UNIVERSITY OF HORTICULTURAL SCIENCES BAGALKOT

Baseline Survey for Agricultural Biodiversity in Vijayapur District of Karnataka

2014

Horticultural Research and Extension Station
Vijayapur (Tidagundi – 586 119)
Karnataka

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Foreword

India's greatest challenge during post independence era was self sufficiency in food grain production. The mammoth challenge was addressed by Green Revolution followed by a series of yellow, white, blue revolutions etc. The challenge was persistent with the growing population and addressed by the agriculture sector time to time to ensure the hunger free India. At present food sufficiency has become an achievement and nutritional security has become a challenge at global level with no exception to India. Crop diversity and the nutritional diversity are the major intervened issues that need to be documented in developing and under developed countries to create the data base for better addressing the issue of malnutrition.

On this line, the University of Horticultural Sciences, Bagalkot, Karnataka, in association with Bioversity International, New Delhi took up the venture of creating the inventory of biodiversity in general and crop diversity in specific, along with the dietary and market diversity in three selected villages *viz*., Balaganur, Mannur and Nandyal of Vijayapur district through a survey covering 200 households. The valuable findings of the survey and the data base generated during present endeavour will be of immense use to address the global challenge of "Malnutrition" through creation of broad biodiversity.

I congratulate the scientists of Horticulture Research and Extension Centre, Vijayapur for their active participation in baseline survey, sincere efforts in collecting the information of rural households and its systematic presentation in the form of this report. I take this opportunity to thank Dr. S. B. Dandin, the Former Vice Chancellor of this university and presently the Liaison Officer, Bioversity International Southern Centre of Sub-Regional office for South Asia, for guiding the team in carrying out this study and also helping in preparation of the report. My profuse thanks to all the team members at Bioversity International, New Delhi for all guidance and financial support.

(D. L. Maheswar)
Vice-Chancellor

PREFACE

Dr. S. B. Dandin, Liaison officer
Bioversity International
Bangalore

Biodiversity is the gift of nature to the humankind. The contribution of our rich agricultural biodiversity to the food security challenges is a critical component of sustainable and resilient agriculture for our future. The importance of nutrition, climate change adaptation, resilience and sustainability have risen on the global agenda as demonstrated by new movements and initiatives such as the scaling up Nutrition movement, Climate-Smart Agriculture and the Rio+20 Declaration on "The Future We Want". Sustainable agricultural systems and biodiversity are going to figure prominently in the emerging UN Sustainable Development Goals.

Several anthropogenic factors are contributing for the fast decline in the biodiversity over a period of time. Important reasons for the decline of biodiversity include rapid expansion of large-scale agriculture production and more globalized food systems. Further large scale deforestation to meet the ever increasing human needs mega hydroelectric projects, large scale mining activities, heavy industrialization etc., have contributed for loss of biodiversity.

Agricultural Biodiversity (ABD) assessment by Bioversity International plays a pivotal role in identifying entry points for designing and implementing interventions that contribute to improve well-being of rural populations. The information generated on biological diversity, dietary diversity, market diversity and general socio-economic conditions will be of great help to develop and deploy interventions that bring out significant change in standards of living through intensification, diversification, better risk management, improved linkages and participation in markets, improved diets and enhanced food security.

Keeping the above in mind, two rainfed agriculture regions one each in Karnataka and Andra Pradesh were identified under the ongoing C.R.P 1.1 programme . Seven villages were selected with 50 households for all the selected villages and the survey was conducted by HRES, Tidagundi, Vijayapur (Tidagundi) under the aegis of UHS, Bagalkot and HRS Ananthapuram under the aegis of Dr. YSR University of Horticulture, Thadepalligudem, respectively.. The survey was accomplished over the period of nine months covering both *Kharif* and *Rabi* seasons. Well structured questionnaire developed by Dr. Mouritio Bellon, Bivoversity

International were used for ABD survey, Focused Group Discussion and analysis and interpretation of the data. The highlights of the findings, lessons learnt, views of the farmers and the way forward are included in this final report. The intrinsic value of crop biodiversity and its impact on diet. nutrition and health were also discussed besides its relevance to the economic sustainability of the households.

I take this opportunity to thank Dr. Prem Narayan Mathur, Sub regional Co-Ordinator for south Asia for his guidance and encouragement. The technical guidance, expert advice and well structured questionnaire provided by Dr. M. Bellon besides his visit to the project sites and critically going through the final report with his valuable suggestions are gratefully acknowledged. I place on record with appreciation for their support and cooperation extended by both the Vice Chancellors of UHS, Bagalkot and Dr. YSRHU, Tadapalligudem. Last but not the least, the pains taken and an excellent efforts put in by the Project Investigators, Dr. Subramanyam and Dr. Shreenvasalu of HRS Ananthapur and all the project staff and Dr. H.B. Patil and his colleagues of HRES, Vijayapur (Tidagundi), in conducting the survey, compilation, analysis and interpretation of the findings of the survey are duly acknowledged.

It is sincerely hoped that the survey report will serve as a resource information for the needy organization and personnel. I once again thank the Bioversity International and all those who have contributed for the successful implementation of the programme.

Feb 28, 2015 **S. B. Dandin**

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Introduction

Biodiversity is the gift of nature to the humankind. The contribution of our rich agricultural biodiversity to the food security challenges is a critical component of sustainable and resilient agriculture for our future. Several anthropogenic factors are contributing for the decline in the biodiversity over a period of time. Important reasons for the decline of biodiversity include rapid expansion of large-scale agriculture production and more globalized food systems. Another important reason for the disappearance of biodiversity is, lack of in-depth understanding of the contribution of the biodiversity in improving nutrition, enhancing risk reduction and resilience. Nearly 40 per cent of the world's total arable land is dedicated to the cultivation of crops like wheat, rice and maize which also account for around 50 per cent of the world's global caloric intake from plants even though there are an estimated 7000 plant species cultivated or harvested in the wild for food we have focused on few. In the light of this, there is a need to take action for the reintroduction of neglected and underutilized species and such an intervention can transform the lives of marginalized rural people as it can help them to grow more nutritious food for their families and for the communities. The biodiversity is a critical tool in adaptation, providing the 'natural insurance' to climate change, a key theme in light of the recent report from the Intergovernmental Panel on Climate Change (IPCC). There is a need to work with the local farmers who are the real custodians of biodiversity. Such efforts will also help in finding biodiversity-based solutions for agriculture especially to limit the spread of pests and diseases, conserve biodiversity and ecosystem services and protect the food production base of the planet.

The importance of nutrition, climate change adaptation, resilience and sustainability have risen on the global agenda as demonstrated by new movements and initiatives such as the Scaling Up Nutrition movement, Climate-Smart Agriculture and the Rio+20 Declaration on "The Future We Want". Sustainable agricultural systems and biodiversity are going to figure prominently in the emerging UN Sustainable Development Goals.

Bioversity International is a global research-for-development organization belonging to CGIAR consortium with a vision that agricultural biodiversity nourishes people and sustains the planet. It delivers scientific evidence, management practices and policy options to use and safeguard agricultural biodiversity to attain sustainable global food and nutrition security. Bioversity works with partners all over the world including India. In its effort to empower farmers through various interventions for conserving and utilizing the native/local biodiversity for sustaining the efforts in conservation and management and ensuring nutritional security on long-term basis it has started a collaborative programmes with University of Horticultural

Sciences, Bagalkot, Karnataka, India which has a similar vision mandate. A survey was planned and implemented in three villages namely Balaganur and Mannur in Sindhagi taluka and Nandyal village of Basavana Bagewadi taluka in Bijapur district of Karnataka. A total 200 households were identified among the above three villages for the this survey work. Focused Group Discussions (FGD) were carried out to elicit the indegenous and traditional local knowledge about agriculture biodeversity, dietary biodiversity and market biodiversity available in the study areas. This was mainly aimed at generating a complete inventary of usefull plant, animal, acquatic species used by local communities, particularly for food and income. It also aimed at preparing the inventary of variety of food consumed and the species and products bought and sold in the market by the people in the study villages. The surevy was undertaken to understand and document the crop biodiversity in the area with the following objectives.

Objectives

1. To document diversity of plant species grown on farm, home gardens and in common land as well as animal species maintained on the farm by the farmers
2. To document diversity of wild plant and animal species present in the respective ecosystems.
3. To characterize the seed systems associated with key crops grown.
4. To document gender aspects of the management and uses of species of biodiversity.
5. To document the key socio economic status of households.
6. To document risk considerations associated with adoption of new technologies.
7. To document dietary diversity of women and children along with food security of households.
8. To understand the market crop diversity in relation to crop diversity and dietary diversity.

The knowledge gained and the information generated by the current survey will be utilized for identifying the entry points for designing and implementing interventions to conserve diversity that contribute to improve the well-being of rural households.

Project staff

S.No.	Name	Designation
1.	Dr. H B Patil	Campus Head
2.	Dr. Raghavendra Achari	Coordinator
3.	Dr. R S Jawadagi	Co-Coordinator
4.	Dr. A M Nadaf	Co-Coordinator
5.	Sri. Babagouda Patil and Colleagues	Survey Personal

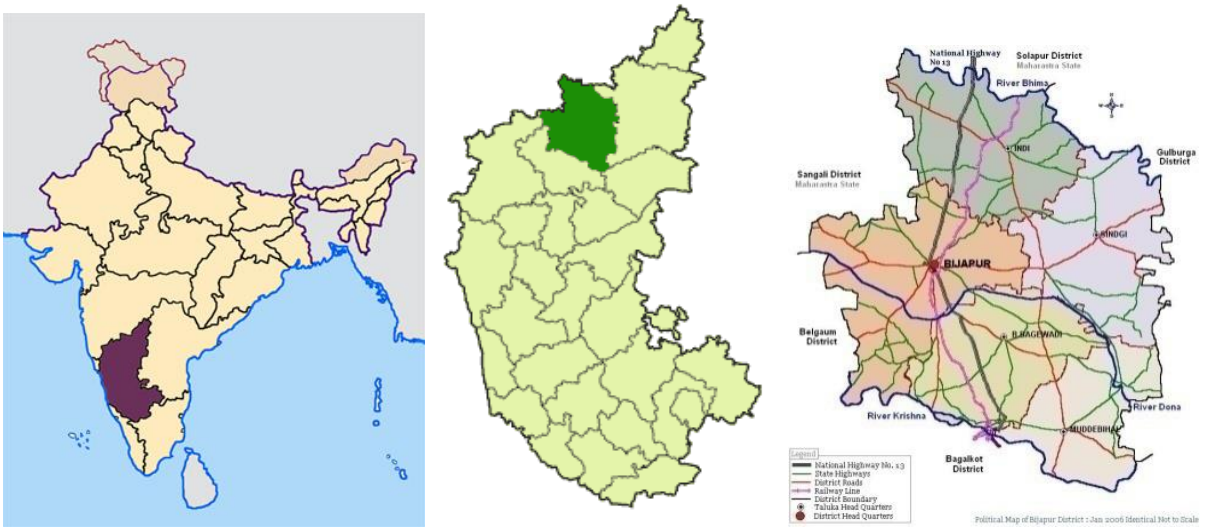
Project Area Details

Vijayapur district	
Sindagi taluka	**Basavana Bagewadi taluka**
1. Balaganur 2. Mannur	1. Nandyal

Sl. No.	Particulars		Villages		
			Balaganur	**Mannur**	**Nandyal**
1.	**Village PIN code**	::	586 128	586 120	586 122
2.	**Latitude**	::	17 01 016 N	16 47 574 N	16 37 442 N
3.	**Longitude**	::	76 09 112 E	76 07 100 E	75 53 253 E
4.	**Elevation (in m above)MSL**	::	471.9	560	599.6
5.	**Rain fall (mm)**				
	a) Rain fall *kharif*	::	435	335.1	268
	b) Rain fall *Rabi*	::	190.6	249	83.4
	c) Annual rain fall	::	640.4	640	376.4
6.	**Temperature (^{0}C)**	::			
	a) Max temperature *kharif*	::	35.1	35.1	35.1
	b) Max temperature *Rabi*	::	31.6	31.6	31.6
	c) Min temperature *kharif*	::	20.8	20.8	20.8
	d) Min temperature *Rabi*	::	14.5	14.5	14.5
	e) Annual average temperature *kharif*	::	27.03	27.03	27.03
	f) Annual average temperature *Rabi*	::	23.27	23.27	23.27
7.	**Population**				
	a) No. of Households	::	1275	628	503
	b) Male	::	3860	2029	1308
	c) Female	::	3545	1851	1238
	Total	**::**	7405	3880	2546
8.	**Caste (Households)**				
	a) Schedule caste	::	1116	1655	233
	b) Scheduled tribe	::	10	7	154
	c) Other castes	::	6279	2218	2159
9.	**Schedule caste**				
	Male	::	588	867	111
	Female	::	528	788	122
10.	**Scheduled caste**				
	Male	::	5	5	77
	Female	::	5	2	77
11.	**Other caste**				

	Male	::	3267	1157	1120
	Female	::	3012	1061	1039
	Literates				
	Male	::	2219	1094	787
	Female	::	1337	726	537
	Total	::	3556	1820	1324
12.	Childrens below 5 Years (included in the above population)	::	1283	593	336
	Male	::	683	321	180
	Female	::	603	272	156
	Land (acres)				
13.	Total land	::	5928.4	2656.29	348
14.	Cultivated land	::	5661.03	2382.48	310
15.	Un cultivated land	::	267.37	273.81	38
	a) Toilet	::			
16.	**Animals**				
	Bullocks/cows	::	1143	179	451
	Goats	::	2730	527	338
	Sheep	::	780	-	296
	Hens &Cocks	::	1750	456	-
	Buffalos	::	908	187	181

Maps of project site



Maps of India, Karnataka and Bijapur district

Methodology

Baseline survey for Agricultural Biodiversity planned and conducted in Vijayapur district of Karnataka. Balaganur and Mannur villages in Sindagi taluka and Nandyal village in Basavana Bagewadi taluka of Vijayapur district were selected for the survey. Earlier, these villages were selected by ICRISAT to implement dry land systems programme.

The sample consisted of 200 households among the three villages (Balaganur and Mannur-67 households each and Nandyal-66 households) among the 250 households were selected. In some cases where the new farmers were selected other than the ICRISAT selected farmers depending on the non availability of some farmers. Where The household survey contained two sections: one that elicit information on the Agriculture Bio diversity (ABD) used by the household and second that elicits information on food consumed by specific members of the household. Before interviewing the individual households, Focus Group Discussions (FGD) were held.

Focus Group Discussions (FGD):

Focus Group Discussions (FGD) were held to elicit information on (a) biological diversity in the production system – on the farm as well as harvested from forest and community land; (b) dietary diversity – consumed in house and also purchased from market; and (c) diversity of species and products sold and bought in markets. Few important principles were kept in mind namely (a)aim to capture the collective knowledge of the community, not of the specific participants in the group (b) aim to capture as much diversity as possible, i.e. to identify as many species as possible, particularly for those species used by few people or even rarely.

Focus Group Discussions (FGD) were organized in the following manner

- The respondents were divided in to two groups: namely males and females of the households.
- Each group dealt separately and covered all the three aspects for discussion:
  - Useful biological diversity in the production system
  - Dietary diversity
  - Market diversity
- There were approximately15 participants per group.
- Each group included a cross-section of individuals involved in agricultural production or at least collecting useful plants from common lands and the wild, representing different levels of access to land (land owners, local land renters and migrant land renters), different religion

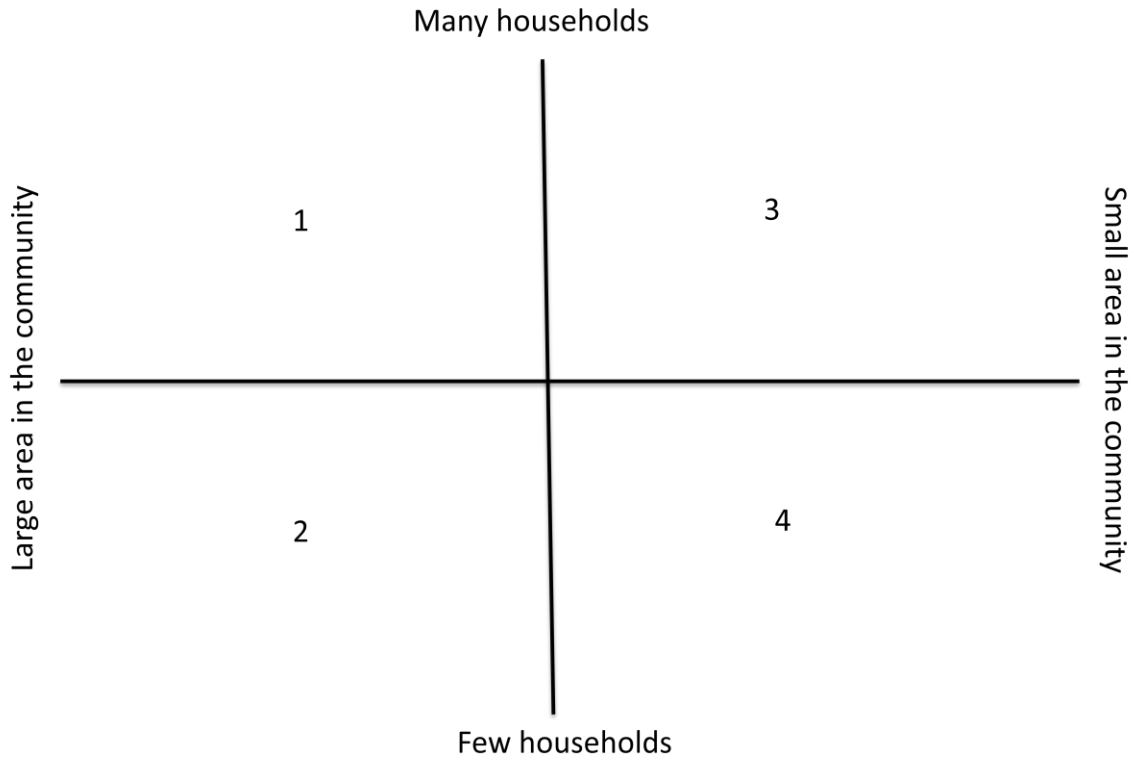
groups present in the village and different age groups (special emphasis made to include younger farmers).

- For each group , there were two facilitators, one to guide the exercise and the other to document the process.
- In the case of male respondents, the facilitator was male and for female groups facilitator was female.

At the beginning of the exercise, the facilitator explained to the group that there are many species of plants and animals that are used by people there. However, some were grown by many farmers in the community, while others were by just a few and at the same time some of the species grown were same in a large area within the community, while others were usually grown in a small area within the community. The facilitator then drew the four squares diagram in a large sheet of paper on the floor (Figure 1). The four squares are:

(1) many households and large area in the community;
(2) few households and a large area in the community;
(3) many households and a small area in the community;
(4) few households and a small area in the community.

Figure-1: Four squares for ABD in product systems



Agricultural Biodiversity (ABD) in production systems

The work was carried out in the following sequence:

1. Participants were asked to make a list of all relevant species (e.g. free listing of species). A list with all the names of species was compiled.
2. Since information asked was also in terms of whether a species is available during the lean season or season of scarcity, the facilitator asked the participants to name the seasons that they recognize and what months each season include. Then they were asked to describe each season and which one(s) they consider the off/lean season(s) and why. The exercise of placing each species in a particular square was done.
3. After the completion of listing and defining seasons, the facilitator asked the participants to place each species in the list in the appropriate square. It was emphasized that the decision to place a species in a particular square should be a group decision, not just made by one member.
4. For each species once it has been placed in a square, participants were asked the following questions about the species. One of the facilitators marked the answers in appropriate column.
   (a) Is the species (parts of it or products derived from it) used as food for their own consumption?
   (b) Is the species (parts of it or products derived from it) sold by community members?
   (c) Is the species (parts of it or products derived from it) bought by community members?
   (d) Is the species available during the season of food scarcity?
5. Continued with the next species and repeated the process until all species in the list have been classified.
6. After the classification of species, participants were asked for general reasons for placing the species in a particular square and repeated this for each of the four squares.

Results of the Focus Group Discussions using the four-square method were tabulated and one table for each category of species (e.g. annual species, perennial species, animals, etc.) was presented.

The exercise was done with annual and biannual plant species grown on farm, kitchen/home gardens. The facilitator probed for different categories of species including cereals, roots, tubers, legumes, vegetables, oil crops, fruits, industrial crops (e.g. cotton). The exercise was repeated for each of these categories:

1. Annual and biannual crop species
2. Useful tree and shrub species in individual and common lands (perennial). These include both cultivated (e.g. mango) and agro-forestry species. Many of these species are multi-purpose, e.g. providing fruits, leaves, wood, fodder, etc.
3. Useful wild or semi-wild species used for food harvested from farms, forest areas or communal lands (annual or perennial).
4. Domesticated animals
5. Wild animals.
6. Fish and other aquatic resources

In case of useful tree and shrub species in individual lands (perennial) including both cultivated and agro-forestry species, the four squares were:

(1) Many households with many trees/shrubs within their individual farms;
(2) Many households with a few trees/shrubs within their individual farms;
(3) Few households with many trees/shrubs within their individual farms;
(4) Few households with few trees/shrubs within their individual farms.

In case of useful tree and shrub species in common lands (perennial) including both cultivated and agro-forestry species, the four squares were:

(1) Many households utilize the species and there is high availability in common lands;
(2) Few households utilize the species and there is high availability of the species in common lands;
(3) Many households utilize the species and there is little availability of the species in common lands;
(4) Few households utilize the species and there is little availability of the species in common lands.

In the case of domesticated animals the four squares were:

(1) Many households own many animals ;
(2) Few households own many animals;
(3) Many households own few animals;
(4) Few households own few animals.

In the case of wild animals the four squares were:

(1) Many households utilize the species and there is high availability of the species within the community and surrounding areas;
(2) Few households utilize the species and there is high availability of the species within the community and surrounding areas;
(3) Many households utilize the species and there is little availability of the species within the community and surrounding areas;
(4) Few households utilize the species and there is little availability of the species within the community and surrounding areas.

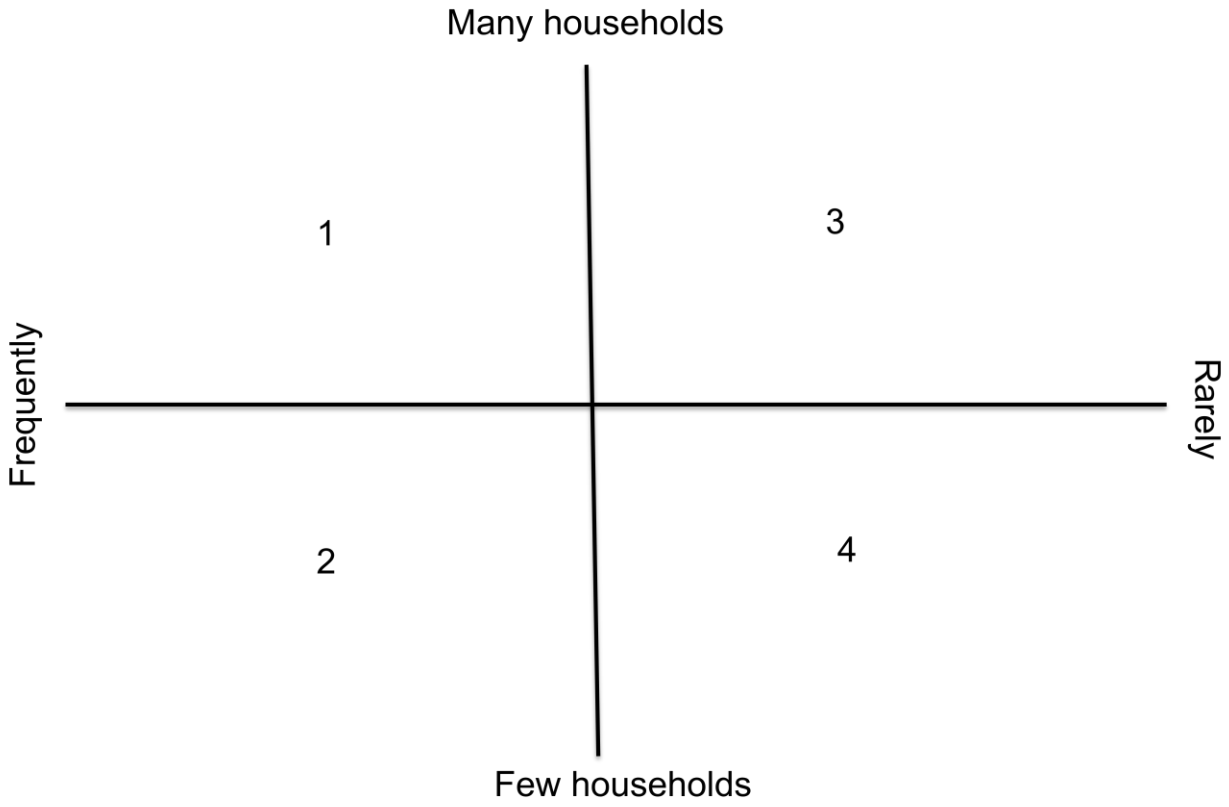
In the case of fish and other aquatic resources the four squares were:

(1) Many households utilize the species and there is high availability of the species within the community and surrounding areas;
(2) Few households utilize the species and there is high availability of the species within the community and surrounding areas;
(3) Many households utilize the species and there is little availability of the species within the community and surrounding areas;
(4) Few households utilize the species and there is little availability of the species within the community and surrounding areas.

ABD in markets

The facilitator explained how important are the species that were identified in the previous exercise in terms of their marketing, both for sale and for purchase. The facilitators already have the list of species that are both sold and purchased. First, the facilitator examined those species that were sold. As in the previous exercise, the facilitator explained that species can be sold by many farmers or by just a few, and some may be sold frequently and others rarely, thus the facilitator drew a four square diagram (Figure 2). The facilitator asked participants to place the species in one of the four squares. Once all species have been classified, the facilitator probed for additional species that may have been omitted, particularly for those that were sold by few farmers rarely. Finally, the facilitator asked participants about the general reasons for placing species in a particular square, for each of the four squares.

Figure-2: Four squares for ABD in markets



After the completion of exercise, the facilitator repeated the same procedure with the list of species that were purchased, drawn also a four square diagram with species and foods that were purchased by many household, by few, and being purchase frequently or rarely (same as Figure 2). After the diagram was drawn, the facilitator read aloud from the list of species that were purchased, one species at a time, asking participants to place the species in one of the four squares. Once all species in the list have been classified, the facilitator asked the participants to list other foods and food products (e.g. sugar, salt, bread, tea, canned foods, etc.) that were purchased but they were not be produced locally. After this new list has been compiled, the facilitator asked participants to place the foods and food products in one of the four squares. Once all species in the list have been classified, the facilitator probed for additional species that may have been omitted, particularly for those that were sold by few farmers rarely. Finally, the facilitator asked participants about the general reasons for placing species in a particular square, for each of the four squares.

