

Summer Training at



**Jaipur
(April 16-June 5, 2012)**

Need Assessment of Chilli in Sawaimadhopur, Rajasthan

**By
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Bhanu Pratap Singh**

**Under the guidance of
Prof. Vivek Bhandari**

**Post Graduate Diploma in Rural Management
2011-2013**



**Institute of Health Management Research,
Jaipur
2012**

Ref:IIHMR/ADM/PGDRM-2/2012

Date:- 31-7-2012

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CERTIFICATE

This is to certify that **Aayush Jain** has under gone summer training in **Access Development Services, Sawai Madhopur (Rajasthan)** from 16 April to 5 June, 2012.

The candidate carried out all the studies related to the summer training. His approach to the studies has been sincere, scientific and analytical. This summer training in partial fulfilment of the course requirement is recommended for the award of Postgraduate Diploma in Rural Management.

I wish Him Success in all future endeavours.



Dr. P.R. Sodani,

Dean, Academics and Student Affairs

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INTERNSHIP CERTIFICATE

This is to certify that **Mr. Aayush Jain** student of IIHMR (RM 2nd Batch 2011), Jaipur has successfully completed his 50 days internship program (16/04/2012 to 05/06/2012) with ACCESS Development Services, Sawai Madhopur where he conducted Need Assessment survey of Chilli project at Chhan & Sawai Madhopur. His work and behavior during the assignment period was satisfactory.

During the internship programme, Mr. Aayush had amicable relations with the farmer's community and has worked hard under the guidance of the Sr. Manager-Shubhendu Dash.

I wish him good luck.


(Shubhendu Dash)

Sr. Manager

ACCESS Development Services



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CERTIFICATE

This is to certify that **BhanuPratap** has under gone summer training in **Access Development Services, Sawai Madhopur (Rajasthan)** from 16 April to 5 June, 2012.

The candidate carried out all the studies related to the summer training. His approach to the studies has been sincere, scientific and analytical. This summer training in partial fulfilment of the course requirement is recommended for the award of Postgraduate Diploma in Rural Management.

I wish Him Success in all future endeavours.



Dr. P.R. Sodani

Dean, Academics and Student Affairs

IIHMR, Jaipur

Vivek Bhandari

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IIHMR, Jaipur





Date : 26.06.2012

INTERNSHIP CERTIFICATE

This is to certify that **Mr. Bhanu Pratap** student of IIHMR (RM 2nd Batch 2011), Jaipur has successfully completed his 50 days internship program (16/04/2012 to 05/06/2012) with ACCESS Development Services, Sawai Madhopur where he conducted Need Assessment survey of Chilli project at Chhan & Sawai Madhopur. His work and behavior during the assignment period was satisfactory.

During the internship programme, Mr. Bhanu Pratap had amicable relations with the farmer's community and has worked hard under the guidance of the Sr. Manager-Shubhendu Dash.

I wish him good luck.


(Shubhendu Dash)

Sr. Manager

ACCESS Development Services



Acknowledgement

The work of some unknown person makes our lives easier everyday and we believe it is appropriate to acknowledge those unknown people. It is also necessary to acknowledge those people we know have directly shaped our work as well as lives.

We are grateful to **Mr. Subendu Dash** reporting officer (Sr. manager) for providing us the opportunity to work on this project. He constantly motivated us throughout the two month duration of this project. Without his guidance and support the project could not have been completed successfully.

We are also grateful to **Mr. Akhilesh Singh** (Sr. program coordinator) and **Mr. Patanjli Mishra** for providing us with their inputs and setting a framework for this project relatively new to us. We are greatly obliged to **Mr. Shankar Saini** (senior community mobilizer) and **Mr. Rajesh Saini** for providing us guidance in our field stay for data collection.

We express our gratitude to **Dr. Vivek Bhandari** (Dean, SRM-IIHMR, Jaipur), **Prof. Gautam Sadhu** (Associate Dean SRM- IIHMR, Jaipur) for the opportunity given to us to do internship with ACCESS and provide their able guidance and motivation during the training. We thank Prof. **Rahul Ghai** (Associate Professor, SRM-IIHMR) for his support and motivation through valuable guidance and continuous supervision during our study.

Lastly, we thank our family members and friends for their constant encouragement and moral support in my efforts.

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Abbreviations

FIG-Farmer interest group

MNERGA -Mahatma Gandhi National Rural Employment Guarantee Act

SHGs-Self help groups

RAPCL-Ranthambore Agro producer Company Ltd.

EBG-Enterprise business group

PBG-Producer business group

NABARD-National Bank for Agriculture and Rural Development

FBG-Farmer business group

FGD-Focus group discussion

BPL-Below poverty line

RKVY- Rashtriya Krishi Vikas Yojana

SIDBI-Small Industries Development Bank of India

ICICI-Industrial Credit and Investment Corporation of India

CGAP-Consultative Group to Assist Poor

POP-Package of Practice

IFFCO-Indian Farmers Fertilizer Cooperative Limited

BOD-Board of Director

APL-Above Poverty Line

FWWB-Friends of Women World Banking India

ISMW-Indian School of Microfinance for Women

ACTED-Agency for Technical Cooperation and Development

DFID-Department for International Development

IFC-International Finance Corporation

SAMN-South Asian Microfinance Network

UNDP-United Nations Development Program in India

Chapter – 1: Introduction

Sawai Madhopur district lies in the confluence of the Vindhyan and Aravali hill ranges here. The district headquarter is situated at a distance of 180 km towards the north-east of Jaipur. This district, spread across an area of 5042.99 sq km, is inhabited by 11.16 lakh people in 800 villages, out of which 121 are situated in and around the national park. Almost 24% of the total population of the district is living below the poverty line.

SAWAI MADHOPUR (Rajasthan)



The average rainfall in the district is 577 mm¹ over the last 10 years. The main sources of livelihoods of the people living in this region are agriculture, animal husbandry and labour. One of the important agricultural crop of this region is chilly upon around 50 percent of agricultural population depends for their livelihood but the region is infested with lots of problems that hinders the maximum growth of this product. Low productivity due to inappropriate unproductive practices, lack of access to consistent and effective technical support; high losses due to pest attack, high cost of cultivation due to increasing usage of water, pesticides, hybrid seeds, low price realization due to improper post harvest management and market linkages. The major chilly producing clusters in the region are Khandar and Behraunda region.

¹ District Records Sawai Madhopur

Following are the objectives of the study:

Objective:-

- To assess the current status of the chilli farmers in Behraunda cluster of Sawai Madhopur District.
- To evaluate the status of the both men (Farmer interest group, FIG) and women (Enterprise business group, EBG) groups formed for the project.
- To identify gaps between primary products and market for both backward as well as forward linkages.

Chapter – 2: Review of Literature

1. YK Alagh (AS 9-8, *Agricultural Situation in India*) examines trends in crop diversification, need for a policy shift. The study shows that there was from 1980-81 to mid-nineties a remarkable shift away from grain crops in India's agriculture. There is now the urgent requirement of knowledge based domestic incentives and disincentives and strategic trade policy initiative to return to a faster output, income and employment growth path for the agricultural economy.
2. Silesh Damte, Bant Singh and Jasdev Singh (AS 9-2, *Agricultural Situation in India*) study changes in costs and returns of major crops in Punjab. The study reveals that the rising costs of cultivation and instability in returns are due to variability in yields and prices. They argue that increase in total costs of cultivation of major crops over the years was due to the rise in the cost fixed of resources, mainly the rental value of land and interest on fixed capital. The variable costs increased mainly due to increase in the costs of human labor, machine labor, fertilizers, insecticides and weedcides used in the cultivation of these crops. This implies that the increase in productivity and production of these crops in the state has been achieved at higher costs. There is urgent need of technology up gradation and farmer friendly farm price policy to sustain the growth of farm sector which is the backbone of the state economy.

Chapter – 3: Methodology

The following section narrates the methodology used in the inquiry.

Study type- Descriptive

Sampling method- Simple random sampling

Cluster – 1

Study area- Behraunda cluster, Tehsil - khandar

Total farmers interviewed – 26 farmer

Total Meetings of Farmers Groups Attended: - 35

Village - Sukhwas, Ganganagar, Allahpur, Mayikurdh, Mayikala, Jhopri, Khandevla

Approach- Quantitative as well as Qualitative

Below is described in brief the kind of data that was collected using the different tools:

Questionnaire

A questionnaire was developed to gather the information related to fulfill the study objectives. The in depth interviews of selected farmers were taken individually on the basis of pre developed questionnaire. The information collected from interviews was used for further analysis and in providing recommendations.

Meetings with Farmer Groups

Farmer interest group (FIG) and Enterprise business group(EBG) meetings were attended for collecting information related to problems faced by farmers and discussion of possible solution of these problems. These meetings were forums where farmers decided which farmer will take demo cultivation provided by ACCESS.

