.53
2013-14	16848	217251	12.89	16332	109919	6.73	47220	59819	1.27	2049	1110	0.54
2014-15	17190	194006	11.29	25864	212643	8.22	57138	91055	1.59	1697	1053	0.62
2015-16	17506	179375	10.25	25075	227291	9.06	48082	76405	1.59	1799	1174	0.65
Year	Cotton			Groundnut			Jowar			Sunflower		
2005-06	15383	26687	1.73	167207	100466	0.60	31154	34532	1.11	57900	33401	0.58
2006-07	8535	12117	1.42	98349	31569	0.32	43732	22810	0.52	62580	28704	0.46
2007-08	10648	24767	2.33	146798	114203	0.78	26300	30110	1.14	52700	28783	0.55
2008-09	4372	7054	1.61	148266	33404	0.23	23096	19295	0.84	42153	17285	0.41
2009-10	10513	14749	1.40	123845	66607	0.54	26614	22271	0.84	29751	11323	0.38
2010-11	16114	35118	2.18	157064	82172	0.52	18500	22509	1.22	13659	8082	0.59
2011-12	20401	37579	1.84	93959	46599	0.50	24676	17049	0.69	13117	4059	0.31
2012-13	19422	27730	1.43	74553	45214	0.61	21029	17935	0.85	51088	23567	0.46
2013-14	20966	35607	1.70	113351	81683	0.72	11890	9139	0.77	17222	8685	0.50
2014-15	28541	48804	1.71	120835	78977	0.65	14215	12879	0.91	14974	7930	0.53
2015-16	16758	22197	1.32	96709	63341	0.65	12719	12069	0.95	20571	10428	0.51

Source: Directorate of Economics and Statistics

Table 2.4: Area, Production and Productivity of Major Crops of Haveri District during 2005-06 to 2015-16

(Area: ha, Production: tonnes, Yield: Tonnes/ha)

	Cotton			Maize			Chilli		
2005-06	59771	96519	1.61	154840	364416	2.35	18180	10722	0.59
2006-07	76459	129621	1.70	130314	343019	2.63	20421	28525	1.40
2007-08	78900	152978	1.94	140516	340095	2.42	19638	25588	1.30
2008-09	91934	163838	1.78	124393	325350	2.62	13763	29606	2.15
2009-10	109231	143134	1.31	125965	262420	2.08	3247	16873	5.20
2010-11	104730	280596	2.68	135931	495067	3.64	11053	14932	1.35
2011-12	106141	305886	2.88	138978	456842	3.29	8161	15951	1.95
2012-13	65659	145985	2.22	173487	351815	2.03	6653	13268	1.99
2013-14	97798	194433	1.99	156883	557597	3.55	8322	14289	1.72
2014-15	106027	213020	2.01	148204	420708	2.84	8510	12492	1.47
2015-16	84424	179211	2.12	170696	396168	2.32	8457	8693	1.03
	Sugarcane			Tomato			Cabbage		
2005-06	1135	100277	88.35	3919	154840	40	575	12776	22
2006-07	1069	92415	86.45	2930	98150	33	627	13397	21
2007-08	2189	155966	71.25	3404	115970	34.07	720	15442	21.45
2008-09	2237	110508	49.40	6624	372854	56.29	731	15483	21.18
2009-10	965	72423	75.05	7690	439022	57.09	819	18238	22.27
2010-11	1489	141455	95.00	9695	547753	56.50	1758	34040	19.36
2011-12	3397	280762	82.65	9695	547753	56.50	1758	34039	19.36
2012-13	5676	372062	65.55	4331	184413	42.58	998	21438	21.48
2013-14	7338	871388	118.75	9695	547753	56.50	1077	22795	21.17
2014-15	10376	1094149	105.45	0	0	0	0	0	0
2015-16	0	0	0	0	0	0	0	0	0

Source: Directorate of Economics and Statistics

Table 2.5: Area, Production and Productivity of Major Crops of Tumakuru District during 2005-06 to 2015-16

(Area: ha, Production: tonnes, Yield: Tonnes/ha)

Year	Arecanut			Coconut Area (Ha)	Coconut Production (Number)	Coconut Yield (Nuts/Ha)	Ragi		
2005-06	19044	107710	5.66	122690	605494000	4935.15	193882	292062	1.51
2006-07	19584	24022	1.23	125511	619416000	4935.15	117033	79554	0.68
2007-08	19937	112761	5.66	124110	683765000	5509.35	197206	309753	1.57
2008-09	22058	124757	5.66	132587	994566000	7501.23	198503	212075	1.07
2009-10	25045	141651	5.66	138660	985898000	7110.18	180167	252488	1.40
2010-11	29014	259664	8.95	142248	1347700000	9474.30	180843	308308	1.70
2011-12	29807	217923	7.31	143110	1351758000	9445.59	151461	229290	1.51
2012-13	30917	226039	7.31	147539	1393593000	9445.59	141999	151578	1.07
2013-14	29334	241183	8.22	145910	1139718000	7811.10	154291	233756	1.52
2014-15	32775	314901	9.61	149419	1283692000	8591.22	171527	324469	1.89
2015-16	34719	351452	10.12	152341	1264153000	8298.18	161634	272249	1.68
Year	Sunflower			Maize			Horse gram		
2005-06	14617	12395	0.85	15862	48404	3.05	27676	15736	0.57
2006-07	14268	9521	0.67	14005	25600	1.83	38822	13629	0.35
2007-08	14762	9132	0.62	21055	59702	2.84	24528	14637	0.60
2008-09	11653	9778	0.84	20224	39487	1.95	24903	12573	0.50
2009-10	8142	5508	0.68	20306	39348	1.94	30307	13935	0.46
2010-11	4197	4007	0.95	21757	57394	2.64	21717	12740	0.59
2011-12	2502	2271	0.91	25894	60133	2.32	21208	11640	0.55
2012-13	1780	1585	0.89	25253	58484	2.32	23597	9336	0.40
2013-14	1244	821	0.66	25468	54286	2.13	18092	8394	0.46
2014-15	1474	1051	0.71	28204	67443	2.39	20605	9020	0.44
2015-16	505	342	0.68	24207	62558	2.58	16191	7536	0.47

Source: Directorate of Economics and Statistics

Table 2.6: Area, Production and Productivity of Major Crops of Belagavi District during 2005-06 to 2015-16

(Area: ha, Production: tonnes, Yield: Tonnes/ha)

	Cotton			Jowar			Maize			Sugarcane		
2005-06	28359	41840	1.48	200314	163953	0.82	137582	486302	3.53	92971	8213988	88.35
2006-07	28247	50807	1.80	177431	153983	0.87	128016	427886	3.34	97762	8265777	84.55
2007-08	21050	51444	2.44	157336	174108	1.11	152786	498308	3.26	102845	9281761	90.25
2008-09	20041	38609	1.93	165411	174175	1.05	145744	426868	2.93	114181	9654004	84.55
2009-10	30046	63454	2.11	169314	187694	1.11	162344	343578	2.12	147298	14972842	101.65
2010-11	38331	84455	2.20	146160	170959	1.17	157511	544168	3.45	187884	18027470	95.95
2011-12	38012	85628	2.25	154736	149934	0.97	147998	504041	3.41	171205	16264475	95.00
2012-13	22675	41838	1.85	120948	103220	0.85	133168	352831	2.65	168128	13895779	82.65
2013-14	31365	86655	2.76	125751	123526	0.98	157639	496249	3.15	159443	14389731	90.25
2014-15	40310	109589	2.72	124105	142341	1.15	156718	580536	3.70	180571	16296533	90.25
2015-16	39578	59043	1.49	163722	97075	0.59	131163	281654	2.15	0	0	0

Source: Directorate of Economics and Statistics

Table 2.7: Area, Production and Productivity of Major Crops of Kalaburgi District during 2005-06 to 2015-16

(Area: ha, Production: tonnes, Yield: Tonnes/ha)

Year	Redgram			Sunflower			Cotton		
	2005-06	382765	273447	0.71	176928	76009	0.43	28773	103776
2006-07	382521	163528	0.43	119353	34077	0.29	23582	85067	3.61
2007-08	429589	302817	0.70	106517	48340	0.45	26010	106214	4.08
2008-09	379769	187606	0.49	134365	52016	0.39	50976	185757	3.64
2009-10	336853	153285	0.46	114959	31298	0.27	23502	55471	2.36
2010-11	377775	206718	0.55	32724	13041	0.40	13759	38254	2.78
2011-12	370523	175998	0.47	35731	17945	0.50	26496	107190	4.05
2012-13	340119	250736	0.74	43128	22161	0.51	39523	90771	2.30
2013-14	369537	394592	1.07	45195	27120	0.60	47273	269445	5.70
2014-15	315343	210003	0.67	42445	23706	0.56	82637	338020	4.09
2015-16	261076	94993	0.36	40968	8056	0.20	49322	103630	2.10
Year	Jowar			Soyabean			Sugarcane		
2005-06	284252	258829	0.91	826	463	0.56	4494	273235	60.80
2006-07	288561	228115	0.79	723	536	0.74	5330	324064	60.80
2007-08	253837	254380	1.00	418	341	0.82	12797	802372	62.70
2008-09	305973	312494	1.02	1058	730	0.69	7944	407527	51.30
2009-10	318992	313909	0.98	1850	192	0.10	11995	763482	63.65
2010-11	212798	175721	0.83	375	140	0.37	10891	724252	66.50
2011-12	207898	194372	0.93	875	320	0.37	15074	615773	40.85
2012-13	200547	221215	1.10	4512	3416	0.76	14801	731169	49.40
2013-14	233608	297453	1.27	6054	8334	1.38	27602	1678202	60.80
2014-15	239203	273299	1.14	21695	13170	0.61	45503	3025950	66.50
2015-16	204379	123411	0.60	7222	5043	0.70	0	0	0

Source: Directorate of Economics and Statistics

Table 2.8: Area, Production and Productivity of Major Crops of Raichur District during 2005-06 to 2015-16

(Area: ha, Production: tonnes, Yield: Tonnes/ha)

Year	Cotton			Dry Chillies			Jowar			Rice		
2005-06	22061	31534	1.43	1116	955	0.86	118481	106931	0.90	178185	429170	2.41
2006-07	12783	24291	1.90	1799	1788	0.99	122529	91649	0.75	137768	415374	3.02
2007-08	22259	51779	2.33	3336	1821	0.55	120018	155754	1.30	160227	461874	2.88
2008-09	26561	73442	2.77	3300	2523	0.76	92288	126667	1.37	164925	522793	3.17
2009-10	22101	53381	2.42	78	249	3.19	112502	145758	1.30	176440	492496	2.79
2010-11	27366	56122	2.05	2124	3064	1.44	113528	165358	1.46	174756	521949	2.99
2011-12	38467	69268	1.80	3483	3703	1.06	86138	63467	0.74	142700	455194	3.19
2012-13	53360	174344	3.27	4440	5108	1.15	109203	142812	1.31	151707	470746	3.10
2013-14	55755	165126	2.96	3824	4819	1.26	95712	134271	1.40	178356	572963	3.21
2014-15	104970	302671	2.88	3839	8133	2.12	76744	107465	1.40	162580	492876	3.03
2015-16	45409	124707	2.75	4211	8877	2.11	91537	90751	0.99	115246	350813	3.04
Year	Bajra			Sunflower			Redgram			Groundnut		
2005-06	68062	69304	1.02	231830	94763	0.41	16413	9387	0.57	44343	34702	0.78
2006-07	57403	17722	0.31	212547	55544	0.26	13338	4688	0.35	39633	29167	0.74
2007-08	62077	43219	0.70	192786	91395	0.47	17912	6245	0.35	46551	37690	0.81
2008-09	53505	36287	0.68	162826	60591	0.37	13531	3432	0.25	39240	29736	0.76
2009-10	55935	24202	0.43	132138	29463	0.22	12984	3626	0.28	38922	25748	0.66
2010-11	53887	48017	0.89	56116	27980	0.50	62051	20986	0.34	37622	30872	0.82
2011-12	46216	41287	0.89	54190	17906	0.33	42859	11808	0.28	38048	27133	0.71
2012-13	52357	51281	0.98	67767	36182	0.53	31072	12103	0.39	43532	38460	0.88
2013-14	50996	56876	1.12	63376	36561	0.58	38322	16965	0.44	52765	47119	0.89
2014-15	46275	33806	0.73	30461	14854	0.49	37594	24929	0.66	32947	30652	0.93
2015-16	37042	28481	0.77	29965	10103	0.34	33623	14246	0.42	35960	26844	0.75

Source: Directorate of Economics and Statistics

Table 2.9: Area, Production and Productivity of Major Crops of Dakshina Kannada District during 2005-06 to 2015-16

(Area: ha, Production: tonnes, Yield: Tonnes/ha)

Year	Areca nut			Rice		
	Area	Production	Yield	Area	Production	Yield
2005-06	27338	228831	8.37	56629	130001	2.30
2006-07	27481	49026	1.78	56758	136060	2.40
2007-08	27532	230455	8.37	55945	127459	2.28
2008-09	27575	230815	8.37	55372	133945	2.42
2009-10	27645	231401	8.37	54899	124078	2.26
2010-11	27668	339926	12.29	54633	130458	2.39
2011-12	27734	342934	12.37	55166	138173	2.50
2012-13	27921	345246	12.37	54204	142700	2.63
2013-14	28232	357756	12.67	55331	150327	2.72
2014-15	35183	447929	12.73	52349	133024	2.54
2015-16	35409	370005	10.45	48689	129360	2.66

Source: Directorate of economics and Economics

Table 2.10: Average rainfall pattern of the selected taluks of sample villages during 2004 to 2014

(Actual rainfall (in mms))

DISTRICT/TALUK	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Kolar (Kolar)	727	1276	512	548	875	736	997	746	698	755	600
Chitradurga (Hiriyur)	852	422	787	640	716	797	350	380	456	586	591
Haveri (Byadagi)	840	851	632	873.6	854.8	1011	850	700	661	776	1068
Tumakuru (Tiptur)	595	808	500	692	740	773	929	527	451	555	769
Belagavi (Gokak)	420	610	380	439	509	773	635	488	303	313	566
Kalaburagi (Aland)	898	577	563	522	579	710	853	587	534	645	721
Raichur (Manvi)	497	749	439	591	431	813	605	334	395	608	554
Dakshina Kannada	3221	3151	2819	2887	3314	2661	3146	4523	3166	3574	3086

Source: Department of Statistics, District at a glance database

Table 2.11: Cost of Cultivation of Major Crops proposed in IFS Model

Kolar							
Crops	Variable cost	Fixed cost	Total cost	Yield in qtl (main)	Price per qtl (main)	Yield tractor load (bi product)	Price per tractor load (bi product)
Tomato	107626	71133	178759	126.99	1438	0	0
Mango	21999	34153	56153	31	2129	0	0
Haveri							
Maize	20068	12415	32482	21.32	1387	1	1000
Cotton	31580	21144	52724	8.77	5860	0	0
Tumakuru							
Ragi	20956	11456	32412	7.28	2846	0.68	6133
Coconut	39085	29298	68383	3898	8	1	941
Arecanut	86982	107134	194116	7.75	28839	0	0
Groundnut	20618	10113	30731	3.88	4281	0.68	7667
Belagavi							
Tomato	107626	71133	178759	126.99	1438	0	0
Jowar	16023	6615	22638	7.32	1466	1.19	1901
Maize	20068	12415	32482	21.32	1387	1	1000
Soyabean	18678	8721	27399	6.49	2758	2	500
Kalaburagi							
Jowar	14519	7232	22185	4.47	2422	1.5	3333
Redgram	26435	13461	39896	5.38	5552	0.92	667
Blackgram	16384	8235	24619	3.02	6140	0	0
Bengal gram	18070	9153	27224	4.05	5099	0	0
Raichur							
Paddy	33500	22660	56160	27.88	1895	1.34	2134
Cotton	31580	21144	52724	8.77	5860	0	0
Bajra	15014	5607	20621	5.57	1462	1.5	1214

Source: Directorate of Economics and Statistics

2.2. Assumptions

- Alternate cropping pattern / enterprises are suggested based on the current cropping pattern, major area under crop, in the last decade and average rainfall of the district as well as suitable agro climatic condition.
- Maximum potential yield was derived by considering average productivity of crops during last decade.
- Crop wise cost of cultivation was collected from different sources and utilized to estimate the average cost of cultivation, net income, and average yield per acre of proposed IFS crops.
- Dairy, Poultry, Piggery, Sheep and Goat enterprises based on initial investment, maintenance cost, and productivity obtained from NABARD bankable project report was used to estimate the average net income from different enterprises of proposed IFS model. The views expressed in these models are advisory in nature.

3. SOCIO-ECONOMIC CHARACTERISTICS

In order to appreciate socio-economic conditions of the sample farmers, information relating to family size, composition, literacy, caste, social participation, migration, operational holdings, irrigation status. Soil test results and cropping pattern are analyzed and discussed. These characteristics of the farmers play an important role in determining the potential income of the farmer.

3.1. Socio-Economic Characteristics of Sample Farmers

The gender as well as age wise sample farmers are presented in Table 3.1. Majority of the farmers were male (86%), 58 per cent belonged to age group between 36 and 60 years followed by above 60 years (30%) and between 18 and 35 years (11.50%).

The household size is five to six members. The highest family size is in Kolar with eight members per family, while the lowest family size is in Mangaluru with 2 to 3 members per family.

Table 3.1: Gender and Age Group of Head of Family

Sl. No.	District	Sex of the head of farm household (% to total sample farmers)		Age Group (% to total sample farmers)			Average No. of family members per House hold
		Male	Female	Between 18 and 35 years	Between 36 and 60 years	Above 60 years	
1	Kolar	96.00	4.00	4.00	52.00	44.00	7.88
2	Chitradurga	100.00	0.00	12.00	60.00	28.00	5.08
3	Haveri	76.00	24.00	8.00	76.00	16.00	5.76
4	Tumakuru	88.00	12.00	0.00	68.00	32.00	3.64
5	Belagavi	76.00	24.00	12.00	40.00	48.00	6.28
6	Kalaburgi	88.00	12.00	0.00	48.00	52.00	7.52
7	Raichur	84.00	16.00	44.00	56.00	0.00	5.12
8	Mangaluru	80.00	20.00	12.00	68.00	20.00	2.56
	Average	86.00	14.00	11.50	58.50	30.00	5.48

3.2. Social Category

Social classification plays a crucial role in upliftment of weaker and downtrodden members of the society which leads to social welfare. The Table 3.2 depicts that the share of other backward classes (59 %) is the highest among social groups surveyed, followed by schedule tribes (22%), SC (14.5%), Minorities (3%) and General category (1.5%). Among various KVKs, share of OBCs was the highest in Kolar (84%), share of ST was the highest in Haveri (70%), share of SC was the highest in Tumakuru and Kalaburagi (24%) and that of minorities was the highest (24%) in Mangaluru.

Table 3.2: Social Category (As a percent to Total Number of Farmers)

Sl. No.	District	General	OBC	SC	ST	Minorities	Total
1	Kolar	0.00	84.00	16.00	0.00	0.00	100.00
2	Chitradurga	0.00	76.00	12.00	12.00	0.00	100.00
3	Haveri	4.00	12.00	8.00	76.00	0.00	100.00
4	Tumakuru	0.00	76.00	24.00	0.00	0.00	100.00
5	Belagavi	0.00	64.00	12.00	24.00	0.00	100.00
6	Kalaburgi	0.00	76.00	24.00	0.00	0.00	100.00
7	Raichur	0.00	32.00	8.00	60.00	0.00	100.00
8	Mangaluru	8.00	52.00	12.00	4.00	24.00	100.00
	Average	1.50	59.00	14.50	22.00	3.00	100.00

3.3. Educational Status

a) Educational Status of Head of the household

The details on educational levels of farmers are presented in Table 3.3a. About 34.5 per cent of the heads of farm households completed their primary education followed by higher secondary (21.5%), degree education (8.5%), and 6 per cent of the farmers completed their

PUC/ Diploma while 28 per cent were illiterates. In different KVKs, majority of the farmers completed their primary education Mangaluru (56%), Tumakuru (48%) and Haveri (44%). About 56 per cent of the farmers were illiterates. There were no post graduates / technical/professionals / Ph.D holders.

Table 3.3a: Educational Status of Sample Respondent (As % to Total Number of Farmers)

Sl. No.	District	Illiterate	Functional Literate	I to VII Std	VII to X Std	PUC\Diploma, ITI, JOC	General Degree	General Technical	Post-Graduation General	Post-Graduation Technical\Professional	Ph.D
1	Kolar	20.00	0.00	28.00	36.00	8.00	8.00	None	None	None	None
2	Chitradurga	20.00	0.00	32.00	16.00	12.00	16.00				
3	Haveri	16.00	8.00	44.00	12.00	12.00	8.00				
4	Tumakuru	4.00	0.00	48.00	36.00	0.00	12.00				
5	Belagavi	64.00	0.00	16.00	12.00	4.00	4.00				
6	Kalaburgi	56.00	0.00	36.00	4.00	0.00	4.00				
7	Raichur	40.00	0.00	16.00	28.00	12.00	4.00				
8	Mangaluru	4.00	0.00	56.00	28.00	0.00	12.00				
	Average	28.00	1.00	34.50	21.50	6.00	8.50				

b) Educational Status of Family Members

The details on educational levels of family members are presented in **Table 3.3b**. On an average, 25.91 per cent completed their secondary education followed by primary (23.91 %) and 15.60 per cent completed their PUC/ Diploma while 20.53 per cent were illiterate.

Table 3.3b: Educational level of family members (As a percent to total number of family members)

Sl. No	District	Illiterate	Functional Literate	I to VII Std	VII to X Std	PUC\Diploma, ITI,JOC	General Degree	General Technical	Post-Graduation General	Ph.D
1	Kolar	17.26	4.06	15.23	33.50	13.71	8.63	5.58	2.03	0.00
2	Chitradurga	22.05	4.72	23.62	18.11	22.05	6.30	1.57	0.79	0.79
3	Haveri	18.06	4.17	32.64	20.83	18.06	4.86	1.39	0.00	0.00
4	Tumakuru	10.99	0.00	13.19	30.77	28.57	12.09	1.10	2.20	1.10
5	Belagavi	10.83	17.83	30.57	24.84	7.64	8.28	0.00	0.00	0.00
6	Kalaburgi	27.13	0.00	26.06	22.34	17.55	6.38	0.53	0.00	0.00
7	Raichur	36.72	0.00	22.66	25.00	9.38	3.91	1.56	0.78	0.00
8	Mangaluru	18.75	0.00	26.56	37.50	10.94	4.69	1.56	0.00	0.00
	Average	20.53	4.38	23.91	25.91	15.60	6.93	1.82	0.73	0.18

Among the different KVKs, majority of the farmers have completed their higher secondary education in Mangaluru (37%), Kolar (33.5%) and Tumakuru (30.77%). Around 20.53 per cent of the farmers were illiterate and 0.73 per cent of family members completed post graduation/technical/professionals and 0.18 per cent of the farmers completed Ph.D.

3.4. Occupational Details

The occupational details of sample farmers are depicted in the Table 3.4. Majority of the farmers depended primarily on agriculture for livelihood (78%) followed by Agriculture labour (7%), and homemakers and students (6%). Among the KVKs cent percent of the farmers in Chitradurga depended on agriculture followed by Raichur (96%) and Kolar (84%). On the other hand, 20 per cent of farmers in Haveri and Kalaburagi KVKs were engaged as agriculture labourers for livelihood. About 24 per cent of the farmers were unemployed in the Kalaburagi region.

Table 3.4: Occupation of Head of Family (As a percent to total farmers)

Sl. No.	District	Agriculture	Housewife and Students	Service (Govt./ Corporate / Private)	Agri. labour	Traders and commission agents including petty traders and self employed	Artisan	Unemployed	Drivers
1	Kolar	84.00	0.00	12.00	4.00	0.00	0.00	0.00	0.00
2	Chitradurga	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Haveri	60.00	12.00	8.00	20.00	0.00	0.00	0.00	0.00
4	Tumakuru	84.00	12.00	4.00	0.00	0.00	0.00	0.00	0.00
5	Belagavi	76.00	12.00	0.00	4.00	0.00	0.00	4.00	4.00
6	Kalaburagi	52.00	4.00	0.00	20.00	0.00	0.00	24.00	0.00
7	Raichur	96.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00
8	Mangaluru	72.00	8.00	0.00	4.00	12.00	0.00	0.00	4.00
	Average	78.00	6.00	3.00	7.00	1.50	0.00	3.50	1.00

3.5. Social Participation

Details of social participation by the sample farmers are presented in Table 3.5. About 25 per cent of the sample farmers participated in social activities. Across the KVKs, Kalaburagi district reordereed the highest social participation (76%) followed by Tumakuru (68%) and Mangaluru (24%). Further it could be seen from the table that, a negligible portion of farmers migrated to nearby places, of which 4 percent was from Kalaburagi.

Table 3.5: Social Participation and Migration (As a percent to total)**a**

Sl. No.	Name of the districts	Head of Family (As a percent to total farmers)	
		Farmers with Social participation	Farmers who migrated
1	Kolar	4.00	0.00
2	Chitradurga	8.00	0.00
3	Haveri	4.00	0.00
4	Tumakuru	68.00	0.00
5	Belagavi	0.00	0.00
6	Kalaburgi	76.00	4.00
7	Raichur	20.00	0.00
8	Mangaluru	24.00	0.00
	Average	25.50	0.50

3.6. Information on Soil Test

Soil analysis is a valuable tool for agriculture as it determines inputs required for efficient and economic production. A proper soil test will help ensure the application of adequate / appropriate fertilizer dose to meet the requirements of the crop considering nutrient status in the soil. In present study 41 per cent of the farmers were aware of soil test and received the result of their soil test. Among the KVKs, farmers from Kolar and Belagavi participated in obtaining their soil test followed by Chitradurga. In Haveri, Kalaburagi, Raichur, and Mangaluru, none of the sample farmers took initiative of obtaining their soil tested. On an average 22 per cent of the farmers applied fertilizers according to their soil test report. Among the different KVKs, all the farmers from Kolar applied fertilizers based on their soil test report followed by Chitradurga (76%), while farmers from other KVKs did not apply nutrients based on the soil test report (Table 3.6).

Table 3.6: Soil Test, Soil Colour and Soil Quality (Percentage of total sample farmers)

Sl. No.	Name of the districts	Done soil test	Soil Colour analysis				Soil Quality analysis			Applied fertilizer as per soil test
			Red	Black	Brownish	Yellowish	Fertile	Medium	Low	
1	Kolar	100.00	100.00	0.00	0.00	0.00	32.00	68.00	0.00	100.00
2	Chitradurga	92.00	96.00	4.00	0.00	0.00	76.00	24.00	0.00	76.00
3	Haveri	0.00	96.00	4.00	0.00	0.00	0.00	100.00	0.00	0.00
4	Tumakuru	36.00	100.00	0.00	0.00	0.00	28.00	72.00	0.00	0.00
5	Belagavi	100.00	100.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
6	Kalaburgi	0.00	0.00	100.00	0.00	0.00	0.00	96.00	4.00	0.00
7	Raichur	0.00	0.00	100.00	0.00	0.00	0.00	48.00	52.00	0.00
8	Mangaluru	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Average	41.00	61.50	26.00	0.00	0.00	17.00	63.50	7.00	22.00

3.7. Details of Land Holding

Land holding details of sample farmers is presented in the Table 3.7. The net operated area was 6.79 acres per farmer. The rainfed area (3.16 acres per farmer) formed 47 percent of total area. Across the different KVKs, net operated area was higher in Raichur (12.76 ac/farmer) followed by Kalaburagi (10.37 ac/ farmer and Kolar (8.89 ac/farmer). Further it could be seen from the table that, 5.61 acre of the total area was owned by the farmer, of which 1.55 acre was leased in forming 28 percent of total land, and 0.37 acre forming 7 percent, was left fallow by the sample farmers. In all the districts, there was no case of farmers leasing out their land.

3.8. Classification of Farmers based on Size of Land Holding

Farmers who have operated up to 2.50 acres were classified as marginal, 2.51 to 5 acres as small, and 5.01 to 10 as medium and above 10 acres as large farmers. The Table 3.8 presents the number of farmers in each of these categories and their corresponding operational land. At the aggregate level, 32.5 per cent of marginal farmers operated 7.18 per cent of area, 33.50 per cent of the small farmers operated 18.66 per cent of area, 18 per cent of the medium farmers operated 19.88 per cent of the area and 16 per cent of the

large farmers operated 54.28 per cent of the area. This indicates the inequity in distribution of land among different classes of farmers. Across the KVKs, marginal farmers were found to be in the highest proportion in Mangaluru (72%), while small farmers were found to be in the highest proportion in Chitradurga (56%). Medium farmers were in the highest proportion in Kolar (28%) and large farmers were in the highest proportion in Raichur (48%).

Table 3.7: Details of Land Holding (Acres per sample farmer)

Sl. No.	Name of the Selected Districts	Own Land			Leased-in			Fallow Land			Net-Operated Area		
		Irrigated	Un-irrigated	Total	Irrigated	Un-irrigated	Total	Irrigated	Un-irrigated	Total	Irrigated	Un-irrigated	Total
1	Kolar	3.41	5.38	8.79	0.00	0.16	0.16	0.00	0.06	0.06	3.41	5.48	8.89
2	Chitradurga	2.59	3.66	6.25	0.00	0.00	0.00	0.44	0.50	0.94	2.15	3.16	5.31
3	Haveri	1.57	1.28	2.85	0.00	1.98	1.98	0.00	0.02	0.02	1.57	3.24	4.81
4	Tumakuru	2.63	0.78	3.41	0.00	0.00	0.00	0.00	0.00	0.00	2.63	0.78	3.41
5	Belagavi	1.54	2.16	3.70	0.00	0.00	0.00	0.00	0.00	0.00	1.54	2.16	3.70
6	Kalaburgi	1.81	6.43	8.24	0.00	2.28	2.28	0.00	0.15	0.15	1.81	8.56	10.37
7	Raichur	3.64	2.80	6.44	6.96	1.04	8.00	0.00	1.68	1.68	10.60	2.16	12.76
8	Mangaluru	1.64	3.56	5.20	0.00	0.00	0.00	0.00	0.04	0.04	1.64	3.52	5.16
	Average	2.35	3.26	5.61	0.87	0.68	1.55	0.06	0.31	0.37	3.16	3.63	6.79

Table 3.8: Classification of Farmers based on Size of Land Holding

Name of the Selected District	Marginal (up to 2.5 acres)			Small (2.51 acres to 5 acres)			Medium (5.01 acres to 10 acres)			Large (above 10 acres)			Total operated area (Acres)	Total operated area Per HH (Acres)
	% of farmers to total	Area (% to Total)	Operational Area (Acre)	% of farmers to total	Area (% to Total)	Operational Area (Acre)	% of farmers to total	Area (% to Total)	Operational Area (Acre)	% of farmers to total	Area (% to Total)	Operational Area (Acre)		
Kolar	24.00	5.40	2.00	40.00	15.41	3.43	222.25	8.89	8.86	8.00	51.29	57.00	222.25	8.89
Chitradurga	16.00	3.77	1.25	56.00	40.49	3.84	132.75	5.31	7.40	8.00	27.87	18.50	132.75	5.31
Haveri	40.00	13.51	1.63	24.00	18.92	3.79	120.25	4.81	6.45	16.00	40.75	12.25	120.25	4.81
Tumakuru	44.00	17.94	1.39	44.00	50.98	3.95	85.28	3.41	5.75	4.00	17.59	15.00	85.28	3.41
Belagavi	36.00	14.01	1.44	40.00	44.08	4.08	92.45	3.70	6.46	0.00	0.00	0.00	92.45	3.70
Kalaburgi	20.00	1.65	0.86	24.00	8.32	3.59	259.17	10.37	7.83	40.00	77.94	20.20	259.17	10.37
Raichur	8.00	0.00	0.00	20.00	6.36	4.06	319.04	12.76	7.92	48.00	78.76	20.94	319.04	12.76
Mangaluru	72.00	24.70	1.77	20.00	13.20	3.40	4.00	7.76	10.00	4.00	54.34	70.00	128.82	5.15
Total	32.50	7.18	1.50	33.50	18.66	3.79	18.00	19.88	7.51	16.00	54.28	23.07	1360.01	6.80

3.9. Irrigation Status

The operated land size of the beneficiaries is presented in Tables 3.9a, 3.9b, 3.9c, 3.9d, 3.9e, 3.9f, 3.9g, 3.9h, and 3.9i. The total operated irrigated area was 1064.84 acres of which rainfed area was 679.02ac (64%). Among the crops irrigated, cotton (161.25 ac) (15%), chilli (128.25 ac) (12%), arecanut (196.5 ac) (18%) and coconut (164.62 ac) (15%) were major crops. Among rainfed crops, redgram (148.28 ac), cotton (88.08 ac), maize (68.38 ac) and Ragi (62.00 ac) were the major crops. Cash crops (218.13 ac) dominated in irrigated areas followed by plantation crops (421.12 ac) and vegetables (190.38 ac). In rainfed area, cereals accounted for highest share of 215.33 ac, followed by Pulses (192.41 ac) and cash crops (88.58 ac). Among the districts, the highest irrigated area was 298.75 ac in Raichur followed by Tumakuru and Mangaluru with an irrigated area of 150.66 ac and 86.63 ac respectively. However, the highest rainfed area was in Kalaburgi (186.59 ac) followed by Kolar (128.00 ac) and Haveri (110.88 ac).

