

**PRODUCTION PATTERN OF ORGANIC PULSES IN
TEMPERATE DRY AGROCLIMATIC ZONE: A
STUDY OF CHAMBA DISTRICT
HIMACHAL PRADESH**

Project Report

by

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(H-2020-11-ABM)**

submitted to



**Dr. YASHWANT SINGH PARMAR UNIVERSITY OF
HORTICULTURE & FORESTRY
SOLAN (NAUNI) HP- 173 230 INDIA**

in

partial fulfilment of the requirements for the degree

of

MASTER OF BUSINESS ADMINISTRATION

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CERTIFICATE-I

This is to certify that the project report titled “**Production Pattern of Organic Pulses in Temperate Dry Agroclimatic Zone: A study of Chamba District Himachal Pradesh**” submitted in partial fulfilment of the requirements for the award of the degree of **Master of Business Administration (Agribusiness)** in the discipline of **Agribusiness Management** to Dr. Yashwant Singh Parmar University of Horticulture and Forestry, (Nauni) Solan (HP) –173 230 is a bonafide research work carried out by **Dinesh Kumar** son of Shri Trilok Chand under my supervision and that no part of this project report has been submitted for any other degree or diploma.

The assistance and help received during the course of this investigation have been fully acknowledged.

Place: Nauni (Solan)

Date: -

Dr. Nisha Kumari
Major Advisor

CERTIFICATE-II

This is to certify that the project report titled, “**Production Pattern of Organic Pulses in Temperate Dry Agroclimatic Zone: A study of Chamba District Himachal Pradesh**” submitted by **Dinesh kumar (H-2020-11-ABM)** son of Shri Trilok Chand to the Dr. Yashwant Singh Parmar University of Horticulture and Forestry, (Nauni) Solan (HP) – 173 230 India in partial fulfilment of the requirements for the degree of **Master of Business Administration(Agribusiness)** in the discipline of **Agribusiness Management** has been approved by the Advisory Committee after an oral examination of the student in collaboration with an External Examiner.

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Solan (Nauni)

Date:

(Dinesh Kumar)

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LIST OF ABBREVIATIONS

% : Percent

& : and

i.e. : that is

Et al. : *Et alii* (Co-Worker)

Fig. : Figure

Etc. : many more

No. : number

Rs. : rupees

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Chapter-1

INTRODUCTION

Natural farming is a good way to increase the quality of soil and improve the living being's health. Now the world is getting to know that what is the importance of quality food. Food that is free from all type of contamination such as pesticides, insecticides, and fertilizers. Organized fertilizer and pesticides are essential for maintaining an adequate supply of nutritious food, there may be practices that harm the environment in general and soil fertility in particular. The role of organic farming is ensuring adequate and nutritious food supply in future. Organic farming can be a better strategy to promote the environment. Farmers in Himachal Pradesh have traditionally relied on organic methods of farming for their subsistence. The farming communities of hills and valleys still maintain a very rich bridge of technical knowledge of organic farming practices. In the last decades, there has been a systematic emphasis on different types of farming such as fruit farming, vegetable cultivation and floriculture, which has helped in vastly improving the food and farm income of farming households. (JENNIFER_CHAIT, 2019)

Himachal Pradesh is a state that wants to promote organic farming practices. Organic certification in Himachal Pradesh 2000-hectare area is in almost all the districts. It is a custom of farmers to add organic fertilizers to the soil of the hills, which provides nutrients and improves the physical and biological properties of the soil. Organic manure application is good but farmers usually add partially decomposed biomass which activates the nutrients available in the soil and is also an important source of weed growth and insect infestation. Himachal Pradesh is the state of India in which farmers, government and non-governmental organization have played an important role in promoting organic farming and sustainable development over the years. Organic farming is often directly linked to sustainable farming. Many of the techniques used in organic farming such as intercropping, mulching and integration of crops which includes traditional agriculture prevalent in old countries like India. Although organic farming is based on different laws which prohibited use of all synthetic inputs and soil health recognized as the central theme of the method. One of the widely used methods of organic farming which is considered as the best option to avoid side effects. Organic farming practices include the following principle;

1. The main principle is the conversion of land from conventional to organic management.
2. The entire surrounding system management ensures the biodiversity of the system.
3. Crop production with the use of alternative sources of nutrients such as crop rotation, residue management, use of organic fertilizers, and biological inputs.
4. Weed management and pests by management through better management practices, physical and cultural practices, and biological control systems. **(AGRIFARMING, 2021)**

Rising pollution is the key to levels in every walk of life. There is a huge challenge in our sustainable development of environment. Modern agriculture practices such as use of fertilizer, use of pesticides etc., to maximize crop yield contribute significantly to environment pollution. Due to these approaches the nutrients balance and fertility of the soil are also reduced. To tackle this problem organic farming is a boon, adopting eco-friendly farming method, plant and animal based organic resources that increase nutrients required for plant. Organic farming maintains environmental sustainability. it provides stability to the yield, and also provide better soil health. **(Sanjenbam jugeshwar Singh, 2021)**

Pulses are grown in rainfed areas, where chemicals inputs are of little use. Adopting biological system can be an option to increase the stability of eco- system. The use of organic matter in sufficient quantity for various purposes at regular intervals not only meets the needs of the crop rather it also increases the crop yield. Improves soil fertility and reduces the incidence of insect pests and diseases especially in pulses. Potential for organic farming exists especially in growing pulses under rainfed conditions. Process for organic farming in Himachal Pradesh good knowledge about organic farming - Successful organic farming requires a lot of knowledge about methodology and FMY (Farm Manure) management natural processes. Knowing the possibilities of maintaining and improving the natural process is important for successful organic farming. In Himachal Pradesh, growers interested in adopting organic farming practices are recommended to contact local farmers. Some farmers may be good at making manure, and growing green manure. **(Dr. S. Narayanan, 2005)**

Organic Soil Management - Organic farmers maintain the health of their soil by using manure and other organic matter instead of artificial fertilizers. Organic fertilizers, such as fertilizers, release nutrients more slowly, produce organic matter in the soil, increase soil

moisture retention, and reduce nitrate emissions into groundwater. Crop rotation naturally replenishes the soil because different plants provide different nutrients to the soil. Disrupting the habitat of insects and herbivores helps to control them. Cover crops – Cover crops such as clover, rye and wheat are planted in the middle of the growing season to help fill the soil with nutrients and prevent soil erosion. They also help maintain beneficial insect populations. Site plays an important and vital role in the success of any project. The location of the organic farm determines what the project will be like. Site selection should be close to clean water sources. It is hard for a newcomer to imagine, but it is vital to the success of the project. The proximity of the farm to the market also plays a major role in agricultural sustainability. **(Michelle Wander, Nick Andrews, John McQueen, 2019)**

Organic Pest Management – It is important to carefully manage plants and animals to prevent the spread of pests and diseases. Initially, biocontrol agents can be applied but management of biological pests is best achieved through ecological practices that balance insects/predators.

Pesticides - It is the responsibility of organic farmers to protect their organic farms from spraying artificial pesticides. Organic farmers should use one of the following methods to protect organic farms by avoiding the flow of pesticides onto crops from neighboring farms. The first is to establish natural hedges bordering neighboring areas. It can prevent the spread of pesticides by wind or running water. Integrated Post Management (IPM) is an environmentally conscious approach to the management of insects, weeds and disease. By focusing on natural processes, growers use pest control methods starting with the least toxic and gradually increasing the need for pest control if the problem persists. The six steps of IPM include:

- 1.) Correct identification of damage and responsible pests.
- 2.) Know the life cycle and biology of your insect and plant.
- 3.) Monitoring and sampling for insect populations.
- 4.) Establish an acceptable damage limit.
- 5.) Decide on the appropriate management technique.
- 6.) Evaluate the results.

Out of these six critical steps, it is important to decide on a control method (appropriate management technique) to reduce pest disturbance, and will be discussed in

detail throughout this column. These control methods can be both preventive and reactive, and they can be divided into their four strategic categories: cultural, mechanical and physical, biological and chemical. These strategic categories have been intentionally determined from least harmful to the environment to the most likely to cause harm to biological ecosystems. **(Wyatt Brow, 2019)**

Chapter- 2

REVIEW OF LITERATURE

A review of research studies leads to identifying gaps in conceptual and methodological issues relevant to the research studies; therefore, helping the researcher to collect relevant data, analyze and interpret the same and draw meaningful interpretations, considering the objective of the study, relevant studies were reviewed.

Parvathamma (2006) noticed that more educated farmers visualize the problems of scientific Agriculture and the scope of practicing organic farming which revealed that a greater number of farmers were educated up to high school level.

Sidram (2008) found that Organic farming farmers saving the money which they earlier spent on chemical pesticides and fertilizers and also, they are getting yield nearly equal to the previous yield and there is no chemical residue on produce as they were not using chemical pesticides and the farmers recognized in the village due to adoption of organic farming. This may be the possible reasons for medium level of socio-economic status of organic farming farmers.

Alexopoulos *et al.* (2010) noticed that the factors affecting farmers' decision to convert organic farming in Vienna (Austria) from a sample of 580 farmers. The main reasons for cultivating organic farming were the better prices and secure market for organic produces (74.4 % and 61.3 %, respectively), followed by environmental protection (45.2 %) and health problems due to the use of chemicals in conventional farming (26.8 %). Only 16.6 per cent of the farmers maintained both conventional and organic fields. The main reasons for discontinuing organic production were the end of the subsidization period (22.9 %), income losses (21.4 %) and lack of markets (20.6 %). Results from the profit model shows that old age farmers, those with bigger size farms and those with a farm plan were more likely to be organic. While, the prices of organic products were not considered as being higher by organic farmers, they highlight qualitative dimensions of organic markets. Further, less innovative farmers as well as those whose social networks do not support them in engaging organic farming were more likely to convert to conventional farming (14% and 72.7%, respectively).

Chouichom and Yamao (2010) studied difference in the opinions and attitudes towards organic farming systems by organic rice farmers (ORF) and non-organic rice farmers

(NORF) in Surin province, North-Eastern Thailand. The data collected from 100 farmers each ORF and NORF interviewees. The attitude towards organic farming was based on four aspects, namely: organic farming knowledge, environment, marketing, costs and benefits. Chi-square and t-test were employed to quantify correlations and found that there was a correlation of attitudes of both ORF and NORF interviewees in the four aspects examined. Additionally, educational level, farm holding and extension worker contact affected opinions and attitudes of ORF interviewees. Among NORF interviewees, farming experience affected their attitude towards organic farming.

Binod Kafle (2011) studied the factors affecting adoption of organic vegetable farming in Chitwan district, Nepal. The data were obtained from 65 households who were adopting organic farming. Multiple regression analysis was carried out to analyze the factors responsible for adoption of organic farming. The results showed that farmer's participation in organic farming related trainings and visits helped the farmers to get relevant and timely information to take up organic vegetable farming. Further, large and resource rich farmers were found to be better adopters than small farmers.

Khaledi *et al.* (2011) reported the factors that encourage or discourage the complete adoption of organic farming in Saskatchewan, Canada. Tobit model was used to analyze the data collected from a sample of 160 organic producers. The study concludes that farmers with higher education and younger age allocate lesser share of their cultivated area to organic practice and those with older age and more experience allocate higher share. Further, increase in farm area resulted in higher chances of not following complete adoption of organic practice due to labor factor, as it furthermore limits the complete adoption of organic practice when farmers wage increases. Another reason could be economies of scale that can be achieved more effectively in large conventional farms and therefore farmers were less likely to switch over to organic farming.

Lapple and Rensburg (2011) analyzed the differences between adopters and non-adopters of organic farming in Ireland. Out of the total sample of 1100 farmers, 30 per cent were non-adopters, 5.3 per cent were early adopters and 39.5 per cent were followers, while the rest (25.1 %) were laggards. The results indicated that, non-adopters were significantly older than adopters. As the pioneers were found to be significantly younger than late adopters with an average age of 37.4 years, whereas the followers were on average of 42.8 years of age at adoption. The laggards were on average 45.2 years old when they adopted organic

farming. The result of the multinomial logit model indicated that a higher profit motivation was significantly negatively related to early adopters, whereas it was not found to have significant effect on late adoption.

Adesope et al. (2012) carried out a study in Niger Delta to know the effect of socio-economic characteristics of farmers on their adoption of organic farming practices. Ninety farmers were randomly selected for the study and the collected data was analyzed using descriptive statistics and Pearson correlation coefficient. Findings showed that, only education and off-farm income were correlated significantly with adoption of organic farming practices, whereas farming experience was negatively correlated. This implies that those with less farming experience have higher adoption level of organic farming.

Hosseini and Ajoudani (2012) studied the perception of agricultural specialists about the factors affecting adoption of organic farming in Kermanshah Province of Iran. By random sampling technique, 175 respondents were selected. The regression analysis showed that the extension training classes and economic factors like subsidies to farmers determined 31 per cent of variance on the perception of respondents regarding the adoption of organic farming.

