

**A Study on impact of Front-Line  
Demonstration (FLDs) on area and  
productivity of pigeon pea growers  
in Sehore block of Sehore district (M.P.)**

**THESIS**



*Submitted to*

**Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior**

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**MASTER OF SCIENCE**

**In**

**AGRICULTURE**

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**By**

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**2020**

**CERTIFICATE – I**

*This is to certify that the thesis entitled “A Study on Impact of Front Line Demonstration on Area and Productivity of Pigeon pea growers in Sehore district (M.P.)” submitted in partial fulfilment of the requirement for the degree of **MASTER OF SCIENCE (Ag.) in AGRICULTURE EXTENSION** of the Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, is a record of the bonafide research work carried out by **Ms. POOJA PICHHODE ID No 18131008** under my guidance and supervision. The subject of the thesis has been approved by the Student’s Advisory Committee and the Director of Instruction.*

*All the assistance and help received during the course of the investigation has been acknowledged by him.*

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## CERTIFICATE – II

This is to certify that the thesis entitled ,“**A study on impact of front line demonstration on area and productivity of Pigeon pea growers in Sehore district (M.P.)**” submitted by **Ms. POOJA PICHHODE ID No 18131008** to the Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior in partial fulfillment of the requirements for the degree of Master of Science in **Agriculture** in the Department of **Agricultural Extension and Communication** has been, after evaluation, approved by the External Examiner and by the Student’s Advisory Committee after an oral examination on the same.

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## Chapter-1

### INTRODUCTION

Pigeon pea (*Cajanuscajan*) commonly known as red gram or tur is a very old crop of the country. After gram, arhar is a second most important pulse crop in the country. It is mainly eaten in the form of split pulse as 'dal' seeds of Arhar are also rich in iron, iodine, essential amino acids like lycine, threonine, cystine and arginine etc.

Pigeon pea has multiple uses and occupies an important place in the prevailing farming systems in the country and vegetarian diet. It also plays an important role in sustainable agriculture by enhancing the soil through biological nitrogen fixation along with deep root system of this crop which makes it is more suitable for its cultivation under rain fed conditions.

The country's total area coverage and production Tur has been about 45 Lha and 42 Lt, respectively. As known traditionally, Maharashtra has contributed > 27 per cent of area and 25 per cent of total production during this period. With aggressive Transfer of Technology (TOT) in various thematic area, highest ever productivity level of 937 kg/ha was achieved during 2017-18.

More than 80 per cent of Arhar production of the country during the period under report has been realized from 10 states of MS, MP, Karnataka, Gujrat, UP, Telangana, Jharkhand, Odisha, AP and TN. All trend of area 44.59 Lakh ha and production 41.80 Lakh tonn. (Source –DES, Ministry of Agri. And FW (DAC & FW), Govt. of India 2017-18).

Pigeon pea is an important legume crop of rain fed agriculture in the semi-arid tropics. The Indian subcontinent, eastern Africa and Central America, in that order, the worlds three main pigeon pea-producing regions. Pigeon pea are cultivated in more than 25 tropical and subtropical countries, either as a sole crop or intermixed with cereals, such as sorghum (*sorghum bicolor*), pearl millet, or maize, or with other legumes, such as peanuts (*Arachis hypogea*). Being a legume capable of symbiosis with Rhizobia, the bacteria associated with the pigeon pea in rich soils through symbiotic nitrogen fixation.

Planning, execution and monitoring of the demonstrations for the technologies developed by them and get direct feedback from the farmer's field about the crop like wheat, rice, and pulses production in general and technology being demonstrated in the crop is cultivated in marginal land by resources poor farmers, who commonly grow traditional medium and long duration (5 to 11 months) landraces. Short duration pigeon peas (3-4 months) suitable for multiple cropping have recently been developed. Traditionally, the use of such input as fertilizers, weeding, irrigation and pesticide is minimal, so present yield levels are low (average= 700 kg/ha). Greater attention is now being given to managing the crop because it is in high demand at remunerative prices.

Pigeon pea are very drought-resistant and can be grown in areas with less than 650 mm annual rainfall. With the maize crop failing three out of five years in drought – prone areas of Kenya, a consortium led by the International Crops Research Institute for the Semi-arid Tropics (ICRISAT) aimed to promote the pigeon pea as a drought resistant, nutritious alternative crop.

The pigeon pea is the first seed legume plant to have its complete genome sequenced. The sequencing was first accomplished by a group of 31 Indian scientists from the Indian Council of Agriculture Research. It was then followed by a global research partnership, the International Initiative for Pigeon pea Genomics (IIPG), led by ICRISAT with partners such as BGI-Shenzhen (China), US research laboratories like University of Georgia, University of California-Davis, Cold Spring Harbor laboratory, and National Center for Genome Resources, European research institutes like the National University of Ireland Galway. It also received support from the CGIAR Generation Challenge Programme, US National Science Foundation and in-kind contribution from the collaborating research institutes. It is a first time that a CGIAR-supported research center such as ICRISAT led the genome sequencing of a food crop. There was a controversy over this as CGIAR did not partner with a national team of scientists and broke away from the Indo American knowledge Initiative to start their own sequencing in parallel.

Pigeon pea contains high level of protein and important amino acids methionine, lysine, and tryptophan. Methionine + Cystine combination is the only limiting amino acid combination in pigeon pea. In contrast to the mature seeds, the immature seeds are generally lower in all nutritional values, however they contain a significant amount of vitamin C (39 mg per 100 g serving) and have a slightly higher fat content. Research has shown that the protein content of immature seeds is of a higher quality.

Front line demonstration (FLDs) is a unique approach to provide a direct interface between researcher and farmers as the scientists are directly involved in particular. This enables the scientists to improvise upon the research programme accordingly. In FLDs, the subject matter scientists provide technological inputs to extension scientists to organize the demonstration. Thus, FLDs provide an opportunity to researchers and extension personnel for understanding the farmer's resources and requirement to fine tune and/or modify the technologies for easy adoptability at farmer's fields.

Frontline demonstrations (FLDs) are the concept of field demonstration evolved by the Indian Council of Agricultural Research (ICAR) with the inception of the technology mission on oil seed crops (TMOs) during mid-eighties. The field demonstration conducted under the close supervision of the scientists of the national agriculture research system is called front line demonstrations, because the technologies are demonstrated for the first time by the scientists themselves before being fed into the main extension system of the state departments of agriculture.

Keeping this in the view, the present study entitled “**Impact of FLD on Area and Productivity of Pigeon pea Growers in Sehore Block of Sehore District in M.P.**” is undertaken with the following objectives : -

1. To know the profile of beneficiaries and non- beneficiaries pigeon pea growers.
2. To find out the impact of FLD on area and productivity of pigeon pea growers.
3. To work out the relationship between independent and dependent variables of FLD pigeon pea growers.
4. To identify the problems faced by the beneficiaries and suggestions given by them.

## **Chapter-2**

### **REVIEW OF LITERATURE**

A brief review of literature is an integral part of any investigation as it not only gives an idea on the work done in the past, but also provides the basis of interpretation and discussion of the findings. This investigation is designed to study the important aspects of pigeon pea Frontline Demonstrations (FLDs). For the sake of convenience, the available related review are presented under the following heads-

2.1 Profile of FLD and non-FLD pigeon pea growers

2.2 Impact of FLD on area and productivity of pigeon pea growers.

2.3 Relationship between independent and dependent variables of FLD pigeon pea growers.

2.4 Problems faced by the beneficiaries and to suggestions given by them.

#### **2.1 Profile of FLD and non- FLD pigeon pea growers.**

##### **Age:**

Patel (2006) suggested that slightly less than half (48.80 per cent) of the pigeon pea growers belong to middle age group, followed by 27.20 per cent and 24.00 per cent of them had old age group and young age group, respectively.

Raghuwanshi (2012) reported that in case of wheat growers (beneficiaries) in study area, majority of the farmers were in young age group followed by middle and old age category. Whereas, in case of (non-beneficiaries) wheat growers in study area, higher number of farmers were in old age group followed by middle and young age category.

Verma (2013) data introduce that the total, 50% beneficiaries were from young age group, 30% from middle and 20% were from old age group.

Kumari (2015) studied on impact of front line demonstration on area and productivity of wheat growers in Jabalpur district (M.P.), reported that majority of the respondents from both the groups belonged to middle age (36-55 years).

Prasad (2017) found that the majority of respondent (65%) of the pigeon pea grower belongs to middle age group.

**Education:**

Patel (2006) indicated that less than two-fifth (38.00%) of the pigeon pea growers were educated up to higher secondary level, followed by 28.40 per cent secondary level education, 20.40 per cent completed college level of education and 10.80 per cent primary level respectively. While only 02.40 per cent were illiterate.

Nagle (2011) the study revealed that maximum number of the respondents (55%) belonged to middle age group, had education up to primary (45%), possess medium size of land holding (45%), belonged to joint family system with 6-8 family members.

Parmar (2014) reported that in case of beneficiaries' study area, the most of beneficiaries (39.29%) were found to higher education followed by medium education (35.71) and illiterate and formal education (25.00%). While, in case of non-beneficiaries in study area, the higher number of beneficiaries were found to illiterate and formal education group followed by medium education and higher education group.

Raksha (2015) stated that 58.33 per cent of the respondents were doctorate followed by post-graduate (41.67%)

**Size of land holding:**

Jatav (2010) reported that majority of FLD beneficiaries belongs to medium size of land holding, middle age and medium level of education.

Patidar (2011) found that majority of respondents (76.00%) had medium size of land.

Prasad (2017) reported that the higher percentage of respondents (63%) had small size of land holding of pigeon pea growers.

**Occupation:**

Singh (2009) reported that the occupation had significant association with recommended production technology.

**Economic Motivation:**

Verma (2013) revealed that of the total, 52 per cent farmers belongs to high category, 34 per cent had medium and 14 per cent had low economic motivation.

Prasad (2017) concluded that majority of pigeon pea growers (80%) had medium level of economic motivation.

### **Risk Orientation:**

Mandloi (2007) inferred that the higher percentage of selected farmers had low to high level of risk preference.

Singh (2009) concluded that majority of the respondents were having high economic motivation, medium risk preference and medium level of knowledge.

### **Scientific Orientation:**

Verma (2013) observed that majority of FLD beneficiaries belong to high economic motivation, high risk preference and high scientific orientation.

### **Information Seeking Behavior:**

Raghuwansi (2012) reported that in case of beneficiaries wheat growers majority of the respondents were medium level of information seeking behavior followed by high and low level of information seeking behavior. Whereas, in case of non- beneficiaries wheat growers, majority of the respondents were low and medium level of information seeking behavior as equal followed by high level of information seeking behavior.