In the study districts, the highest operated area was 338.50 ac in Raichur, which comprises 88.26 percent of irrigated area and 11.74 percent of rainfed area followed by Kalaburagi and Kolar (221.34 ac & 207.25 ac respectively) which consists of 15.70 percent & 38.24 percent of irrigated area and 84.30 percent & 61.76 percent of rainfed area in these districts respectively. The operated area was lowest in the Belagavi (96.7 ac) district among the selected sample districts with 38.52 percent of total operated land under irrigation.

Table 3.9a: Cropping Pattern in rainfed and irrigated areas in Kolar district

KOLAR		
Name of Crop	Irrigated	Un-Irrigated
Ragi	3.50 (7.14)	45.50 (92.86)
Wheat	0.00	8.00 (100.00)
Total cereals	3.50 (6.14)	53.50 (93.86)
Redgram	0.00	28.50 (100.00)
Total pulses	0.00	28.50 (100.00)
Sun flower	0.00	38.00 (100.00)
Sesamum	5.75 (100.00)	0.00
Total oil seeds	5.75 (13.14)	38.00 (86.86)
Mulberry	62.00 (100.00)	0.00
Total cash crops	31.00 (100.00)	0.00
Tomato	17.50 (94.59)	1.00 (5.41)
Beans	1.00 (100.00)	0.00
Potato	1.00 (100.00)	0.00
Cauliflower	1.50 (100.00)	0.00
Brinjal	0.00	2.00 (100.00)
Total vegetables	21.00 (87.50)	3.00 (12.50)
Mango	62.00 (100.00)	0.00
Total fruits	18.00 (100.00)	0.00
Rubber	0.00	5.00 (100.00)
Total plantation	0.00	5.00 (100.00)
Grand total	79.25 (38.24)	128.00 (61.76)

Table 3.9b: Cropping Pattern in rainfed and irrigated areas in Chitradurga district

CHITRADURGA		
Cropping pattern	Irrigated	Un-Irrigated
Ragi	12.50 (100.00)	0.00
Paddy	2.00 (100.00)	0.00
Maize	1.50 (33.33)	3.00 (66.67)
Total cereals	16.00 (84.21)	3.00 (15.79)
Redgram	2.00 (100.00)	0.00
Total pulses	2.00 (100.00)	0.00
Cotton	4.00 (100.00)	0.00
Total cash crops	4.00 (100.00)	0.00
Onion	11.00 (100.00)	0.00
Total vegetables	11.00 (100.00)	0.00
Coconut	6.00 (100.00)	0.00
Arecanut	2.00 (18.18)	9.00 (81.82)
Total plantation	8.00 (47.06)	9.00 (52.94)
Others	22.00 (26.83)	60.00 (73.17)
Total others	22.00 (26.83)	60.00 (73.17)
Grand total	59.00 (46.64)	67.50 (53.36)

Table 3.9c: Cropping Pattern in rainfed and irrigated areas in Haveri district

HAVERI		
Name of Crop	Irrigated	Un-Irrigated
Paddy	2.00 (100.00)	0.00
Jowar	0.00	2.00 (100.00)
Maize	6.25 (9.71)	58.13 (90.29)
Total cereals	8.25 (12.06)	60.13 (87.94)
Cotton	4.00 (7.84)	47.00 (92.16)
Total cash crops	4.00 (7.84)	47.00 (92.16)
Chilli	3.00 (54.55)	2.50 (45.45)
Tomato	6.00 (96.00)	0.25 (4.00)
Cabbage	17.50 (100.00)	0.00
Okra	3.00 (75.00)	1.00 (25.00)
Cucumber	1.38 (100.00)	0.00
Total vegetables	30.88 (89.17)	3.75 (10.83)
Rajgiri	1.00 (100.00)	0.00
Total others	1.00 (100.00)	0.00
Grand total	44.13 (28.47)	110.88 (71.53)

Table 3.9d: Cropping Pattern in rainfed and irrigated areas in Tumakuru district

TUMAKURU		
Name of crop	Irrigated	Un-Irrigated
Ragi	4.80 (22.54)	16.50 (77.46)
Paddy	1.00 (100.00)	0.00
Maize	2.88 (100.00)	0.00
Wheat	0.00	0.25 (100.00)
Total cereals	8.68 (34.13)	16.75 (65.87)
Redgram	0.00	1.00 (100.00)
Green gram	0.00	1.00 (100.00)
Black gram	0.00	1.00 (100.00)
Cowpea	0.05 (100.00)	0.00
Total pulses	0.05 (1.64)	3.00 (98.36)
Sun flower	2.60 (100.00)	0.00
Sesamum	0.88 (100.00)	0.00
Total oil seeds	3.48 (100.00)	0.00
Ginger	1.88 (100.00)	0.00
Total cash crops	1.88 (100.00)	0.00
Banana	3.00 (100.00)	0.00
Total fruits	3.00 (100.00)	0.00
Coconut	154.36 (98.34)	2.60 (1.66)
Arecanut	105.50 (100.00)	0.00
Rubber	0.00	1.00 (100.00)
Total plantation	129.93 (98.26)	2.30 (1.74)
Jasmine	1.00 (100.00)	0.00
Jerenium	2.26 (100.00)	0.00
Total flowers	3.26 (100.00)	0.00
Others	0.38 (100.00)	0.00
Total others	0.38 (100.00)	0.00
Grand total	150.66 (87.23)	22.05 (12.77)

Table 3.9e: Cropping Pattern in rainfed and irrigated areas in Belagavi district

BELGAVI		
Name of crop	Irrigated	Un-Irrigated
Paddy	1.00 (100.00)	0.00
Jowar	0.50 (2.87)	16.95 (97.13)
Maize	4.50 (38.30)	7.25 (61.70)
Total cereals	6.00 (19.87)	24.20 (80.13)
Sesamum	0.50 (33.33)	1.00 (66.67)
Total oil seeds	0.50 (33.33)	1.00 (66.67)
Cotton	4.00 (10.60)	33.75 (89.40)
Sugarcane	24.00 (100.00)	0.00
Total cash crops	28.00 (45.34)	33.75 (54.66)
Tomato	1.75 (77.78)	0.50 (22.22)
Okra	1.00 (100.00)	0.00
Total vegetables	2.75 (84.62)	0.50 (15.38)
Grand total	37.25 (38.52)	59.45 (61.48)

Table 3.9f: Cropping Pattern in rainfed and irrigated areas in Kalaburagi district

KALABURAGI		
Name of crop	Irrigated	Un-Irrigated
Jowar	0.00	3.00 (100.00)
Sajje	0.00	5.50 (100.00)
Wheat	3.50 (100.00)	0.00
Total cereals	3.50 (29.17)	8.50 (70.83)
Redgram	4.00 (3.35)	115.28 (96.65)
Green gram	0.00	13.95 (100.00)
Black gram	12.25 (30.30)	28.18 (69.70)
Total pulses	16.25 (9.36)	157.41 (90.64)
Soyabean	0.75 (14.71)	4.35 (85.29)
Sun flower	11.00 (57.89)	8.00 (42.11)
Sesamum	0.00	1.00 (100.00)
Total oil seeds	11.75 (46.81)	13.35 (53.19)
Cotton	3.25 (30.72)	7.33 (69.28)
Total cash crops	3.25 (30.72)	7.33 (69.28)
Grand total	34.75 (15.70)	186.59 (84.30)

Table 3.9g: Cropping Pattern in rainfed and irrigated areas in Raichur district

RAICHUR		
Name of crop	Irrigated	Un-Irrigated
Paddy	19.50 (100.00)	0.00
Jowar	0.00	29.25 (100.00)
Total cereals	19.50 (40.00)	29.25 (60.00)
Redgram	8.00 (69.57)	3.50 (30.43)
Total pulses	8.00 (69.57)	3.50 (30.43)
Sun flower	0.00	7.00 (100.00)

Total oil seeds	0.00	7.00 (100.00)
Cotton	146.00 (100.00)	0.00
Total cash crops	146.00 (100.00)	0.00
Chilli	125.25 (100.00)	0.00
Total vegetables	125.25 (100.00)	0.00
Grand total	298.75 (88.26)	39.75 (11.74)

Table 3.9h: Cropping Pattern in rainfed and irrigated areas in Mangaluru district

MANGALURU		
Name of crop	Irrigated	Un-Irrigated
Paddy	0.00	20.00 (100.00)
Total cereals	0.00	20.00 (100.00)
Cashew	0.00	0.50 (100.00)
Total cash crops	0.00	0.50 (100.00)
Pineapple	1.00 (100.00)	0.00
Banana	3.00 (100.00)	0.00
Total fruits	4.00 (100.00)	0.00
Coconut	4.26 (100.00)	0.00
Arecanut	89.00 (100.00)	0.00
Rubber	60.00 (100.00)	0.00
Total plantation	153.26 (100.00)	0.00
Ivy guard	6.00 (100.00)	0.00
Total others	6.00 (100.00)	0.00
Grand total	86.63 (80.86)	20.50 (19.14)

Cropping pattern in aggregate

The major crops in irrigated condition are cotton, chilli, coconut and arecanut. The major crops in rainfed condition are Ragi, Maize, Redgram, and Cotton.

Table 3.9i: Cropping Pattern in rainfed and irrigated areas (aggregate)

Name of crop	Irrigated	Un-Irrigated
Ragi	20.80 (25.12)	62.00 (74.88)
Paddy	25.50 (56.04)	20.00 (43.96)
Jowar	0.50 (0.97)	51.20 (99.03)
Maize	15.13 (18.12)	68.38 (81.88)
Sajje	0.00	5.50 (100.00)
Wheat	3.50 (29.79)	8.25 (70.21)
Total cereals	65.43 (23.30)	215.33 (76.70)
Redgram	14.00 (8.63)	148.28 (91.37)
Green gram	0.00	14.95 (100.00)
Black gram	12.25 (29.57)	29.18 (70.43)
Cowpea	0.05 (100.00)	0.00
Total pulses	26.30 (12.03)	192.41 (87.97)
Soyabean	0.75 (14.71)	4.35 (85.29)

Sun flower	13.60 (20.42)	53.00 (79.58)
Sesamum	7.13 (78.09)	2.00 (21.91)
Total oil seeds	21.48 (26.57)	59.35 (73.43)
Cotton	161.25 (64.67)	88.08 (35.33)
Ginger	1.88 (100.00)	0.00
Sugarcane	24.00 (100.00)	0.00
Mulberry	31.00 (100.00)	0.00
Cashew	0.00	0.50 (100.00)
Total cash crops	218.13 (71.12)	88.58 (28.88)
Chilli	128.25 (98.09)	2.50 (1.91)
Tomato	25.25 (93.52)	1.75 (6.48)
Onion	11.00 (100.00)	0.00
Beans	1.00 (100.00)	0.00
Potato	1.00 (100.00)	0.00
Cabbage	17.50 (100.00)	0.00
Cauliflower	1.50 (100.00)	0.00
Okra	4.00 (80.00)	1.00 (20.00)
Brinjal	0.00	2.00 (100.00)
Cucumber	1.38 (100.00)	0.00
Total vegetables	190.88 (96.34)	7.25 (3.66)
Pineapple	1.00 (100.00)	0.00
Banana	6.00 (100.00)	0.00
Mango	18.00 (100.00)	0.00
Total fruits	25.00 (100.00)	0.00
Coconut	164.62 (98.45)	2.60 (1.55)
Arecanut	196.50 (95.62)	9.00 (4.38)
Rubber	0.00 (0.00)	0.00 (0.00)
Total plantation	60.00 (90.91)	6.00 (9.09)
Jasmine	1.00 (100.00)	0.00
Jeranium	2.26 (100.00)	0.00
Total flowers	3.26 (100.00)	0.00
Rajgiri	1.00 (100.00)	0.00
Ivy guard	6.00 (100.00)	0.00
Others	22.38 (27.17)	60.00 (72.83)
Total others	35.38 (37.09)	60.00 (62.91)
Grand total	1064.84 (61.06)	679.02 (38.94)

3.10. Season-Wise Cropping Pattern

The proportion of gross cropped area in kharif, rabi and summer seasons in each district is presented in Table 3.10. The primary data pertaining to cropping pattern of farmers was collected for kharif, rabi and summer season. The crops sown during July month and harvested during October have been considered as Kharif crops. Rabi crops refer to those crops sown in November and harvested in February. All the crops sown during March and harvested during June have been grouped as summer crops. Sowing and harvesting months and duration of each season vary across districts. The farmers were cultivating as many as 8 different types of crops among Cereals, Pulses, Oilseeds,

Cash Crops, Vegetables, and Fruits, Plantation, Flowers and other crops. The crops cultivated by sample farmers in each KVK depicted more than 85 per cent of area covered and rest of the crops area were defined as others.

The proportion of crop area to gross cropped area in Kolar district was dominant in mulberry (24.20%) followed by Ragi (19.12%), sunflower (14.83%), mango (14.05%), redgram (11.12%) and others (16.68%). Ragi (9.26%) was the prominent crop in Chitradurga followed by onion (8.15%). Maize was preferred crop in Haveri (41.53%) followed by cotton (32.90%), and cabbage (11.29%). Tumakuru well known for coconut cultivation had 51 percent of gross cropped area under coconut followed by arecanut (40%). Cotton (39.04%) was the prominent crop in Belagavi followed by sugarcane (24.82%) and maize (12.15%). Pulses were dominant in Kalaburagi district with the highest proportion of area under redgram (53.89%) followed by black gram (18.27%), and green gram (6.30%). In Raichur KVK, the highest area was under cotton (43.13%), followed by chilli (37%), and Jowar (8.64%). Arecanut (45.81%) and paddy (10.30%) were the major crops in Mangaluru KVK. The highest cultivated area per farmer was in Mangaluru under Rubber plantation (60 acres) followed by sunflower in Kolar (25.33ac).

Table 3.10: Season-Wise Cropping Pattern

KVKs	Name of crops	PERCENT TO TOTAL AREA					CULTIVATED AREA PER farm (ACRES)				
		Per cent area to total of kharif area	Per cent area to total of rabi area	Per cent area to total of summer area	Percent area to total of annual / perennial area	Per cent area of crop to gross cropped area	Kharif	Rabi	Summer	Annual /perennial	Total
KOLAR	Ragi	35.19	0.00	0.00	0.00	19.12	2.04	0.00	0.00	0.00	2.04
	Redgram	20.47	0.00	0.00	0.00	11.12	1.68	0.00	0.00	0.00	1.68
	Mulberry	0.00	0.00	0.00	63.27	24.20	0.00	0.00	0.00	6.20	6.20
	Mango	0.00	0.00	0.00	36.73	14.05	0.00	0.00	0.00	12.00	12.00
	Sunflower	27.29	0.00	0.00	0.00	14.83	12.67	0.00	0.00	0.00	12.67
	Others	17.06	100.00	100.00	0.00	16.68	2.16	0.83	1.83	0.00	1.86
	TOTAL	100.01	100.00	100.00	100.00	100.00	100.00	2.53	0.83	1.83	7.54
CHITRADURGA	Ragi	10.73	0.00	0.00	0.00	9.26	2.08	0.00	0.00	0.00	2.08
	Onion	9.44	0.00	0.00	0.00	8.15	2.20	0.00	0.00	0.00	2.20
	Arecanut	0.00	0.00	0.00	64.71	8.15	0.00	0.00	0.00	5.50	5.50
	Unspecified crops	70.39	0.00	0.00	0.00	60.74	3.73	0.00	0.00	0.00	3.73
	Others	9.44	100.00	0.00	35.29	13.70	1.83	1.50	0.00	6.00	2.31
	TOTAL	100.00	100.00	0.00	100.00	100.00	2.99	1.50	0.00	5.67	3.14
HAVERI	Maize	38.20	63.41	0.00	0.00	41.53	2.57	4.33	0.00	0.00	2.80
	Cotton	37.92	0.00	0.00	0.00	32.90	2.13	0.00	0.00	0.00	2.13
	Tomato	1.30	21.95	0.00	0.00	4.03	0.44	1.13	0.00	0.00	0.78
	Cabbage	12.64	2.44	0.00	0.00	11.29	1.70	0.50	0.00	0.00	1.59
	Others	9.95	12.20	0.00	0.00	10.24	1.12	1.25	0.00	0.00	1.13
	TOTAL	100.01	100.00	0.00	0.00	99.99	1.92	2.05	0.00	0.00	1.94
TUMAKURU	Ragi	82.46	0.00	0.00	0.00	6.96	1.42	0.00	0.00	0.00	1.42
	Coconut	0.00	0.00	0.00	58.79	51.26	0.00	0.00	0.00	6.82	6.82
	Arecanut	0.00	0.00	0.00	39.52	34.45	0.00	0.00	0.00	6.21	6.21
	Sunflower	10.07	0.00	0.00	0.00	0.85	0.43	0.00	0.00	0.00	0.43
	Others	7.47	100.00	100.00	1.69	6.48	0.39	1.25	0.64	0.75	0.68

	TOTAL	100.00	100.00	100.00	100.00	100.00	0.99	1.25	0.64	5.80	3.40
BELGAVI	Jowar	18.05	0.00	0.00	0.00	18.05	1.09	0.00	0.00	0.00	1.09
	Maize	12.15	0.00	0.00	0.00	12.15	1.18	0.00	0.00	0.00	1.18
	Cotton	39.04	0.00	0.00	0.00	39.04	1.51	0.00	0.00	0.00	1.51
	Sugarcane	24.82	0.00	0.00	0.00	24.82	2.18	0.00	0.00	0.00	2.18
	Others	5.95	0.00	0.00	0.00	5.95	0.72	0.00	0.00	0.00	0.72
	TOTAL	100.01	0.00	0.00	0.00	100.01	1.38	0.00	0.00	0.00	0.00
KALABURAGI	Redgram	55.52	0.00	0.00	0.00	53.89	5.68	0.00	0.00	0.00	5.68
	Greengram	6.49	0.00	0.00	0.00	6.30	1.74	0.00	0.00	0.00	1.74
	Blackgram	18.82	0.00	0.00	0.00	18.27	2.53	0.00	0.00	0.00	2.53
	Sunflower	8.84	0.00	0.00	0.00	8.58	3.80	0.00	0.00	0.00	3.80
	Others	10.32	100.00	0.00	0.00	12.96	1.58	1.30	0.00	0.00	1.51
	TOTAL	99.99	100.00	0.00	0.00	100.00	3.36	1.30	0.00	0.00	0.00
RAICHUR	Paddy	6.45	0.00	0.00	0.00	5.76	6.50	0.00	0.00	0.00	6.50
	Jowar	0.00	80.69	0.00	0.00	8.64	0.00	3.66	0.00	0.00	3.66
	Cotton	48.30	0.00	0.00	0.00	43.13	5.84	0.00	0.00	0.00	5.84
	Chilli	41.44	0.00	0.00	0.00	37.00	5.22	0.00	0.00	0.00	5.22
	Others	3.80	19.31	0.00	0.00	5.47	2.88	2.33	0.00	0.00	2.64
	TOTAL	99.99	100.00	0.00	0.00	100.00	5.40	3.30	0.00	0.00	0.00
MANGALURU	Paddy	100.00	0.00	0.00	0.00	10.30	1.43	0.00	0.00	0.00	1.43
	Arecanut	0.00	0.00	0.00	51.07	45.81	0.00	0.00	0.00	4.24	4.24
	Ivy guard	0.00	0.00	0.00	6.89	6.18	0.00	0.00	0.00	6.00	6.00
	Rubber	0.00	0.00	0.00	34.43	30.89	0.00	0.00	0.00	60.00	60.00
	Others	0.00	0.00	0.00	7.61	6.83	0.00	0.00	0.00	1.66	1.66
	TOTAL	100.00	0.00	0.00	100.00	100.01	1.43	0.00	0.00	0.00	5.45

Note: The area under annual / perennial was doubled

3.11. Economics of Crop Cultivation of Major Crops

The economics of crop cultivation provides signals to farmers in different regions regarding crop choice and associated decision making considering their resource endowments. Moreover, for the planners, administrators and policy formulators this information will help in selection of cultivation strategies, identifying potentials and constraints in different regions, setting priorities regarding availability of farm inputs and undertaking decisions about price and market support.

i) Crops Selected for cost of cultivation study:

Paddy, Jowar, Ragi, Maize, Redgram, Greengram, Cotton, Onion, Arecanut and Coconut were selected for the calculation of cost of cultivation based on the highest number of growers. The data pertains to 2015-16.

ii) Method of Analysis

Cost Components/Computation of Costs

The total cost was calculated by considering all variable and fixed costs. The definition of cost components is as under:

- a) **Hired Labour:** Services of hired men and women labours charged according to the prevailing wage rate paid per day of eight hours in the locality.
- b) **Bullock Labour:** Services of a pair of bullocks including labour charged at the prevailing wage rates paid per day of eight hours in the locality.
- c) **Machine Labour:** Cost incurred towards hiring Machine labour services charged as per the prevailing rates per acre / or per hectare per hour in the locality. In the case of farmers having their own Machine labour also, the same rates are applied.
- d) **Seed:** Own seeds are valued at prevailing village prices at the time of sowing. Purchased seeds are valued at actual price paid by sample farmers.
- e) **Farm Yard Manure (FYM):** Farm produced manure valued at the prevailing village prices at the time of sowing. The cost of FYM purchased was valued at actual amount paid by the sample farmers.
- f) **Fertilizer and Plant Protection Chemicals:** The expenditure incurred by sample farmers for purchase of fertilizer and pesticides are considered for computation of costs.

The sample farmers (200 in number) cultivated 5-6 different crops in different districts. Among them, major crops in KVK area are considered for calculating cost of cultivation based on area under crop and number of sample farmers cultivating. These crops account major proportion of gross cropped area. The costs and returns from crops are presented in Table 3.11 to 3.18.

Karnataka is the largest producer and consumer of ragi and is the staple food crop for population in Southern Karnataka. It is grown under rainfed and irrigated conditions, and majority of the farmers cultivated under rainfed condition as sole as well as intercrop. Ragi is predominantly cultivated in Kolar, Tumakuru and Chitradurga (by 96%, 60% and 24% of farmers respectively). In Tumakuru district, cost of cultivation of Ragi was Rs.25,647 per acre followed by Kolar (Rs.15,084 per acre) and Chitradurga (Rs.10,846 per acre). The gross returns were Rs.29,412 per acre, Rs.20,894 per acre and Rs.12,990 per acre respectively in Tumakuru, Kolar and Chitradurga districts. However, the highest net returns per acre were in Kolar (Rs.5,810 per acre) followed by Tumakuru (Rs.3,765 per acre) and Chitradurga (Rs.2,144 per acre).

Cotton is mainly cultivated in Haveri (96% of farmers), Belagavi (100% of farmers) and Raichur (100% of farmers). The cost of cultivation of cotton by farmers in Raichur (Rs.40,597 per acre) was found to be higher than the cost incurred by farmers in Haveri (Rs.22,785 per acre) and Belagavi (Rs. 21,930 per acre). Gross returns were the highest in Raichur (Rs.52,258 per acre) followed by Haveri (Rs.43,942 per acre) and Belagavi (Rs.38,364 per acre) while the net returns in these districts were Rs. 11,661 per acre, Rs.21,156 per acre, Rs. 16,434 per acre respectively.

Redgram is largely cultivated in Kalaburagi district with 92% of farmers cultivating, followed by 40% of farmers in Kolar district. Cost of cultivation in these districts was Rs.25,685 per acre and Rs.10,432 per acre respectively. The gross returns in Kolar were Rs.12,600 per acre while in Kalaburagi it was Rs.30,085 per acre. Net returns in these districts were Rs.2168 per acre and Rs.4,400 per acre respectively.

Farmers in Haveri and Belagavi districts cultivate maize as a major crop. The cost incurred in these districts was Rs.19,353 per acre and Rs.13,516 per acre respectively. Gross returns were Rs.30,715 per acre in Haveri and Rs.23,590 per acre in Belagavi district. Net returns in Haveri were Rs.11,362 per acre whereas in Belagavi it was Rs.10,074 per acre.

Paddy was cultivated in Raichur and Mangaluru. The Cost of Cultivation in these districts was Rs. 31,748 per acre and Rs. 14,914 per acre respectively. The gross returns in Raichur were Rs. 41,844 per acre and Mangaluru was Rs. 27,900 per acre. Net returns in these districts were Rs. 10,096 per acre and Rs. 12986 per acre respectively. Jowar was grown in Belagavi, with the cost incurred being Rs. 16846per acre, whereas the gross and net returns were Rs. 12,470 per acre and Rs. -4376 per acre respectively.

Green gram was grown by sample farmers of Kalaburagi district with Cost of Cultivation of Rs. 21,551 per acre. The gross and net returns were Rs. 20,052 per acre and Rs. -1,499 per acre respectively. Blackgram was grown by Kalaburagi farmers. Cost of Cultivation, Gross returns and Net returns was Rs. 20,147per acre, Rs. 18000per acre, Rs. -2147 per acre respectively.

Chilli was cultivated in Raichur. The Cost of Cultivation incurred was Rs. 49498per acre. Gross returns were Rs. 67,620 per acre and net returns was Rs. 18,123per acre. Coconut and Arecanut was grown in Tumakuru with Cost of Cultivation of Rs. 45,653per acre and Rs. 126808 per acre respectively. Gross returns of coconut were Rs. 62264 per acre while arecanut was Rs. 2,70,997per acre. Net returns was highest in arecanut (Rs. 1,44,189 per acre).

Table 3.11: Cost of Cultivation and Returns of Ragi

(Rs. /Acre)

Sl.No.	Main Item of Expenditure	Sub Item of Expenditure	KOLAR			CHITRADURGA			TUMAKURU		
			Qty	Cost per unit	Total cost per acre	Qty	Cost per unit	Total cost per acre	Qty	Cost per unit	Total cost per acre
1	Family labour (Mandays)	Male	1.50	300	450	2.40	317	761	3.00	350	1050
		Female	2.00	200	400	2.15	210	452	2.00	180	360
		Total family labour	3.50		850	4.55		1212	5.00		1410
2	Hired labour (Mandays)	Male	8.00	300	2400	6.00	317	1902	11.60	350	4060
		Female	12.00	200	2400	10.00	210	2100	15.31	180	2756
		Total hired labour	20.00		4800	16.00		4002	26.91		6816
	Total labour cost	23.50		5650	20.55		5214	31.91		8226	
4	Drought animals (No. of days)	Own	0.00	0	0	0.00	0	0	0.00	0	0
		Hired	2.00	500	1000	1.00	500	500	3.00	650	1950
		Total drought animals	2.00		1000	1.00		500	3.00		1950
5	Machinery (No. of Hrs)	Own	0.33	600	198	0.00	0	0	0.09	550	50
		Hired	0.67	600	402	0.00	0	0	1.91	550	1051
		Total machinery	1		600	0		0	2		1100
6	Seeds (Kgs.)	Own	0.00	0	0	0.80	320	256	0.00	0	0
		Purchased	8.50	300	2550	6.12	320	1958	10.00	350	3500
		Total seeds	8.50		2550	6.92		2214	10.00		3500
7	FYM (Tractor loads)	Own	0.00	0	0	0.00	0	0	0.00	0	0
		Purchased	1.50	2500	3750	0.50	2000	1000	2.00	2800	5600
		Total FYM	1.50		3750	0.50		1000	2.00		5600
8	Fertilizers (qtls.)		1.03	1400	1442	0.50	1200	600	1.50	1600	2400
9	Pesticides (Lit)		0.00	0	0	0.00	0	0	0.00	0	0
9	Irrigation		0.00	0	0	0.00	0	0	0.00	0	0
		Total input cost			14992			9529			22776
10	Transportation	Own		0	0		0	0		1000	1000
		Hired		0	0		434	434		1021	1021
		Total transportation		0	0		434	434		2021	2021
11	Post harvest expenses	Grading		0	0		0	0		0	0
		Loading and unloading		0	0		500	500		0	0
		Packing		92	92		383	383		850	850
		Total post harvest expenses		92	92		883	883		850	850
		Total cost of cultivation per acre			15084			10846		25647	
	Gross returns	Main product (Qtls)	7.27	2427	17644	5.42	2000	10840	8.85	2846	25187
		By product (Tractor loads)	0.50	6500	3250	0.43	5000	2150	0.65	6500	4225
		Gross returns per acre			20894			12990			29412
		Net returns per acre			5810			2144			3765

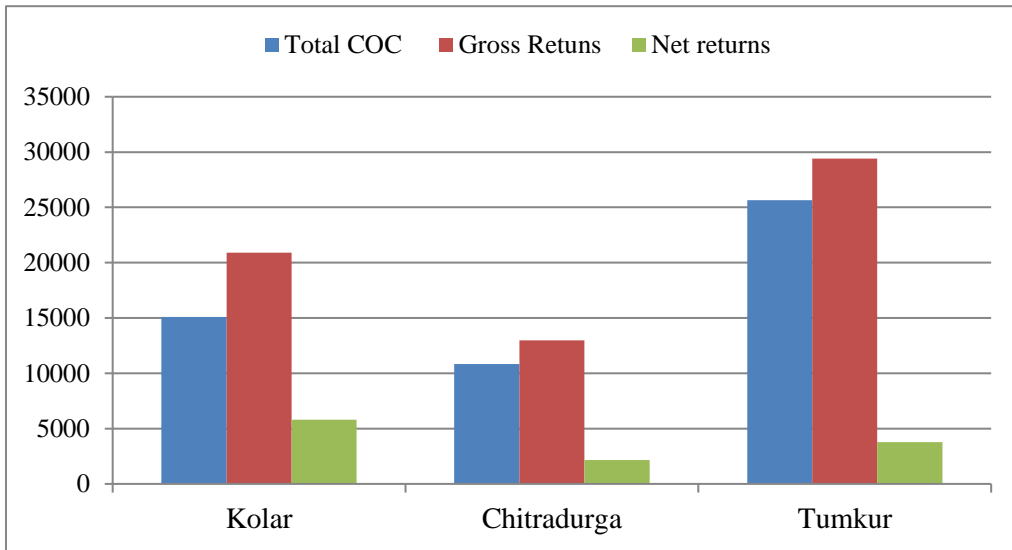


Figure 3.1: Economics of Ragi in Selected KVKs

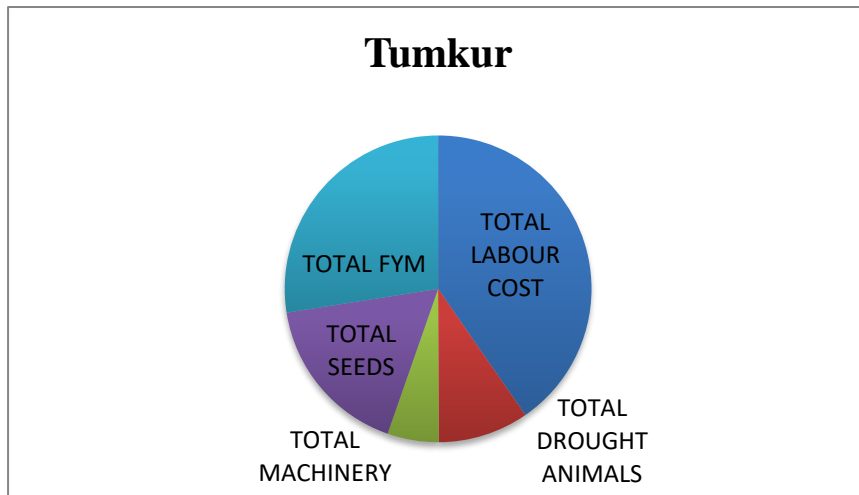


Figure 3.2: Input Use Pattern in Tumakuru

Table 3.12: Cost of Cultivation and Returns of Cotton

(Rs./Acre)