Focus Group Discussion (FGD)

Ten Focus group discussion (FGD) were conducted of 10-12 farmers each (connected to the organisation) to know the actual scenario of benefits and problems related to the chilli cultivation. In total we interacted with around 125 farmers. These meetings with farmers gave us many useful insights into the processes and their issues vis a vis farming. Interactions with field staff and representatives of the producer company were very helpful in forming an idea of the dynamics of community mobilization as well participation and ownership of farmers of the program intervention.

Observation

Observation during the entire process of our field stay helped us to collect data especially for problems related to Shed-net and solar dryer, and was useful in insights on the problems faced by the women groups.

Chapter – 4: Organizational Profile

In 2006, a separate branch of CARE India was formed as a separate organisation on 1 March 2006 and was named ACCESS development service, ACCESS is an organization translating ideas into reality and has developed a complete bouquet of services in microfinance and livelihoods.

In the initial phase ACCESS established its presence in states of Madhya Pradesh, West Bengal, Orissa and Rajasthan. ACCESS has been promoted with a desire to catalyze national level impact and improvement in the lives of poor by facilitating sustainable livelihood options coupled with microfinance.

ACCESS aims to built the capacities of the community and facilitate access to livelihood and financial services. MICROFINANCE India, the flagship advocacy platform facilitated by ACCESS has emerged as the biggest multi-stakeholder platform for information sharing and discussing the way forward for microfinance sector.

In the very first year of establishment, ACCESS was been able to establish a diverse range of partnerships with a number of stakeholders, including development banks like SIDBI, public sector banks like State Bank of India, private sector banks like ICICI Bank, Insurance agencies like Max New York Life, State governments of Rajasthan, Delhi and Chhattisgarh, ministry of urban development, international funds like CARE Enterprise partners and donors like Ford Foundation and SDC.

ACCESS is a new generation livelihoods promotion organization with a focus on incubating innovations and designing sustainable solutions for strengthening the livelihoods of poor in India. For durable impact, uniquely, ACCESS works at all levels of the sector; engaging with the community through programmers and projects, partnering with and supporting stakeholders and building capacity of capacity builders and also supporting, informing and influencing the policy and strengthening the enabling environment at the national level.

Over the last five years, ACCESS has expanded its operations to eight states of the country, largely focusing on regions that are vulnerable, focusing on marginalized and excluded communities. Increasingly, ACCESS programmes are focusing on enhancing farm productivity given large population of the poor engaged in subsistence agriculture and a key strategic focus is on building sustainable community organizations.

Vision:-

ACCESS is the global partner of choice providing inclusive and innovative livelihood solutions enabling the poor to overcome poverty and live with dignity.

Mission:-

To build the capacity of community – based institutions that deliver relevant financial and livelihood development services to the poor and unreached households.

In the Sawai Madhopur district currently two major projects are running of Access Development Services: -

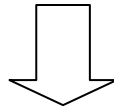
1. Addressing Needs of Chilli sub sector in Sawai Madhopur supported by Rasthriya Krishi Vikas Yojana (RKVY) Department of Agriculture, Government of Rajasthan.
2. Jeevika project supported by Embassy of the united state of America.

1. Addressing Needs of Chilli sub sector in Sawai Madhopur district:-

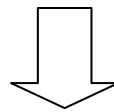
This project working for 1000 small and marginal farmer. the project have main objective that To overcome the adverse situation in agriculture, especially in Chilli cultivation, ACCESS is implementing “***Chilli income enhancement through increased productivity and value chain intervention in Sawai Madhopur***”, since April 2011. The project is facilitating the member Farmers to attain more returns from their traditional cash crops like, Chilli, and introduce Organic Farming also. This project is specifically focusing to improve livelihoods of local Farmers through an institutional approach. The approach is forming farmer interest groups (FIG) ,FIG is federated into clusters (Farmer business groups, FBG)and clusters are federating in to Producer Company. Producer company name is Ranthambore Agro producer Company Ltd.

Producer company cycle-

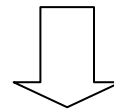
Farmer producer company (RAPCL)



Farmer producer clusters (FBGs)



Farmer producer groups (FIGs)



Farmer producer

Over a three year period starts from April 2011 to March 2014, the project working following way:-

- Organize small and marginal Farmers, for effective participation in sub-sectoral value chains.
- Effectively address productivity related issues through package of practices, technology, and value addition.
- Improve post harvest management of crop through establishing solar driers.
- Establish value addition infrastructure.
- Establish sustainable market linkages for Chilli commodities.
- Demonstrate efficacy of Producer Company model to address livelihood issues of poor.

2. Jeevika project -Empowering women, empowering the future the ‘spice’ of success: -

Access Development Services with support from the Embassy of the United States of America, Secretary's office of Global Women's has successfully launched the 'Jeevika' Project with an aim to empower the livelihoods of women in Sawai Madhopur.

The Project was started in the month of April, 2011 with the following objectives:-

- To enable and enhance income of 500 women are smallholder farmers going chilli, through the Post harvest processing technologies.
- Around 20 women enterprise groups would be formed for processing of red chilli to flakes as well as 6 women enterprise groups would be formed undertaking value added production in the form of chili pickles and other value added chilli product.
- All these groups would be provided technical skill as well as other managerial skill like book-keeping, business planning and enterprise development.

Achievements of Project:-

- Currently, the project has 376 women members and 24 groups.
- Successfully installed two solar chilli dryers as part of the project.
- Installation of a chilli grinder.
- Identification of the best possible marketing channel for distribution.
- Plans in progress over the assortment and packaging of the product

Chapter – 5: General Findings and Analysis

The main findings and analysis are listed as follows:

1. Male & Female Ratio -

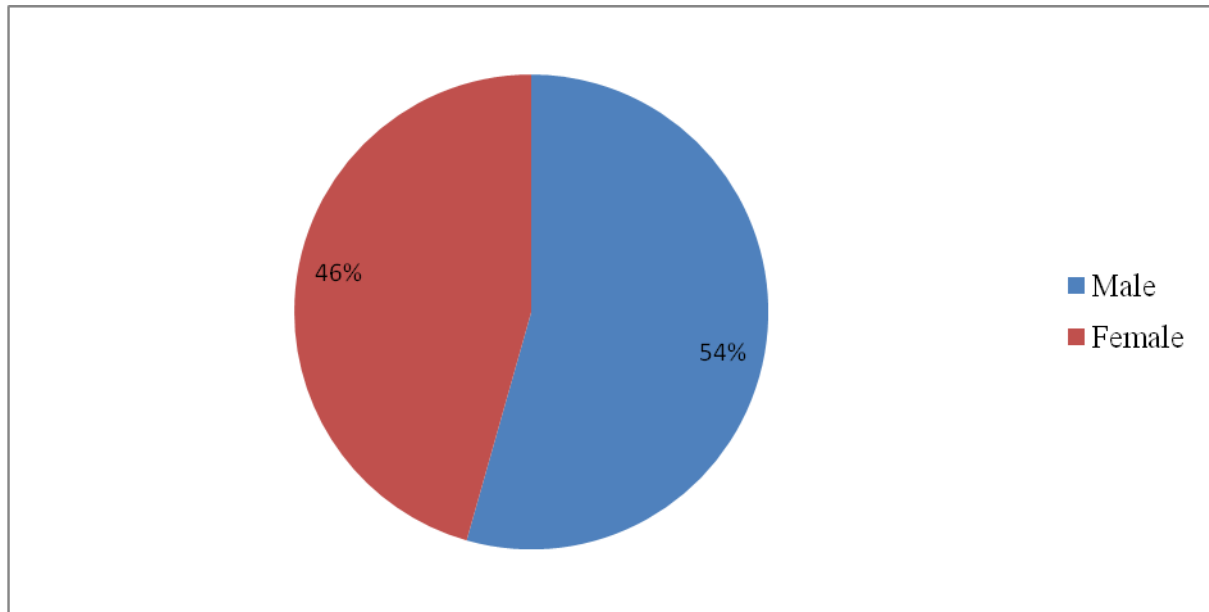


Figure: -1 Sex Ratio of study area.

The results of the survey showed about sex ratio in social status of the villages. Percentage of female was 46% and percentage of male was 54%. Hence the sex ratio for the area is 838 women per 1000 men. This is marginally lower than the district average and much lower as compared to the average national sex ratio of 940 females per 1000 men.