### **Innovativeness:**

Muttanna (2013) conducted a study on perception of climate change among farm women and its impact on production of red gram pointed out that majority of the farm women belong to medium level of proneness category (45.00%) followed by 35 per cent belongs to low innovative proneness and 20.00 per cent belongs to high innovative proneness category.

Chaitra (2014) in her study on an impact analysis of Sujeevana programme of initiatives for Development Foundation (IDF) on beneficiaries farmers of Tumkur district notice that the medium innovative proneness was exhibited by 59.16 percent of farmers while 24.16 per cent of farmers had low level of innovative proneness. However, high innovative proneness was noticed in 16.66 per cent farmers.

### **Social Participation:**

Rajput (2006) reported that majority of respondents (76.67%) had low participation in any organization.

Jatav (2010) conducted that the majority of FLD beneficiaries had medium level of social participation.

### **Extension Participation:**

Jatav (2010) found that the majority of FLD beneficiaries had medium level of extension participation.

Patidar (2011) found that higher percentage of respondents (46%) had high extension participation.

Verma (2013) observed that majority of FLD beneficiaries had high extension participation.

### **Annual Income:**

Prajapati (2016) reported that among the participant chickpea growers, the higher numbers of the chickpea growers (40.48%) were of medium level of income.

Patel (2006) indicated that less than half (46.80%) of the pigeon pea growers belonged to medium level of income, followed by low and high with 33.60 per cent and 19.60 per cent, respectively.

## **2.2 Impact of FLD on area and productivity of pigeon pea growers:**

Singh et al. (2004) observed the impact of front line demonstration in oilseed and impact study indicate that due to adoption of recommended scientific process, yield in oilseed comes under FLD were higher in demonstration plots compared to farmer practice.

Verma (2013) studied on impact of front line demonstration on pulses by Krishi Vigyan Kendra, Panna M.P. and found that there was 0.2 ha to 0.8 ha area increase, an 2.5 q/ha to 6.5 q/ha productivity increase after conducting the FLD programme.

Thakur et al. (2016) Godda is one of the most backward districts of Jharkhand (India) having 88.5% of area as rainfed. Maize (*Zea mays*), Paddy (*Oryza sativa*) and Pigeon pea (*Cajanus cajan*) are the two major cereal crops and one pulse crop grown in the district during the kharif season 2015-16. The productivity and economic returns of all the three cereal crops recorded higher gross returns, net return and benefit cost ratio in improved technologies as compared to the plots where farmers were using traditional practices in their cultivation.

Singh et al. (2016) The study was carried out by KVK during 2007-2010 with the help of farmers in the presence of concerning SMS at Sehore district under Vindhyan plateau agro climatic zone of Madhya Pradesh During these years of study on area 20 ha was covered under package demonstration on pigeonpea against their own problems with the number of 52 farmers is benefited under its technology. Maximum average yield, net return and minimize wilt incidence and pod borer damage 11.5 q/ha, Rs 16700/ha and 29.3% & 37.2 respectively the technology suitable for enhancing the productivity of pigeon pea crop.

Dalei et al. (2016) Niger is an edible oilseed crop of tribal farmers of Eastern Ghat High Land zone of Odisha. The frontline demonstration was conducted on Niger crop, under All India coordinated Research project on Niger operating at Regional Research And Technology Transfer Station (OUAT), Semiliguda in farmer's field for a consecutive year from 2010-11 to 2012-13. It can be concluded that FLD programme on niger effectively increase the production and productivity in the specific region of Odisha.

Singh et al. (2017) a field study on impact assessment of frontline demonstrations on productivity enhancement of cumin was conducted in Bheenjwadia village of Jodhpur district of Rajasthan by Central Arid Zone Research Institute, Jodhpur during 2010-11 to 2014-15. The average five years of data revealed that average yield of demonstration plot was obtained 519.60 kg ha over the local check (412.80 kg ha) and there is an increase in average yield by 25.87 per cent.

Saravana Kumar, S; (2018) to improve the productivity and to increase the area under finger millet by adopting integrated crop management practices were demonstrated. The results showed that the higher grain yield of 2729.5 kg/ha recorded in demonstration compared to 2194 kg/ha in farmers practice with an yield advantage of 24.40 per cent over the farmer practices.

Matharu et al. (2018) front line demonstrations to demonstrate improved production technologies to increase productivity of moong crop in Barnala district of Punjab. Twenty front line demonstrations were conducted on summer moong covering an area of 8.0 hectare and latest production and protection technologies were exhibited. A 13.70 % increase in yield of moong under the demonstration plots over farmers practices was recorded.

Patil et al. (2018) the Krishi Vigyan Kendra, Ratnagiri had conducted the frontline demonstrations (FLDs) on oilseed during 2011 to 2016. The KVK had organized 93 FLDs on Groundnut in two villages and 26 FLDs on Niger in Gawane village from Lanja Block of Ratnagiri district. The findings showed that significant increase in the average yield of demonstration plot (20.57 q/ha) over the control plot (13.75 q/ha) of groundnut crop. Average yield of Niger was 2.75 q/ha, which increased to 3.11 q/ha in demonstration year.

Sing et al. (2019) to boost the production and productivity of pulse crop in district Gorakhpur, Mahayogi Gorakhnath Krishi Vigyan Kendra Gorakhpur conducted front line demonstration on pulse crops in which 50 demonstration was on pigeon pea and 10 demonstration was on chickpea during Kharif and Rabi season 2017-18. The result reveals the increases yield of demonstrated plot that was 42.55 and 42.67 percent as compared to existing farming practices for pigeon pea and chickpea.

Jain et al. (2019) frontline demonstrations on cluster bean (cv.RGC 936) were carried out at farmer field in Barmer district of Rajasthan to evaluate the performance of variety from kharif 2011 to kharif 2013. The increase in grain yield with the adoption of improved technology was in the range of 37.6 + 44.0 percent in different years.

### **2.3 Relationship between independent and dependent variables of FLD and non-FLD pigeon pea growers.**

Jaiswal (2002) observed that innovativeness had positive relationship with the image of KVK held by the farmers.

Jangid et al. (2009 & 2010) conducted a study in Jaipur district of Rajasthan on 120 farmers and reported that education, size of land holding, annual income, social participation, extension contact was significantly correlated with the training needs of pea growers about improved pea production technology.

Dayaram et al. (2010) reported that the education was found to be significant and positively related to the adoption of improved wheat cultivation technologies of FLD high yielding varieties.

Jatav (2010) found that size of land holding had non-significant relation with scientific temperament.

Jatav (2010) found that social participation and extension participation had significant relation with scientific temperament.

Tala (2011) observed that annual income, social participation, innovativeness had positive and significant relation with impact of KVK. In contrast, age, education and land holding had non-significant relationship with the impact of KVK.

Verma (2013) reported that age had significant relationship in respect of area and productivity increment of pulse production technology.

Verma (2013) reported that the occupation and economic motivation had significant relation in respect of area increment of pulses production.

Verma (2013) found that the risk preference and scientific orientation had significant relation in respect of area and productivity increment of pulses production.

## **2.4 Problems faced by the beneficiaries and to suggestions given by them.**

Borole (2010) reported that non availability and high price of cono weeder (95.29 per cent), high cost in nursery preparation (89.41 per cent), non- availability and high cost of labours (83.52 per cent), mortality of seedlings (78.82 per cent), non- availability of organic manures (72.94 per cent) , interculturing with cono weeder is difficult (63.52 per cent), require good water control (56.47 per cent), high weed infestation (52.94 per cent ) and lack of timely technical advice (43.53 per cent) were the major constraints faces by beneficiaries of FLD on paddy crop in adoption of SRI technique.

Tawale and Pawar (2011) found that, constraints like attack of insect pests and diseases were expressed by 74.45 per cent of wheat growers. In next order, shortage of labour at the time of harvesting (62.78%), and low price of wheat at time of harvesting (61.11%) were major constraints by the wheat growers. In regard to suggestions, provision of training to in regard to pest disease controls was suggested by 61.11 per cent, followed by provision of high rate for wheat was suggested by 53.89 per cent farmers.

Kumbhare and Singh (2011) suggested that the government agencies and commercial units like input supply and processing agencies do have an important role to provide the needed support and facilitation to the farmers to overcome the constraints and thereby promote adoption of high yielding varieties to augment the production, productivity and profitability.

Choudhary and Yadav (2012) suggested that farmers participation in extension activities like training, demonstration, exhibition, agricultural quiz programs and farmers fair should be increased so that they may learn new things related to improved production technologies of moong bean.

Patel et al. (2012) reported that provision of timely technical guidance, provision of crop loan and provision of reasonable price to the produce were major suggestions offered by non- beneficiaries of FLD on mustard crop.

Amule et al. (2016) carried out demonstration on pigeon pea crop by the active participation of farmer with the objective to harness maximum potential of crop by demonstrating the improved technologies. The improved techniques including use of new high yielding variety, seed treatment, soil test, timely weed management and integrated pest management. The improved technology recorded higher yield of 1310 kg/ha respectively farmers practices 970 kg/hac. On the basis of increase the improve technology gave higher gross return and net return with higher benefit cost ratio against farmers practices.

## Chapter-3

### RESEARCH METHODOLOGY

This chapter deals with the methods and procedures used for conduction of the present research study and presented following sub parts:

1. Location of the study
2. Research design
3. Sampling procedure
4. Data collection method
5. Variable's operationalization and measurement
6. Derivation of hypothesis
7. Statistical test applied

#### **3.1 Location of the study:**

The study has conducted in Sehore district of Madhya Pradesh. Sehore is 37km from the state capital, Bhopal, towards the south-west and on the Bhopal-Indore highway. Its height from mean sea level is between 1500 ft. and 2000 ft. Sehore is situated on the Western Railway line from Bhopal to Ratlam. It is surrounded by 7 districts: Bhopal, Raisen, Harda, Hoshangabad, Dewas, Shajapur and Rajgarh and consists of 8 development blocks. Sehore district lies between latitude 23°12' 0" North latitude and 77° 5' 0" East.

#### **3.2 Research design: -**

In present study ex-post facto research design was used.

#### **3.3 Sampling procedure: -**

A multistage random sampling design was used to select the sample farmers as respondents. These are:

1. Locale of the study
2. Selection of blocks
3. Selection of villages
4. Selection of respondents

### 3.3.1 Local of the study:

The present study was conducted in Sehore district of Madhya Pradesh. The district comprises with five blocks namely, Ashta, Budhni, Nasrullaganj, Ichhawar and Sehore.

### 3.3.2 Selection of block: -

In the first stage the Sehore block was selected purposively due to convenience of researcher as well as maximum numbers of FLDs conducted in sehore block.