Latruffe et al. (2012) carried out the economic performance of organic and conventional farms in France. Farm level data extracted from the French Farm Accountancy Data Network (FADN) from 2004 to 2007 for 7,104 fully conventional farms and 148 fully organic farms were analyzed. Four performance indicators namely the farm gross product, farm gross margin, farm operating surplus and the farm pre-tax profit were considered. Economic reasons like increased profitability and Government subsidies towards organic farming had strong motives for a substantial number of fully converted or potentially converting producers for organic practice.

Prashanth and Jagan (2012) highlighted the factors influencing the extent of adoption of organic farming by the organic and conventional cotton growing farmers of Telangana. A sample of 60 organic and conventional cotton growing farmers each was selected from six villages of three Mandals of Karimnagar district. Correlation analysis revealed that the characteristics viz education, organic inputs utilization pattern, training received, decision making behavior and extension contact were found positive and significantly related with the extent of adoption of organic cotton practices by the organic

cotton farmers whereas farm size was negatively and significantly related. The characteristics viz training received, decision making behaviour and extension contact were found positive and significantly related with the extent of adoption of organic cotton farming by the conventional cotton farmers.

Ananthnag and Bharathi (2014) studied the achievement motivation of farmers practicing organic farming in Eastern Dry Zone of Karnataka from a total sample of 140 Respondents. Results indicated that, 43.12 per cent of the respondents had high level of achievement motivation and 34.38 per cent had medium level of achievement motivation. The major difficulties expressed by the farmers relating to organic farming were, recommended bio-control practices were of high cost and not effective in controlling pests, scarcity and difficulties in getting FYM and other organic manures compared to chemical fertilizers, lack of market information and market access, non-availability of recommended package of practice and laborious process involved in application of organic manures, insufficient training, lack of minimum support price for the organic products and farmers were not sure whether all the nutrients with the required quantities can be made available by the organic materials.

Azam (2015) assessed the demographic profile and socio-economic condition of organic and conventional farmers in Nalanda district of Bihar. A total of 160 farmers were selected through simple random sampling. The result indicates that most of the farmers (58%) adopted organic farming in 2009 and after conversion period their socio-economic condition has strengthened. Further, ANOVA and Post Hoc multiple comparison resulted significant difference in subgroup of educational qualification, mode of transportation and crops selling by farmers, in organic farming there was a positive correlation (0.47) between mode of transportation and selling crops. Further farmer's education with land ownership and mode of transport depicted positive correlation whereas, with farm experience negatively correlated (-0.24). In conventional farming, qualification of farmers showed highly negative correlation (-0.50) with farming experience whereas, mode of transport and selling crops were positively correlated at 0.01 significant levels.

Azam and Banumathi (2015) examined the role of various socio-demographic characteristics in adopting organic farming in Nalanda district of Bihar. The primary data was collected through structured questionnaire consisting of a total sample of 160 organic

and conventional farmers. Logistic regression was carried out to identify the factors influencing farmers to move towards organic farming. It revealed that educational attainment, age of the farmers and gender has positively influenced. However, family size and land ownership did not influence much. It was found that economic condition of organic farmers has been strengthened significantly which resulted better livelihood condition and training provided by the government to the farmers resulted more self-reliant and confident individuals.

Singh *et al.* (2015) studied the socio-economic characteristics to adopt complete/partial cultivation of organic farming in Chitwan district of Nepal. Results showed that male headed households, age and education of family head, farming experience and those with bigger farm size and having intention to increase farm income were more inclined towards inorganic farming. Further, farming as main occupation of household, labor availability, livestock holding and non-farm income encouraged farmers to shift organic farming. Group formed for the purpose of organic farming did not ensure that all of its members will convert to organic farming, but has changed farmers' behavior to some extent as can be observed from the higher number of organic and partial organic farmers and lower number of inorganic farmers from within the group compared to non-group members. Membership gave opportunity to generate knowledge and share information through interaction but did not exclusively result in adoption of organic farming.

Sodjinou *et al.* (2015) assessed the institutional and socio-economic characteristics determining farmers decisions to adopt organic cotton in Benin, West Africa from a sample of 200 households. From Probit model, the organic cotton adoption was determined by farmers' socio-economic characteristics, the physical distance between farm and house and contact with extension and advisory services. Organic farming was more attractive to women compared to conventional farming. This enables women to hold a separate cotton farm and thus increase their economic independence, whereas with the conventional system they depended mainly on the head of the household (male). Older, less educated and low-income farmers who expressed environmental concern were more likely to adopt organic cotton. Furthermore, farmers who had their farm near to home were more likely to adopt organic farming than those who had the farm far from their home.

Ullah *et al.* (2015) examined the factors influencing adoption of organic farming in Peshawar, Pakistan. A total of 100 respondents were randomly selected from the four

different cultivated areas of Peshawar region. Binary logistic regression was used to categorize the organic farming into adoption and non-adoption. The result showed that age, education and land tenure status positively influenced farmers' valuation regarding adoption of organic farming. The study indicates the socio-economic factors which influences the adoption continuation of organic farming across the World. The researchers examined the decision to adopt as well as extend the area under organic farming with the socio-economic characteristics of individuals such as age, education status, head of the family, number of working people in the family, income from agriculture as well as off-farm income, land holdings, etc. The analytical tools employed were mainly descriptive statistics, Pearson correlation coefficient and Logistic regression function.

Ubokudom *et al.* (2016) conducted a study which examined the factors influencing vegetable farmers' organic farming decisions in Nigeria. Logistic regression analysis was estimated to ascertain the factors. The results showed that socio-economic factors such as farming experience, educational level and gender of the household heads, membership of organization, household income, land tenure status and farmers' perception on organic farming had positive and significant influence on their decision to adopt organic farming. Conversely, age of the household heads and farm size had negative and significant influence on their decision to adopt organic farming.

Khadse *et al.* (2017) conducted a study which examined the Zero Budget Natural Farming Movement (ZBNF) in Karnataka. While this is not a movement of peasants from marginal classes or castes, it is primarily a rural movement composed of and spontaneously spread among middle and small landholding peasants. According to a survey of 97 farmers in Karnataka by almost all ZBNF farmers possessed land with 28.9% in the small farmer category (<2 ha), 43.3% in the medium size category (2–10 ha), and 27.8% in the large categories. The majority had access to some form of irrigation and 68% owned a cow. None of the farmers were absentees. However, the ZBNF movement did not make any special efforts to reach marginal or landless farmers aside from waiving of the fees for training camps. A ZBNF leader admitted that it is difficult for a marginal farmer to leave their farm for five days for training, which is the typical length of Palekar's training camp.

Satishkumar and Umesh (2018) conducted a study in Karnataka, the availability of farm labor has declined sharply, especially during peak seasons like harvest, and farmers

across the board are adopting strategies to cope with labor shortage such as increasing farm mechanization, alternative crops, leasing out land, leaving land fallow among others. In

ZBNF models, like the five layers, there is no peak season, as a diversified farm yields throughout the year, further reducing pressure to get labor during times of scarcity.

Chapter-3

MATERIAL AND METHODS

Need of the study

The goal of this study is to analyze the future of organic farming in the study area. Organic farming has several advantages over the conventional one apart from the protection of both the environment and human health. It helps in maintaining the health of the environment by reducing the level of pollution. It minimizes human and animal health hazards by reducing residue levels in the product. It helps in keeping agricultural production at a sustainable level. It reduces the cost of agricultural production, Improved soil fertility, better water quality, prevention of soil erosion, generation of rural employment, etc. organic farming is a new system of farming or agriculture that repairs, maintains, and improves the ecological balance. To identify the main existing sources of information, determine the economic status of the farmers in the study area and find out the education status and interest of the farmers in organic farming through the study.

On the basis of above identified need following objective have been framed for the present study;

1. To study the factors responsible for production of organic pulses.
2. To identify the perception of farmers about the production of organic pulses.

A research methodology is a description of the steps taken to conduct a specific type of study. It outlines the methods or processes used to find and evaluate data pertaining to a certain research topic. The research methodology is about how to plan a study in a way that enables to get accurate, trustworthy results and accomplish the research goals.

Different concepts and methods followed in the present study are discussed under the following headings:

3.1 Area of Study:

The area of study is the area in which the research is being done. The present study has been conducted among the respondents of Bharmour tehsil district Chamba Himachal Pradesh.

3.2 Sampling Technique:

Bharmour tehsil consist of 20 panchayats and the targeted sample was 100 respondents. Convenience sampling was used to first select the panchayats connected to each other and easily excess, further the respondents were also selected with the same technique as per the targeted number.

3.3 Sample size:

Sample size consists of 100 respondents.

3.4 Data collection:

Data collection is the process of gathering information for research purposes from a variety of sources. Both primary and secondary sources have been used for data collection in the present study.

Primary data

The primary data was collected from the respondents on various demographic factors such as age, gender, educational level, occupation, type of family, annual family income and pre-structured questionnaires were used to collect data during personal interviews of the respondents.

Secondary data

A list of farmers practicing chemical free farming i.e., organic or natural farming was procured as secondary data were collected from block Agricultural department, Bharmour and block level Agricultural Technology Management Agency (ATMA). Also, for the present study, secondary data was collected from various sources like research papers, journals, magazines and also from online portal.

3.5 Data Analysis:

Data analysis is the method of using statistical and/or logical approaches to evaluate data. Statistical and mathematical tools have been used to analyze the data of the present study such as percentage analysis.

Percentage method

Percentage analysis is an important method for comparing samples with various amounts of observations. Percentage can be calculated by dividing the frequency of a particular category with the total sample size and then multiplying by 100.

The formula for percentage analysis is:

$$\text{Percentage} = \frac{X}{Y} * 100$$

Where,

X = Frequency of the particular category
Y = Total sample size

Statistical method

Statistical methods involved in carrying out a study include planning, designing, collecting data, analysis, drawing meaningful interpretation and reporting of the research findings. The statistical analysis was carried out for each observed character using MS - Excel. The following statistical analysis was used to analyses the data.

Diagrammatic Representation:

A diagram is a pictorial representation of data and is frequently used by researcher to present his / her results in an attractive manner. There is a large variety of diagrams that are used, however that most commonly used diagrams are the bar graphs and pie diagram.

Bar Diagram

The bar diagram uses bars whose length is used to represent data. The width of each bar is supposed to be uniform. The bars can be represented vertically or horizontally. A good bar diagram is accomplished by the figures against each bar in order to make it clearer and more representable. A bar diagram can have a single bar or multiple bars.

Pie Diagram

The pie diagrams are frequently used in situation where a percentage between breakdowns is to be represented. It is based on percentage figures and not on absolute figures. Thus, pie diagram is a circular diagram divided into sectors where each pie represents a piece of whole number.

Chapter 4

RESULTS AND DISCUSSION

The study was conducted in the Bharmour tehsil of the Chamba district and the finding of the study is discussed below.

4.1: Demographical profile of respondent (n=100)

4.1 Gender

Table 1 Gender of the sample respondents

Gender	Frequency	Percentage
Male	90	90
Female	10	10
Total	100	100

(Source: Field Survey 2022)

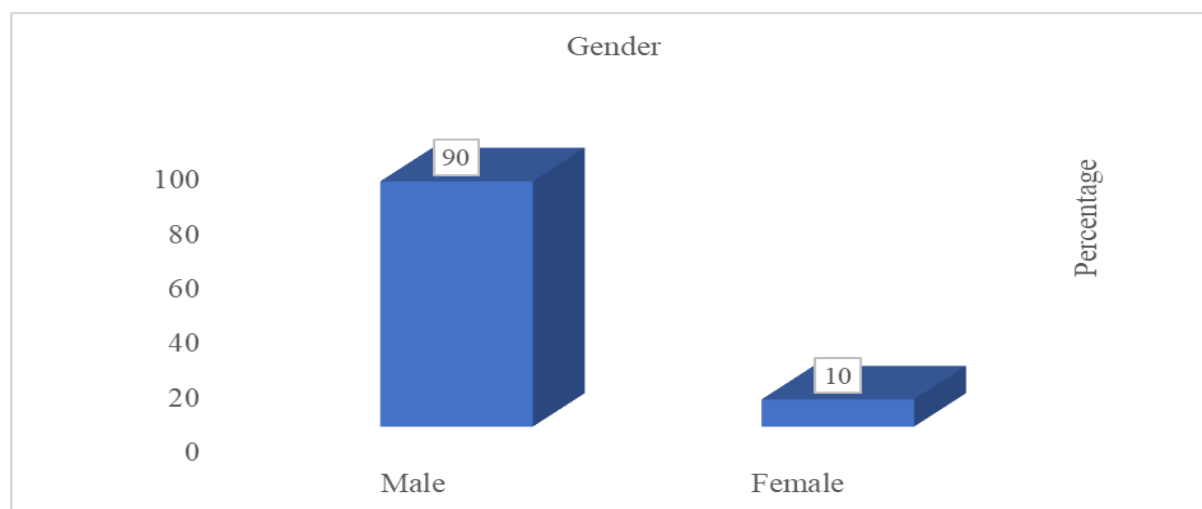


Fig. 1 Gender of the sample respondents

The figure and table 1 show that 90 per cent of the total respondents were male and 10 per cent were female. Most of the respondents were found to be male, mainly because it is male dominated area and most of the head of the families are male, female is work with them in the fields and rest 10 per cent of the female are those who become the head of their family due to some reason including widow or any other. The study implies that male is more engaged in pulses production in Bharmour Tehsil of Chamba District.