ABD and dietary diversity

The facilitator explained about the diversity of foods consumed by the community, particularly about those species that were consumed as foods directly or as food products. Now there is a list with all the locally-available species that are used as foods (derived from the exercise on ABD in production systems), as well as another list with the foods and food products that are not locally available but are purchased (derived from the exercise on purchased foods and food products)[1]. The facilitator asked the group to provide information on:

- What parts of the species are consumed?
- What are the cooking methods or methods of transformation used to prepare foods derived from that species?
- What products are derived from the species (through processing)?

This information was noted by the second facilitator in following table. The information was the basis for developing the dietary diversity questionnaire.

[1] In the case of purchased foods and food products there may not be necessary to fill some of the columns since the purchased item is the final product (e.g. products, parts of the species consumed).

Questionnaire

The survey was divided into two questionnaires. One elicits information on biological diversity, markets and general socioeconomic information (ABD questionnaire). The second one elicits information on dietary diversity of a woman and a child (Dietary Diversity questionnaire).

The ABD questionnaire was applied together to the male head of household and to the women selected according to the criteria explained below. The Dietary Diversity questionnaire was applied only to the woman. The selection criterion for woman is as follows: (1) a mother in the household between 15-49 years old with a child aged between 6-59 months. Where if more than one member of the household has these characteristics then they were selected randomly. (2) If no mother in the household has a child of that age, a mother within the age group 15-49 years was chosen. If none was available, the woman who customarily prepares the food in the household irrespective of age was chosen.

ABD questionnaire

The ABD questionnaire elicits information on the following aspects:

- Useful biological diversity in the production system in specific season (on farm, and those species harvested from forest and community lands)
    - Species characterization in terms of
        - Seasonality, water source, objective of production, importance, parts used, uses
        - Seed systems
        - Sources, transactions, social relations, locations
        - Intra-species diversity
        - Gender: management and decision-making

Most questions about species refer to a specific season of reference (*kharif* (2013) and *Rabi* (2013-14).

- Markets: purchase and sale, in terms of:
    - Agricultural produce
    - Seeds and planting material
    - Inputs
    - Food
    - Other consumer goods

- General socioeconomic information, in terms of:
  - Age
  - Formal education
  - Ethnicity
  - Family size
  - Type of household
  - Assets (house building material, transportation, consumer items)
  - Landholdings
  - Live stock
  - Water management
  - Sources of income
  - Knowledge and participation in formal and informal organizations
  - Participation in government programs

Dietary diversity questionnaire

The Dietary diversity questionnaire comprises three sections: (1) women and child dietary diversity; (2) infants and young child feeding practices; (3) household food security. Includes the following information:

- Foods and ingredients consumed specifically by a mother and a child between 6 and 59 months in the previous 24 hours; includes information on sources: self-produced, purchased, bartered, payment in kind, collected.
- Information on infant and young child feeding practices
- Household food security (this questions do refer to the whole household not just to the women being interviewed)

Survey findings and Discussions

Table 1: For how many years *kharif* species being cultivated by households

Sl No.	Species	Botanical Name	Village (Avg. Years)			Grand Avg.
			Balaganur	Mannur	Nandyal	
	Cereals					
1	Foxtail millet	*Setaria italica*	0	0	2.00	2.00
2	Maize	*Zea mays*	6.47	3.17	4.57	5.43
3	Pearl millet	*Pennisetum glaucum*	16.21	4.00	0	9.34
4	Sorghum	*Sorghum bicolor*	0	2.00	0	2.00
	Pulses					
5	Chick pea	*Cicer arietinum*	0	2.00	0	2.00
6	Cowpea	*Vigna unguiculata*	3.00	3.33	3.00	3.20
7	Green gram	*Vigna radiata*	15.00	3.80	5.67	5.67
8	Horse gram	*Macrotyloma uniflorum*	13.33	5.00	0	8.13
9	Moth bean	*Vigna aconitifolia*	9.33	4.68	3.00	5.22
10	Pigeon pea	*Cajanus cajan*	11.06	3.55	3.21	6.31
	Oilseeds					
11	Ground nut	*Arachis hypogaea*	21.36	5.00	2.00	8.16
12	Sesamum	*Sesamum indicum*	0	1.00	0	1.00
13	Sunflower	*Helianthus annus*	3.00	3.38	0	3.33
	Vegetables					
14	Amaranthus	*Amaranthus cruentus*	6.00	0	0	6.00
15	Bitter gourd	*Momordica charantia*	8.00	0	0	8.00
16	Brinjal	*Solanum melongena*	6.50	1.67	0	4.43
17	Carrot	*Daucus carota*	8.00	0	0	8.00
18	Chilli	*Capsicum annuum*	17.50	0	2.00	9.75
19	Cluster bean	*Cyamopsis tetragonoloba*	8.00	3.00	2.00	4.00
20	Coriander	*Coriandrum sativum*	8.00	0	2.00	5.00
21	Cucumber	*Cucumis sativus*	6.00	3.00	0	4.50
22	Dill leafy vegetable	*Anethum graveolens*	0	0	2.00	2.00
23	Fenugreek	*Trigonella foenum-graecum*	7.50	3.00	0	5.25
24	Garlic	*Allium sativum*	22.00	0	0	22.00
25	Ladys finger	*Abelmoschus esculentus*	5.50	2.33	2.00	3.00
26	Onion	*Allium cepa*	1.40	3.33	2.00	2.08
27	Ridge gourd	*Luffa acutangula*	11.50	0	0	11.50
28	Spine Amaranthus	*Amaranthus spinosa*	9.00	0	0	9.00
29	Tomato	*Solanum lycopersicon*	6.67	2.00	2.00	4.00
	Cash crops					
30	Cotton	*Gossypium hirsutum*	5.51	1.95	4.20	4.25
31	Sugar cane	*Saccharum spp.*	5.09	2.25	2.00	4.70
	Flower crops					
32	Gladiolus	*Gladiolus communis*	6.00	0	0	6.00
33	Jasmine	*Jasminum multiform*	10.00	0	0	10.00
34	Rose	*Rosa indica*	5.00	0	0	5.00
35	Tube rose	*Polianthes tuberosa*	4.00	0	0	4.00
	Forage crops					
36	Grass	*Pennisetum purpureum*	2.00	0	0	2.00

Table 2: Annual plant species grown on farm during *kharif* 2013

Sl No.	Species	Botanical Name	Where the crop grown			Percentage
			Farm	Kitchen garden	Others	
	Cereals					
1	Foxtail millet	*Setaria italica*	1	0	0	0.19
2	Maize	*Zea mays*	51	0	0	9.9
3	Pearl millet	*Pennisetum glaucum*	33	0	0	6.41
4	Sorghum	*Sorghum bicolor*	1	0	0	0.19
	Pulses					
5	Chick pea	*Cicer arietinum*	1	0	0	0.19
6	Cowpea	*Vigna unguiculata*	5	0	0	0.97
7	Green gram	*Vigna radiata*	9	0	0	1.75
8	Horse gram	*Macrotyloma uniflorum*	8	0	0	1.55
9	Moth bean	*Vigna aconitifolia*	23	0	0	4.47
10	Pigeon pea	*Cajanus cajan*	144	0	0	27.96
	Oilseeds					
11	Ground nut	*Arachis hypogaea*	57	0	0	11.07
12	Sesamum	*Sesamum indicum*	1	0	0	0.19
13	Sunflower	*Helianthus annus*	9	0	0	1.75
	Vegetables					
14	Amaranthus	*Amaranthus cruentus*	0	1	0	0.19
15	Bitter gourd	*Momordica charantia*	0	1	0	0.19
16	Brinjal	*Solanum melongena*	4	4	0	1.55
17	Carrot	*Daucus carota*	1	0	0	0.19
18	Chilli	*Capsicum annuum*	5	0	0	0.97
19	Cluster bean	*Cyamopsis tetragonoloba*	4	4	0	1.55
20	Coriander	*Coriandrum sativum*	2	0	0	0.39
21	Cucumber	*Cucumis sativus*	1	1	0	0.39
22	Dill leafy vegetable	*Anethum graveolens*	1	0	0	0.19
23	Fenugreek	*Trigonella foenum-graecum*	2	2	0	0.78
24	Garlic	*Allium sativum*	1	0	0	0.19
25	Ladys finger	*Abelmoschus esculentus*	4	4	0	1.55
26	Onion	*Allium cepa*	13	0	0	2.52
27	Ridge gourd	*Luffa acutangula*	0	2	0	0.39
28	Spine Amaranthus	*Amaranthus spinosa*	0	1	0	0.19
29	Tomato	*Solanum lycopersicon*	3	3	1	1.36
	Cash crops					
30	Cotton	*Gossypium hirsutum*	64	0	0	12.43
31	Sugar cane	*Saccharum spp.*	37	0	0	7.18
	Flower crops					
32	Gladiolus	*Gladiolus communis*	1	0	0	0.19
33	Jasmine	*Jasminum multiform*	2	0	0	0.39
34	Rose	*Rosa indica*	1	0	0	0.19
35	Tube rose	*Polianthes tuberosa*	1	0	0	0.19
	Forage crops					
36	Grass	*Pennisetum purpureum*	1	0	0	0.19

Thirty six annual species were grown by the households during the *kharif* 2013. Pigeon pea (27.96%) was grown by many households followed by cotton (12.43%), ground nut (11.07%), maize (9.90%), sugarcane (7.18%), pearl millet (6.41%), moth bean (4.47%) and onion (2.52%) on farm land.

Table 3: Annual plant species grown during *kharif* 2013 with source of irrigation

Sl No.	Species	Botanical Name	Source of irrigation (No. of households)				
			Rain fed	Open well	Tube well	Canal	> 1 source
	Cereals						
1	Foxtail millet	*Setaria italica*	1	0	0	0	0
2	Maize	*Zea mays*	0	11	15	3	22
3	Pearl millet	*Pennisetum glaucum*	21	4	1	2	5
4	Sorghum	*Sorghum bicolor*	1	0	0	0	0
	Pulses						
5	Chick pea	*Cicer arietinum*	1	0	0	0	0
6	Cowpea	*Vigna unguiculata*	5	0	0	0	0
7	Green gram	*Vigna radiata*	8	0	0	1	0
8	Horse gram	*Macrotyloma uniflorum*	7	1	0	0	0
9	Moth bean	*Vigna aconitifolia*	22	0	0	0	1
10	Pigeon pea	*Cajanus cajan*	89	8	14	7	26
	Oilseeds						
11	Ground nut	*Arachis hypogaea*	41	3	9	0	4
12	Sesamum	*Sesamum indicum*	1	0	0	0	0
13	Sunflower	*Helianthus annus*	3	1	4	0	1
	Vegetables						
14	Amaranthus	*Amaranthus cruentus*	0	0	1	0	0
15	Bitter gourd	*Momordica charantia*	0	0	1	0	0
16	Brinjal	*Solanum melongena*	2	2	1	2	1
17	Carrot	*Daucus carota*	0	1	0	0	0
18	Chilli	*Capsicum annuum*	2	1	0	1	1
19	Cluster bean	*Cyamopsis tetragonoloba*	3	2	3	0	0
20	Coriander	*Coriandrum sativum*	0	0	0	1	1
21	Cucumber	*Cucumis sativus*	0	1	1	0	0
22	Dill leafy vegetable	*Anethum graveolens*	0	0	0	0	1
23	Fenugreek	*Trigonella foenum-graecum*	1	1	2	0	0
24	Garlic	*Allium sativum*	0	1	0	0	0
25	Ladys finger	*Abelmoschus esculentus*	3	2	1	1	1

26	Onion	*Allium cepa*	4	5	1	0	3
27	Ridge gourd	*Luffa acutangula*	0	2	0	0	0
28	Spine Amaranthus	*Amaranthus spinosa*	0	1	0	0	0
29	Tomato	*Solanum lycopersicon*	3	2	1	1	0
	Cash crops						
30	Cotton	*Gossypium hirsutum*	18	14	9	4	19
31	Sugar cane	*Saccharum spp.*	0	10	4	3	20
	Flower crops						
32	Gladiolus	*Gladiolus communis*	0	0	0	0	1
33	Jasmine	*Jasminum multiform*	0	0	0	0	2
34	Rose	*Rosa indica*	0	0	0	0	1
35	Tube rose	*Polianthes tuberosa*	0	0	0	0	1
	Forage crops						
36	Grass	*Pennisetum purpureum*	0	0	0	1	0

During *kharif* season 2013 under rain fed situation pigeon pea was grown by many households (89 HH) followed by ground nut (41 HH), moth bean (22 HH), pearl millet (21 HH) and cotton (18 HH). Under irrigated situation open well water was used to grow cotton by 14 HH followed by maize (11 HH) and sugar cane (10 HH), whereas tube well water source was used to grow maize by 15 HH and pigeon pea by14 HH. Canal water source was used to grow pigeon pea (7 HH) and cotton (4 HH), whereas, pigeon pea, maize, sugarcane and cotton were grown by more than one source of irrigation.

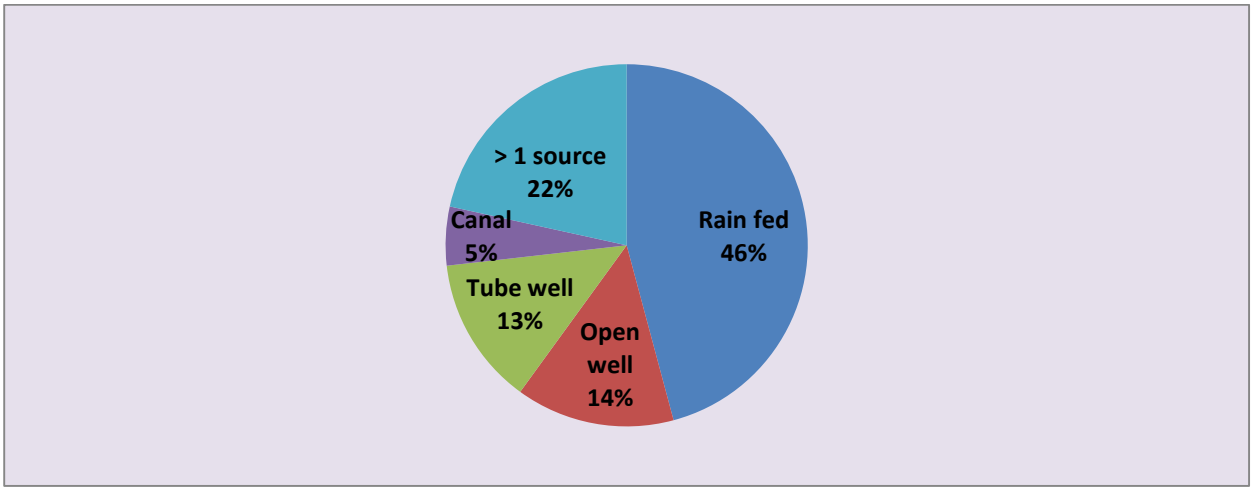


Figure 3: Utilization of different irrigation sources by households for cultivation of crop species during *kharif* 2013

Table 4: Cropping pattern and objective of production of annual species during *kharif* 2013

Sl No.	Species	Botanical Name	Cropping pattern		Objective of producing		
			Mono-cropping	Inter-cropping	Self	Selling	Both
	Cereals						
1	Foxtail millet	*Setaria italica*	0	1	0	0	1
2	Maize	*Zea mays*	51	0	3	14	34
3	Pearl millet	*Pennisetum glaucum*	28	5	18	0	15
4	Sorghum	*Sorghum bicolor*	0	1	0	0	1
	Pulses						
5	Chick pea	*Cicer arietinum*	0	1	1	0	0
6	Cowpea	*Vigna unguiculata*	2	3	5	0	0
7	Green gram	*Vigna radiata*	7	2	3	0	6
8	Horse gram	*Macrotyloma uniflorum*	5	3	5	0	3
9	Moth bean	*Vigna aconitifolia*	14	9	15	0	8
10	Pigeon pea	*Cajanus cajan*	132	12	2	16	126
	Oilseeds						
11	Ground nut	*Arachis hypogaea*	39	18	24	0	33
12	Sesamum	*Sesamum indicum*	1	0	1	0	0
13	Sunflower	*Helianthus annus*	8	1	0	8	1
	Vegetables						
14	Amaranthus	*Amaranthus cruentus*	1	0	1	0	0
15	Bitter gourd	*Momordica charantia*	1	0	1	0	0
16	Brinjal	*Solanum melongena*	8	0	5	1	2
17	Carrot	*Daucus carota*	1	0	0	0	1
18	Chilli	*Capsicum annuum*	3	2	2	0	3
19	Cluster bean	*Cyamopsis tetragonoloba*	6	2	3	0	5
20	Coriander	*Coriandrum sativum*	1	1	0	0	2
21	Cucumber	*Cucumis sativus*	2	0	1	0	1
22	Dill leafy vegetable	*Anethum graveolens*	0	1	0	0	1
23	Fenugreek	*Trigonella foenum-graecum*	4	0	1	0	3
24	Garlic	*Allium sativum*	1	0	1	0	0
25	Ladys finger	*Abelmoschus esculentus*	5	3	4	0	4
26	Onion	*Allium cepa*	11	2	1	0	12

27	Ridge gourd	*Luffa acutangula*	2	0	2	0	0
28	Spine Amaranthus	*Amaranthus spinosa*	1	0	1	0	0
29	Tomato	*Solanum lycopersicon*	6	1	3	1	3
	Cash crops						
30	Cotton	*Gossypium hirsutum*	62	2	0	64	0
31	Sugar cane	*Saccharum spp.*	37	0	1	36	0
	Flower crops						
32	Gladiolus	*Gladiolus communis*	1	0	0	1	0
33	Jasmine	*Jasminum multiform*	2	0	0	2	0
34	Rose	*Rosa indica*	1	0	0	1	0
35	Tube rose	*Polianthes tuberosa*	1	0	0	1	0
	Forage crops						
36	Grass	*Pennisetum purpureum*	1	0	1	0	0

During *kharif* 2013 pigeon pea, cotton, maize, ground nut, sugarcane, pearl millet and moth bean were grown as mono-crops whereas, ground nut, pigeon pea and moth bean were also grown as inter-crop. Ground nut, pearl millet and moth bean were grown majorly for self consumption whereas, cotton and sugar cane were grown for commercial purpose only. Pigeon pea and maize were grown for consumption and sale.

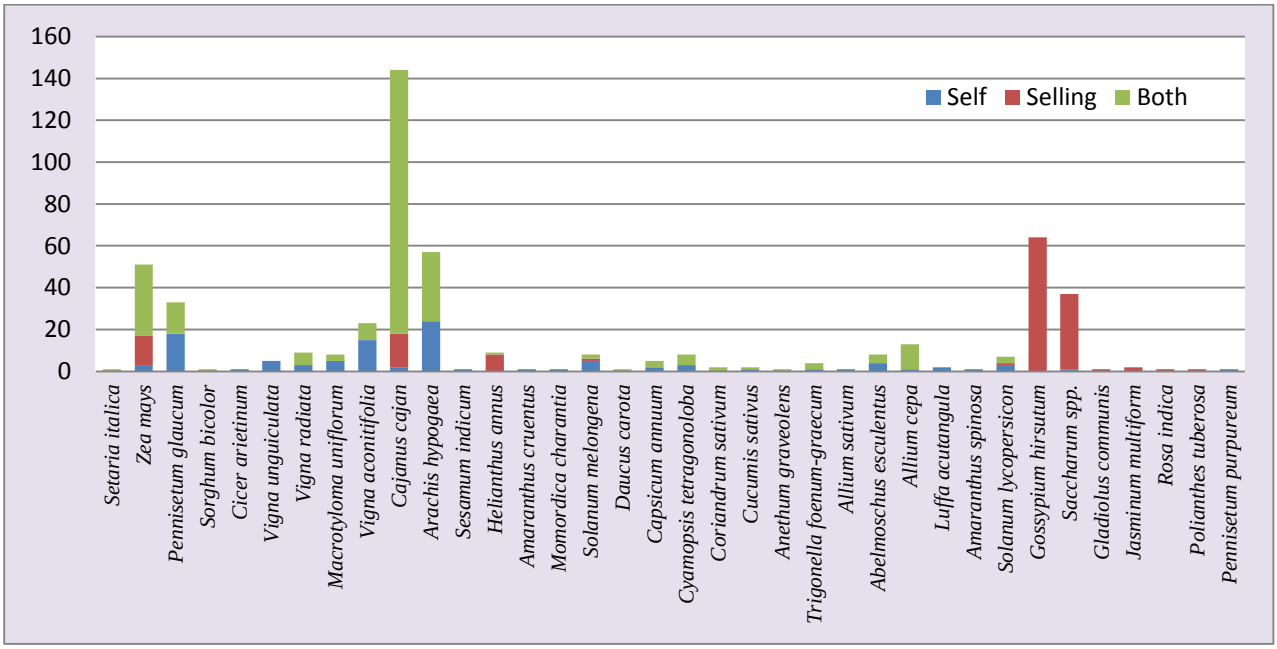


Figure 4: Objective of producing annual crop species during *kharif* 2013 by households

Table 5: Contribution of annual species grown during *kharif*- 2013 to food and income

Sl No.	Species	Botanical Name	Contribution to food				Contribution to income			
			Minor	Medium	Major	Nil	Minor	Medium	Major	Nil
	Cereals									
1	Foxtail millet	*Setaria italica*	0	1	0	0	1	0	0	0
2	Maize	*Zea mays*	11	22	6	12	8	25	17	1
3	Pearl millet	*Pennisetum glaucum*	1	19	13	0	12	10	5	5
4	Sorghum	*Sorghum bicolor*	0	1	0	0	1	0	0	0
	Pulses									
5	Chick pea	*Cicer arietinum*	0	0	1	0	o	0	0	1
6	Cowpea	*Vigna unguiculata*	0	3	2	0	o	1	0	4
7	Green gram	*Vigna radiata*	1	4	4	0	2	5	0	2
8	Horse gram	*Macrotyloma uniflorum*	3	2	3	0	4	1	1	2
9	Moth bean	*Vigna aconitifolia*	4	8	11	0	6	6	1	8
10	Pigeon pea	*Cajanus cajan*	51	60	32	1	10	69	63	0
	Oilseeds									
11	Ground nut	*Arachis hypogaea*	7	33	17	0	17	22	4	10
12	Sesamum	*Sesamum indicum*	0	0	1	0	0	0	0	1
13	Sunflower	*Helianthus annus*	1	1	0	7	1	5	3	0
	Vegetables									
14	Amaranthus	*Amaranthus cruentus*	0	1	0	0	0	0	0	0
15	Bitter gourd	*Momordica charantia*	0	1	0	0	0	0	0	0
16	Brinjal	*Solanum melongena*	2	4	2	0	1	2	0	0
17	Carrot	*Daucus carota*	0	1	0	0	o	1	0	0
18	Chilli	*Capsicum annuum*	1	1	3	0	1	2	0	1
19	Cluster bean	*Cyamopsis tetragonoloba*	1	7	0	0	1	2	2	0
20	Coriander	*Coriandrum sativum*	1	1	0	0	2	0	0	0
21	Cucumber	*Cucumis sativus*	0	2	0	0	o	1	1	0
22	Dill leafy vegetable	*Anethum graveolens*	1	0	0	0	1	0	0	0
23	Fenugreek	*Trigonella foenum-graecum*	1	3	0	0	0	2	1	0
24	Garlic	*Allium sativum*	0	0	1	0	o	0	0	1
25	Ladys finger	*Abelmoschus esculentus*	1	7	0	0	2	2	0	0
26	Onion	*Allium cepa*	4	4	4	0	o	7	5	0
27	Ridge gourd	*Luffa acutangula*	0	2	0	0	0	1	0	0
28	Spine Amaranthus	*Amaranthus spinosa*	0	1	0	0	o	0	0	0
29	Tomato	*Solanum lycopersicon*	2	4	1	0	0	4	0	0
	Cash crops									
30	Cotton	*Gossypium hirsutum*	1	16	7	38	4	20	40	0
31	Sugar cane	*Saccharum spp.*	4	14	7	12	2	18	16	1
	Flower crops									

32	Gladiolus	*Gladiolus communis*	0	1	0	0	o	1	0	0
33	Jasmine	*Jasminum multiform*	0	0	2	0	0	0	2	0
34	Rose	*Rosa indica*	0	0	1	0	0	0	1	0
35	Tube rose	*Polianthes tuberosa*	0	0	1	0	0	0	1	0
	Forage crops									
36	Grass	*Pennisetum purpureum*	0	1	0	0	1	0	0	0

During *kharif* 2013 pigeon pea was contributing majorly to food followed by ground nut, pearl millet and moth bean. Pigeon pea, cotton, maize and sugarcane were contributing majorly to income.