Sl. No.	Main item of expenditure	Sub-item of expenditure	HAVERI			BELGAVI			RAICHUR		
			Qty	Cost per unit	Total cost per acre	Qty	Cost per unit	Total cost per acre	Qty	Cost per unit	Total cost per acre
1	Family labour (Mandays)	Male	5.00	300	1500	5.58	277	1546	6.00	350	2100
		Female	3.00	180	540	2.00	198	396	3.50	250	875
		Total family labour	8.00		2040	7.58		1942	9.50		2975
2	Hired labour (Mandays)	Male	8.02	300	2406	6.00	277	1662	10.00	350	3500
		Female	31.98	180	5756	37.00	198	7326	35.95	250	8988
		Total hired labour	40.00		8162	43.00		8988	45.95		12488
		Total labour cost	48.00		10202	50.58		10930	55.45		15463
4	Drought animals (No. of days)	Own	0.04	550	22	0.05	650	33	0.00	0	0
		Hired	0.96	550	528	1.95	650	1268	2.51	700	1757
		Total drought animals	1.00		550	2.00		1300	2.51		1757
5	Machinery (No. of Hrs)	Own	0.22	600	132	0.00	0	0	0.08	650	52
		Hired	1.78	600	1068	1.51	550	831	2.41	650	1567
		Total machinery	2		1200	2		831	2		1619
6	Seeds (Kgs)	Own	0.00	0	0	0.00	0	0	0.00	0	0
		Purchased	1.00	1450	1450	0.80	1300	1040	1.50	1500	2250
		Total seeds	1.00		1450	0.80		1040	1.50		2250
7	FYM (tractor load)	Own	0.04	3000	120	0.00	0	0	0.00	0	0
		Purchased	0.49	3000	1470	0.89	2500	2225	1.25	3200	4000
		Total FYM	0.53		1590	0.89		2225	1.25		4000
8	Fertilizers (qtl.)		3.00	1500	4500	3.50	1390	4865	4.50	1800	8100
9	Pesticides (Lit.)		0.00	2789	0	0.00	1417	0	0.00	26576	0
10	Irrigation		0.00	0	0	0.00	0	0	0.00	0	0
		Total input cost			19492			21190			33188
11	Transportation	Own		1500	1500		0	0		0	0
		Hired		1793	1793		500	500		0	0
		Total transportation		3293	3293		500	500		0	0
		Loading and unloading		0	0		0	0		4409	4409
		Packing		0	0		240	240		3000	3000
		Total post harvest expenses		0	0		240	240		7409	7409
		Total cost of cultivation per acre			22785			21930			40597
	Gross returns	Main product (Qtl)	8.02	5479	43942	6.93	5536	38364	9.01	5800	52258
		By product (tractor load)	0.00	0	0	0.00	0	0	0.00	0	0
		Gross returns per acre			43942			38364			52258
		Net returns per acre			21156			16434			11661

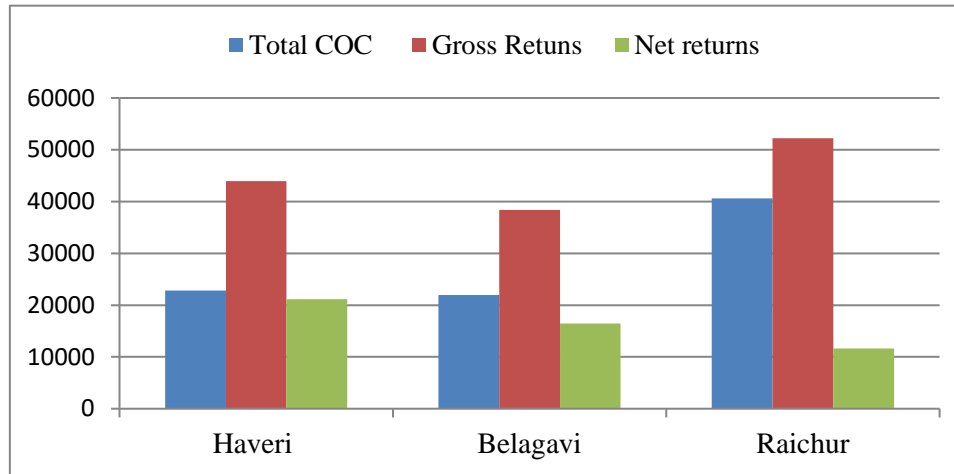


Figure 3.3: Economics of Cotton in Selected KVKs

Table 3.13: Cost of Cultivation and Returns of Redgram

(Rs./Acre)

Sl. No.	Main Item of Expenditure	Sub-Item of Expenditure	KOLAR			KALABURAGI		
			Qty	Cost per unit	Total cost per acre	Qty	Cost per unit	Total cost per acre
1	Family labour (Mandays)	Male	2.00	250	500	2.00	300	600
		Female	1.00	180	180	4.00	250	1000
		Total family labour	3.00		680	6.00		1600
2	Hired labour (Mandays)	Male	4.00	250	1000	6.02	300	1806
		Female	8.00	180	1440	8.05	250	2013
		Total hired labour	12.00		2440	14.07		3819
		Total labour cost	15.00		3120	20.07		5419
4	Drought animals (No. of days)	Own	0.00	0	0	0.18	650	117
		Hired	1.50	500	750	1.96	650	1274
		Total drought animals	1.50		750	2.14		1391
5	Machinery (No. of Hrs)	Own	0.18	583	105	0.00	0	0
		Hired	0.82	583	478	2.50	800	2000
		Total machinery	1		583	3		2000
6	Seeds (Kgs)	Own	0.00	0	0	0.04	120	5
		Purchased	2.50	85	213	4.96	120	595
		Total seeds	2.50		213	5.00		600
7	FYM (tractor load)	Own	0.00	0	0	0.00	0	0
		Purchased	0.50	2000	1000	1.54	2668	4109
		Total FYM	0.50		1000	1.54		4109
8	Fertilizers (Qtl)		0.50	1165	583	1.99	2000	3980
9	Pesticides (Lit)		0.00	3438	3438	0.00	4894	4894
10	Irrigation		0.00	0	0	0.00	0	0
	Total input cost				9686			22392
11	Transportation	Own		0	0		50	50
		Hired		11	11		1066	1066
		Total transportation		11	11		1116	1116
12	Post harvest expenses	Grading		0	0		0	0
		Loading and unloading		481	481		516	516
		Packing		254	254		1661	1661
		Total post harvest expenses		735	735		2177	2177
13		Total cost of cultivation per acre		10432			25685	
14	Gross returns	Main product (Qtl)	3.00	4200	12600	5.47	5500	30085
15		By product (Tractor load)	0.00	0	0	0.00	0	0
16		Gross returns per acre			12600			30085
17		Net returns per acre			2168			4400

Table 3.14: Cost of Cultivation and Returns of Maize

(Rs. /Acre)

Sl. No.	Main item of expenditure	Sub-item of expenditure	HAVERI			BELGAVI		
			Qty	Cost per unit	Total cost per acre	Qty	Cost per unit	Total cost per acre
1	Family labour (Mandays)	Male	3.55	300	1065	3.00	292	876
		Female	2.00	162	324	2.50	158	395
		Total family labour	5.55		1389	5.50		1271
2	Hired labour (Mandays)	Male	8.95	300	2685	8.00	292	2336
		Female	14.05	162	2276	16.00	158	2528
		Total hired labour	23.00		4961	24.00		4864
		Total labour cost	28.55		6350	29.50		6135
4	Drought animals (No. of days)	Own	0.16	500	80	0.00	0	0
		Hired	1.84	500	920	2.55	522	1331
		Total drought animals	2.00		1000	2.55		1331
5	Machinery (No. of Hrs)	Own	0.00	0	0	0.00	0	0
		Hired	1.57	715	1123	1.00	650	650
		Total machinery	2		1123	1		650
6	Seeds (Kgs)	Own	0.00	0	0	0.00	0	0
		Purchased	7.50	203	1523	7.00	200	1400
		Total seeds	7.50		1523	7.00		1400
7	FYM (tractor load)	Own	0.03	2791	84	0.00	0	0
		Purchased	0.47	2791	1312	0.80	3000	2400
		Total FYM	0.50		1396	0.80		2400
8	Fertilizers		0.60	4378	2627	0.40	4000	1600
9	Pesticides		0.00	1500	0	0.00	0	0
10	Irrigation		0.00	0	0	0.00	0	0
	Total input cost				14017			13516
11	Transportation	Own		3000	3000		0	0
		Hired		2336	2336		0	0
		Total transportation		5336	5336		0	0
12	Post harvest expenses	Grading		0	0		0	0
		Loading and unloading		0	0		0	0
		Packing		0	0		0	0
		Total post harvest expenses		0	0		0	0
13		Total cost of cultivation per acre		19353			13516	
14	Gross returns	Main product (qtl)	21.28	1387	29515	18.00	1250	22500
15		By product (tractor load)	1.00	1200	1200	1.00	1090	1090
16		Gross returns per acre			30715			23590
17		Net returns per acre			11362			10074

Table 3.15: Cost of Cultivation and Returns of Paddy

Sl. No.	Main Item of Expenditure	Sub-Item of Expenditure	(Rs. /Acre)					
			RAICHUR			MANGALURU		
			Qty	Cost per unit	Total cost per acre	Qty	Cost per unit	Total cost per acre
1	Family labour (Mandays)	Male	4.00	297	1188	2.00	250	500
		Female	1.64	169	277	0.00	150	0
		Total family labour	5.64		1465	2.00		500
2	Hired labour (Mandays)	Male	12.00	296	3552	8.53	336	2866
		Female	18.00	169	3042	14.73	150	2210
		Total hired labour	30.00		6594	23.26		5076
		Total labour cost	35.64		8059	25.26		5576
4	Drought animals (No. of days)	Own	0.00	0	0	0.00	0	0
		Hired	2.36	518	1222	2.36	518	1222
		Total drought animals	2.36		1222	2.36		1222
5	Machinery (No. of Hrs)	Own	0.00	0	0	0.00	0	0
		Hired	2.00	5000	10000	1.69	607	1026
		Total machinery	2		10000	2		1026
6	Seeds (Kgs)	Own	0.00	0	0	0.00	0	0
		Purchased	30.00	25	750	25.00	110	2750
		Total seeds	30.00		750	25.00		2750
7	FYM (Tractor loads)	Own	0.00	0	0	0.00	0	0
		Purchased	0.95	2299	2184	1.00	2000	2000
		Total FYM	0.95		2184	1.00		2000
8	Fertilizers (qtl.)		3.00	1355	4065	1.00	1730	1730
9	Pesticides (Lit.)		0.00	5167	5167	0.00	0	0
10	Irrigation		0.00	300	300	0.00	218	0
	Total input cost				31748			14304
11	Transportation	Own		0	0		0	0
		Hired		0	0		610	610
		Total transportation		0	0		610	610
12	Post harvest expenses	Grading		0	0		0	0
		Loading and unloading		0	0		0	0
		Packing		0	0		0	0
		Total post harvest expenses		0	0		0	0
13		Total cost of cultivation per acre			31748			14914
14	Gross returns	Main product (Qtl)	21.08	1800	37944	16.00	1500	24000
15		By product (Tractor loads)	1.30	3000	3900	1.30	3000	3900
16		Gross returns per acre			41844			27900
17		Net returns per acre			10096			12986

Table 3.16: Cost of Cultivation and Returns of Greengram and Blackgram

(Rs./Acre)

Sl. No.	Main Item of Expenditure	Sub-Item of Expenditure	KALABURAGI			KALABURAGI		
			Qty	Cost per unit	Total cost per acre	Qty	Cost per unit	Total cost per acre
1	Family labour (Mandays)	Male	4.00	300	1200	2.50	300	750
		Female	1.50	170	255	3.00	170	510
		Total family labour	5.50		1455	5.50		1260
2	Hired labour (Mandays)	Male	8.07	300	2421	8.01	300	2403
		Female	15.00	170	2550	12.97	170	2205
		Total hired labour	23.07		4971	20.98		4608
		Total labour cost	28.57		6426	26.48		5868
4	Drought animals (No. of days)	Own	0.79	1700	1343	0.22	1700	374
		Hired	1.21	1700	2057	1.78	1700	3026
		Total drought animals	2.00		3400	2.00		3400
5	Machinery (No. of Hrs.)	Own	0.00	0	0	0.00	0	0
		Hired	1.50	1000	1500	2.00	1500	3000
		Total machinery	2		1500	2		3000
6	Seeds (Kgs.)	Own	0.36	550	198	0.12	600	72
		Purchased	5.03	550	2767	4.88	600	2928
		Total seeds	5.39		2965	5.00		3000
7	FYM (Tractor loads)	Own	0.00	0	0	0.00	0	0
		Purchased	1.00	2000	2000	1.00	2500	2500
		Total FYM	1.00		2000	1.00		2500
8	Fertilizers (Qtls)		1.00	1513	1513	0.50	1300	650
9	Pesticides (Lit.)		0.00	2635	2635	0.00	3060	0
10	Irrigation		0.00	0	0	0.00	0	0
	Total input cost				20439			18418
11	Transportation	Own		0	0		0	0
		Hired		313	313		929	929
		Total transportation		313	313		929	929
12	Post harvest expenses	Grading		0	0		0	0
		Loading and unloading		250	250		375	375
		Packing		549	549		425	425
		Total post harvest expenses		799	799		800	800
13		Total cost of cultivation per acre			21551			20147
14	Gross returns	Main product (Qtl.)	4.00	4938	19752	3.00	6000	18000
15		By product (tractor load)	0.50	600	300	0.00	0	0
16		Gross returns per acre			20052			18000
17		Net returns per acre			-1499			-2147

Table 3.17: Cost of Cultivation and Returns of Jowar and Chilli

(Rs. /Acre)

Sl.No.	Main Item of Expenditure	Sub-Item of Expenditure	BELGAVI			RAICHUR		
			Qty	Cost per unit	Total cost per acre	Qty	Cost per unit	Total cost per acre
1	Family labour (Mandays)	Male	3.00	200	600	4.00	350	1400
		Female	3.00	150	450	6.00	250	1500
		Total family labour	6.00		1050	10.00		2900
2	Hired labour (Mandays)	Male	8.00	200	1600	20.00	350	7000
		Female	12.06	150	1809	58.93	250	14733
		Total hired labour	20.06		3409	78.93		21733
		Total labour cost	26.06		4459	88.93		24633
4	Drought animals (No. of days)	Own	0.11	1600	176	0.00	0	0
		Hired	1.89	1600	3024	3.00	1700	5100
		Total drought animals	2.00		3200	3.00		5100
5	Machinery (No. of Hrs)	Own	0.00	0	0	0.00	0	0
		Hired	3.00	2000	6000	2.50	1600	4000
		Total machinery	3		6000	3		4000
6	Seeds (Kgs)	Own	0.00	0	0	0.00	0	0
		Purchased	3.00	500	1500	0.40	4000	1600
		Total seeds	3.00		1500	0.40		1600
7	FYM (Tractor loads)	Own	0.00	0	0	0.00	0	0
		Purchased	0.50	1200	600	1.20	2500	3000
		Total FYM	0.50		600	1.20		3000
8	Fertilizers (qtl)		0.50	1874	937	2.50	1300	3250
9	Pesticides (Lit)		0.00	0	0	0.00	35021	0
10	Irrigation		0.00	0	0	0.00	0	0
	Total input cost				16696			41583
11	Transportation	Own		0	0		0	0
		Hired		0	0		0	0
		Total transportation		0	0		0	0
12	Post harvest expenses	Grading		0	0		0	0
		Loading and unloading		0	0		1727	1727
		Packing		150	150		6188	6188
		Total post harvest expenses		150	150		7915	7915
13		Total cost of cultivation per acre			16846		49498	
14	Gross returns	Main product (Qtls)	7.56	1413	10682	6.44	10500	67620
15		By product (tractor loads)	1.00	1788	1788	0.00	0	0
16		Gross returns per acre			12470			67620
17		Net returns per acre			-4376			18123

Table 3.18: Cost of Cultivation and Returns of Coconut and Arecanut

(Rs. /Acre)

Sl. No.	Main Item of Expenditure	Sub-Item of Expenditure	TUMAKURU			TUMAKURU		
			Qty	Cost per unit	Total cost per acre	Qty	Cost per unit	Total cost per acre
1	Family labour (Mandays)	Male	8.00	300	2400	20.00	350	7000
		Female	3.00	150	450	5.00	180	900
		Total family labour	11.00		2850	25.00		7900
2	Hired labour (Mandays)	Male	12.00	300	3600	30.00	35	1050
		Female	4.00	150	600	48.00	180	8640
		Total hired labour	16.00		4200	78.00		9690
		Total labour cost	27.00		7050	103.00		17590
4	Drought animals (No. of days)	Own	0.00	0	0	0.00	0	0
		Hired	0.50	350	175	0.00	0	0
		Total drought animals	0.50		175	0.00		0
5	Machinery (No. of Hrs)	Own	0.00	0	0	0.00	0	0
		Hired	4.00	5500	22000	6.00	3500	21000
		Total machinery	4		22000	6		21000
6	Seeds (Kgs.)	Own	0.00	0	0	0.00	0	0
		Purchased	0.00	0	0	0.00	0	0
		Total seeds	0.00		0	0.00		0
7	FYM (Tractor loads)	Own	0.00	0	0	0.00	0	0
		Purchased	2.00	5000	10000	4.00	12000	48000
		Total FYM	2.00		10000	4.00		48000
8	Fertilizers (Qtl.)		2.00	550	1100	55.00	650	35750
9	Pesticides (Lit)		0.00	0	0	0.00	0	0
10	Irrigation		0.00	0	0	0.00	0	0
	Total input cost				40325			122340
11	Transportation	Own		2621	2621		2700	2700
		Hired		1350	1350		989	989
		Total transportation		3971	3971		3689	3689
12	Post harvest expenses	Grading		0	0		0	0
		Loading and unloading		0	0		0	0
		Packing		1357	1357		779	779
		Total post harvest expenses		1357	1357		779	779
13		Total cost of cultivation per acre			45653			126808
14	Gross returns	Main product (Qtls.)	8.00	7783	62264	8.50	31882	270997
15		By product (Tractor loads)	0.00	0	0	0.00	0	0
16		Gross returns per acre			62264			270997
17		Net returns per acre			16611			144189

3.12. Reasons Quoted by the farmers for choice of Markets for Sale Agriculture Produce

Reasons for selecting particular market to dispose agricultural produce by the farmers are presented in Table 3.19. On an average, 58 per cent of the farmers selected specific market in anticipation of remunerative prices. Those who preferred lower transportation cost in the process formed 51% and those farmers who preferred markets as recommended by friends and relatives formed 36.5%. About 43 per cent of the farmers ranked low commission charges as an important criterion followed by low transportation cost (41%), markets where precise information is available (38%). Among the different KVKs, 76 per cent of the farmers in Kolar KVK indicated that anticipation of remunerative price and the markets recommended by friends and relatives as top ranking characteristics in choice of markets.

3.13. Benefits Derived from Market Middlemen

Details of farmers who approached middlemen for different purposes are presented in Table 3.20. On an average 13.50 per cent of the farmers approached middlemen to seek benefits. Among the KVKs, only the farmers of Haveri (56%) and Tumakuru (52%) approached for benefits. A total of 86.5 per cent of the farmers did not approach middlemen for any benefit while 44.44 per cent of the farmers approached middlemen for purchase of agriculture inputs and all the sample farmers in Haveri and Tumakuru approached middlemen to fulfill their credit needs.

3.14. Production Related Problems Faced by the Farmers

The problems faced by farmers during cultivation and marketing are presented in Table 3.21. On an average majority of the farmers ranked high price of fertilizers and insecticides (46.50%) as one among the top 2 priority and one among medium 2 priority followed by problem of pest and disease (41.50%), problem of calamities (41%), lower soil fertility (33%), non availability of labours (18%) and high labour cost (13%). Among all the KVKs, around 52 per cent of the farmers opined high price of fertilizers as one among the top 2 priority in Kolar followed by natural calamities (68%) in Chitradurga, lower soil fertility (68%) in Haveri, higher incidence of pest and disease was major problem in both in Tumakuru and Kalaburagi, occurrence of natural calamities was the most important both in Belagavi and Raichur.

3.15. Marketing Related Problems Faced by the Farmers

Opinion survey conducted to analyze problems in marketing of agricultural commodities is presented in Table 3.22. On an average, majority of the farmer's opined market is far (55.5%) from the village and was ranked as one among the top 3 priority followed by higher sales tax (47.5%), lower prices (44%), and lack of basic facilities at markets (36.5%). About fifty percent of farmer's opined lack of basic facilities in markets as one among the medium 3 priorities and unavailability of modernized markets as one among the last 2 priority.

Table 3.19: Reasons for Selecting Particular Market

Reasons	KOLAR			CHITRADURGA			HAVERI			TUMAKURU			BELGAVI		
	As a % to total sample														
	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6)	One among last 2 priority (ranked as 7 to 9)	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6)	One among last 2 priority (ranked as 7 or 8)	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6)	One among last 2 priority (ranked as 7 or 8)	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6)	One among last 2 priority (ranked as 7 or 8)	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6)	One among last 2 priority (ranked as 7 or 8)
Better price	76.00	16.00	8.00	44.00	44.00	12.00	80.00	4.00	16.00	80.00	8.00	12.00	0.00	44.00	56.00
Less transportation expenditure	24.00	52.00	24.00	40.00	48.00	12.00	64.00	16.00	20.00	88.00	4.00	8.00	96.00	4.00	0.00
Can get loan / advance from buyers	4.00	32.00	64.00	40.00	20.00	40.00	48.00	32.00	20.00	76.00	12.00	12.00	0.00	24.00	76.00
Less commission charged	8.00	68.00	24.00	40.00	28.00	32.00	12.00	60.00	28.00	12.00	68.00	20.00	16.00	68.00	16.00
Definite information available	28.00	24.00	48.00	56.00	12.00	32.00	16.00	24.00	60.00	8.00	84.00	8.00	32.00	56.00	12.00
Recommended by friends / relatives	76.00	8.00	16.00	40.00	40.00	20.00	16.00	44.00	40.00	8.00	76.00	16.00	24.00	20.00	56.00
Less transaction cost	40.00	28.00	32.00	4.00	52.00	44.00	8.00	28.00	64.00	8.00	24.00	68.00	64.00	28.00	8.00
Better management	24.00	48.00	28.00	0.00	20.00	80.00	0.00	32.00	68.00	8.00	12.00	80.00	64.00	28.00	8.00
Reasons	KALABURAGI			RAICHUR			MANGALURU			TOTAL					
	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6) - as a % to total sample	One among last 2 priority (ranked as 7 or 8) - as a % to total sample	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6) - as a % to total sample	One among last 2 priority (ranked as 7 or 8) - as a % to total sample	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6) - as a % to total sample	One among last 2 priority (ranked as 7 or 8) - as a % to total sample	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6) - as a % to total sample	One among last 2 priority (ranked as 7 or 8) - as a % to total sample			
	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6) - as a % to total sample	One among last 2 priority (ranked as 7 or 8) - as a % to total sample	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6) - as a % to total sample	One among last 2 priority (ranked as 7 or 8) - as a % to total sample	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6) - as a % to total sample	One among last 2 priority (ranked as 7 or 8) - as a % to total sample	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6) - as a % to total sample	One among last 2 priority (ranked as 7 or 8) - as a % to total sample			
Better price	56.00	40.00	4.00	100.00	0.00	0.00	32.00	40.00	28.00	58.50	24.50	17.00			
Less transportation expenditure	64.00	24.00	12.00	0.00	0.00	100.00	32.00	44.00	24.00	51.00	24.00	25.00			
Can get loan / advance from buyers	24.00	20.00	56.00	32.00	68.00	0.00	36.00	32.00	32.00	32.50	30.00	37.50			
Less commission charged	60.00	16.00	24.00	32.00	0.00	68.00	24.00	36.00	40.00	25.50	43.00	31.50			
Definite information available	16.00	60.00	24.00	68.00	0.00	32.00	16.00	44.00	40.00	30.00	38.00	32.00			
Recommended by friends / relatives	28.00	32.00	40.00	68.00	32.00	0.00	32.00	28.00	40.00	36.50	35.00	28.50			
Less transaction cost	28.00	44.00	28.00	0.00	100.00	0.00	64.00	24.00	12.00	27.00	41.00	32.00			
Better management	24.00	28.00	48.00	0.00	68.00	32.00	44.00	24.00	32.00	20.50	32.50	47.00			

Table 3.20: Benefits derived from Market Middlemen

Name of the district	Proportion of farmers who approached middlemen to total sample	Proportion of farmers who did not approach middlemen to total sample	Proportion of farmers who approached middlemen for inputs (out of those who approached middlemen)	Proportion of farmers who approached middlemen for credit (out of those who approached middlemen)
Kolar	0.00	100.00	0.00	0.00
Chitradurga	0.00	100.00	0.00	0.00
Haveri	56.00	44.00	0.00	100.00
Tumakuru	52.00	48.00	92.31	100.00
Belagavi	0.00	100.00	0.00	0.00
Kalaburgi	0.00	100.00	0.00	0.00
Raichur	0.00	100.00	0.00	0.00
Mangaluru	0.00	100.00	0.00	0.00
Average	13.50	86.50	44.44	100.00

Table 3.21: Problems Faced by the Farmers during Crop Production

	KOLAR			CHITRADURGA			HAVERI			TUMAKURU			BELGAVI		
as a % to total sample															
Problems	One among top 2 priority (ranked as 1 or 2) - as a % to total sample	One among medium 2 priority (ranked as 3 or 4)	One among last 2 priority (ranked as 5 to 7)	One among top 2 priority (ranked as 1 or 2) -	One among medium 2 priority (ranked as 3 or 4)	One among last 2 priority (ranked as 5 to 7)	One among top 2 priority (ranked as 1 or 2)	One among medium 2 priority (ranked as 3 or 4)	One among last 2 priority (ranked as 5 to 7)	One among top 2 priority (ranked as 1 or 2)	One among medium 2 priority (ranked as 3 or 4)	One among last 2 priority (ranked as 5 to 7)	One among top 2 priority (ranked as 1 or 2)	One among medium 2 priority (ranked as 3 or 4)	One among last 2 priority (ranked as 5 to 7)
Lower soil fertility	16.00	24.00	60.00	8.00	36.00	56.00	68.00	20.00	12.00	52.00	28.00	20.00	48.00	16.00	36.00
Pests & diseases	56.00	24.00	20.00	28.00	48.00	24.00	24.00	68.00	8.00	88.00	12.00	0.00	32.00	64.00	4.00
High price of fertilizers and insecticides	64.00	16.00	20.00	44.00	44.00	12.00	48.00	36.00	16.00	32.00	56.00	12.00	36.00	60.00	4.00
Natural calamities	12.00	20.00	68.00	60.00	8.00	32.00	24.00	36.00	40.00	16.00	80.00	4.00	80.00	16.00	4.00
Non-availability of labourers	20.00	40.00	40.00	36.00	52.00	12.00	8.00	8.00	84.00	8.00	8.00	84.00	0.00	8.00	92.00
High labour cost	16.00	60.00	24.00	24.00	8.00	68.00	12.00	16.00	72.00	8.00	12.00	80.00	4.00	12.00	84.00

Table 3.21: Problems Faced by the Farmers during Crop Production (Cont...)

Problems	KALABURAGI			RAICHUR			MANGALURU			TOTAL		
	as a % to total sample						as a % to total sample					
	One among top 2 priority (ranked as 1 or 2)	One among medium 2 priority (ranked as 3 or 4)	One among last 2 priority (ranked as 5 to 7)	One among top 2 priority (ranked as 1 or 2)	One among medium 2 priority (ranked as 3 or 4)	One among last 2 priority (ranked as 5 to 7)	One among top 2 priority (ranked as 1 or 2)	One among medium 2 priority (ranked as 3 or 4)	One among last 2 priority (ranked as 5 to 7)	One among top 2 priority (ranked as 1 or 2)	One among medium 2 priority (ranked as 3 or 4)	One among last 2 priority (ranked as 5 to 7)
Lower soil fertility	52.00	36.00	12.00	0.00	0.00	100.00	20.00	28.00	52.00	33.00	23.50	43.50
Pests & diseases	76.00	20.00	4.00	0.00	68.00	32.00	28.00	40.00	32.00	41.50	43.00	15.50
High price of fertilizers and insecticides	40.00	44.00	16.00	68.00	32.00	0.00	40.00	28.00	32.00	46.50	39.50	14.00
Natural calamities	16.00	48.00	36.00	100.00	0.00	0.00	20.00	28.00	52.00	41.00	29.50	29.50
Non-availability of labourers	8.00	32.00	60.00	32.00	32.00	36.00	32.00	20.00	48.00	18.00	25.00	57.00
High labour cost	4.00	20.00	76.00	0.00	36.00	64.00	36.00	24.00	40.00	13.00	23.50	63.50

Table 3.22: Problems Faced by the Farmers during Marketing of Agricultural Commodities

Marketing problems	KOLAR			CHITRADURGA			HAVERI			TUMAKURU					
	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6)	One among last 2 priority (ranked as 7 or 8)	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6)	One among last 2 priority (ranked as 7 or 8)	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6)	One among last 2 priority (ranked as 7 or 8)	One among top 3 priority (ranked as 1 to 3)	One among medium 3 priority (ranked as 4 to 6)	One among last 2 priority (ranked as 7 or 8)			
Fetches less price	4.00	88.00	8.00	68.00	20.00	12.00	84.00	16.00	0.00	40.00	24.00	36.00			
Market is far off	12.00	80.00	8.00	16.00	64.00	20.00	60.00	40.00	0.00	20.00	68.00	12.00			
High sales tax	16.00	56.00	28.00	40.00	48.00	12.00	44.00	48.00	8.00	40.00	52.00	8.00			
Lack of complete market information	24.00	24.00	52.00	72.00	16.00	12.00	48.00	52.00	0.00	48.00	40.00	12.00			
Basic facilities at market is less	68.00	4.00	28.00	56.00	32.00	12.00	24.00	68.00	8.00	68.00	28.00	4.00			
Process units are not available	72.00	16.00	12.00	8.00	64.00	28.00	16.00	44.00	40.00	56.00	40.00	4.00			
Un-availability of modernized market	80.00	8.00	12.00	4.00	20.00	76.00	24.00	32.00	44.00	24.00	32.00	44.00			
	BELGAVI			KALABURAGI			RAICHUR			MANGALURU			TOTAL		
Fetches less price	32.00	8.00	60.00	92.00	4.00	4.00	0.00	0.00	100.00	32.00	60.00	8.00	44.00	27.50	28.50
Market is far off	96.00	0.00	4.00	96.00	0.00	4.00	100.00	0.00	0.00	44.00	48.00	8.00	55.50	37.50	7.00
High sales tax	12.00	72.00	16.00	76.00	16.00	8.00	100.00	0.00	0.00	52.00	36.00	12.00	47.50	41.00	11.50
Lack of complete market information	56.00	40.00	4.00	12.00	76.00	12.00	0.00	100.00	0.00	32.00	48.00	20.00	36.50	49.50	14.00
Basic facilities at market is less	24.00	48.00	28.00	4.00	76.00	20.00	0.00	100.00	0.00	36.00	48.00	16.00	35.00	50.50	14.50
Process units are not available	20.00	32.00	48.00	8.00	56.00	36.00	32.00	68.00	0.00	44.00	40.00	16.00	32.00	45.00	23.00
Un-availability of modernized market	60.00	40.00	0.00	8.00	28.00	64.00	68.00	32.00	0.00	0.00	0.00	100.00	33.50	24.00	42.50

4. HOUSEHOLD INCOME

This chapter discusses sources of household income, income from livestock, income from agriculture activities & non-agriculture activities, benefits received from PDS, assets owned and details of loan of the selected farmers.

4.1. Sources of Income

Major source of income to farmers was from agriculture followed by animal husbandry and support from PDS. On an average, annual income derived from the agriculture (crops) was Rs.2, 72,930 per farmer. Among farmers, large farmers realized Rs.3, 62,500 per household from agriculture followed by marginal farmers (Rs.3, 49,346 per household) and medium farmers (Rs.3, 02,839 per household). The annual total income derived from animal husbandry was Rs. 34,509 per HH. Among the different farmers categories, the highest income derived from animal husbandry was recorded by large farmers (Rs. 42,627 per HH) followed by medium (Rs. 41,917 per HH) and small farmers (Rs.37.881per HH). Further, annual support derived from PDS was uniform large farmers (Rs.5,397 per HH); medium farmers (Rs. 5,295per HH) and small farmers (Rs.5,132 per HH). At aggregate level, large farmers received the highest overall income (Rs.4, 10,525 per HH) followed by marginal (Rs.3, 76,452 per HH) and medium farmers (Rs.3, 50,050 per HH) (Table 4.1).