2. Caste Composition of farmers

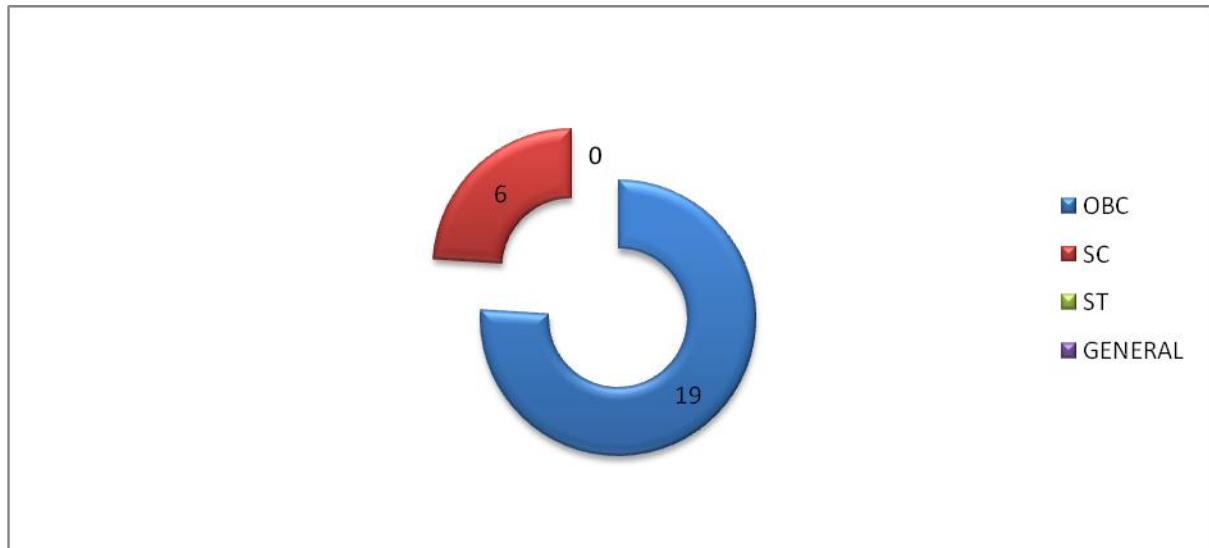


Figure: -2: Caste Composition of farmers

Figure 2 shows caste composition of farmers in the region of our study. 24% farmers belong to Scheduled caste in which Berwa caste constituted the majority. 76% farmers belong to other backward caste that included which were belonging from Mali, Saini, Gurjar, Jat and yogi caste. In our study we found that there were no farmers belonged to Scheduled Tribes and general caste.

3. Size of land holding -

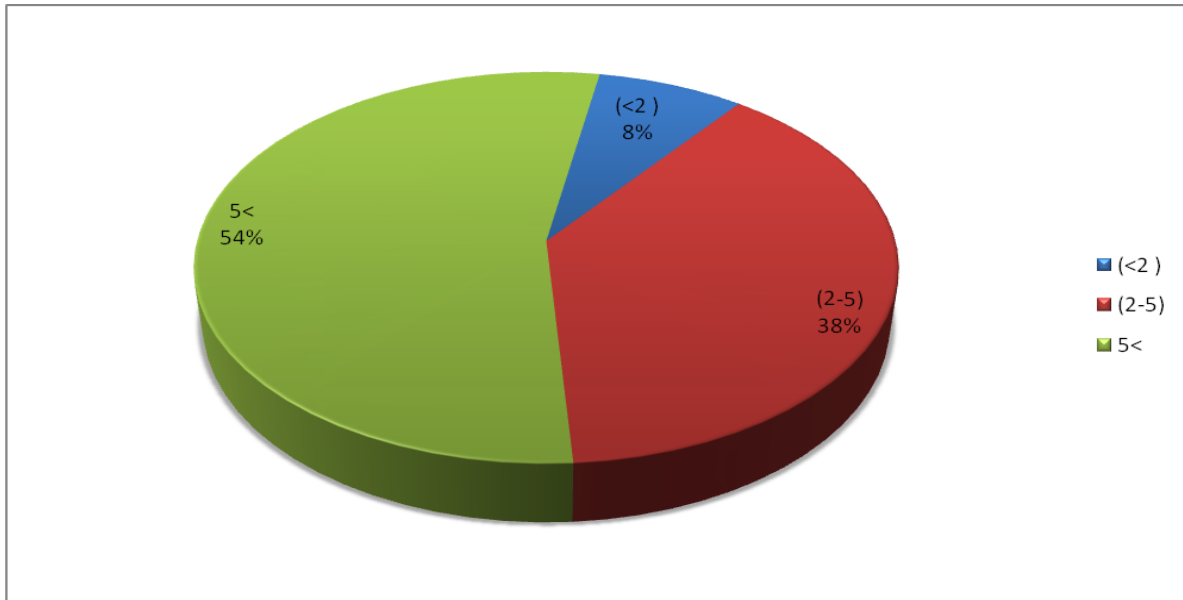


Figure: -3 Size of land holding by farmers

Figure 3 shows land holding of farmers on the basis of size. 8% farmer have less than 2 bhiga land, 38% farmer have between 2-5 bhiga and 54% farmer have greater than 5 bhiga land. The total land area of Sawai Madhopur is 499,424 hectares, of which - 54.2 % is net sown area (261539 hectares), 15.7% of the area is forestland, 20% of land is either not available for cultivation or is classified as other uncultivated land, Culturable wasteland is barely 2% and about 9.8% consists of fallow land.

4. Male and Female literacy ratio -

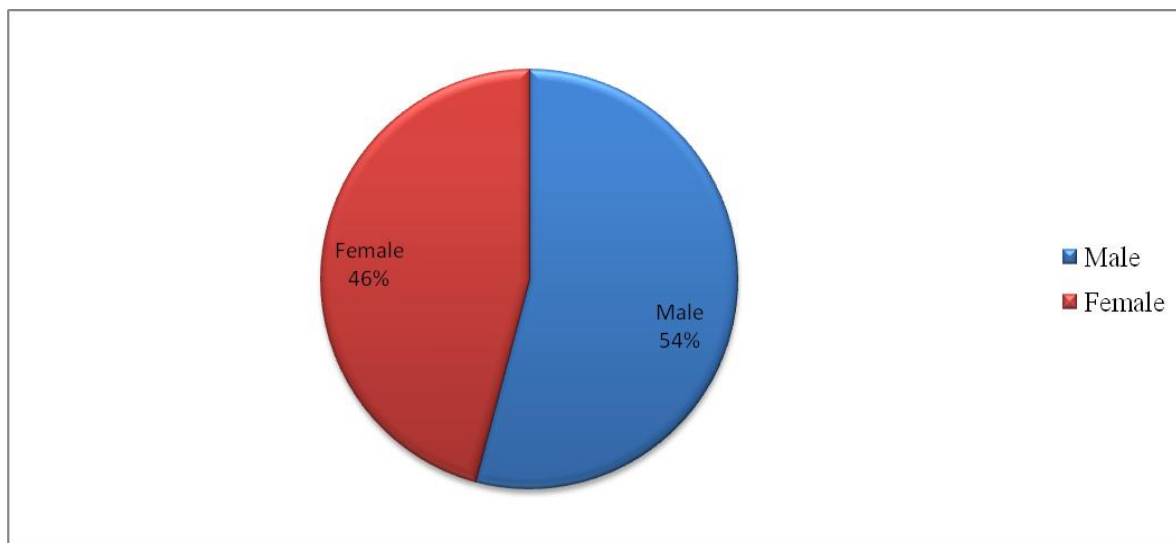


Figure:-4 Male and Female literacy ratio

Figure 4 shows literacy ratio in households of farmer. In the subject of Male and Female literacy ratio we find that 54 % male are literate and 46 % female are literate. Total Literacy rate of Sawai Madhopur is 66.19%. This means 66.19 out of 100 persons of age more than 6 years are literate. It is ranked **16** in terms of literacy rate out of total 33 districts of Rajasthan and 362 out of total 640 districts of India. Male Literacy of Sawai Madhopur is 82.72% while female literacy stands at 47.8%.

Table-1 Given below table saw that about Number of literate with the percentage of illiterate male and female of total population.