### 3.3.3 Selection of village: -

In the second stage the list of villages where the FLDs were conducted, was obtained from pigeon pea project, college of Agriculture Sehore and all the villages will be selected for the study.

### 3.3.4 Selection of respondents: -

Village wise list of FLD farmers was prepared. From this list all the 40 FLD farmers was selected for study. To compare the impact of front line demonstration, 40 pigeon pea growers also was selected from the same villages. For this purpose, a list of pigeon pea growers was prepared who are not selected for front line demonstration and from this list 40 farmers was selected randomly. Thus, total 80 farmers was respondents of present study.

N= 80

S. no	Village	No.of FLD respondents	No. of non- FLD respondents
1	Sehore	10	10
2	Jamoniya	10	10
3	Mograram	10	10
4	Janpur Bavadiya	10	10
Total		40	40

### 3.4 Collection of data: -

Primary data was collected from FLDs farmers with the help of well-structured

pre tested interview schedule by researcher herself. Secondary data was also be collected from different sources (viz. Farmers, project report and agriculture records etc.)

### 3.5 Variables and their measurements:

S.No.	Variable	Measurement
<b>Independent variables</b>		
1	Age	As per chronological age
2	Level of education	Self-scoring
3	Size of land holding	In ha
4	Occupation	Self-scoring
5	Economic motivation	Scale developed by Supe (1969)
6	Risk orientation	Scale developed by Supe (1969)
7	Scientific orientation	Scale developed by Supe (1969)
8	Information seeking behavior	Structured schedule
9	Innovativeness	Structured schedule
10	Social participation	Self-scoring
11	Extension participation	Siddaramaiya and Jalihal (1983)
12	Annual income	Nandapurkar (1982)
<b>Dependent variables</b>		
1	Impact of FLD on area and productivity of pigeon growers.	Index was developed

## Operational definition of variables

### A. Independent variables:

#### 5.3.1 Age:

Age of pigeon pea growers measured as the number of years an individual has completed from the birth at the time of interview and was measured as per chronological age. The following categories of age were formulated.

S. No.	Categories	Scores
1	Young age group (18 to 35 years)	1
2	Middle age group (36 to 50 years)	2
3	Old age group (Above 50 Years)	3

#### 3.5.2. Level of Education:

Education of pigeon pea growers was measured in terms of years of schooling completed by them. The responses of respondent were recorded, categorized and given assigned scores.

S. No	Categories	Scores
1	Illiterate	1
2	primary school	2
3	middle school	3
4	Above high school	4

#### 3.5.3. Size of Land Holding:

It refers to an area of land possessed by an individual for the purpose of cultivation, in hectare. The area of pigeon pea growers was measured with the help of interview schedule.

<b>S. No.</b>	<b>Categories</b>	<b>Scores</b>
1	Small	1 to 2 ha.
2	Medium	2 to 4 ha.
3	Large	Above 4 ha.

#### **3.5.4. Occupation**

It refers to the kind of work done by the respondents for earning their livelihood. This variable categorized into following manner:

<b>S. No.</b>	<b>Categories</b>	<b>Scores</b>
1	Agriculture	1
2	Horticulture	2
3	Dairy	3
4	Others	4

#### **3.5.5. Economic Motivation:**

Economic motivation refers the extent to which individual pigeon pea growers achievement of maximum economic profit through this own farm economic motivation of pigeon pea growers was measured with the help of scale developed by supe (1969). This attitude has 6 statements. The response of the pigeon pea growers was obtained on 4 point continuum i.e. strongly agrees, agrees, undecided and disagree and were given 4,3,2 and 1 scores for positive statement. Reverse of the scoring was used in computation of statement which was considered to be negative direction. The theoretical score range are from 6 to 22. The total scores indicate the degree of economic motivation. On the basis of scores, the respondents were categorized as follows:

<b>S. No.</b>	<b>Categories</b>	<b>Scores</b>
1	Low	6-10
2	Medium	11-16
3	High	17-22

### **3.5.6. Risk orientation:**

It was operationalized as the degree to which a respondent was directed towards as risk and uncertainty and had courage to face the difficulties in farming and was measured with the help of scale developed by supe (1969). This attitude has 6 statements. The response of the pigeon pea growers was obtained on 4 point continuum i.e. strongly agrees, agrees, undecided and disagree and were given 4,3,2 and 1 scores for positive statement. Reverse of the scoring was used in computation of statement which was considered to be negative direction. The theoretical score range are from 6 to 22. The total scores indicate the degree of risk orientation. On the basis of scores, three categories were developed as:

<b>S. No.</b>	<b>Categories</b>	<b>Scores</b>
1	Low	6-7
2	Medium	8-11
3	High	Above 17

### **3.5.7 Scientific Orientation:**

It was defined as the degree to which a respondent was directed to the use of scientific methods in farming, cultivation of crop and decision making and also indicated the attitude of a respondent towards science and measured with the help of scale developed by supe (1969). This attitude has 5 statements. The response of the pigeon pea growers was obtained on 4 point continuum i.e. strongly agrees, agrees, undecided and disagree and were given 4,3,2 and 1 scores for positive statement. Reverse of the

scoring was used in computation of statement which was considered to be negative direction. The theoretical score range are from 6 to 22. The total scores indicate the degree of scientific orientation. On the basis of scores, three categories were developed as:

<b>S. No.</b>	<b>Categories</b>	<b>Scores</b>
1	Low	6-10
2	Medium	11-16
3	High	17-22

### **3.5.8 Information seeking behavior**

Information source utilization refers to the degree of frequency of contact by pigeon pea growers with various information sources. This is the pattern by which pigeon pea grower get information. It was categorized into 3 categories as below:

<b>S. No.</b>	<b>Categories</b>	<b>Scores</b>
1	Low	1
2	Medium	2
3	High	3

### **3.5.9 Innovativeness:**

An idea, practice or object that is perceived as new by an individual or other unit of adoption. Innovativeness is the degree to which an individual adopts new idea or technology relatively earlier than others in his social system. This categorized into three categories and scores were given in following manner.

<b>S. No</b>	<b>Categories</b>	<b>Scores</b>
1	Low	1
2	Medium	2
3	High	3

### **3.5.10 Social participation:**

Social participation defined as a person's involvement in activities that provide interaction with others in the society or the community. The level of social participation were quantified on three point continuum namely regularly, occasionally and never with the score of 3, 2 and 1 respectively. The high scores revealed greater participation of the respondents in social activities. The respondents were categorized into three categories and scores were given in following manner.

<b>S. No.</b>	<b>Categories</b>	<b>Scores</b>
1	Low	Up to 8
2	Medium	9 to15
3	High	Above 15

### **3.5.11 Extension participation:**

It refers to the participation of farmer's in extension activities conducted by any organization and extension agencies. The level of extension participation were quantified on three point continuum namely regularly, occasionally and never with the score of 3, 2 and 1 respectively. The high score revealed greater participation of respondents in extension activities. The extension participation was measured with the help of scale developed by Siddarmaiah and Jalihal (1983).

<b>S. No.</b>	<b>Categories</b>	<b>Scores</b>
1	Low	Up to 4
2	Medium	5 to 7
3	High	8 to 10

### **3.5.12 Annual income:**

It refers to the total income of the respondents earning from farming and allied occupations and other sources. The respondent were classified into three categories on the basis of following range of income.

<b>S.No.</b>	<b>Categories</b>	<b>Scores</b>
1	Low (up to Rs. 50,000)	1
2	Medium (Rs. 50,001 to 70,000)	2
3	High ( Above Rs. 70,000)	3

### **B. Dependent variables:**

#### **3.5.13 Change in area under pigeon pea of FLD**

It refers to a change in area under pigeon pea crop possessed by an individual for purpose of cultivation in hectare. The respondent were categorized into low medium and high in following manner:

<b>S. No.</b>	<b>Categories</b>	<b>Scores</b>
1	Low	Up to 0.50 ha
2	Medium	0.51 to 0.96 ha
3	High	Above 0.96 ha

### **3.5.14 Change in productivity under pigeon pea crop of FLD**

It refers to change in productivity of pigeon pea crop possessed by an individual for productivity in quintal / hectare. The respondent were categorized into low medium and high in following manner:

<b>S .No.</b>	<b>Categories</b>	<b>Scores</b>
1	Low	Up to 6q/ha
2	Medium	6.1 to 11 q/ha
3	High	Above 11 q/ha

### **3.6. Derivation of hypothesis:**

Relevant hypotheses were formulated on the basis of objectives of the study and were tested in the null form. These were:

#### **Hypothesis:**

On the basis of objectives, following null hypothesis have been formulated in order to know the differences and relationship between independent and dependent variables.

a) There is no difference between the characteristics of FLD and non-FLD pigeon pea growers.

1. There is no difference between age of the FLD and non-FLD pigeon pea growers.

2. There is no difference between level of education of the FLD and non-FLD pigeon pea growers.
3. There is no difference between size of land holding of the FLD and non-FLD pigeon pea growers.
4. There is no difference between occupation of the FLD and non-FLD pigeon pea growers.
5. There is no difference between economic motivation of the FLD and non-FLD pigeon pea growers.
6. There is no difference between risk preference of the FLD and non-FLD pigeon pea growers.
7. There is no difference between scientific orientation of the FLD and non-FLD pigeon pea growers.
8. There is no difference between information seeking behavior of the FLD and non-FLD pigeon pea growers.
9. There is no difference between innovation of the FLD and non-FLD pigeon pea growers.
10. There is no difference between social participation of the FLD and non-FLD pigeon pea growers.
11. There is no difference between extension participation of the FLD and non-FLD pigeon pea growers.
12. There is no difference between annual income of the FLD and non-FLD pigeon pea growers.
13. There is no difference between area increment of the FLD and non-FLD pigeon pea growers.
14. There is no difference between productivity increment of the FLD and non-FLD pigeon pea growers.

b) There is no relationship between attributes of respondents and their area and productivity increment through pigeon pea shown in FLD.

1. There is no relationship between age of respondents and their area and productivity increment through pigeon pea shown in FLD.
2. There is no relationship between level of education of respondents and their area and productivity increment through pigeon pea shown in FLD.
3. There is no relationship between size of land holding of respondents and their area and productivity increment through pigeon pea shown in FLD.
4. There is no relationship between occupation of respondents and their area and productivity increment through pigeon pea shown in FLD.
5. There is no relationship between economic motivation of respondents and their area and productivity increment through pigeon pea shown in FLD.
6. There is no relationship between risk preference of respondents and their area and productivity increment through pigeon pea shown in FLD.
7. There is no relationship between scientific orientation of respondents and their area and productivity increment through pigeon pea shown in FLD.
8. There is no relationship between information seeking behavior of respondents and their area and productivity increment through pigeon pea shown in FLD.
9. There is no relationship between innovation of respondents and their area and productivity increment through pigeon pea shown in FLD.
10. There is no relationship between social participation of respondents and their area and productivity increment through pigeon pea shown in FLD.
11. There is no relationship between extension participation of respondents and their area and productivity increment through pigeon pea shown in FLD.
12. There is no relationship between annual income of respondents and their area and productivity increment through pigeon pea shown in FLD.