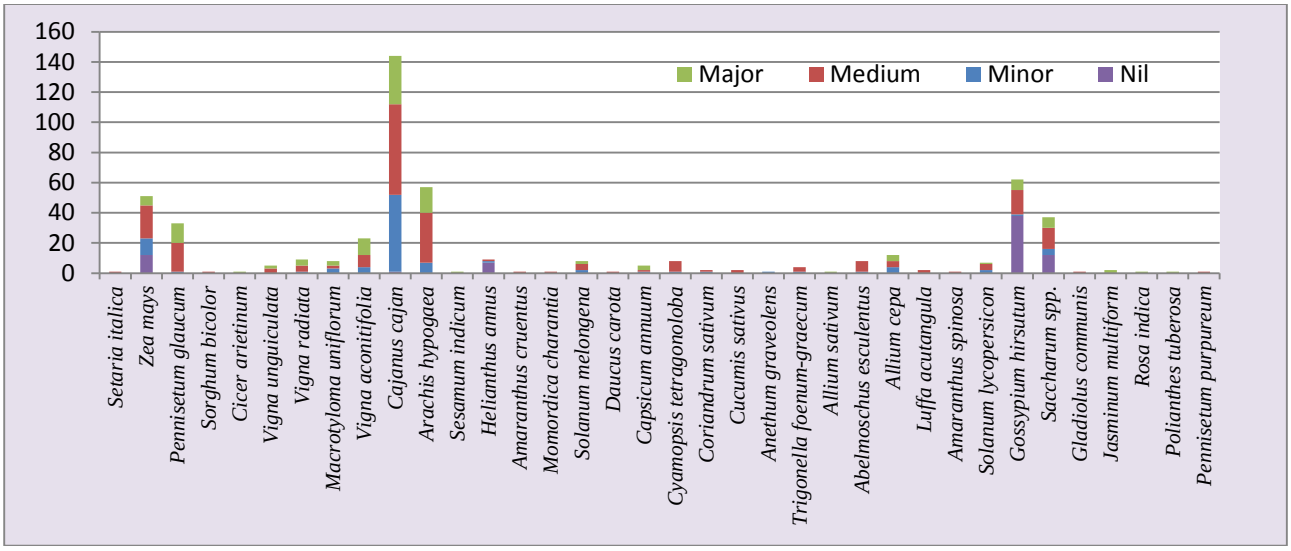


Figure 5: Contribution of species grown by households grown during *kharif* 2013 to food

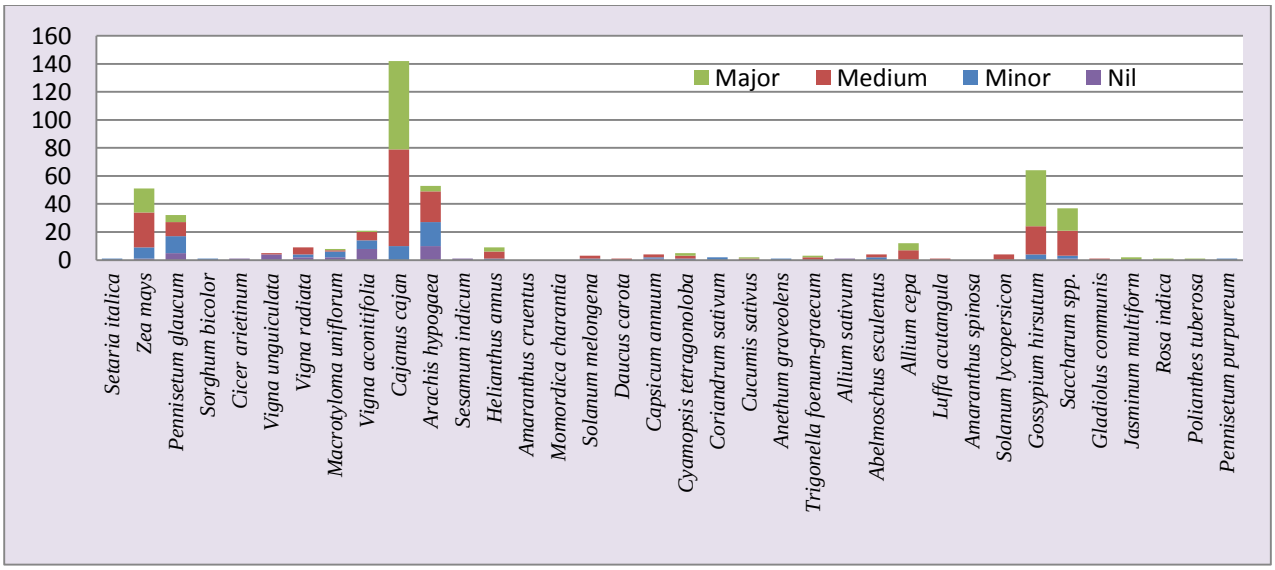


Figure 6: Contribution of species grown by households grown during *kharif* 2013 to income

Table 6: Sources of seed/planting material of annual species (number of households that obtained seed/planting material for a particular species and from a particular source in *kharif* 2013)

Sl No.	Species	Botanical Name	Source of seed		If obtained outside farm, from whom							
			Saved	Outside	Family	Neighbor	Friend	Public sector trader	Private sector trader	Local market	Govt. emergency programme	NGO
	Cereals											
1	Foxtail millet	*Setaria italica*	1	0	0	0	0	0	0	0	0	0
2	Maize	*Zea mays*	0	51	1	3	0	10	34	2	0	1
3	Pearl millet	*Pennisetum glaucum*	4	29	0	1	1	5	16	4	2	0
4	Sorghum	*Sorghum bicolor*	0	1	0	0	1	0	0	0	0	0
	Pulses											
5	Chick pea	*Cicer arietinum*	0	1	0	0	1	0	0	0	0	0
6	Cowpea	*Vigna unguiculata*	5	0	0	0	0	0	0	0	0	0
7	Green gram	*Vigna radiata*	6	3	0	0	1	0	2	0	0	0
8	Horse gram	*Macrotyloma uniflorum*	7	1	0	0	0	0	0	0	1	0
9	Moth bean	*Vigna aconitifolia*	19	4	0	1	0	0	2	0	1	0
10	Pigeon pea	*Cajanus cajan*	90	54	4	16	1	9	15	9	0	0
	Oilseeds											
11	Ground nut	*Arachis hypogaea*	43	14	0	5	1	2	5	0	1	0
12	Sesamum	*Sesamum indicum*	0	1	0	1	0	0	0	0	0	0
13	Sunflower	*Helianthus annus*	0	9	0	0	0	0	8	0	1	0
	Vegetables											
14	Amaranthus	*Amaranthus cruentus*	1	0	0	0	0	0	0	0	0	0
15	Bitter gourd	*Momordica charantia*	1	0	0	0	0	0	0	0	0	0
16	Brinjal	*Solanum melongena*	0	8	0	0	0	0	7	1	0	0
17	Carrot	*Daucus carota*	0	1	0	0	0	0	1	0	0	0
18	Chilli	*Capsicum annuum*	0	5	0	0	0	1	3	1	0	0
19	Cluster bean	*Cyamopsis tetragonoloba*	1	7	0	0	0	0	7	0	0	0

20	Coriander	*Coriandrum sativum*	1	1	0	0	0	0	1	0	0	0
21	Cucumber	*Cucumis sativus*	1	1	0	0	0	0	1	0	0	0
22	Dill leafy vegetable	*Anethum graveolens*	0	1	0	0	0	0	1	0	0	0
23	Fenugreek	*Trigonella foenum-graecum*	1	3	0	0	0	0	3	0	0	0
24	Garlic	*Allium sativum*	0	1	0	1	0	0	0	0	0	0
25	Ladys finger	*Abelmoschus esculentus*	0	8	0	0	0	0	8	0	0	0
26	Onion	*Allium cepa*	0	13	0	0	0	0	13	0	0	0
27	Ridge gourd	*Luffa acutangula*	1	1	0	1	0	0	0	0	0	0
28	Spine Amaranthus	*Amaranthus spinosa*	0	1	0	0	0	0	1	0	0	0
29	Tomato	*Solanum lycopersicon*	1	6	0	0	0	0	6	0	0	0
	Cash crops											
30	Cotton	*Gossypium hirsutum*	0	64	0	1	1	4	56	2	0	0
31	Sugar cane	*Saccharum spp.*	22	15	1	12	0	0	2	0	0	0
	Flower crops											
32	Gladiolus	*Gladiolus communis*	0	1	0	0	0	0	1	0	0	0
33	Jasmine	*Jasminum multiform*	1	1	0	0	0	0	1	0	0	0
34	Rose	*Rosa indica*	0	1	0	0	0	0	1	0	0	0
35	Tube rose	*Polianthes tuberosa*	0	1	0	0	0	0	1	0	0	0
	Forage crops											
36	Grass	*Pennisetum purpureum*	1	0	0	0	0	0	0	0	0	0

- Farm saved seeds were most frequently used in pigeon pea (90 HH) followed by ground nut (43 HH), sugarcane (22 HH) and moth bean (19 HH) during *kharif* 2013. In case of cotton, seeds were purchased from outside by many households (64 HH) followed by pigeon pea (54 HH), maize (51 HH) and pearl millet (29 HH).
- Sharing of seeds among the neighbors was observed in pigeon pea (16 HH) followed by sugarcane (15 HH) and ground nut (5 HH).
- Farmers are less depend on public sector seed source (maize-10HH, pigeon pea- 9HH and pearl millet 5HH) than private sector (Cotton-56HH, maize-34 HH, pearl millet-16 HH and pigeon pea-15 HH).

- Farmers were very less depend on government (6 HH) and NGO (1 HH) for their seed requirement.
- In the order of frequency, farmers depend on private sector followed by neighbors, public sector, local market, friends, government agency and NGO for their seed material requirement during *kharif* 2013.

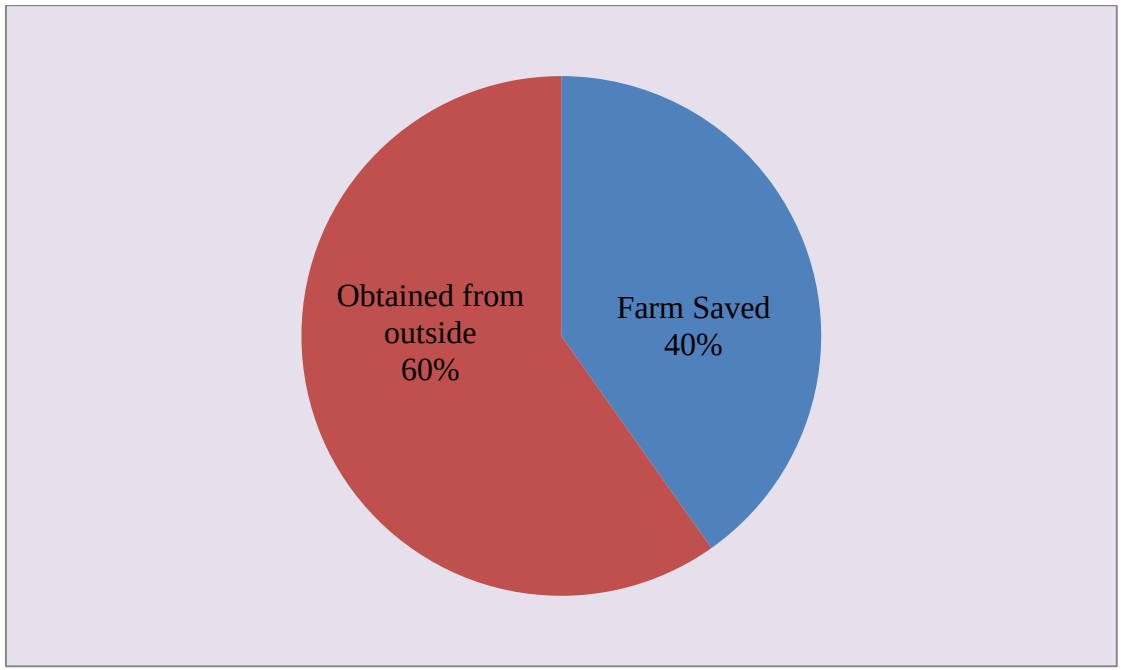


Figure 7: Sources of seed/planting material of annual species (number of households) during *kharif* 2013

Table 7: Means of obtaining seeds of annual species from outside the farm during *kharif* 2013

Sl No.	Species	Botanical Name	Type of transaction				
			Purchase	Exchange of seed	Barter for goods	Credit	Gift
	Cereals						
1	Foxtail millet	*Setaria italica*	0	0	0	0	1
2	Maize	*Zea mays*	47	0	0	0	2
3	Pearl millet	*Pennisetum glaucum*	29	0	0	0	0
4	Sorghum	*Sorghum bicolor*	0	1	0	0	0
	Pulses						
5	Chick pea	*Cicer arietinum*	0	1	0	0	0
6	Cowpea	*Vigna unguiculata*	0	0	0	1	0
7	Green gram	*Vigna radiata*	2	0	0	0	0
8	Horse gram	*Macrotyloma uniflorum*	0	0	0	0	0
9	Moth bean	*Vigna aconitifolia*	3	0	0	1	0
10	Pigeon pea	*Cajanus cajan*	57	0	1	0	0
	Oilseeds						
11	Ground nut	*Arachis hypogaea*	12	1	0	0	1
12	Sesamum	*Sesamum indicum*	1	0	0	0	0
13	Sunflower	*Helianthus annus*	9	0	0	0	0
	Vegetables						
14	Amaranthus	*Amaranthus cruentus*	0	0	0	0	0
15	Bitter gourd	*Momordica charantia*	0	0	0	0	0
16	Brinjal	*Solanum melongena*	7	0	0	0	0
17	Carrot	*Daucus carota*	1	0	0	0	0
18	Chilli	*Capsicum annuum*	5	0	0	0	0
19	Cluster bean	*Cyamopsis tetragonoloba*	7	0	0	0	0
20	Coriander	*Coriandrum sativum*	1	0	0	0	0
21	Cucumber	*Cucumis sativus*	1	0	0	0	0
22	Dill leafy vegetable	*Anethum graveolens*	1	0	0	0	0
23	Fenugreek	*Trigonella foenum-graecum*	3	0	0	0	0
24	Garlic	*Allium sativum*	1	0	0	0	0

25	Ladys finger	*Abelmoschus esculentus*	7	0	0	0	0
26	Onion	*Allium cepa*	13	0	0	0	0
27	Ridge gourd	*Luffa acutangula*	1	0	0	0	0
28	Spine Amaranthus	*Amaranthus spinosa*	1	0	0	0	0
29	Tomato	*Solanum lycopersicon*	6	0	0	0	0
	Cash crops						
30	Cotton	*Gossypium hirsutum*	61	0	0	0	0
31	Sugar cane	*Saccharum spp.*	15	0	0	0	0
	Flower crops						
32	Gladiolus	*Gladiolus communis*	1	0	0	0	0
33	Jasmine	*Jasminum multiform*	1	0	0	0	0
34	Rose	*Rosa indica*	1	0	0	0	0
35	Tube rose	*Polianthes tuberosa*	1	0	0	0	0
	Forage crops						
36	Grass	*Pennisetum purpureum*	0	0	0	0	0

More number of households (61) purchased cotton seeds followed by pigeon pea (57 HH), maize (47 HH) and pearl millet (29 HH). Few households obtained the seeds by other means such as exchange of seeds, barter for other goods, credit and gift during *kharif* 2013.

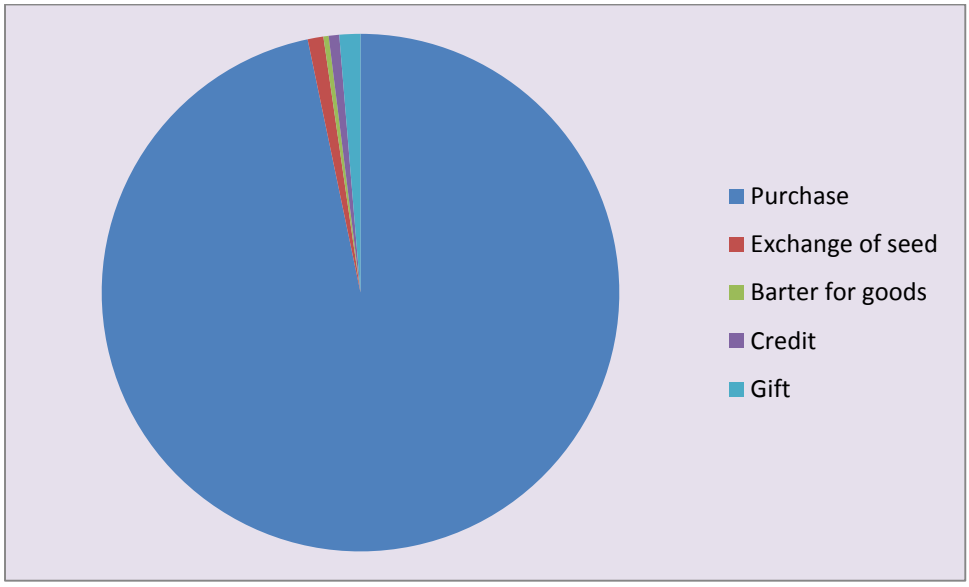


Figure 8: Types of transactions made by the households to acquire seeds from outside farm during *kharif* 2013

Table 8: Frequency of seed/planting material replacement (number of households that replace seed/ planting material for a particular species at a particular frequency) *kharif* 2013

Sl No.	Species	Botanical Name	Renewing the seeds				
			Every year	Every 2 year	Every 3 year	Every > 3 year	Never
	Cereals						
1	Foxtail millet	*Setaria italica*	1	0	0	0	0
2	Maize	*Zea mays*	43	2	2	4	0
3	Pearl millet	*Pennisetum glaucum*	26	3	2	2	0
4	Sorghum	*Sorghum bicolor*	0	0	1	0	0
	Pulses						
5	Chick pea	*Cicer arietinum*	0	0	1	0	0
6	Cowpea	*Vigna unguiculata*	0	1	0	3	1
7	Green gram	*Vigna radiata*	2	1	3	3	0
8	Horse gram	*Macrotyloma uniflorum*	1	0	2	4	1
9	Moth bean	*Vigna aconitifolia*	3	4	3	11	2
10	Pigeon pea	*Cajanus cajan*	38	36	59	10	1
	Oilseeds						
11	Ground nut	*Arachis hypogaea*	10	9	13	22	3
12	Sesamum	*Sesamum indicum*	1	0	0	0	0
13	Sunflower	*Helianthus annus*	7	1	1	0	0
	Vegetables						
14	Amaranthus	*Amaranthus cruentus*	0	0	0	1	0
15	Bitter gourd	*Momordica charantia*	0	0	0	1	0
16	Brinjal	*Solanum melongena*	4	2	1	1	0
17	Carrot	*Daucus carota*	1	0	0	0	0
18	Chilli	*Capsicum annuum*	5	0	0	0	0
19	Cluster bean	*Cyamopsis tetragonoloba*	7	0	0	1	0
20	Coriander	*Coriandrum sativum*	1	0	0	1	0
21	Cucumber	*Cucumis sativus*	1	0	0	1	0
22	Dill leafy vegetable	*Anethum graveolens*	1	0	0	0	0
23	Fenugreek	*Trigonella foenum-graecum*	3	0	0	1	0

24	Garlic	*Allium sativum*	1	0	0	0	0
25	Ladys finger	*Abelmoschus esculentus*	8	0	0	0	0
26	Onion	*Allium cepa*	12	0	0	0	0
27	Ridge gourd	*Luffa acutangula*	0	1	0	1	0
28	Spine Amaranthus	*Amaranthus spinosa*	0	1	0	0	0
29	Tomato	*Solanum lycopersicon*	6	1	0	0	0
	Cash crops						
30	Cotton	*Gossypium hirsutum*	58	0	4	2	0
31	Sugar cane	*Saccharum spp.*	2	1	33	1	0
	Flower crops						
32	Gladiolus	*Gladiolus communis*	1	0	0	0	0
33	Jasmine	*Jasminum multiform*	0	0	0	2	0
34	Rose	*Rosa indica*	0	0	0	1	0
35	Tube rose	*Polianthes tuberosa*	0	0	1	0	0
	Forage crops						
36	Grass	*Pennisetum purpureum*	0	0	0	1	0

Majority of the households replaced seed for cotton and maize every year. In case of ground nut, moth bean and pigeon pea seeds were renewed once in more than three years.

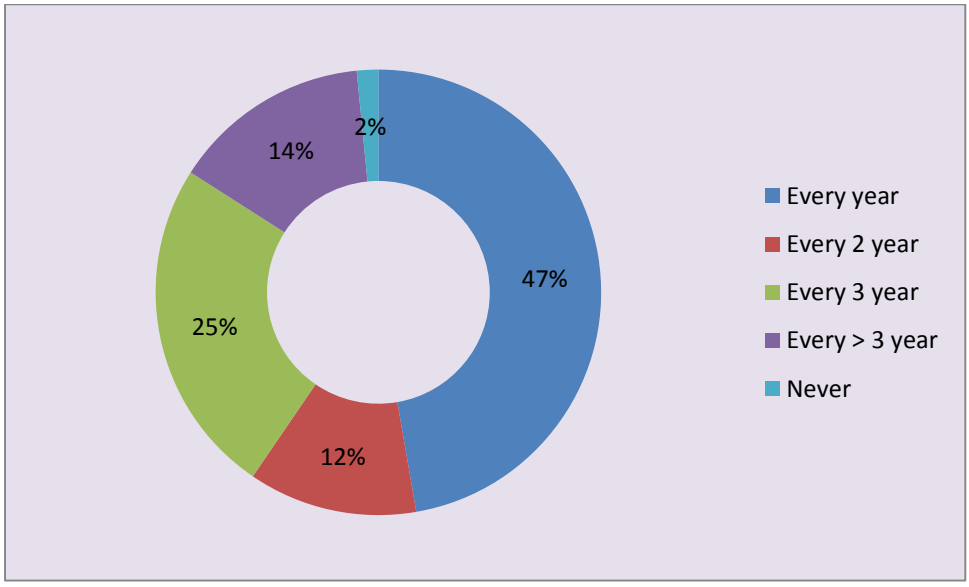


Figure 9: Frequency of renewal of seeds by the households during *kharif* 2013

Table 9: Sharing seeds of annual species among the farmers during *kharif* 2013

Sl No.	Species	Botanical Name	Number of households
	Cereals		
1	Foxtail millet	*Setaria italica*	0
2	Maize	*Zea mays*	4
3	Pearl millet	*Pennisetum glaucum*	1
4	Sorghum	*Sorghum bicolor*	0
	Pulses		
5	Chick pea	*Cicer arietinum*	0
6	Cowpea	*Vigna unguiculata*	1
7	Green gram	*Vigna radiata*	3
8	Horse gram	*Macrotyloma uniflorum*	3
9	Moth bean	*Vigna aconitifolia*	11
10	Pigeon pea	*Cajanus cajan*	43
	Oilseeds		
11	Ground nut	*Arachis hypogaea*	34
12	Sesamum	*Sesamum indicum*	0
13	Sunflower	*Helianthus annus*	0
	Vegetables		
14	Amaranthus	*Amaranthus cruentus*	1
15	Bitter gourd	*Momordica charantia*	1
16	Brinjal	*Solanum melongena*	0
17	Carrot	*Daucus carota*	0
18	Chilli	*Capsicum annuum*	0
19	Cluster bean	*Cyamopsis tetragonoloba*	1
20	Coriander	*Coriandrum sativum*	1
21	Cucumber	*Cucumis sativus*	0
22	Dill leafy vegetable	*Anethum graveolens*	0
23	Fenugreek	*Trigonella foenum-graecum*	1
24	Garlic	*Allium sativum*	0
25	Ladys finger	*Abelmoschus esculentus*	0

26	Onion	*Allium cepa*	0
27	Ridge gourd	*Luffa acutangula*	0
28	Spine Amaranthus	*Amaranthus spinosa*	0
29	Tomato	*Solanum lycopersicon*	0
	Cash crops		
30	Cotton	*Gossypium hirsutum*	4
31	Sugar cane	*Saccharum spp.*	6
	Flower crops		
32	Gladiolus	*Gladiolus communis*	0
33	Jasmine	*Jasminum multiform*	0
34	Rose	*Rosa indica*	0
35	Tube rose	*Polianthes tuberosa*	0
	Forage crops		
36	Grass	*Pennisetum purpureum*	0

Sharing of seeds was observed more in case of pigeon pea (43 HH), ground nut (34 HH) and moth bean (11 HH).

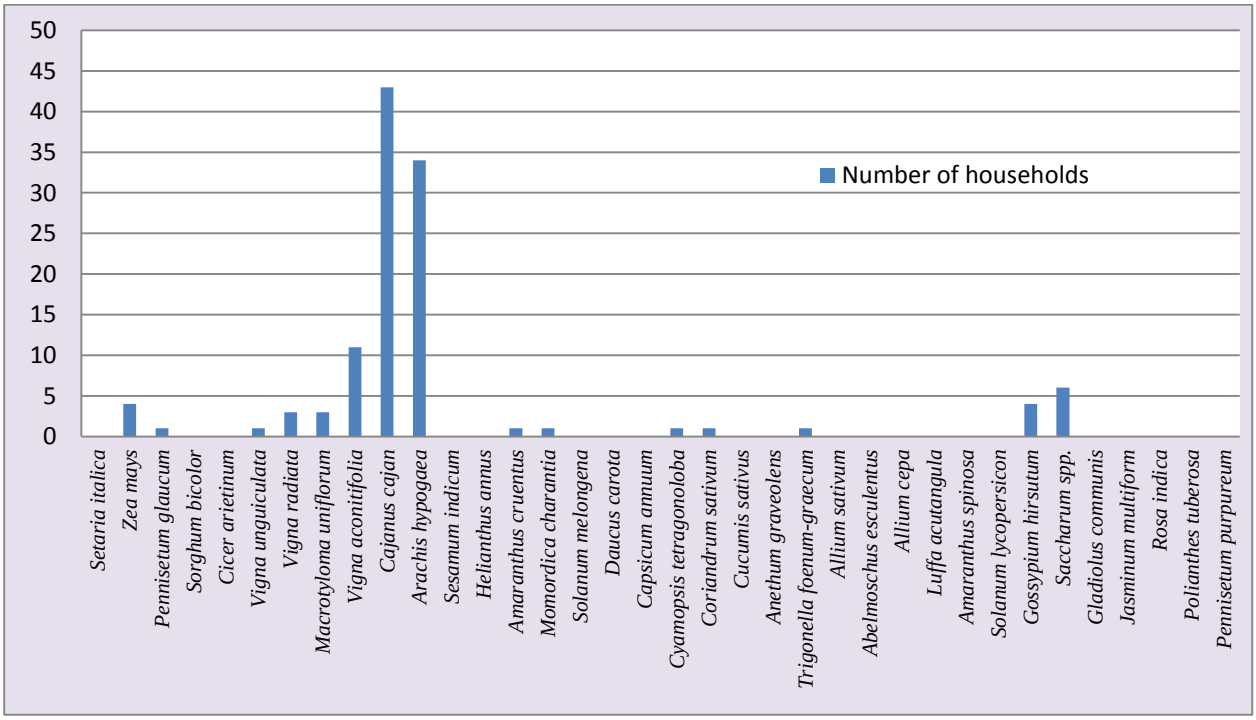


Figure 10: Sharing seeds of annual species among the farmers during *kharif* 2013

Table 10: Annual plant species grown by households and their demand for planting material during *kharif* 2013

Sl No.	Species	Botanical Name	No. of Households grown	No. of HH maintained Desi varieties	No. of HH maintained Improved	Demand for seed/planting material by type					
						No	Yes	Local	Improved	Both	% Yes
	Cereals										
1	Foxtail millet	*Setaria italica*	1	1	0	1	0	0	0	0	0
2	Maize	*Zea mays*	51	0	51	2	49	3	43	3	92
3	Pearl millet	*Pennisetum glaucum*	33	13	20	5	27	2	23	2	80
4	Sorghum	*Sorghum bicolor*	1	1	0	0	1	1	0	0	100
	Pulses										
5	Chick pea	*Cicer arietinum*	1	1	0	0	1	1	0	0	100
6	Cowpea	*Vigna unguiculata*	5	4	1	3	2	1	1	0	20
7	Green gram	*Vigna radiata*	9	7	2	3	5	2	3	0	44
8	Horse gram	*Macrotyloma uniflorum*	8	8	0	3	5	1	3	1	56
9	Moth bean	*Vigna aconitifolia*	23	23	0	13	10	5	2	3	33
10	Pigeon pea	*Cajanus cajan*	144	112	33	45	97	30	49	18	65
	Oilseeds										
11	Ground nut	*Arachis hypogaea*	57	50	7	30	26	11	10	5	39
12	Sesamum	*Sesamum indicum*	1	1	0	0	1	1	0	0	100

13	Sunflower	*Helianthus annus*	9	0	7	1	8	7	5	3	89
	Vegetables										
14	Amaranthus	*Amaranthus cruentus*	1	1	0	1	0	0	0	0	0
15	Bitter gourd	*Momordica charantia*	1	1	0	1	0	0	0	0	0
16	Brinjal	*Solanum melongena*	8	2	6	2	6	1	3	3	75
17	Carrot	*Daucus carota*	1	0	1	0	1	2	0	1	100
18	Chilli	*Capsicum annuum*	5	1	4	3	2	3	2	0	40
19	Cluster bean	*Cyamopsis tetragonoloba*	8	1	7	3	5	1	2	2	63
20	Coriander	*Coriandrum sativum*	2	1	1	2	0	0	0	0	0
21	Cucumber	*Cucumis sativus*	2	1	1	1	1	0	0	1	50
22	Dill leafy vegetable	*Anethum graveolens*	1	0	1	1	0	0	0	0	0
23	Fenugreek	*Trigonella foenum-graecum*	4	1	3	1	3	4	2	1	75
24	Garlic	*Allium sativum*	1	1	1	1	0	0	0	0	0
25	Ladys finger	*Abelmoschus esculentus*	8	1	7	5	3	1	1	1	38
26	Onion	*Allium cepa*	13	0	13	3	10	6	10	0	77
27	Ridge gourd	*Luffa acutangula*	2	1	1	2	0	0	0	0	0
28	Spine Amaranthus	*Amaranthus spinosa*	1	0	1	1	0	0	0	0	0
29	Tomato	*Solanum lycopersicon*	7	1	6	3	4	8	1	3	57
	Cash crops										
30	Cotton	*Gossypium hirsutum*	64	2	64	2	61	7	51	3	92
31	Sugar cane	*Saccharum spp.*	37	1	9	6	30	6	20	4	82

	Flower crops										
32	Gladiolus	*Gladiolus communis*	1	0	1	1	0	0	0	0	0
33	Jasmine	*Jasminum multiform*	2	2	0	2	0	0	0	0	0
34	Rose	*Rosa indica*	1	0	1	1	0	0	0	0	0
35	Tube rose	*Polianthes tuberosa*	1	1	0	1	0	0	0	0	0
	Forage crops										
36	Grass	*Pennisetum purpureum*	1	0	1	0	1	5	1	0	100
	Total		**515**	**240**	**250**	**149**	**359**	**73**	**232**	**54**	**1667**

More number of households were growing desi/local varieties in respect of pigeon pea and ground nut whereas, in moth bean only desi variety being cultivated by the farmers. In case of cotton most of the farmers were growing improved varieties and in maize all the farmers are growing only improved varieties. Most of the farmers expressed need for improved varieties of seeds/planting material besides some of the farmers demanding desi and both desi and improved varieties of seeds.