Table 4.1: Farmers Category Wise Annual Income derived from Various Sources

KVKs	Gross income from crops per annum										Gross income from animal husbandry per annum									
	Marginal		Small		Medium		Large		Total		Marginal		Small		Medium		Large		Total	
	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)
Kolar	100.00	91552	100.00	114831	100.00	735511	100.00	746965	100.00	333605	100.00	95818	80.00	81599	100.00	126134	100.00	411135	92.00	123844
Chitradurga	75.00	38625	85.71	48427	100.00	70665	100.00	237000	88.00	66392	50.00	34500	35.71	36657	40.00	10880	100.00	64000	44.00	33344
Haveri	100.00	37546	83.33	66167	100.00	81214	100.00	405703	96.00	112054	50.00	19460	33.33	11625	100.00	30000	75.00	29265	60.00	21256
Tumakuru	100.00	264014	100.00	415336	100.00	782000	100.00	1160100	100.00	407878	81.82	40506	90.91	74624	100.00	72900	100.00	72900	88.00	59405
Belagavi	100.00	60433	100.00	168230	100.00	253417	0.00	0	100.00	149868	66.67	8189	90.00	13300	66.67	34967	0.00	0	76.00	16660
Kalaburagi	100.00	20180	100.00	15917	100.00	31525	100.00	39793	100.00	28817	40.00	1100	50.00	15518	75.00	7380	50.00	706	52.00	5407
Raichur	100.00	8887400	100.00	144780	100.00	293667	100.00	535783	100.00	1067604	100.00	21600	60.00	1918	66.67	4600	83.33	17436	76.00	11585
Mangaluru	100.00	16914	100.00	16525	100.00	21613	100.00	21828	100.00	17220	27.78	848	40.00	16504	100.00	8960	100.00	7560	36.00	4572
Average	98.46	349346	95.52	139945	100.00	302839	100.00	362500	98.00	272930	56.92	22934	62.69	37881	77.78	41917	75.00	42627	65.50	34509
	Value of benefits received from PDS per annum										Total income									
	Marginal		Small		Medium		Large		Total		Marginal	Small	Medium	Large	Total					
KVKs	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	% of farmers to total sample	PER HH (Rs.)	PER HH (Rs.)	PER HH (Rs.)	PER HH (Rs.)	PER HH (Rs.)	PER HH (Rs.)					
Kolar	100.00	1140	100.00	1140	100.00	1140	100.00	1140	100.00	1140	188510	197570	862786	1159240	458590					
Chitradurga	100.00	19050	100.00	11261	100.00	12177	100.00	9420	100.00	12543	92175	96345	93722	310420	112279					
Haveri	70.00	6406	66.67	5701	80.00	4718	50.00	5349	68.00	5730	63412	83492	115932	440317	139040					
Tumakuru	90.91	5699	45.45	3155	50.00	5352	0.00	0	64.00	4324	310219	493115	860252	1233000	471607					
Belagavi	66.67	3175	90.00	5944	100.00	7703	0.00	0	84.00	5369	71798	187474	296086	0	171897					
Kalaburagi	100.00	941	100.00	1065	100.00	1307	80.00	882	92.00	1006	22221	32500	40212	41380	35230					
Raichur	100.00	13410	100.00	7920	100.00	6000	100.00	10115	100.00	8952	8922410	154618	304267	563334	1088141					
Mangaluru	66.67	72	80.00	86	0.00	0	0.00	0	64.00	69	17834	33115	30573	29388	21862					
Average	80.00	4172	85.07	5132	91.67	5295	81.25	5397	84.00	4892	376452	182958	350050	410525	312331					

4.2. Annual Income Received from Livestock

Animal husbandry plays a crucial complementary role in the rural economy of Karnataka by providing additional source of assured output, assured price and assured income to the farmers. Milk and other animal products, have played an important role in the socioeconomic life in the rural areas. It is an integral part of crop farming and contributes significantly to household nutritional security and also contributes to poverty alleviation through increased household income. Livestock is an integral part of crop-farming and contributes to poverty alleviation through increased household income.

The income derived from animal husbandry in study area is Rs.15,496 per annum per sample household. Individually, milch animals proved to be higher income generating, which gives an income of Rs.12,379 per annum, followed by meat animals (Rs.4050 per annum). Negative income was seen in the case of draught animals (Rs. -925Per annum).

Among the selected KVKs, household income generated from milch animals in Kolar was Rs.55, 462 per annum followed by the Tumakuru (Rs.29,725 per annum) and Belagavi (Rs.12,084 per annum). Income generated from meat animals also recorded high in Kolar KVK, followed by Haveri (Rs.5400 per annum) and Mangaluru (Rs.2,600 per annum). Income derived from other animals which includes Ox/Bullocks is positive only in Chitradurga, (Rs.9,144 per annum). Thus, owning draught animals seems to be unprofitable as its annual returns are negative (Table 4.2).

4.3. Income from Agricultural Activities

Monthly income generated by the sample farmers from different farming activities are in Table 4.3. About 4.5 per cent of the farmers are engaged in sericulture activity only in Kolar and generated total income of Rs. 2,550 per month per farmer. The income generated from the other activities – such as beekeeping, social forestry, organic product and cottage industry is zero.

Table 4.2: Annual Income from Animal Husbandry

Sl. No.	Name of the KVKs	No. of animals owned per sample HH	PER SAMPLE HH (Rs. Per annum)					PER ANIMAL (Rs. Per annum)				
			Gross Income			Maintenance cost	Net income	Gross Income			Maintenance cost	Net income
			From main product	From By-product	Total			From main product	From By-product	Total		
MILCH ANIMALS (COWS AND BUFFALOES)												
1	Kolar	3.08	99124	0	99124	43662	55462	32183	0	32183	14176	18007
2	Chitradurga	0.00	0	0	0	0	0	0	0	0	0	0
3	Haveri	1.08	6962	3510	10472	10360	112	6447	3250	9697	9593	104
4	Tumakuru	2.60	57445	1400	58845	29120	29725	22094	538	22633	11200	11433
5	Belagavi	1.56	15120	1400	16520	4436	12084	9692	897	10590	2844	7746
6	Kalaburgi	0.00	0	0	0	0	0	0	0	0	0	0
7	Raichur	1.16	1536	2400	3936	3180	756	1324	2069	3393	2741	652
8	Mangaluru	0.84	1372	0	1372	480	892	1633	0	1633	571	1062
	Average	1.29	22695	1089	23784	11405	12379	17593	844	18437	8841	9596
POULTRY												
1	Kolar	0.00	0	0	0	0	0	0	0	0	0	0
2	Chitradurga	0.00	0	0	0	0	0	0	0	0	0	0
3	Haveri	0.92	384	0	384	120	264	417	0	417	130	287
4	Tumakuru	0.00	0	0	0	0	0	0	0	0	0	0
5	Belagavi	0.00	0	0	0	0	0	0	0	0	0	0
6	Kalaburgi	0.00	0	0	0	0	0	0	0	0	0	0
7	Raichur	4.76	96	45	141	476	-335	20	9	30	100	-70
8	Mangaluru	0.00	0	0	0	0	0	0	0	0	0	0
	Average	0.71	60	6	66	75	-9	85	8	92	105	-13
MEAT ANIMALS (GOAT, SHEEP, PIG)												
1	Kolar	3.76	24720	0	24720	640	24080	6574	0	6574	170	6404
2	Chitradurga	0.00	0	0	0	0	0	0	0	0	0	0
3	Haveri	0.08	5600	0	5600	200	5400	70000	0	70000	2500	67500
4	Tumakuru	0.20	560	0	560	320	240	2800	0	2800	1600	1200
5	Belagavi	0.48	0	140	140	444	-304	0	292	292	925	-633
6	Kalaburgi	0.00	0	0	0	0	0	0	0	0	0	0
7	Raichur	1.24	1748	0	1748	1360	388	1410	0	1410	1097	313
8	Mangaluru	0.20	3200	0	3200	600	2600	16000	0	16000	3000	13000
	Average	0.75	4479	18	4496	446	4050	6011	23	6035	598	5437

Sl. No.	Name of the KVKs	No. of animals owned per sample HH	PER SAMPLE HH (Rs. Per annum)					PER ANIMAL (Rs. Per annum)				
			Gross Income			Maintenance cost	Net income	Gross Income			Maintenance cost	Net income
			From main product	From By-product	Total			From main product	From By-product	Total		
OTHER ANIMALS (OX/ BULLOCK AND UNSPECIFIED)												
1	Kolar	0.16	0	0	0	160	-160	0	0	0	1000	-1000
2	Chitradurga	8.12	24624	8720	33344	24200	9144	3033	1074	4106	2980	1126
3	Haveri	1.28	0	4800	4800	10320	-5520	0	3750	3750	8063	-4313
4	Tumakuru	0.00	0	0	0	0	0	0	0	0	0	0
5	Belagavi	0.60	0	0	0	2088	-2088	0	0	0	3480	-3480
6	Kalaburgi	9.32	3827	1580	5407	14660	-9253	411	170	580	1573	-993
7	Raichur	1.04	0	5760	5760	5280	480	0	5538	5538	5077	461
8	Mangaluru	0.00	0	0	0	0	0	0	0	0	0	0
	Average	2.57	3556	2608	6164	7089	-925	1387	1017	2403	2764	-361
TOTAL (ALL TYPES OF ANIMALS)												
1	Kolar	7.00	123844	0	123844	44462	79382	17692	0	17692	6352	11340
2	Chitradurga	8.12	24624	8720	33344	24200	9144	3033	1074	4106	2980	1126
3	Haveri	3.36	12946	8310	21256	21000	256	3853	2473	6326	6250	76
4	Tumakuru	2.80	58005	1400	59405	29440	29965	20716	500	21216	10514	10702
5	Belagavi	2.64	15120	1540	16660	6968	9692	5727	583	6311	2639	3672
6	Kalaburgi	9.32	3827	1580	5407	14660	-9253	411	170	580	1573	-993
7	Raichur	8.20	3380	8205	11585	10296	1289	412	1001	1413	1256	157
8	Mangaluru	1.04	4572	0	4572	1080	3492	4396	0	4396	1038	3358
	Average	5.31	30790	3719	34509	19013	15496	5798	700	6499	3581	2918

Table 4.3: Monthly Income from Other Agricultural Activities

Sl. No.	Name of the KVKs	BEE KEEPING				SOCIAL FORESTRY				SERICULTURE			
		No. of farmers (As a % to total sample)	Amount earned per month per sample farmer (Rs.)	Expenditure per month per sample farmer	Net income per month per farmer	No. of farmers (As a % to total sample)	Amount earned per month per sample farmer (Rs.)	Expenditure per month per sample farmer	Net income per month per farmer	No. of farmers (As a % to total sample)	Amount earned per month per sample farmer (Rs.)	Expenditure per month per sample farmer	Net income per month per farmer
1	Kolar	0.00	0	0	0	0.00	0	0	0	36.00	27000	6600	20400
2	Chitradurga	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
3	Haveri	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
4	Tumakuru	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
5	Belagavi	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
6	Kalaburgi	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
7	Raichur	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
8	Mangaluru	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
	Average	0.00	0	0	0	0.00	0	0	0	4.50	3375	825	2550
Sl. No.	Name of the KVKs	ORGANIC PRODUCT				COTTAGE INDUSTRIES				TOTAL			
1	Kolar	0.00	0	0	0	0.00	0	0	0	36.00	27000	6600	20400
2	Chitradurga	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
3	Haveri	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
4	Tumakuru	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
5	Belagavi	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
6	Kalaburgi	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
7	Raichur	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
8	Mangaluru	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0
	Average	0.00	0	0	0	0.00	0	0	0	4.50	3375	825	2550

4.4. Income from Non Agricultural Activities

Tables 4.4a, 4.4b show the number of beneficiaries engaged in activities other than agriculture for complementing livelihood. Net income obtained from the different nonfarm activities was up to Rs. 1,066 per month per farmer. On an average 22.50 per cent of the farmers worked as daily wage earners earning of Rs. 315 per month farmer; 6.5 per cent of the farmers worked under NREGA with the monthly average income of Rs. 187; 1 per cent of the farmers were employed in business earning net income of Rs.525; 2.5 per cent of the beneficiaries were generating net income of Rs. 1066 from hiring out machineries; 15.5 per cent of the total farmers realized net income of Rs.830 from other activities. From the table it can be observed that, around 50 per cent of the farmers were engaged in nonfarm activities to earn the net income of Rs. 536 per month per person.

Table 4.4a: Monthly Income from Non-Farm Sources

Sl. No.	Name Selected District	DAILY WAGES				CONTRACTUAL LABBOUR				NAREGA			
		No. of farmers (As a % to total sample)	Amount earned per month per farmer (Rs.)	Expenditure per month per sample farmer	Net income per month per farmer	No. of farmers (As a % to total sample)	Amount earned per month per farmer (Rs.)	Expenditure per month per farmer	Net income per month per farmer	No. of farmers (As a % to total sample)	Amount earned per month per farmer (Rs.)	Expenditure per month per farmer	Net income per month per farmer
1	Kolar	8.00	1.40	480	343	0.00	0.00	0	0	0.00	0.00	0	0
2	Chitradurga	32.00	4.84	1104	228	0.00	0.00	0	0	0.00	0.00	0	0
3	Haveri	44.00	19.60	3440	176	0.00	0.00	0	0	8.00	3.28	521	159
4	Tumakuru	4.00	1.20	140	117	0.00	0.00	0	0	4.00	0.40	90	224
5	Belagavi	60.00	0.60	3974	6623	0.00	0.00	0	0	0.00	0.00	0	0
6	Kalaburgi	32.00	5.32	1236	232	0.00	0.00	0	0	40.00	1.56	368	236
7	Raichur	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0
8	Mangaluru	0.00	0.00	0	0	20.00	0.00	1960	0	0.00	0.00	0	0
	Average	22.50	4.12	1297	315	2.50	0.00	245	0	6.50	0.66	122	187
Sl. No.	Name Selected District	BUSINESS				HIRING OUT MECHANARIES				OTHERS			
1	Kolar	0.00	0.00	0	0	8.00	1.20	1600	1333	48.00	19.20	8760	456
2	Chitradurga	4.00	0.80	400	500	12.00	1.24	1000	806	24.00	0.80	2080	2600
3	Haveri	0.00	0.00	0	0	0.00	0.00	0	0	20.00	0.04	2000	50000
4	Tumakuru	0.00	0.00	0	0	0.00	0.00	0	0	32.00	0.00	3800	0
5	Belagavi	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0
6	Kalaburgi	4.00	0.00	20	0	0.00	0.00	0	0	0.00	0.00	0	0
7	Raichur	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0
8	Mangaluru	0.00	0.00	0	0	0.00	0.00	0	0	0.00	0.00	0	0
	TOTAL	1.00	0.10	53	525	2.50	0.31	325	1066	15.50	2.51	2080	830

Table 4.4b: Monthly Income from Non-Farm Sources

Sl. No.	Name Selected District	TOTAL			
		No. of farmers (As a % to total sample)	Amount earned per month per sample farmer (Rs.)	Expenditure per month per sample farmer	Net income per month per farmer
1	Kolar	64.00	21.80	10840	497
2	Chitradurga	72.00	7.68	4584	597
3	Haveri	72.00	22.92	5961	260
4	Tumakuru	40.00	1.60	4030	2519
5	Belagavi	60.00	0.60	3974	6623
6	Kalaburgi	76.00	6.88	1624	236
7	Raichur	0.00	0.00	0	0
8	Mangaluru	20.00	0.00	1960	0
	Average	50.50	7.69	4122	536

4.5. Benefits Received from PDS

The support from PDS for sample farmers (Table 4.5) indicated that 84 per cent of the sample farmers received 179.04kgs of grains per annum, 71 per cent of the farmers received 6.5kgs of sugar per household, 73 per cent received 6 liters of oil and 86 per cent received 8 kg salt, 33 per cent received 3 soaps, and 53 per cent of the farmers received 12 liters of kerosene.

4.6. Investment on Irrigation Sources

Information on annual investment in irrigation is presented in Table 4.6. On an average, Rs. 12,0,203 was invested on per irrigation source, while subsidy of 6.2 per cent of total investment was received by the farmers. The annual maintenance cost per unit was Rs.6,147. Among various sources of irrigation, 44 per cent of the farmers owned bore well followed by open well (19.50%), and Farm pond (9%). The area covered under single irrigation source was more in bore well (2acres) followed by open well (1.52acres) and farm pond (1.29acres). The total investment per bore well was Rs. 1,62,250 as compared with open well (Rs.24,782) and farm pond while subsidy received was 49% for farm pond. Farmers did not receive subsidy for open well as bore well in all the KVKs, since there has been control due to over exploitation of groundwater resource. Among the different KVKs, majority of the farmers owned bore well in Tumakuru followed by Kolar (60%), Chitradurga, Haveri, Belagavi (56%), and Mangaluru (28%). It is interesting to note that, none of the sample farmers in Raichur KVK owned bore well as a major source of irrigation.

Table 4.5: Benefits received from PDS

Sl. No.	Name of the Selected District	GRAINS				SUGAR				OIL			
		No. of farmers (As a % to total sample)	Quantity (Kgs.) availed per sample HH	Value of product availed per sample HH (Rs.)	Average value (Rs.) per Kg. of Product	No. of farmers (As a % to total sample)	Quantity (Kgs.) availed per sample HH	Value of product availed per sample HH (Rs.)	Average value (Rs.) per Kg. of Product	No. of farmers (As a % to total sample)	Quantity (Lts.) availed per sample HH	Value of product availed per sample HH (Rs.)	Average value (Rs.) per Lts. of Product
1	Kolar	100.00	12.00	480	40	100.00	12.00	180	15	100.00	12.00	300	25
2	Chitradurga	96.00	342.40	10296	30	84.00	10.08	395	39	0.00	0.00	0	0
3	Haveri	76.00	187.80	4716	25	76.00	12.72	182	14	76.00	8.32	276	33
4	Tumakuru	64.00	218.40	3494	16	64.00	7.68	292	38	64.00	7.68	461	60
5	Belagavi	84.00	273.60	5232	19	84.00	0.84	32	38	84.00	0.84	50	60
6	Kalaburgi	92.00	28.04	841	30	92.00	0.96	34	35	92.00	0.92	74	80
7	Raichur	96.00	208.80	7308	35	0.00	0.00	0	0	100.00	12.00	480	40
8	Mangaluru	64.00	161.28	19	0	64.00	7.68	19	3	64.00	7.68	24	3
	Average	84.00	179.04	4048	23	70.50	6.50	142	22	72.50	6.18	208	34
Sl. No.	Name of the Selected District	SALT				SOAP				KEROSENE			
1	Kolar	100.00	12.00	60	5	100.00	12.00	120	10	0.00	0.00	0	0
2	Chitradurga	100.00	12.00	124	10	0.00	0.00	0	0	96.00	34.56	1728	50
3	Haveri	76.00	8.32	31	4	76.00	8.32	82	10	76.00	15.56	443	28
4	Tumakuru	64.00	7.68	77	10	0.00	0.00	0	0	0.00	0.00	0	0
5	Belagavi	84.00	0.84	8	10	84.00	0.84	0	0	84.00	1.68	46	28
6	Kalaburgi	88.00	0.88	9	10	0.00	0.00	0	0	68.00	2.04	48	24
7	Raichur	100.00	12.00	60	5	0.00	0.00	0	0	100.00	44.16	1104	25
8	Mangaluru	64.00	7.68	6	1	0.00	0.00	0	0	0.00	0.00	0	0
	Average	84.50	7.68	47	6	32.50	2.65	25	10	53.00	12.25	421	34

Table 4.6: Annual Investment on Irrigation

Name Selected District	OPEN WELL					BORE WELL				
	No. Of farmers who own (as a % to total sample)	Area irrigated per unit (acres)	Investment per unit (Rs.)	Subsidy as a per cent to total investment per unit	Annual maintenance per unit	No. Of farmers who own (as a % to total sample)	Area irrigated per unit (acres)	Investment per unit (Rs.)	Subsidy as a per cent to total investment per unit	Annual maintenance per unit
Kolar	16.00	0.00	10000	0.00	0	60.00	1.83	482667	0.00	2000
Chitradurga	4.00	4.50	50000	0.00	0	56.00	3.07	79643	0.00	2786
Haveri	0.00	0.00	0	0.00	0	56.00	2.13	137857	0.00	11286
Tumakuru	8.00	0.00	1000	0.00	0	84.00	1.37	71333	0.00	10333
Belagavi	4.00	1.00	20000	0.00	4000	56.00	2.54	86429	0.00	8071
Kalaburgi	68.00	3.15	35588	0.00	15176	12.00	2.00	90000	0.00	0
Raichur	0.00	0.00	0	0.00	0	0.00	0.00	0	0.00	0
Mangaluru	56.00	0.00	17821	0.00	1879	28.00	0.00	145000	0.00	6571
Average	19.50	1.52	24782	0.00	7392	44.00	1.94	162250	0.00	6852
	FARM POND					TOTAL				
Kolar	72.00	1.29	121389	49.43	0	148.00	1.37	255811	11.41	811
Chitradurga	0.00	0.00	0	0.00	0	60.00	3.17	77667	0.00	2600
Haveri	0.00	0.00	0	0.00	0	56.00	2.13	137857	0.00	11286
Tumakuru	0.00	0.00	0	0.00	0	92.00	1.25	65217	0.00	9435
Belagavi	0.00	0.00	0	0.00	0	60.00	2.43	82000	0.00	7800
Kalaburgi	0.00	0.00	0	0.00	0	80.00	2.98	43750	0.00	12900
Raichur	0.00	0.00	0	0.00	0	0.00	0.00	0	0.00	0
Mangaluru	0.00	0.00	0	0.00	0	84.00	0.00	60214	0.00	3443
Average	9.00	1.29	121389	49.43	0	72.50	1.74	120203	6.20	6147

4.7. Assets Owned

The asset structure of households is classified as agriculture implements and domestic implements. The assets position depends on the occupation, social and economic status apart from the place of their residence presented in Tables 4.7a, 4.7b, 4.7c. At the aggregate level, sample household data shows that a large proportion of farmers own agricultural implements owning 1.19 units of implements and the average purchase value per unit being Rs 69,961. Around 37.5 per cent of the sample farmers owned domestic implements. On an average 5.10 units of the implements was owned by the sample farmers with the average purchase value per implement being Rs. 23,822.

Farm implements are owned by a large proportion of farmers in all districts. Among the agriculture implements bullock cart formed a major one in Raichur KVK (56%) followed by wooden plough (40%), tractor and its spare parts (24%) and iron plough (20 %). In Kolar KVK, 36 per cent of the farmers owned tractors and iron plough followed by wooden plough (24%). Around 44 per cent of the farmers in Haveri KVK owned iron plough followed by wooden plough. Among the KVKs the ownership of domestic (luxury) items owned by the farmers was the highest in Kolar followed by Mangaluru and Haveri.

Implements owned by the farmers are further classified as an implement purchased before the year 2000, 2001-2010 and after 2010 according to year of purchase (**Table 4.7d, 4.7e, 4.7f**). A majority of the implements owned by the farmers were purchased after 2010 followed by 2001 to 2010. Around 48 per cent of tractors, 52 per cent of cars, television set, refrigerators and washing machines were purchased after 2010.

Table 4.7a: Assets Owned

Sl. No.	Name of Asset	KOLAR			CHITRADURGA			HAVERI		
		Percent of farmers owning to total sample	No. of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. of units owned per sample farmer	Purchase value per unit (Rs.)
1	Tractor	36.00	0.36	461111	12.00	0.12	550667	4.00	0.04	680000
2	Power tiller	0.00	0.00	0	4.00	0.04	500000	0.00	0.00	0
3	Spare parts of tractor	12.00	0.24	125000	4.00	0.04	85000	0.00	0.00	0
4	Hand operated sprayers	0.00	0.00	0	4.00	0.04	40000	24.00	0.24	1458
5	Power operated sprayers	12.00	0.16	3325	0.00	0.00	0	0.00	0.00	0
6	Bullock cart	16.00	0.16	13125	16.00	0.16	26000	20.00	0.20	24000
7	Wooden plough	24.00	0.24	800	12.00	0.12	2000	36.00	0.40	785
8	Iron plough	36.00	0.36	777	4.00	0.04	18000	44.00	0.48	1013
9	Chopper cutter	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
	Total of Agricultural equipments		1.52	130989	56.00	0.56	171786	128.00	1.36	24375
10	Car	32.00	0.32	562500	8.00	0.08	500000	0.00	0.00	0
11	Two-wheelers	100.00	1.56	46051	52.00	0.52	60615	52.00	0.64	48063
12	Bicycle	40.00	0.48	3550	0.00	0.00	0	4.00	0.04	6000
13	Television set	100.00	1.00	8032	92.00	0.88	11069	72.00	0.64	8045
14	Refrigerator	36.00	0.32	14001	16.00	0.16	14000	0.00	0.00	0
15	Washing machine	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
16	Gas connection	96.00	0.96	4379	68.00	0.68	5135	80.00	0.80	3920
17	Telephone	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
18	Mobiles	100.00	2.44	3048	100.00	1.44	1753	100.00	2.08	3571
19	Computer	4.00	0.12	30000	0.00	0.00	0	0.00	0.00	0
	Total of domestic equipments		7.20	39069	336.00	3.76	23808	308.00	4.20	11122
	Total value of both assets		8.72	55092	392.00	4.32	42990	436.00	5.56	14364

Table 4.7b: Assets Owned

Sl. No.	Name of asset	TUMAKURU			BELGAVI			KARBURGI		
		Percent of farmers owning to total sample	No. of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. of units owned per sample farmer	Purchase value per unit (Rs.)
1	Tractor	24.00	0.24	322500	0.00	0.00	0	0.00	0.00	0
2	Power tiller	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3	Spare parts of tractor	16.00	0.40	21000	0.00	0.00	0	0.00	0.00	0
4	Hand operated sprayers	20.00	0.20	3920	0.00	0.00	0	16.00	0.16	1675
5	Power operated sprayers	0.00	0.00	0	0.00	0.00	0	8.00	0.08	4000
6	Bullock cart	8.00	0.08	6250	4.00	0.04	5000	20.00	0.20	23000
7	Wooden plough	12.00	0.20	580	4.00	0.04	200	20.00	0.20	1970
8	Iron plough	32.00	0.40	430	4.00	0.04	3000	16.00	0.16	1475
9	Chopper cutter	4.00	0.04	3500	0.00	0.00	0	4.00	0.04	45000
	Total of Agricultural Equipment		1.56	56097	12.00	0.12	2733	84.00	0.84	9069
10	Car	12.00	0.12	263333	0.00	0.00	0	0.00	0.00	0
11	Two-wheelers	100.00	1.28	44019	52.00	0.60	36267	56.00	0.56	47714
12	Bicycle	80.00	1.00	2448	56.00	0.60	2533	0.00	0.00	0
13	Television set	100.00	1.00	11560	52.00	0.52	6431	72.00	0.72	7528
14	Refrigerator	28.00	0.28	14786	0.00	0.00	0	16.00	0.16	12250
15	Washing machine	8.00	0.08	20000	0.00	0.00	0	0.00	0.00	0
16	Gas connection	100.00	1.08	4520	28.00	0.28	5857	28.00	0.28	5929
17	Telephone	4.00	0.04	6000	0.00	0.00	0	0.00	0.00	0
18	Mobiles	100.00	2.32	5207	96.00	2.04	2416	100.00	2.20	3942
19	Computer	8.00	0.08	32000	0.00	0.00	0	0.00	0.00	0
	Total of domestic equipment		7.28	17507	284.00	4.04	8216	272.00	3.92	11335
	Total value of both assets		8.84	24317	296.00	4.16	8058	356.00	4.76	10935

Table 4.7c: Assets Owned

Sl. No.	Name of asset	RAICHUR			MANGALURU			TOTAL		
		Percent of farmers owning to total sample	No. of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. of units owned per sample farmer	Purchase value per unit (Rs.)
1	Tractor	24.00	0.24	655000	4.00	0.04	800000	13.00	0.13	505654
2	Power tiller	12.00	0.24	19167	0.00	0.00	0	2.00	0.04	87857
3	Spare parts of tractor	24.00	1.00	27600	0.00	0.00	0	7.00	0.21	41310
4	Hand operated sprayers	12.00	0.32	14500	0.00	0.00	0	9.50	0.12	7960
5	Power operated sprayers	8.00	0.08	10425	0.00	0.00	0	3.50	0.04	5269
6	Bullock cart	56.00	0.56	14750	0.00	0.00	0	17.50	0.18	17586
7	Wooden plough	40.00	0.84	2790	0.00	0.00	0	18.50	0.26	1769
8	Iron plough	20.00	0.20	9220	0.00	0.00	0	19.50	0.21	2296
9	Chopper cutter	0.00	0.00	0	0.00	0.00	0	1.00	0.01	24250
	Total of Agricultural Equipment		3.48	59575	4.00	0.04	800000	91.50	1.19	69961
10	Car	0.00	0.00	0	20.00	0.20	232000	9.00	0.09	413889
11	Two-wheelers	76.00	0.88	233864	100.00	1.00	59200	73.50	0.88	71583
12	Bicycle	16.00	0.16	16925	0.00	0.00	0	24.50	0.29	3781
13	Television set	72.00	0.72	8006	100.00	1.00	7344	82.50	0.81	8697
14	Refrigerator	8.00	0.08	13000	24.00	0.24	10583	16.00	0.16	13226
15	Washing machine	0.00	0.00	0	4.00	0.04	20000	1.50	0.02	20000
16	Gas connection	48.00	0.44	6864	100.00	1.00	4736	68.50	0.69	4850
17	Telephone	4.00	0.04	4000	0.00	0.00	0	1.00	0.01	5000
18	Mobiles	84.00	1.76	3095	100.00	2.84	1538	97.50	2.14	3089
19	Computer	0.00	0.00	0	0.00	0.00	0	1.50	0.03	30800
	Total of domestic equipments		4.08	54887	448.00	6.32	19840	375.50	5.10	23822
	Total value of both assets		7.56	57045	452.00	6.36	24747	467.00	6.29	32521

Table 4.7d: Purchase of Implements

Sl. No.	Name of Asset		KOLAR			CHITRADURGA			HAVERI		
			Percent of farmers owning to total sample	No. Of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. Of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. Of units owned per sample farmer	Purchase value per unit (Rs.)
1	Tractor	Purchased before the year 2000	8.00	0.08	300000	0.00	0.00	0	0.00	0.00	0
2		Purchased between 2001 to 2010	12.00	0.12	416667	12.00	0.12	550667	0.00	0.00	0
3		Purchased after the year 2010	16.00	0.16	575000	0.00	0.00	0	4.00	0.04	680000
		TOTAL		36.00	0.36	461111	12.00	0.12	550667	4.00	0.04
1	Power tiller	Purchased before the year 2000	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	0.00	0.00	0	4.00	0.04	500000	0.00	0.00	0
		TOTAL		0.00	0.00	0	4.00	0.04	500000	0.00	0.00
1	Car	Purchased before the year 2000	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
2		Purchased between 2001 to 2010	20.00	0.20	570000	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	12.00	0.12	550000	8.00	0.08	500000	0.00	0.00	0
		TOTAL		32.00	0.32	562500	8.00	0.08	500000	0.00	0.00
1	Two wheeler	Purchased before the year 2000	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
2		Purchased between 2001 to 2010	60.00	1.04	47808	4.00	0.04	40000	12.00	0.16	33500
3		Purchased after the year 2010	40.00	0.52	42538	48.00	0.48	62333	40.00	0.48	52917
		TOTAL		100.00	1.56	46051	52.00	0.52	60615	52.00	0.64
1	Television set	Purchased before the year 2000	12.00	0.12	7600	8.00	0.04	6015	8.00	0.00	0
2		Purchased between 2001 to 2010	64.00	0.64	8250	28.00	0.28	10429	36.00	0.36	6967
3		Purchased after the year 2010	24.00	0.24	7667	56.00	0.56	11750	28.00	0.28	8857
		TOTAL		100.00	1.00	8032	92.00	0.88	11069	72.00	0.64
1	Refrigerator	Purchased before the year 2000	4.00	0.00	0	0.00	0.00	0	0.00	0.00	0
2		Purchased between 2001 to 2010	20.00	0.20	14000	4.00	0.04	8000	0.00	0.00	0
3		Purchased after the year 2010	12.00	0.12	13333	12.00	0.12	16000	0.00	0.00	0
		TOTAL		36.00	0.32	14001	16.00	0.16	14000	0.00	0.00
1	Washing machine	Purchased before the year 2000	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
		TOTAL		0.00	0.00	0	0.00	0.00	0	0.00	0.00

Table 4.7e: Purchase of Implements

Sl. No.	Name of Asset	TUMAKURU			BELGAVI			KARBURGI			
		Percent of farmers owning to total sample	No. Of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. Of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. Of units owned per sample farmer	Purchase value per unit (Rs.)	
1	Tractor	Purchased before the year 2000	40	41	42	43	44	45	46	47	48
2		Purchased between 2001 to 2010	12.00	0.12	408333	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
		TOTAL	12.00	0.12	236667	0.00	0.00	0	0.00	0.00	0.00
1	Power tiller	Purchased before the year 2000	24.00	0.24	322500	0.00	0.00	0	0.00	0.00	0
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
		TOTAL	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0.00
1	Car	Purchased before the year 2000	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
		TOTAL	12.00	0.12	263333	0.00	0.00	0	0.00	0.00	0.00
1	Two wheeler	Purchased before the year 2000	12.00	0.12	263333	0.00	0.00	0	0.00	0.00	0
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	68.00	0.88	41300	16.00	0.16	32000	12.00	0.12	37333
		TOTAL	32.00	0.40	50000	36.00	0.44	37818	44.00	0.44	50545
1	Television set	Purchased before the year 2000	100.00	1.28	44019	52.00	0.60	36267	56.00	0.56	47714
2		Purchased between 2001 to 2010	12.00	0.12	10667	0.00	0.00	0	4.00	0.04	4000
3		Purchased after the year 2010	64.00	0.64	9656	32.00	0.32	6100	28.00	0.28	6714
		TOTAL	24.00	0.24	17083	20.00	0.20	6960	40.00	0.40	8450
1	Refrigerator	Purchased before the year 2000	100.00	1.00	11560	52.00	0.52	6431	72.00	0.72	7528
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	8.00	0.08	14500	0.00	0.00	0	0.00	0.00	0
		TOTAL	20.00	0.20	14900	0.00	0.00	0	16.00	0.16	12250
1	Washing machine	Purchased before the year 2000	28.00	0.28	14786	0.00	0.00	0	16.00	0.16	12250
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	4.00	0.04	15000	0.00	0.00	0	0.00	0.00	0
		TOTAL	4.00	0.04	25000	0.00	0.00	0	0.00	0.00	0.00
	TOTAL	0.00	0.00	20000	0.00	0.00	0	0.00	0.00	0.00	0

Table 4.7f: Purchase of Implements

Sl. No.	Name of Asset	RAICHUR			MANGALURU			TOTAL			
		Percent of farmers owning to total sample	No. Of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. Of units owned per sample farmer	Purchase value per unit (Rs.)	Percent of farmers owning to total sample	No. Of units owned per sample farmer	Purchase value per unit (Rs.)	
1	Tractor	Purchased before the year 2000	49	50	51	52	53	54	55	56	57
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	20.00	0.20	365000
3		Purchased after the year 2010	12.00	0.12	596667	0.00	0.00	0	36.00	0.36	521333
		TOTAL	12.00	0.12	713333	4.00	0.04	800000	48.00	0.48	552500
1	Power tiller	Purchased before the year 2000	24.00	0.24	655000	4.00	0.04	800000	13.00	0.13	505654
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	4.00	0.16	25000	0.00	0.00	0	4.00	0.16	25000
		TOTAL	8.00	0.08	7500	0.00	0.00	0	12.00	0.12	171667
1	Car	Purchased before the year 2000	12.00	0.24	19167	0.00	0.00	0	2.00	0.04	87857
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	0.00	0.00	0	0.00	0.00	0	20.00	0.20	570000
		TOTAL	0.00	0.00	0	20.00	0.20	232000	52.00	0.52	353846
1	Two wheeler	Purchased before the year 2000	0.00	0.00	0	20.00	0.20	232000	9.00	0.09	413889
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	32.00	0.32	40750	28.00	0.28	63571	232.00	3.00	44488
		TOTAL	44.00	0.56	344214	72.00	0.72	57500	356.00	4.04	91703
1	Television set	Purchased before the year 2000	76.00	0.88	233864	100.00	1.00	59200	73.50	0.88	71583
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	44.00	0.32	8604
3		Purchased after the year 2010	48.00	0.48	9017	48.00	0.48	7567	348.00	3.48	8241
		TOTAL	24.00	0.24	5983	52.00	0.52	7138	268.00	2.68	9299
1	Refrigerator	Purchased before the year 2000	72.00	0.72	8006	100.00	1.00	7344	82.50	0.81	8697
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	4.00	0.00	0
3		Purchased after the year 2010	0.00	0.00	0	8.00	0.08	9000	40.00	0.40	12500
		TOTAL	8.00	0.08	13000	16.00	0.16	11375	84.00	0.84	13476
1	Washing machine	Purchased before the year 2000	8.00	0.08	13000	24.00	0.24	10583	16.00	0.16	13226
2		Purchased between 2001 to 2010	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3		Purchased after the year 2010	0.00	0.00	0	0.00	0.00	0	4.00	0.04	15000
		TOTAL	0.00	0.00	0	4.00	0.04	20000	8.00	0.08	22500
	TOTAL		0.00	0.00	0	0.00	0.00	20000	0.00	0.00	20000

4.8. Income from Hiring Implements

It is noted from **Table 4.8a, 4.8b, 4.8c** that, on an average, the net income earned from custom hiring farm machineries amounts to Rs. 409 per equipment. The results indicate that, except tractor and bullock cart, the rest of the listed implements are not rented. Under the categorization of KVKs, income from custom hiring out implement amounts to Rs. 2,286 per implement in Chitradurga and Rs. 747 in Raichur. The average net income earned by custom hiring was negligible in other KVKs.