### 3.7 Statistical test applied:-

Keeping in view the objective of the study and to draw logical conclusion, statistical test i.e. frequency, percentage, mean, standard deviation, t-test and correlation coefficient (r).

#### 1. Percentage:

The term “percentage” means a number or ratio expressed as a fraction of 100. It is denoted by % sign.

$$P = \frac{X}{N} \times 100$$

Where;

P = Percentage

X= Frequencies of respondents

N = Total number of respondents

#### 2. Mean:

Mean will be obtained by dividing the sum of the scores by the total number of cases involved, according to the formula:

$$X = \frac{\sum_{i=1}^n X_i}{N} \quad (i= 1, 2, 3, 4, \dots, n)$$

Where;

X = Mean

$\sum X_i$  = Sum of all the scores in a distribution

n = Number of respondents

N = Total number of respondents

### 3. Standard deviation

Standard deviation is a quantity expressing by how much the members of a group differ from the mean value for the group. The formula for determining standard deviation is

$$S = \sqrt{\frac{\sum (X - \bar{X})^2}{n-1}}$$

Where,

S	=	Standard deviation
X	=	Each value in data set
$\bar{X}$	=	Mean
n	=	No. of cases

### 4. 't' test:

Student's t test will be used for testing the significant difference of mean score of two categories of the respondents in relation to their scientific temperament. For calculating 't', following formula will be used.

$$t = \frac{(\bar{X}_1 - \bar{X}_2)}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$
$$s^2 = \frac{(n_1-1) S_1^2 + (n_2-1) S_2^2}{n_1+n_2}$$

Where,

$\bar{X}_1$  = Mean of first sample

$\bar{X}_2$  = Mean of second sample

$n_1$  = Total number of observation in first sample

$n_2$  = Total number of observation in second sample

## 5. Karl Pearson's Correlation coefficient (r)

To find out the relationship between independent and dependent variables, correlation coefficient will be used:

$$r_{xy} = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{[\sum x^2 - \frac{(\sum x)^2}{n}][\sum y^2 - \frac{(\sum y)^2}{n}]}}$$

Where,

- n = Number of respondents
- x = Independent variables
- y = Dependent variables
- r = Correlation coefficient
- $\sum xy$  = Sum of the product of x and y
- $\sum x$  = Sum of the independent variable
- $\sum y$  = Sum of the dependent variable
- $\sum x^2$  = Sum of square of variable x
- $\sum y^2$  = Sum of square of variable y

### Absolute Change and Relative Change:

The absolute change describes the actual increases or decreases from a reference value to a new value:

$$\text{Absolute change} = \text{New value} - \text{Reference value}$$

The relative change describes the size of the absolute change in comparison to the reference value and can be expressed as a percentage:

$$\text{Relative Change (\%)} = \frac{(\text{Final value} - \text{Initial value})}{\text{Initial value}} \times 100$$

### 3.1 Map of Sehore District:



## Chapter 4

### Result

The present chapter describes the results of the research problem, which has been organized according to the objectives of the study. In other words this chapter deals with the empirical statement of the objectives set fourth for the study. For convenience of interpretation and presentation of facts and findings it has been presented into following sub heads:

4.1 Profile of FLD and non- FLD pigeon pea growers.

4.2 Impact of FLD on area and productivity of pigeon pea growers.

4.3 Relationship between independent and dependent variables of FLD farmers and non-FLD pigeon pea growers.

4.4 Problems faced by the beneficiaries and to suggestions given by them.

#### 4.1 Profile of FLD and non-FLD pigeon pea growers.

##### 4.1.1 Age

**Table 4.1 Distribution of FLD and non-FLD pigeon pea growers according to their age**

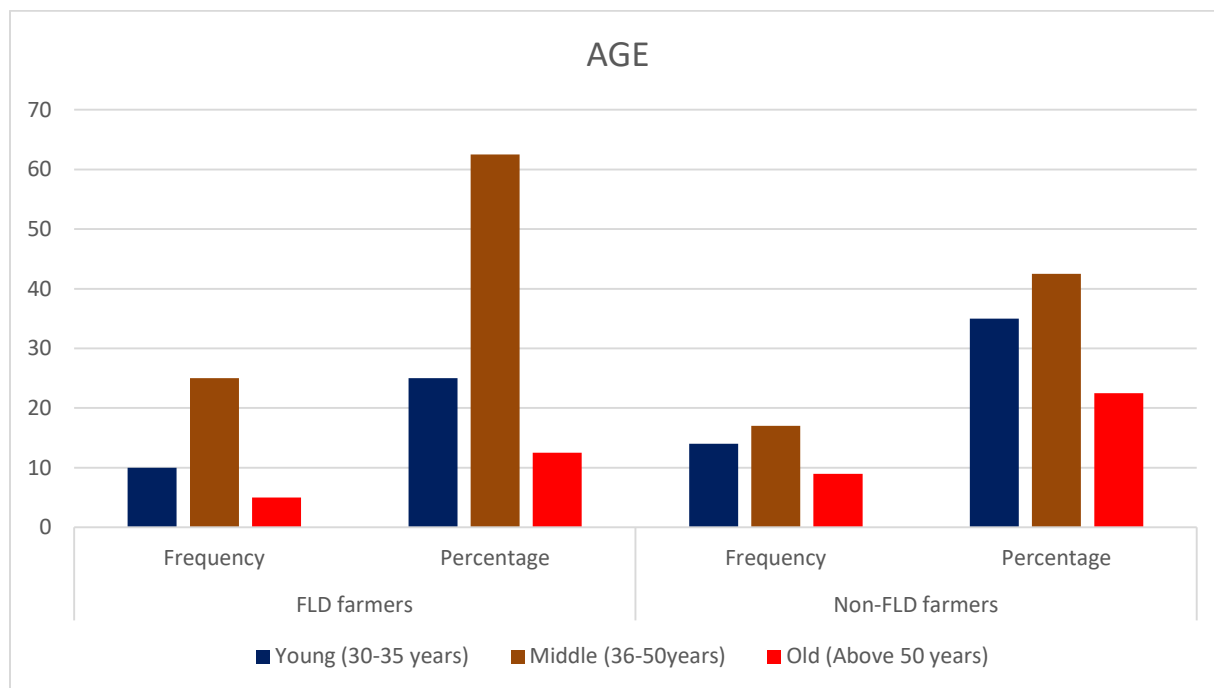
(N = 80)

S. No.	Categories	Beneficiaries (n- 40)		Non-Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Young	10	25.00	14	35.00
2	Middle	25	62.50	17	42.50
3	Old	5	12.50	09	22.50

The data presented in table 4.1 shows that the distribution of Beneficiary and Non-beneficiary farmers according to their age. It was revealed that majority of (62.50%) of beneficiary farmers belongs to middle age group followed by young (25.00%) and old (12.50%) respectively. Similarly, in non-beneficiary farmers maximum

number (42.50%) of them belongs to middle age group followed by young (35.00%) and old age group (22.00%) respectively.

Thus, in both beneficiary farmers and Non-beneficiary farmers most of them were from middle age group.



#### 4.1.2 Education

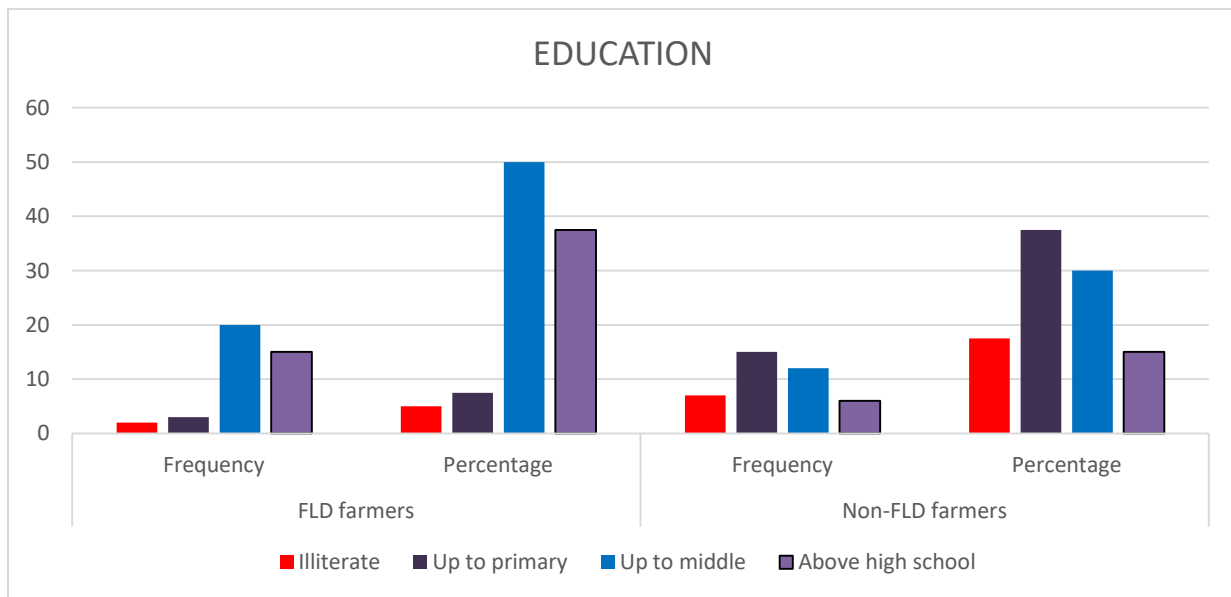
**Table 4.2 Distribution of FLD and non-FLD pigeon pea growers according to their education**

(N = 80)

S. No.	Categories	Beneficiaries (n-40)		Non-Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Illiterate	2	5.00	07	17.50
2	primary	3	7.50	15	37.50
3	Middle	20	50.00	12	30.00
4	Above high school	15	37.50	06	15.00

The data presented in table 4.2 shows that the distribution of FLD and Non FLD pigeon pea growers according to their education. It was revealed that half of FLD pigeon pea growers belonged to middle (50.00%) education group followed by above high school education (37.50%), primary education (7.50%) and illiterate group (5.00%) respectively. Similarly, in non-FLD pigeon pea growers, maximum number (37.50%) of farmers were educated up to primary education, while 30.00 per cent were educated up to middle education, 17.50 per cent were illiterate and 15.00 per cent were educated up to high school respectively.