Table 11: Distribution of responsibility for caring annual plant species (No. of households) during *kharif* 2013

Q. No.	Decision	Husband		Wife		Both	Both with children	Children
		Alone	With Children	Alone	With children			
ABD.1.25	Who takes care of the species?	108	81	16	16	154	83	57
ABD.1.26	Who makes the decisions about the seed that was planted?	266	38	12	13	88	39	59
ABD.1.27	Who makes the decisions about the field management of this "species"?	183	60	12	10	129	36	81
ABD.1.28	Who makes the decisions about the consumption of the "species"?	122	31	56	13	228	25	36
ABD.1.29	Who makes the decisions about the selling of the "species"?	277	26	12	7	107	8	53
ABD.1.30	Who makes the decisions about how to use the revenue from the sale of the "species"?	271	22	13	7	118	8	51
	Total	**1227**	**258**	**121**	**66**	**824**	**199**	**337**
	Percentage	**40.47**	**8.51**	**3.99**	**2.18**	**27.18**	**6.56**	**11.11**

The decision making for crop care, consumption, selling and use of revenue were taken majority of times by male head of households alone (40.47 %) followed by both husband and wife (27.18 %). In few households decision were taken by children alone (11.11 %) besides children associated with husband and wife in decision making.

Table 12: For how many years *rabi* crop species being cultivated by households

Sl No	Species	Botanical Name	Village (Avg. Years)			Grand Avg.
			Balaganur	Mannur	Nandyal	
	Cereals					
1	Foxtail millet	*Setaria italica*	5	0	0	**5**
2	Maize	*Zea mays*	5	0	7	**6**
3	*Rabi* Sorghum	*Sorghum bicolor*	29	4	18	**14**
4	Wheat	*Triticum aestivum*	13	3	13	**10**
5	Wheat	*Triticum dicoccum*	15	0	0	**15**
	Pulses					
6	Chick pea	*Cicer arietinum*	8	3	16	**8**
7	Pigeon pea	*Cajanus cajan*	0	0	6	**6**
	Oilseeds					
8	Ground nut	*Arachis hypogaea*	21	0	0	**21**
9	Linseed	*Linum usitatissimum*	4	2	10	**5**
10	Niger	*Guizotia abyssinica*	0	0	3	**3**
11	Safflower	*Carthamus tinctorius*	15	4	10	**6**
12	Sunflower	*Helianthus annus*	0	2	7	**4**
	Vegetables					
13	Brinjal	*Solanum melongena*	13	4	0	**8**
14	Chilli	*Capsicum annuum*	0	2	0	**2**
15	Cluster bean	*Cyamopsis tetragonoloba*	10	3	0	**5**
16	Fenugreek	*Trigonella foenum-graecum*	8	4	0	**6**
17	Ladys finger	*Abelmoschus esculentus*	12	3	0	**8**
18	Onion	*Allium cepa*	0	3	4	**3**
19	Ridge gourd	*Luffa acutangula*	3	0	0	**3**
20	Tomato	*Solanum lycopersicon*	7	0	0	**7**
	Cash crops					
21	Cotton	*Gossypium hirsutum*	0	1	10	**8**
22	Sugar Cane	*Saccharum spp.*	10	4	1	**5**

Table 13: Annual plant species grown during *rabi* season 2013-14

Sl No.	Species	Botanical Name	Where the crop grown (No. of households)			Per cent
			Farm	Kitchen garden	Others	
	Cereal s					
1	Foxtail millet	*Setaria italica*	1	0	0	0.22
2	Maize	*Zea mays*	8	0	0	1.75
3	*Rabi* Sorghum	*Sorghum bicolor*	130	0	0	28.45
4	Wheat	*Triticum aestivum*	70	0	0	15.32
5	Wheat	*Triticum dicoccum*	35	0	0	7.66
	Pulses					
6	Chick pea	*Cicer arietinum*	126	0	0	27.57
7	Pigeon pea	*Cajanus cajan*	12	0	0	2.63
	Oilseeds					
8	Ground nut	*Arachis hypogaea*	8	0	0	1.75
9	Linseed	*Linum usitatissimum*	3	0	0	0.66
10	Niger	*Guizotia abyssinica*	1	0	0	0.22
11	Safflower	*Carthamus tinctorius*	9	0	0	1.97
12	Sunflower	*Helianthus annus*	27	0	0	5.91
	Vegetables					
13	Brinjal	*Solanum melongena*	3	1	0	0.88
14	Chilli	*Capsicum annuum*	0	1	0	0.22
15	Cluster bean	*Cyamopsis tetragonoloba*	1	2	0	0.66
16	Fenugreek	*Trigonella foenum-graecum*	2	0	0	0.44
17	Ladys finger	*Abelmoschus esculentus*	1	1	0	0.44
18	Onion	*Allium cepa*	4	0	0	0.88
19	Ridge gourd	*Luffa acutangula*	0	1	0	0.22
20	Tomato	*Solanum lycopersicon*	2	0	0	0.44
	Cash crops					
21	Cotton	*Gossypium hirsutum*	0	1	0	0.22
22	Sugar Cane	*Saccharum spp.*	1	2	0	0.66

There are twenty two annual species grown by the households during the *rabi* 2013-14. *Rabi* sorghum (28.45 %) was grown by many households followed by chick pea (27.57 %), wheat (15.32%), wheat (7.66%) on farm land.

Table 14: Annual plant species grown during *rabi* 2013-14 with source of irrigation

Sl No.	Species	Botanical Name	Source of irrigation (No. of households)				
			Rain fed	Open well	Tube well	Canal	> 1 source
	Cereals						
1	Foxtail millet	*Setaria italica*	1	0	0	0	0
2	Maize	*Zea mays*	1	2	1	3	1
3	*Rabi* Sorghum	*Sorghum bicolor*	101	10	4	5	10
4	Wheat	*Triticum aestivum*	18	18	8	6	20
5	Wheat	*Triticum dicoccum*	0	12	0	6	17
	Pulses						
6	Chick pea	*Cicer arietinum*	85	10	9	9	11
7	Pigeon pea	*Cajanus cajan*	11	0	0	0	1
	Oilseeds						
8	Ground nut	*Arachis hypogaea*	0	2	0	1	5
9	Linseed	*Linum usitatissimum*	3	0	0	0	0
10	Niger	*Guizotia abyssinica*	1	0	0	0	0
11	Safflower	*Carthamus tinctorius*	7	2	0	0	0
12	Sunflower	*Helianthus annus*	25	2	0	0	0
	Vegetables						
13	Brinjal	*Solanum melongena*	85	10	9	9	11
14	Chilli	*Capsicum annuum*	11	0	0	0	1
15	Cluster bean	*Cyamopsis tetragonoloba*	0	1	2		1
16	Fenugreek	*Trigonella foenum-graecum*	1	0	0	0	0
17	Ladys finger	*Abelmoschus esculentus*	1	1	0	1	0
18	Onion	*Allium cepa*	0	0	1	1	0
19	Ridge gourd	*Luffa acutangula*	0	1	1	0	0
20	Tomato	*Solanum lycopersicon*	1	1	1	0	1
	Cash crops						
21	Cotton	*Gossypium hirsutum*	4	1	0	0	0
22	Sugar Cane	*Saccharum spp.*	0	0	2	0	1

During *rabi* season 2013-14 under rainfed situation *rabi* sorghum was grown by many households (101 HH) followed by chick pea (85 HH), sunflower (25 HH), wheat (18 HH) and pigeon pea (11 HH). Under irrigated situation open well water was used to grow dicoccum wheat by 18 HH followed by bread wheat (12 HH), *rabi* sorghum and chick pea (10 HH each), whereas tube well water source was used to grow chick pea by 9 HH and bread wheat by 4 HH. Canal water source was used to grow chick pea (9 HH) and bread and dicoccum wheat (6 HH each) whereas, wheat, chick pea and *rabi* sorghum were grown with more than one source of irrigation.

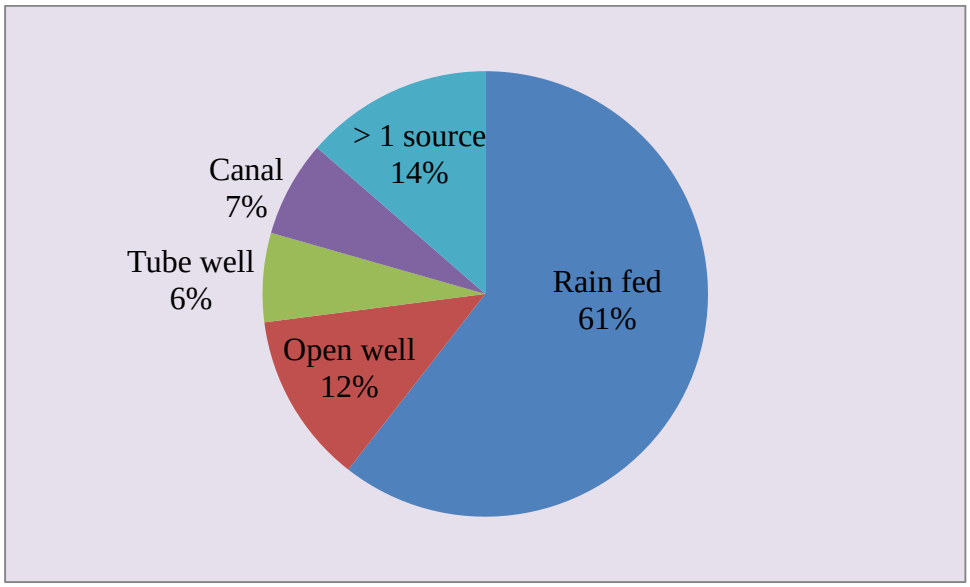


Figure 11: Utilization of different irrigation sources by households for cultivation of crop species during *rabi* 2013-14

Table 15: Cropping pattern and objective of production of annual species during *rabi* 2013-14

Sl No.	Species	Botanical Name	Cropping pattern		Objective of producing		
			Mono-cropping	Inter-cropping	Self	Selling	Both
	Cereals						
1	Foxtail millet	*Setaria italica*	1	0	1	0	0
2	Maize	*Zea mays*	7	0	2	3	3
3	*Rabi* Sorghum	*Sorghum bicolor*	115	17	59	1	70
4	Wheat	*Triticum aestivum*	70	0	37	4	29
5	Wheat	*Triticum dicoccum*	35	0	17	1	17
	Pulses						
6	Chick pea	*Cicer arietinum*	111	15	14	18	94
7	Pigeon pea	*Cajanus cajan*	12	0	0	3	9
	Oilseeds						
8	Ground nut	*Arachis hypogaea*	7	1	2	1	5
9	Linseed	*Linum usitatissimum*	3	0	2	0	1
10	Niger	*Guizotia abyssinica*	1	0	0	0	1
11	Safflower	*Carthamus tinctorius*	7	2	2	3	4
12	Sunflower	*Helianthus annus*	26	1	0	26	1
	Vegetables						
13	Brinjal	*Solanum melongena*	4	0	1	0	3
14	Chilli	*Capsicum annuum*	1	0	1	0	0
15	Cluster bean	*Cyamopsis tetragonoloba*	3	0	2	0	1
16	Fenugreek	*Trigonella foenum-graecum*	2	0	0	0	2
17	Ladys finger	*Abelmoschus esculentus*	2	0	1	0	1
18	Onion	*Allium cepa*	4	0	0	1	3
19	Ridge gourd	*Luffa acutangula*	1	0	1	0	0
20	Tomato	*Solanum lycopersicon*	2	0	1	0	1
	Cash crops						
21	Cotton	*Gossypium hirsutum*	5	0	0	5	0
22	Sugar Cane	*Saccharum spp.*	3	0	0	3	0

During *rabi* 2013-14 *rabi* sorghum, chick pea, wheat, sunflower and pigeon pea were grown as mono-crops whereas, *rabi* sorghum and chick pea were also grown as inter-crop. *rabi* sorghum, wheat and chick pea were grown majorly for self consumption whereas, sunflower and cotton were grown for commercial purpose only. Chick pea, *rabi* sorghum and wheat were grown for consumption and sale.

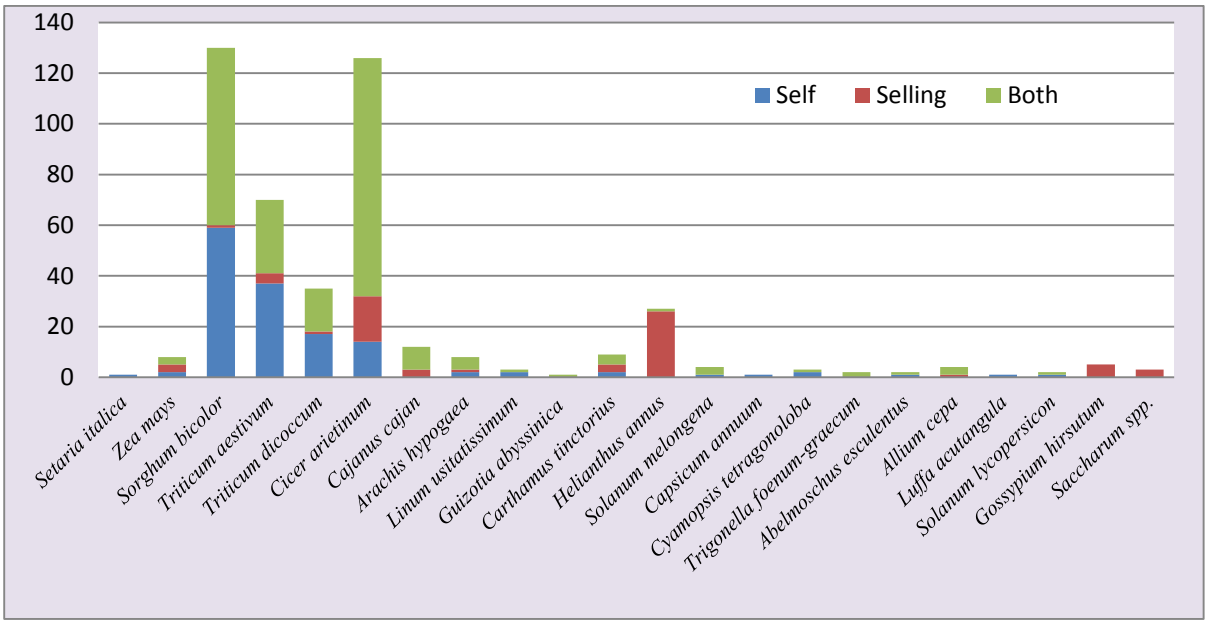


Figure 12: Objective of producing crop species during *rabi* 2013-14 by households

Table 16: Contribution of annual species grown during *rabi* 2013-14 to food and income

Sl No.	Species	Botanical Name	Contribution to food				Contribution to income			
			Minor	Medium	Major	Nil	Minor	Medium	Major	Nil
	Cereals									
1	Foxtail millet	*Setaria italica*	2	2	4	0	0	3	4	1
2	Maize	*Zea mays*	0	2	15	18	6	18	7	4
3	*Rabi* Sorghum	*Sorghum bicolor*	0	3	34	33	14	29	13	14
4	Wheat	*Triticum aestivum*	0	19	35	76	16	52	28	35
5	Wheat	*Triticum dicoccum*	0	0	0	1	0	0	1	0
	Pulses									
6	Chick pea	*Cicer arietinum*	0	46	47	33	16	66	36	8
7	Pigeon pea	*Cajanus cajan*	0	3	8	1	0	0	12	0
	Oilseeds									
8	Ground nut	*Arachis hypogaea*	0	0	4	4	2	4	1	1
9	Linseed	*Linum usitatissimum*	0	3	3	3	3	5	0	1
10	Niger	*Guizotia abyssinica*	0	0	1	2	1	1	1	0
11	Safflower	*Carthamus tinctorius*	27	0	0	0	0	13	14	0
12	Sunflower	*Helianthus annus*	0	1	0	0	1	0	0	0
	Vegetables									
13	Brinjal	*Solanum melongena*	0	0	2	0	0	1	0	1
14	Chilli	*Capsicum annuum*	0	0	2	0	0	1	0	1
15	Cluster bean	*Cyamopsis tetragonoloba*	0	0	4	0	1	2	0	1
16	Fenugreek	*Trigonella foenum-graecum*	0	0	1	0	0	0	0	1
17	Ladys finger	*Abelmoschus esculentus*	0	0	1	0	0	0	0	1
18	Onion	*Allium cepa*	0	0	3	0	0	1	0	2
19	Ridge gourd	*Luffa acutangula*	0	2	1	1	0	1	3	0
20	Tomato	*Solanum lycopersicon*	0	0	2	0	0	2	0	0

	Cash crops									
21	Cotton	*Gossypium hirsutum*	1	0	0	2	0	1	2	0
22	Sugar Cane	*Saccharum spp.*	5	0	0	0	0	0	5	0

During *rabi* 2013-14 chick pea, *rabi* sorghum and wheat were contributing majorly to food. Chick pea, *rabi* sorghum, sunflower, pigeon pea, wheat and cotton were contributing majorly to income.

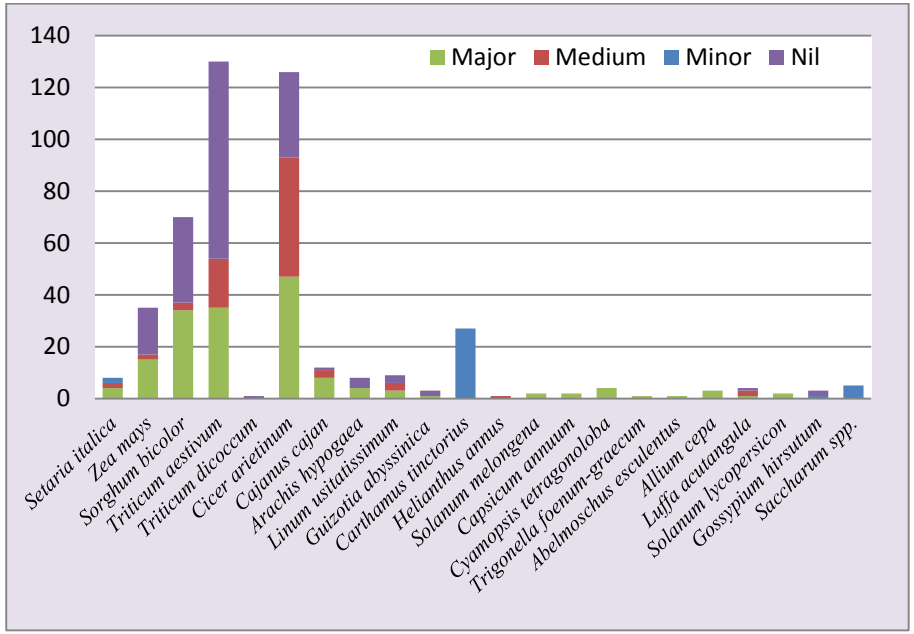


Figure 13: Contribution of species grown by households during *rabi* 2013-14 to food

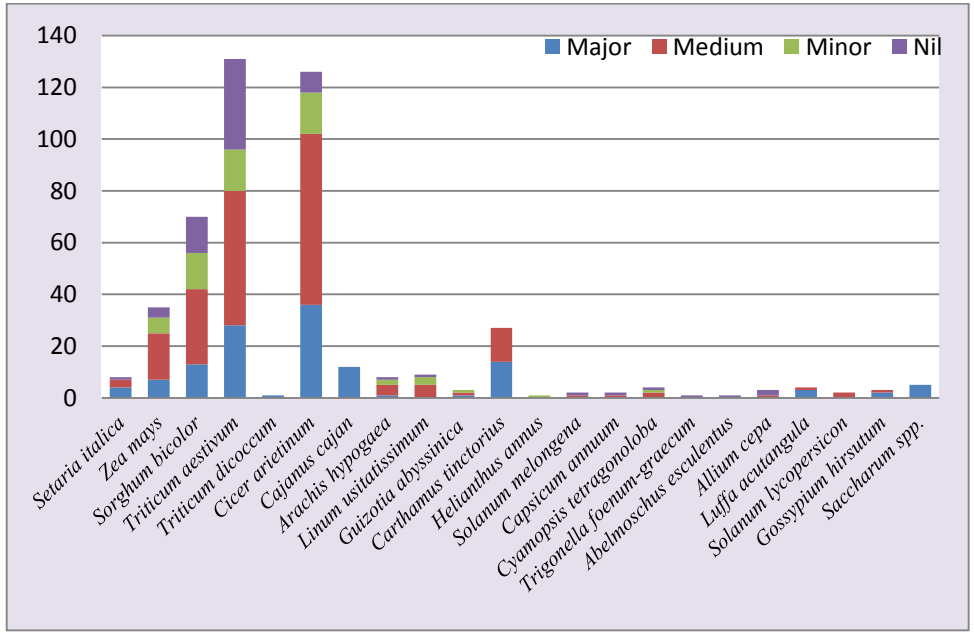


Figure 14: Contribution of species grown by households during *rabi* 2013-14 to income

Table 17: Sources of seed/planting material of annual species (number of households that obtained seed/planting material for a particular species and from a particular source in *rabi* 2013-14)

Sl No.	Species	Botanical Name	Source of seed		If obtained outside farm, from whom							
			Saved	Outside	Family	Neighbor	Friend	Public sector trader	Private sector trader	Local market	Govt. emergency programme	NGO
	Cereals											
1	Foxtail millet	*Setaria italica*	93	37	1	7	2	2	18	4	2	1
2	Maize	*Zea mays*	0	8	0	0	0	3	3	2	0	0
3	*Rabi* Sorghum	*Sorghum bicolor*	42	28	1	6	1	10	7	3	0	0
4	Wheat	*Triticum aestivum*	32	3	0	1	0	1	1	0	0	0
5	Wheat	*Triticum dicoccum*	1	0	0	0	0	0	0	0	0	0
	Pulses											
6	Chick pea	*Cicer arietinum*	40	86	2	7	2	20	17	3	29	4
7	Pigeon pea	*Cajanus cajan*	6	6	0	1	0	1	3	1	0	0
	Oilseeds											
8	Ground nut	*Arachis hypogaea*	1	26	1	0	1	4	19	1	0	0
9	Linseed	*Linum usitatissimum*	8	1	0	0	0	0	1	0	0	0
10	Niger	*Guizotia abyssinica*	2	6	0	1	0	3	2	0	0	0
11	Safflower	*Carthamus tinctorius*	1	0	0	0	0	0	0	0	0	0
12	Sunflower	*Helianthus annus*	3	0	0	0	0	0	0	0	0	0
	Vegetables											
13	Brinjal	*Solanum melongena*	0	2	0	0	0	1	1	0	0	0
14	Chilli	*Capsicum annuum*	1	1	0	0	0	0	1	0	0	0
15	Cluster bean	*Cyamopsis tetragonoloba*	0	1	0	0	0	0	1	0	0	0
16	Fenugreek	*Trigonella foenum-graecum*	0	2	0	0	0	0	2	0	0	0
17	Ladys finger	*Abelmoschus esculentus*	0	3	0	0	0	0	3	0	0	0
18	Onion	*Allium cepa*	0	4	0	0	0	0	4	0	0	0

19	Ridge gourd	*Luffa acutangula*	0	4	0	0	0	0	4	0	0	0
20	Tomato	*Solanum lycopersicon*	1	0	0	0	0	0	0	0	0	0
	Cash crops											
21	Cotton	*Gossypium hirsutum*	0	5	0	0	0	1	4	0	0	0
22	Sugar Cane	*Saccharum spp.*	2	1	0	1	0	0	0	0	0	0

- Farm saved seeds were most frequently used in *rabi* sorghum (93 HH) followed by wheat (42 HH), chick pea (40 HH) and dicoccum wheat (32 HH) during *rabi* 2013-14. In case of chick pea, seeds were purchased from outside by many households (86 HH) followed by *rabi* sorghum (37 HH), wheat (28 HH) and sunflower (26 HH).
- Sharing of seeds among the neighbors was observed in chick pea and *rabi* sorghum (7 HH each) followed by wheat (6 HH).
- Farmers depend on public sector (Chick pea-20HH, wheat- 10 HH and sunflower-4HH) and private sector (Sunflower-19 HH, *rabi* sorghum-18 HH and chick pea-17 HH) equally for their seed requirement.
- Farmers were more dependent on government (29 HH) for their chick pea seed requirement than public or private sector.
- In the order of frequency, farmers depend on private sector followed by public sector, government agency, neighbors, local market, friends, farm, and NGO for their seed material requirement during *rabi* 2013-14.