Table 4.8a: Income from Hiring Out of Implements

Sl. No.	Name of asset	KOLAR			CHITRADURGA			HAVERI		
		Percent of farmers who rented to total who own	Average no. of days/hrs. Rented out	Average amount earned per unit	Percent of farmers who rented to total who own	Average no. of days/hrs. Rented out	Average amount earned per unit	Percent of farmers who rented to total who own	Average no. of days/hrs. Rented out	Average amount earned per unit
1	Tractor	0.00	0.00	0	66.67	10.00	8000	0.00	0.00	0
2	Power tiller	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3	Spare parts of tractor	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
4	Hand operated sprayers	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
5	Power operated sprayers	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
6	Bullock cart	0.00	0.00	0	25.00	2.50	2000	0.00	0.00	0
7	Wooden plough	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
8	Iron plough	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
9	Chopper cutter	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
	Total	0.00	0.00	0	21.43	2.86	2286	0.00	0.00	0

Table 4.8b: Income from Hiring out of Implements

Sl. No.	Name of asset	TUMAKURU			BELGAVI			KARBURGI		
		Percent of farmers who rented to total who own	Average no. of days/hrs. Rented out	Average amount earned per unit	Percent of farmers who rented to total who own	Average no. of days/hrs. Rented out	Average amount earned per unit	Percent of farmers who rented to total who own	Average no. of days/hrs. Rented out	Average amount earned per unit
1	Tractor	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
2	Power tiller	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3	Spare parts of tractor	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
4	Hand operated sprayers	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
5	Power operated sprayers	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
6	Bullock cart	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
7	Wooden plough	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
8	Iron plough	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
9	Chopper cutter	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
	Total	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0

Table 4.8c: Income from Hiring out of Implements

Sl. No.	Name of asset	RAICHUR			MANGALURU			TOTAL		
		Percent of farmers who rented to total who own	Average no. of days/hrs. Rented out	Average amount earned per unit	Percent of farmers who rented to total who own	Average no. of days/hrs. Rented out	Average amount earned per unit	Percent of farmers who rented to total who own	Average no. of days/hrs. Rented out	Average amount earned per unit
1	Tractor	33.33	6.67	10833	0.00	0.00	0	15.38	2.69	3423
2	Power tiller	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
3	Spare parts of tractor	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
4	Hand operated sprayers	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
5	Power operated sprayers	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
6	Bullock cart	0.00	0.00	0	0.00	0.00	0	2.86	0.29	229
7	Wooden plough	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
8	Iron plough	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
9	Chopper cutter	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
	Total	4.08	0.46	747	0.00	0.00	0	2.73	0.34	409

4.9. Income from renting Immovable Assets

The Tables 3.9a, 4.9b, 4.9c, depict average income earned by renting immovable assets. On an average, Rs.5,411 per household was earned from renting immovable assets. Among the KVKs, the average net income earned by the sample farmers was higher in Kolar (Rs.43,288 per HH) followed by Tumakuru (Rs.6,000/HH). In Kolar, the average income earned by renting animal house (Rs.24, 088/HH), followed by house (Rs.19, 200/HH).

Table 4.9a: Income from Hiring Out of Immovable Assets

Sl. No.	Name of Asset	KOLAR			CHITRADURGA			HAVERI		
		Percent of farmers who rented out to total sample	Average rent received per hh (Rs.)	Average income received last year (Rs. Per hh)	Percent of farmers who rented out to total sample	Average rent received per hh (Rs.)	Average income received last year (Rs. Per hh)	Percent of farmers who rented out to total sample	Average rent received per hh (Rs.)	Average income received last year (Rs. Per hh)
1	House	4.00	0	19200	0.00	0	0	0.00	0	0
2	Farm house	0.00	0	0	0.00	0	0	0.00	0	0
3	Animal house	12.00	0	24088	0.00	0	0	0.00	0	0
4	Godown	0.00	0	0	0.00	0	0	0.00	0	0
5	Silkworm rearing house	0.00	0	0	0.00	0	0	0.00	0	0
6	Processing centre	0.00	0	0	0.00	0	0	0.00	0	0
7	Collection centre	0.00	0	0	0.00	0	0	0.00	0	0
8	Others	0.00	0	0	0.00	0	0	0.00	0	0
	Total	16.00	0	43288	0.00	0	0	0.00	0	0

Table 4.9b: Income from Hiring Out of Immovable Assets

Sl. No.	Name of Asset	TUMAKURU			BELGAVI			KALABURAGI		
		Percent of farmers who rented out to total sample	Average rent received per hh (Rs.)	Average income received last year (Rs. Per hh)	Percent of farmers who rented out to total sample	Average rent received per hh (Rs.)	Average income received last year (Rs. Per hh)	Percent of farmers who rented out to total sample	Average rent received per hh (Rs.)	Average income received last year (Rs. Per hh)
1	House	4.00	6000	0	0.00	0	0	0.00	0	0
2	Farm house	0.00	0	0	0.00	0	0	0.00	0	0
3	Animal house	0.00	0	0	0.00	0	0	0.00	0	0
4	Godown	0.00	0	0	0.00	0	0	0.00	0	0
5	Silkworm rearing house	0.00	0	0	0.00	0	0	0.00	0	0
6	Processing centre	0.00	0	0	0.00	0	0	0.00	0	0
7	Collection centre	0.00	0	0	0.00	0	0	0.00	0	0
8	Others	0.00	0	0	0.00	0	0	0.00	0	0
	Total	4.00	6000	0	0.00	0	0	0.00	0	0

Table 4.9c: Income from Hiring Out of Immovable Assets

Sl. No.	Name of Asset	RAICHUR			MANGALURU			TOTAL		
		Percent of farmers who rented out to total sample	Average rent received per hh (Rs.)	Average income received last year (Rs. Per hh)	Percent of farmers who rented out to total sample	Average rent received per hh (Rs.)	Average income received last year (Rs. Per hh)	Percent of farmers who rented out to total sample	Average rent received per hh (Rs.)	Average income received last year (Rs. Per hh)
1	House	0.00	0	0	0.00	0	0	1.00	750	2400
2	Farm house	0.00	0	0	0.00	0	0	0.00	0	0
3	Animal house	0.00	0	0	0.00	0	0	1.50	0	3011
4	Godown	0.00	0	0	0.00	0	0	0.00	0	0
5	Silkworm rearing house	0.00	0	0	0.00	0	0	0.00	0	0
6	Processing centre	0.00	0	0	0.00	0	0	0.00	0	0
7	Collection centre	0.00	0	0	0.00	0	0	0.00	0	0
8	Others	0.00	0	0	0.00	0	0	0.00	0	0
	Total	0.00	0	0	0.00	0	0	2.50	750	5411

4.10. Details of Loans

The details of credit availed by farmers is presented in Tables 4.10a, 4.10b, 4.10c, 4.10d, 4.10e and Figure 4.1. Without exception, all the sample farmers availed credit. All sample farmers had loan account with almost all the sources listed in the Table. Nearly 78 per cent of the farmers had availed loan from institutional sources. At the aggregate, the average loan amount availed per sample household was Rs. 95,238 and 15.13 per cent of the loan was repaid, 2.22 per cent of the amount was waived to total loan availed. Out of the total amount availed, 75.17 per cent of the amount was outstanding. Among the loanee farmers, 9.62 per cent of the farmers received notice. Around 49.50 per cent of the farmers obtained loan from non institutional sources. The per sample farmer loan amount availed from the non institutional source was Rs.68,900 out of which only 2.63 per cent of loan amount was repaid and 90.48 per cent of the loan amount was outstanding.

Among the different KVKs, 40 per cent of the sample farmers in Kolar availed loan from institutional source. The loan amount borrowed per sample farmer was Rs. 74,080, of which 17.22 per cent was waived and 82.78 per cent remained outstanding. Among various sources, majority of the farmers borrowed loan from nationalized banks and by pledging gold. It is crucial to note that, none of the sample farmer's availed loan from non institutional sources in Kolar.

About 56 per cent of sample farmers in Chitradurga KVK availed loan from institutional source. The average loan amount borrowed per sample farmer was Rs. 97,600 of which, 32.89 per cent was repaid and 63.93 per cent was outstanding.

Around 80 per cent of the farmers in Haveri had availed credit from institutional source. The average amount borrowed per farmer was Rs. 96,960, out of which 15.14 per cent was repaid and 61.22 per cent was outstanding. It was also observed from the table that, 68 per cent of sample farmers obtained loan from non institutional sources, of which 10.72 per cent of the amount was repaid and 89.28 per cent of the amount was outstanding.

Survey revealed that, most sample farmers in Tumakuru availed credit from institutional source. The average amount borrowed was Rs.1,23,320 per farmer repaying 33.06 per cent of the loan amount, 11.08 per cent was waived and 56 per cent was outstanding. Further in Tumakuru, 20 per cent of the farmers took finance from non institutional agencies, repaying 5.41 per cent and 94.59 per cent outstanding.

It was observed from the survey that, 96 per cent of the farmers had availed loan from institutional source in Belagavi region. The average amount borrowed by the farmers was Rs. 67,800 per household. Out of the total amount borrowed 100 per cent of the amount remaining as outstanding. Further it was observed from the table that, there was no non institutional source of money lending prevailed in Belagavi KVK.

The amount borrowed from the non institutional sources was much higher than that from institutional sources in Raichur (Rs.2, 32,800 per household) than in Kalaburagi (Rs.1, 03,800 per household). About 90 per cent of the amount was outstanding.

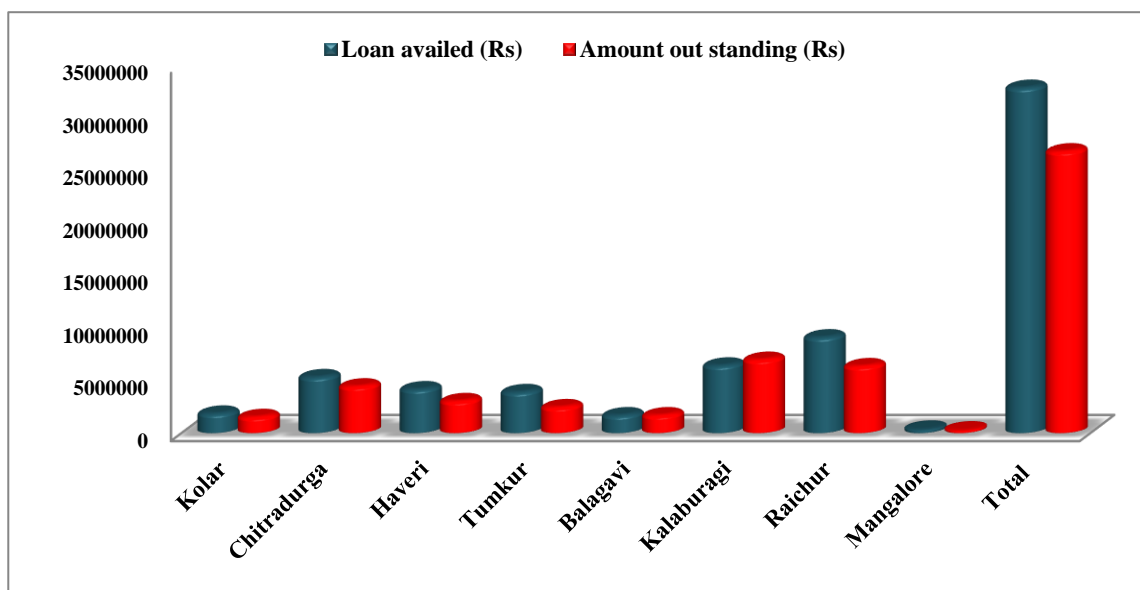


Figure 4.1: District wise details of Loan availed and outstanding amount

4.11. Classification of Loan

Based on the year of borrowing, both institutional and non institutional loans are classified as very old loans (Availed before 2000), old loans (2001 to 2014) and recent loans (after 2015). Among the institutional sources, about 49 per cent of the total farmers had availed loan in recent year followed by old loans (27.50%). The average amount borrowed per household was Rs. 95,238 of which 85 per cent was outstanding. Further it could be observed from the table that, the average loan availed per household from non institutional source was Rs. 68,900 of which 90.48 per cent was outstanding. Among all the KVK sample farmers, the recent loans were higher than old and very old loans(**Table4.11a, 4.11b, 4.11c, 4.11d, 4.11e**).

Table 4.10a: Details of Loans availed by sample farmers in Kolar district

Sl. No.	Name of asset	KOLAR						
		Per cent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate	Per cent of amount repaid to total amount availed	Per cent of loan waived	Per cent of loan outstanding	Per cent of farmers who received notice out of those who availed loan
1	Primary co-operative societies	0.00	0	0.00	0.00	0.00	0.00	0.00
2	Agriculture and rural development bank	0.00	0	0.00	0.00	0.00	0.00	0.00
3	District central banks	0.00	0	0.00	0.00	0.00	0.00	0.00
4	Nationalized commercial banks	0.00	0	0.00	0.00	0.00	0.00	0.00
5	Regional rural banks	12.00	46000	50.00	17.39	0.00	82.61	0.00
6	Private banks	0.00	0	0.00	0.00	0.00	0.00	0.00
7	Self help groups	0.00	0	0.00	0.00	0.00	0.00	0.00
8	Gold pledge loan	28.00	28080	37.86	16.95	0.00	83.05	0.00
	Total of institutional sources	40.00	74080	41.50	17.22	0.00	82.78	0.00
	TOTAL	40.00	74080	41.50	17.22	0.00	82.78	0.00

Table 4.10b: Details of Loans availed by sample farmers in Chitradurga, Haveri districts

Name of asset	CHITRADURGA							HAVERI						
	Per cent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Per cent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan
Primary co-operative societies	16	8400	0.75	0.71	0.00	100.00	0.00	24.00	6240	0.00	71.15	44.87	0.00	0.00
Agriculture and rural development bank	4	48000	14.00	66.67	0.00	33.33	0.00	8.00	6800	8.50	18.82	0.00	12.35	0.00
District central banks	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Nationalized commercial banks	4	4000	2.00	0.00	0.00	100.00	0.00	24.00	60800	8.33	14.41	0.00	58.55	0.00
Regional rural banks	0	0	0.00	0.00	0.00	0.00	0.00	4.00	6000	0.00	0.00	0.00	100.00	0.00
Private banks	8	6000	2.5	0.00	0.00	66.67	50.00	4.00	8000	13.00	0.00	0.00	100.00	0.00
Self help groups	16	16400	8.00	0.24	0.73	92.68	25.00	4.00	520	2.00	0.00	0.00	100.00	0.00
Gold pledge loan	8	14800	1.05	0.00	0.00	100.00	50.00	12.00	8600	4.33	2.33	0.00	97.67	0.00
Others	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Total of institutional sources	56	97600	3.6102	32.89	0.12	63.93	21.43	80.00	96960	4.75	15.14	2.89	61.22	0.00
Private lenders	0	0	0.00	0.00	0.00	0.00	0.00	8.00	5000	5.50	20.00	0.00	80.00	0.00
Traders	0	0	0.00	0.00	0.00	0.00	0.00	24.00	20400	3.00	0.00	0.00	100.00	0.00
Relatives	28	56800	1.57	0.49	0.00	100.00	0.00	12.00	8000	1.00	30.00	0.00	70.00	0.00
Friends	24	28400	1.83	0.56	0.00	100.00	0.00	16.00	32400	2.25	6.42	0.00	93.58	0.00
Commission agents	0	0	0.00	0.00	0.00	0.00	0.00	8.00	4000	3.00	50.00	0.00	50.00	0.00
Others	12	30000	2.00	1.60	0.00	100.00	33.33	0.00	0	0.00	0.00	0.00	0.00	0.00
Total of non-institutional sources	64	115200	1.75	0.80	0.00	100.00	6.25	68.00	69800	2.76	10.72	0.00	89.28	0.00

TOTAL OF BOTH	120	212800	16.9	15.52	0.06	83.46	13.33	148.00	166760	3.84	13.29	1.68	72.97	0.00
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Table 4.10c: Details of Loans availed by sample farmers in Tumakuru, Belagavi districts

Name of asset	TUMAKURU							BELAGAVI						
	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan
Primary co-operative societies	36.00	29520	0.00	8.13	47.43	44.44	0	64.00	41000	0	0	0	100.00	62.50
Agriculture and rural development bank	20.00	51800	3.00	57.07	0.00	42.93	0	8.00	10000	0	0	0	100.00	0.00
District central banks	0.00	0	0.00	0.00	0.00	0.00	0	16.00	11600	0	0	0	100.00	25.00
Nationalized commercial banks	16.00	22400	7.63	35.71	0.00	64.29	0	8.00	5200	0	0	0	100.00	50.00
Regional rural banks	4.00	12400	7.00	0.00	0.00	100.00	0	0.00	0	0	0	0	0.00	0.00
Private banks	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0	0	0	0	0.00	0.00
Self help groups	24.00	10200	1.00	17.65	0.00	82.35	0	0.00	0	0	0	0	0.00	0.00
Gold pledge loan	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0	0	0	0	0.00	0.00
Others	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0	0	0	0	0.00	0.00
Total of institutional sources	100.00	126320	2.34	33.06	11.08	55.86	0	96.00	67800	0	0	0	100.00	50.00
Private lenders	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0	0	0	0	0.00	0.00
Traders	8.00	7600	2.50	10.53	0.00	89.47	0	0.00	0	0	0	0	0.00	0.00
Relatives	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0	0	0	0	0.00	0.00
Friends	4.00	2000	0.00	0.00	0.00	100.00	0	0.00	0	0	0	0	0.00	0.00
Commission agents	8.00	20000	2.00	4.00	0.00	96.00	0	0.00	0	0	0	0	0.00	0.00
Others	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0	0	0	0	0.00	0.00
Total of non-institutional sources	20.00	29600	1.80	5.41	0.00	94.59	0	0.00	0	0	0	0	0.00	0.00
Total of Both	120.00	155920	2.25	27.81	8.98	63.21	0	96.00	67800	0	0	0	100.00	50.00

Table 4.10d: Details of Loans availed by sample farmers in Kalaburagi, Raichur districts

Name of asset	KALABURAGI							RAICHUR						
	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan
Primary co-operative societies	20	7880	0	0	0	100	0	4	1000	1	0	0	0	20
Agriculture and rural development bank	76	63080	5.32	0	0	100	0	12	15000	1	0	0	92	76
District central banks	0	0	0	0	0	0	0	8	3200	1	62.5	0	37.5	0
Nationalized commercial banks	12	82000	3.33	0	0	100	0	40	42380	1	18.88	0	76.4	12
Regional rural banks	0	0	0	0	0	0	0	8	16000	1	0	0	75	0
Private banks	0	0	0	0	0	0	0	12	30800	1	0	0	38.96	0
Self help groups	4	240	36	0	0	50	0	8	800	1	50	0	0	4
Gold pledge loan	0	0	0	0	0	0	0	28	14160	16.43	0	0	55.08	0
Others	0	0	0	0	0	0	0	4	8000	2	0	0	100	0
Total of institutional sources	112	153200	5.25	0	0	99.92	0	124	131340	4.52	7.92	0	66.38	112
Private lenders	8	20000	36	0	0	100	0	40	108000	2.25	0	0	81.48	8
Traders	0	0	0	0	0	0	0	56	42200	2.64	9.48	0	80.09	0
Relatives	36	59200	29.33	0	0	133.78	0	40	61600	2.3	0	0	46.1	36
Friends	4	1600	24	0	0	100	0	36	17000	2.78	2.94	0	77.65	4
Commission agents	0	0	0	0	0	0	0	4	4000	3	0	0	100	0
Others	20	23000	24	0	0	108.7	0	0	0	0	0	0	0	20
Total of non-institutional sources	68	103800	28.24	0	0	121.19	0	176	232800	2.51	1.93	0	71.91	68
TOTAL OF BOTH	180	257000	13.93	0	0	108.51	0	300	364140	3.34	4.09	0	69.91	180

Table 4.10e: Details of Loans availed by sample farmers in Mangaluru taluk

Name of asset	MANGALURU							TOTAL						
	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan
Primary co-operative societies	0	0	0	0	0	0	0	0	20.5	11755	0.1	7.34	17.86	74.86
Agriculture and rural development bank	0	16	14600	7.5	24.66	0	75.34	0	18	26160	5	31.75	0	65.44
District central banks	0	0	0	0	0	0	0	0	3	1850	0.33	13.51	0	86.49
Nationalized commercial banks	0	0	0	0	0	0	0	0	13	27098	3.94	11.42	0	80.07
Regional rural banks	0	0	0	0	0	0	0	0	3.5	10050	22.71	9.95	0	85.07
Private banks	0	0	0	0	0	0	0	0	3	5600	8.36	0	0	53.57
Self help groups	0	0	0	0	0	0	0	0	7	3520	5.57	7.95	0.43	86.08
Gold pledge loan	0	0	0	0	0	0	0	0	9.5	8205	20.79	7.56	0	82.75
Others	0	0	0	0	0	0	0	0	0.5	1000	2	0	0	100
Total of institutional sources	0	16	14600	7.5	24.66	0	75.34	0	78	95238	38.08	15.13	2.22	75.17
Private lenders	0	0	0	0	0	0	0	0	7	16625	7.54	0.75	0	84.21
Traders	0	0	0	0	0	0	0	0	11	8775	2.73	6.84	0	86.89
Relatives	0	0	0	0	0	0	0	0	14.5	23200	10.38	1.44	0	91.59
Friends	0	0	0	0	0	0	0	0	10.5	10175	3.29	3.37	0	92.78
Commission agents	0	0	0	0	0	0	0	0	2.5	3500	2.6	10	0	90
Others	0	0	0	0	0	0	0	0	4	6625	15.75	0.91	0	103.77
Total of non-institutional sources	0	0	0	0	0	0	0	0	49.5	68900	6.81	2.63	0	90.48
TOTAL OF BOTH	0	16	14600	7.5	24.66	0	75.34	0	127.5	164138	25.94	9.89	1.29	81.59

Table 4.11a: Characteristics of Loans availed by sample farmers in Kolar district

Name of asset		KOLAR						
		Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan
Institutional loans	Availed before the year 2000 (very old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	8.00	42000	50.00	19.05	0.00	80.95	0.00
	Availed after the year 2015 (recent loans)	32.00	32080	39.38	14.84	0.00	85.16	0.00
Total		40.00	74080	41.50	17.22	0.00	82.78	0.00
Non-institutional loans	Availed before the year 2000 (very old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed after the year 2015 (recent loans)	0.00	0	0.00	0.00	0.00	0.00	0.00
Total		0.00	0	0.00	0.00	0.00	0.00	0.00
Total loans (institutional + non-institutional)	Availed before the year 2000 (very old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	8.00	42000	50.00	19.05	0.00	80.95	0.00
	Availed after the year 2015 (recent loans)	32.00	32080	39.38	14.84	0.00	85.16	0.00
TOTAL		40.00	74080	41.50	17.22	0.00	82.78	0.00

Table 4.11b: Characteristics of Loans availed by sample farmers in Chitradurga, Haveri districts

Name of asset		CHITRADURGA							HAVERI						
		Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loanee farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loanee farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan
Institutional loans	Availed before the year 2000 (very old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	20.00	57600	1003.50	55.66	0.00	40.97	20.00	16.00	19600	1.00	4.29	8.16	91.84	0.00
	Availed after the year 2015 (recent loans)	36.00	40000	4.09	0.10	0.30	97.00	22.22	64.00	77360	5.69	17.89	1.55	53.46	0.00
	Total	56.00	97600	361.02	32.89	0.12	63.93	21.43	80.00	96960	4.75	15.14	2.89	61.22	0.00
Non-institutional loans	Availed before the year 2000 (very old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	24.00	63200	1.50	1.08	0.00	100.00	16.67	8.00	11000	3.00	0.00	0.00	100.00	0.00
	Availed after the year 2015 (recent loans)	40.00	52000	1.90	0.46	0.00	100.00	0.00	60.00	58800	2.73	12.72	0.00	87.28	0.00
	Total	64.00	115200	1.75	0.80	0.00	100.00	6.25	68.00	69800	2.76	10.72	0.00	89.28	0.00
Total loans (institutional + non-institutional)	Availed before the year 2000 (very old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	44.00	120800	456.95	27.10	0.00	71.85	18.18	24.00	30600	1.67	2.75	5.23	94.77	0.00
	Availed after the year 2015 (recent loans)	76.00	92000	2.94	0.30	0.13	98.70	10.53	124.00	136160	4.26	15.66	0.88	68.07	0.00
	TOTAL	120.00	212800	169.41	15.52	0.06	83.46	13.33	148.00	166760	3.84	13.29	1.68	72.97	0.00

Table 4.11c: Characteristics of Loans availed by sample farmers in Tumakuru, Belagavi districts

Name of asset		TUMAKURU							BELGAVI						
		Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan
Institutional loans	Availed before the year 2000 (very old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	36.00	70000	2.56	52.23	2.86	44.91	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed after the year 2015 (recent loans)	64.00	56320	2.22	9.23	21.31	69.46	0.00	96.00	67800	0.00	0.00	0.00	100.00	50.00
Total		100.00	126320	2.34	33.06	11.08	55.86	0.00	96.00	67800	0.00	0.00	0.00	100.00	50.00
Non-institutional loans	Availed before the year 2000 (very old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	8.00	5600	2.50	28.57	0.00	71.43	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed after the year 2015 (recent loans)	12.00	24000	1.33	0.00	0.00	100.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Total		20.00	29600	1.80	5.41	0.00	94.59	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Total loans (institutional + non-institutional)	Availed before the year 2000 (very old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	44.00	75600	2.55	50.48	2.65	46.88	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed after the year 2015 (recent loans)	76.00	80320	2.08	6.47	14.94	78.59	0.00	96.00	67800	0.00	0.00	0.00	100.00	50.00
TOTAL		120.00	155920	2.25	27.81	8.98	63.21	0.00	96.00	67800	0.00	0.00	0.00	100.00	50.00

Table 4.11d: Characteristics of Loans availed by sample farmers in Kalaburagi, Raichur district

Name of asset		KALABURAGI							RAICHUR						
		Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan
Institutional loans	Availed before the year 2000 (very old loans)	8.00	6000	5.00	0.00	0.00	100.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	36.00	38640	3.11	0.00	0.00	100.00	0.00	96.00	108180	1.17	7.40	0.00	67.65	0.00
	Availed after the year 2015 (recent loans)	68.00	108560	6.41	0.00	0.00	99.89	0.00	28.00	23160	16.00	10.36	0.00	60.45	0.00
Total		112.00	153200	5.25	0.00	0.00	99.92	0.00	124.00	131340	4.52	7.92	0.00	66.38	0.00
Non-institutional loans	Availed before the year 2000 (very old loans)	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	20.00	45200	28.80	0.00	0.00	139.82	0.00	48.00	118400	2.29	0.00	0.00	85.81	0.00
	Availed after the year 2015 (recent loans)	48.00	58600	28.00	0.00	0.00	106.83	0.00	128.00	114400	2.59	3.93	0.00	57.52	0.00
Total		68.00	103800	28.24	0.00	0.00	121.19	0.00	176.00	232800	2.51	1.93	0.00	71.91	0.00
Total loans (institutional + non-institutional)	Availed before the year 2000 (very old loans)	8.00	6000	5.00	0.00	0.00	100.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
	Availed between 2001 to 2014 (old loans)	56.00	83840	12.29	0.00	0.00	121.47	0.00	144.00	226580	1.54	3.53	0.00	77.14	0.00
	Availed after the year 2015 (recent loans)	116.00	167160	15.34	0.00	0.00	102.32	0.00	156.00	137560	5.00	5.02	0.00	58.01	0.00
TOTAL		180.00	257000	13.93	0.00	0.00	108.51	0.00	300.00	364140	3.34	4.09	0.00	69.91	0.00

Table 4.11e: Characteristics of Loans availed by sample farmers in Mangaluru taluk

Name of asset		MANGALURU							TOTAL						
		Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan	Percent of farmers who availed loan to total sample farmers	Loan amount availed per sample hh	Average interest rate per loaned farmer	Percent of amount repaid to total amount availed	Percent of amount waived to total amount availed	Percent of amount outstanding to total amount availed	Percent of farmers who received notice out of those who availed loan
Institutional loans	Availed before the year 2000 (very old loans)	0	0	0	0	0	0	0	1	750	5	0	0	100	0
	Availed between 2001 to 2014 (old loans)	8	5600	7	64.29	0	35.71	0	27.5	42703	94.81	26.07	1.05	64.65	1.82
	Availed after the year 2015 (recent loans)	8	9000	8	0	0	100	0	49.5	51785	7.23	6.33	3.22	83.48	14.14
Total		16	14600	7.5	24.66	0	75.34	0	78	95238	38.08	15.13	2.22	75.17	9.62
Non-institutional loans	Availed before the year 2000 (very old loans)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Availed between 2001 to 2014 (old loans)	0	0	0	0	0	0	0	13.5	30425	7.09	0.94	0	99.84	3.7
	Availed after the year 2015 (recent loans)	0	0	0	0	0	0	0	36	38475	6.71	3.97	0	83.08	0
Total		0	0	0	0	0	0	0	49.5	68900	6.81	2.63	0	90.48	1.01
Total loans (institutional + non-institutional)	Availed before the year 2000 (very old loans)	0	0	0	0	0	0	0	1	750	5	0	0	100	0
	Availed between 2001 to 2014 (old loans)	8	5600	7	64.29	0	35.71	0	41	73128	65.93	15.61	0.62	79.29	2.44
	Availed after the year 2015 (recent loans)	8	9000	8	0	0	100	0	85.5	90260	7.01	5.33	1.84	83.31	8.19
TOTAL		16	14600	7.5	24.66	0	75.34	0	127.5	164138	25.94	9.89	1.29	81.59	6.27

4.12. Benefits derived from Government Programs

Considering the benefits derived from government (Table 4.12), about 38 per cent of the farmers availed benefits from the government departments under different schemes. A majority of the farmers received benefits from agricultural department (20.5%) followed by Department of animal husbandry (2.5%). Benefits availed by each beneficiary in the form of agricultural subsidy was relatively higher from agricultural department (Rs. 27,857) followed by the Department of Horticulture (Rs.21,500) and Animal husbandry (Rs.8,056). Among the KVKs, majority (72%) of the farmers in Kolar KVK, received benefits from agricultural department followed by Kalaburagi (48%) and Haveri (32%). None of the sample farmers from Belagavi, Raichur, and Mangaluru indicated that they availed benefits from government under various programmes.