4.2 Age (years) of sample respondents

Table 2 Age (years) of sample respondents

Age	Frequency	Percentage
18-30	18	18
31-42	40	40
43-55	34	34
55 or above	8	8
Total	100	100

(Source: Field Survey 2022)

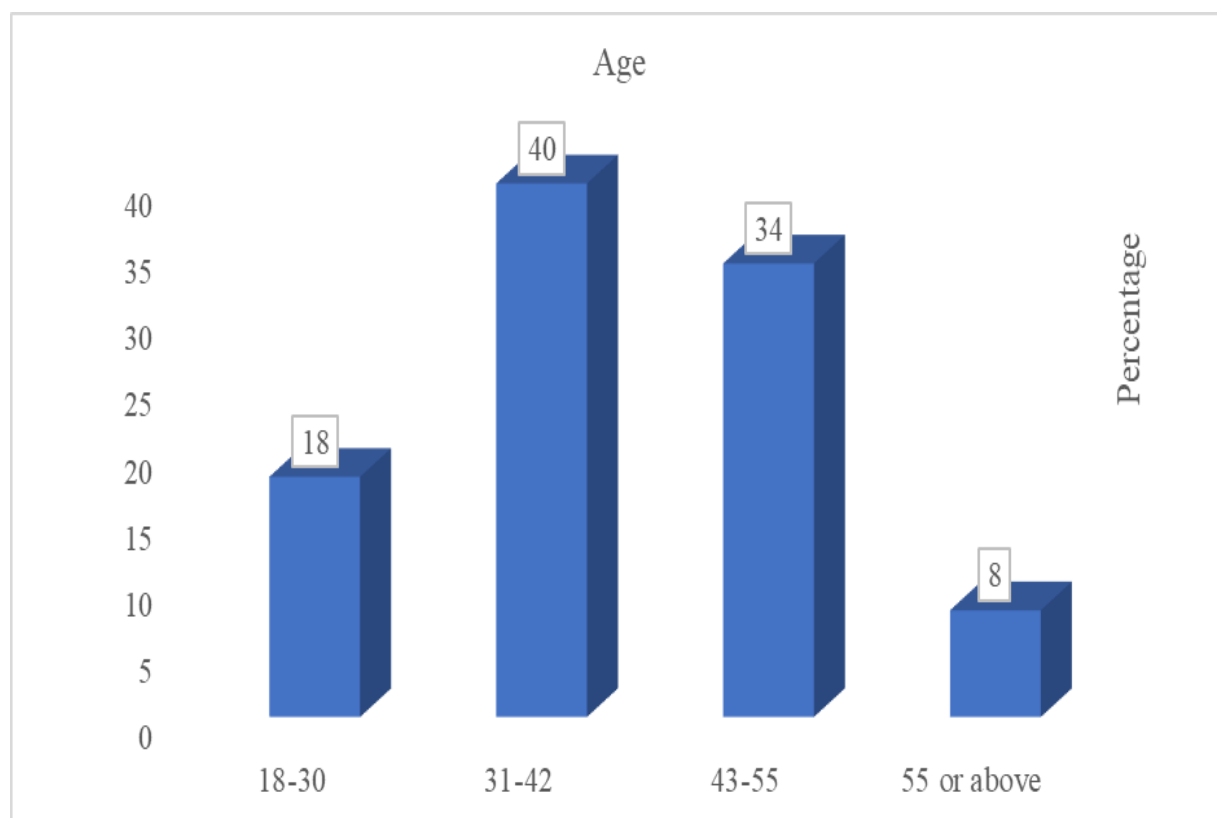


Fig. 2 Age (years) of sample respondents

The figure and table 2 represent that 18 per cent of the total respondents were between the age of 18-30 years followed by 40 per cent, 34 per cent and 8 per cent were between the age group of 31-42 years, 43-55 years and above 55 years respectively. So, this reveals that more young farmers (58 per cent) are doing pulses farming and attracted towards the agriculture in Bharmour tehsil.

4.3 Educational qualifications

Table 3 Educational qualifications of sample respondents

Education	Frequency	Percentage
Primary	28	28
High school	50	50
Graduate	18	18
Post graduate	4	4
Total	100	100

(Source: Field Survey 2022)

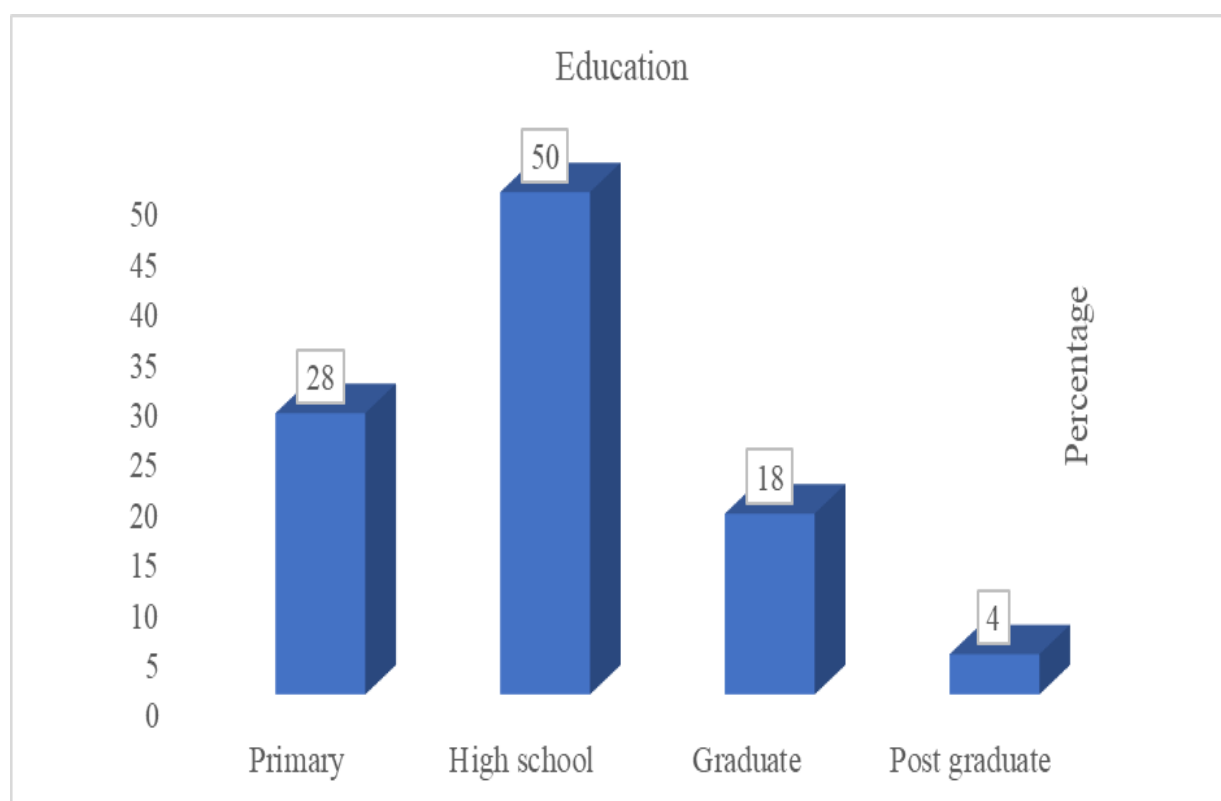


Fig. 3 Educational qualifications of sample respondents

The figure and table 3 reveal that 28 per cent of the total respondents were studied up to primary and 50 per cent 18 per cent and 4 per cent of farmers have the qualification of Higher, graduation and post-graduation respectively. This study shows that people from various background included in the pulses production and respondents with higher secondary are more engaged in pulses production in Bharmour tehsil.

4.4 Land holding (bigha)

Table 4 Land holding (bigha)

Land holding in bigha	Frequency	Percentage
<3	0	0
3-6 bigha	30	30
6-9 bigha	38	38
>12	32	32
Total	100	100

(Source: Field Survey 2022)

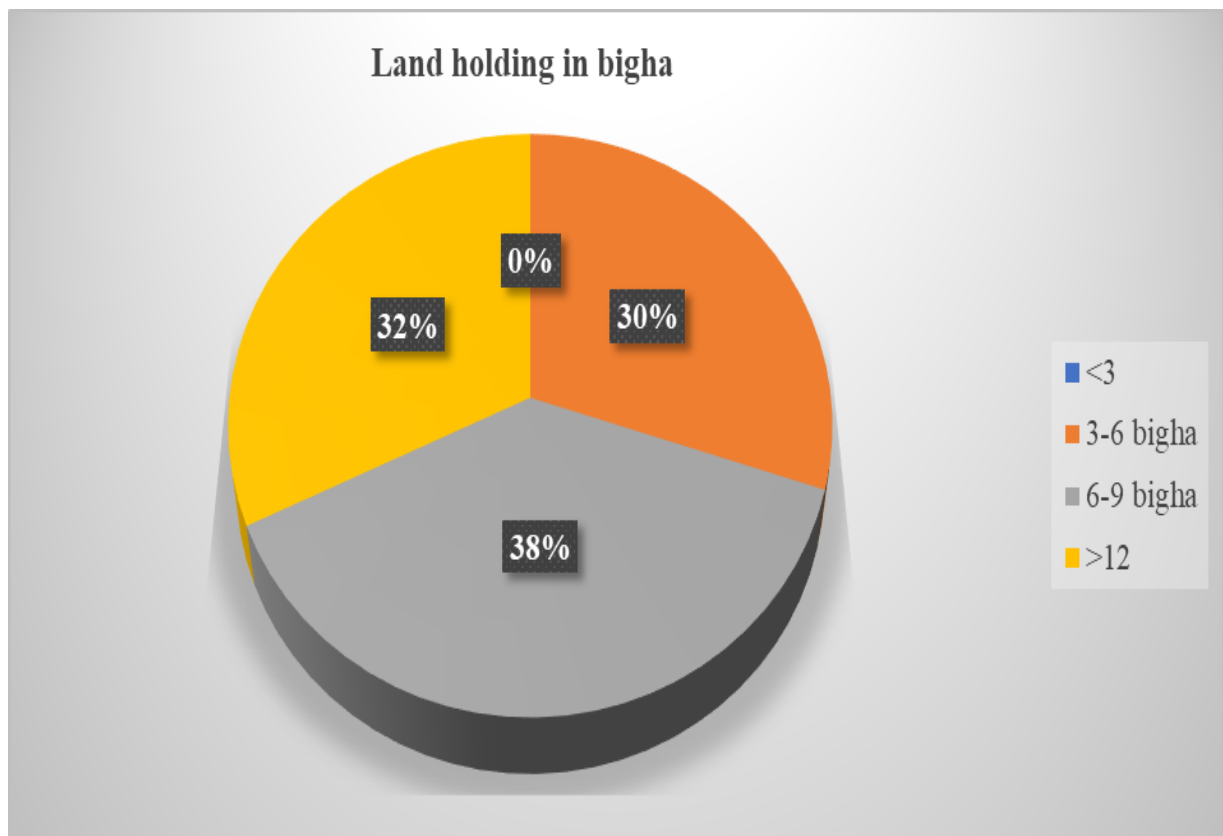


Fig. 4 Land holding (bigha)

The above pie chart and table show that 30% of the respondents in the study areas have land holding between 3-6 bigha. Followed by 38% and 32% of respondents who has land holding between 6-9 Bigha and >12 bigha respectively and This implies that the majority of the respondent is a medium-scale farmers.