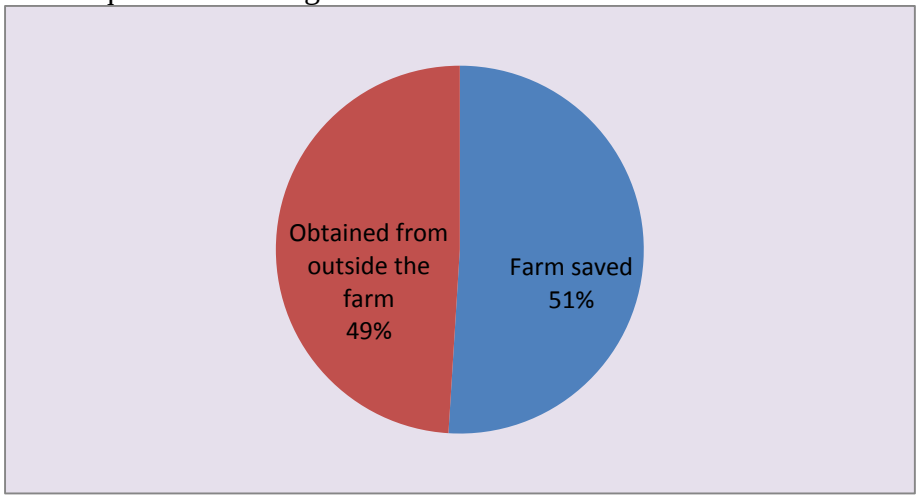


Figure 15: Sources of seed/planting material of annual species (number of households) during *rabi* 2013-14

Table 18: Means of obtaining seeds of annual species from outside the farm during *rabi* 2013-14

Sl No.	Species	Botanical Name	Type of transaction				
			Purchase	Exchange of seed	Barter for other goods	Credit	Gift
	Cereals						
1	Foxtail millet	*Setaria italica*	0	0	0	0	0
2	Maize	*Zea mays*	8	0	0	0	0
3	*Rabi* Sorghum	*Sorghum bicolor*	35	0	0	0	2
4	Wheat	*Triticum aestivum*	26	2	0	0	0
5	Wheat	*Triticum dicoccum*	3	0	0	0	0
	Pulses						
6	Chick pea	*Cicer arietinum*	80	2	0	0	3
7	Pigeon pea	*Cajanus cajan*	6	0	0	0	0
	Oilseeds						
8	Ground nut	*Arachis hypogaea*	6	0	0	0	0
9	Linseed	*Linum usitatissimum*	0	0	0	0	0
10	Niger	*Guizotia abyssinica*	0	0	0	0	0
11	Safflower	*Carthamus tinctorius*	1	0	0	0	0
12	Sunflower	*Helianthus annus*	24	2	0	0	0
	Vegetables						
13	Brinjal	*Solanum melongena*	4	0	0	0	0
14	Chilli	*Capsicum annuum*	1	0	0	0	0
15	Cluster bean	*Cyamopsis tetragonoloba*	3	0	0	0	0
16	Fenugreek	*Trigonella foenum-graecum*	2	0	0	0	0
17	Ladys finger	*Abelmoschus esculentus*	2	0	0	0	0
18	Onion	*Allium cepa*	4	0	0	0	0
19	Ridge gourd	*Luffa acutangula*	0	0	0	0	0
20	Tomato	*Solanum lycopersicon*	1	0	0	0	0
	Cash crops						
21	Cotton	*Gossypium hirsutum*	5	0	0	0	0
22	Sugar Cane	*Saccharum spp.*	1	0	0	0	0

More number of households (80) purchased chick pea seeds followed by *rabi* sorghum (57 HH) and wheat (26 HH). Few households obtained the seeds by other means such as exchange of seeds, barter for other goods, credit and gift during *rabi* 2013-14.

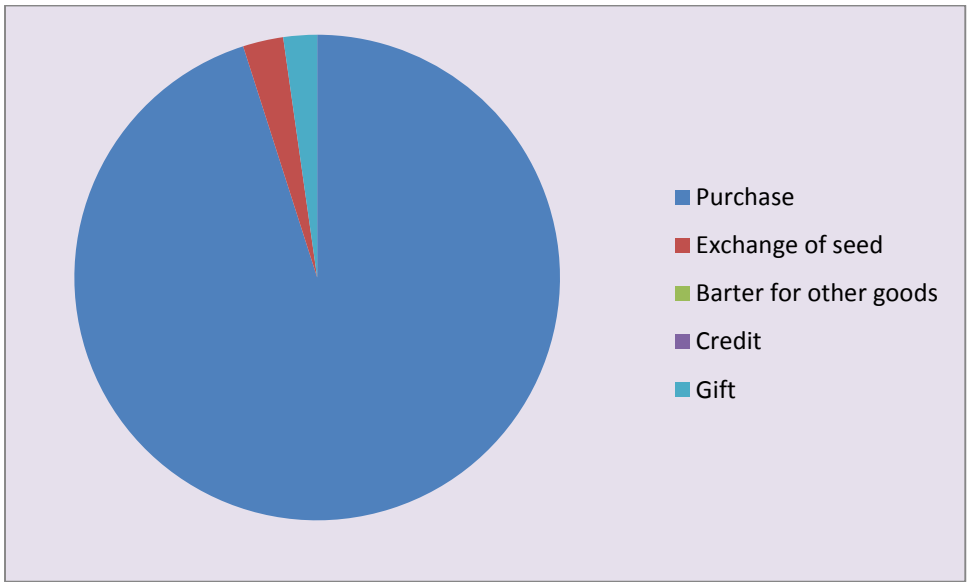


Figure 16: Type of transactions made by the households to acquire seeds from outside farm during *rabi* 2013-14

Table 19. Frequency of seed/planting material replacement (number of households that replace seed/ planting material for a particular species at a particular frequency) *rabi* 2013-14

Sl No.	Species	Botanical Name	Renewing the seeds				
			Every year	Every two year	Every three year	Every > three year	Never
	Cereal s						
1	Foxtail millet	*Setaria italica*	1	0	0	0	0
2	Maize	*Zea mays*	8	0	0	0	0
3	*Rabi* Sorghum	*Sorghum bicolor*	36	28	41	25	1
4	Wheat	*Triticum aestivum*	12	17	30	12	1
5	Wheat	*Triticum dicoccum*	3	5	13	14	0
	Pulses						
6	Chick pea	*Cicer arietinum*	54	41	22	8	1
7	Pigeon pea	*Cajanus cajan*	8	1	2	1	0
	Oilseeds						
8	Ground nut	*Arachis hypogaea*	4	1	0	3	0
9	Linseed	*Linum usitatissimum*	1	1	0	1	0
10	Niger	*Guizotia abyssinica*	1	0	0	0	0
11	Safflower	*Carthamus tinctorius*	2	2	1	4	0
12	Sunflower	*Helianthus annus*	22	4	1	1	0
	Vegetables						
13	Brinjal	*Solanum melongena*	3	1	0	0	0
14	Chilli	*Capsicum annuum*	1	0	0	0	0
15	Cluster bean	*Cyamopsis tetragonoloba*	2	1	0	0	0
16	Fenugreek	*Trigonella foenum-graecum*	1	1	0	0	0
17	Ladys finger	*Abelmoschus esculentus*	1	1	0	0	0
18	Onion	*Allium cepa*	3	0	0	1	0
19	Ridge gourd	*Luffa acutangula*	0	0	1	0	0
20	Tomato	*Solanum lycopersicon*	0	1	1	0	0
	Cash crops						

21	Cotton	*Gossypium hirsutum*	5	0	0	0	0
22	Sugar Cane	*Saccharum spp.*	0	0	2	1	0

Majority of the households replaced seed for chick pea, sorghum and sunflower every year. In case of *rabi* sorghum, wheat and chick pea seeds were renewed once in two years, three years and more than three years by some households.

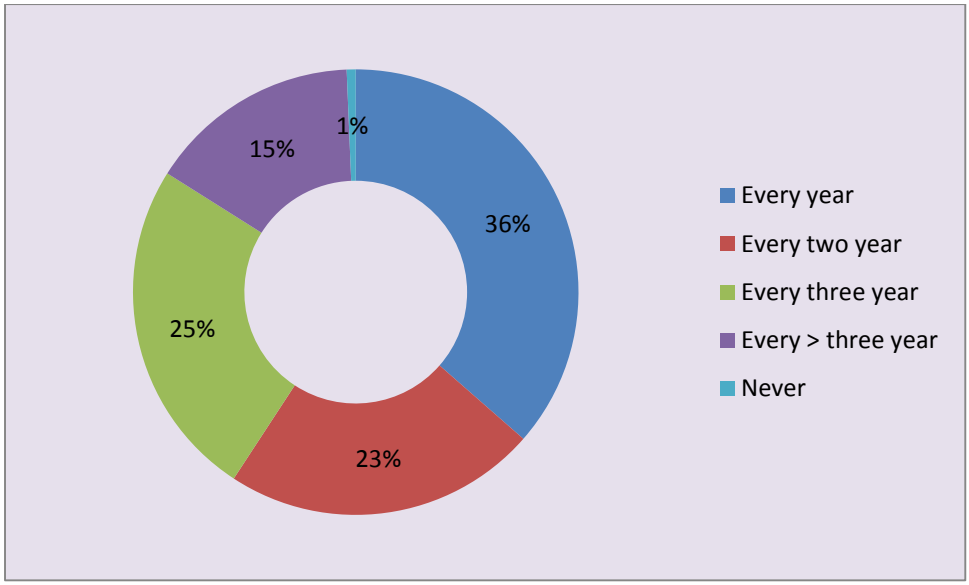


Figure 17: Frequency of renewal of seeds by the households during *rabi* 2013-14

Table 20. Sharing seeds of annual species among the farmers during *rabi* 2013-14

Sl No.	Species	Botanical Name	Number of farmers
	Cereal s		
1	Foxtail millet	*Setaria italica*	0
2	Maize	*Zea mays*	1
3	*Rabi* Sorghum	*Sorghum bicolor*	25
4	Wheat	*Triticum aestivum*	5
5	Wheat	*Triticum dicoccum*	8
	Pulses		
6	Chick pea	*Cicer arietinum*	23
7	Pigeon pea	*Cajanus cajan*	2
	Oilseeds		
8	Ground nut	*Arachis hypogaea*	1
9	Linseed	*Linum usitatissimum*	1
10	Niger	*Guizotia abyssinica*	0
11	Safflower	*Carthamus tinctorius*	5
12	Sunflower	*Helianthus annus*	1
	Vegetables		
13	Brinjal	*Solanum melongena*	0
14	Chilli	*Capsicum annuum*	0
15	Cluster bean	*Cyamopsis tetragonoloba*	0
16	Fenugreek	*Trigonella foenum-graecum*	0
17	Ladys finger	*Abelmoschus esculentus*	0
18	Onion	*Allium cepa*	0
19	Ridge gourd	*Luffa acutangula*	1
20	Tomato	*Solanum lycopersicon*	1
	Cash crops		
21	Cotton	*Gossypium hirsutum*	0
22	Sugar Cane	*Saccharum spp.*	1

Sharing of seeds was observed more in case of *rabi* sorghum (25 HH), chick pea (23 HH) and moth bean (11 HH).

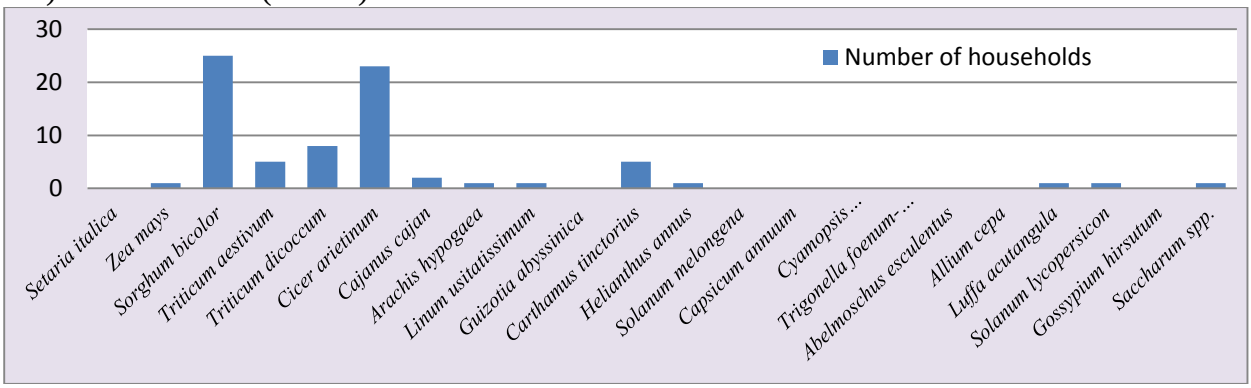


Figure 18: Sharing seeds of annual species among the farmers during *rabi* 2013-14

Table 21: Annual plant species grown by households and their demand for planting material during *rabi* 2013-14

Sl No.	Species	Botanical Name	No. of HH grown	No. of HH maintained Desi varieties	No. of HH maintained Improved	Demand for seed/planting material by type					
						No	Yes	Local	Improved	Both	% Yes
	Cereals										
1	Foxtail millet	*Setaria italica*	1	1	0	0	1	1	0	0	100
2	Maize	*Zea mays*	8	0	8	2	6	0	6	0	78
3	*Rabi* Sorghum	*Sorghum bicolor*	130	105	40	62	63	30	27	6	49
4	Wheat	*Triticum aestivum*	71	56	29	11	58	14	38	6	82
5	Wheat	*Triticum dicoccum*	35	35	17	3	32	5	26	1	92
	Pulses										
6	Chick pea	*Cicer arietinum*	126	83	64	39	83	17	51	15	66
7	Pigeon pea	*Cajanus cajan*	12	5	8	9	3	1	2	0	25
	Oilseeds										
8	Ground nut	*Arachis hypogaea*	8	6	4	0	8	0	8	0	100
9	Linseed	*Linum usitatissimum*	3	3	0	1	2	2	0	0	67
10	Niger	*Guizotia abyssinica*	1	1	0	1		0	0	0	0
11	Safflower	*Carthamus tinctorius*	9	9	1	3	5	4	0	1	56
12	Sunflower	*Helianthus annus*	28	0	28	6	21	2	19	0	75
	Vegetables										
13	Brinjal	*Solanum melongena*	4	0	4	0	4	1	2	1	100

14	Chilli	*Capsicum annuum*	1	0	1	0	1	0	1	0	100
15	Cluster bean	*Cyamopsis tetragonoloba*	3	0	3	0	3	0	2	1	100
16	Fenugreek	*Trigonella foenum-graecum*	2	0	2	0	2	1	1	0	100
17	Ladys finger	*Abelmoschus esculentus*	2	0	2	0	2	0	1	1	100
18	Onion	*Allium cepa*	4	0	4	1	3	0	3	0	75
19	Ridge gourd	*Luffa acutangula*	1	1	0	1		0	0	0	0
20	Tomato	*Solanum lycopersicon*	2	1	1	1	1	0	1	0	50
	Cash crops										
21	Cotton	*Gossypium hirsutum*	5	0	5	4	1	0	1	0	20
22	Sugar Cane	*Saccharum spp.*	3	2	1	1	2	0	1	1	67

More number of households were growing both desi/local and improved varieties in respect of sorghum, chick pea and wheat. Most of the farmers expressed need for improved varieties of seeds/planting material besides some of the farmers demanding desi and both desi and improved varieties of seeds of different crops.

Table 22: Distribution of responsibility for caring of annual plant species (No. of households) during *rabi* 2013-14

Q.No.	Decision	Husband		Wife		Both	Both with children	Children
		Alone	With Children	Alone	With children			
ABD.2.25	Who takes care of the species?	146	49	13	9	130	53	59
ABD.2.26	Who makes the decisions about the seed that was planted?	240	21	13	12	101	23	44
ABD.2.27	Who makes the decisions about the field management of this "species"?	195	46	11	7	100	30	65
ABD.2.28	Who makes the decisions about the consumption of the "species"?	140	21	48	9	184	22	29
ABD.2.29	Who makes the decisions about the selling of the "species"?	269	22	18	5	87	14	38
ABD.2.30	Who makes the decisions about how to use the revenue from the sale of the "species"?	281	22	17	5	80	14	40
	Total:	**1271**	**181**	**120**	**47**	**682**	**156**	**275**
	Percentage:	**46.52**	**6.63**	**4.39**	**1.72**	**24.96**	**5.71**	**10.07**

The decision making for crop care, consumption, selling and use of revenue were taken majority of times by male head of households alone (46.52 %) followed by both husband and wife (24.96 %). In few households decision were taken by children alone (10.07 %) besides children associated with husband and wife in decision making.

Table 23: Perennial plant species (Village wise) maintained during 2013

Sl No.	Species	Botanical Name	Village (Avg. Years)			Grand Avg.
			Balaganur	Mannur	Nandyal	
	Fruits/Plantations					
1	Acid lime	*Citrus aurantifolia*	9	5	5	8
2	Arecanut	*Areca catechu*	0	0	4	4
3	Banana	*Musa spp.*	5	0	0	5
4	Ber	*Ziziphus mauritiana*	35	0	0	35
5	Cocount	*Cocos nucifera*	8	7	6	8
6	Custard Apple	*Annona squamosa*	6	0	0	6
7	Bullock's heart	*Annona reticulata*	6	15	0	7
8	Guava	*Psidium guajava*	6	0	4	6
9	Jamun	*Syzygium cuminii*	7	0	0	7
10	Mango	*Mangifera indica*	12	12	5	12
11	Papaya	*Carica papaya*	2	0	0	2
12	Sapota	*Achras zapota*	6	0	0	6
13	Tamarind	*Tamarindus indica*	21	10	0	19
	Vegetables					
14	Curry leaf	*Murraya koenigii*	0	3	0	3
15	Drumstick	*Moringa oleifera*	4	0	0	4
	Trees					
16	Acacia	*Acacia indica*	22	0	0	22
17	Eucalyptus	*Eucalyptus citriodora*	0	15	0	15
18	Neem	*Azadirachta indica*	25	18	5	20
19	Prosophis	*Prosophis juliflora*	21	15	0	19
20	Shami tree	*Prosophis spicigera*	15	0	0	15
21	Teak	*Tectona grandis*	2	0	0	2
22	Toddy palm	*Borassus flabellifer*	50	0	0	50
23	Tropical almond	*Terminalia catapa*	0	0	2	2

There are twenty three species of perennial plant species are maintained during 2013. Toddy palm being maintained since 50 years being the oldest followed by ber since 35 years and neem 25 years among the households surveyed.

Table 24: Perennial plant species maintained by households during 2013

Sl No.	Species	Botanical Name	Where the crop grown (No. of households)		
			Farm	Kitchen garden	Others
	Fruits/Plantations				
1	Acid lime	*Citrus aurantifolia*	57	0	0
2	Arecanut	*Areca catechu*	1	0	0
3	Banana	*Musa spp.*	9	0	0
4	Ber	*Ziziphus mauritiana*	2	0	0
5	Cocount	*Cocos nucifera*	48	2	0
6	Custard Apple	*Annona squamosa*	16	0	0
7	Bullock's heart	*Annona reticulata*	13	0	0
8	Guava	*Psidium guajava*	23	0	0
9	Jamun	*Syzygium cuminii*	1	0	0
10	Mango	*Mangifera indica*	51	0	1
11	Papaya	*Carica papaya*	1	0	0
12	Sapota	*Achras zapota*	11	0	0
13	Tamarind	*Tamarindus indica*	22	0	1
	Vegetables				
14	Curry leaf	*Murraya koenigii*	1	0	0
15	Drumstick	*Moringa oleifera*	1	0	0
	Trees				
16	Acacia	*Acacia indica*	3	0	0
17	Eucalyptus	*Eucalyptus citriodora*	1	0	0
18	Neem	*Azadirachta indica*	7	0	0
19	Prosophis	*Prosophis juliflora*	6	0	0
20	Shami tree	*Prosophis spicigera*	1	0	0
21	Teak	*Tectona grandis*	2	0	0
22	Toddy palm	*Borassus flabellifer*	1	0	0
23	Tropical almond	*Terminalia catapa*	1	0	0

Acid lime (57 HH), mango (51 HH), coconut (48 HH), guava (23 HH), tamarind (22 HH), custard apple (16 HH) and bullock's heart (13 HH) are perennial plant species maintained by the households on farm during 2013.

Table 25: Distribution of responsibility for caring of perennial plant species (No. of households) during 2013

Q.No.	Decision	Husband		Wife		Both	Both with children	Children
		Alone	With Children	Alone	With children			
ABD.3.17	Who takes care of the species?	36	31	0	10	62	73	59
ABD.3.18	Who makes the decisions about the seed that was planted?	109	34	0	9	40	28	61
ABD.3.19	Who makes the decisions about the field management of this "species"?	121	18	3	2	53	35	48
ABD.3.20	Who makes the decisions about the consumption of the "species"?	94	17	2	8	90	27	42
ABD.3.21	Who makes the decisions about the selling of the "species"?	141	20	4	6	47	22	39
ABD.3.22	Who makes the decisions about how to use the revenue from the sale of the "species"?	137	22	4	6	55	22	33
	Total:	**638**	**142**	**13**	**41**	**347**	**207**	**282**
	Percentage:	**39.38**	**8.77**	**0.80**	**2.53**	**21.42**	**12.78**	**17.41**

The decision making for crop care, consumption, selling and use of revenue were taken majority of times by male head of households alone (39.38 %) followed by both husband and wife (21.42 %). In few households decision were taken by children alone (17.41 %) besides children associated with husband and wife in decision making.

Table 26: Wild or semi-wild species harvested from natural vegetation

Sl. No.	Name of the Species	Botanical Name	No. of House holds	Percentage (%)
	Fruits/plantations			
1.	Ber	*Ziziphus mauritiana*	9	2.31
2.	Cordia (Glue berry)	*Cordia dichotoma*	1	0.26
3.	Mango	*Mangifera indica*	1	0.26
4.	Tamarind	*Tamarindus indica*	11	2.83
	Flowers			
5.	Jasmine	*Jasminum sambac*	13	3.34
	Vegetables			
6.	Curry leaf	*Murraya koenigii*	1	0.26
	Trees			
7.	Acacia	*Acacia indica*	53	13.62
8.	Agave	*Agave americana*	12	3.08
9.	Aloe vera	*Aloe vera*	1	0.26
10.	Bali bali	*Euphorbia tirucalli*	9	2.31
11.	Bamboo	*Bambuseae spp.*	1	0.26
12.	Banyan	*Ficus bengalensis*	1	0.26
13.	Ecualyptus	*Eucalyptus spp.*	4	1.03
14.	Neem	*Azadirachta indica*	146	37.53
15.	Prosophis	*Prosophis juliflora*	94	24.16
16.	Sandal wood	*Santalum album*	3	0.77
17.	Shami	*Prosophis spicigera*	21	5.40
18.	Subabul	*Leucaena leucocephala*	8	2.06

There are 18 wild and semi wild species being harvested by households surveyed from natural vegetation. Among them, neem is the most common (37.44%) semi-wild species harvested from natural vegetation followed by Prosophis (24.10 %) and acacia (13.59%) during 2013.

Table 27: Objective of harvesting wild or semi-wild species from natural vegetation during *kharif* 2013

Sl. No.	Name of the Species	Botanical Name	Objective of harvesting		
			Self	Selling	Both
	Fruits/plantations				
1.	Ber	*Ziziphus mauritiana*	6	0	3
2.	Cordia (Glue berry)	*Cordia dichotoma*	1	0	0
3.	Mango	*Mangifera indica*		1	0
4.	Tamarind	*Tamarindus indica*	5	3	3
	Flowers				
5.	Jasmine	*Jasminum sambac*	8	0	5
	Vegetables				
6.	Curry leaf	*Murraya koenigii*	1	0	0
	Trees				
7.	Acacia	*Acacia indica*	36	3	14
8.	Agave	*Agave americana*	6	0	2
9.	Aloe vera	*Aloe vera*	1	0	0
10.	Bali bali	*Euphorbia tirucalli*	5	1	0
11.	Bamboo	*Bambuseae spp.*	1	0	0
12.	Banyan	*Ficus bengalensis*	1	0	0
13.	Ecualyptus	*Eucalyptus spp.*	2	1	1
14.	Neem	*Azadirachta indica*	35	58	50
15.	Prosophis	*Prosophis juliflora*	59	20	15
16.	Sandal wood	*Santalum album*	1	0	1
17.	Shami	*Prosophis spicigera*	13	0	1
18.	Subabul	*Leucaena leucocephala*	6	0	2

Neem, Prosophis and acacia are most common wild and semi wild species harvested by households for both self utilization and selling purpose during 2013.

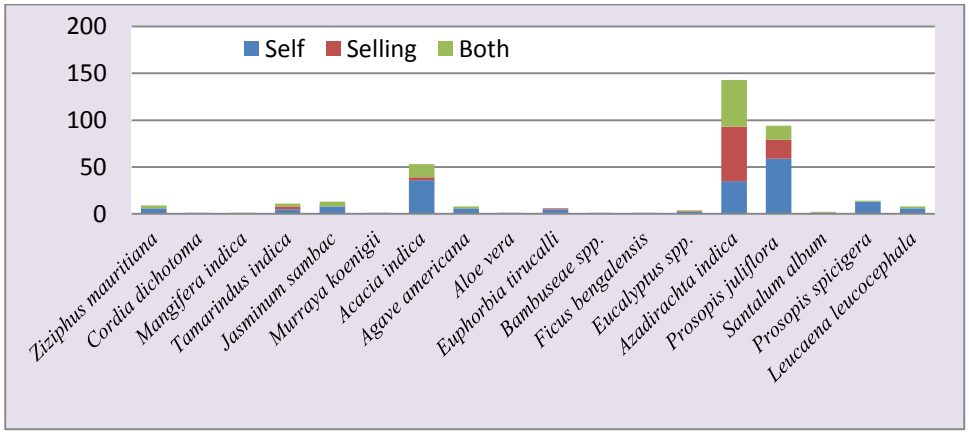


Figure 19: Objective of harvesting wild or semi-wild species from natural vegetation

Table 28: Contribution of wild or semi-wild species to food/utilization and income during 2013

S. No.	Name of the Species	Botanical Name	Contribution to food/utilization				Contribution to income			
			Major	Medium	Minor	Nil	Major	Medium	Minor	Nil
	Fruits/plantations									
1.	Ber	*Ziziphus mauritiana*	2	1	0	6	3	0	0	6
2.	Cordia (Glue berry)	*Cordia dichotoma*	0	0	0	1	0	0	0	1
3.	Mango	*Mangifera indica*	0	0	0	0	0	1	0	0
4.	Tamarind	*Tamarindus indica*	5	2	0	4	6	3	0	2
	Flowers									
5.	Jasmine	*Jasminum sambac*	1	0	0	12	7	1	0	5
	Vegetables									
6.	Curry leaf	*Murraya koenigii*	0	0	1	0	0	0	1	0
	Trees									
7.	Acacia	*Acacia indica*	6	1	0	45	22	4	0	27
8.	Agave	*Agave americana*	1	0	0	11	3	0	0	8
9.	Aloe vera	*Aloe vera*	0	0	0	1	0	0	0	1
10.	Bali bali	*Euphorbia tirucalli*	0	0	0	9	1	2	0	5
11.	Bamboo	*Bambuseae spp.*	0	0	0	1	0	0	0	1
12.	Banyan	*Ficus bengalensis*	0	0	0	1	1	0	0	0
13.	Ecualyptus	*Eucalyptus spp.*	0	0	0	4	1	2	0	1
14.	Neem	*Azadirachta indica*	25	20	5	82	43	70	4	28
15.	Prosophis	*Prosophis juliflora*	8	9	3	66	25	28	1	39
16.	Sandal wood	*Santalum album*	1	0	0	2	1	0	0	2
17.	Shami	*Prosophis spicigera*	2	0	0	17	3	2	0	15
18.	Subabul	*Leucaena leucocephala*	0	0	0	7	4	1	0	3

Neem, Prosophis and acacia were important wild and semi wild species harvested for both self utilization and they also contributed to the income.