Sex	Total Population	No. Literate	% of illiterate Population
Male	105	65	62%
Female	88	55	63%

5. Education status of males -

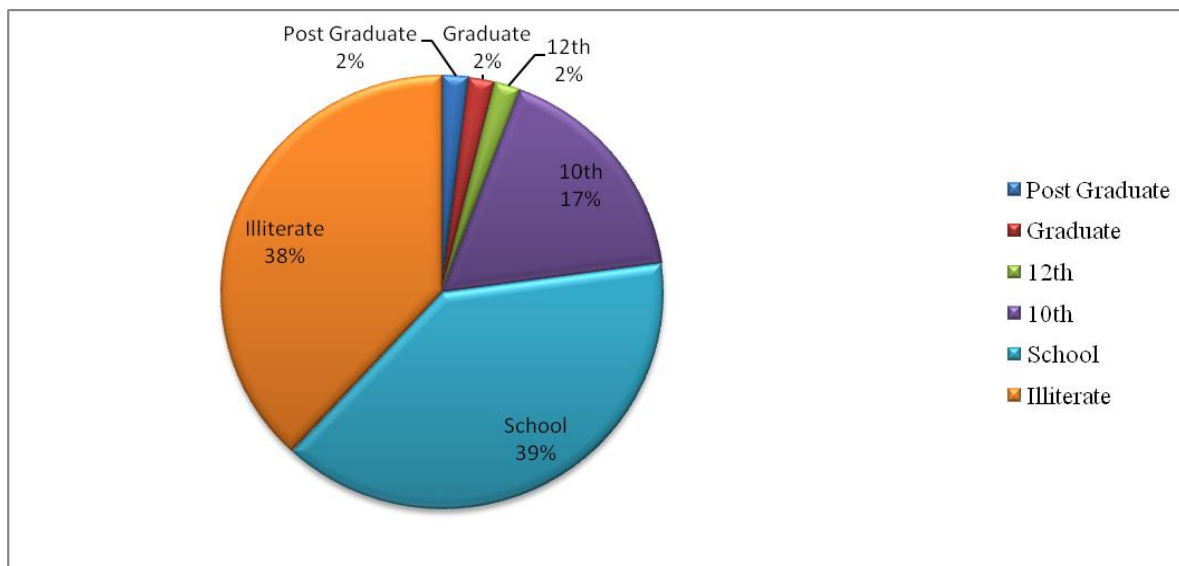


Figure:-5 Education status of Males

Figure saws that male education status of different classes in social status. We found in the study that only 2% male were Post Graduate and 39% male were studying in school but 38% male were illiterate. In education section, total literates in Sawai Madhopur city are 85,472 of which 50,438 are males while 35,034 are females. Average literacy rate of Sawai Madhopur city is 80.85 percent of which male and female literacy was 91.62 and 69.16 percent. Total children (0-6) in Sawai Madhopur city are 15,286 as per figure from Census India report on 2011. There were 8,170 boys while 7,116 are girls. Child sex ratio of girls is 871 per 1000 boys.

Table-2 Table described Average of male education in different classes-

Post Graduate	Graduate	12th	10th	School	Illiterate	Total
0.08	0.08	0.08	0.69	1.58	1.54	4.04

6. Education status female -

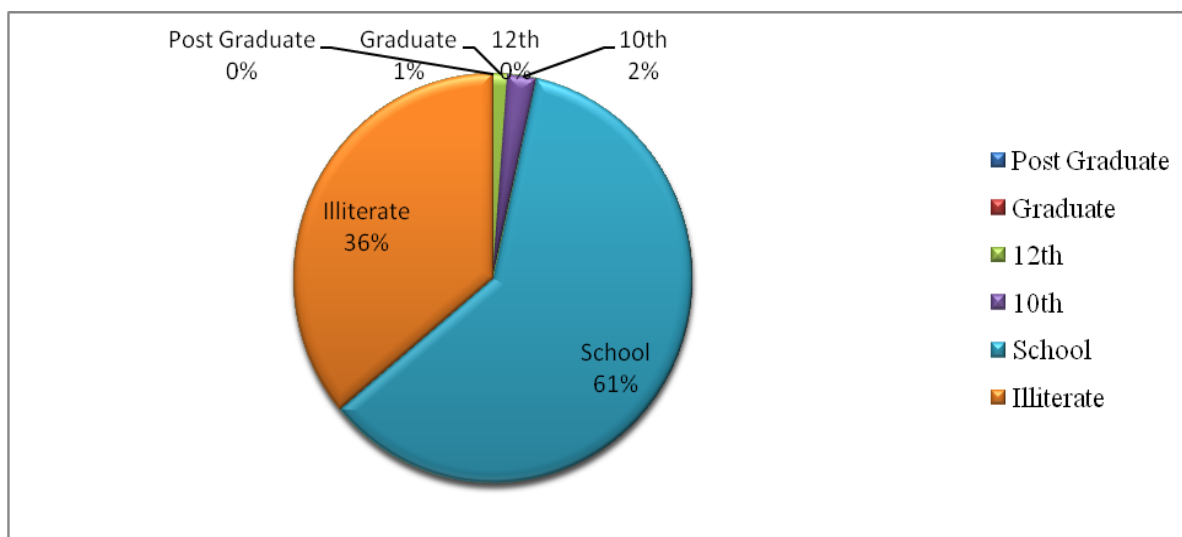


Figure:-6 Education status female

Above pie chart described female education status in different classes. Only 1% female graduated and 61% females studying in School. But no one female found studying in Post graduate and senior secondary school. The female were illiterate 36%. In education section, total literates in Sawai Madhopur city are 85,472 of which 50,438 are males while 35,034 are females. Average literacy rate of Sawai Madhopur city is 80.85 percent of which male and female literacy was 91.62 and 69.16 percent. Total children (0-6) in Sawai Madhopur city are 15,286 as per figure from Census India report on 2011. There were 8,170 boys while 7,116 are girls. Child sex ratio of girls is 871 per 1000 boys.

Table-3 Table described Average of female education in different classes

Graduate	12 th	10 th	School	Illiterate	Total
0.04	0.00	0.08	1.19	2.00	3.31

7. Livelihood Profile-

Table -4 Occupation Detail

	Agriculture	Private Job	Agriculture Labor	Non Agriculture Labor	Animal Husbandry	Business
Primary	26	0	0	0	0	0
Secondary	0	0	2	9	1	0
Others	0	2	0	0	0	6

The table presents the livelihood profile of farmers. We found that all the farmers interviewed depend on agriculture as their primary occupation. Besides primary occupation 12 farmers depended as a secondary occupation for livelihood and 8 farmers depended others as an occupation. Due to MGNREGA scheme 9 farmers can get employment opportunities other than agriculture.

8. Agriculture Activity -

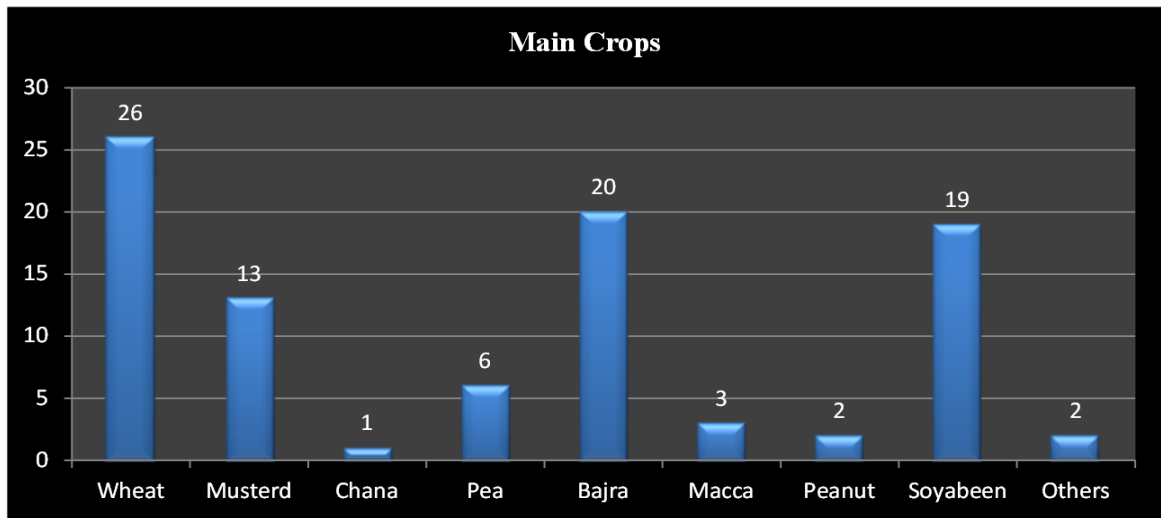


Figure: -7 Numbers of farmers cultivating different crops

The bar chart above shows percentage of farmers cultivating different crops. Maximum farmers cultivate wheat crops followed by Bajra and Soyabeen. Chana, and peanut are grown by only a few farmers.