4.5 Cultivation experience (years)

Table 5 Cultivation experience (years)

Cultivation experience (years)	Frequency	Percentage
0-15	60	60
16-30	38	38
31-45	2	2
>45	0	0
Total	100	100

(Source: Field Survey 2022)

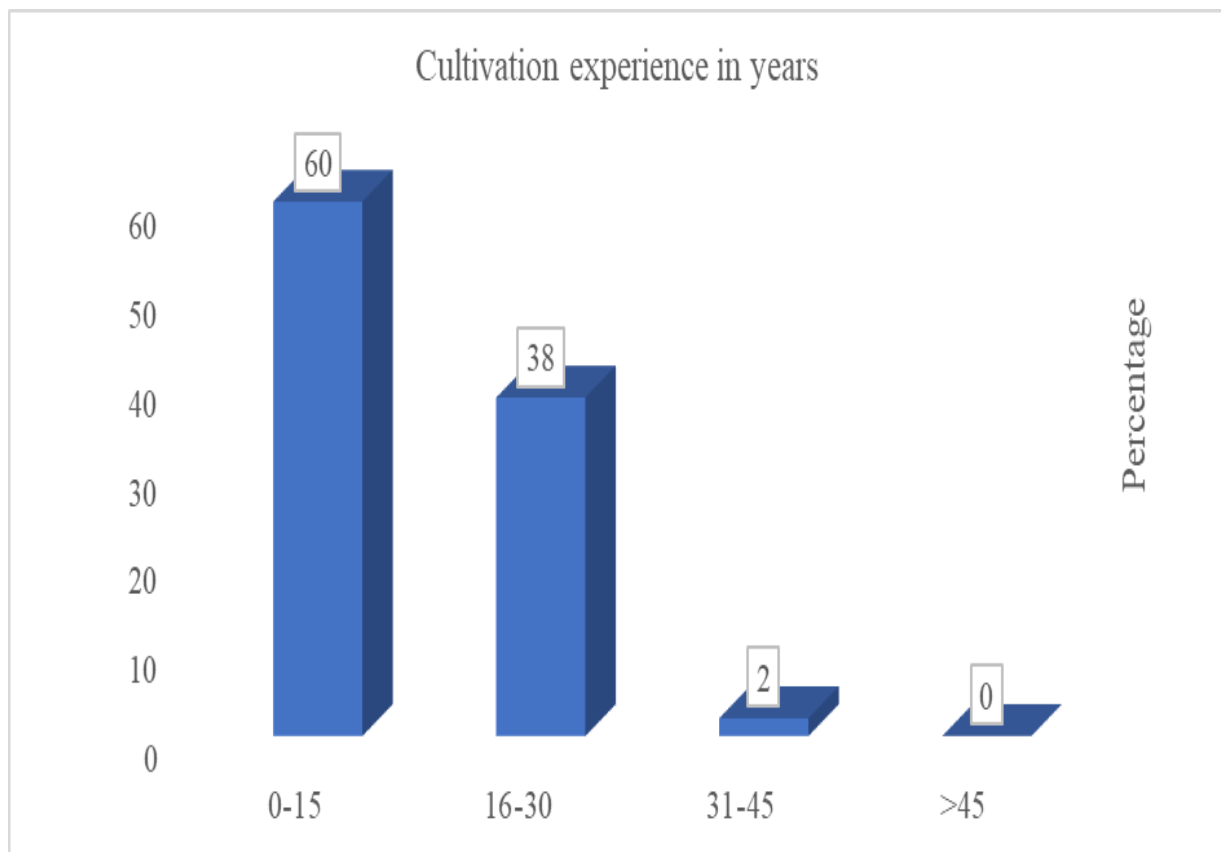


Fig. 5 Cultivation experience (years)

The figure and table 5 reveal that 60 per cent of the total respondents had cultivation experience (years) 0-15 years followed by 38 per cent, and 2 per cent had cultivation experience 16-30 years and 31-45 years and above 45 years respectively.

4.6 Main occupation

Table 6 Main occupation

Main occupation	Frequency	Percentage
Yes	68	68
No	32	32
Total	100	100

(Source: Field Survey 2022)

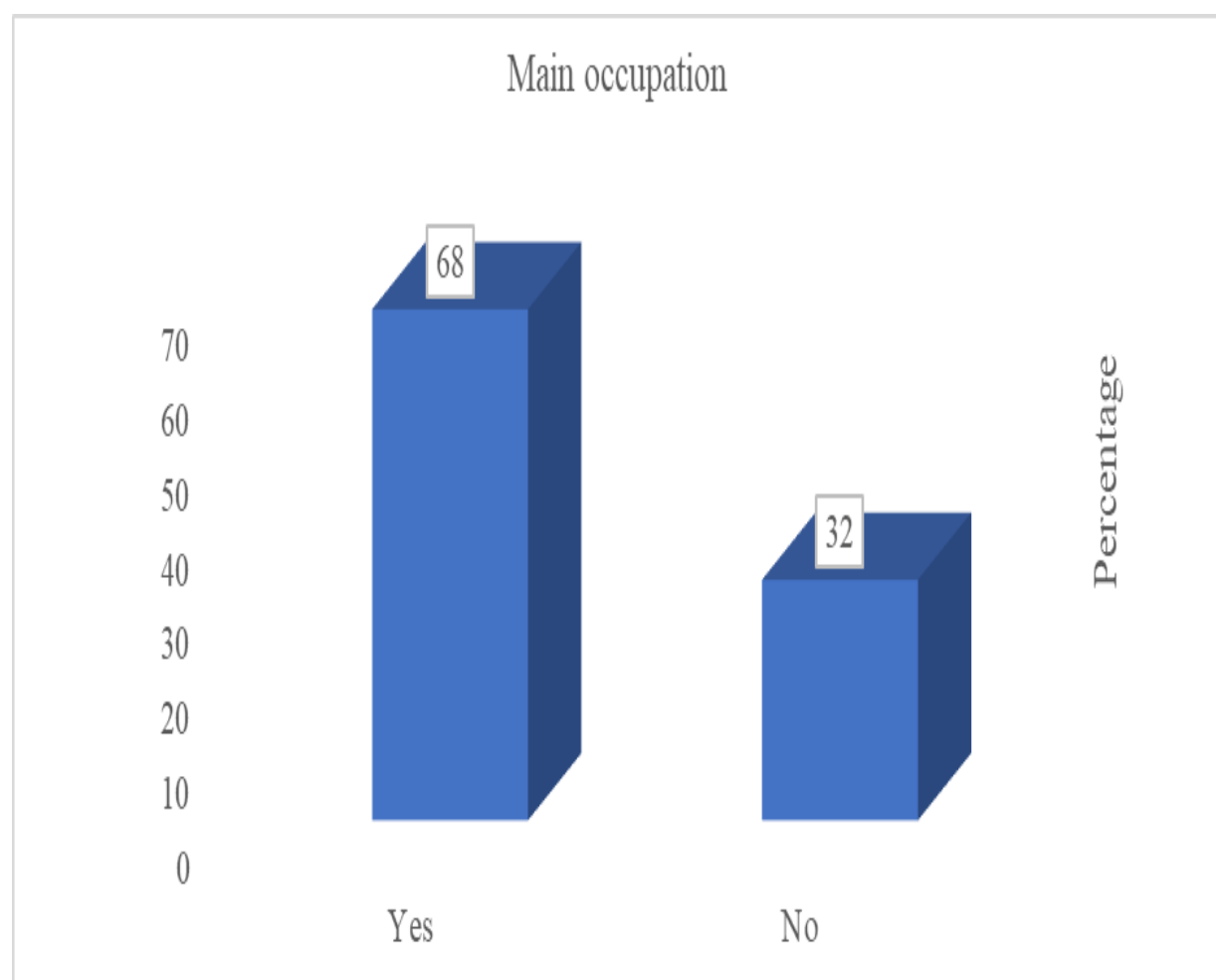


Fig. 6 Main occupation

Main occupation of the respondents can be seen from the table and figure 6 in which 68 per cent of the respondents were engaged in pulses production, followed by 32 per cent were engaged in other services, which were engaged in pulses production as part time source of income.

4.7 Type of family

Table 7 Type of family

Type of family	Frequency	Percentage
Joint	55	55
Nuclear	45	45
Total	100	100

(Source: Field Survey 2022)

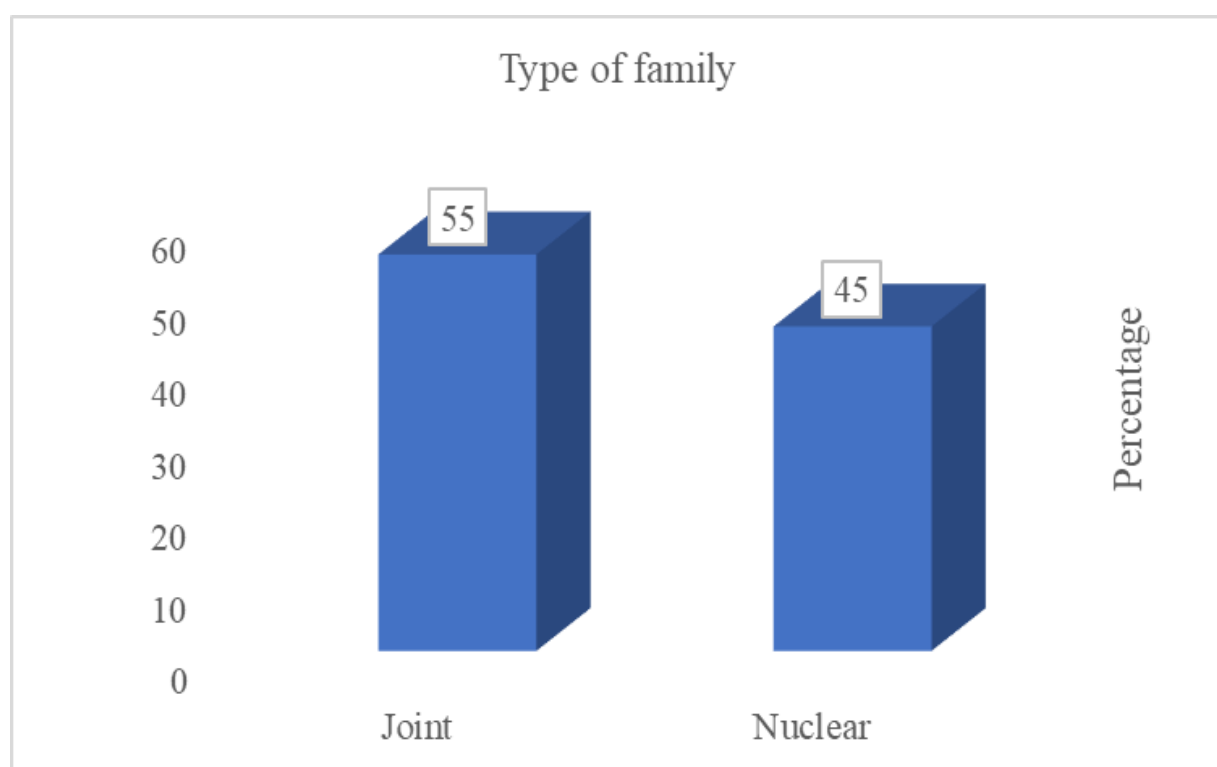


Fig. 7 Type of family

It is evident from the table and figure 7 reveals that 55 per cent of the total respondents had joint type of family followed by 45 per cent had nuclear type of family. This reveals that there were more farmer living in the Joint family and this type of family structure is more favorable for pulses farming, all activities of farming distributed among the family members. In case of nuclear family, the labor wages count highest among the cost of production.

4.8 Annual income (rupees)

Table 8 Annual income (rupees)

Annual income in rupees	Frequency	Percentage
<2 Lakh	6	6
2-6 Lakh	48	48
6-8 Lakh	44	44
>8 Lakh	2	2
Total	100	100

(Source: Field Survey 2022)

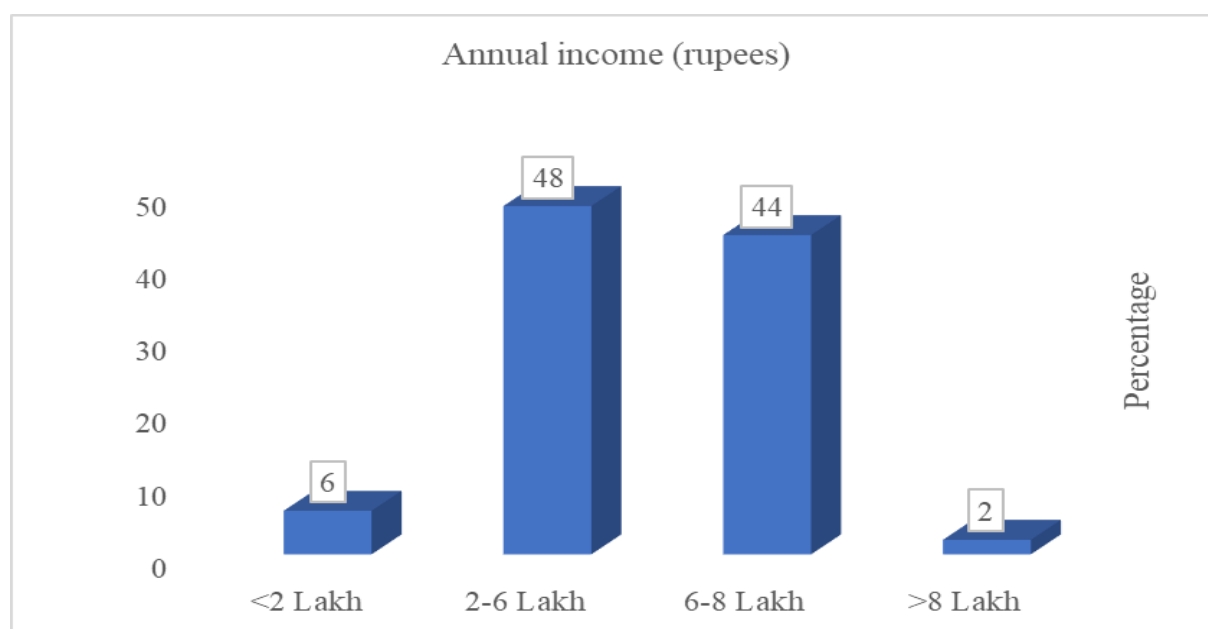


Fig. 8 Annual income (rupees)

It is quite clear from the above table and Figure 8 that some of the farmers i.e., 2 per cent have a total annual income in the range of more than 8 lakhs, followed by 44 per cent of the respondents who have their total family income up to 6-8 Lakhs. 48 percent respondent have their income in the range of 2-6 lakhs and out of the total respondent 6 per cent have less than 2 lakh annual income from pulses production. It can be concluded that majority of the farmers i.e. (92 per cent) in the study area have a fair amount of income distribution and they are capable of employing good quality inputs to strengthen production after meeting their family requirement.