Thus, in beneficiaries farmers most of them were from middle school and in Non-beneficiaries farmers most of them were from primary education group.



### 4.1.3 Land holding

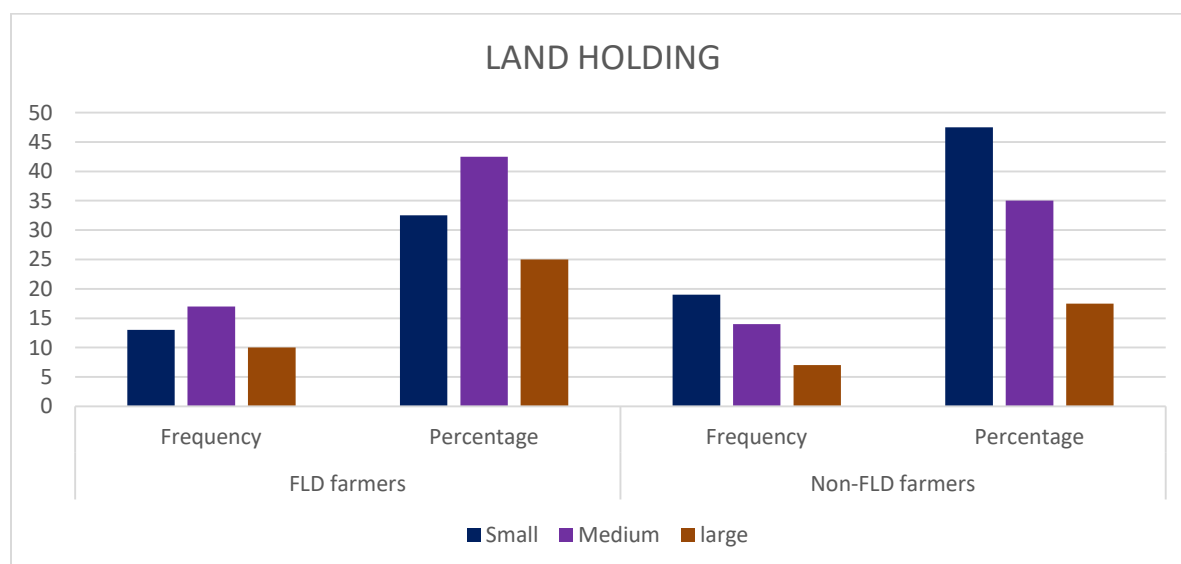
**Table 4.3 Distribution of FLD and non-FLD pigeon pea growers according to their land holding**

(N = 80)

S. No.	Categories	Beneficiaries (n-40)		Non- Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Small	13	32.50	19	47.50
2	Medium	17	42.50	14	35.00
3	large	10	25.00	07	17.50

The data presented in table 4.3 shows that the distribution of beneficiary and Non-beneficiary farmers according to their land holding. It was revealed that majority (42.50%) of beneficiary farmers belongs to medium size of land holding followed by small size (32.50%) and large (25.00%) respectively. Similarly, in non-beneficiary farmers maximum number (47.50%) of them belongs to small size of land holding followed by medium (35.00%) and large (17.50%) respectively.

Thus, in beneficiaries farmers most of them were from medium size of land holding and in Non-beneficiaries farmers most of them pigeon pea were from small size of land holding.



#### 4.1.4 Occupation

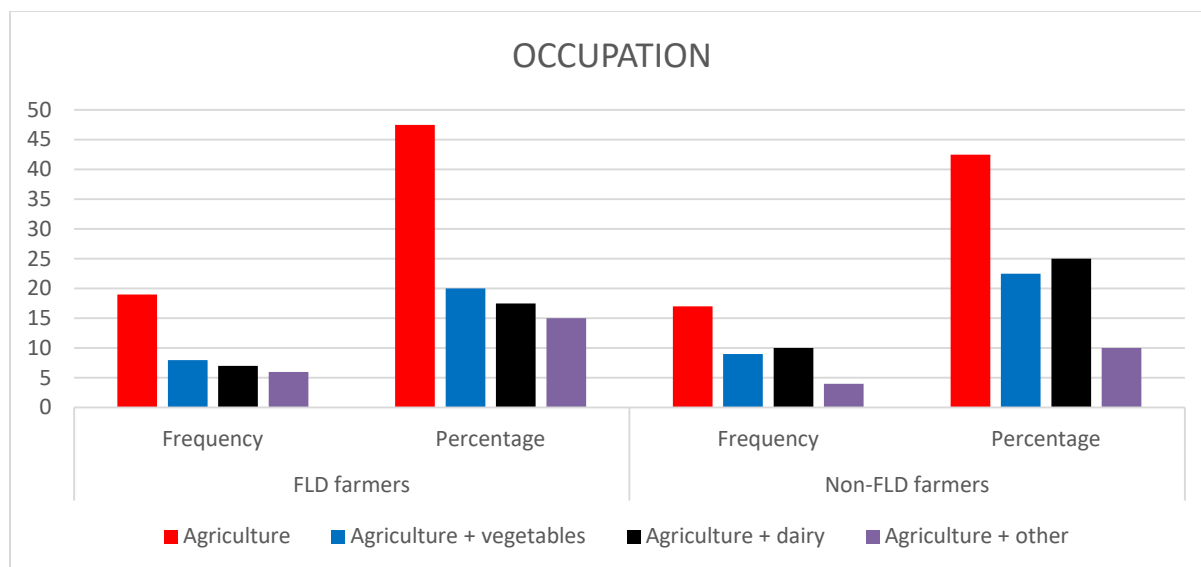
**Table 4.4 Distribution of FLD and non-FLD pigeon pea growers according to their Occupation**

**(N = 80)**

<b>S. No.</b>	<b>Categories</b>	<b>Beneficiaries (n-40)</b>		<b>Non- Beneficiaries (n-40)</b>	
		<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
<b>1</b>	<b>Agriculture</b>	<b>19</b>	<b>47.50</b>	<b>17</b>	<b>42.50</b>
<b>2</b>	<b>Horticulture</b>	<b>08</b>	<b>20.00</b>	<b>09</b>	<b>22.50</b>
<b>3</b>	<b>Dairy</b>	<b>07</b>	<b>17.50</b>	<b>10</b>	<b>25.00</b>
<b>4</b>	<b>Others</b>	<b>06</b>	<b>15.00</b>	<b>04</b>	<b>10.00</b>

The data presented in table 4.4 shows that the distribution of beneficiary and Non-beneficiary farmers according to their occupation. It was revealed that majority (47.50%) of beneficiary farmers belongs to agriculture followed by horticulture (20.00%), dairy (17.50%) and others (15.00%) respectively. Similarly, in non-beneficiary farmers maximum number (42.50%) of them belongs to agriculture followed by dairy (25.00%), horticulture (22.50%) and others (10.00%) respectively.

Thus, in both beneficiary farmers and non-beneficiaries farmers most of them were from agriculture.



#### 4.1.5 Economic motivation

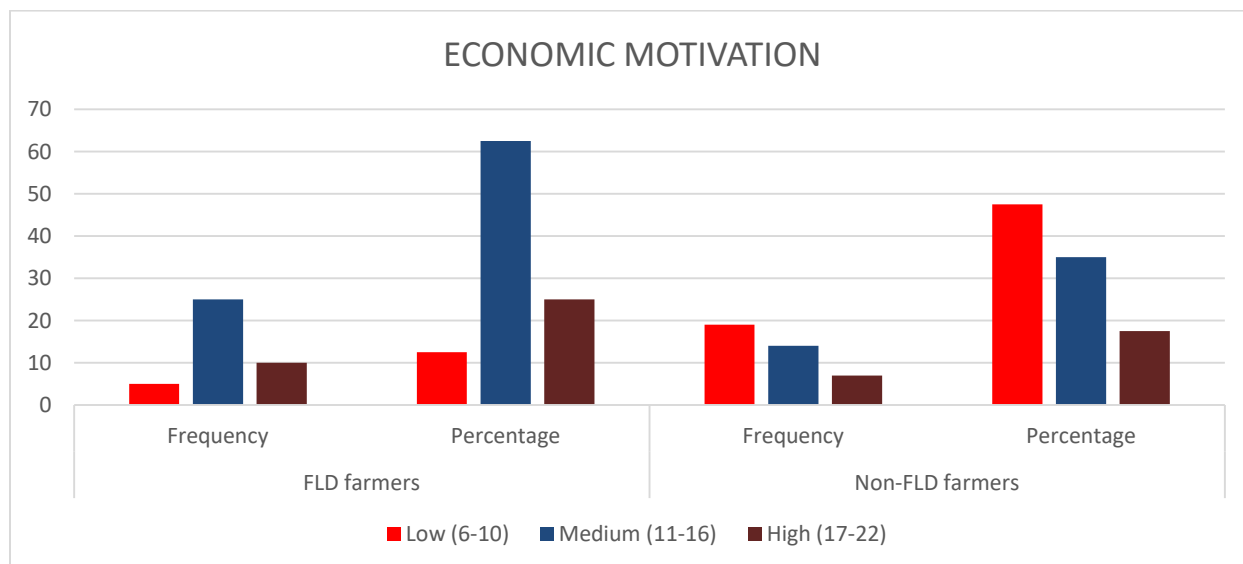
**Table 4.5 Distribution of FLD and non-FLD pigeon pea growers according to their economic motivation**

(N = 80)

S. No.	Categories	Beneficiaries (n-40)		Non- Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Low	05	12.50	19	47.50
2	Medium	25	62.50	14	35.00
3	High	10	25.00	07	17.50

The data presented in table 4.5 shows that the distribution of beneficiary and Non-beneficiary farmers according to their economic motivation. It was revealed that majority (62.50%) of beneficiary farmers belongs to medium economic motivation followed by high (25.00%) and low (12.50%) respectively. Similarly, in non-beneficiary farmers maximum number (47.50%) of them belongs to low economic motivation followed by medium (35.00%) and high (17.50%) respectively.

Thus, in beneficiaries farmers most of them were from medium economic motivation and in Non-beneficiaries farmers most of them were from low economic motivation.