9. Horticulture crops -

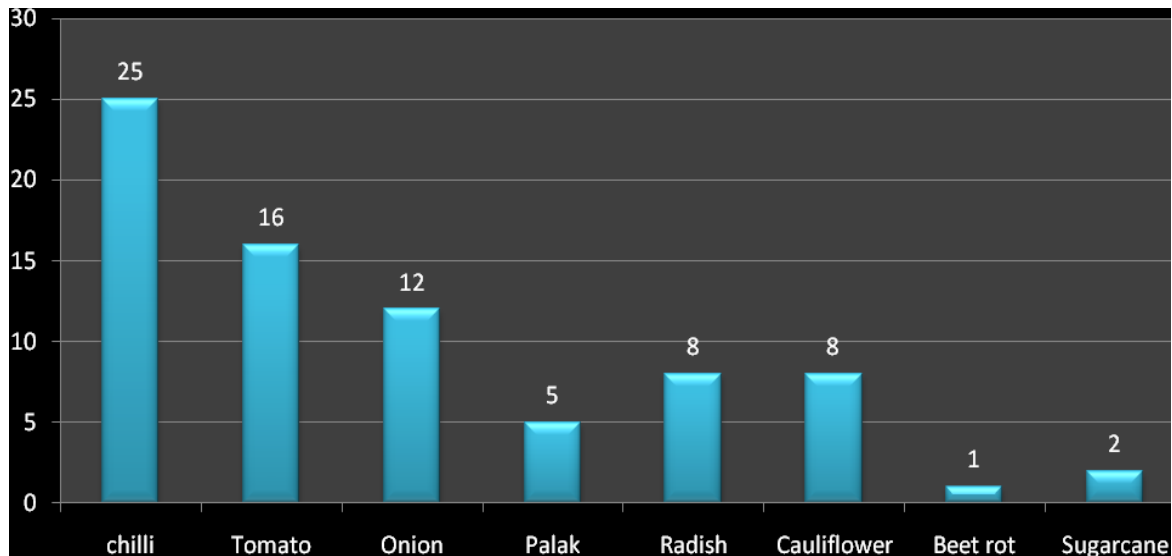


Figure: - 8 Numbers of farmer cultivating horticulture crops

Maximum farmers cultivated chilli in horticulture crops because chilli is cash crops. Tomato and onion crops cultivated after chilli in horticulture crops. Rajasthan has geographical area of 3.42 lakhs Sq.Km. has attained the status of being the largest state of India. The state represents 10.4% land surface area with 5.5% population of India. 66% is dependent on agricultural for their livelihood. The state is divided into 32 districts, which are further, subdivided into 241 Tehsils and 237 Panchayat Sanities.

10. Annual Crops -

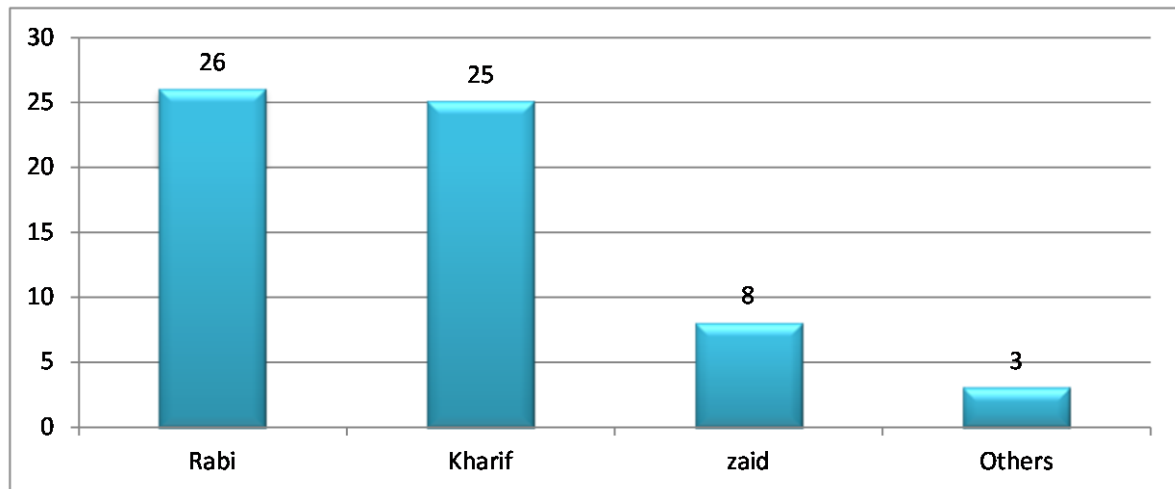


Figure: -9 Annual Crops

The duration of Rabi crops is October to march month .Wheat, chilly mustered, pea etc. are rabbi crop. Rajasthan accounts for 7.94 per cent of the total area and 8.26 per cent of the total production of gram in the country. Here the area under gram has increased from 12.25 lakh hectares in 1980-81 to 22.14 lakh hectares in 1997-98 (rate of annual increase being 4.75%), while the production has increased from 8.54 lakh tones to 19.25 lakh tones (annual rate of increase being 7.38%) during this period. This has been made possible due to an average 1.25 per cent increase in the productivity of the crop during the above period. In Rajasthan Ganganagar, Alwar, Bharatpur, Jaipur, Sawai Madhopur, Ajmer, Kota, Tonk, Churu, Jhunjhunu and Ajmer districts are the main producers of the crop. Kharif crop duration is start June month and end time October. In the kharif crops Bajra, moong, peanut etc. included Landyfinger, tomato, etc. comes in Zaid crops.

Above bar chart shows that most of the farmer cultivate Rabi crops for both cash crops and food crops for household food security.

11. Percentage of annual crops -

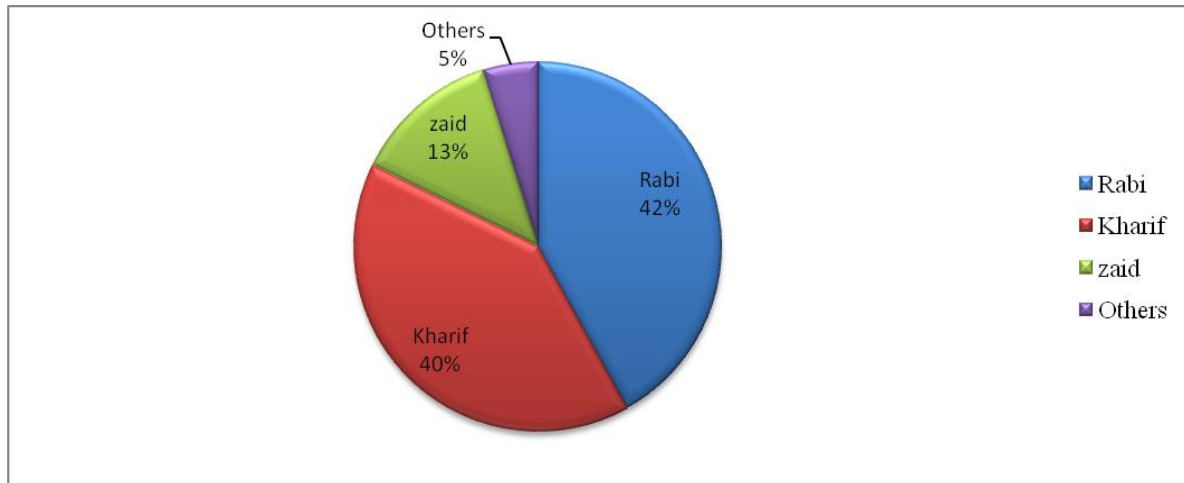


Figure -10 Percentage of Zaid, Rabi, Kharif and others annual Crop

In the study we found that 42% participate in Rabi crops and 40 % farmer participate in kharif crops. The area under gram has declined from 92.76 lakh hectares in 1960-61 to 56.71 lakh hectares in 2002-03 showing a loss of 38.86% during these 42 years. The production with some fluctuations has also maintained a declining trend from 62.5 lakh tones in 1960-61 to 41 lakh tones in 2002-03 (decrease of 33.92% during the period). On the contrary the per hectare yield of the crop has increased from 674 kg in 1960-61 to 728 kg in 2002-03.