4.9 Annual income from organic pulses

Table 9 Annual income from organic pulses

Annual income from organic pulses	Frequency	Percentage
<1 Lakh	10	10
1-2 Lakh	44	44
2-4 Lakh	46	46
>4 Lakh	0	0
Total	100	100

(Source: Field Survey 2022)

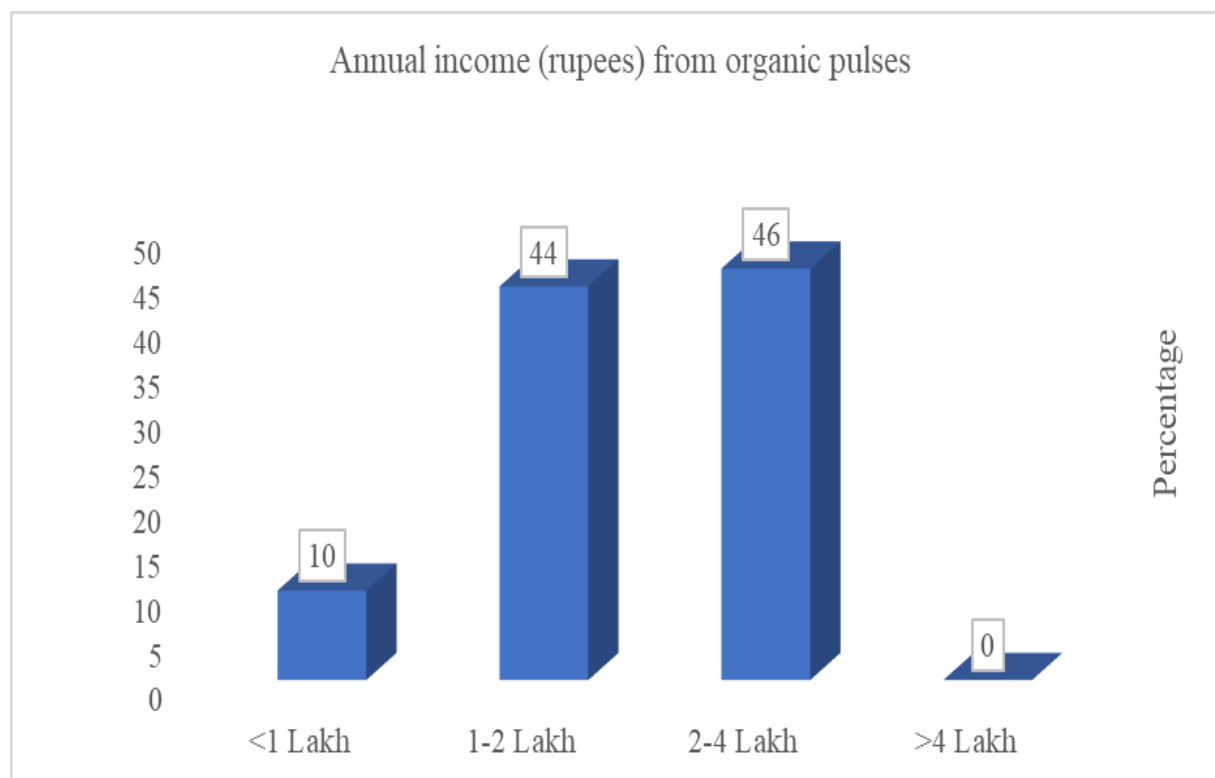


Fig. 9 Annual income (rupees) from organic pulses

The table and Figure 9 represent that the majority of families i.e., 46 per cent have a total annual income from organic pulses production in the range of 2-4 lakh rupees, followed by 44 per cent of the respondents who have their total income from organic pulses production up to 1-2 Lakhs rupees. and the rest 10 per cent have less than 1 lakhs rupee. It can be concluded that farmers (90 per cent) in the study area have a fair amount of income from organic pulses production and they are getting a good fair amount from pulses production.

4.10 Most grown pulses

Table 10 Most grown pulses

Most grown pulses	Frequency	Percentage
Rajmah	42	42
Koolth	36	36
Urd	14	14
Kale masar	8	8
Total	100	100

(Source: Field Survey 2022)

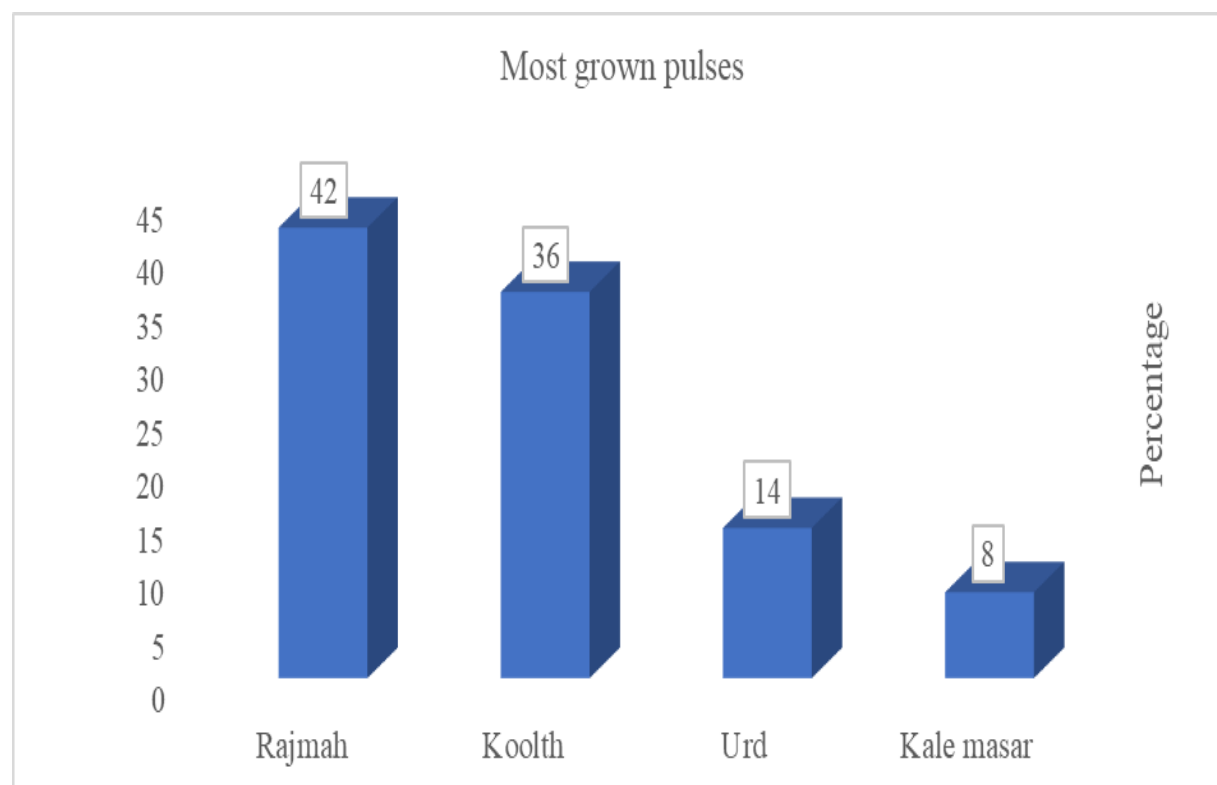


Fig. 10 Most grown pulses

The table and figure10 represent that the majority of farmers i.e., 42 per cent grow Rajmah followed by 36 per cent grow koolth and 14 per cent urd and the remaining 8 per cent farmers grown kale masar.

4.11 Seed use to grow pulses

Table 11 Seed use to grow pulses

Seed use to grow pulses	Frequency	Percentage
Traditional seed	88	88
Hybrid seed	12	12
Total	100	100

(Source: Field Survey 2022)

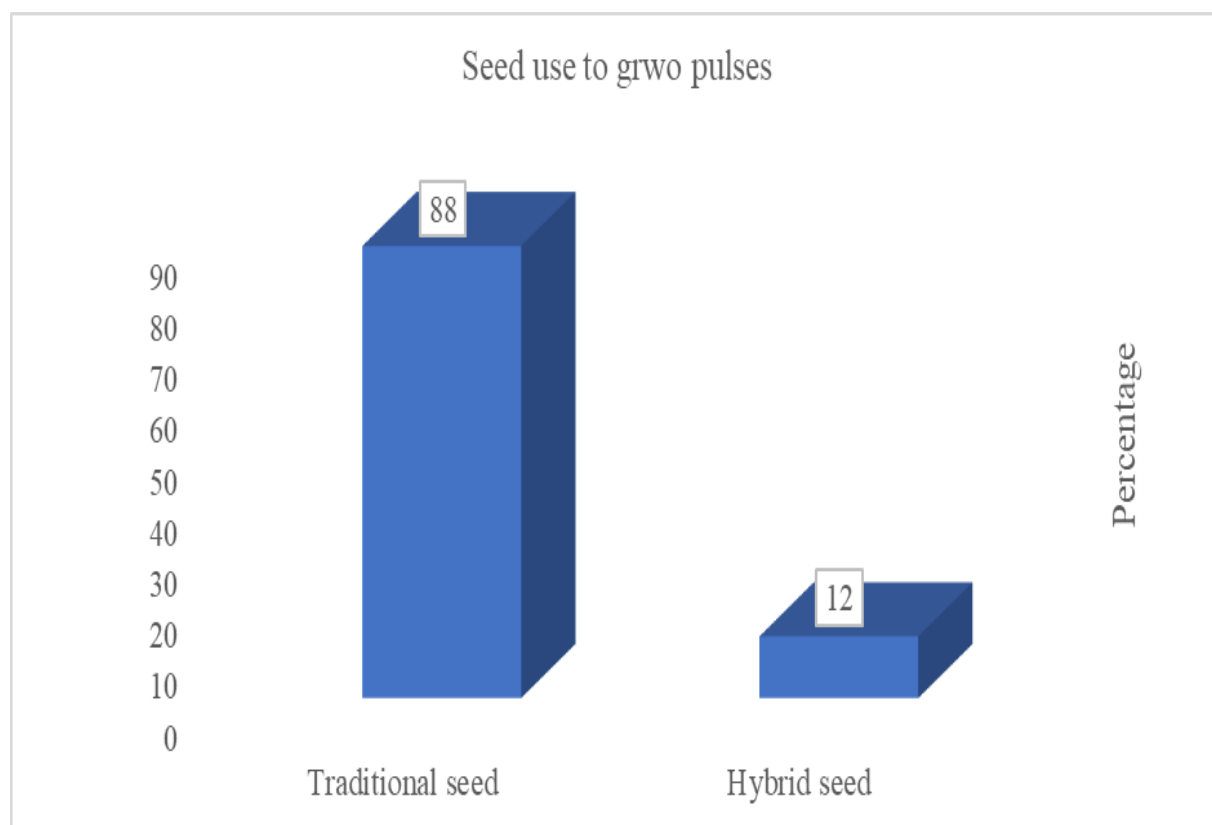


Fig. 11 Seed use to grow pulses

The table and figure 11 represent that the majority of farmers i.e., 88 per cent uses traditional seed followed by 12 per cent farmers uses hybrid seed for organic pulses production. This survey shows that a large number of farmers use traditional seeds and earns profit. It is further observed that they earn well from traditional seeds that's why they don't need to go for hybrid seeds.