#### 4.1.6 Risk orientation

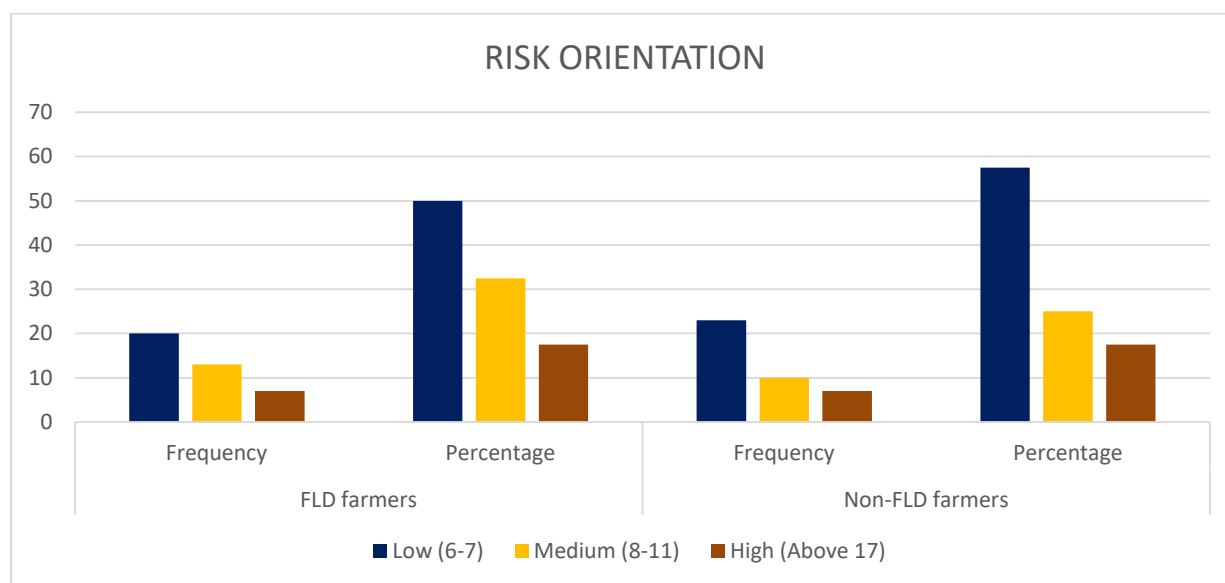
**Table 4.6 Distribution of FLD and non-FLD pigeon pea growers according to their risk orientation**

(N = 80)

S. No.	Categories	Beneficiaries (n-40)		Non- Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Low	20	50.00	23	57.50
2	Medium	13	32.50	10	25.00
3	High	07	17.50	07	17.50

The data presented in table 4.6 shows that the distribution of beneficiary and Non-beneficiary farmers according to their risk orientation. It was revealed that half of FLD pigeon pea growers belonged to low (50.00%) risk orientation followed by medium (32.50%) and high (17.50%) respectively. Similarly, in non-beneficiaries farmers maximum number (57.50%) of them belongs to low risk orientation followed by medium (25.00%) and high (17.50%) respectively.

Thus, in both beneficiary farmers and non-beneficiary farmers most of them were from low risk orientation.



#### 4.1.7 Scientific orientation

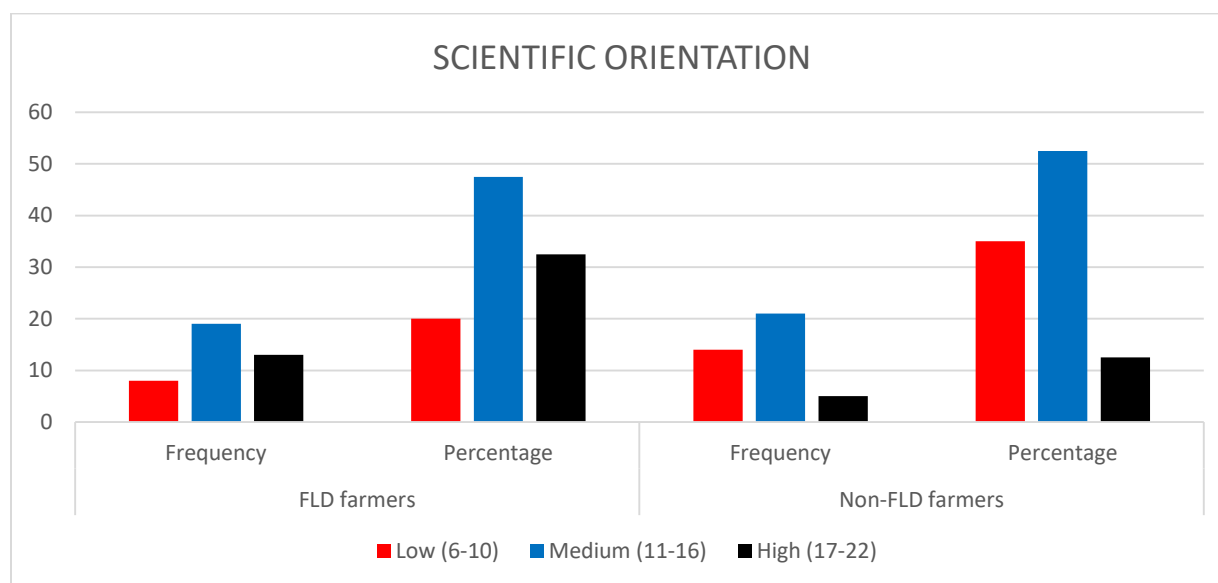
**Table 4.7 Distribution of FLD and non-FLD pigeon pea growers according to their scientific orientation**

(N = 80)

S. No.	Categories	Beneficiaries (n-40)		Non-Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Low	08	20.00	14	35.00
2	Medium	19	47.50	21	52.50
3	High	13	32.50	05	12.50

The data presented in table 4.7 shows that the distribution of beneficiary and Non-beneficiary farmers FLD according to their scientific orientation. It was revealed that majority (47.50%) of beneficiary farmers belonged to medium scientific orientation followed by high (32.50%) and low (20.00%) respectively. Similarly, in non-beneficiary farmers maximum number (52.50%) of them belongs to medium scientific orientation followed by low (35.00%) and high (12.50%) respectively.

Thus, in both beneficiary farmers and non-beneficiary farmers most of them were from medium scientific orientation.



#### 4.1.8 Information seeking behavior

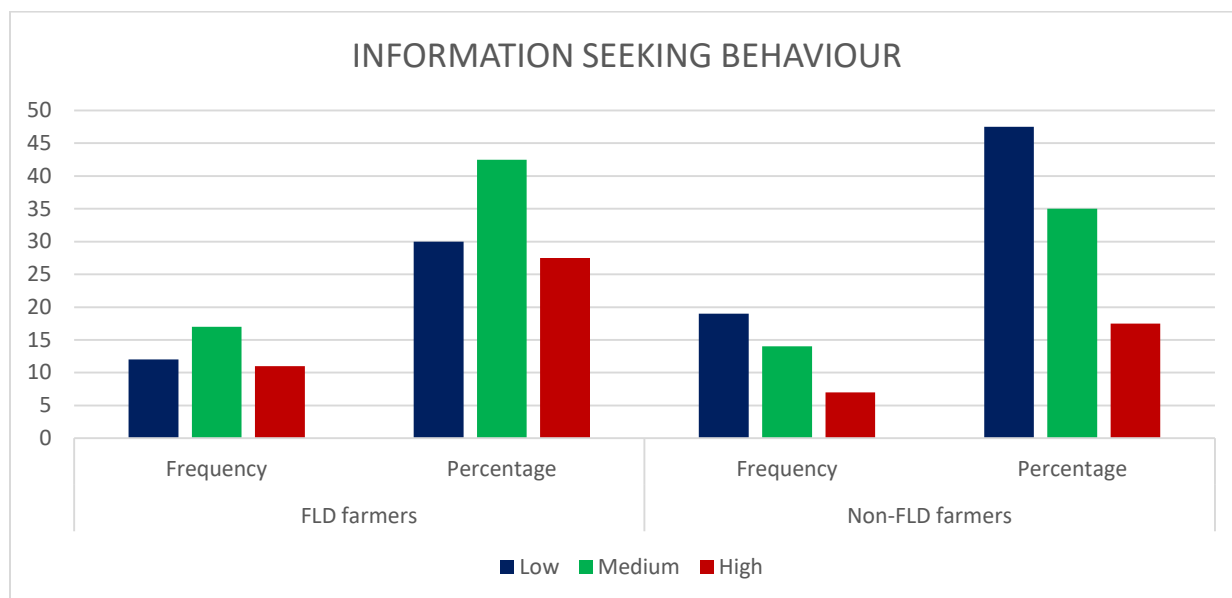
**Table 4.8 Distribution of FLD and non-FLD pigeon pea growers according to their information seeking behavior.**

(N = 80)

S. No.	Categories	Beneficiaries (n-40)		Non- Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Low	12	30.00	19	47.50
2	Medium	17	42.50	14	35.00
3	High	11	27.50	07	17.50

The data presented in table 4.8 shows that the distribution of beneficiary and Non-beneficiary farmers according to their information seeking behavior. It was revealed that majority (42.50%) of beneficiary farmers belongs to medium information seeking behavior followed by low (30.00%) and high (27.50%) respectively. Similarly, in non-beneficiary farmers maximum number (47.50%) of them belongs to low information seeking behavior followed by medium (35.00%) and high (17.50%) respectively.

Thus, in beneficiary farmers most of them were from medium information seeking behavior and in Non-beneficiary farmers most of them were from low information seeking behavior.