12. Problems faced by farmers related to agriculture

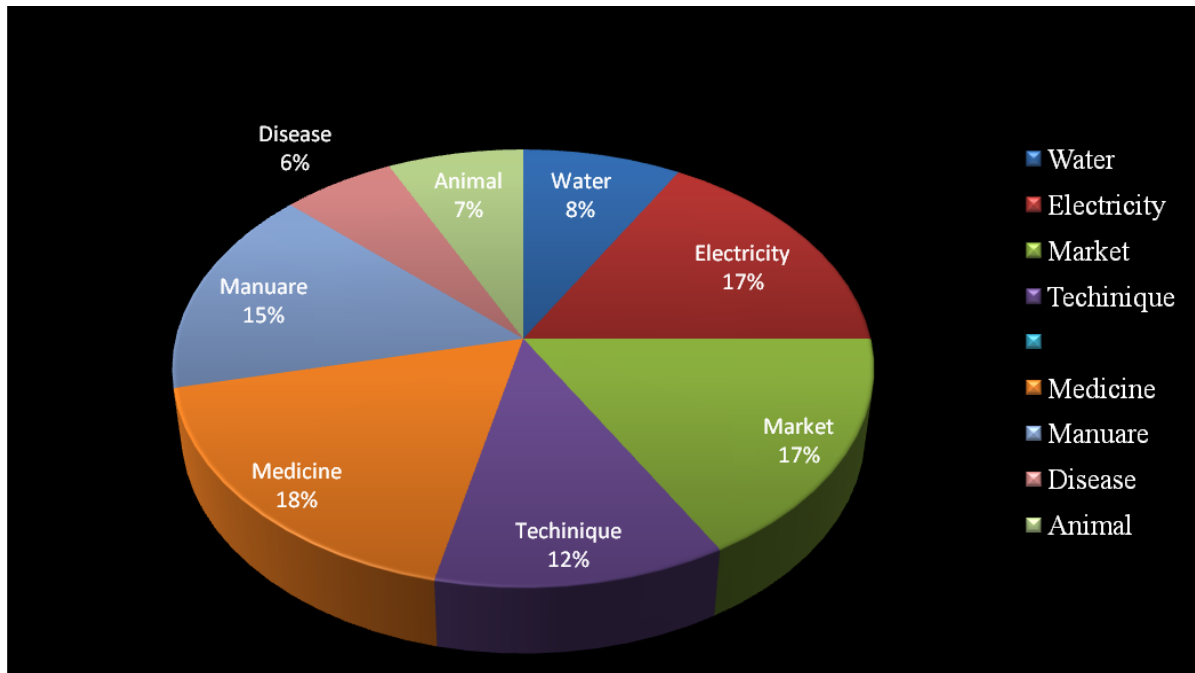


Figure:-11 Problems faced by farmers related to agriculture

Above chart describes different type of problem related to agriculture faced by farmers. The percentage of manures, market and medicine related problem were above the average percentage 13%. These problems are major problems which directly affect the cost of cultivation crops. 6% of farmers face animal-related problems because their villages come under forest area. Soil and water testing more help to solve major problems. Results show that the cost of cultivation is very low. Best package of practice of cultivation of crops helps to solve techniques and water-related problems.

13. Source of Irrigation:-

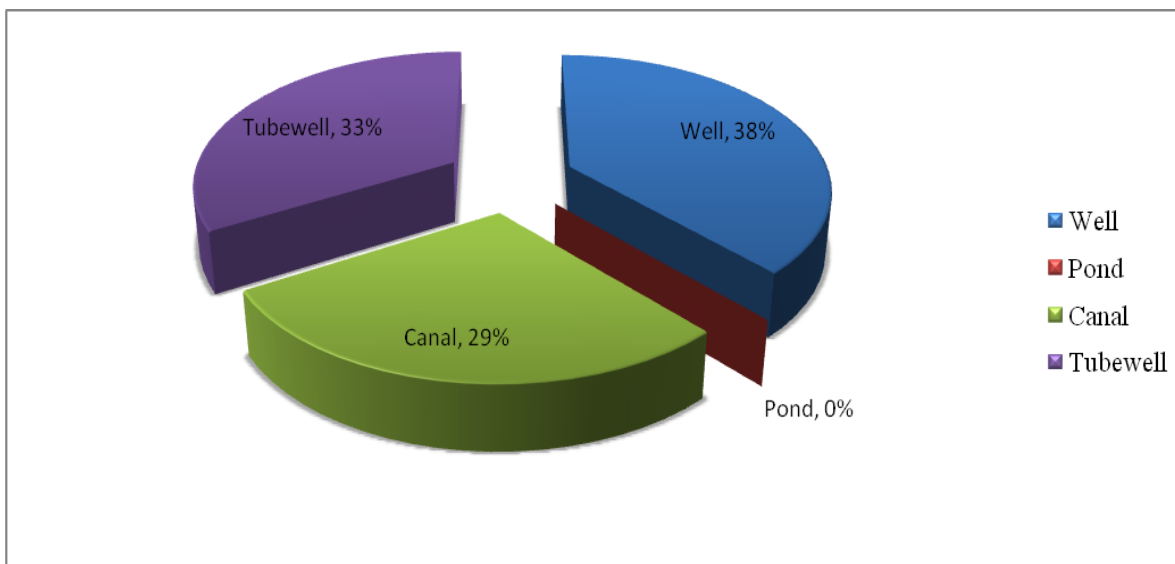


Figure:-12 Sources of irrigation

We found in the village study that 38 % farmers depended at wells as source of irrigation. 29% farmers depended at canal as source of irrigation. Wells as source of irrigation make success drip and mini sprinkler irrigation techniques. The Net irrigated area (for the year 2001-2002) is 152,017 hectares (58% of the net sown area.). Of this area 92% is irrigated from wells and tube wells and only 6.1% by canals.⁴ The Total cropped area is 340,537 and cropping intensity 130.2. %.

Cost of chilli cultivation crop and other crops-

Table-5 Chilli cultivation cost v/s other crops cultivation

	Fertilizers	Seed	Pesticides	Labor	Others
Chilli	25%	21%	22%	18%	13%
Other crop	30%	31%	24%	23%	20%

Table saws that component of chilli and other crop cultivation cost in the percentage .All crops like wheat, bajra, mustard etc. included in other crops. Spending money at fertilizers, seed, pesticides, labor and others in chilli cultivation were above 50% cost of other crops.

The cost of desi chilli cultivation in 1 bhiga land was 20,000/- and production was 80 man (3200 kg) approx.

The cost of hybrid chilli cultivation in 1 bhiga land was 35,000/- and total production was 150 man (6000 kg) approx.

14. Inputs of Agro Product-

Table -6 Given below table describe about different types of seed variety and fertilizer, pesticide of different brand using by farmer in Behraunda Cluster.

	Seed variety	Fertilizer	Pesticide
Wheat	Raj seed, 3765,1982,Sonakalyan,Shriram	Uria- IIFCO,Uttam,Shriram DAP-IPL,IIFCO Superposphat- Superphosphst NPK-IIFCO,IPL	M45, Redobil, Pegasus, Prophanophase, Fan, Eltracal, Obron, regentA.C. Rogar,Crocon, Sulfermetador,Amtar a, Valjeb,Mona,Tatkal
Chilli (Desi)	Avtar21,131,Star121,Karishma, Atna,Golden,Veda,Kaveri		
Chilli (Hybrid)	Atna,Golden,Veda,Saloni,Karishma		
Soyabean	PK,Rajseed,GS35		
Mustard	Raj seed		
Pea	Sejenta		
Bajra	Karishma,Sanker,Rajseed		
Macca	Rajseed		
Peanut	Rajseed		
Tomato	Sejenta,Golden		
Onion	Sejenta,Golden		

General Findings:

Below are some of the benefits, problems and solutions given under the RKVY project as observed in the case of the Chilli project in the area of our study.

1. Solar dryer:-

Table -7 Cost of Solar dryer

S.No.	Facility	Farmer Contribution(In Rupees)	R.K.V.Y. Contribution(In Rupees)	Govt. Subsidy(In Rupees)	Total
1	Solar Dryer	15,000	1,60,000	-----	1,75,000



Solar dryer:- solar dryer is used to dry chilli and other food items in very short duration of time. It is iron made structure covered by plastic sheet and fully sealed. Its flooring is made from black matting covering whole area. Solar dryer contain one gate for entry and one exhaust fan and its ground area is around 12*27 feet. Generally solar dryer make on cemented base on ground.

Benefits -

- Takes very less time to dry chilli in it.
- Saves chilli from natural calamities like rain etc.
- Takes very small area and its maintenance cost is very low.
- Provides an additional source of earning to farmers.
- Saves chilly from dust and pollution.

Problems -

- Solar dryer is not affordable for poor farmers as it require substantial amount of money.
- Capacity of chilly drying is very low.
- No other use of land is possible where solar dryer structure is made.
- Plastic cover on solar dryer in not durable and higher care required for its safety.

Solution –

- Design of solar dryer should be change to increase its capacity.
- Framers contribution should be spread in installments that will provide financial feasibility to farmers.
- Solar dryer should be made by farmers who have sufficient land so that it will not hamper agricultural activities of farmers

2. Shed Net:-

Table- 8 Cost of Shed net installation

S.N o.	Facility	Farmer Contribution(In Rupees)	R.K.V.Y.Contribution(In Rupees)	Govt. Subsidy(In Rupees)	Total
1.	Shed net	15,000	67, 500	1,87,500	2,70,000



It is iron structure covered by green net made on .5 biga land. In this structure water is supplied through springler system and same is use to give pesticides in crop. sednets inside temperature is generally low from outside environment.

Benefits –

- By use of these method chances of occurrence of diseases in crops reduces.
- Crops which are not possible in high temperature in outside environment can be growing in sednet.
- It saves from losses due to animal attacks on crops.

Problems-

- Generally farmers are not aware about its benefits.
- Occurrence of disease in crop of sednet creates misconceptions among other farmers about this method.

Solution-

- Some amount should be maintain by farmers for repair and maintenance of sednet.
- Connection of light and water facility should be near to sednet.it saves energy and wastage of time.