4.13. Details of Financial Inclusion

Details of the bank account opened by sample farmers are presented in Table 4.13. On an average around 72 per cent of the sample farmers maintained accounts in more than one financial institution. Majority of the family members opened accounts in commercial banks (51.64%) followed by Regional rural banks/primary agriculture co-operative societies/DCCBs, co-operative banks (15.66%) and post office (1.01%) whereas 40 per cent of the farmers opened bank accounts under jandhan yojana.

Table 4.12: Benefits from Government Programmes received by sample farmers of Kolar, Chitradurga districts

Name of the development department (input benefits received)		KOLAR			CHITRADURGA		
		Percent of farmers to total sample who availed the benefit	Quantity availed per availing farmer	Subsidy availed per availing farmer (Rs.)	Percent of farmers to total sample who availed the benefit	Quantity availed per availing farmer	Subsidy availed per availing farmer (Rs.)
Agriculture Department	Certified seeds	0.00	0	0	0.00	0	0
	Irrigation	0.00	0	0	0.00	0	0
	Organic Manure	0.00	0	0	0.00	0	0
	Tractor / Tiller / Rotavator	0.00	0	0	0.00	0	0
	Equipment / Machineries	0.00	0	0	0.00	0	0
	Plant protection chemicals and sprayers	0.00	0	0	0.00	0	0
	Krishi Bhagya	72.00	1	60000	0.00	0	0
	Watershed programmes	0.00	0	0	0.00	0	0
Total of Agriculture Department		72.00	1	60000	0.00	0	0
Animal Husbandry department	Supply of nutritious food	0.00	0	0	0.00	0	0
	Dairy subsidy	4.00	1	15000	0.00	0	0
Total of Animal Husbandry Department		4.00	1	15000	0.00	0	0
Housing	Indira Awas	44.00	1	155455	8.00	1	150000
Total of Horticulture Department		0.00	0	0	0.00	0	0
Sericulture	Micro-irrigation	4.00	1	35000	0.00	0	0
Total of Sericulture Department		4.00	1	35000	0.00	0	0
Others	others	16.00	1	25000	0.00	0	0
Total of All Departments		140.00	1	84000	8.00	1	150000

Table 4.12: Benefits from Government Programmes received by sample farmers of Haveri, Tumakuru districts

Name of the development department (input benefits received)		HAVERI			TUMAKURU		
		Percent of farmers to total sample who availed the benefit	Quantity availed per availing farmer	Subsidy availed per availing farmer (Rs.)	Percent of farmers to total sample who availed the benefit	Quantity availed per availing farmer	Subsidy availed per availing farmer (Rs.)
Agriculture Department	Certified seeds	16.00	23	308	8.00	5	123
	Irrigation	4.00	60	6000	0.00	0	0
	Organic Manure	0.00	0	0	4.00	4000	280
	Tractor / Tiller / Rotavator	0.00	0	0	0.00	0	0
	Equipment / Machineries	4.00	1	23000	0.00	0	0
	Plant protection chemicals and sprayers	8.00	600	700	0.00	0	0
	Krishi Bhagya	0.00	0	0	0.00	0	0
	Watershed programmes	0.00	0	0	0.00	0	0
Total of Agriculture Department		32.00	169	3954	12.00	1337	175
Horticulture Department	Micro-irrigation	4.00	1	16000	4.00	1	27000
	Mango cultivation	0.00	0	0	8.00	5	90
Total of Horticulture Department		4.00	1	16000	12.00	6	27090
Animal Husbandry Department	Dairy subsidy	4.00	1	25000	4.00	6	100
Total of Animal Husbandry Department		4.00	1	25000	12.00	5	93
Housing	Indira Awas	8.00	1	120000	24.00	1	77500
Yashaswini	Yashaswini	0.00	0	0	4.00	1	25000
Total of All Departments		48.00	113	26053	56.00	288	36986

Table 4.12: Benefits from Government Programmes received by sample farmers of Kalaburagi district

Name of the development department (input benefits received)		KALABURAGI			TOTAL		
		Percent of farmers to total sample who availed the benefit	Quantity availed per availing farmer	Subsidy availed per availing farmer (Rs.)	Percent of farmers to total sample who availed the benefit	Quantity availed per availing farmer	Subsidy availed per availing farmer (Rs.)
Agriculture Department	Certified seeds	44.00	18	2700	8.50	17	1834
	Irrigation	0.00	0	0	0.50	60	6000
	Organic Manure	0.00	0	0	0.50	4000	280
	Equipment / Machineries	0.00	0	0	0.50	1	23000
	Plant protection chemicals and sprayers	4.00	2	300	1.50	401	567
	Krishi Bhagya	0.00	0	0	9.00	1	60000
	Watershed programmes	0.00	0	0	0.00	0	0
Total of Agriculture Department		48.00	16	2500	20.50	136	27857
Horticulture Department	Micro-irrigation	0.00	0	0	1.00	1	21500
Total of Horticulture Department		0.00	0	0	1.00	1	21500
Animal Husbandry Department	Mango cultivation	0.00	0	0	1.00	5	90
	Dairy subsidy	0.00	0	0	1.50	3	13367
Total of Animal Husbandry Department		0.00	0	0	2.50	4	8056
Housing	Indira Awas	4.00	2	100000	11.00	1	127955
Yashaswini	Yashaswini	0.00	0	0	0.50	1	25000
Sericulture	Micro-irrigation	0.00	0	0	0.50	1	35000
Total of Sericulture Department		0.00	0	0	0.50	1	35000
Others	Others	0.00	0	0	2.00	1	25000
Total of All Departments		52.00	15	10000	38.00	74	55269

Table 4.13: Details of Financial Inclusion

Financial Inclusion	Per cent of family members out of total family members who account in one or the other bank	Per cent of family members who have account in comm. bank. Out of those who have bank account	Per cent of family members who have account in coop. Societies. Out of those who have bank account	Per cent of family members who have account in rrbs / pacs / dccbs out of those who have bank account	Per cent of family members who have account in post offices. Out of those who have bank account	Percent of farmers to total sample in whose house bank account was opened under jandhan yojana
Kolar	79.70	10.83	7.64	81.53	0.00	0.00
Chitradurga	73.23	84.95	2.15	10.75	2.15	4.00
Haveri	64.58	80.65	16.13	3.23	0.00	88.00
Tumakuru	106.59	76.29	11.34	9.28	3.09	4.00
Belagavi	77.07	63.64	13.22	21.49	1.65	12.00
Kalaburgi	53.19	46.00	3.00	51.00	0.00	92.00
Raichur	52.34	61.19	1.49	35.82	1.49	20.00
Mangaluru	100.00	0.00	100.00	0.00	0.00	100.00
TOTAL	72.26	51.64	15.66	31.69	1.01	40.00

5. ECONOMIC FEASIBILITY OF INTEGRATED FARMING SYSTEM AT UAS BANGALORE

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5.1: Introduction

Integrated farming system (IFS) is a package of technologies such as combination of crop and livestock production systems complemented with on farm resource management practices to sustain farm income and living. IFS meet diversified needs of the farm home, maintain and improve production, reducing dependency on external inputs. Efficient utilization of on farm resources is facilitated by value addition by using fodder and feed on the farm for livestock. The dung from livestock and crop residues are used in vermi-compost.

In IFS, different crops and livestock are raised and output from these serve as intermediate inputs on the farm. In the process of management and accounting, there is a possibility of under accounting or double (over) accounting of cost and returns. In this study, a modest attempt has been made to overcome such drawbacks by following double entry accounting of transactions among farm different enterprises in IFS. Here, all transactions are accounted under two heads – the credit account or debit account. Transactions involving inflow are in credit, while those involving outflow are in debit account.

5.2: Methodology

Data on cost and returns of IFS demonstration on one hectare of GKVK farm land was obtained from field experiments conducted by dry land unit of UASB GKVK for the year 2010-11. This model exhibits economic feasibility of IFS on marginal holding by combination of crop, tree, dairy, livestock, fishery and poultry to sustain farm income.

5.3: Steps in Economics of IFS

5.3.1: Step-1: Grouping activities: All activities of IFS are grouped into three major components viz., i) crop production - includes activities of crop on the farm ii) livestock - includes activities to carry out livestock enterprises and iii) resource management includes activities on farm with primary objective of water harvesting, soil fertility management and bio-energy harnessing. In second level under crop production the production units are represented by different cropping system in the farm like mono crop, mixed crop, inter-crop which may be seasonal, annual, biannual or perennial. Production units in live stock constitute

enterprises like dairy, poultry, sheep rearing, goat rearing, rabbit rearing, fishery, and sericulture and so on. In resource management units of production repented any facilities or operation that is specially meant for any one of the three functions water harvesting, soil fertility management and bio-energy harnessing. Classification of activities under particular components and sub-component is based on primary purpose or benefit accrued through that activity but not on spill over costs incurred or benefits accrued.

5.3.2: Step-2: Cost accounting: All cost incurred is accounted under credit account against individual operations under respective sub-heads of the major components of IFS. Costs are accounted under any of the three components of IFS or parts thereof based on purpose of operation and extent of its influence. Under each component costs items are classified as fixed cost for cost incurred on resources that are fixed in an over a period of time and as operation cost for cost items that vary with level and combination of enterprises on the farm.

In crop production the cost items are classified as general crop production costs and cropping system specific costs. The former that include cost incurred on all operations that are carried out simultaneously for all cropping system on the farm and latter includes cost of all operation specific to a particular cropping system (mono crops, intercrops and mixed crops) practiced on the farm. In livestock production cost items are classified as general live stock production costs and enterprise specific costs. The former that include cost incurred on all operations that are carried out simultaneously for all livestock based enterprises on the farm and latter includes cost on all operation specific to a particular live stock enterprise. Under resource management based on primary purpose of activities they are grouped as water management, soil fertility management and bio-energy harnessing activities.

5.3.3: Step-3: Returns accounting: If product produced from an enterprise/cropping system/resource management activity is either sold outside the farm or used as an intermediate input for other enterprises within the farm. In former case, returns from sale of final product outside farm are recorded under debit account of producing enterprise/cropping system/resource management activity. In latter case, entry is made under both debit account of enterprises producing intermediate products and in credit account of enterprises consuming intermediate products for further production.

5.3.4: Step- 4: Computation of economics: The net return of IFS for farm on the whole is obtained by subtracting total credit account form total debit account. The net return of major

components and parts thereof is obtained by subtracting credit account from debit account of respective individual components or sub components.

5.4: Results and Discussion

Integrated farming demonstrated at UAS in GKVK campus in the Eastern Dry Zone of Karnataka is represented schematically in the Table 5.1. It comprised of all the three major components of IFS viz., crop production, livestock cultivation and resource management. Crop production is taken up on one hectare of land that comprised of four production units ragi and red gram intercropping, vegetables and flower intercropping, pulses monocropping and tree incorporated as agri-horti cropping system. Livestock cultivation encompasses of five enterprises (production units) dairy, poultry, rabbit rearing, sheep rearing and fishery. resource management includes water harvesting through farm pond for water management, soil fertility management through compost and vermin-compost production and bio-energy harnessing by biogas production and fire wood and fodder through lopping.

5.5: Computation Economics of Integrated Farming System

This model demonstrates the economic role of crop management, livestock management and on farm resource management in sustaining farm incomes on dry land with marginal holdings. Computation includes steps grouping of activities, cost accounting, return accounting and computation of economics.

Table 5.1: Schematic Representation of Integrated Farming System and its Components

Level	Integrated Farming System							
I	Crop Production			Livestock Cultivation		Resource Management		
II	Sub - Components	Area	Season	Sub- Components	Infrastructure	Sub - Components	Activity	Infrastructure
III	Ragi+ Red gram Intercropping	0.5	Kharif	Dairy (2)	Cattle Shed	Water Management	Water Harvesting	Farm pond (1)
	Vegetables+ Flower Intercropping	0.2	Kharif	Poultry (5+1)		Soil Fertility Management	Compost	Pits (2)
							Vermi-compost	Pits (2)
	Pulses mixed cropping	0.15	Kharif	Rabbit Rearing (1+1)		Bio energy and Bio mass Harnessing	Biogas Production	Biogas Plant (1)
	Agri-Horti - Dry Land Fruit Crops (25)	0.15	Perennial	Sheep Rearing (5+1)				
Fishery (fingers) (200)				Farm pond				
	4	1		5	2	3	5	6

5.5.1: Step-1: Grouping of Activities: In crop production component of IFS at GKVK, UAS-B involves four cropping systems (production units). It includes Ragi and Redgram intercropping on 0.5 ha, vegetables and flowers inter cropping (0.2 ha), pulse mixed cropping (0.15 ha) in Kharif season. Perennial tree component on 0.15 ha includes Mango (5 number), Sapota (3), Guava (3) Pomegranate (1), Amla (2), Tamarind (1), Jack Fruit (5), Ber, Wood Apple (1) and Cashew nut (3). Production units in Livestock cultivation of IFS at GKVK, UAS-B includes Dairy (2 number), Poultry (5+1), Rabbit Rearing (1+1), sheep (5+1) and fishery (200 fingers). In resource management components production units or activities includes water harvesting through one farm pond, soil fertility conservation through compost production (2 pits) and vermin compost production (2 pits) and bio-energy harnessing from biogas production and tree lopping.

5.5.2: Step-2: Cost Accounting: All cost incurred is accounted under credit account against individual operations under respective sub-heads each sub components/components of IFS (Table 5.1 and Table 5.2). Costs incurred on crops production component is Rs. 36043/- with variable cost of Rs. 29827/- and fixed cost of Rs. 6216/-. The operation cost incurred on operation carried out simultaneously for all cropping system in the farm is accounted under general crop production cost. It includes land preparation (Rs.1125), compost application (Rs. 15270), inter-cultivation (Rs. 1120), weeding (Rs. 1980) and plant protection (Rs. 2795). Cost of compost (Rs. 5500) and vermin-compost (Rs. 7500) in compost application is also recorded under debit (return account) of soil health management of resource management component. The operations cost incurred specific to a particular cropping system is accounted under particular cropping system. IFS in this case study four cropping system are identified pulse mixed cropping, ragi + redgram intercropping, vegetables + flower intercropping and agri horti. Cropping specific cost is incurred on seeds in pulse mixed cropping (Rs. 80). Under ragi + redgram intercropping system the cropping system specific operations includes sowing (Rs. 1913) and harvesting and threshing (Rs. 1980). Likewise in vegetables and flower Intercrop cropping system specific cost are sowing/ transplanting (Rs. 776) and harvesting (Rs. 1100). A fixed cost in crop production includes general crop production cost viz., land renew and cess (Rs. 50), rental value of land (Rs. 5450) and interest on fixed capital (Rs. 330). Amortized cost of establishment of horticultural tree (Rs. 386) is a cropping system specific cost and accounted against tree component of agri-horti cropping system in crop production. It can be observed that from subcomponent level further grouping is done on the basis of operations and in each operation factors involved are enlisted with the cost in credit column.

Total cost live stock cultivation is Rs. 65092 of which total operation cost is Rs. 41722/- and total fixed cost is Rs. 23371/- (Table 5.2). The cost incurred on cultivation of specific live stock enterprise is accounted under specific enterprise (production units). The operations cost of Rs. 38210 is accounted under dairy and this includes cost specific to dairy enterprise human labour (Rs. 29700), feed (Rs. 5600), ragi straw (Rs. 1360), grass (Rs. 1250) and customary medical care (Rs. 300). The ragi straw and grass is accounted under debit (returns) account under ragi and redgram intercropping of crop production component and lopping operation under biomass and energy harnessing of resource management component respectively. In other sub-components of livestock only input cost are accounted for operation cost viz., fingers in fisheries (Rs. 300) feed in poultry (Rs. 600), diet for rabbits (Rs. 250). As these enterprises carried out with a spill over of labour meant for other productive activities so cost of labour is not accounted. In dairy component fixed cost accounts for Rs. 13211/- it includes depreciation cost on cattle shed (Rs. 1052) and amortized cost on live stock inventory (Rs. 12159). In remaining livestock enterprises is fixed cost

Table 5.2: Cost accounting of crop production component of IFS

C	Cost	Sub Components	Operations	Factors	PQ	Credit	Debit
Crop Production	Operational Cost	General Crop Production	Land Preparation	Machine Labour (hr)	2.5	1125	0
			Compost Application	Human Labour (MD)	10	1100	0
				Compost (kg)	5500	5500	0
				Fertilizer (kg)	88	1170	0
				Vermi-compost (kg)	1500	7500	0
				Sub total		15270	
			Inter-cultivation	Bullock Labour (hr)	2	900	0
				Human Labour (MD)	2	220	0
			Sub total		1120		
			Weeding	Human Labour (MD)	18	1980	0
			Plant Protection	Human Labour (MD)	2	220	0
				Machine Labour (hr)	15	225	0
				PPC (lt)	2	370	0
		Sub total		2795			
		Sub total		22290			
		Pulse Mixed Cropping	Sowing	Horse gram and average/dolichos Seed (kg)	4	80	0
		Ragi + Redgram Intercropping	Sowing	Bullock Labour (hr)	2	900	0
				Human Labour (hr)	5	550	0
				Ragi and Redgram Seeds (kg)	12.5	463	
			Sub total		1913		
		Harvesting and Threshing	Human Labour (hr)	18	1980	0	
		Sub total		3893			
		Vegetables + Flower Intercropping	Sowing/ Transplanting	Human Labour (gm)	6	660	0
				Brinjal seeds(gm)	150	38	0
				Cluster bean seeds (gm)	50	8	0
				Chilly seeds (gm)	250	50	0
				Ladies Finger seeds (gm)	100	15	0
				Tomato Seeds (gm)	25	5	0
			Sub total		776		
		Harvesting	Human Labour	10	1100	0	
		Sub total		1876			
			Interest on working capital	Capital (i)	6	1688	0
		Total operation cost					
Fixed Cost	Crop Production	Land renew and cess	Renew and cess		50	0	
		Rental value of land	Land rent		5450	0	
		Interest on fixed capital	Interest on (i)	6	330	0	
	Agri-Horti	establishment cost	Plants (no.)	25	386	0	
Total Fixed Cost						25	6216
Total Cost of Crop Production						36043	

Note: MD: man day, gm: gram, no: number, hr: hour, lt: liters, kg: kilogram, i = interest rate.

Table 5.3: Cost accounting of livestock cultivation and bio-energy and resource management of IFS

C	costs	Sub components	Operations	Factors	PQ	Credit	Debit		
Livestock Management	Operational Cost	Dairy	Tending Cows	Customary Medical Care		300	0		
				Grass (kg)	2500	1250	0		
				Ragi Straw (kg)	1360	1360	0		
				Feed (kg)	1120	5600			
				Human Labour (MD)	270	29700	0		
		Sub Total						38210	
		Fisheries	Spawning	Fingers (no)	200	300	0		
		Poultry	Tending Poultry	Feed (kg)	75	600	0		
	Rabbits	Tending Rabbits	Diet (kg)	25	250	0			
	Interest on working capital						2362		
	Total operational Cost						41722	0	
	Fixed Cost	Dairy	Depreciation	Cattle Shed (no)	1	1052	0		
			Live stock inventory	Heifer (no)	2	12159	0		
		Sub Total						13211	
		Poultry	Live stock inventory	Poultry birds (no)	5+1	1063	0		
Sheep		Live stock inventory	Sheep (no)	5+1	2340	0			
Rabbits		Live stock inventory	Live stock (no)	1+1	108	0			
Interest of fixed capital						63			
Total Fixed cost						16785	0		
Total Cost Live Stock Cultivation						58507			
Resource Management	Operation Cost	Bio energy and bio mass harnessing	Feeding Bio- Gas Unit	Human Labour (MD)	15	0	0		
			Lopping	Labour (MD)	8.5	0	0		
		Soil Fertility management	Composting and Vermi-Composting	Human Labour (MD)	15	0	0		
				Human Labour (MD)	30	0	0		
				Green Leaf (kg)	3250	2438	0		
	Interest on working capital						146		
	Total operational cost						2584	0	
	Fixed Cost	Bio energy and mass harnessing	Depreciation	Biogas Plant (number)	1	361	0		
		Water management	Depreciation	Farm Pond (no)	1	419	0		
		Soil Fertility management	Depreciation	Azolla Pit (no)	1	66	0		
				Bio-Digester (no)	1	236	0		
				Compost pit (no)	2	354	0		
Sub Total						656			
Interest on Fixed Capital						86			
Total fixed cost						1522	0		
Total Cost of Resource management						4106			
Total cost of IFS						98791			

Note: MD: man day, gm: gram, no: number, hr: hour, lt: liters, kg: kilogram, i = interest rate.

Include only amortized cost of initial livestock inventory chicks in poultry (Rs. 1063), lambs in sheep (Rs. 2340) and young rabbit in rabbits (Rs. 108). In all livestock enterprises except dairy is carried out on small scale doesn't have any specialized infrastructure for it. Finally interest of working capital (Rs. 1323) and total fixed capital (Rs. 368) is added to working capital and fixed capital respectively.

Total cost of resource management is (Rs. 4106) of which total operational cost is Rs. 2584 and total fixed cost is Rs. 1522. Operation cost of resource management includes cost of green leaf (Rs. 2438) for composting and vermi-composting under soil fertility management component. Sum on cost of green leaf (Rs. 2348) is accounted against debit (returns) account of bio-mass and energy harnessing sub component of resource management. Labour is involved in feeding bio- gas unit, lopping and composting and vermi-composting is not accounted. These activities are carried out with spillover labour meant of other activities on the farm. Fixed cost mainly includes depreciation on infrastructure meant for resource management. Under soil fertility management depreciation is Rs. 656/- it encompasses azolla-pit (Rs. 260), bio-digester (Rs. 826) and compost pit (Rs. 1240). Under bio energy harnessing and water management depreciation is Rs. 1627 for biogas plant and Rs. 2187 farm pond. Finally Interest on fixed capital (Rs. 2326) and working capital (Rs. 146) for resource management is accounted under fixed cost and working capital respectively.

5.5.3: Step-3 Return Accounting: The gross returns from crop production is Rs. 37725/- , livestock cultivation Rs. 138970/- and resource management Rs. 20863/-. Under crop production returns from Ragi+ Red gram Intercropping is Rs. 23360 this included grain Ragi (Rs. 12000) and Red gram (kg) (Rs. 10000) and ragi straw fodder (Rs.1360). Pulse mixed cropping system yield Rs. 2400/- that includes Avare (Rs. 1500) and Horse Gram (Rs. 900). An income of Rs. 11460 is earned from vegetables+ flower intercropping. This includes Rs. 4200 from Brinjal, Rs. 600 from Tomatoes, Rs. 300 from Bhendi, Rs. 750 from drumstick and Rs. 2150 from red chillies. The gross returns from flowers are Rs. 2000 from chrysanthemum, Rs. 1000 from crossandra, Rs. 60 from Marigold, Rs. 100 from Jasmine. The gross returns from tree crops are Rs. 1500 from pomegranate. Rs. 300 from sapota, Rs. 1000 from jackfruit, Rs. 105 from Guava.

Under livestock cultivation gross returns from two Dairy milch cows yielding 5500 liters of milk and 2 calves is Rs. 124000; returns from one unit Poultry (5+1) that yields 21kg of chicken and 180 eggs is Rs. 3690, one unit Rabbit (1+1) that produces 10 rabbits a year

Table 5.4: Return accounting of IFS

C	Sub components	Sub groups	Items	Physical	Credit	Debit
Crop Production	Agri Horti	Fruits	Sapota (kg)	30		300
			Pomogranet (kg)	30		1500
			Gava (kg)	7		105
			Jackfruit (kg)	50		1000
	Sub total					2905
	Pulse Mixed Cropping System	Grain	Avare (kg)	30		1500
			Horse Gram (kg)	30		900
	Sub total					2400
	Ragi+ Red gram Intercropping	Fodder	Ragi Straw (kg)	1360		1360
		Grain	Ragi (kg)	1200		12000
			Red Gram (kg)	200		10000
	Sub total			2760		23360
	Vegetables+ Flower Intercropping	Flowers	Chrysanthemum (kg)	80		2000
			Crosssandra (kg)	15		1001
			Jasmine (kg)	2		100
Marry Gold (kg)			15		60	
Vegetables		Brinjal (kg)	280		4200	
		Drum Stick Bundles	75		750	
		Dry Chilly (kg)	27		2149	
		Ladies Finger (kg)	20		300	
		Tomato (kg)	30		900	
Sub total					11460	
Returns from crop production						37725
Livestock Cultivation	Dairy	Calf	Calf (number)	2	0	14000
		Milk	Milk (liters)	5500	0	110000
	Sub Total					124000
	Fisheries	Fish	Fish (Kg)	60	0	4800
	Poultry	chicken	Chicken (Kg)	21	0	3150
		Egg	Egg (Number)	180	0	720
	Sub total					3870
	Sheep rearing	Sheep	Lambs (Number)	4	0	4800
Rabbits	Rabbits	Rabbits (Number)	10	0	1500	
Returns Livestock cultivation						138970
Resource management	Bio energy and Bio mass harnessing	Bio Gas	LPG equivalent (Cylinders)	10	0	4300
		lopping	Ex-situ GLM (Kg)	3250	0	2438
			Wood (Kg)	2250	0	1125
			Grass (Kg)	2500		1250
					0	3563
	Soil fertility management	Manure	Compost (kg)	5500	0	5500
			Vermicompost (kg)	1500	0	7500
Sub Total			7000	0	13000	
Returns from resource management					0	20863
Total Returns from IFS						197558
Total cost of IFS						98791
Net returns from IFS						98787

Note: MD: man day, gm: gram, no: number, hr: hour, lt: liters, kg: kilogram, i = interest rate.

is worth Rs. 1500, one Unit Sheep (5+1) which produces 4 lambs a year is worth Rs. 4800; fishery produces 60 kgs of fish worth Rs. 4800, all totalling Rs. 138970.

Imputed returns from bio-energy management is from bio Gas production (which is equivalent to 10 LPG cylinders) per annum is Rs. 4300 and lopping yields 2250 kg of fuel wood worth Rs. 1125, 3250 kg of Ex-situ GLM worth Rs. 2438 and 2500 kg grass worth Rs.1250/-. Soil fertility management yields Rs. 1.5 tons of Vermi compost and 4.5 tons of Compost is Rs. 7500 and Rs. 5500 respectively. The returns are from protective irrigation, fish rearing and groundwater recharge. The returns are already counted in crop and livestock income.

5.6: Computation of Economics

Thus, the total return of IFS is Rs. 197558 and total cost is Rs.98791 accordingly net returns of IFS is Rs. 98787. The net returns of individual components are worked by differentiating individual components' total credit from total debit. Net returns of crop production is Rs. 1682 (Rs.37725- Rs.36043); live stock cultivation Rs. 80463 (Rs.138970- Rs. 58507) and resource management Rs. 16757 (Rs. 20863- Rs.4106).

5.7: Conclusion

Double entry accounting for computation of economics of Integrated Farming System aids to avoid under accounting and over accounting of cost and returns in different components of IFS. It also delineates movement of resources among different components of IFS thus helps in mapping relationship among different component of IFS. It provides a systematic approach for researchers, farmers and developmental departments for computation of cost economics of IFS.

6. ROADMAP TO ENHANCE FARMERS INCOME

This chapter represents a framework for enhancing farmers' income with the following growth triggers:

- Increase in crop and livestock productivity
- Improvement in input use efficiency resulting in reduction of cost of cultivation
- Increase in crop intensity
- Sustainable extraction and use of natural resources

This study found the solution in the use of appropriate IFS models for sample farmers to enhance their income. The IFS combinations proposed and estimate of gross income obtained from the proposed model are highlighted in Tables 6.1 to 6.8 for each of the chosen eight districts.

6.1. Eastern Dry Agro climatic Zone (KOLAR district)

Ragi, Redgram and Vegetables are the major crops cultivated in this zone. Majority of the rainfed farmers are leaning towards mono cropping. It has been found that about 28 per cent of the income can be met from cultivation of ragi with redgram and field beans. Further with the cultivation of groundnut with redgram the income enhances by 20 per cent. By adopting crop rotation and cultivating vegetables income can be further enhanced. It is to note that, the average income per farmer in this zone will increase by 38.5 per cent by adopting the proposed IFS model (**Table 6.1a**).

In case of livestock, dairy is the major source of income to the farmers in Kolar district. In order to increase the overall income, farmers can also rear the combination of goat, sheep, piggery, and poultry which will enhance 37.7 per cent of the income. Through the proposed IFS model farmer can increase overall income by 40 per cent (**Table 6.1b**). What is crucial to note is that only with the addition of field beans to the existing crop (ragi), income can be increased by 28 percent. However, with the advent of irrigation, the income can be enhanced over rainfed by at least 260 percent. With the advent of irrigation, adopting IFS, the income can be enhanced from Rs. 151870 per acre to Rs. 207557 per acre an increase by 35 percent. If we can discern the increase in income due to irrigation and due to livestock components separately. Due to irrigation alone (without IFS) income increased by 285 %, and due to both irrigation and IFS, income increased by 315 %.

Table 6.1a: Income from existing and proposed crop combinations in Eastern dry Zone (Kolar District) (Rs)

Sl. No.	EXISTING CROPPING PATTERN				PROPOSED CROPPING PATTERN		
	Crop combinations	Sample Farmers	Area (Ac)	Per acre Gross income	CROP combinations	Per acre Gross income (Rs.)	% Change
1	Ragi	2	2.5	18250	Ragi+ Field bean	23400	28.22
2	Ragi, Redgram	7	17.5	36080	Ragi+ Field bean, Groundnut + Redgram	39825	10.38
3	Ragi, Redgram, Mulberry	2	13.5	85304	Ragi+ Field bean, Groundnut + Redgram, mulberry	129825	52.19
4	Ragi, Cauliflower, Tomato, Mulberry	1	14	124012	Ragi Redgram, Vegetables, mulberry	179825	45.01
5	Ragi, Redgram, Mango	2	22	89451	Ragi+ Field bean, Groundnut+ Redgram, Mango + Sapota	129825	45.14
6	Ragi, Redgram, Sunflower	1	3	38071	Ragi + Field bean, Groundnut + Redgram, Sunflower	51200	34.49
7	Ragi, Cauliflower, Tomato, Potato	1	3	78541	Ragi Redgram, Vegetables	89825	14.37
8	Ragi, Mulberry, Tomato	1	3	121451	Ragi + Redgram, Vegetables, mulberry	189200	55.78
9	Ragi, Tomato, Sesame	1	10	65784	Ragi + Redgram, Vegetables	89825	36.55
10	Ragi, Redgram, Wheat, Sunflower	1	14	45897	Ragi + Field bean, Groundnut + Redgram, Sunflower, Maize	68700	49.68
11	Ragi, Redgram, Sesame, Tomato, Mulberry, Beans	1	12	125481	Ragi + Redgram, Vegetables, Mulberry	179825	43.31
12	Ragi, Mulberry, Tomato, Redgram	1	8	132233	Ragi+ Field bean, Groundnut + Redgram, mulberry, Vegetables	194825	47.33
13	Redgram, Wheat, Mulberry, Tomato	1	5	114224	Groundnut + Redgram, Maize, mulberry, vegetable	188925	65.40
14	Ragi, Sesame, Tomato, Mulberry	2	11.75	125412	Ragi + Redgram, Vegetables, Mulberry	179825	43.39
15	Ragi, Redgram, Wheat, Sunflower, Mulberry, Mango, Tomato, Brinjal, Rubber	1	17	232145	Ragi+ Field bean, Ragi + Redgram, Maize, Groundnut + Redgram, Sunflower, Vegetables, Mango + Sapota	248525	7.06
	Weighted Avg. income from crops per acre		156 ac	103054	Weighted Avg. income from crops per acre	139052	35
	Weighted Avg. income from IFS (crops+LS) (from Table 6.1b)			151870	Weighted Avg. income from IFS (crops+LS) (fromTable 6.1a)	207557	35

Table 6.1b: Projected Net Income from Livestock in Eastern Dry Agro climatic Zone (Kolar District)

Sl. No.	EXISTING LIVESTOCK			PROPOSED LIVESTOCK		
	Type of animal	No. farmers	Gross Income (Rs.)	Type and No. of animals per family	Gross Income (Rs.)	% change
1	Cow (7)	7	117460	HF Cow (2)+Poultry (10) +Sheep (4+1)	161695.8	37.66
2	Buffalo (2), Goat (5)	1	78432	HF Cow (1)+Poultry (10) +Goat (4+1)	108215.4	37.97
3	Cow (11), Calf (9)	6	112634	HF Cow (1)+Poultry (10) +Sheep (4+1)+Piggery (4+1)	145730.4	29.38
4	Cow (3), Buffalo (1),Calf (2),Sheep (3)	1	74493	HF Cow (1)+Poultry (10) +Sheep (4+1)	98375.4	32.06
5	Cow (1), Goat (2)	1	77432	HF Cow (1)+Poultry (10) +Goat (4+1)	108215.4	39.76
6	Cow (3), Calf (1), Goat (2)	1	67480	HF Cow (1)+Poultry (10) +Sheep (4+1)	98375.4	45.78
7	Buffalo (2),Sheep (5)	1	96391	HF Cow (1) +Sheep (4+1)+Piggery (4+1)	143885.4	49.27
8	Cow (3), Buffalo (1),Sheep (1)	1	67432	HF Cow (1)+Poultry (10) +Sheep (4+1)	98375.4	45.89
9	Cow (2), Buffalo (2)	1	71432	HF Cow (1)+Poultry (10) +Goat (4+1)	108215.4	51.49
10	Cow (1), Sheep (6)	1	54139	HF Cow (1)+Poultry (10) +Sheep (4+1)	98375.4	81.71
11	Cow (1), Buffalo (2), Goat (15),Ox (2)	1	77432	HF Cow (1)+Poultry (10) +Goat (4+1)	108215.4	39.76
12	Calf (2)	1	69432	HF Cow (1)+Poultry (10) +Sheep (4+1)	98375.4	41.69
13	Cow (8), Buffalo (2), Goat (15), Ox (2) ,Sheep (40), Calf (2)	1	207392	HF Cow (3)+Poultry (10) +Sheep (4+1)+Goat (4+1)	268066.2	29.26
	Average income per farmer	24, 156ac	48815.9		68504.9	40.33

Note: Figure in the parenthesis indicates number of animals, (4+1): 4= Female, 1=Male, HF: Holstein Friesians

6.2. Central Dry Agro climatic Zone (CHITRADURGA)

Onion, Maize, cotton are sole crops predominantly cultivated in Chitradurga district forming Central Dry Agro climatic Zone. Cropping pattern such as groundnut with redgram, onion with leafy vegetables, ragi with field bean is dominant. An estimated 39 per cent of the increase in income per acre is due to proposed IFS model. (Table 6.2a). The augmented income through livestock is in Table 6.2b. Due to change in cropping pattern the existing income from Rs. 86186 per acre can be raised to Rs. 118721 per acre. With the inclusion of livestock, the IFS income would be Rs.