#### 4.1.9 Innovativeness

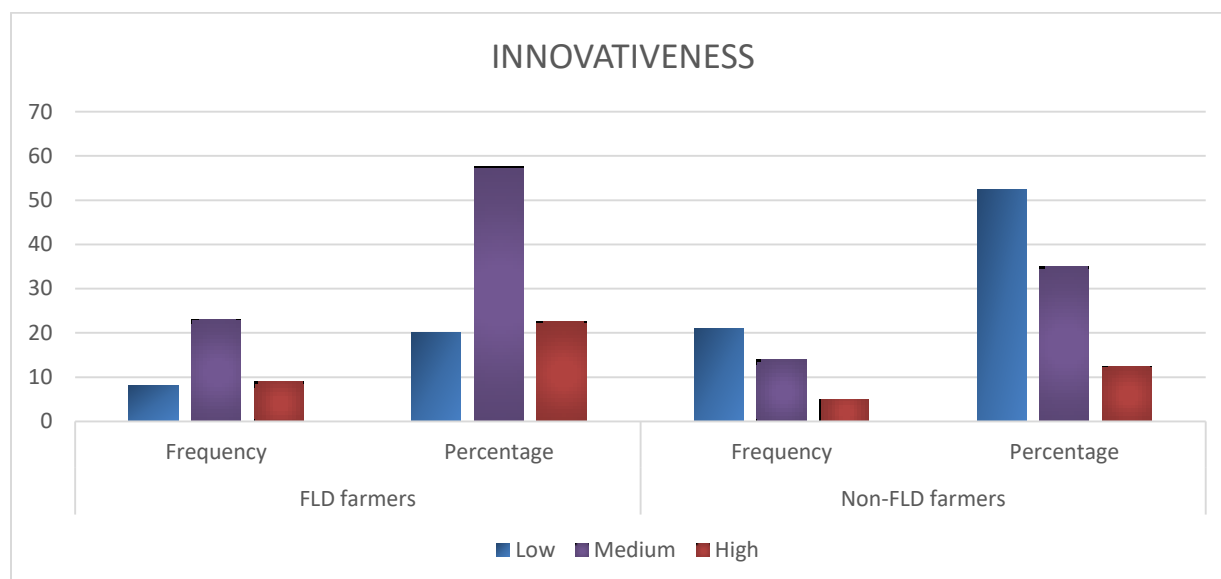
**Table 4.9 Distribution of FLD and non-FLD pigeon pea growers according to their innovativeness**

S. No.	Categories	Beneficiaries (n-40)		Non- Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Low	08	20.00	21	52.50
2	Medium	23	57.50	14	35.00
3	High	09	22.50	05	12.50

The data presented in table 4.9 shows that the distribution of beneficiary and Non- beneficiary farmers according to their innovativeness. It was revealed that majority (57.50%) of beneficiary farmers belongs to medium innovativeness followed by high (22.50%) and low (20.00%) respectively. Similarly, in non-beneficiary farmers maximum

number (52.50%) of them belongs to low innovativeness followed by medium (35.00%) and high (12.50%) respectively.

Thus, in beneficiary farmers most of them were from medium innovativeness and in Non- beneficiary farmers most of them were from low innovativeness.



#### 4.1.10 Social participation

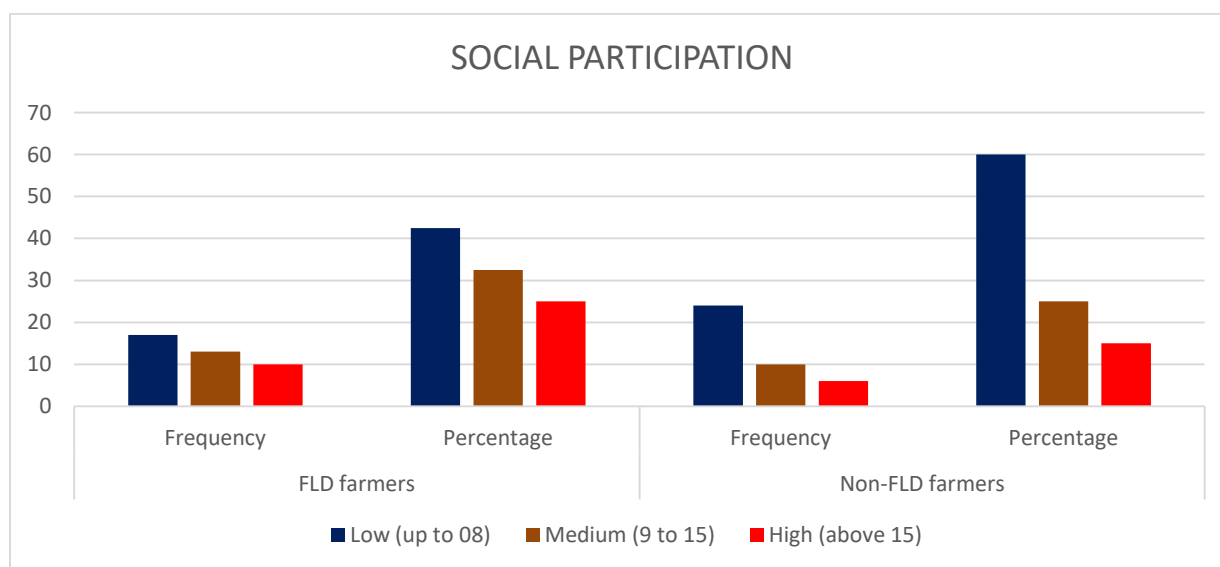
**Table 4.10 Distribution of FLD and non-FLD pigeon pea growers according to their social participation**

S. No.	Categories	Beneficiaries (n-40)		Non- Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Low	17	42.50	24	60.00
2	Medium	13	32.50	10	25.00
3	High	10	25.00	06	15.00

The data presented in table 4.10 shows that the distribution of beneficiary and Non- beneficiary farmers according to their social participation. It was revealed that majority (42.50%) of beneficiary farmers belongs to low social participation followed by medium (32.50%) and high (25.00%) respectively. Similarly, in non-beneficiary farmers

maximum number (60.00%) of them belongs to low social participation followed by medium (25.00%) and high (15.00%) respectively.

Thus, in both beneficiary and non-beneficiary farmers most of them were from low social participation.



#### 4.1.11 Extension participation

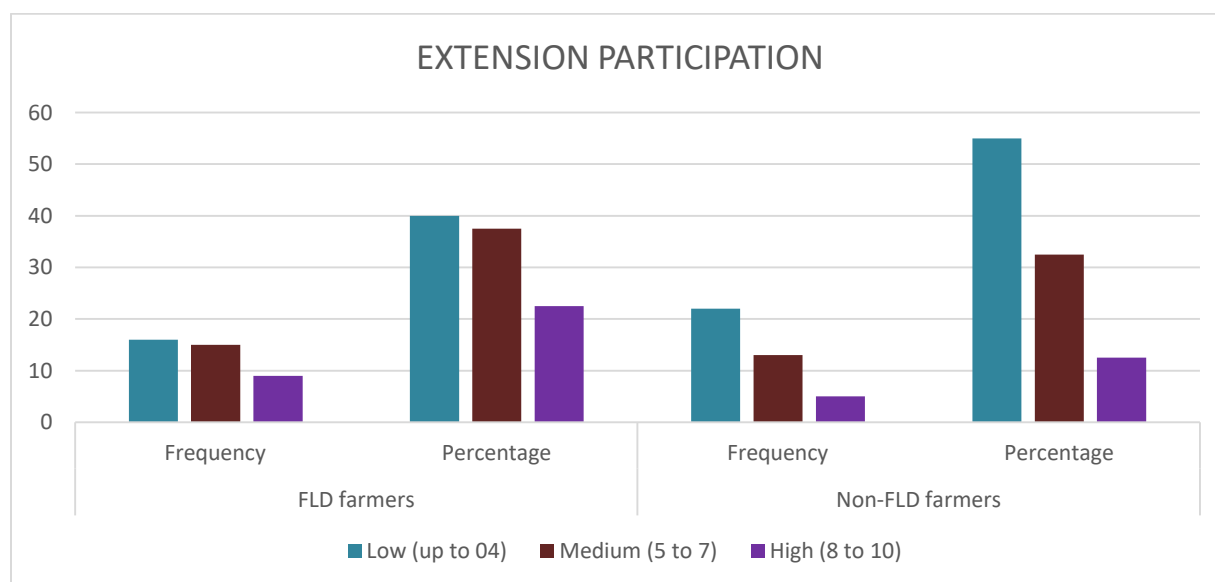
**Table 4.11 Distribution of FLD and non-FLD pigeon pea growers according to their extension participation**

S. No.	Categories	Beneficiaries (n-40)		Non- Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Low	16	40.00	22	55.00
2	Medium	15	37.50	13	32.50
3	High	09	22.50	05	12.50

The data presented in table 4.11 shows that the distribution of beneficiary and Non-beneficiary farmers according to their extension participation. It was revealed that majority (40.00%) of beneficiary farmers belongs to low extension participation followed by medium (37.50%) and high (22.50%) respectively. Similarly, in non-beneficiary

farmers maximum number (55.00%) of them belongs to low extension participation followed by medium (32.50%) and high (12.50%) respectively.

Thus, in both beneficiary and non-beneficiary farmers most of them were from low extension participation.



#### 4.1.12 Annual income

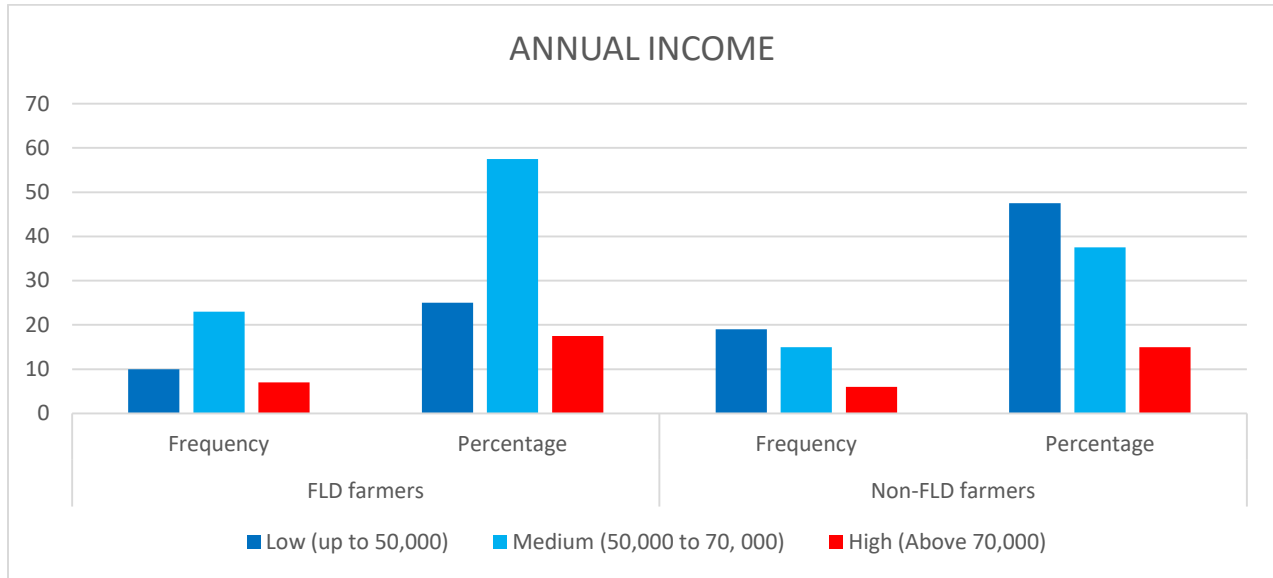
**Table 4.12 Distribution of FLD and non-FLD pigeon pea growers according to their annual income**

S. No.	Categories	Beneficiaries (n-40)		Non- Beneficiaries (n-40)	
		Frequency	Percentage	Frequency	Percentage
1	Low	10	25.00	19	47.50
2	Medium	23	57.50	15	37.50
3	High	07	17.50	06	15.00

The data presented in table 4.12 shows that the distribution of beneficiary and Non-beneficiary farmers according to their annual income. It was revealed that majority (57.50%) of beneficiary farmers belongs to medium annual income followed by low (25.00%) and high (17.50%) respectively. Similarly, in non-beneficiary farmers

maximum number (47.50%) of them belongs to low annual income followed by medium (37.50%) and high (15.00%) respectively.