2. Vermi compost:

Table- 9 Cost of vermi compost demo

S.N o.	Facility	Farmer Contribution(In Rupees)	R.K.V.Y.Contribution(In Rupees)	Govt. Subsidy(In Rupees)	Total
2	Vermi compost, Herbal Spray, vermiwas, panchamart	500	2,800	-----	3,300

**PROCESS:-**

1. Pre-decomposition organic waste:- Preliminary treated organic waste materials has to be pre-decomposed in a pit size dug in soil in a length 2m, breadth 1-1.5m and height 0.9m-1m. First put one layer of organic waste and then one layer of cow dung. Repeat the layering process and then cover the pit with thin layer of cow dung and maintain the moisture in bed. Leave it for 20-30days
2. Preparation of vermin pits:- Before placing the partially decomposed material in the pit, put one layer of thatch/ straw (say 2inches thickness). And then put pre-decomposed organic waste. Keep about 10 cm from the top of the pit unfilled. Remove non-decomposed like plastic, big branches, etc. from the pit and make the material levelled.
3. Inoculation of worms:- Depending on the condition of the material, we can inoculate worms after 5-10 days. 2000-3000 no worm per sq meter feeding material is sufficient but more than this no. can also be used. Regular watering is must to keep the food material moist.
4. Harvesting of Vermicast/ compost:- Earth worm starts feeding from upper surface of the feed material. When the material becomes granular, blackish in colour, just like used tea, it indicates that the material is ready for harvesting. Scrapped this material up to the depth

where there are no vermicompost worms. Collect all scrapped material and make one heap and leave it for 2-3 days. All worms will go down to the bottom of the heap and it will be easier to separate the worms manually.

5. Drying and Sieving:- Vermi-compost should be dried in shade, as sunlight will destroy the cocoons. There should be 20-25% moisture, in this time. For this measurement, make a small ball of vermin-compost and if it immediately cracks down it indicates 20-25% moisture. Then sieve it by using 3-4mm sieve. Sieved material is the vermin-compost ready to be used. Material on the sieve can be put in to the composition pit or it can be used around plants.

Three species of earthworms are generally used in India for vermicomposting:

1. Eudrilus eugenia (African Night Crawler)
2. Eisenia foetida (Tiger Worm)
3. Perionyx excavatus (India Blues)

Advantages-

- It is based on organic farming and there is no sideeffects of this.
- It's cost is very low and benefits are more
- The size of vermi compost pit is very small so it can be make at any place.
- It maintains growing capacity of soil.
- Improves soil physical structure
- Helps multiplication of microbes and maintain normal soil pH
- Contains almost all essential nutrients and hormones for plants growth
- Improves water holding capacity of soil

- Due to healthy plant growth, plant can resist insect attack.
- Products have good taste, odour and nutritive value

Problems–

- Farmers generally not aware about process of making vermi compost.
- It needs proper shade for develop vermi compost but most of the farmers are not aware about this fact.
- It difficult for farmers to identify when vermi compost is ready for use or not.

Solutions-

- First farmers should make proper arrangements of shade for development of vermi compost and should be aware about the right process.
- This should be used for self consumption not for outside sale.
- Vermicompost should be making at place where temperature is generally low or in cold areas.

4. Vermiwash-

For make a vermiwash required material is given below-Required Material-Cow Dung(5kg),Earth worms(1kg),Three Sand Pots (Matka),Grass- 500 gm, A bit of core sand ,Small stones, Water (10 liter),Stand .

**Method-**

Make a hole in the bottom of sand pot and put stone and core sand respectively. Fill up 5 kg cow dung and leave 1 kg earth worms in the cow dung. Cover the cow dung with grass. Fit the water pot on top and below side second pot of earth worms and third storage pot. Release water drop by drops and all drops of water must be dropping in the earth worm's pot directly. Collect Vermiwash in the collection pot.

Uses-

Spray 1- 1.5 lit. Vermiwash with 15 lit water in the any crop in morning or evening hours.

Benefits-

- Vermiwash has much kind of growth hormones and vitamins and this will increase plant growth, flowers and fruit quality.

5. Herbal Spray-

Required material- Cow Urine(10 liter),Neem Leaf(5 kg),Desi Babool Leaf (3 kg),Desi Aak (5 kg),Vilayati Aak (5 kg),Dhatura (3 kg),Beal Leaf (2 kg),Karanj Leaf (3 kg),Green Chilli (500 gm),Onion(1 kg),Garlic(500 gm),Coriander Leafs(500 gm),Papaya Leaf (3 kg),Heeng Powder(50 gm),Haladi Powder (50 gm),Danda Thor Ash (500 gm)



Method-

Chopped in small pieces of all listed items and mix with cow urine and store in a plastic or cemented tank for 30 to 45 days. After 45 days solution will ready for use.

Uses-

Spray 2-3 liters herbal spray with 15 liter of water on crops and repeat the spray within 5-7 days.

Benefits-

- The spray will reduces pest and disease incidence in the crops and keep away the insects from crops.

6. Herbal Compost-

Required Material-

Cow dung, Herbs, Desi Aak, Vilayati Aak, Neem Leaf, Dhatura, Others, Water, Pit (6x3x3 Feet)

Method-

Cut all of herbal material in small pieces. Fill up water in the pit and mix cow dung in the water. All of herbal material mix in the cow dung solution. Stare every day with a wooden stick and add some water if required and maintain moisture in the compost. After 60 days the compost will ready for use and put it out from pit. Leave it for 3-4 days.

Uses- Mix 200 kg herbal compost with 600 kg Vermicompost and use in one acre area.

Benefits-

- Herbal compost reduces all kind of soil pest and disease and increase disease resistance power of soil and soil physical condition.

7. Pit Compost-

Required Material-

Cow Dung, Water, Horticulture waste, Pit (9x6x3 feet)

Method-

Fill up one layer of horticulture waste in the bottom of pit and spray of water on the waste.

Put a layer of cow dung on the waste and again repeat a layer of horticulture water and spray of water and one layer of cow dung. One layer of waste and one layer of cow dung and fill up one feet height from the pit. When fill up the pit, spray sufficient water and paste clay on the whole pit material for develop air tight condition. After this, check the pit and if look any crack on the pit fill up with clay. After 90 days the compost will ready for use.

Uses- Apply 1000-1200 kg compost per acre and mix in the soil.

Benefits-

- Increase water holding capacity of the soil. Improves soil chemical, physical and biological condition.

8. Jeevamrit-**Required Material-**

Fresh Cow dung (10 kg),Jaggery (2 kg),Water(40 liter),Basen(2 kg),Soil under old tree(3 kg)

Method-

Mix all listed items in the plastic or cemented tank and make a solution. Cover the mouth of tank with cotton cloth. Stare the solution every day with wooden stick and cover with cloth. Follow the same for 7 days and after 7 day this will ready for use.

Uses- After 7-10 days must be apply the Jeevamrit in one acre area with irrigation water in the soil.

Benefits-

- Jeevamrit improves soil microbiology and soil physical condition.

9. Spray Machine:-

Table- 10 Cost of Spray machine

S.N o.	Facility	Farmer Contribution(In Rupees)	R.K.V.Y.Contribution(In Rupees)	Govt. Subsidy(In Rupees)	Total
1	Spray Machine	200	600	-----	800

Benefits:-

- Small quantity can be spray on large area of production.
- It saves time.
- It is less expensive method.

10. Drip Irrigation Technology-

Drip irrigation, also known as trickle irrigation or micro irrigation or localized irrigation, is an irrigation method which saves water and fertilizer by allowing water to drip slowly to the roots of plants, either onto the soil surface or directly onto the root zone, through a network of valves, pipes, tubing, and emitters. It is done with the help of narrow tubes which delivers water directly to the base of the plant.

S.No	Facility	Farmer Contribution(In Rupees)	R.K.V.Y. Contribution(In Rupees)	Govt. Subsidy(In Rupees)	Total
.	Drip	3,260	12,500	1,44,240	1,60,000

Table- 11 Cost of Drip system at Govt. subsidy

Advantages-

- Minimized fertilizer/nutrient loss due to localized application and reduced leaching.
- High water application efficiency.
- Ability to irrigate irregular shaped fields.
- Allows safe use of recycled water.
- Moisture within the root zone can be maintained at field capacity.
- Soil type plays less important role in frequency of irrigation.
- Minimized weed growth.
- Lower labour cost.
- Fertigation can easily be included with minimal waste of fertilizers.

- Foliage remains dry thus reducing the risk of disease.
- Usually operated at lower pressure than other types of pressurized irrigation, reducing energy costs

11. Mini Sprinklers-

Mini Sprinklers irrigation offers a mini sprinklers earned a reputation as the most reliable and durable sprinklers available with their outstanding distribution uniformity and large water passages. Mini sprinklers simplicity and modular design allows for easy accessory options making them adaptable to almost any application and crop.