4.12 Cost per kilogram seed (rupees)

Table 12 Cost per kilogram seed (rupees)

Cost per kilogram seed (rupees)	Frequency	Percentage
150	8	8
250	42	42
350	46	46
>450	4	4
Total	100	100

(Source: Field Survey 2022)

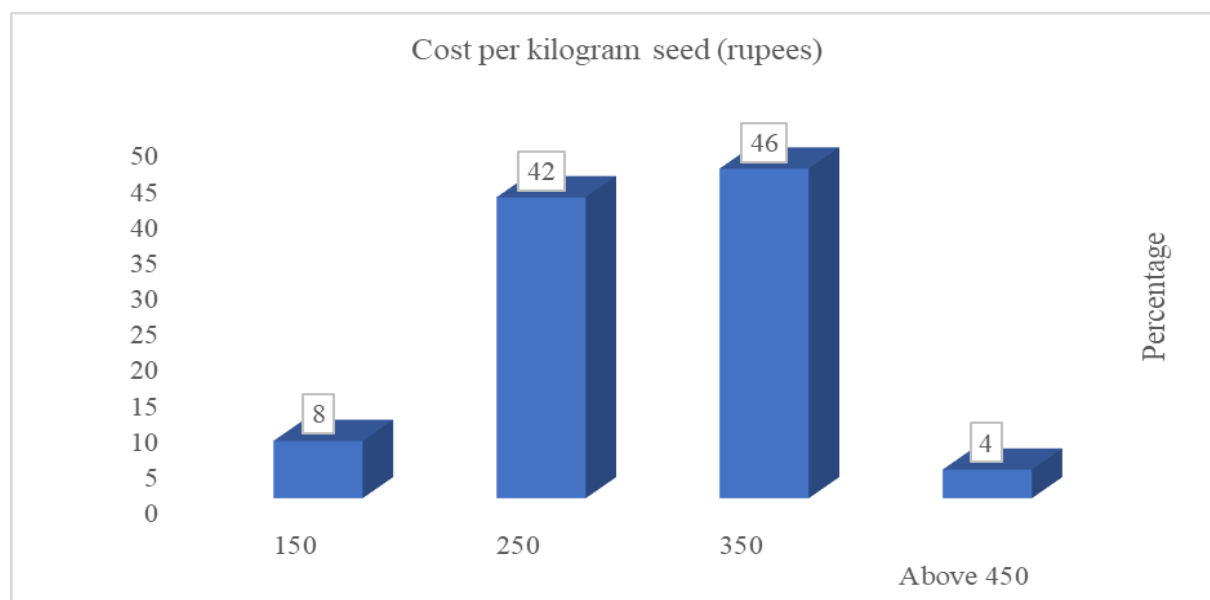


Fig. 12 Cost per kilogram seed (rupees)

The above table and Fig.12 show that 46 per cent of the farmers getting one kilogram seed 350 rupees and 42 per cent farmers who are getting one kilogram seed 250 rupees. Followed by 8 per cent farmers who are getting one kilogram seed 150 rupees and rest of the 4 per cent farmers who are getting one kilogram seed 450 rupees. Most of the farmers of that area use traditional seeds and many farmers save the seeds for the next crop from the crops grown by them but due to some reason their seed gets spoiled or they are not able to save the seeds then they go to other farmers. Seeds are taken which value can be cost from rupees 150 to rupees 450. From the above study we find that 96 per cent of farmers have taken seed for rupees 350, only 4 per cent of farmers are those who have received seed for more than rupees 450.

4.13 Loan for pulses

Table 13 Loan for pulses

Loan for pulses	Frequency	Percentage
Yes	32	32
No	68	68
Total	100	100

(Source: Field Survey 2022)

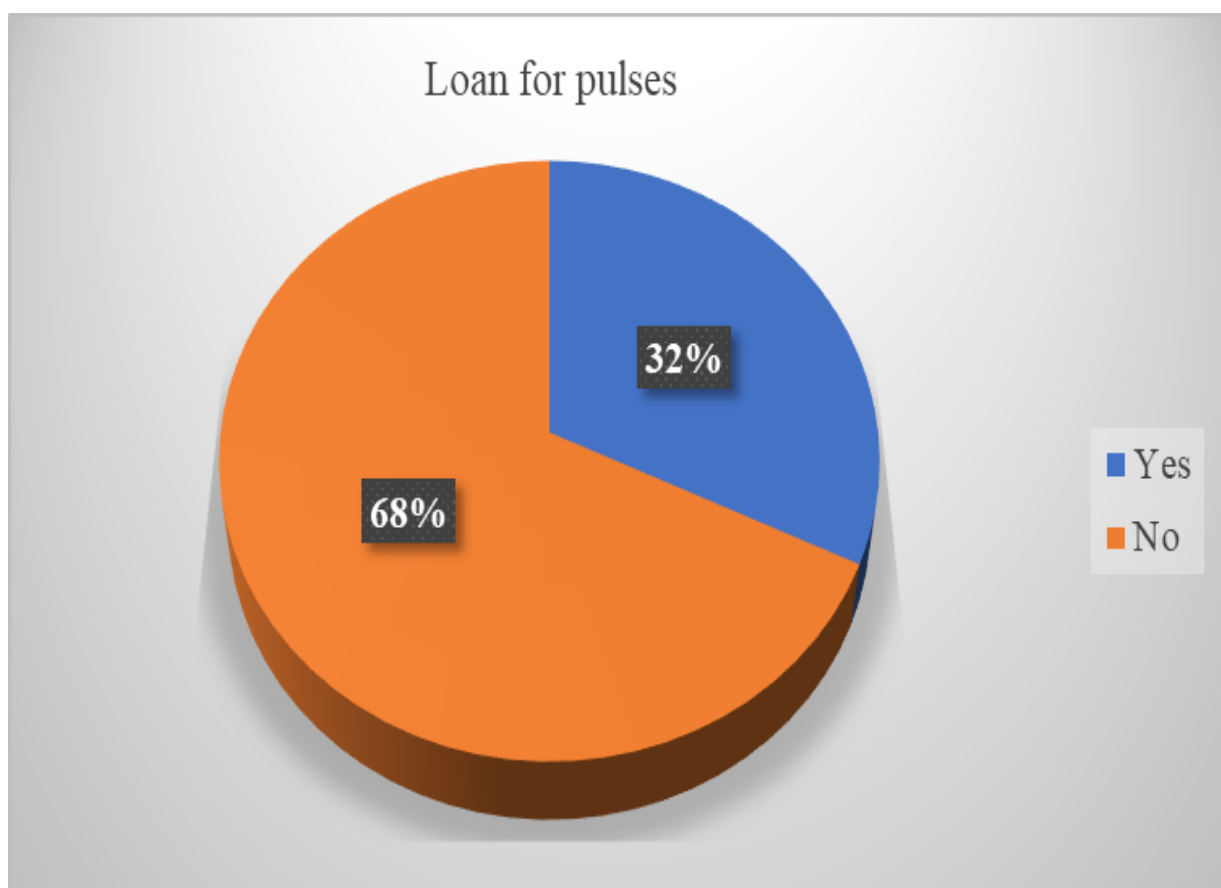


Fig.13 Loan for pulses

The above pie chart and table show that 32 per cent of the respondents in the study areas take loan for pulses production. Followed by 68 per cent of respondents who have not taken loan. This implies that the majority of the respondents get good income so that do not need to take loan.

4.14 Main reason for crop failure

Table 14 Main reason for crop failure

Main reason for crop failure	Frequency	Percentage
Infertility of land	32	32
Pest attack	34	34
Drought	26	26
Severe erosion	8	8
Total	100	100

(Source: Field Survey 2022)

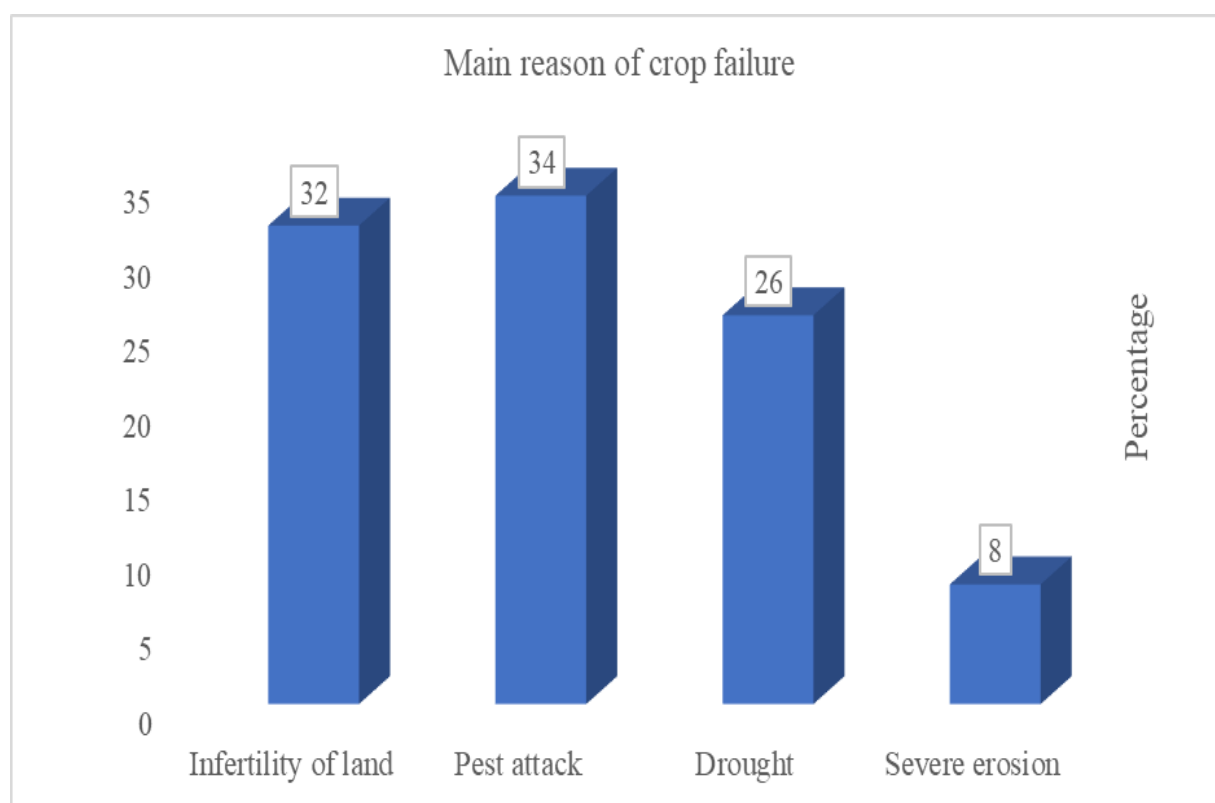


Fig.14 Main reason for crop failure

The figure and table 14 show that pest attack is the main reason for crop failure in majority of farmers i.e., 34 per cent. this is followed by 32 per cent farmers mainly due to infertility of land and 26 percent due to drought, the remaining 8 per cent due to severe erosion.

4.15 Source of irrigation

Table 15 Source of irrigation

Source of irrigation	Frequency	Percentage
River	34	34
Bore well	6	6
Lake	36	36
Other	24	24
Total	100	100

(Source: Field Survey 2022)

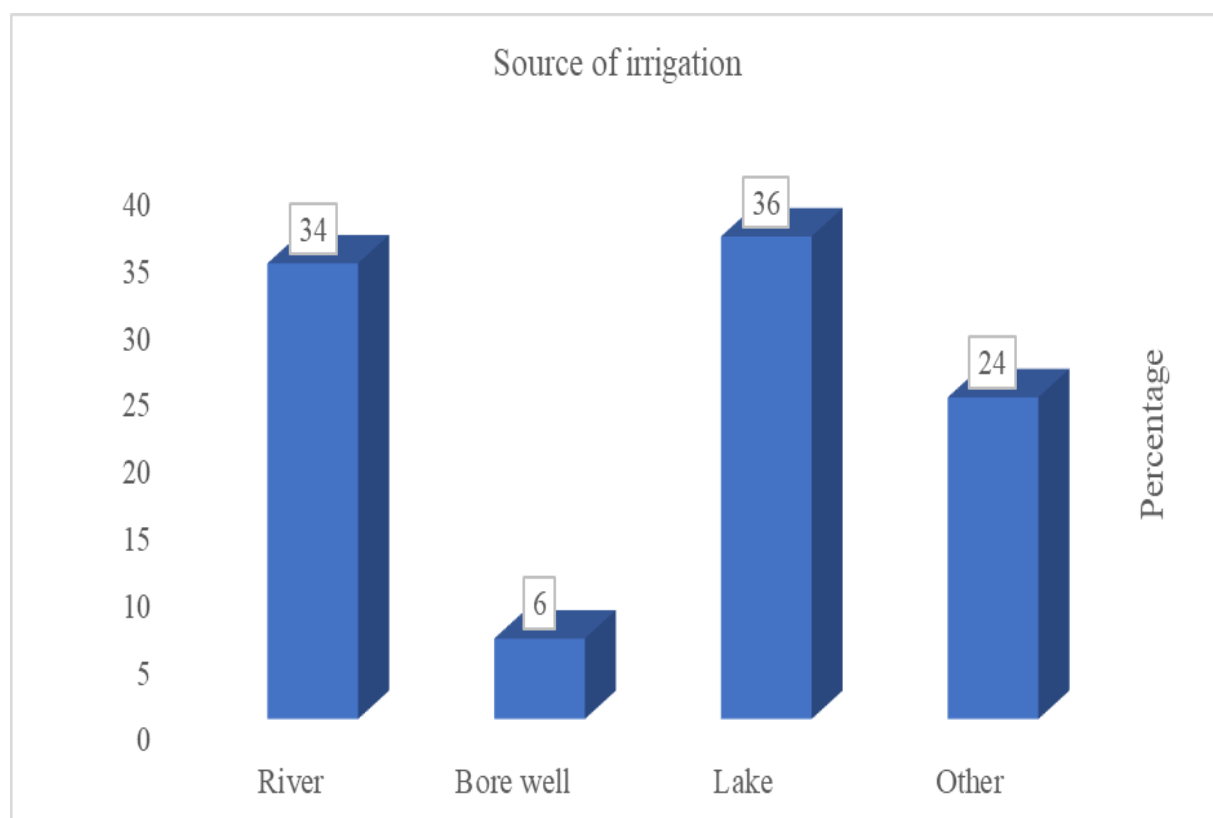


Fig.15 Source of irrigation

The figure and table 15 show that lake is the main source of irrigation for 36 per cent of the farmers. this is followed by 34 per cent farmers use river 26 per cent use other source of irrigation, the remaining 6 per cent use Bore well as a source of irrigation.