Table 29: Distribution of responsibility for caring of wild and semi-wild species (No. of households) during 2013

Q.No.	Decision	Husband		Wife		Both	Both with children	Children
		Alone	With Children	Alone	With children			
ABD.4.6	Who Harvested the species?	184	47	3	0	12	4	105
ABD.4.7	Who makes the decisions about the use of the "species"?	222	12	3	6	59	12	58
ABD.4.8	If sold, who makes the decisions about how to use the revenue from the sale of the "species"	227	11	4	3	64	8	52
	Total:	**633**	**70**	**10**	**9**	**135**	**24**	**215**
	Percentage:	**57.76**	**6.39**	**0.91**	**0.82**	**12.32**	**2.19**	**19.62**

Distribution of responsibility of caring and utilization of wild and semi wild species during *kharif* 2013 was majorly done by husband (57.76%) followed by children (19.62 %) and husband and wife (12.32%).

Table 30: Domesticated animal species maintained by households during 2013

Sl. No.	Name of the Species	Scientific Name	Years of Rearing (Average)	Total no. of Animals	No. of House holds	Percentage (%)
1.	Buffalo	*Bubalus bubalis*	18.23	99	43	17.34
2.	Bullock	*Bos primigenius taurus*	18.19	130	61	24.60
3.	Calf	*Bos dometicus*	17.92	21	13	5.24
4.	Chicken	*Gallus gallus domesticus*	13.38	180	8	3.23
5.	Cow	*Bos dometicus*	15.44	119	61	24.60
6.	Goat	*Capra hircus*	8.88	304	62	25.00

There are six domesticated animal species maintained by households during 2013. Among them goat (25%) bullock (24.60%) and cow (24.60%)

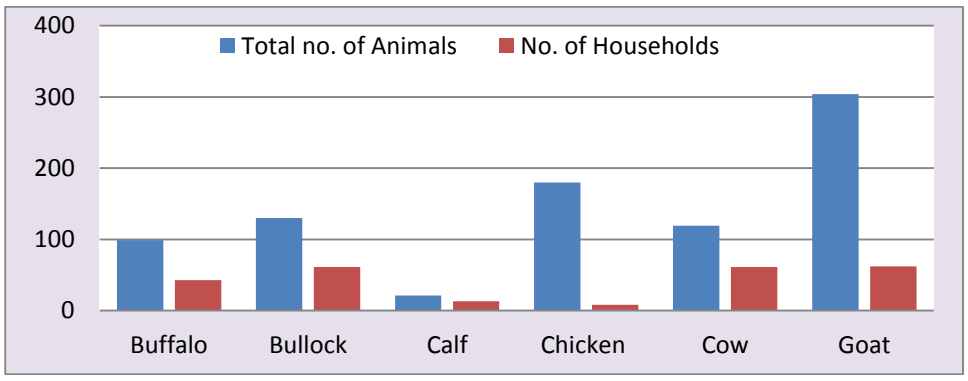


Figure 20: Domesticated animal species maintained by households during 2013

Table 31: Objective of maintaining the domesticated animal species and their products/uses during 2013

Sl. No.	Name of the Species	Scientific Name	Objective			Products / uses				
			Home use	Sale	Both	Milk	Dung fuel	Dung fertilizer	Hides	More than one use
1.	Buffalo	*Bubalus bubalis*	21	3	19	1	0	2	0	40
2.	Bullock	*Bos primigenius taurus*	59	1	3	1	1	39	1	21
3.	Calf	*Bos dometicus*	11	1	1	0	0	11	1	1
4.	Chicken	*Gallus gallus domesticus*	2	1	5	0	0	1	6	1
5.	Cow	*Bos dometicus*	49	2	12	6	0	2	0	54
6.	Goat	*Capra hircus*	13	12	39	15	0	3	1	45

The domesticated animals were maintained for self utilization as well as for sale purpose. Animals were mostly maintained for the purpose of milk, dung for fertilizer and drought uses too.

Table 32: Breeds of species maintained by households during 2013

Sl. No.	Name of the Species	Scientific Name	No. of HH maintained breeds	No. of HH maintained Local breeds	No. of HH maintained Improved breeds	No. of HH maintained Mixture of local and improved	No. of HH maintained Mixture of local
1.	Buffalo	*Bubalus bubalis*	43	40	4	2	4
2.	Bullock	*Bos primigenius taurus*	63	56	4	2	8
3.	Calf	*Bos dometicus*	13	13	2		1
4.	Chicken	*Gallus gallus domesticus*	7	8	0	0	0
5.	Cow	*Bos dometicus*	63	55	6	4	9
6.	Goat	*Capra hircus*	64	59	5	4	3
		Total:	**254**	**231**	**21**	**12**	**25**

Mostly local breeds of domesticated animals were maintained during 2013. Few households maintained improved, mixture of local and improved and mixture of local breeds of animals.

Table 33: Distribution of responsibility for caring of domesticated animal species during 2013

Q. No.	Decision	Husband		Wife		Both	Both with children	Children
		Alone	With children	Alone	With children			
ABD.5.19	Who takes care of the species?	53	28	6	2	45	64	52
ABD.5.20	Who makes the decisions about the seed that was planted?	92	23	4	2	69	23	39
ABD.5.21	Who makes the decisions about the field management of this "species"?	112	20	4	2	65	16	33
ABD.5.22	Who makes the decisions about the consumption of the "species"?	129	17	6	2	55	11	32
ABD.5.23	Who makes the decisions about the selling of the "species"?	135	16	3	2	54	8	34
	Total:	**658**	**111**	**25**	**13**	**338**	**124**	**228**
	Percentage:	**43.95**	**7.41**	**1.67**	**0.87**	**22.58**	**8.28**	**15.23**

Major responsibility of caring and utilization of domesticated animal species were made by husband alone (43.95%) and with wife (22.58%) followed by children alone (15.23%). Children were found supporting their parents in the same.

Table 34: Education of the Household Head

Literacy Rate	No.	Percentage (%)
A. Illiterate	121	60.50
B. Literate		
1st class	0	0.00
2nd class	6	3.00
3rd class	8	4.00
4th class	9	4.50
5th class	12	6.00
6th class	6	3.00
7th class	27	13.50
8th class	3	1.50
9th class	6	3.00
10th class	14	7.00
12th class	11	5.50
Degree	17	8.50
PG	2	1.00
TOTAL:	**200**	

39.50 per cent of household heads were literates. Among them 13.50 per cent have studied up to 7th standard followed by 8.50 per cent degree and 7.00 per cent 10th standard.

Table 35: Education of the spouse

Literacy Rate	No.	Percentage (%)
A. Illiterate	140	70.00
B. Literate		
1st class	1	0.50
2nd class	1	0.50
3rd class	1	0.50
4th class	5	2.50
5th class	5	2.50
6th class	6	3.00
7th class	16	8.00
8th class	4	2.00
9th class	1	0.50
10th class	13	6.50
12th class	1	0.50
Degree	5	2.50
PG	1	0.50
TOTAL:	**200**	

Only 30.00 per cent of spouse of households are literates. Among them 8.00 per cent studied up to 7th standard and 6.50 per cent 10th standard, while 2.50 per cent studied up to degree.

Socioeconomic data

Table 36: Family size

Q No.	AGE	MALE	FEMALE
7.1.1	6 MONTHS	12	5
7.1.2	6-59 MONTHS	63	52
7.1.3	5-6 YEARS	38	33
7.1.4	7-9 YEARS	70	47
7.1.5	10-15 YEARS	61	71
7.1.6	16-60 YEARS	492	417
7.1.7	ABOVE 60 YEARS	43	30
	Total:	**779**	**655**

Majority of male (492) and female (417) are in the age group of 16 to 60 years. The average size of the family is 7.15 individuals.

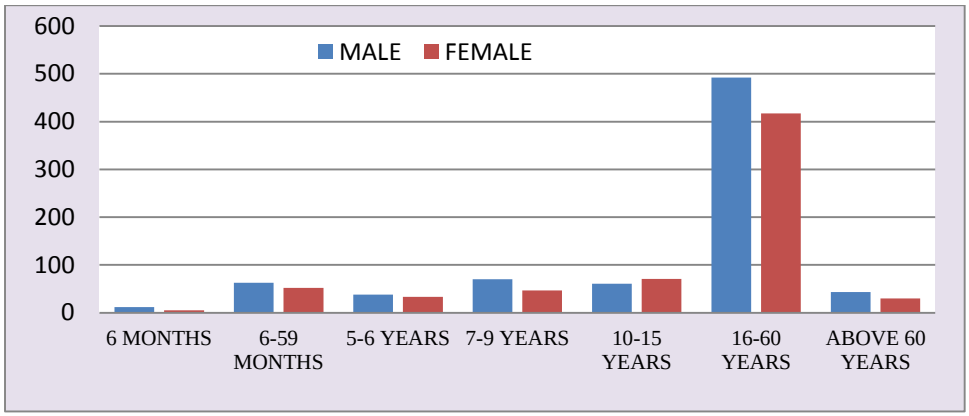


Figure 21: Family size

Table 37: Migration information

Q No.	Migration	No.
7.1.7	**Member live in house <9 months in a year**	78
7.1.8	**Male**	42
7.1.9	**Female**	36

There are 78 members out of 200 households surveyed stay in house less than 9 months in a year. There are 42 male and 36 female members migrating for seeking employment.

Table 38: Land owned and area under cultivation (ha)

Q. NO.	Particulars	Husband	Wife	Joint	Total
7.2.1	Owned	176	55	365	596
7.2.2	Shared in	87	0	7	94
7.2.3	Shared out	26	0	8	34
7.2.4	Rented in	61	0	12	73
7.2.5	Rented out	14	0	0	14
7.3.1	Fallow	51	2	7	60
7.3.2	Waste land	20	0	5	25
7.3.3	Grazing land	30	1	4	35
7.3.4	Trees/forest	2	0	1	3
7.3.5	Other	4	0	0	4
	Total	**471**	**58**	**409**	**938**

Major agriculture land is owned jointly (365 ha) or male head (176 ha) of the family. Very less area in share cropping and land cultivated on rent basis were observed.

Table 39: Access, quality, quantity and management of water resources

		Canals	Open well	Bore well	Streams	Rivers	Dams
		7.4.1	**7.4.2**	**7.4.3**	**7.4.4**	**7.4.5**	**7.4.6**
A. Privately own	Husband	0	66	30	4	0	0
	Wife	1	8	1	1	0	0
	Joint	0	4	4	0	0	0
B. Communally own	Husband	18	2	1	0	0	0
	Wife	12	0	1	0	0	0
	Joint	0	0	0	0	0	0
C. Who own Male/Female /Joint	Husband	0	0	0	0	0	0
	Wife	0	0	0	0	0	0
	Joint	0	0	0	0	0	0

Majority of the households depending on open well, bore well and canal for irrigation purpose.

Table 40: Housing details

7.5.1 Type of Floor	No. of Houses
Earth floor	43
Earth floor/Stone	8
Stone	125
Stone/Cement	1
Stone/Tile	1
Cement	4
Tile	16
Wood	2
Others **(Granite)**	0

The common flooring for houses was with stone (125 HH) followed by earth flooring (43 HH) and tiles (16 HH).

7.5.2 Type of Wall	No. of Houses
Wood	11
Earth wall	31
Iron sheet	05
Stone	147
Others **(Brick and Granite)**	6

For construction of house wall stone material being commonly used (147 HH) followed by earth (31 HH).

7.5.3 Type of Roofing material	No. of Houses
Straw/grass	11
Iron sheet	55
Tile	2
Others **(RC roof)**	132

RCC(Reinforced Concrete) house roofing commonly observed (132HH) followed by iron sheet house roofing (55 HH) and straw/grass roofing (11 HH).

7.5.4 Electricity	No. of Houses
No	19
Yes	181
Generator	0

7.5.5 Source of lighting/energy for house (Other than electricity)	No. of Houses
Oil/Paraffin	17
Gas	2
Other	0

Majority of the houses were having electricity supply (181 HH) for their lighting and other energy requirements. Few houses depends on oil (17 HH) and gas (2 HH) for their lighting and energy requirements.

Table 41: Ownership of Consumer Goods

Q No.	Items	No. of Households	Percentage
7.6.1	Bicycle	69	**34.50**
7.6.2	Motorbike	81	**40.50**
7.6.3	Car	2	**1.00**
7.6.4	Radio	11	**5.50**
7.6.5	CD player	13	**6.50**
7.6.6	Television	96	**48.00**
7.6.7	Cell/Mobile	190	**95.00**
7.6.8	Refrigerator	7	**3.50**
7.6.9	Business vehicle	3	**1.50**
7.6.10	Paraffin stove	24	**12.00**
7.6.11	Gas cooker	20	**10.00**
7.6.12	Tractor	1	**0.50**

- 95.00 per cent of households possessing cell phone
- 48.00 per cent of households possessing television
- 40.50 per cent of households possessing motorbike besides 34.50 per cent of households having bicycle.

Table 42: Household Source of Income: Contribution and Management

Q. No.	Activities	Source of Income	Contribution			Management		
			Husband	Wife	Joint	Husband	Wife	Joint
7.7.1	Crop main products	193	96	10	87	50	14	129
7.7.2	Crop residues	95	42	6	47	24	5	66
7.7.3	Other feeds of forages	77	28	2	47	13	2	62
7.7.4	Livestock sale	40	19	7	14	8	20	12
7.7.5	Livestock products sell	29	5	20	4	5	10	14
7.7.6	Agricultural labour	83	20	5	58	6	1	76
7.7.7	Other Non agric-Labour	37	15	3	19	6	1	30
7.7.8	Regular employment	27	19	0	8	13	0	14
7.7.9	Business-Self employed	24	13	2	9	2	1	21
7.7.10	Remittance	63	18	10	35	7	5	51
7.7.11	Others	0	0	0	0	0	0	0

Main source of income for majority of the households being crop main products (193 HH) followed by crop residues (95 HH) and agriculture labour (83 HH). In contributing income to the family husband alone and along with wife playing lead role whereas, in managing the income of the family decisions were made jointly.

Table 43: Market participation of households of Balaganur village

		From Balaganur																	
		Almel		Afjalpur		Balaganur		Bijapur		Havinal		Indi		Malli		Sindagi		Tamba	
		Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell
7.8.1	Food	1	61	0	1	3	62	42	45	0	1	1	1	0	2	64	62	1	1
7.8.2	Seed and Plants	62	58	0	1	64	58	43	41	0	0	1	1	0	2	64	0	1	1
7.8.3	Other Inputs	56	43	0	0	57	43	36	28	0	0	0	0	1	0	55	41	1	1
7.8.4	Animals	44	43	0	0	14	14	2	2	0	0	0	0	0	0	3	3	0	0
7.8.5	Other (specify)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.8.6	Transportation	Bus/Auto/Bike/Tempo/Car/Jeep/Lorry																	
7.8.7	Distance (km)	16		36		-		60		70		23		75		23		16	
7.8.8	Time(hh:mm)	00:30		01:30		00:00		02:00		03:00		01:00		02:30		01:00		01:00	
7.8.9	Freq (15 days)	1 or 2		1		-		1 or 2		1		1		1		1 or 2		1	

Households of Balaganur village were buying food mainly from Sindagi or Bijapur market whereas, selling food grains at Almel, Bijapur and Sindagi market. For buying and selling of seeds and planting material households were visiting Almel, Bijapur and Sindgi markets along with local market. For buying and selling of animals households were depending on Almel and local market.

Major means of transportation were bus, auto, bike, tempo, car, jeep and lorry. Farthest marketing destinations are Malli, Havinal and Bijapur located at more than 50 km distance. Generally households were visiting the different markets one to two times in every fortnight.

Table 44: Market participation of households of Mannur and Nandyal village

Q. No.		From Mannur								From Nandyal			
		Bijapur		B. Bagewadi		D.Hipparagi		Sindagi		B. Bagewadi		Bijapur	
		Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell
7.8.1	Food	1	3	0	0	48	8	1	2	62	21	39	10
7.8.2	Seed and Plants	14	23	1	1	7	1	19	24	52	31	29	20
7.8.3	Other Inputs	16	9	0	0	16	4	16	3	45	39	29	21
7.8.4	Animals	4	4	0	1	10	19	4	5	48	35	24	23
7.8.5	Other (specify)	1	1	0	0	1	2	1	0	40	42	23	0
7.8.6	Transportation	Bus/Auto/Bike/Tempo/Car/Jeep/Lorry											
7.8.7	Distance (km)	50		30		7		23		14		35	
7.8.8	Time(hh:mm)	01:30		02:00		00:30		01:30		00:30		01:00	
7.8.9	Freq (15 days)	1 or 2		1		1 or 2		1 or 2		1 or 2		1 or 2	

Households of Mannur village were buying and selling of food and animals mainly in Devar Hipparagi market. For buying and selling of seeds and planting material households were visiting Bijapur and Devar Hipparagi markets.

Major means of transportation were bus, auto, bike, tempo, car, jeep and lorry. Farthest marketing destination was Bijapur located at 50 km distance. Generally households were visiting the different markets one to two times in every fortnight.

Households of Nandyal village were buying and selling of food, agriculture inputs and animals mainly from Basavana Bagewadi and Bijapur markets.

Major means of transportation were bus, auto, bike, tempo, car, jeep and lorry. Farthest marketing destination was Bijapur located at 35 km distance. Generally households were visiting the different markets one to two times in every fortnight

Table 45 – Village wise caste category of households

Caste	No. of households			
	Balaganur	Mannur	Nandyal	Total
SC	6	11	4	21
ST	0	2	4	6
BC	17	21	36	74
OC	44	33	22	99
TOTAL	**67**	**67**	**66**	**200**

Out of total 200 households 21 were scheduled caste, 6 were scheduled tribe, 74 were backward castes and 99 were other castes.

Table 46 – Village wise household members roles in the community

Role	No. of households			
	Balaganur	Mannur	Nandyal	Total
Leadership	2	6	1	9
Social activists	36	4	6	46
Environmental activist	19	10	33	62
No role	10	47	26	99
TOTAL	**67**	**67**	**66**	**200**

Out of total 200 households 101 were having role in community activities, of which 62 households having environmental activities, 46 households having social activities and 9 households having leadership role.

Table 47: Social networking status of household members

Q. No.	Category	Groups in the Community	Household Participation	Husband	Wife	Joint
7.10.1	Agricultural/Livestock/fisheries producers group, including selling	YES	91	70	6	15
7.10.2	Water users group	YES	1	1	0	0
7.10.3	Forest users group	YES	1	1	0	0
7.10.4	Credit or microfinance group	YES	47	36	0	11
7.10.5	Mutual help/Insurance group (including burial societies	YES	5	3	2	0
7.10.6	Trade and business association	YES	2	2	0	0
7.10.7	Civic group	YES	3	3	0	0

7.10.8	Local Government	YES	14	11	1	1
7.10.9	Religious group	YES	25	25	0	0
7.10.10	Self-help group	YES	85	6	70	9
7.10.11	Village federation	YES	4	4	0	0
7.10.12	Youths sanghas/clubs	YES	3	2	1	0
7.10.13	Connection with neighboring villages	YES	16	15	0	1
7.10.14	Other (Specify)	--				

The households involved in one or the other group activities of which 91 households participated in agriculture producers groups, 85 HH were involved in self help groups and 47 HH were involved in credit or microfinance group. Except for self help groups participation was dominated by male head of the households.

Table 48: Participation of households in Government and Non-Government programmes

Q. No.	Scheme	No. of families	%
SOECO.7.11.1.	Annabhagya Scheme	125	9.60
SOECO.7.11.2.	Bisi Oota Scheme	101	7.76
SOECO.7.11.3.	Ksheera Bhagya Scheme	102	7.83
SOECO.7.11.4.	Anganawadi Scheme	62	4.76
SOECO.7.11.5.	Tayi Bhagya Scheme	62	4.76
SOECO.7.11.6.	Bhagyalakshmi Scheme	58	4.45
SOECO.7.11.7.	Old Age Pension Scheme	27	2.07
SOECO.7.11.8.	Widow Pension Scheme	15	1.15
SOECO.7.11.9.	Handicapped Pension Scheme	8	0.61
SOECO.7.11.10.	Student Fellowship Scheme	40	3.07
SOECO.7.11.11.	Crop Insurance Scheme	157	12.06
SOECO.7.11.12.	Life Insurance Scheme	137	10.52
SOECO.7.11.13.	Yashaswini Scheme	123	9.45
SOECO.7.11.14.	Subsidy for purchase of animals (Cows & Buffaloes)	3	0.23
SOECO.7.11.15.	Ganga Kalyana Scheme	7	0.54
SOECO.7.11.16.	NREGS	78	5.99
SOECO.7.11.17.	Agriculture Loans	143	10.98
SOECO.7.11.18.	Arogya Kavacha Scheme (108)	1	0.08
SOECO.7.11.19.	Vajapayee Arogya Shree Scheme	8	0.61
SOECO.7.11.20.	Ashreya Yojana	45	3.46
	Total	**1302**	

Participation in government and non-government programmes includes majorly in crop insurance scheme (12.06 %) followed by agriculture loans (10.98 %) and life insurance scheme (10.52 %).

Table 49: Risk Attitude

	Risk Attitudes	No. of Households	Percentage (%)
Risk 1.1	I adopt a new crop, even if nobody else has done it	83	41.50
	I adopt a new crop, if I have seen others taken before me	114	57.00
	I never adopt a new crop, even if I have seen others doing	3	1.50
Risk 1.2	One should be extremely careful about making changes in life	46	23.0
	Caution is more important than risk-taking in order to be successful	117	58.5
	Risk-taking is more important than caution in order to be successful	8	4.0
	You will never achieve anything in life unless you act boldly and take risks	28	14.5

Out of 200 households surveyed, 114 households expressed inability to take risks in adopting a new technology.

Only 28 households expressed that, risk taking is necessary to achieve something in life

Table 50: Women Dietary Diversity – Balaganur village
Food ingredients used by the households- Ingredients wise

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest/ Picked from the wild	Food Aid (Government, NGO's)	Total
1	Beans	0	1	0	0	0	0	1
2	Beaten rice	0	4	0	0	0	0	4
3	Bitter Gourd	1	8	0	0	0	0	9
4	Black Pepper	0	1	0	0	0	0	1
5	Bread	0	1	0	0	0	0	1
6	Brinjal	1	8	0	0	0	0	9
7	Butter Milk	1	0	0	0	0	0	1
8	Cabbage	0	3	0	0	0	0	3
9	Cardamom	0	6	0	0	0	0	6
10	Carrot	0	1	0	0	0	0	1
11	Cheese	0	1	0	0	0	0	1
12	Chick pea	19	17	0	0	0	0	36
13	Chicken	0	1	0	0	0	0	1
14	Chilli	0	15	0	0	0	0	15
15	Chilli Powder (Dried)	0	67	0	0	0	0	67
16	Cinnamon	0	1	0	0	0	0	1
17	Cluster bean	0	3	0	0	0	0	3
18	Coconut	0	1	0	0	0	0	1
19	Coriander	1	3	0	0	0	0	4
20	Cowpea	0	3	0	0	0	0	3
21	Cumin	1	66	0	0	0	0	67
22	Curd	8	6	0	0	0	0	14
23	Curry Leaf	1	66	0	0	0	0	67
24	Dill	0	3	0	0	0	0	3
25	Egg	0	1	0	0	0	0	1
26	Fennel	0	7	0	0	0	0	7
27	Fenu greek	0	2	0	0	0	0	2
28	Garlic	3	61	1	0	0	0	65
29	Ginger	0	7	0	0	0	0	7
30	Green Chilli	0	11	0	0	0	0	11
31	Ground Nut	9	49	0	0	0	0	58
32	Jaggery	0	11	0	0	0	0	11
33	Ladys Finger	1	4	0	0	0	0	5
34	Memordica	1	2	0	0	0	0	3
35	Mesta	0	2	0	0	0	0	2
36	Milk	25	40	0	0	0	0	65
37	Mint leaves	0	1	0	0	0	0	1
38	Moth bean	1	0	0	0	0	0	1
39	Mung Bean	0	4	0	0	0	0	4

40	Mustard	0	67	0	0	0	0	67
41	Niger powder	0	5	0	0	0	0	5
42	Oil	0	67	0	0	0	0	67
43	Onion	2	50	0	0	0	0	52
44	Pigeon pea	7	4	0	0	0	0	11
45	Potato	0	7	0	0	0	0	7
46	Rice	2	52	0	0	0	0	54
47	Ridge Gourd	2	7	0	0	0	0	9
48	Salt	4	63	0	0	0	0	67
49	Sorghum Flour	30	33	0	1	0	0	64
50	Spinach	0	2	0	0	0	0	2
51	Spine Amaranthus	1	2	0	0	0	0	3
52	Sugar	0	67	0	0	0	0	67
53	Tamarind	0	51	0	0	0	0	51
54	Tea Powder	0	66	0	0	0	0	66
55	Tomato	1	33	0	0	0	0	34
56	Turmeric Powder	0	17	0	0	0	0	17
57	Wheat Flour	35	26	0	0	0	0	61
58	Wheat Semolina	10	9	0	0	0	0	19
	Grand Total	**167**	**1116**	**1**	**1**	**0**	**0**	**1285**

Food ingredients used by the households- Ingredients wise (Total to number of times the food ingredients used by the households in a day)

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest/ Picked from the wild	Food Aid (Government, NGO's)	Total
1	Beans	0	2	0	0	0	0	2
2	Beaten rice	0	4	0	0	0	0	4
3	Bitter Gourd	2	14	0	0	0	0	16
4	Black Pepper	0	1	0	0	0	0	1
5	Bread	0	1	0	0	0	0	1
6	Brinjal	1	15	0	0	0	0	16
7	Butter Milk	1	0	0	0	0	0	1
8	Cabbage	0	4	0	0	0	0	4
9	Cardamom	0	7	0	0	0	0	7
10	Carrot	0	1	0	0	0	0	1
11	Cheese	0	1	0	0	0	0	1
12	Chick Pea	27	34	0	0	0	0	61
13	Chicken	0	1	0	0	0	0	1
14	Chilli	0	22	0	0	0	0	22
15	Chilli Powder (Dried)	0	237	0	0	0	0	237
16	Cinnamon	0	1	0	0	0	0	1
17	Cluster bean	0	6	0	0	0	0	6

18	Coconut	0	1	0	0	0	0	1
19	Coriander	1	8	0	0	1	0	10
20	Cowpea	0	6	0	0	0	0	6
21	Cumin	1	291	0	0	0	0	292
22	curd	13	9	0	0	0	0	22
23	Curry Leaf	4	223	0	10	0	0	237
24	Dill	0	5	0	0	0	0	5
25	Egg	0	1	0	0	0	0	1
26	Fennel	0	8	0	0	0	0	8
27	Fenu greek	0	3	0	0	0	0	3
28	Garlic	4	161	9	0	0	0	174
29	Ginger	0	8	0	0	0	0	8
30	Green Chilli	0	20	0	0	0	0	20
31	Ground Nut	12	111	0	0	0	0	123
32	Jaggery	0	14	0	0	0	0	14
33	Ladys Finger	1	6	0	0	0	0	7
34	Memordica	1	3	0	0	0	0	4
35	Mesta	0	0	0	0	0	0	0
36	Milk	0	0	0	0	0	0	0
37	Mint leaves	0	1	0	0	0	0	1
38	Moth bean	1	1	0	0	0	0	2
39	Mung Bean	0	7	0	0	0	0	7
40	Mustard	0	265	0	0	0	0	265
41	Niger Powder	0	5	0	0	0	0	5
42	Oil	0	282	0	0	0	0	282
43	Onion	2	93	0	0	0	0	95
44	Pigeon pea	9	5	0	2	0	0	16
45	Potato	0	10	0	0	0	0	10
46	Rice	2	92	0	0	0	3	97
47	Ridge Gourd	3	14	0	0	0	0	17
48	Salt	5	455	0	0	0	0	460
49	Sorghum Flour	53	59	0	1	0	0	113
50	Spinach	0	2	0	0	0	0	2
51	Spine Amaranthus	2	2	0	0	0	0	4
52	Sugar	0	117	0	0	0	0	117
53	Tamarind	0	118	0	0	0	0	118
54	Tea Powder	0	117	0	0	0	0	117
55	Tomato	1	65	0	1	0	0	67
56	Turmeric Powder	0	24	0	0	0	0	24
57	Wheat Flour	46	33	0	0	0	0	79
58	Wheat Semolina	12	10	0	0	0	0	22
	Total	**205**	**3005**	**9**	**14**	**1**	**3**	**3237**

Majority of households bought the dietary requirements from the market besides meeting some of the fruits, vegetables and cereals from their domestic production.