S.No.	Facility	Farmer Contribution(In Rupees)	R.K.V.Y. Contribution(In Rupees)	Govt. Subsidy(In Rupees)	Total
1	Mini sprinkler	3,560	13,500	1,17,940	1,35,000

Table- 12 Cost of mini sprinkler

Benefits-

- Reduce wastage of water as less water require in farming .
- Life of sprinkler is long and it's repeatable use is possible.
- It saves crop from insects.
- Less expensive and small contribution require.
- Low pumping costs, operating at the same pressure
- Leaf disease impact is uncertain, leaves remain dry but relative humidity will be enhanced
- Intermediate wetted area regarding weed control compared to drip and overhead sprinklers.

15. Cost of chilli cultivation:-

Product	Cultivation cost (in 1 bhiga)in Rupees	Total Production(in1 bhiga)Approx
Desi Chilli	20,000	80man(3200 kg)
Hybrid Chilli	35,000	150man(6000kg)

Table-13 Different between desi and hybrid chilli cultivation cost and production in 1 bhiga land

16. Market linkage of FIGs:-

(a)Traditional market linkage-

Due to traditional market linkages income of very low because it has many mediators.

Small & middle producer farmers



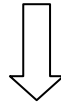
Village traders & big farmers



Middle & private traders

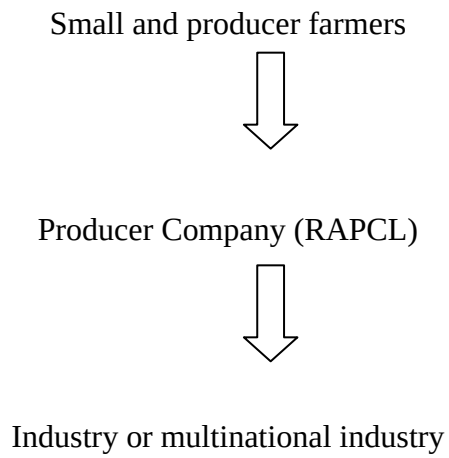


Large market linkage



Industry or multinational industry

(b) **Market linkage by RAPCL** (Ranthambore Agro Producer Company Limited) - In this type of market linkage farmers benefits increase because minimum mediators (traders)



Chapter – 6: Conclusion

Learning Points:

- The confidence level of farmers has increased due to regular community participation, hand holding support and capacity building activities.
- Farmers have been able to understand the concept of installation of shade nets.
- Farmers have started earning higher interest rates after they have become associated with the producer company.
- Exposure visits have contributed to increased motivation levels of community members.
- Women member in SHGs are quite regular in savings and want to be linked with livelihood interventions.
- All men and women groups were linked with bank.
- Linking the farmer business groups with microfinance and Producers Company helped a lot to build up their confidence level.

Recommendations:

- Requirement of kisan call center at Access office
- Need of cold storage
- Need of proper periodic monitoring of activities of the village level
- Mobile soil and water testing unit should be initiated.
- Connection of women EBG (Enterprise Business Groups) with rural mart scheme given by NABARD.

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ANNEXURE

Livelihood Questionare for Khandar block

Name of interviewer -

1. Personal Details-

Name of person	
Cluster Name	
Group Name	
Village	
Tehshil	
District	
Father's Name	
Sex	
Caste	
Age	
Education	
Land (Bhiga)	

2. Household Details-

Particular	No. of member
Male (>18)	
Female (>18)	
Boys	
Girls	

3. Educational Details-

Gender	Graduate	12 th	10 th	School	Illiterate
Male					
Female					

4. Occupation detail-

Primary	Secondary	Others

5. Main Crops detail-

Wheat	Mustered	Chana	Pea	Bajra	Macca	Peanut	Soybean	Others

6.Horticulture Crops-

chilly	Tomato	Onion	Palak	Radish	Cauliflower	Beet rot	Sugarcane	Others

7.Problem related to Agriculture

Water	Electricity	Market	Techniques	Medicine	Manure	Disease

8.Annual crops

Rabi	Kharif	Zaid	Others

9.Source of irrigation

Well	Pond	Canal	Tube well

10.Input purchase

Place	Fertilizer	Seeds	Pesticide

11.Price Realization/Market linkage

Market to sale	Mode of sale(cash/credit)

12.Detail of training

Place	Subject	Organization	Duration

13. Benifit from Government entitlements?

14.Techniques used for Cultivation

15.Cost of Cultivation of chilli

Total cost	Fertilizer	Seeds	Pesticides	Labor	Others

Other than Chilli

Total cost	Fertilizer	Seeds	Pesticides	Labor	Others

16.Status of Production

Low /Increased	Cause

General question asked to farmers at time of personal interview-

- 1 What is your name?
- 2 What is name of your cluster?
- 3 Where do you belong?
- 4 How much land do you have?
- 5 How many members in your family?
- 6 How many Male, Female and children?
- 7 What is your business? Do you belong to agriculture field or non agriculture field?
- 8 which is your main crops?
- 9 Do you work also any where?
- 10 do you sell milk?
- 11 where do you purchases pesticides, seeds?
- 12 what do you get water? Which type of resource do you have for water?
- 13 Do you have diesel engine and electricity for water services?
- 14 How much cost do you paid for water?
- 15 Which crops you have in yearly agricultural time?
- 16 Where do you purchases raw material for your food?
- 17 Where do you sell to your crops?
- 18 Do you sell crops from your house?
- 19 What do you think that you are getting actual amount of your crops?
- 20 Do you get pesticide or seeds at actual cost?

- 21 Did you take training for agriculture?
- 22 Do you get profit from government implement plan?
- 23 Which source do you use for agriculture?
- 24 How do you carry to your crops in market?
- 25 How much cost you did pay for one crops?
- 26 How many profit you have gain in end of year?
- 27 Do you have any a/c in bank?
- 28 Do you have any fixed deposit?
- 29 Do you have life insurance in family member?
- 30 What do you think about your crops that you did get increment in last two year?
- 31 DO you sell crops in cash or borrow?
- 32 Do you want to take any innovation like as any new crops?
- 33 Do you belong to BPL or APL?
- 34 Did you take benefit in BPL plan?
- 35 What do you know about KCC?
- 36 What is process of new KCC and time of limit?
- 37 DO you have any partner in you agriculture?
- 38 Do you use grazer land for agriculture?
- 39 Did you focus to patwari?
- 40 Did you take any demo from pesticide and seeds company?
- 41 DO you know about Farmer Company?

42 Do you know about the benefit of RAPCL?

43 Did you take share?

44 Did you take any group meeting?

45 if the group meeting is not heading on fix time to reach member of group then do

You take any fine to member?

46 DO you take inter-loaning in between group?

47 Did your group take some loan any bank?

49 Did you suspend to any group member?

50 which type of problem does you have related to agriculture?

Different department of visit-

<u>S. No</u>	<u>Date</u>	<u>Department</u>	<u>Subject</u>	<u>Scheme</u>	<u>Eligibility criteria</u>	<u>Document</u>	<u>Benefit</u>
<u>1</u>	<u>5 may ,2012</u>	<u>Chhan Panchayat</u>	<u>Attend meeting</u>	<u>MGNREGA, IAY, Old age pension, Pannadhay jeevan amrit yojana</u>			
<u>2</u>	<u>15 may ,2012</u>	<u>NABARD</u>	<u>Scheme for FIG and Women group</u>	<u>Rural Mart for women group, Finance for women SHG at</u>			

				<u>7% interest from 1 April</u>			
<u>3</u>	<u>25 may ,2012</u>	<u>Registrar</u>	<u>Registration for Mahila Co-operative society</u>		<u>Give minimum 15 women name, Women should be one area</u>	<u>Address proof(Rasand card),Phone number,Photo(President,Secretary,treasurer)</u>	<u>Do income generation activity</u>
<u>4</u>	<u>25 may ,2012</u>	<u>D.I.C. Office</u>	<u>Find scheme for women group or Mahila Co-operative society</u>	<u>For women artigen card</u>			
<u>5</u>	<u>25 may ,2012</u>	<u>ICDS</u>	<u>No talk</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>
<u>6</u>	<u>25 may ,2012</u>	<u>Samaj kalyan</u>		<u>widow and old age women pension</u>	<u>=</u>	<u>=</u>	<u>for livelihood</u>

Photographs-

Capacity Building/Trainings of FIGs and Clusters:-

Regular monthly meetings, training activities, farmer-scientist and Departmental interactions were organized for building capacity of the FIG Members.

The well established system of the Group meeting helped in understanding the concept of Farmer Interest Group/Farmer Business Group approach for the benefit of small and marginal Farmers.

1.FIG meeting in Chhan village-



2.Meeting of Sawai Madhopur Cluster-



3. Meeting of RAPCL's Board of director-





4.Meeting of women EBGs in Chhan village-



5. Photographs of post harvest Processing-

5(a) Normally chilli is dried in open on soil like this resulting into contamination and health hazards.



5(b) Solar drying of chilli for better quality Red Chilli Powder.



5(c) Packaging and Storage of Chilli powder



5(d) Packaging and Branding Sample



6. Women EBG cluster participating in hand made item training in access