4.16 Consulted for obtaining information on pulses

Table 16 Consulted for obtaining information on pulses

Consulted for obtaining information on pulses	Percentage of respondents		
	Always	often	Sometimes
ADO	24	20	56
University	28	38	34
Agro Input Agencies	12	48	40
Radio/Tv	66	26	8
Newspaper	82	14	4
Agriculture magazine	26	42	32
Friends	68	24	8
Progressive farmers	34	54	12
Any other	2	6	92

(Source: Field Survey 2022)

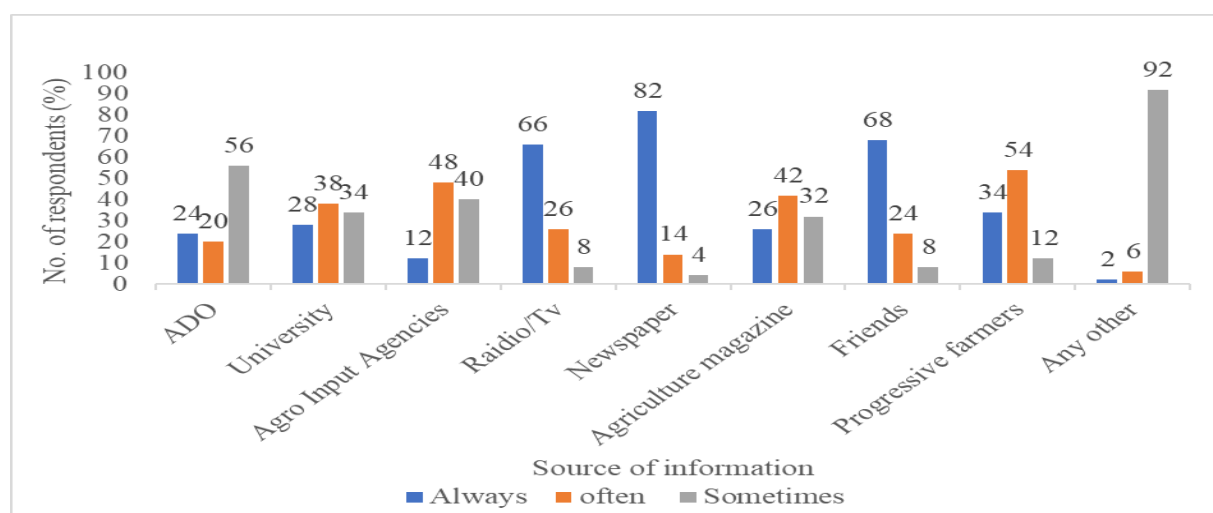


Fig.16 Consulted for obtaining information on pulses

The study reveals that., 82 per cent farmer always consulted newspaper for obtaining information, 14 per cent often and 4 per cent sometimes. After that 68 per cent farmer obtains information always from friends, 24 per cent often and 8 per cent sometime, 66 per cent farmers always obtains information from radio and Tv, 26 per cent often and 8 per cent sometimes,34 per cent farmer always obtains information from progressive farmer 54 per cent farmer often 12 per cent sometimes, 28 per cent farmer always obtains information from universities 38 per cent often and 34 per cent sometimes, 26 per cent farmer always obtains information from agriculture magazines 42 per cent often and 32 per cent sometimes. 24 per cent farmer always obtains information from ADO 20 per cent often ,56 per cent sometime and 2 per cent farmer always obtains information from any other sources 6 per cent often and 92 per cent sometimes.

4.17 Income generation from organic pulses

Table 17 Income generation from organic pulses

Income generation from organic pulses	Frequency	Percentage
Not at all satisfied	2	2
slightly satisfied	26	26
Neutral	54	54
Very satisfied	18	18
Total	100	100

(Source: Field Survey 2022)

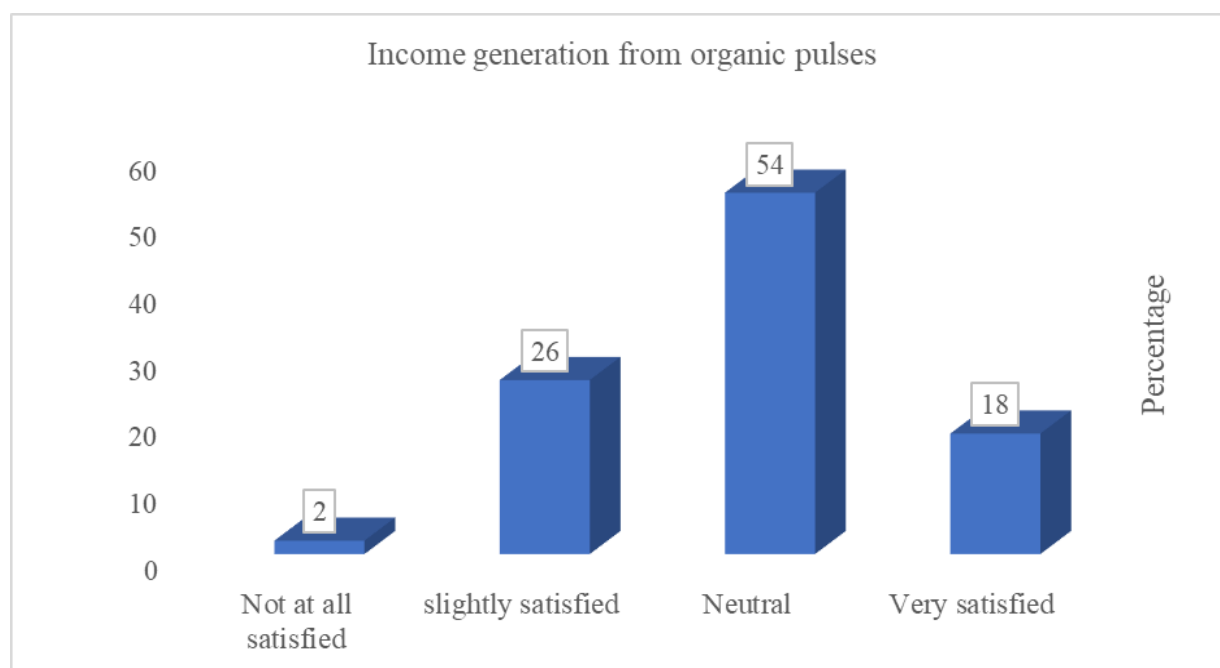


Fig.17 Income generation from organic pulses

It is evident from the table and figure 17 that the majority of farmers i.e., 54% are neutral, followed by 26 % of the respondents who are slightly satisfied and 18 % are very satisfied. Rest 2 per cent are not satisfied. This implies that the majority of the farmers are neutral (54%), slightly satisfied (26%) and very satisfied (18%), which means they earn good income from organic pulses to meet their basic needs.

4.18 Opinion of doing organic farming

Table 18 Opinion of doing organic farming

Opinion of doing organic farming	Frequency	Percentage
Good return on investment	12	12
High demand	16	16
Nutritional	16	16
Environment friendly	6	6
All of above	50	50
Total	100	100

(Source: Field Survey 2022)

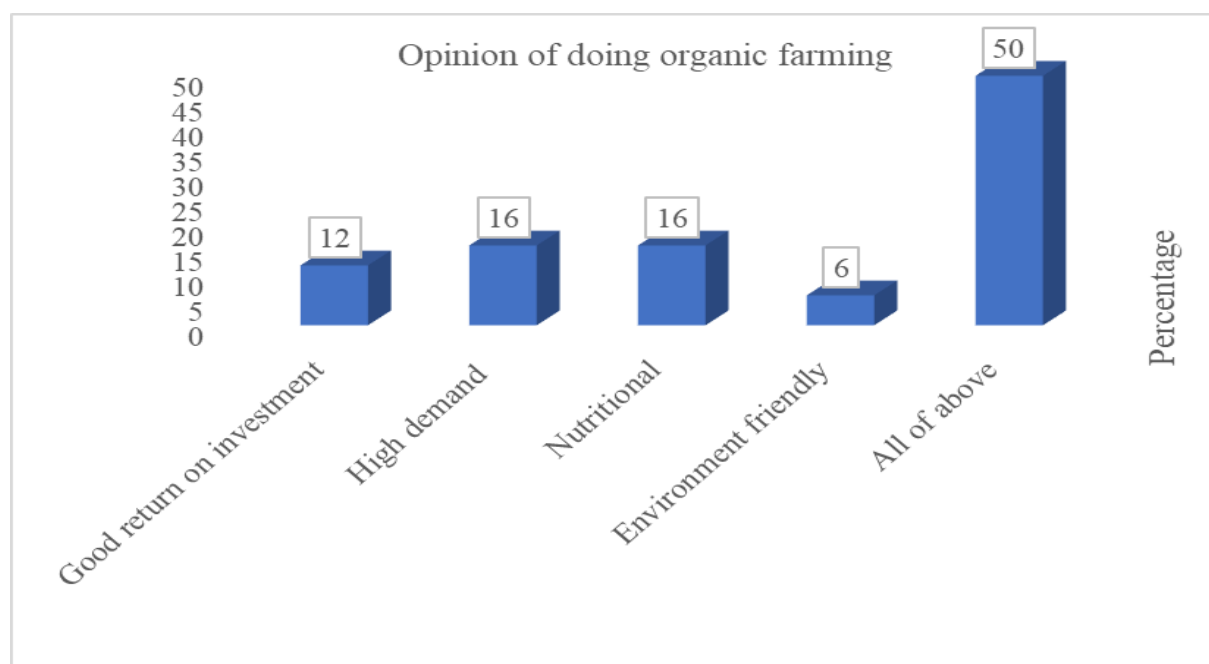


Fig.18 Opinion of doing organic farming

The figure and table 18 show that that the majority of farmer's opinion for doing organic farming is all of above i.e., 50 per cent, followed by 12 per cent for good return or investment and 16 per cent are for nutritional, 16 per cent due to high demand and rest 6 per cent for environment friendly. The majority of farmers doing organic farming for good return on investment, high demand, nutritional values and environment friendly.

4.19 Factors influencing the production pattern of organic pulses

Table 19 Factors influencing the production pattern of organic pulses

Factors influencing the production pattern of organic pulses	Frequency	Percentage
Health and food security	12	12
freshness and Nutrition value	16	16
organic food buying intention	6	6
Environment friendly production	14	14
All of above	52	52
Total	100	100

(Source: Field Survey 2022)

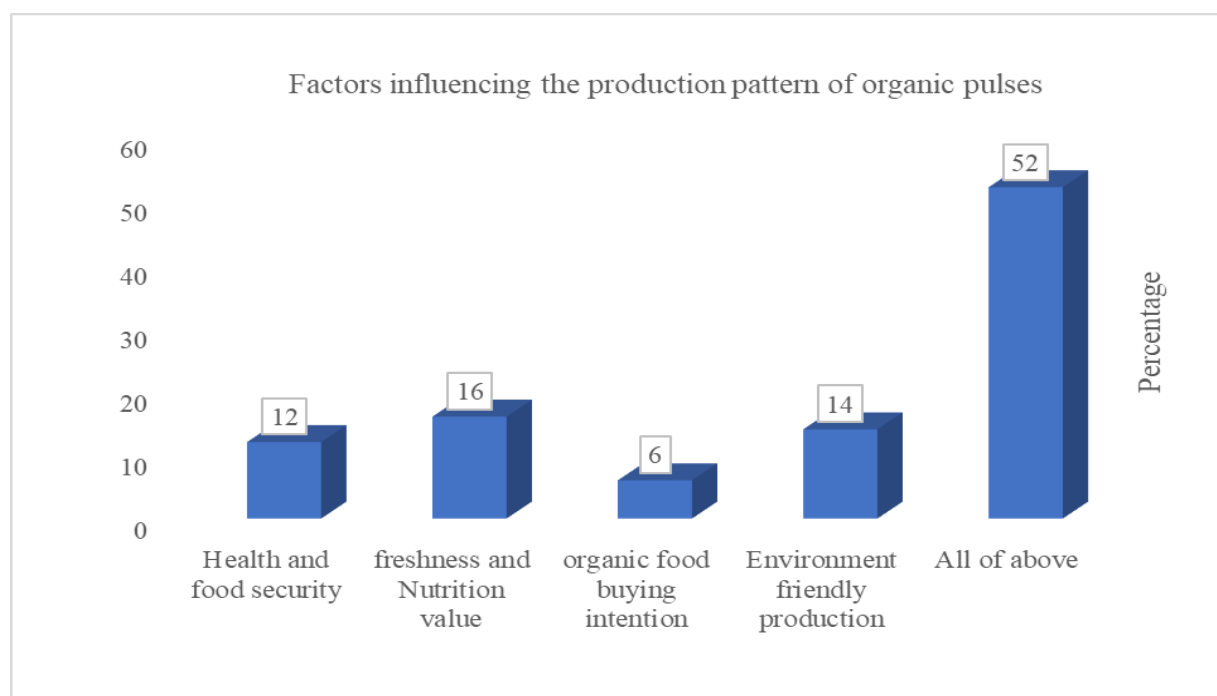


Fig.19 Factors influencing the production pattern of organic pulses

The figure and table 19 show that the factor influencing the production pattern of organic pulses is all of above i.e., 52 per cent, where only 16 per cent recognized freshness and Nutritional value as the factors responsible for production pattern of organic pulses further 14 per cent for Environment friendly production, 12 per cent due to Health and food security and rest 6 per cent for organic food buying intention. Responsible factor for production pattern of organic pulses, freshness nutrition value and environment friendly production, health and food security and organic food buying intention.