Table 51: Women Dietary Diversity – Mannur

Food ingredients used by the households- Ingredients wise

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest/ Picked from the wild	Food Aid (Governmen t NGO's)	Total
1	Acid lime	1	8	0	3	0	0	12
2	Amaranthus	2	8	0	0	0	0	10
3	Apple	0	5	0	0	0	0	5
4	Baking Soda	0	11	0	1	0	0	12
5	Banana	0	16	0	0	0	0	16
6	Beaten rice	0	9	0	0	0	0	9
7	Biscuit	1	15	0	0	0	0	16
8	Black Gram	0	8	0	0	0	0	8
9	Bread	0	4	0	0	0	0	4
10	Brinjal	0	2	1	2	0	0	5
11	Butter Milk	1	4	0	2	0	0	7
12	Cabbage	0	3	0	0	0	0	3
13	Cake	0	1	0	0	0	0	1
14	Cardamom	0	16	0	0	0	0	16
15	Carrot	0	1	0	0	0	0	1
16	Chick Pea	14	5	0	0	0	0	19
17	Chilli	2	33	1	6	1	0	43
18	Chilli powder (Dried)	9	58	0	0	0	0	67
19	Cloves	0	4	0	0	0	0	4
20	Cluster bean	0	1	0	0	0	0	1
21	Coconut	1	8	1	1	0	0	11
22	Coffee Powder	0	1	0	0	0	0	1
23	Coriander	9	37	1	11	4	0	62
24	Cowpea	2	0	0	0	0	0	2
25	Cumin	6	60	1	0	0	0	67
26	Curd	1	7	0	0	0	0	8
27	Curry Leaf	6	26	0	2	0	0	34
28	Dill	1	3	0	0	0	0	4
29	Egg	2	5	0	0	0	0	7
30	Garam Masala	0	2	0	0	0	0	2
31	Garlic	0	44	1	5	0	0	50
32	Ghee	0	5	0	0	0	0	5
33	Ginger	3	5	0	0	0	0	8
34	Grapes	0	1	0	0	0	0	1
35	Ground Nut	43	15	0	1	0	0	59
36	Guava	0	1	0	0	0	0	1
37	Jaggery	1	12	0	0	0	0	13
38	Jilebi	0	1	0	0	0	0	1
39	Ladys Finger	3	4	0	0	0	0	7
40	Maida Flour	0	8	0	0	0	0	8
41	Mesta	0	2	0	0	0	0	2

42	Milk	13	53	0	1	0	0	67
43	Moth bean	6	1	0	1	0	0	8
44	Mung Bean	8	4	0	1	0	0	13
45	Mustard	7	60	0	0	0	0	67
46	Mysore Pak sweet	0	1	0	0	0	0	1
47	Noodles	1	3	0	1	0	0	5
48	Oil	1	66	0	0	0	0	67
49	Onion	2	33	1	2	1	0	39
50	Orange	0	2	0	0	0	0	2
51	Papad	0	1	0	0	0	0	1
52	Pearl millet	1	0	0	0	0	0	1
53	Pigeon pea	11	4	0	0	0	0	15
54	Potato	0	1	0	0	0	0	1
55	Puffed Rice	0	26	0	0	0	0	26
56	Rajagiri	0	0	0	0	1	0	1
57	Rice	37	26	0	2	0	0	65
58	Rice samolina	0	1	0	0	0	0	1
59	Ridge Gourd	3	2	0	0	0	0	5
60	Roasted Gram	0	31	0	1	0	0	32
61	Roasted Powder	0	0	0	0	0	0	0
62	Sago	0	3	0	0	0	0	3
63	Salt	0	67	0	0	0	0	67
64	Sesame	1	2	0	0	0	0	3
65	Shevu	0	2	0	0	0	0	2
66	Snake Guard	0	1	0	0	0	0	1
67	Sorghum Flour	41	8	0	1	0	0	50
68	Spinach	0	0	0	1	0	0	1
69	Spine Amaranthus	0	2	0	0	0	0	2
70	Sugar	0	66	0	1	0	0	67
71	Suji	0	1	0	0	0	0	1
72	Sweet	0	1	0	0	0	0	1
73	Tamarind	0	9	0	0	0	0	9
74	Tea Powder	1	63	0	0	0	0	64
75	Tomato	3	11	0	0	0	0	14
76	Turmeric Powder	1	30	0	0	0	0	31
77	Wheat Flour	44	11	0	0	0	0	55
78	Wheat Semolina	10	17	0	1	0	0	28
	Grand Total	**299**	**1068**	**7**	**47**	**7**	**0**	**1428**

Food ingredients used by the households- Ingredients wise (Total number of times the food ingredients used by the households in a day)

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest/ Picked from the wild	Food Aid (Government NGO's)	Total
1	Acid lime	2	10	0	3	0	0	15
2	Amaranthus	3	10	0	0	0	0	13
3	Apple	0	5	0	0	0	0	5
4	Baking Soda	0	12	0	1	0	0	13
5	Banana	0	21	0	0	0	0	21
6	Beaten rice	0	9	0	0	0	0	9
7	Biscuit	1	15	0	0	0	0	16
8	Black Gram	0	9	0	0	0	0	9
9	Bread	0	4	0	0	0	0	4
10	Brinjal	0	2	1	2	0	0	5
11	Butter Milk	2	5	0	3	0	0	10
12	Cabbage	0	5	0	0	0	0	5
13	Cake	0	1	0	0	0	0	1
14	Cardamom	0	21	0	0	0	0	21
15	Carrot	0	1	0	0	0	0	1
16	Chapati	1	0	0	0	0	0	1
17	Chick Pea	8	2	0	0	0	0	10
18	Chick Pea Flour	0	3	0	0	0	0	3
19	Chilli	2	39	1	7	1	0	50
20	Chilli	0	3	0	0	0	0	3
21	Chilli Powder	18	196	0	0	0	0	214
22	Cloves	0	5	0	0	0	0	5
23	Cluster bean	0	1	0	0	0	0	1
24	Coconut	1	12	1	2	0	0	16
25	Coffee Powder	0	2	0	0	0	0	2
26	Coriander	13	75	5	42	12	0	147
27	Cowpea	3	0	0	0	0	0	3
28	Cumin	9	209	6	2	0	0	226
29	curd	1	6	0	0	0	0	7
30	Curry Leaf	7	41	1	5	0	0	54
31	Dill	1	3	0	0	0	0	4
32	Egg	3	10	0	1	0	0	14
33	Garam Masala	0	1	0	0	0	0	1
34	Garlic	1	86	1	7	0	0	95
35	Garm Masala	0	1	0	0	0	0	1
36	Ghee	0	5	0	0	0	0	5
37	Ginger	5	12	1	2	0	0	20
38	Gram	9	2	0	0	0	0	11
39	Grapes	0	1	0	0	0	0	1
40	Ground Nut	69	39	0	3	0	0	111

41	Guava	0	1	0	0	0	0	1
42	Jaggery	1	13	0	0	0	0	14
43	jilebi	0	1	0	0	0	0	1
44	Ladys Finger	4	4	0	0	0	0	8
45	Maida Flour	0	8	0	0	0	0	8
46	Mesta	0	0	0	0	0	0	
47	Milk	0	0	0	0	0	0	
48	Moth bean	9	3	0	1	0	0	13
49	Mung Bean	11	5	0	1	0	0	17
50	Mustard	11	204	2	3	0	0	220
51	Mysore sweet	0	1	0	0	0	0	1
52	Noddles	1	0	0	0	0	0	1
53	Noodles	0	3	0	1	0	0	4
54	Oil	1	273	0	0	1	0	275
55	Onion	3	50	1	2	1	0	57
56	Orange	0	2	0	0	0	0	2
57	Papad	0	1	0	0	0	0	1
58	Pearl millet flour	1		0	0	0	0	1
59	Pigeon pea	16	4	0	0	0	0	20
60	Pigeon pea	1	1	0	0	0	0	2
61	Potato	0	1	0	0	0	0	1
62	Puffed Rice	0	28	0	0	0	0	28
63	Rajagiri	0	0	0	0	1		1
64	Rice	65	53	0	4		1	123
65	Rice Flour	1		0	0	0	0	1
66	Rice samolina	0	1	0	0	0	0	1
67	Ridge Gourd	5	2	0	0	0	0	7
68	Roasted Gram	0	22	0	0	0	0	22
69	Roasted Gram	0		0	1	0	0	1
70	Roasted Gram Flour	0	1	0	0	0	0	1
71	Roasted Gram Powder	0	10	0	0	0	0	10
72	Roasted Powder	0	1	0	0	0	0	1
73	Sago	0		0	0	0	0	
74	Salt	0	450	0	0	1		451
75	Semolina	10	19	0	1	0	0	30
76	Sesame	1	2	0	0	0	0	3
77	Shev	0	2	0	0	0	0	2
78	Snake Guard	0	1	0	0	0	0	1
79	Sorghum Flour	53	14	0	2	0	0	69
80	Spinach	0		0	2	0	0	2
81	Spine Amaranthus	0	2	0	0	0	0	2
82	Sugar	2	150	0	1	0	0	153

83	Suji	0	1	0	0	0	0	1
84	Sweet	0	1	0	0	0	0	1
85	Tamarind	0	13	0	0	0	0	13
86	Tea Powder	1	124	0	0	0	0	125
87	Tomato	4	16	0	0	0	0	20
88	Turmeric Powder	1	55	0	1	0	0	57
89	Wheat Flour	55	15	0	0	0	0	70
	Total	**416**	**2442**	**21**	**100**	**17**	**1**	**2997**

Majority of households bought the dietary requirements from the market besides meeting some of the fruits, vegetables and cereals from their domestic production.

Table 52: Women Dietary Diversity – Nandyal

Food ingredients used by the households- Ingredients wise

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest/ Picked from the wild	Food Aid (Government, NGO's)	Total
1	Acid lime	0	1	1	0	0	0	2
2	Amaranthus	1	0	1	0	1	0	3
3	Baking Soda	0	14	0	0	0	0	14
4	Banana	0	2	0	0	0	0	2
5	Beans	2	0	0	1	0	0	3
6	Beaten rice	0	12	0	0	0	0	12
7	Biscuit	0	5	0	0	0	0	5
8	Bishops weed	0	7	0	0	0	0	7
9	Bitter Gourd	0	0	0	1	0	0	1
10	Black Gram	5	11	0	1	0	0	17
11	Bread	0	15	0	0	0	0	15
12	Brinjal	6	6	0	3	0	0	15
13	Butter	1	0	0	0	0	0	1
14	Butter Milk	0	0	0	2	0	0	2
15	Cabbage	0	3	0	0	0	0	3
16	Cardamom	0	7	0	0	0	0	7
17	Carrot	0	1	0	0	0	0	1
18	Cashew	0	1	0	0	0	0	1
19	Chick Pea	20	11	0	3	0	0	34
20	Chilli	29	24	0	5	0	0	58
21	Chilli Powder (Dried)	9	56	0	0	0	0	65
22	Cloves	0	1	0	0	0	0	1
23	Cluster bean	1	1	0	0	0	0	2
24	Coconut	0	10	0	0	0	0	10
25	Coriander	0	16	0	1	2	0	19
26	Cowpea	6	2	0	1	0	0	9
27	Cumin	1	65	0	0	0	0	66
28	Curd	4	13	0	0	0	0	17
29	Curry Leaf	0	65	0	1	0	0	66
30	Egg	0	1	0	0	0	0	1
31	Fennel	0	1	0	0	0	0	1
32	Fenu greek	0	1	0	0	0	0	1
33	Garam Masala	0	2	0	0	0	0	2
34	Garlic	32	18	1	1	0	0	52
35	Ghee	0	12	0	0	0	0	12
36	Ginger	0	7	0	0	0	0	7
37	Grapes	0	1	0	0	0	0	1
38	Ground Nut	14	36	0	1	0	0	51
39	Horse gram	3	1	0	0	0	0	4
40	Jaggery	1	58	0	0	0	0	59
41	Ladys Finger	1	1	0	0	0	0	2

42	Maida Flour	0	4	0	0	0	0	4
43	Milk	1	59	1	2	0	0	63
44	Moth bean	3	1	0	0	0	0	4
45	Mung Bean	6	0	0	0	0	0	6
46	Mustard	3	63	0	0	0	0	66
47	Niger	1	3	0	0	0	0	4
48	Noodles	2	0	0	0	0	0	2
49	Nutmeg	0	4	0	0	0	0	4
50	Oil	3	63	0	0	0	0	66
51	Onion	47	12	0	3	0	0	62
52	Peas	1	0	0	0	0	0	1
53	Pigeon pea	16	6	0	3	0	0	25
54	Potato	0	3	0	0	0	0	3
55	Puffed Rice	0	14	0	0	0	0	14
56	Pumpkin	0	0	0	2	0	0	2
57	Rice	1	26	0	0	0	40	67
58	Ridge Gourd	4	0	0	1	0	0	5
59	Roasted Gram	0	19	0	0	0	0	19
60	Salt	0	66	0	0	0	0	66
61	Sesame	0	2	0	0	0	0	2
62	Shevu	0	6	0	0	0	0	6
63	Snake Gourd	0	0	0	1	0	0	1
64	Sorghum Flour	46	4	0	8	0	0	58
65	Sorghum semolina	2	0	0	0	0	0	2
66	Sugar	0	64	0	0	0	0	64
67	Tamarind	11	29	0	4	0	0	44
68	Tea Powder	0	63	0	0	0	0	63
69	Tomato	34	12	0	5	0	0	51
70	Turmeric Powder	2	61	0	0	0	0	63
71	Wheat Flour	41	17	0	0	0	0	58
72	Wheat Semolina	19	13	0	0	0	0	32
	Grand total	**379**	**1102**	**4**	**50**	**3**	**40**	**1578**

Food ingredients used by the households- Ingredients wise (Total number of times the food ingredients used by the households in a day)

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest/ Picked from the wild	Food Aid (Government, NGO's)	Total
1	Acid lime	0	1	0	0	0	0	1
2	Acid Lime leaf	0	0	1	0	0	0	1
3	Amaranthus	1	0	2	0	1	0	4
4	Baking Soda	1	13	0	0	0	0	14
5	Banana	0	2	0	0	0	0	2

6	Beans	3	1	0	2	0	0	6
7	Beaten rice	2	10	0	0	0	0	12
8	Biscuit	0	6	0	0	0	0	6
9	Bishops weed	0	7	0	0	0	0	7
10	Bitter Gourd	0	0	0	1	0	0	1
11	Black Gram	5	11	0	1	0	0	17
12	Bread	0	15	0	0	0	0	15
13	Brinjal	10	8	0	3	0	0	21
14	Butter	1	0	0	0	0	0	1
15	Butter Milk	0	0	0	2	0	0	2
16	Cabbage	0	3	0	0	0	0	3
17	Cardamom	0	7	0	0	0	0	7
18	Carrot	0	1	0	0	0	0	1
19	Cashew	0	1	0	0	0	0	1
20	Chick Pea	6	1	0	0	0	0	7
21	Chick Pea Flour	13	9	0	2	0	0	24
22	Chick Pea Suop	3	0	0	0	0	0	3
23	Chilli	20	19	0	4	0	0	43
24	Chilli	1		0	0	0	0	1
25	Chilli Powder	17	145	0	0	0	0	162
26	Cloves	0	1	0	0	0	0	1
27	Cluster bean	1	1	0	0	0	0	2
28	Coconut	0	10	0	0	0	0	10
29	Coriander	0	21	0	2	2	0	25
30	Cowpea	8	2	0	2	0	0	12
31	Cumin	1	235	0	0	0	0	236
32	curd	4	15	0	0	0	0	19
33	Currd	0	1	0	0	0	0	1
34	Curry Leaf	0	160	0	8	0	0	168
35	Egg	0	1	0	0	0	0	1
36	Fennel	0	1	0	0	0	0	1
37	Fenu greek	0	1	0	0	0	0	1
38	Garam Masala	0	3	0	0	0	0	3
39	Garlic	49	37	3	6	0	0	95
40	Ghee	0	13	0	0	0	0	13
41	Ginger		8			0	0	8
42	Gram flour	1	3			0	0	4
43	Grapes		1			0	0	1
44	Green Chilli	12	16		1	0	0	29
45	Ground Nut	22	81	1	3	0	0	107
46	Horse gram	5	1		1	0	0	7
47	Jaggery	1	136	0	0	0	0	137
48	Ladys Finger	1	1	0	0	0	0	2
49	Maida Flour	1	3	0	0	0	0	4

50	Milk	1	0	0	0	0	0	1
51	Moth bean	3	1	0	0	0	0	4
52	Mung Bean	11	1	0	0	0	0	12
53	Mustard	8	211	0	0	0	0	219
54	Niger Powder	1	4	0	0	0	0	5
55	Noodles	2		0	0	0	0	2
56	Nutmeg	0	4	0	0	0	0	4
57	Oil	3	231	0	1	0	0	235
58	Onion	94	29	0	13	0	0	136
59	Peas	1		0		0	0	1
60	Pigeon pea	19	8	0	4	0	0	31
61	Potato	0	4	0		0	0	4
62	Puffed Rice	0	14	0		0	0	14
63	Pumpkin	0		0	2	0	0	2
64	Rice	1	23	0		0	52	76
65	Rice Flour	0	6	0		0	1	7
66	Ridge Gourd	6		0	1	0	0	7
67	Roasted Gram	0	15	0		0	0	15
68	Roasted Gram	0	1	0	0	0	0	1
69	Roasted Gram Powder	0	4	0	0	0	0	4
70	Salt	8	368	0	0	0	1	377
71	Semolina	19	14	0	0	0	0	33
72	Sesame	0	2	0	0	0	0	2
73	Shev	0	7	0	0	0	0	7
74	Snake Gourd	0		0	1	0	0	1
75	Sorghum Flour	58	7	0	10	0	0	75
76	Sorghum semolina	2		0	0	0	0	2
77	Sugar	1	172	2		0	0	175
78	Tamarind	15	52		7	0	0	74
79	Tea Powder	1	125	1	1	0	0	128
80	Tomato	55	28	1	10	0	0	94
81	Turmeric Powder	2	163	0	0	0	0	165
82	Wheat Flour	47	21	0	0	0	0	68
	Total	**547**	**2527**	**11**	**88**	**3**	**54**	**3230**

Majority of households bought the dietary requirements from the market besides meeting some of the fruits, vegetables and cereals from their domestic production.

Table 53: Child Dietary Diversity – Balaganur village

Food ingredients used by the households- Ingredients wise

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest / Picked from the wild	Food Aid (Government, NGO's)	Brest fed	Total
1	Beaten rice	0	1	0	0	0	0	0	1
2	Biscuit	0	9	0	0	0	0	0	9
3	Breastfed	0	0	0	0	0	0	13	13
4	Bred	0	1	0	0	0	0	0	1
5	Cardamom	0	2	0	0	0	0	0	2
6	Chilli	0	2	0	0	0	0	0	2
7	Chilli powder (Dried)	0	3	0	0	0	0	0	3
8	Cumin	0	6	0	0	0	0	0	6
9	Curry Leaf	0	3	0	0	0	0	0	3
10	Fennel	0	1	0	0	0	0	0	1
11	Finger Millet Flor	0	2	0	0	0	0	0	2
12	Garlic	0	2	0	0	0	0	0	2
13	Ginger	0	2	0	0	0	0	0	2
14	Chick pea	1	0	0	0	0	0	0	1
15	Green Chilli	0	2	0	0	0	0	0	2
16	Ground Nut Powder	0	1	0	0	0	0	0	1
17	Jaggery	0	2	0	0	0	0	0	2
18	Milk	4	6	0	0	0	0	0	10
19	Mustard	0	5	0	0	0	0	0	5
20	Oil	0	8	0	0	0	0	0	8
21	Onion	0	7	0	0	0	0	0	7
22	Rice	0	6	0	0	0	0	0	6
23	Salt	0	10	0	0	0	0	0	10
24	Sugar	0	8	0	0	0	0	0	8
25	Tea Powder	0	7	0	0	0	0	0	7
26	Tomato	0	1	0	0	0	0	0	1
27	Turmeric powder	0	1	0	0	0	0	0	1
28	Wheat Flour	0	1	0	0	0	0	0	1
29	Wheat semolina	2	6					0	8
	Total	**7**	**105**	**0**	**0**	**0**	**0**	**13**	**125**

Food ingredients used by the households- Ingredients wise (Total number of times the food ingredients used by the households in a day)

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest / Picked from the wild	Food Aid (Government, NGO's)	Brest fed	Total
1	Biscuit	0	15	0	0	0	0	0	15
2	Breastfed	0		0	0	0	0	71	71
3	Bred	0	1	0	0	0	0	0	1
4	Cardamom	0	2	0	0	0	0	0	2
5	Chilli	0	2	0	0	0	0	0	2
6	Chilli powder	0	3	0	0	0	0	0	3
7	Cumin	0	8	0	0	0	0	0	8
8	Curry Leaf	0	4	0	0	0	0	0	4
9	Fennel	0	1	0	0	0	0	0	1
10	Finger Millet Flour	0	2	0	0	0	0	0	2
11	Garlic	0	2	0	0	0	0	0	2
12	Gram	1		0	0	0	0	0	1
13	Green Chilli	0	2	0	0	0	0	0	2
14	Ground Powder	0	1	0	0	0	0	0	1
15	Jaggery	0	2	0	0	0	0	0	2
16	Jinger	0	2	0	0	0	0	0	2
17	Milk	8	15	0	0	0	0	0	23
18	Mustard		7	0	0	0	0	0	7
19	Oil	0	10	0	0	0	0	0	10
20	Onion	0	7	0	0	0	0	0	7
21	Rice	0	9	0	0	0	0	0	9
22	Salt	0	22	0	0	0	0	0	22
23	Sugar	2	9	0	0	0	0	0	11
24	Tea Powder	0	7	0	0	0	0	0	7
25	Tomato	0	2	0	0	0	0	0	2
26	Turmeric powder	0	1	0	0	0	0	0	1
27	Wheat Flour	0	1	0	0	0	0	0	1
28	Wheat semolina	2	7	0	0	0	0	0	9
	Total	**13**	**144**	**0**	**0**	**0**	**0**	**71**	**228**

Majority of households bought the dietary requirements from the market besides meeting some of the fruits, vegetables and cereals from their domestic production.

Breast feeding the children were observed in 71 households.