91857 per acre under existing cropping pattern and can be increased to Rs. 126400 per acre under proposed cropping pattern with IFS. Thus, the IFS would increase the income per acre by 38 percent.

Table 6.2a: Projected Income from Crops in Chitradurga District

Sl. No	EXISTING CROPPING PATTERN			PROPOSED CROPS			
	CROPS	No. of Framers	Area in acres	Per acre gross income	Proposed crops	Per acre Gross income	Percentage Change
1	Maize, flowers	12	48	68050	Maize, Onion, Jowar +Bengalgram, Groundnut +Redgram	88675	30.31
2	Redgram	1	2	16850	Maize, Sunflower	28875	71.36
3	Ragi, Maize, Paddy	1	7	84561	Cotton, Onion+ Vegetables,	129000	52.55
4	Cotton, Maize, Onion	1	3	160000	Onion, flowers, Flowers,	216000	35.00
5	Onion, Paddy, Onion,	1	4.5	96000	Onion+ Vegetables, Maize	118500	23.44
6	Cotton, Ragi	1	3	65412	Cotton, Onion, Jowar +Bengalgram	82750	26.51
7	Ragi, Groundnut, Onion	1	2	125000	Groundnut +Redgram, Flowers	196375	57.10
8	Onion, Maize,	1	9.5	45500	Cotton, Bengalgram, Sunflower	57375	26.10
9	Maize, Coconut	1	16	124000	Groundnut+ Redgram, Coconut+ Horsegram, Flowers	226825	82.92
10	Maize, Cotton	1	3	53500	Maize, Onion, Groundnut+ Redgram	69925	30.70
11	Ragi, Arecanut, Onion	1	13.5	185401	Flowers, Onion	216000	16.50
12	Onion, Ragi,	1	15	28065	Maize, Sunflower	28875	2.89
13	Onion, Maize, Arecanut	1	5.5	115500	Onion, flowers, Mango +Maize	163500	41.56
14	Ragi, Maize	1	3	83000	Maize, Onion, Vegetables,	118500	42.77
	Average income per acre			86186		118721	39
	Avg. income from (IFS) per acre (from 5.2b)			118084		161918	39

Table 6.2b: Projected Net Income from Livestock in Central dry zone (Chitradurga District) (Rs)

Sl. No.	EXISTING LIVESTOCK			PROPOSED LIVESTOCK		
	Type of animal	No. farmers	Gross Income (Rs.)	Type and No. of animals per family	Gross Income (Rs.)	% change
1.	Cow (2)	4	55500	Goat (4+1), Sheep (4+1)+Poultry (10)	78105	40.73
2.	Cow(1), Goat(4)	1	57500	Goat (4+1),+Poultry (10)+Sheep (4+1)	78105	35.83
3.	Buffalo(1), Cow (2), Goat(6)	2	103500	HF Cow (1)+Goat (4+1), Sheep (4+1)+Poultry (10)	141425.4	36.64
4.	Cow(1), Ox(2), Goat(2), Poultry(5)	1	101500	HF Cow (1)+Goat (4+1), Sheep (4+1)+Poultry (10)	141425.4	39.34
5.	Buffalo (1), Cow (1)	4	75970	HF Cow(1)+Poultry (10)+Goat(4+1)	108215.4	42.44
6.	Buffalo (1), Cow (1), Sheep(6)	4	73500	HF Cow(1)+Poultry (10)+ Sheep (4+1)	98375.4	33.84
7.	Cow(1), Goat(8), Sheep(6)	6	113500	HF Cow (1)+Poultry (10)+Sheep (4+1)+Goat(4+1)	141425.4	24.60
8.	Cow (2), Sheep (8)	1	103500	HF Cow(1)+Goat (4+1),+Poultry (10)+Sheep (4+1)	141425.4	36.64
9.	Cow (1), Buffalo (2)	1	81081	HF Cow(1)+Poultry (10)+Goat(4+1)	108215.4	33.47
	Average income per farmer		31898		43197	35.42

Note: Figure in the parenthesis indicates number of animals, (4+1): 4= Female, 1=Male, HF: Holstein Friesians

6.3. Northern Transition Zone (HAVERI)

Cotton is the dominant crop in Haveri district. Along with the cotton, if the farmers adopt different crop combinations then the farmers' income will be increased up to 34 per cent (**Table 6.3a**). In case of livestock 42 per cent of the income can be enhanced by rearing cows, buffaloes, Black sheep, Goat and backyard poultry along with existing animals (**Table 6.3b**). The income from crops can be enhanced by 30 percent from Rs. 127890 per acre to Rs. 166076 with the change in the cropping pattern. With the introduction of IFS the income can be enhanced by 32 percent from Rs.159820 per acre to Rs. 211693 per acre.

Table 6.3a: Projected Income from Agricultural Crops in Haveri District

Sl. No.	Crops	No. of Framers	Area in acres	Per acre Gross income	Crops	Per acre Gross income	Percentage Change
1	Cotton, Maize	7	29	201541	Cotton, Maize, Tomato, Jowar+ Bengalgram, Vegetables, Green chilli	269650	33.8
2	Cotton, Cabbage	1	2.5	96845	Cotton, green Chilli, Maize, Vegetables	150100	55.0
3	Cotton, Tomato	1	1	98558	Maize, Cotton, Vegetables	110500	12.1
4	Cabbage, Tomato	1	0.75	44100	Maize, Cotton,	50500	14.5
5	Cotton, Maize, Jowar	2	8.5	160900	Cotton, Maize, Vegetables, Tomato, Jowar + Bengalgram, Green Chilli	269650	67.6
6	Cotton, Maize, Okra	2	18	101500	Maize, Cotton, Vegetables	110500	8.9
7	Cotton, Maize, Cabbage	2	30	124517	Cotton, green Chilli, Vegetables, Maize	150100	20.5
8	Cotton, Maize, Cabbage, Tomato	3	32	98699	Maize, Cotton, Vegetables	110500	12.0
9	Maize, Okra, Cabbage, Tomato	1	2.5	112000	Maize, Cotton , Jowar + Bengalgram, Vegetables	129250	15.4
10	Cotton, Maize, Cabbage, Chilli	1	5	89100	Maize, Cotton, Vegetables	110500	24.0
11	Cotton, Maize, Cabbage, Okra	1	2.25	90400	Maize, Cotton, Vegetables	110500	22.2
12	Cotton, Cabbage, Cucumber, Chilli	1	9.88	102100	Maize, Cotton, Vegetables, Drumstick	165500	62.1
13	Cotton, Maize, Tomato, Cucumber, Rajgiri	1	6	96500	Cotton, Maize, Tomato, Dry Chilli	190300	97.2
14	Cotton, Maize, Paddy, Chilli, Tomato	1	7.63	131150	Cotton, Maize, Dry Chilli, Vegetables	154500	17.8
	Average income per acre			127890		166076	30
	Avg. income from IFS considering inc from Table 6.3b			159820		211693	30

Table 6.3b: Projected Net Income from Livestock in Haveri District

Sl. No.	EXISTING LIVESTOCK			PROPOSED LIVESTOCK		
	Type of animal	No. farmers	Gross Income (Rs.)	Type and No. of animals per family	Gross Income (Rs.)	% Change
1.	Ox (8)	3	83722	Buffalo (1)+ Goat (4+1), Black Sheep (4+1)+Poultry (10)	118326	41.33
2.	Poultry (50), Ox (2)	1	30722	Buffalo (1)+Poultry (4+1)	42066	36.92
3.	Buffalo (15), Ox (14)	4	81722	Buffalo (1)+ Goat (4+1), Black Sheep (4+1)+Poultry (10)	118326	44.79
4.	Cow (1), Ox (3), Goat (2), Poultry(10)	1	82722	Buffalo (1)+ Goat (4+1), Black Sheep (4+1)+Poultry (10)	118326	43.04
5.	Buffalo (2), Ox (2), calf (2)	5	73202	Buffalo (1)+ HF Cow(1)+Poultry (10)	105386.4	43.97
6.	Cow (1), Ox (1)	1	105202	Buffalo (1)+ HF Cow(1)+Poultry (10)+Goat(4+1)	148436.4	41.10
7.	Ox, (2) Poultry (5)	2	58722	Buffalo (1)+ Goat (4+1),+Poultry (10)	85116	44.95
8.	Cow (3), Buffalo (3)	1	58722	Buffalo (1)+ Goat (4+1),+Poultry (10)	85116	44.95
	Average income per farmer	18	31929.78		45616.6	42.87

Note: Figure in the parenthesis indicates number of animals, (4+1): 4= Female, 1=Male, HF: Holstein Friesians

6.4. Eastern Dry Zone (TUMAKURU)

Tumakuru is well known for coconut cultivation hence coconut is the major crop widely grown as mono perennial crop. In order to enhance farmers' income, various combinations of crops such as banana, arecanut and vegetables are suggested which enhance the income from Rs. 264997 per acre to Rs. 343152 by 34 percent. With the introduction of IFS the income is enhanced from Rs. 286241 to Rs. 372833 per acre by 30 percent (Tables 6.4a, b).

Table 6.4a: Projected Income from Agricultural Crops in Tumakuru District

Sl. No.	Crops	No. of Framers	Area in acres	Per acre Gross income	Proposed crops	Per acre income	Percentage Change
1	Coconut	2	8	85461	Coconut + Horsegram	130400	52.58
2	Ragi	2	1.5	16541	Ragi + Redgram	24825	50.08
3	Coconut, Arecanut	3	34	185470	Coconut + Horsegram, Arecanut +Vegetables	290400	56.58
4	Coconut, Ragi	3	13.1	234100	Coconut+ Horsegram, Arecanut, Ragi	244600	4.49
5	Coconut, Arecanut, Ragi	1	9	154800	Coconut+ Horsegram, Arecanut, Ragi +Redgram	250225	61.64
6	Coconut, Arecanut, Geranium	1	16	243000	Coconut+ Horsegram, Arecanut+ Vegetables	290400	19.51
7	Coconut, Sunflower, Ragi	1	5	115000	Coconut+ Banana, Ragi+ Redgram, Sunflower	194700	69.30
8	Coconut, Arecanut, Banana, Ragi	2	26	237000	Coconut+ Horsegram, Arecanut+ Banana, Ragi	377100	59.11
9	Coconut, Arecanut, Geranium, Sesame	1	13.75	224000	Coconut+ Maize, Arecanut+ Vegetables, Groundnut +Redgram	319925	42.82
10	Coconut, Arecanut, Ginger, jasmine	1	11.5	335000	Coconut+ Jowar, Arecanut +Vegetables, flowers	475750	42.01
11	Coconut, Arecanut, Sunflower, Ragi	1	12.9	284000	Coconut +Maize, Arecanut+ Vegetables, Groundnut+ Redgram, Ragi+ Redgram	344750	21.39
12	Coconut, Arecanut, Sunflower, Ragi, Others	1	43.63	285000	Coconut +Maize, Arecanut +Vegetables, Sunflower, Ragi	334075	17.22
13	Coconut, Arecanut, Ginger, Geranium, Maize, Sunflower	1	11.77	257500	Coconut +Horsegram, Arecanut +Vegetables, Maize, Sunflower	319275	23.99
14	Coconut, Arecanut, Geranium, Sesame, Maize, Cowpea	1	9.68	278000	Coconut +Maize, Arecanut +Vegetables, Ragi+ Cowpea	326900	17.59
15	Coconut, Arecanut, Ginger, jasmine, Ragi, Geranium	1	12.26	266000	Coconut +Horsegram, Arecanut, flowers, Ragi+ Redgram,	430225	61.74
16	Coconut, Arecanut, Banana, Ragi, Sunflower, Maize	1	61	360100	Coconut +Horsegram, Arecanut+ Banana, Ragi, Sunflower, Maize, Greengram	417225	15.86
17	Coconut, Arecanut, Greengram, Black gram, Ragi, Geranium	1	9	356410	Coconut +Maize, Arecanut +Banana, Greengram + Blackgram, Ragi+ Redgram	418325	17.37
18	Coconut, Arecanut, Sunflower, Greengram, Black gram, Redgram, Ragi, Wheat, Paddy, Rubber	1	8.11	228800	Coconut +Maize, Arecanut +Vegetables, Groundnut +Greengram, Black gram, Redgram +Ragi	361625	58.05
	Average income per farmer			264997		343152	30
	Avg. income per acre with IFS (Tab 6.4b)			286241		372833	30

Table 6.4b: Projected Net Income from Livestock in Tumakuru District

Sl. No.	EXISTING LIVESTOCK			PRPOSED LIVESTOCK		
	Type of animal	No. farmers	Gross Income (Rs.)	Type and No. of animals per family	Gross Income (Rs.)	% change
1.	Cow (16)	7	69980	HF Cow (1)+Poultry (10) +Sheep (4+1)	98375	40.58
2.	Cow (23), Calf (15)	11	79980	HF Cow (1)+Poultry (10) +Goat (4+1)	108215	35.30
3.	Buffalo (4)	1	95000	HF Cow (1)+Poultry (10) +Sheep (4+1)Goat(4+1)	141425	48.87
4.	Cow (2), Buffalo, (1) Calf (2)	1	71980	HF Cow (1)+Poultry (10) +Sheep (4+1)	98375	36.67
5.	Goats (8)	1	75000	HF Cow (1)+Poultry (10) +Goat (4+1)	108215	44.29
6.	Cow(2), Buffalo (1)	1	75438	HF Cow (1)+Poultry (10) +Sheep (4+1)	98375	30.41
	Average income per farmer	22	21244		29681	39.71

Note: Figure in the parenthesis indicates number of animals, (4+1): 4= Female, 1=Male, HF: Holstein Friesians

6.5. Northern Transition Zone (BELAGAVI)

Cotton, maize, Jowar are the prime crops of Belagavi district. With the proposed cropping pattern compatible with the agro climatic conditions of the zone, such as vegetables, fruit crops, the income from crops can be enhanced by 36 percent from Rs. 130999 to Rs. 178258 per acre. With the introduction of IFS, the overall income per acre can be enhanced from Rs. 155279 per acre to Rs. 211009 per acre by 36 percent (**Tables 6.5a, b**).

Table 6.5a: Projected Income from Agricultural Crops in Belagavi District

Sl. No.	EXISTING CROPPING PATTERN				PROPOSED CROPS		
	CROPS	No. of Framers	Area in acres	Per acre Gross income	Proposed crops	Per acre gross income	Percentage Change
1	Cotton, Maize	1	1	35500	Cotton, Maize, sorghum,	61250	72.54
2	Cotton	2	2	38000	Cotton, Maize, sorghum,	55250	45.39
3	Cotton, Jowar, Cabbage	5	12.95	105641	Cotton, sugarcane, Tomato, Jowar+ Bengalgram	207550	96.47
4	sugarcane, Cotton, Jowar	4	18.5	180421	Cotton, sugarcane, Vegetables, Jowar+ Bengalgram, Papaya	274050	51.89
5	Cotton, Jowar, Paddy	1	4.5	81600	Cotton, Maize, sorghum, sugarcane	115250	41.24
6	Sugarcane, Cotton, Maize	2	7	100246	Sugarcane, Cotton, Maize, Jowar +Bengalgram	124250	23.95
7	Cotton, Jowar, Maize	2	6	96841	Cotton, Maize, sorghum, Vegetables	120250	24.17
8	Sugarcane, Cotton	1	3	105412	sugarcane, Cotton, Maize, Jowar +Bengalgram	124250	17.87
9	sugarcane, Cotton, Jowar, Maize	3	18.5	150124	Cotton, sugarcane, Vegetables, Jowar +Bengalgram,	177750	18.40
10	Cotton, Tomato. Okra, sesame	1	4.5	104000	Cotton, Maize, sorghum, Vegetables	120250	15.63
11	sugarcane, Cotton, Tomato, okra	1	6.75	170000	sugarcane, Cotton, Maize, sorghum, Vegetables	180250	6.03
12	Cotton, Maize, Tomato	1	6	96541	Cotton, Maize, sorghum, Vegetables	120250	24.56
13	Cotton, Jowar, Sesame, Maize	1	6	152000	Cotton, Maize, sorghum, Jowar+ Bengalgram, Papaya	176300	15.99
	Average income per acre			130999		178258	36
	Average income per acre with IFS from Table 6.5b			155279		211009	36

Table 6.5b: Projected Net Income from Livestock in Belagavi District

Sl. No.	EXISTING LIVESTOCK			PRPOSED LIVESTOCK		
	Type of animal	No. farmers	Gross Income (Rs.)	Type and No. of animals per family	Gross Income (Rs.)	% change
1.	Buffalos (17)	12	108900	Buffalo (1)+ Goat (4+1), Black Sheep (4+1)+Poultry (10)	158547	45.59
2.	Buffalos (3), Ox (8)	6	65200	Buffalo (1)+ Goat (4+1),+Poultry (10)	85116	30.55
3.	Sheep (2)	1	82200	Buffalo (1)+ Goat (4+1), Black Sheep (4+1)+Poultry (10)	118326	43.95
4.	Goat (16)	2	112000	Buffalo (1)+ HF Cow(1)+Poultry (10)+Goat(4+1)	148436.4	32.53
5.	Buffalo (2), Goat (5)	1	67700	Buffalo (1)+ Goat (4+1),+Poultry (10)	85116	25.73
6.	Cow (1), Buffalo (2),Ox (2)	1	64611	Buffalo (1)+ Goat (4+1),+Poultry (10)	85116	31.74
7.	Cow (2), Buffalo (5),Ox (2), calf (2)	1	82112	Buffalo (1)+ HF Cow(1)+Poultry (10)	105386.4	28.34
	Average income per farmer	24	24280.12		32751.83	34.89

Note: Figure in the parenthesis indicates number of animals, (4+1): 4= Female, 1=Male, HF: Holstein Friesians

6.6. North Eastern Dry Zone (KALABURAGI)

Pulses are the major crops grown in Kalaburagi district, with redgram as a dominant mono crop. By introducing legumes as intercrops along with cotton, maize, vegetables to reduce the risk of crop failure of the tur crop which is prone to pest attack, the income can be increased from Rs. 85522 per acre to Rs 114317 per acre by 34 percent. With the addition of income from IFS, the income per acre can be enhanced from Rs. 102950 per acre to Rs. 138105 by 34 percent (**Tables 6.6a, b**).

Table 6.6a: Projected Income from Agricultural Crops in Kalaburgi District

Sl. No.	EXISTING CROPPING PATTERN				PROPOSED CROPS		
	CROPS	No. of Framers	Area acres	Per acre gross income	Proposed crops	Per acre gross income	Percentage Change
1	Redgram	1	2.28	27000	Redgram, Blackgram, Bengalgram	44250	63.89
2	Redgram, Jowar	1	5	26841	Redgram, Blackgram, Sunflower	37625	40.18
3	Redgram, Cotton	1	6.33	65200	Cotton, Redgram, Drumstick,	98000	50.31
4	Redgram, Sajje	1	3	54142	Redgram, Soybean, Drumstick	80000	47.76
5	Blackgram, Sunflower	1	17	33541	Redgram, Cotton, Soybean,	53000	58.02
6	Redgram, Blackgram, wheat	2	29	54125	Redgram, Sunflower, Vegetables	91375	68.82
7	Redgram, soybean, Cotton	1	2.35	28200	Blackgram, Sunflower, Redgram, Cotton, Soybean	40875	44.95
8	Redgram, Blackgram, Greengram	5	65.95	164050	Redgram, Blackgram, Cotton, Maize, Drumstick, Papaya,	205641	25.35
9	Redgram, Blackgram, Jowar	1	4.18	42600	Sunflower, Redgram, Cotton, Soybean,	64375	51.12
10	Redgram, Sajje, Sunflower	1	12	38951	Redgram, Blackgram, Sunflower,	55981	43.72
11	Redgram, Blackgram, Soybean	2	24.5	64152	Redgram, Soybean, Drumstick,	80000	24.7
12	Cotton, Blackgram, wheat	1	2.5	35600	Cotton, Redgram, Sunflower,	54375	52.74
13	Redgram, Blackgram, Sunflower	1	10	91258	Redgram, Blackgram, Sunflower, Vegetables	102625	12.46
14	Redgram, Cotton, Sunflower	1	8	40891	Redgram, Blackgram, Sunflower, Cotton,	65625	60.49
15	Redgram, Blackgram, Sesame	1	3	23900	Redgram, Blackgram, Sunflower,	37625	57.43
16	Cotton, Blackgram, Soybean	1	2.25	55200	Redgram, Blackgram, Cotton, Greengram	72250	30.89
17	Sunflower, Greengram, Blackgram	1	6	54000	Redgram, Blackgram, Sunflower, Drumstick	92625	71.53
18	Redgram, Cotton, Greengram	1	9	52300	Blackgram+ Groundnut, Sunflower, Redgram, Cotton, Soybean	86425	65.25
19	Redgram, Sajje, Greengram	1	9	66325	Redgram, Groundnut, Blackgram, Bengalgram, Cotton	83050	25.22
	Average income per acre			85522	Average income per acre	114317	34
	Average income per acre with IFS from Table 6.6b			102950	Average income per acre with IFS from Table 6.6b	138105	34

Table 6.6b: Projected Net Income from Livestock in Kalaburgi District

Sl. No.	EXISTING LIVESTOCK			PROPOSED LIVESTOCK		
	Type of animal	No. of farmers	Gross Income (Rs.)	Type and No. of animals per family	Gross Income (Rs.)	% change
1.	Ox (12)	6	88000	Goat (4+1), Black Sheep (4+1)+Poultry (10)+Buffalo(1)	118326	34.46
2.	Goat (16)	5	60800	Sheep(4+1)+ Goat (4+1),+Poultry (10)	78105	28.46
3.	Cow (2), Ox (2),Sheep (2),Goat (4),Poultry (8)	1	61000	Goat (4+1), Black Sheep (4+1)+Poultry (10)	78105	28.04
4.	Poultry (30), Cow (4)	4	62500	Goat (4+1), Black Sheep (4+1)+Poultry (10)	78105	24.97
5.	Cow (1), Ox (2), Goat (4)	2	47980	HF Cow(1)+Poultry (10)	65165.4	35.82
6.	Cow (3), Ox (4)	5	62980	HF Cow(1)+Poultry (10)+Goat(4+1)	108215.4	71.83
7.	Buffalo (2)	1	35000	Goat (4+1),+Poultry (10)	44895	28.27
8.	Average income per farmer	24	17428	Average income per farmer	23788.2	28.27

Note: Figure in the parenthesis indicates number of animals, (4+1): 4= Female, 1=Male, HF: Holstein Friesians

6.7. North Eastern Dry Zone (RAICHUR)

Cotton is the major commercial crop of Raichur district. With the introduction of crops such as chilli, jowar, maize, redgram, sunflower, Bengalgram and other crops, the crop income can be raised. The income from crop combinations can be raised from Rs. 79501 per acre to Rs. 99746 by 25 percent and with IFS, the income can be enhanced from Rs. 125593 per acre to Rs. 160169 per acre by 27 percent (**Tables 6.7a,b**).

Table 6.7a: Projected Income from Agricultural Crops in Raichur District

Sl. No.	EXISTING CROPPING PATTERN				PROPOSED CROPS		
	Crops	No. of Framers	Area in acres	Per Acre gross income	Proposed crops	Per acre Gross income	Percentage Change
1	Cotton, Chilli	13	128.25	98541.0	Cotton, Paddy, Bengalgram, Jowar, Maize	105650	7.21
2	Cotton, Jowar, Chilli	3	42	65841	Cotton, Jowar, Maize, Chilli	99250	50.74
3	Cotton, Chilli, Redgram	2	17	61452	Cotton, Redgram, Jowar +Bengalgram, Maize	79250	28.96
4	Cotton, Chilli, Paddy	1	28	80612	Chilli, Redgram, Jowar+ Bengalgram, Groundnut +Redgram	94175	16.83
5	Cotton, Redgram, Paddy	1	26	79845	Cotton, Redgram, Paddy, Jowar +Bengalgram	94150	17.92
6	Cotton, Chilli, Redgram, Jowar	1	30	65842	Cotton, Maize, Jowar, Bengalgram, Chilli, Groundnut	128050	94.48
7	Cotton, Chilli, Jowar, Sunflower	3	55	55841	Sunflower, Redgram, Paddy, Bengalgram +Jowar	77525	38.83
8	Cotton, Chilli, Jowar, Paddy	1	12.25	88461	Cotton, Chilli, Jowar+ Bengalgram, Paddy	123150	39.21
	Average income per acre			79501	Avg. income per acre	99746	25
	Avg. income with IFS per acre			125593	Avg. income with IFS per acre	160169	25

Table 6.7b: Projected Net Income from Livestock in Raichur District

Sl. No.	EXISTING LIVESTOCK			PRPOSED LIVESTOCK		
	Type of animal	No. of farmers	Gross Income (Rs.)	Type and No. of animals per family	Gross Income (Rs.)	% change
1	Ox (14)	7	115000	Buffalo (2)+ Goat (4+1), Black Sheep (4+1)+Poultry (10)	158547	37.87
2	Cow (1), Buffalo (2), calf (3)	1	63600	Buffalo (1)+ Goat (4+1),+Poultry (10)	85116	33.83
3	Cow (2), Ox (2), Sheep (2), Goat (20), Poultry (8)	1	126340	Buffalo (2)+ Goat (4+1), Black Sheep (4+1)+Poultry (10)	158547	25.49
4	Poultry (55), Goat (18)	2	94650	Buffalo (1)+ Goat (4+1), Black Sheep (4+1)+Poultry (10)	118326	25.01
5	Cow (1), Ox (2), Goat (4)	1	80680	Buffalo (1)+ HF Cow(1)+Poultry (10)	105386.4	30.62
6	Goat (5), Ox (2)	1	50000	HF Cow(1)+ Goat (4+1)	63320.4	26.64
7	Buffalo (1), calf (2), Sheep (2), Poultry (50)	1	67200	Buffalo (1)+ Goat (4+1),+Poultry (10)	85116	26.66
8	Cow (3), Ox (4)	2	64200	Buffalo (1)+ Goat (4+1),+Poultry (10)	85116	32.58
9	Cow (1), Ox (2), calf (2), Goat (1), Poultry (6)	1	66000	Buffalo (1)+Poultry (10)+Goat(5)	85116	28.96
10	Buffalo (5), Ox (2)	1	67700	Buffalo (1)+Poultry (10)+Goat(5)	85116	25.73
11	Buffalo (2) Calf (3)	1	80376	Buffalo (1)+ Goat (5), Black Sheep (5)+Poultry (10)	118326	47.22
	Average income per farmer	19	46091.89		60422.78	31.09

Note: Figure in the parenthesis indicates number of animals, (4+1): 4= Female, 1=Male, HF: Holstein Friesians

6.8. Coastal Zone (DAKSHINA KANNADA)

Areca nut and paddy are the major crops cultivated in coastal zone. A vast majority of farmers are practicing mono cropping of areca nut as the zone receives sumptuous rainfall. The existing income is around Rs. 360768 per acre, which can be enhanced to Rs. 599447 per acre by 66 percent. With the addition of income from IFS, the existing income can be enhanced from Rs. 382118 to Rs. 631427 per acre by 66 percent (**Tables 6.8a, b**)

Table 6.8a: Projected Income from Agricultural Crops in Dakshina Kannada District

Sl. No.	Crops	No. of Framers	Area in acres	Per acre Gross income	Proposed crops	Per acre Gross income	Percentage Change
1	Arecanut	3	12	257000	Arecanut +Pepper, Cashew	330000	28.40
2	Paddy, Vegetables	4	8.75	237800	Paddy, Arecanut+ Pepper, Vegetables	347400	46.09
3	Arecanut, Paddy	3	9	163000	Arecanut+ Pepper, Paddy,	287400	76.32
4	Arecanut, Cashew	1	3	209180	Arecanut +Pepper, Cashew	330000	57.76
5	Arecanut, Coconut, Banana	1	6	301901	Arecanut +Pepper, Coconut+ Banana	413500	36.97
6	Arecanut, Ivyguard	1	4	209018	Arecanut, Paddy, Banana	359900	72.19
7	Arecanut, Paddy, Banana	1	5.5	250651	Arecanut+ Pepper, Banana+ Vegetables	452500	80.53
8	Arecanut, Coconut, Ivy guard	1	4	209028	Arecanut +Pepper, Coconut +Banana, Paddy	445900	113.32
9	Arecanut, Paddy, Coconut	4	12.01	384036	Arecanut +Pepper, Paddy+ Vegetables, Coconut +Banana	510900	33.03
10	Arecanut, Paddy, Coconut	1	2	319018	Arecanut, Paddy, Coconut+ Banana	385900	20.96
11	Arecanut, Coconut, Pepper	1	4	401958	Arecanut+ Cashew+ Pepper, Coconut +Banana,	488500	21.53
12	Arecanut, Coconut, Banana, Pepper	2	9	339186	Arecanut +Pepper, Coconut +Banana, vegetable	478500	41.07
13	Arecanut, Paddy, Rubber, Coconut, Ivyguard	1	97	402182	Arecanut+ Pepper, Paddy, Vegetables, Coconut,	693400	72.41
14	Arecanut, Paddy, Coconut, Pepper, Banana,	1	18	502161	Arecanut, Paddy, Vegetable, Coconut+ Banana, Pepper, Banana,	958400	90.86
	Average income per acre			360768	Avg. income per acre	599447	66
	Avg. income with IFS per acre			382118	Avg. income with IFS per acre	631427	66

Table 6.8b: Projected Net Income from Livestock in Dakshina Kannada District

EXISTING LIVESTOCK			PROPOSED LIVESTOCK		
Type of animal	No. farmers	Gross Income (Rs.)	Type and No. of animals per family	Gross Income (Rs.)	% change
Cow (21)	9	148500	Piggery (4+1)+ fishery (500 fingerlings),	231855	56.13
Piggery (10)	1	65000	Piggery(4+1)+ fishery (300 fingerlings)	87945	35.30
Average income per farmer	10	21350		31980	49.79

Note: Figure in the parenthesis indicates number of animals, (4+1): 4= Female, 1=Male,

6.9. Income from crops and IFS in study districts in different agro climatic zones

The income from existing cropping pattern, livestock and proposed cropping pattern and livestock are provided in Table 5.9. The existing income from crops range from Rs. 79501 per acre in Raichur district to Rs. 360768 per acre in Dakshina Kannada district. The existing income from livestock range from Rs. Rs. 17428 per acre in Raichur district to Rs. 48816 per acre in Kolar district. The proposed income from crops ranges from Rs. 99746 per acre in Raichur district to Rs. 599447 per acre in Dakshina Kannada district. The overall average income from the existing IFS is Rs. 185244 per acre to Rs. 261831 per acre, an increase of 37 percent.