4.20 Challenges during organic pulses production

Table 20 Challenges during organic pulses production

Challenges during organic pulses production	Frequency	Percentage
Insect pest attack	16	16
Inadequate irrigation	10	10
Lack of warehouses	12	12
Non availability of labor	6	6
High transport charges	14	14
All of above	42	42
Total	100	100

(Source: Field Survey 2022)

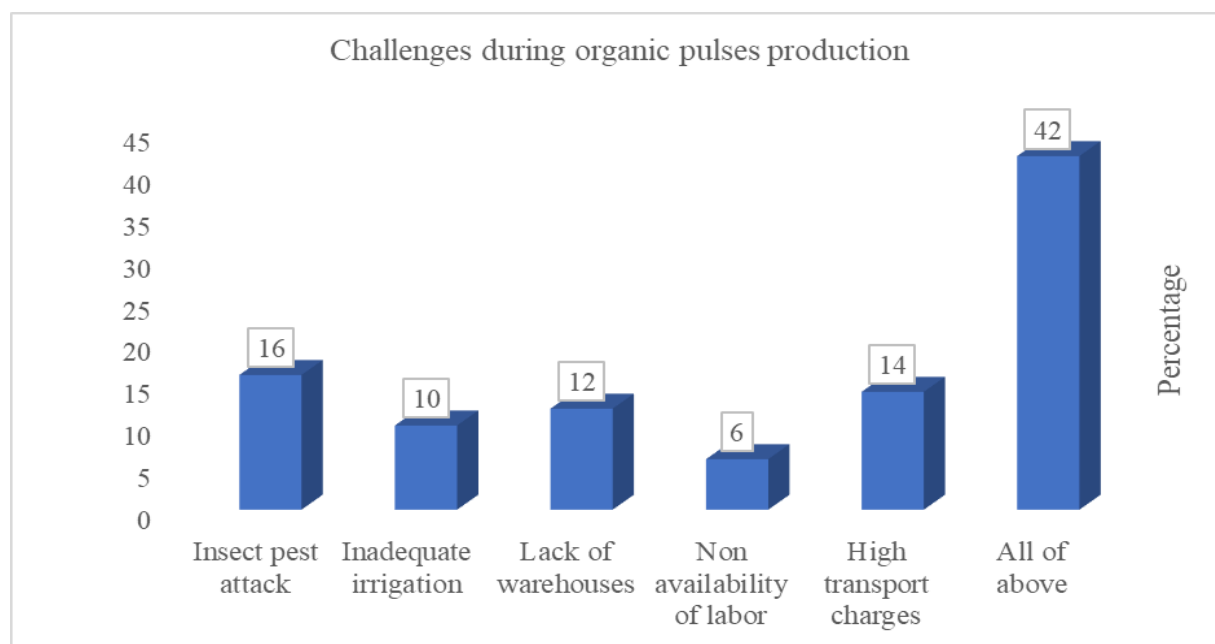


Fig.20 Challenges during organic pulses production

The table and figure 20 represent that the farmer's faces challenges during organic pulses production is all of above i.e., 42%, followed by 16 % Insect pest attack and 14 % High transport charges 12 percent Lack of warehouses 10 per cent Inadequate irrigation and rest 6 per cent Non availability of labor. These all are the challenges during organic pulses production like insect pest attack, high transport charges, lack of warehouses, inadequate irrigation and non-availability of labor.

Chapter 5

SUMMARY AND CONCLUSION

In the present chapter, findings that emerged from the data analysis have been discussed and important conclusions have been drawn. The findings and conclusions of the study are discussed below.

Finding and conclusion

The present study entitled “Production Pattern of Organic Pulses in Temperate Dry Agroclimatic Zone: A Study of Chamba District Himachal Pradesh” was undertaken with the objective to identify the factor responsible for production pattern of organic pulses and record the perception of farmers about the production of organic pulses. The study was conducted with the convenient sampling of 100 respondents in Bharmour tehsil of district Chamba. Data was analysed by applying percentage method, The findings and conclusion of the study are discussed below.

- In the concerned research study, a majority of respondent (90%) engaged in pulses production were males.
- It can be inferred from the data that around 58 per cent young farmers are doing pulses farming and attracted towards the agriculture.
- It can be concluded from the study that people from various background included in the pulses production and respondents with higher secondary are more engaged in pulses production.
- It is revealed from the study that 89 per cent farmers had land holding between 6-9 bigha. This implies that the majority of the respondents were medium-scale farmers and out of the 100-respondent 68 per cent doing pulses farming as main occupation and rest 32 percent engaged in pulses production as part time source of income.
- It can be concluded from the study that majority of the farmers (90 percent) in the study area had a fair amount of income from pulses and they were capable of employing good quality inputs to strengthen production after meeting their family requirement.
- It is revealed from the study that majority of farmers grow Rajmah and koolth due to their high demand in the market. A large number of farmers use traditional seeds and

earn profit. Cost of seed was not fixed for pulses farmers can increase and decrease seeds cost according to their consumption.

- This study implies that the majority of the respondents get good income so that do not need to take loan and further revealed from the study main reason for crop failure were Infertility of land, pest attack, drought i.e., 32 per cent, 34 per cent, 26 percent respectively and rest 8 percent due to severe erosion.
- The study reveals that., 82 percent farmer always consulted newspaper for obtaining information, 66 percent farmers consulted Radio/Tv and 68 percent consulted for obtains information from friends the study shows that these are the main sources farmers were used. A very less farmers consulted information from other sources like ADO, Universities and other sources.
- From the study it was concluded that respondents were earning good income from organic pulses to meet their basic needs. Farmers earned good income from pulses where more than 98 percent farmers are slightly neutral and very satisfied only 2 percent farmers were not at all satisfied.
- The study showed that the majority of farmers were inclined towards organic farming for good return or investment, nutritional value, high demand, and environment friendly.
- The findings of the study regarding the factors influencing production pattern of organic pulses showed that the major influencing factors were recognized freshness and Nutritional value Environment friendly production, Health and food security and organic food buying intention.
- The findings of the study showed that the challenges faced by farmers during organic pulses production were Insect pest attack, high transport charges, lack of warehouses, inadequate irrigation, non-availability of labour.

On the basis of finding of the present study, suggestion discussed below:

- From the results it is seen that the respondents of the given area were doing organic farming and using their own resources in their fields. In the world of fertilizer and pesticides, they were still clinging to their culture and traditional habits. Farmers should be aware of their practices in increasing demand for organic products and also improve them according to present scenario.

- The Study showed that maximum of the respondents grew traditional seed in their fields. But the farmers should go for hybrid varieties of seed which would be suitable according to their area and also generate optimum productivity.
- The farmers should be provided with adequate training sessions regarding each and every aspect of production through extension education, develops and promote agricultural entrepreneurship.

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8. Annual Income in rupees (Please tick the appropriate).
 a. <2 lakh b. 2-6 lakh c. 6-8 lakh d. >8 lakh
9. Annual income from organic pulses production.
 a. <1 lakh b. 1-2 lakh c. 2-4 lakh d. >4 lakh
10. Which pulses do you grow the most?
 a. Rajmah b. Koolth c. Urd d. Kale masar
11. Which seed do you use to grow pulses?
 a. Traditional seed b. Hybrid seed
12. Cost of per kilogram seed (Rupees).
 a. 150 b. 250 c. 350 d. >450
13. Do you take loan for cultivation of pulses?
 a. Yes b. No
14. Main reason of crop failure.
 a. Infertility of land b. Pest attack c. Drought d. Severe erosion

Part B: Factors responsible for the production of organic pulses

15. Source of irrigation water during normal years.
 a. River b. Bore well c. Lake d. Other
16. Which of the following institutional media, mass media, non-institutional media and to what extent they are consulted for obtaining information on pulses production (Please tick)

	Always	Often	Sometimes
ADO			
University			
Argo Input Agencies			
Radio/Tv			
Newspaper			
Agriculture magazine			
Friends			
Progressive farmers			
Any other			

17. Income generation from production of organic pulses in the market.
a. Not at all satisfied b. Slightly satisfied c. Neutral d. Very satisfied

Part C: Perception of farmers about the production of organic pulses

18. What is your opinion of doing organic farming?
a. Good return on investment b. High demand c. Nutritional
d. Environment friendly e. All of above
19. Factors influencing the production pattern of organic pulses?
a. Health and Food security b. Freshness and Nutrition value
c. Organic food buying intention d. Environment friendly production
e. All of above
20. Among following what are the challenges during organic pulses production according to you?
a) Insect pest attack b. Inadequate irrigation c. Lack of warehouses
d. Non availability of labor e. High transport charges f. All of above

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Title of the Project : **Production Pattern of Organic Pulses in Temperate Dry Agroclimatic Zone: A study of Chamba District Himachal Pradesh.**

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Admission Number : H-2020-11-ABM

Major Discipline : Farm Business Management

Minor Discipline : Agricultural Marketing

Date of Project Submission :

Total Pages of the Project : 39+v

Major Advisor : Dr. Nisha Kumari

ABSTRACT

District Chamba of Himachal Pradesh provides favorable environment condition and have good potential for the production of organic pulses. Thus, the present study is an attempt to study and identify the factors responsible for the production patterns of organic pulses and record the perception of farmers about the production of organic pulses. The results revealed that the majority of farmers were inclined towards organic farming for good return or investment, nutritional value, high demand, and environment friendly. The findings of the study regarding the factors influencing production pattern of organic pulses showed that the major influencing factors were recognized freshness and Nutritional value Environment friendly production, Health, food security and organic food buying intention. From the results it is seen that the respondents of the given study were doing organic farming and using their own resources in their fields. In the world of fertilizer and pesticides, they were still clinging to their culture and traditional habits. Farmers must aware of their practices in increasing demand for organic products and also improve them according to present scenario. The Study showed that maximum of the respondents grew traditional seed in their fields and generate optimum productivity.

Signature of the Student
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Date:

Signature of the Major Advisor
Name: Dr. Nisha Kumari
Date:

Head of the Department

BRIEF BIO-DATA

Name : Dinesh Kumar
Father's Name : Mr. Trilok Chand
Mother's Name : Mrs. Usha Sharma
Date of Birth : 20 June 1999
Permanent address : Village - Raitten, Post Office - Siur, Tehsil – Bharmour,
 District – Chamba, Himachal Pradesh Pin Code - 176309

Academic Qualification

	Month & Year	School/College	Board/University	Marks (%)	Division
10 th Class	March (2014)	Govt. High School Sinyur, District Chamba, Himachal Pradesh	Himachal Pradesh Board of School Education (HPBOSE)	70.42 %	First
12 th Class	March (2016)	Govt. Sr. Sec. School Bagli, Kangra Himachal Pradesh	Himachal Pradesh Board of School Education (HPBOSE)	63.40 %	First
B Sc Agriculture		Himgiri Zee University, Dehradun	Himgiri Zee University, Dehradun	7.7 CGPA	First
MBA (ABM)	(2022)	Dr. Yashwant Singh Parmar University of Horticulture & Forestry (Nauni) Solan	Dr. Yashwant Singh Parmar University of Horticulture & Forestry (Nauni) Solan	Awaited	

Fellowships/ Scholarship : Stipend during post -graduation.

Certificate Training : 21 days industrial training in KVK Chamba

Any Other : 21 Days Training on Mushroom Cultivation.