Table 54: Child Dietary Diversity – Mannur village
Food ingredients used by the households- Ingredients wise

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest/ Picked from the wild	Food Aid (Government, NGO's)	Brest fed	Total
1	Acid lime	0	0	0	1	0	0	0	1
2	Almond	0	3	0	0	0	0	0	3
3	Apple	0	3	0	0	0	0	0	3
4	Baking soda	0	1	0	0	0	0	0	1
5	Banana	1	3	0	0	0	0	0	4
6	Biscuit	0	13	0	0	0	0	0	13
7	Black gram	0	1	0	0	0	0	0	1
8	Breastfed	0	0	0	0	0	0	13	13
9	Bred	0	3	0	0	0	0	0	3
10	Cardamom	0	5	0	0	0	0	0	5
11	Chick Pea	2	0	0	0	0	0	0	2
12	Chilli	0	2	0	0	0	0	0	2
13	Chilli powder (Dried)	2	4	0	0	0	0	0	6
14	Chocolate	0	2	0	0	0	0	0	2
15	Coconut	0	1	0	0	0	0	0	1
16	Coriander	1	3	0	0	0	0	0	4
17	Cumin	1	6	0	0	0	0	0	7
18	Curry Leaf	2	3	0	0	0	0	0	5
19	Dates	0	2	0	0	0	0	0	2
20	Garlic	0	1	0	0	0	0	0	1
21	Ghee	0	1	0	0	0	0	0	1
22	Ginger	0	4	0	0	0	0	0	4
23	Green Gram	1	0	0	0	0	0	0	1
24	Ground Nut Powder	2	1	0	1	0	0	0	4
25	Jaggery	1	2	0	0	0	0	0	3
26	Milk	6	16	0	0	0	0	0	22
27	Mustard	1	4	1	0	0	0	0	6
28	Oil	0	7	0	0	0	0	0	7
29	Onion	1	1	1	0	0	0	0	3
30	Orange	0	1	0	0	0	0	0	1
31	Peda	0	2	0	0	0	0	0	2
32	Potato	1	0	0	0	0	0	0	1
33	Puffed rice	0	2	0	0	0	0	0	2
34	Rice	9	11	0	0	0	0	0	20
35	Roasted Gram	0	2	0	0	0	0	0	2
36	Salt	0	19	0	0	0	0	0	19
37	Sorghum Flour	6	1	0	0	0	0	0	7
38	Sugar	0	21	0	0	0	0	0	21

39	Tea Powder	0	15	1	0	0	0	0	16
40	Tomato	1	0	0	0	0	0	0	1
41	Turmeric powder	0	4	0	0	0	0	0	4
42	Wheat Flour	4	0	0	0	0	0	0	4
43	Wheat semolina	0	2	0	0	0	0	0	2
		42	**172**	**3**	2	0	0	0	**232**

Food ingredients used by the households- Ingredients wise (Total number of times the food ingredients used by the households in a day)

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest/ Picked from the wild	Food Aid (Government, NGO's)	Brest fed	Total
1	Acid lime	0	0	0	1	0	0	0	1
2	Almond	0	4	0	0	0	0	0	4
3	Apple	0	3	0	0	0	0	0	3
4	Baking soda	0	2	0	0	0	0	0	2
5	Banana	1	3	0	0	0	0	0	4
6	Biscuit	0	15	0	0	0	0	0	15
7	Black Gram	0	2	0	0	0	0	0	2
8	Breastfed	0		0	0	0	0	40	40
9	Bred	0	4	0	0	0	0	0	4
10	Cardamom	0	6	0	0	0	0	0	6
11	Chick Pea	2		0	0	0	0	0	2
12	Chilli	0	2	1	0	0	0	0	3
13	Chilli powder	2	6	0	0	0	0	0	8
14	Chocolate	0	2	0	0	0	0	0	2
15	Coconut	0	1	0	0	0	0	0	1
16	Coriander	1	5	0	0	0	0	0	6
17	Cumin	1	9	0	0	0	0	0	10
18	Curry Leaf	2	5	0	0	0	0	0	7
19	Dates	0	2	0	0	0	0	0	2
20	Garlic	0	1	0	0	0	0	0	1
21	Ghee	0	1	0	0	0	0	0	1
22	Green Gram	1	0	0	0	0	0	0	1
23	Ground Nut	1	0	0	0	0	0	0	1
24	Ground Nut Powder	1	1	0	1	0	0	0	3
25	Jaggery	1	2	0	0	0	0	0	3
26	Milk	15	70	0	0	0	0	0	85
27	Mustard	1	7	1	0	0	0	0	9
28	Oil	0	11	0	0	0	0	0	11
29	Onion	1	1	1	0	0	0	0	3
30	Orange	0	1	0	0	0	0	0	1
31	Peda	0	2	0	0	0	0	0	2
32	Potato	1		0	0	0	0	0	1

33	Puffed rice	0	2	0	0	0	0	0	2
34	Rice	14	18	0	0	0	0	0	32
35	Rice Powder	1		0	0	0	0	0	1
36	Roasted Gram	0	2	0	0	0	0	0	2
37	Salt	0	46	1	0	0	0	0	47
38	Sorghum Flour	7	1	0	0	0	0	0	8
39	Sugar	3	67	0	0	0	0	0	70
40	Tea Powder	0	22	1	0	0	0	0	23
41	Tomato	1	0	0	0	0	0	0	1
42	Turmeric powder	0	4	0	0	0	0	0	4
43	Wheat Flour	4	1	0	0	0	0	0	5
44	Wheat semolina		2	0	0	0	0	0	2
	Total	**61**	**333**	**5**	**2**	**0**	**0**	**40**	**441**

Majority of households bought the dietary requirements from the market besides meeting some of the fruits, vegetables and cereals from their domestic production.

Breast feeding the children were observed in 40 households.

Table 55: Child Dietary Diversity – Nandyal
Food ingredients used by the households- Ingredients wise

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest/ Picked from the wild	Food Aid (Government, NGO's)	Brest fed	Total
1	Breastfed	0	0	0	0	0	0	5	5
2	Rice	0	19	0	0	0	6	0	25
3	Onion	7	2	1	1	0	0	0	11
4	Chilli	6	3	1	1	0	0	0	11
5	Tomato	5	4	1	1	0	0	0	11
6	Pigeon pea	0	2	0	1	0	0	0	3
7	Curry Leaf	1	11	1	0	0	0	0	13
8	Bishops weed	0	1	0	0	0	0	0	1
9	Cabbage	0	1	0	0	0	0	0	1
10	Cashew Nuts	0	1	0	0	0	0	0	1
11	Cloves	0	1	0	0	0	0	0	1
12	horlicks	0	1	0	0	0	0	0	1
13	Ladys Finger	0	1	0	0	0	0	0	1
14	Pakoda	0	1	0	0	0	0	0	1
15	Potato	0	1	0	0	0	0	0	1
16	Black gram	1	2	0	0	0	0	0	3
17	Chick Pea	1	2	0	0	0	0	0	3
18	Tamarind	1	2	0	0	0	0	0	3
19	Baking soda	0	2	0	0	0	0	0	2
20	Cerelac	0	2	0	0	0	0	0	2
21	Puffed rice	0	2	0	0	0	0	0	2
22	Roasted Gram	1	3	0	0	0	0	0	4
23	Garlic	3	3	0	0	0	0	0	6
24	Beaten rice	0	3	0	0	0	0	0	3
25	Coriander	0	3	0	0	0	0	0	3
26	Ginger	0	3	0	0	0	0	0	3
27	Shevu	0	3	0	0	0	0	0	3
28	Banana	1	4	0	0	0	0	0	5
29	Sorghum Flour	6	4	0	0	0	0	0	10
30	Cardamom	0	4	0	0	0	0	0	4
31	Wheat Flour	12	6	0	0	0	0	0	18
32	Curd	0	6	0	0	0	0	0	6
33	Biscuit	2	7	0	0	0	0	0	9
34	Wheat semolina	6	7	0	0	0	0	0	13
35	Chilli powder	0	10	0	0	0	0	0	10
36	Ground Nut	2	11	0	0	0	0	0	13
37	Turmeric powder	0	12	0	0	0	0	0	12
38	Ghee	1	13	0	0	0	0	0	14
39	Mustard	0	14	0	0	0	0	0	14

40	Oil	0	14	0	0	0	0	0	14
41	Cumin	0	15	0	0	0	0	0	15
42	Jaggery	0	15	0	0	0	0	0	15
43	Bred	0	18	0	0	0	0	0	18
44	Tea Powder	0	21	0	0	0	0	0	21
45	Salt	0	23	0	0	0	0	0	23
46	Milk	0	24	0	0	0	0	0	24
47	Sugar	0	24	0	0	0	0	0	24
48	Beans	1	0	0	0	0	0	0	1
49	Moth bean	1	0	0	0	0	0	0	1
		58	**331**	**4**	**4**	**0**	**6**	**5**	**408**

Food ingredients used by the households- Ingredients wise (Total number of times the food ingredients used by the households in a day)

Sl No	Food ingredient	Own Production	Bought	Borrowed	Aid/ assistance of relatives	Harvest/ Picked from the wild	Food Aid (Government, NGO's)	Brest fed	Total
1	Baking soda	0	2	0	0	0	0	0	2
2	Banana	1	4	0	0	0	0	0	5
3	Beans	1		0	0	0	0	0	1
4	Biscuit	2	7	0	0	0	0	0	9
5	Bishops weed	0	1	0	0	0	0	0	1
6	Black Gram	1	2	0	0	0	0	0	3
7	Breastfed	0	0	0	0	0	0	0	9
8	Bred	0	23	0	0	0	0	9	23
9	Cabbage	0	1	0	0	0	0	0	1
10	Cardamom	0	6	0	0	0	0	0	6
11	Cashew Nuts	0	1	0	0	0	0	0	1
12	Cerelac	0	2	0	0	0	0	0	2
13	Chick Pea	1	2	0	0	0	0	0	3
14	Chilli	3	4	0	0	0	0	0	7
15	Chilli	1	0	0	0	0	0	0	1
16	Chilli powder	0	16	0	0	0	0	0	16
17	Cloves	0	2	0	0	0	0	0	2
18	Coriander	0	3	0	0	0	0	0	3
19	Cumin	0	28	0	0	0	0	0	28
20	Curd	0	7	0	0	0	0	0	7
21	Curry Leaf	1	19	1	0	0	0	0	21
22	Garlic	3	4	0	0	0	0	0	7
23	Ghee	1	15	0	0	0	0	0	16
24	Green Chilli	2	0	1	1	0	0	0	4
25	Ground Nut	0	7	0	0	0	0	0	7
26	Ground Nut Powder	2	5	0	0	0	0	0	7

27	Grount nut	0	1	0	0	0	0	0	1
28	horlicks	0	2	0	0	0	0	0	2
29	Jaggery	0	26	0	0	0	0	0	26
30	Ladys Finger	0	1	0	0	0	0	0	1
31	Milk	0	103	0	0	0	0	0	103
32	Moth bean	1	0	0	0	0	0	0	1
33	Mustard	0	26	0	0	0	0	0	26
34	Oil	0	28	0	0	0	0	0	28
35	Onion	8	4	1	2	0	0	0	15
36	Pakoda	0	1	0	0	0	0	0	1
37	Pigeon pea	0	2	0	1	0	0	0	3
38	Potato	0	1	0	0	0	0	0	1
39	Puffed rice	0	2	0	0	0	0	0	2
40	Rice	0	32	0	0	0	9	0	41
41	Rice Flour	0	1	0	0	0	1	0	2
42	Roasted Gram	1	3	0	0	0	0	0	4
43	Salt	0	97	0	0	0	0	0	97
44	Shev	0	3	0	0	0	0	0	3
45	Sorghum Flour	6	6	0	0	0	0	0	12
46	Sugar	0	94	0	0	0	1	0	95
47	Tamarind	1	2	0	0	0	0	0	3
48	Tea Powder	0	40	0	0	0	0	0	40
49	Tomato	6	7	1	1	0	0	0	15
50	Turmeric powder	0	20	0	0	0	0	0	20
51	Wheat Flour	13	8	0	0	0	0	0	21
52	Wheat semolina	9	9	0	0	0	0	0	18
		64	**680**	**4**	**5**	**0**	**11**	**9**	**773**

Majority of households bought the dietary requirements from the market besides meeting some of the fruits, vegetables and cereals from their domestic production.

Breast feeding the children were observed in 9 households.

Table 56: Infant and Young child feeding practices (IYCF):

Questions	(Answer options) No. of Households	
	YES	NO
HHFS.1Has ever been Breastfed	30	9
HHFS.2 Still Breast feeding	26	10
HHFS.3Breastfed yesterday during the day or at night	29	7
HHFS.4No. of times did child eat solid or semi-solid foods other than liquids yesterday during the day or night		
One time	5	
Two times	7	
Three times	0	
Four times	2	
Five times	1	
Six times	0	
Seven times	0	
Eight times	0	
Nine times	0	
Ten times	0	
Not known	20	

- 76.92 per cent (30 mothers out of 39) mothers were found feeding their babies.
- 72.22 per cent (25 mothers out of 36) mothers were continued feeding their babies below 59 months.
- 80.56 per cent (29 mothers out of 36) mothers were found breastfed their babies day before the interview.
- Few babies took semi solid foods.

Table 57: Household Food Security

Questions	(Answer options) No. of Households		
	YES	NO	Don't Know
HHFS.1. Do not have enough food to meet the family's needs in some parts of the year	91	111	0
HHFS.2. If Yes, mention the months			

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	**1**	**10**	**18**	**27**	**5**	**27**	**17**	**5**	**3**	**1**	**1**
1.00%	0.50 %	5.00%	9.00%	13.50 %	2.50 %	13.50 %	8.50%	2.50 %	1.50%	0.50%	0.50%

91 households (45.50 %) stated that, they do not have enough food to meet their family requirements during some part of the year.

During the month of May and July 13.50 per cent families expressed shortage of food grains for their family.

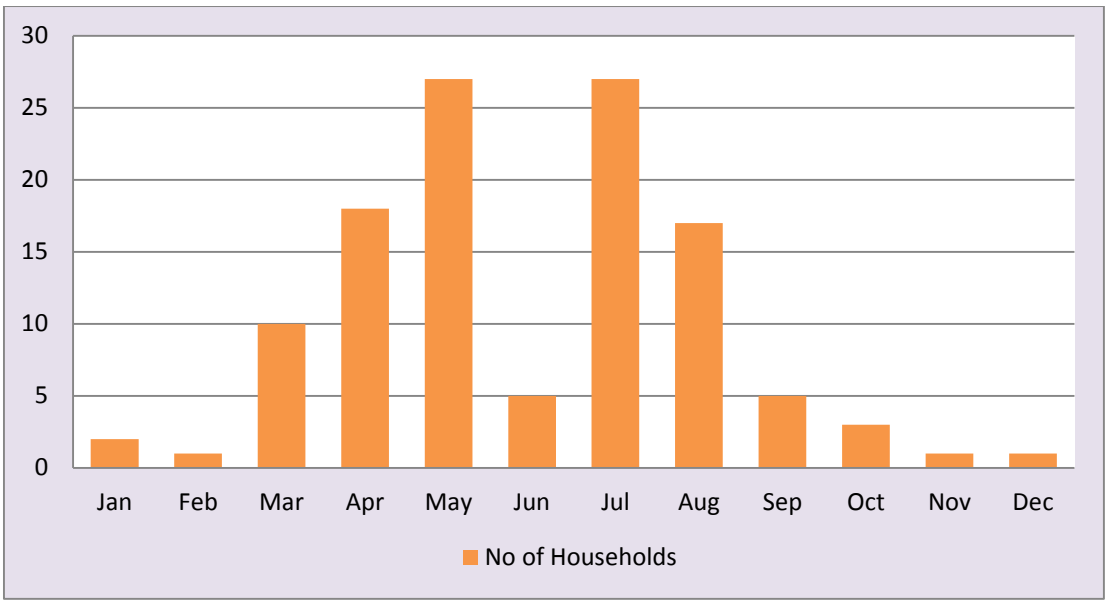


Figure 22: Household food security: Number of households experienced insufficient food for family

Table 58. Measures taken during the period of low food availability / lack of food over the past 12 months:

Measures taken	No. of Households	Percentage
1.Buying Food	12	10.91
2.Exchange/Sale of goods	26	23.64
3.Consumption of seed stocks	19	17.27
4.Borrowing	42	38.18
5.Food Aid/Gift	6	5.45
6.Gathering/Hunting from Wild	0	0.00
66.Others	5	4.55

38.18 per cent of households borrowed food grains to meet their food requirement during shortage period whereas, 23.64 per cent households followed exchange or sale goods for food grains to meet the family food grain requirement.

Table 59: Household Food Security….. Continued

Questions		No	Yes	Rarely	Sometimes	Often
HHFS.4.	Over the past 4 weeks, did you or someone else in your household worry that your household would not have enough food ?	160	40	1	33	6
HHFS.5.	Over the past 4 weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	80	120	55	24	1
HHFS.6.	Over the past 4 weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	107	93	72	20	1
HHFS.7.	Over the past 4 weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	150	50	41	8	1
HHFS.8.	Over the past 4 weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food ?	176	24	15	8	1
HHFS.9.	Over the past 4 weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?	158	42	33	6	3
HHFS.10.	Over the past 4 weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food ?	191	9	5	3	1
HHFS.11.	Over the past 4 weeks, did you or any household member go to sleep at night hungry because there was not enough food?	189	11	6	3	2
HHFS.12.	Over the past 4 weeks, did you or any household member go a whole day and night without eating anything because there was not enough food ?	188	12	9	2	1

53.50 per cent of households had limited variety of food during previous month due to lack of resources.

75.00 per cent of households have to eat foods which they do not want eat during previous month due to lack of resources

5.50 per cent of households slept hungry because they do not had enough food to eat.

Table 60: Risk Attitudes

	Risk Attitudes	No. of Households	Percentage (%)
Risk 1.1	I adopt a new crop, even if nobody else has grown it	71	35.50
	I adopt a new crop, if I have seen others growing it before me	111	55.50
	I never adopt a new crop, even if I have seen others growing it	18	9.00
Risk 1.2	One should be extremely careful about making changes in life	38	19.00
	Caution is more important than risk-taking in order to be successful	116	58.00
	Risk-taking is more important than caution in order to be successful	30	15.00
	You will never achieve anything in life unless you act boldly and take risks	16	8.00

55.50 per cent of households were found taking limited risk.
8.00 per cent accepted that risk taking is must to achieve something in life.

Lessons learnt from the study

1. It was clearly observed during the Focused Group Discussion, wide crop and animal diversity was prevailing in the localities and the same is shrinking/eroding with time unintentionally during the course of development towards sustainable increase in productivity or for specific requirements and to overcome challenges like drought and floods.
2. During present survey the diversity documentation not compared with past diversity and probable reasons for erosion of diversity which would otherwise useful for conservation of present diversity and reintroduction of lost diversity.
3. Conservation of diversity was felt by few stakeholders but could not do it because of lack of proper guidance/knowledge or encouragement.
4. During the course of discussion, villagers especially aged (>60 years) people could able to recollect the diversity of crop and animal, and also expressed their willingness to accept the same if given back at least for their own requirement.
5. In general crop diversity reduced due to low yielding and long duration nature of varieties. But the nutritional or palatability superiority overlooked by yielding potentials of new varieties.
6. Further scientific botanical or zoological documentation of the diversity and the distinctive characteristics is the need of the hour.
7. Seasonally people found depending on the natural and wild crop and animal diversity for food and domestic requirements.
8. Dietary diversity of households recorded is narrow. They depend on cereals for their carbohydrate/energy requirements and found consuming less of pulses, vegetables and fruits leading to under nourishment of both adults and children.

Views and aspirations of the farmers

1. Apart from the response to the survey questioner, during Focused Group Discussion they felt that the diversity in crop and animal has been reduced over the time and they expressed their inability or less efforts to conserve the same due to lack of knowledge regarding the same.
2. They pointed out that, need for increasing productivity in turn net returns they accepted the improved varieties of crop plants and replaced then existing traditional varieties. In spite of this some traditional varieties continued under cultivation due to lack of proper

substitutes or palatability/nutritional superiority like rabi sorghum, *Dicoccum* wheat, moth bean.

3. Strengthening of seed chain for timely and adequate supply of seeds.
4. They expressed their willingness to adopt traditional varieties of crop plants along with improved varieties.
5. They expressed the improvement in diversity of crop plants in village as a whole will definitely improve the nutritional status of households including children.
6. The non-availability of ample irrigation water is of concern in two villages namely Mannur and Nandyal, which needs to be addressed.

Way forward

- Forty annual and 23 perennial species were maintained on farm by the households. Among them pigeon pea, cotton, groundnut, *rabi* sorghum, chickpea, wheat, acid lime, banana, sapota and guava are the major cultivated crops. There is need to introduce such crop species *viz*., finger millet, black gram, soybean, grain amaranthus, mango, custard apple, fig, jamun, drumstick and vegetables which will add to their total income beside improving the nutrition.
- There is a need for supply of both improved and *desi* varieties of different crops for needy households which will help in adding diversity of varieties in crops besides conserving them in natural ecosystem.
- There is need to introduce the other breeds of domestic animals *viz*., goats, cows and buffaloes which will meet the nutritional requirement of milk, milk product and meat directly apart from adding to total income .
- As wheat, *rabi* sorghum, rice, pigeon pea, chick pea and groundnut serve as major diet items, awareness need to be created among the households regarding availability of species in common land which can be used as food for efficient utilization of the available diversity beside adding nutritional diversity.
- Households need to be educated to change from stereo type of dietary system to diverse dietary system especially among women and children to address malnutrition by introducing high nutritive value crops.
- The crop and livestock diversity need to be enhanced for overall improvement of socioeconomic conditions of the households.
- Integrated Farming System is needed for self sustainability of households.
- To reduce the migration of people by creating self employment opportunities.

Conclusion

In Vijayapur district, 200 households were surveyed for Agriculture Bio-Diversity in three villages namely Balaganur and Mannur in Sindagi taluka and Nandyal in Basavana Bagewadi taluka. The crop diversity on farm, government land and also home gardens as well as animal diversity and dietary diversity were surveyed and documented.

Majority of households derive their lively hood from agriculture and allied activities. Forty annual and 23 perennial species were maintained on the farm by the households. Among annual crops, pigeon pea, cotton, groundnut, *rabi* sorghum, chickpea and wheat and among fruit crops acid lime, banana, sapota and guava are the major cultivated crops. Area under rainfed agriculture was more. Tube well, open well and canal were major sources of irrigation water.

Tamarind, neem, Prosophis and acacia are commonly found wild trees. Goats, bullocks, cows and buffaloes are the common domestic animals present in villages and serve as a source of milk, milk product, meat and manure for both household consumption and marketing.

Wheat, *rabi* sorghum, rice, pigeon pea, chick pea and groundnut serve as major diet items. Pigeon pea, cotton, groundnut, sugarcane, chickpea, sunflower and acid lime in plant species and goats in livestock are found as main source of income.

Most of the households obtain seed or planting material from outside sources and they replace seeds of cotton, maize, sunflower and pearl millet every year. Seed system indicates need for improved and *desi* varieties of different crops.

In some of the households, stereo type of dietary system was noticed leading to malnutrition especially among women and children. Decision making is done by male head of the households followed by husband and wife jointly. The literacy rate of household head is 39.50 per cent and spouse literacy rate is 30.00 per cent. Majority of males and females are in the age group of 16-60 years and the size of a family has an average of 7.15 individuals. In most of the households, the type of floor is made up of stone followed by earthen floor and tiles. There was no enough food in the month of May and July in many households (13.50%). About 95.00%, 48.00%, 40.50% and 34.50% households possess mobile phones, Television, motor bike and bicycles respectively. Crop insurance (12.06 %), Crop loan (10.98%) and Life Insurance (10.52%)are the major Government programmes in which majority of households participate. Seventy eight members out of 200 households migrate to other places for work.

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Annexures

Annexure 1: Details of the meetings held during the course of implementation of the project.

Sl No	Date & Place	Purpose	Participants
1	19.07.2014 HRS, Bijapur	Finalization of action plan for implementation of the project	Dr. S B Dandin, Liaison Officer, Bangalore Office, Bioversity International, staff of HRS, Bijapur and Farmers from selected villages
2	04.08.2014 Balaganur	Focus Group Discussion Meeting	Staff of HRS, Bijapur and farmers of Balaganur village
3	04.08.2014 Mannur	Focus Group Discussion Meeting	Staff of HRS, Bijapur and farmers of Mannur village
4	07.08.2014 KVK, Bijapur	Training to survey personnel	Staff of HRS, Bijapur and survey personnel
5	08.08.2014 Nandyal	Focus Group Discussion Meeting	Staff of HRS, Bijapur and farmers of Nandyal village
6	15.10.2014 & 16.10.2014 at HRS, Bijapur	Review progress and finalization of report	Dr. S B Dandin, Liaison Officer, Bangalore Office, Bioversity International, Dr. J Venkatesh, Director of Research, UHS, Bagalkot and implementing staff of HRS, Bijapur and Anantapuramu

Annexure – 2: Meeting at Balaganur

Annexure –3: Meeting at Mannur

Annexure – 4: Meeting at Nandyal

Annexure –5: Joint meeting at Principal Investigators of Karnataka and Andra Pradesh at Horticulture Research and Extension Station, Vijayapur, Karnataka

Annexure – 6: Focused Group Discussion meeting with men farmers of Balaganur

Annexure –7: Focused Group Discussion meeting with women farmers of Balaganur

Annexure – 8: Focused Group Discussion meeting with men farmers of Mannur

Annexure –9: Focused Group Discussion meeting with women farmers of Mannur

Annexure – 10: Focused Group Discussion meeting with men farmers of Nandyal

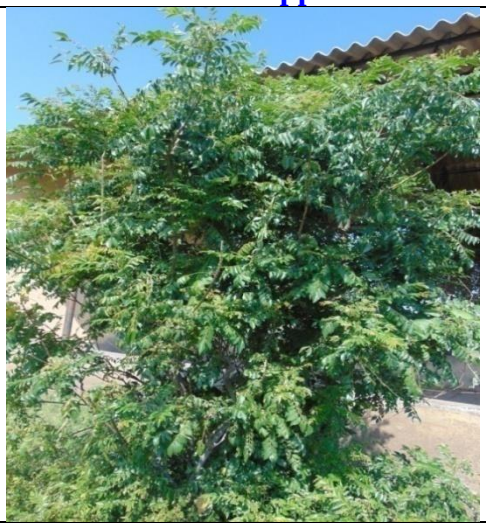
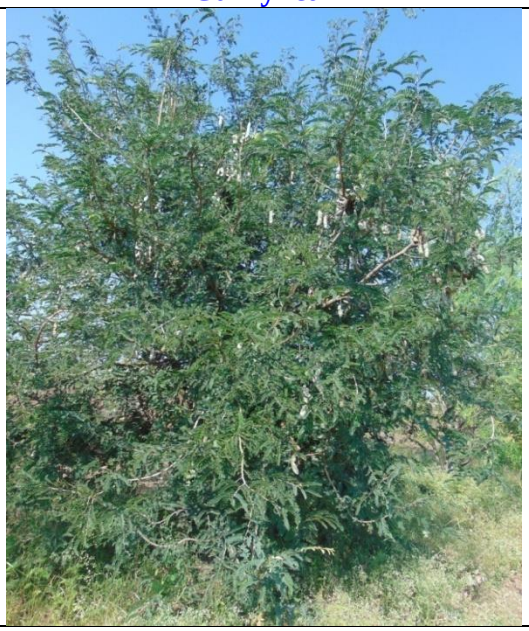
Annexure –11: Focused Group Discussion meeting with women farmers of Nandyal

	
Rabi sorghum	**Pigeon pea**
	
Sunflower	**Pearl millet**
	
Chick pea	**Wheat**

Annexure –12: Major rainfed crops cultivated by the households during 2013-14

	
Sugar cane	**Brinjal**
	
Maize	**Tomato**
	
Chilli	**Onion**

Annexure –13: Major irrigated crops cultivated by the households during 2013-14

	
Acid lime	**Custard apple**
	
Sapota	**Curry leaf**
	
Coconut	**Tamarind**

Annexure –14: Major horticulture crops cultivated by the households

	
Neem	**Prospis**
	
Acacia	**Agave**
	
Wild almond	**Bali bali**

Annexure –15: Major wild and semi wild species observed

	
Bullock	**Buffalo**
	
Sheep/Goat	**Chicken**
	
Cat	**Dog**

Annexure –16: Major domesticated animal species observed