The proposed income can be achieved through the introduction of high yielding varieties like Ragi: Indaf-8, MR-1, MR-2, GPU-28, Paddy: BR-2625, JGL-1798, Jowar: CHS-5, CHS-9, Maize: hybrid Hema, Nithayashree, Redgram: BRG-1, BRG-2, Horsegram: KBH-1, Bengalgram: Annigere-1, Field bean: HA-3, HA-4. Groundnut: TMV-2, Sunflower: KBSH-41, KBSH-42. Animal breeds includes, Buffalo: MURRAH for all the districts Goat: Jamnapuri for all districts Sheep: Rambouillet for other districts except Tumakuru and Kolar, Sheep: Bannur for Tumakuru and Kolar, Pig: Archery for Dakshina Kannada and Kolar Poultry: Giriraja and Girirani for all the districts, Cow: Holstein Friesians for all the districts, Black sheep: Haveri and Belagavi, Raichur and Kalaburagi. Further the socio economic condition, resource availability of the farmer was also considered as the model is unique for each of the farmers. Results from the base line survey indicated prevalence of mono cropping, absence of enterprise diversification, the hindering factors for the lower income levels. Thus proposed model included cropping system suitable to the given area with IFS for enhancing incomes by around 37 percent (**Table 6.9**)

Table 6.9: Average Income from crops and IFS (Rs/acre) in the eight study districts in different agro climatic zones of Karnataka

Zone	District	Income from existing crop pattern	Income from existing livestock	Total Income from IFS (EXISTING)	Income from proposed crop pattern	Income from proposed livestock	Total income from IFS (PROPOSED)	percent increase
Eastern Dry Zone	Kolar	103054	48816	151870	139052	68505	207557	37
Central Dry Zone	Chitradurga	86186	31898	118084	118721	43197	161918	37
Northern Transition Zone	Haveri	127890	31930	159820	166076	45617	211693	32
Eastern Dry Zone	Tumkur	264997	21244	286241	343152	29618	372770	30
Northern Transition Zone	Belagavi	130999	24280	155279	178258	32752	211010	36
North Eastern Dry Zone	Kalburgi	85522	17428	102950	114317	23788	138105	34
North Eastern Dry Zone	Raichur	79501	46092	125593	99746	60423	160169	28
Coastal zone	Dakshina Kannada	360768	21350	382118	599447	31980	631427	65
Average		154865	30380	185244	219846	41985	261831	37

Crops includes: Cereals, pulses, oilseeds, commercial crops, vegetables, fruits and flowers

Livestock includes: Cow, Buffalo, Sheep, Goat, Backyard poultry, Fishery, Piggery.

6.10. Short Run and Long Run Measures to Enhance the Income

The farmers may be provided with additional facilities along with cropping pattern for the enhancement of the total income.

6.10.1. Short Run Measures

➤ Soil Health

The basic objective of the soil-testing is to offer farmers a service to assist farmers' decision-making towards application of scientific dose of fertilizers and nutrients, which leads towards optimal use of fertilizers as well as avoids wasteful use resulting in parsimony. This further leads to economic use of fertilizers and better soil management practices for increasing productivity and incomes. In addition it corrects nutrient imbalance and corrects micronutrient deficiency.

➤ Vermin Compost Unit

The vermin composting technology enables farmers to make scientific use of the existing biomass on the farm and enriching the soil with vermin compost. This component of IFS not only makes better use of local resources, but also results in savings as it reduces dependence on purchased inputs.

➤ Farm Pond : 21M x 21M x3M

Water, the most crucial resource for sustainable agricultural production in the dry land areas needs to be used efficiently and wisely as our rainfed lands receive rainfall on around 30 to 40 rainy days. The excess runoff is captured in the farm pond to enable farmers to provide protective irrigation to crops around as a component of IFS.

➤ Dry Land Horticulture

Dry land horticulture crops such as Mango, Cashew nut, jackfruit, Guava, Citrus, have their role in complementing incomes through IFS thus raising the productivity of rainfed lands. Currently, the productivity of these lands is low as most of these lands as they are in arid and semi arid regions receiving low and inadequate rainfall as also severely drought prone. Thus Dryland horticulture has been included as component of IFS in the proposed model.

➤ Micro Irrigation

Micro irrigation system contains application of water at low volume and frequent interval under low pressure to plant root zone and it is considered as a very economic and efficient plan. According to the scientists there is only 40 per cent efficiency in canal irrigation or surface irrigation system, but if piped irrigation is added with micro irrigation system, substantial water

can be saved, including labor and at the same time productivity of the crops also increased. Thus both water use efficiency and labor use efficiency can be achieved.

➤ **Farm mechanization**

Both economic and physical scarcity of labour, and due to gradual migration of farm labour and involvement in off-farm labour activities to support farm family, labor on farms is becoming scarce. Therefore, partial mechanization of farms has proven economically viable. For operations such as harvesting, combined harvesters have been used and have proved to be economically worthwhile to custom hire such equipments. The IFS requires partial mechanization such as use of rotary weeders, irrigation pumps for lifting water from ponds and wells, and other equipments.

➤ **Marketing Reforms**

Current marketing situation need reforms by linking the existing APMC to E- Market such as e-NAM in order to ensure that marketing is transparent and provides information to farmers and widens the market. This paves the way for farmers to have a greater share in the consumer rupee in due course.

➤ **Value Addition**

Crops which have high value, low weight such as flowers, need to be included in IFS in order to enhance farm incomes, as flowers have assured market and assured price and due to frequent festivals, farmers always find their incomes enhanced by devoting a portion of their crop land to cultivation of flowers.

6.10.2. Long Run Measures

Development Initiatives

Improving farm infrastructure, such as irrigation, fencing, levelling, and construction of farm ponds, contour bunding, undertaking soil and water conservation structures on the farm – these initiatives include increase in productivity through use of improved technology. The use of quality seeds and fertilizers are two important pillars of growth in productivity and complement the infrastructure efforts.

Policies and Reforms

Policy reforms for agriculture to provide soft loans, built good infrastructure such as good roads good market infrastructure, good transport vehicles, contribute substantially to production and incomes.

7. ESTIMATED FARMERS INCOME AND WELFARE IN KARNATAKA FROM DIFFERENT INTERVENTIONS

7.1. Integrated farming systems

The base line data on costs returns from integrated farming systems served as the basis to estimate the benefits / welfare at the State level. Using the baseline data, the average cost per hectare for incorporating integrated farming systems (IFS) worked to Rs. 1,78,500. The average benefit from IFS was estimated at Rs. 3,79,000 and this offered the BC ratio of Rs. 2.12, with a net benefit of Rs. 2,00,500 per ha from IFS. For the estimation of benefits at the state level, it was assumed that IFS would be adopted in 25 percent of the irrigated area and 50 per cent of the rainfed area in the state. Currently the irrigated area in the state is 23,64,000 ha and rainfed area is 74,86,000 ha.

Therefore considering adoption of IFS on 25 percent of irrigated area amounting to 5,91,000 ha, the total estimated cost of implementing IFS is Rs. 10, 549 crores, the total benefit is Rs.22, 399 crores, and the estimated total net benefit is Rs. 11, 850 crores from irrigated areas. And considering the adoption of IFS on 50 percent of the rainfed area of 37,43,000 ha, the total cost works to Rs. 66,813 crores, the total benefit is Rs. 1,41,860 crores and total net benefit is Rs. 75,047 crores from rainfed areas.

By incorporating the rate of adoption of 50 percent, the probability of technical performance of IFS at 0.7 and the rate of depreciation of IFS technology at 10 percent (or factor of 0.9), the total welfare works to Rs. 44,686 crores from unirrigated area, and Rs. 7,056 crores from irrigated area. The rate of adoption, probability of performance and depreciation partially reflect the operation of the law of diminishing marginal returns, which act as correcting factor for linear extrapolation of costs and benefits.

7.2. Soil health

The base line data on cost and returns from soil health was the main source to estimate the income and the total welfare. The average cost incurred in soil test was Rs.150 and the average benefit from test was recorded as Rs.380 per farm on a conservative basis, and the average income generated by spending every one rupee was 2.53. These figures are due to the existing near zero or modest elasticities of production with regard to use of plant nutrients. Further to work out the

welfare, as per baseline study, 41 per cent of the farmers conducted soil test out of which only 22 per cent of the farmers applied fertilizer according to the soil test. In order to estimate the welfare for the State due to soil test, considering 22 per cent of the farmers were considered (1447820 farmers), implementing the soil test, total benefit was observed Rs.55.02 crores from soil test and the cost incurred for getting soil test done was Rs.21.72 crores.

7.3. Health

In base line survey, three major health problems among farmers were noted by the team of doctors from the Kasturba Medical College, Dakshina Kannada, and they were Diabetes, Hypertension and pesticide residues in blood sample. The monthly average cost towards treatment of these illnesses amounted to a minimum of Rs.500 per capita per month to treat diabetes, Rs. 500 per capita per month to treat hypertension and Rs. 4000 per capita per month to treat the illness due to pesticide residues in the blood. From the studies conducted by Harvard School of Public Health and the World Economic Forum, the targeted total benefit worked out to 1.15 (assuming a rate of return of 15 percent of the expenditure). Thus the total welfare works out to Rs. 575 per capita per month for treating diabetes, Rs. 575 per capita per month for treating hypertension and Rs. 4600 per capita per month for treating pesticide residue in blood. From the base line survey, it was found that 35.5 per cent of the farmers were suffering from diabetes, 29 per cent of the farmers were suffering from hypertension and 50 per cent of the farmers were suffering from pesticide residues in blood sample.

Thus, considering the farming population as 54.6 percent of the population (of 6,10,95,297) works to 3,33,58,032 farmers. The welfare from diabetes is Rs. 575 per farmer or Rs. 6900 per year per farmer. Similarly the welfare from hypertension is Rs. 575 per farmer or Rs. 6900 per year per farmer. The welfare from treating pesticide residue in blood is Rs. 4600 per farmer per annum or Rs. 55,200 per year per farmer. Considering 35.5 percent of farmers as suffering from diabetes, the total welfare works to Rs. 1,066 crores per year. Considering 29 percent of the farmers suffering from hypertension, the total welfare from treating hypertension works to Rs. 871 crores.

In the study conducted by Shetty *et al.*, (2011) the medical attention is sought by farmers only in serious health issues due to cost involved in the case of pesticide residues in blood. As most farmers were not aware of the specific symptoms due to pesticide poisoning, the system of health statistics

does not clearly specify cases of poisoning and in many cases of poisoning or death no further investigations are done due to the lack of technical facilities for autopsies. The study further found that the expenditure by farmers and agricultural labourers on health costs for ailments caused by pesticides in a cropping season ranged from Rs. 100 to Rs. 500 and the average number of working days lost due to the sickness ranged from 1 to 5 days depending upon the severity of poisoning. According to the baselines survey the cost of treatment of pesticide residue in blood is Rs. 4000 per month per farmer and the benefits are Rs. 4600 per month per farmer. However, considering the above study, even on a non-conservative basis, the costs (benefits) due to pesticide residues in blood range from Rs. 500 per season of (say 4 months) plus 5 man days lost (@Rs. 300 per man day) works to Rs. Rs. 1500 per season (of 4 months). Thus, on an annual basis the cost saved works to Rs. 1500 plus 15 man days (Rs. 900) amounting to Rs. 2400 per year of three seasons. According to the baselines study the benefits from treating pesticide residues in blood is Rs. 4600 per month per farmer. Reconciling from both studies, the benefit of Rs. 4600 per month can be considered as benefit on annual basis. Thus, considering, 50 percent of the farmers suffering from pesticide residues in their blood, with the benefit of welfare from treatment of pesticide residues in blood at the rate of Rs. 4600 per year, per farmer, the total welfare from treating pesticide residue in blood works to Rs. 1001 crores. Thus, the total benefit from treating farmers' health works to (Rs.1066 crores + Rs. 871 crores + Rs. 1001 cores) Rs. 2,937 crores per year.

7.4. Rural Sanitation

According to the base line survey, Rs.12000 is the total expenditure required per farm household to cover the sanitation and 0.93 hour is saved per person due to sanitation facility at home. Considering a modest wage rate of Rs. 100 per day (as the purpose is for cleanliness of individuals, for the self work, the total benefit is estimated at Rs. 18,250 per household (for four persons per household), this offered the BC ratio of Rs. 1.5, with a net benefit of Rs. 6250 per household. The basis for this benefit is the assumption based on the study conducted by Yugal Joshi (2018), where 62.45 per cent of the population is covered under rural sanitation. Considering the cost of rural sanitation of Rs. 12000 per household, the total cost works to Rs.6,250 crores for the rural population covered (5208023 persons), and the total benefit of Rs. 18,250 per household from sanitation, the total benefit works to Rs. 9,505 crores. Thus, the total net benefit works to Rs.3,255 crores.

7.5. Migration and Rural youth towards agricultural work

According to the baseline study the average annual benefit derived from the Migration and rural youth towards agriculture was recorded Rs.42, 000 per annum, out of the total benefit 50 per cent was taken as annual cost per person (Rs.21,000). In order to work out the overall welfare effects, considering the wage rate of Rs. 350 as the average wage rate in the state for 10 days of work in a month, hence the each person get 120 mandays of work annually and considering 30 per cent of the rural population migrating to the nearest workplace according Economics Survey of Karnataka. As per the study, out of the total rural population (33358032 persons) 30 per cent of the people migrated (10007410 persons). The total cost of seasonal migration being Rs. 21,015 crores was obtained by multiplying annual expenditure per person (Rs.21,000) with total population migrated (10007410 persons). The total benefit was recorded Rs. 42,031 crores which was estimated by multiplying benefit derived per individual migrant (Rs.42,000) with total migrated population (of 10007410 persons). The net benefit from migration to the society was Rs. 21,016 crores.

7.6. Transfer of Technology (TOT)

The benefit per ha due to transfer of technology is estimated by considering total state Gross Domestic Product from agriculture (Rs.1280465 crores) and the total cultivated area (122.67 lakh ha). Thus, the total benefit from the TOT was Rs. Rs. 1,35,698 per ha and cost was estimated by taking 40 per cent on benefit (Rs.54,279/ha). This methodology took into consideration the extent of adoption of HYVs which surpasses 80 percent in most crops and virtually 100 percent in horticulture crops. Thus, 80 per cent of the total area is covered under TOT and 40 per cent of the income is the cost involved due to TOT. The total area covered under TOT was 98,13,600 ha and the total cost incurred was Rs.42,614 crores which is obtained by multiplying per hectare cost (Rs. 54,279/ha) to total area under TOT (98,13,600 ha), considering the rate of adoption of new technology at 80 percent, considering the probability of performance of new technology as 0.7, considering the heavy dependence of agriculture on climate, and considering the rate of depreciation of technology as 10 percent. Thus, the total benefit derived from the TOT was Rs.67,117 crores. Considering the cost as 40 per cent of the benefit with 80 percent of coverage or rate of adoption of new technology, 0.7 as probability of performance and 10 percent as depreciation, the total net benefit works to Rs. 24,503 crores and this offered the BC ratio of 2.5 and is in line with Behera, *et al.*, (2014).

7.7. Convergence of Govt. programs

The overall welfare due to convergence is Rs.44 crores considering Rs.437 as the cost on convergence of Govt. programmes as per the study of Karnataka State Convergence Plan (2014). This calculation was made based on the assumption that, 25 per cent of total area is under convergence (3066750 ha). As per the baseline, per hectare cost was recorded Rs. 1,425 and total benefit was Rs. 1, 568 which is 10 per cent higher on income.

Considering the different strategies to enhance income and welfare of farmers, major portion of welfare is derived from transfer of technology (37.79%), followed by migration and rural youth (32.41%), Integrated Farming System (IFS) (20.14%). (Table 7.1)

Table: 7.1. Estimated farmer's income and welfare in Karnataka

Sl. no.	Strategies	Cost (Rs./ha) or Rs.per cap per year	Benefit (Rs./ha) or Rs. Per cap per year	B:C ratio	Welfare					Percentage to total	
					Assumptions	Dimensions		Cost (Crores)	Benefit (crores)		Welfare or Net social benefit (Crores)
						Irrigated (lakh ha)	Unirrigated (lakh ha)				
1	IFS	178500	379000	2.12	25 and 50 per cent of the irrigated and rainfed area covered under IFS respectively	591000	3743000	38681	51741	13061	20.14
2	Soil health (per soil sample)	150	380	2.53	22 per cent of the farmers applied fertilizer as per the soil test		1447820	21.72	55.02	33	0.05
•	Diabetes (% of farmers)	6000	6900	1.15	35.5 per cent of the farmers 33358032		11842101	7105	8171	1066	1.64
•	Hyper tension (% of farmers)	6000	6900	1.15	29 per cent of the farmers suffering		9673829	5804	6675	871	1.34
•	Pesticide residue in blood (% of farmers)	4000	4600	1.15	50 per cent of the farmers suffering		16679016	6672	7672	1001	1.54
4	Rural sanitation (per person)	12000	18250	1.521	62.45 per cent of the population covered under rural sanitation		5208023	6250	9505	3255	5.02
5	Migration and Rural youth towards agricultural work	21000	42000	2	Rs. 350 is the average wage in the state , 30 per cent of the rural population migrated		10007410	21015	42031	21016	32.41
6	Benefit from transfer of technology	54279	135698	2.5	Considering 0.8 of area * 0.7as probability of performance*0.9 as depreciation		9813600	42614	67117	24503	37.79
7	Convergence o Govt. programs	1425	1568	1.1	25 percent of the area cultivated is under convergence		3066750	437	481	44	0.07
8	TOTAL									64848	100.00

8. FINDINGS AND POLICY SUGGESTIONS

8.1. Findings

8.1.1. Socioeconomic Characteristics and Cropping Pattern

- Majority of the sample farmers were male (86%). About 58 per cent of the farmers belonged to age group between 36 and 60 years. The average size of the family was between five and six members.
- The OBCs formed the largest social group (59%) among the farmers surveyed as compared with other social categories.
- About 67% of the farmers were literate and there were few farmers with education up to degree level and some were diploma holders
- About 78 percent of the farmers depended on agriculture for their livelihood (78%). Around 24 per cent of the farmers were unemployed (in Kalaburgi).
- About 22 per cent of the farmers applied fertilizers as per soil test. About 60 per cent of the farmers were unaware of the soil test and accordingly did not get their soil tested.
- Marginal and small farmers operated 65 per cent of the total operational land followed by Medium (18%) and Large (16%). The total operated area per household was 6.8 acres.
- Largely agricultural crops were cultivated under rainfed conditions with the exception of horticulture crops. In Kolar district, mulberry occupied 24% of the gross cropped area followed by Ragi (19%), sunflower (15%), mango (14%), redgram (11%) and others (17%). In Chitradurga district, ragi occupied 9 percent followed by onion (8%). In Haveri district, Maize occupied 42 % followed by cotton (33%) and cabbage (11%). In Tumakuru coconut occupied 51% of the area followed by arecanut (40%). In Belagavi, Cotton occupied 39% of the gross cropped area followed by sugarcane (25%) and maize (12%). In Kalaburgi district, area under redgram formed 54 percent of the gross cropped area followed by Blackgram (18%), Greengram (6%). In Raichur district, the highest proportion

of area was under cotton (43%), followed by chilli (37%), and Jowar (9%). In Dakshina Kannada district, Arecanut (46%) and paddy (10%) were the major crops.

8.1.2 Economics of crop cultivation and income status of the sample farmers

- The net returns per acre realized was the highest from cultivation of Arecanut in Tumakuru (Rs.1,44,189), followed by cotton in Haveri (Rs.21,156) and coconut in Tumakuru (Rs.16,611). The highest expenditure on cultivation was incurred on Arecanut (Rs.1,26,808), followed by coconut (Rs.45,653), and cotton (Rs.40,597) in these districts. Farmers realized net loss in jowar (Rs.4,376), Blackgram (Rs.2,147), and Greengram (Rs.1,500).
- Agriculture provided the major source of annual income followed by animal husbandry. The support from PDS was adequate. The average annual income from agriculture was Rs.2,72,930 per household. Large farmers realized higher income from agriculture (Rs.3,62,500 per household) followed by marginal farmers (Rs.3,49,346 per household) and medium farmers (Rs.3,02,839 per household). Annual income derived from animal husbandry was Rs. 34,509 per HH. Among the farmers categories, the highest income derived from animal husbandry was by large farmers (Rs, 42,627 per HH) followed by medium (Rs. 41,917 per HH) and small farmers (Rs.37,881per HH). From PDS, large farmers received Rs.5,397 per HH, followed by medium (Rs. 5,295per HH) and small farmers (Rs.5,132 per HH). Thus, large farmers received the gross income of Rs.4, 10,525 per HH followed by marginal (Rs.3,76,452 per HH) and medium farmers (Rs.3,50,050 per HH)
- Net income obtained from the different non-farm activities varied from nil to Rs. 1,066 per month per farmer. On an average 22 per cent of the farmers were working as daily wage earners with the net income of Rs. 315 per month per farmer; 6.5 per cent of the farmers were working under NREGA realizing monthly average income of Rs. 187 per capita; 1 per cent of the farmers were employed in business with a net income of Rs.525; 2.5 per cent of the farmers were generating net income of Rs. 1066 from hiring out machineries; 15.5 per cent of the farmers generated a net income of Rs.830 from other activities. Around 50 per cent of the farmers were engaged in nonfarm activities to earn the net income of Rs. 536 per month per person.

- The net income earned from hiring out farm machineries was Rs. 409 per machinery. The results indicated that, except tractor and bullock cart, the rest of the listed farm implements were not taken for rent. In KVKs income from hired out implement amounts to Rs. 2,286 per implement in Chitradurga and Rs. 747 in Raichur.
- Nearly 78 per cent of the farmers availed loan from institutional sources. The average borrowing per farmer was Rs. 95,238 and their repayment formed 15 per cent of the total loan. Out of the total amount availed, 75 per cent of the amount was outstanding.
- About 50 percent of the farmers obtained loan from non-institutional sources. The average institutional loan borrowed was Rs.68,900 of the repayment formed only 2.63 per cent of the total amount repaid.
- Considering the support provided by development departments a majority of the farmers received benefits from agricultural department (20.5%) followed by department of animal husbandry (2.5%). The subsidy from agricultural department (Rs. 27, 857) followed by horticulture department (Rs.21, 500) and animal husbandry (Rs.8,056).

8.2. Policy Suggestions

- Due to the adoption of IFS on the farm, the farm incomes can be enhanced by at least 30 percent on a conservative basis considering both irrigated and rainfed lands on the farm. The advent of irrigation results in doubling of farm income with the adoption of the appropriate cropping pattern. The advent of irrigation in IFS results in sustainable farm incomes enhancing the farm income by sustaining the enhanced farm incomes.
- Creating awareness and incentives to encourage crop and enterprise diversification among farmers is needed depending on the resource availability as this can minimize the risk in agriculture and also can maximize income.
- This study revealed that nearly 60 per cent of the farmers were unaware of soil test and its benefits. Hence awareness must be created among the farmers towards soil testing for following the recommendation based on test results.

- Appropriate cropping pattern must be suggested exclusively to individual farmers based on the soil type, socio economic condition and infrastructure available. This needs to be taken care by the extension personnel. Post implementation of the suitable model, timely monitoring and guidance may be given to the farmers to ensure better results.
- This study revealed that majority of the farmers could cultivate only in kharif season as they were largely dependent on monsoonal rainfall. Thus, with constraints of irrigation and rainfall, farmers could hardly take up crops in rabi. Hence farmers must be educated regarding the various cropping pattern suitable for varied weather conditions and the knowledge regarding judicious use of irrigation water. .
- Excessive use of inputs and traditional methods of cultivation have resulted in higher cost of cultivation. Hence farmers must be educated regarding right input dose and modern cost saving techniques in farming to reduce costs.
- Excess use of chemicals has affected soil fertility reducing productivity levels. Hence imparting knowledge to farmers regarding restoring soil fertility by applying farm yard manures, practicing organic cultivation are the need of the hour.
- Suitable IFS models must be designed, specific to each locality that can enhance the farmer's income. This can improve the income and livelihood status of the farmers.
- Livestock is been the additional source of farmers income. Extensive research on improvement of livestock health and nutrition, breed improvement are the measures to be taken.
- Promoting group marketing, organized marketing works well for produce with relatively elastic demand such as milk, fruits, vegetables, when compared with produce with relatively inelastic demand such as food grains. Such efforts for food grains can be coupled with the existing cooperative marketing / FPOs and similar efforts to gain advantage of the bargaining power already available with farmers in the villages.
- Encouraging cultivation of millets will enhance farm incomes especially as small millets such as Fox tail millet, Kodo millet, Proso millet, Little millet and Barn yard millet high

value – low water crops and they come to harvest within 80 days. They are also called climate smart crops which can enhance farm incomes through assured marketing since there is assured market for these crops in urban areas due to increasing proportion of diabetic and obese population. Farmers need to make use of this opportunity and enhance supply for the benefit of people.

REFERENCE

Behera, S. K., Maharana, J. R. and Acharya, P., (2014) "Transfer of Technology through Krishi Viganana Kendra for the Tribal farmers in Hilly Areas of Koraput District". *Indian Journal of Hill Farming* 27(2): 34-37.

http://www.kiran.nic.in/pdf/IJHF/Vol27_2/8%20Transfer%20of%20Technology%20through%20Krishi%20Vigyan%20Kendra%20for%20the.pdf

[Chandrakanth, M.G., and Akarsha, B.M., Green development for sustainable agriculture, FKCCI World, May 2011, pp. 11-13. \(https://www.toenre.com/downloads/2011_05_fkcci-green-development-for-sustainable-agriculture.pdf\)](https://www.toenre.com/downloads/2011_05_fkcci-green-development-for-sustainable-agriculture.pdf)

[Chandrakanth, M. G., Water Resource Economics, Towards a sustainable use of water for irrigation in India, Springer, New York, 2015 Economic Survey of Karnataka \(2018\).\(http://shodhganga.inflibnet.ac.in/bitstream/10603/92260/12/12chapter%204.pdf\)](http://shodhganga.inflibnet.ac.in/bitstream/10603/92260/12/12chapter%204.pdf)

Shetty, P. K., Murigendra Hiremath, Mutuswamy Murugan and Rajendra Nerli, (2011) "Farmer's health externalities in pesticide use predominant regions in India", *World Journal of Nuclear Science and Technology* 1(4).
<https://www.researchgate.net/publication/268364041>.

Yugal Joshi (2018) "Real status of Rural Sanitation" *Economic and Political Weekly* :(LIII) 28.
<https://www.epw.in/journal/2018/28/discussion/real-status-ruralsanitation>

ANNEXURE

Annexure 1: Farmer's Category Wise Cropping Pattern

Crop group	Name of crop	PERCENT TO TOTAL AREA					CULTIVATED AREA PER HH (ACRES)				
		Percent area of crop to total area of marginal farmers cultivated in the district	Percent area of crop to total area of small farmers cultivated in the district	Percent area of crop to total area of medium farmers cultivated in the district	Percent area of crop to total area of large farmers cultivated in the district	Percent area of crop to gross cropped area of district	Marginal	Small	Medium	Large	Total
Kolar	Ragi	55.56	29.30	20.69	11.45	19.12	1.25	1.28	2.14	7.50	2.04
	Redgram	25.93	17.83	11.03	7.63	11.12	0.88	1.00	2.00	5.00	1.68
	Mulberry	14.81	15.29	33.10	22.90	24.20	2.00	2.00	4.80	30.00	6.20
	Mango	0.00	20.38	11.03	15.27	14.05	0.00	8.00	8.00	20.00	12.00
	Sunflower	0.00	2.55	0.00	28.24	14.83	0.00	1.00	0.00	18.50	12.67
	Others	3.70	14.65	24.14	14.50	16.68	0.50	0.82	1.75	3.80	1.86
	TOTAL	100.00	100.00	99.99	99.99	100.00	1.13	1.40	2.69	10.08	3.20
Chitradurga	Ragi	23.08	9.90	4.69	4.55	9.26	4.50	1.67	1.50	1.50	2.08
	Onion	0.00	6.93	10.94	12.12	8.15	0.00	1.75	1.75	4.00	2.20
	Arecanut	46.15	0.00	6.25	0.00	8.15	9.00	0.00	2.00	0.00	5.50
	Unspecified crops	30.77	65.35	71.88	60.61	60.74	2.00	3.00	4.60	6.67	3.73
	Others	0.00	17.82	6.25	22.73	13.70	0.00	2.25	1.00	3.75	2.31
	TOTAL	100.00	100.00	100.01	100.01	100.00	3.90	2.53	2.91	4.71	3.14
Haveri	Maize	41.14	45.83	34.04	44.74	41.53	2.03	1.83	2.43	6.25	2.80
	Cotton	36.71	31.25	32.28	31.32	32.90	1.61	1.25	2.30	4.38	2.13
	Tomato	3.16	6.25	5.61	2.68	4.03	0.42	0.75	1.00	1.50	0.78
	Cabbage	11.39	6.25	11.23	13.42	11.29	0.90	1.50	2.00	2.50	1.59
	Others	7.59	10.42	16.84	7.84	10.24	0.25	1.25	0.00	0.00	1.13
	TOTAL	99.99	100.00	100.00	100.00	99.99	1.07	1.41	2.55	4.66	1.94
Tumakuru	Ragi	7.44	5.63	25.25	1.64	6.96	1.07	1.36	3.00	1.00	1.42
	Coconut	47.25	58.30	46.30	45.90	51.26	5.29	6.40	5.50	28.00	6.82
	Arecanut	38.71	28.59	16.84	45.90	34.45	7.80	3.83	2.00	28.00	6.21
	Sunflower	0.99	0.50	0.00	1.64	0.85	0.33	0.30	0.00	1.00	0.43
	Others	5.61	6.98	11.62	4.92	6.48	0.63	0.60	0.69	1.50	0.68
	TOTAL	100.00	100.00	100.01	100.00	100.00	3.05	2.94	2.38	10.17	3.40
Belagavi	Jowar	31.61	18.40	12.03	0.00	18.05	0.87	1.07	1.58	0.00	1.09
	Maize	3.04	11.66	16.46	0.00	12.15	0.50	0.95	1.63	0.00	1.18
	Cotton	53.19	40.49	31.65	0.00	39.04	0.97	1.65	2.08	0.00	1.51
	Sugarcane	12.16	22.09	32.91	0.00	24.82	1.00	1.80	3.25	0.00	2.18

	Others	0.00	7.36	6.96	0.00	5.95	0.00	0.00	0.00	0.00	0.72
	TOTAL	100.00	100.00	100.01	0.00	100.01	0.63	1.51	2.32	0.00	1.38
Kalaburagi	Redgram	74.65	42.97	45.77	49.12	53.89	9.57	1.70	4.50	6.81	5.68
	Greengram	5.85	0.00	0.00	9.87	6.30	1.50	0.00	0.00	1.83	1.74
	Blackgram	11.70	14.81	35.60	15.77	18.27	1.50	0.98	4.67	2.92	2.53
	Sunflower	0.00	0.00	2.54	16.22	8.58	0.00	0.00	1.00	4.50	3.80
	Others	7.80	42.21	16.09	9.01	12.96	1.33	1.04	2.11	2.00	1.51
	TOTAL	100.00	99.99	100.00	99.99	100.00	3.94	1.24	3.58	3.83	3.21
Raichur	Paddy	0.00	0.00	0.00	8.51	5.76	0.00	0.00	0.00	6.50	6.50
	Jowar	0.00	10.62	0.00	11.45	8.64	0.00	3.00	0.00	3.75	3.66
	Cotton	50.00	53.10	57.45	37.95	43.13	8.50	3.00	4.50	7.25	5.84
	Chilli	50.00	36.28	31.91	36.21	37.00	8.50	2.05	2.50	7.55	5.22
	Others	0.00	0.00	10.64	5.89	5.47	0.00	0.00	2.50	2.70	2.64
	TOTAL	100.00	100.00	100.00	100.01	100.00	8.50	2.57	3.36	6.03	5.05
Mangaluru	Paddy	16.66	15.79	11.11	5.15	10.30	1.03	1.25	2.00	5.00	1.43
	Arecanut	75.66	80.00	44.44	20.62	45.81	2.80	4.75	8.00	20.00	4.24
	Ivy gourd	3.60	0.00	0.00	10.31	6.18	2.00	0.00	0.00	10.00	6.00
	Rubber	0.00	0.00	0.00	61.86	30.89	0.00	0.00	0.00	60.00	60.00
	Others	4.07	4.21	44.44	2.06	6.83	0.75	1.00	2.67	2.00	1.66
	TOTAL	99.99	100.00	99.99	100.00	100.01	1.98	2.97	3.60	19.40	4.22



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