Thus, in beneficiary farmers most of them were from medium annual income and in Non-beneficiary most of them were from low annual income.



**Table 4.13 Arithmetic mean, standard deviation, and t-value for characteristics between FLD and non-FLD pigeon pea growers.**

Variable		Mean	Std. deviation	t- value
AGE	FLD	41.63	7.80	0.40
	NON FLD	43.28	9.43	
Education	FLD	3.20	0.79	0.00**
	NON FLD	2.43	0.96	
Land Holding	FLD	2.92	1.57	0.27
	NON FLD	2.52	1.60	
Occupation	FLD	2.00	1.13	0.92
	NON FLD	2.03	1.05	
Economic motivation	FLD	14.15	3.36	0.02**
	NON FLD	12.05	4.73	
Risk orientation	FLD	8.98	3.42	0.70
	NON FLD	8.70	2.89	
Scientific orientation	FLD	14.60	4.10	0.01**
	NON FLD	12.20	4.44	
Information Seeking Behavior	FLD	1.98	0.77	0.11
	NON FLD	1.70	0.76	
Innovativeness	FLD	2.03	0.66	0.01**
	NON FLD	1.60	0.71	
Social Participation	FLD	10.95	5.08	0.14
	NON FLD	9.33	4.58	
Extension Participation	FLD	5.20	2.50	0.09
	NON FLD	4.18	2.86	
Annual Income	FLD	55829.95	20143.16	0.24
	NON FLD	49934.43	24240.68	

\*=significant at 0.05 profitability level

\*\*=significant at 0.01 profitability levels

The data indicated in Table 4.13 shows that the arithmetic mean, standard deviation, and t-value of independent variables between FLD and non-FLD pigeon pea growers.

The indicated t-value of age was 0.40 which was significant at 0.05 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between age of FLD and non- FLD pigeon pea growers was rejected.

The indicated t-value of education was 0.00 which was significant at 0.01 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between education of FLD pigeon pea growers and non- FLD pigeon pea growers was rejected.

The indicated t-value of land holding was 0.27 which was significant at 0.05 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between land holding of FLD and non-FLD pigeon pea growers was rejected.

The indicated t-value of occupation was 0.92 which was significant at 0.05 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between occupation of FLD and non-FLD pigeon pea growers was rejected.

The indicated t-value of economic motivation was 0.02 which was significant at 0.01 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between economic motivation of FLD and non-FLD pigeon pea growers was rejected.

The calculated t-value of risk orientation was 0.70 which was significant at 0.05 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between risk orientation of FLD and non-FLD pigeon pea growers was rejected.

The indicated t-value of scientific orientation was 0.01 which was significant at 0.01 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between scientific orientation of FLD and non-FLD pigeon pea growers was rejected.

The indicated t-value of information seeking behavior was 0.11 which was significant at 0.05 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between information seeking behavior of FLD and non-FLD pigeon pea growers was rejected.

The indicated t-value of innovativeness was 0.01 which was significant at 0.01 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between innovativeness of FLD and non-FLD pigeon pea growers was rejected.

The indicated t-value of social participation was 0.14 which was significant at 0.05 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between social participation of FLD and non-FLD pigeon pea growers was rejected.

The calculated t-value of extension participation was 0.09 which was significant at 0.05 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between extension participation of FLD and non-FLD pigeon pea growers was rejected.

The indicated t-value of annual income was 0.24 which was significant at 0.05 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between annual income of FLD and non-FLD pigeon pea growers was rejected.

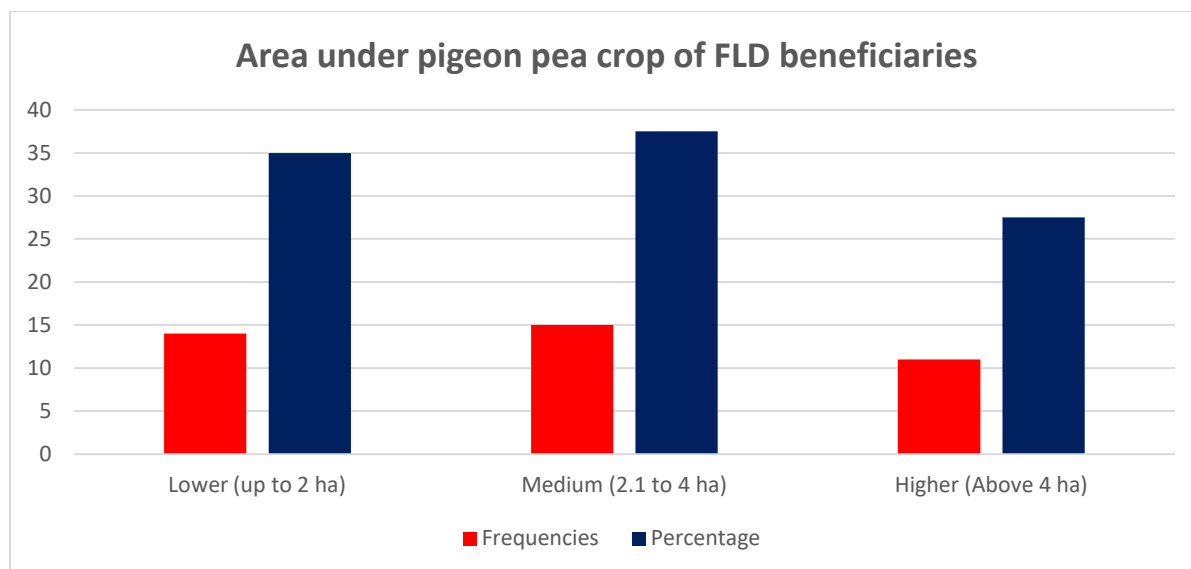
#### 4.2 Impact of FLD on area and productivity of pigeon pea growers:

**Table 4.14 Absolute change and relative change in area under pigeon pea crop of FLD beneficiaries.**

<b>S. no</b>	<b>Categories</b>	<b>Frequencies</b>	<b>Absolute change (ha)</b>	<b>Relative change (%)</b>
<b>1.</b>	Small	14(35)	0.58	46.00
<b>2.</b>	Medium	15(37.5)	0.91	52.00
<b>3.</b>	Large	11(27.5)	1.04	38.5
<b>Average</b>			<b>0.84</b>	<b>45.5</b>

Table: 4.14 shows that the absolute change and relative change in area of FLD pigeon pea growers after conducting FLD on their field. The data indicated that the FLD pigeon pea growers having small area (up to 2 ha) had absolute change of 0.58 and relative change of 46.00 percent of area under pigeon pea crop, while FLD pigeon pea growers having medium area (2.1 to 4 ha) had absolute change of 0.91 and relative change 52.00 percent of area under pigeon pea crop and FLD pigeon pea growers having large area (above 4 ha) had absolute change 1.04 and relative change 38.50 percent in area under pigeon pea crop.

Thus, the overall average of absolute change in area under pigeon pea crop was 0.84 and relative change in area under pigeon pea crop was 45.50 percent.

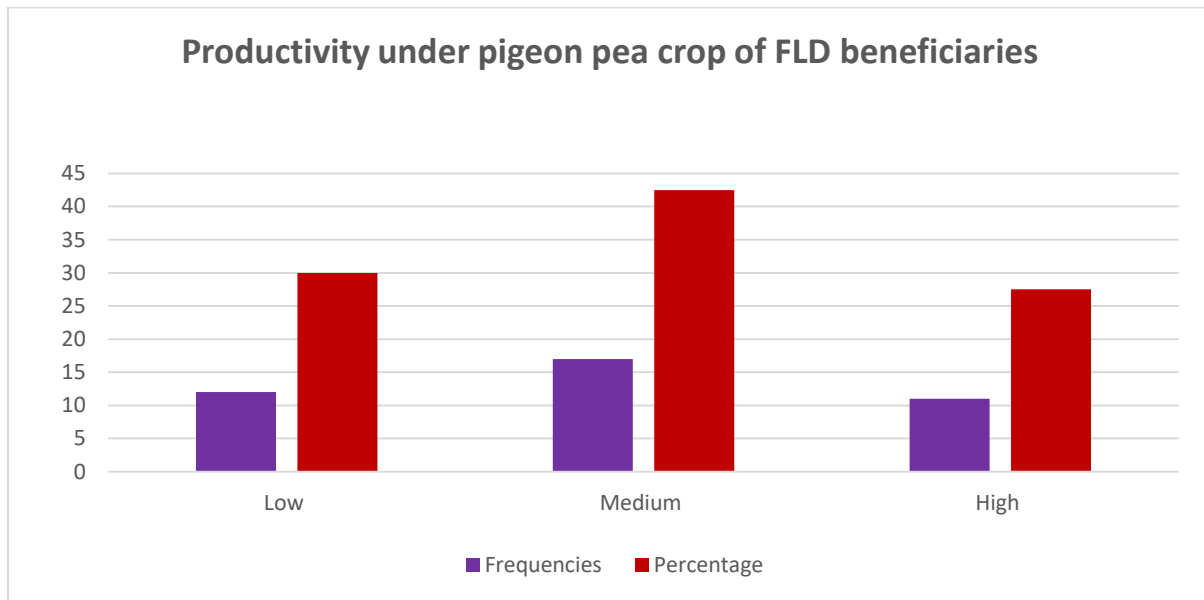


**Table 4.15 Absolute change and relative change in productivity of pigeon pea crop of FLD beneficiaries**

S. no.	Categories	Frequencies	Absolute change (q/ha)	Relative change (%)
1.	Low	12(30)	4.2	21.5
2.	Medium	17(42.5)	8.70	40.5
3.	High	11(27.5)	11.85	54.5
<b>Average</b>			<b>8.25</b>	<b>38.8</b>

Table 4.15 shows that the absolute change and relative change in productivity of FLD pigeon pea growers after conducting FLD on their field. The data indicated that the FLD pigeon pea growers including low productivity had absolute change of 4.2 and relative change of 21.50 percent of productivity under pigeon pea crop, while FLD pigeon pea growers including medium productivity had absolute change of 8.70 and relative change 40.50 percent of productivity under pigeon pea crop and FLD pigeon pea growers including high productivity had absolute change 11.85 and relative change 54.50 percent in productivity under pigeon pea crop.

Thus, the overall average of absolute change in productivity under pigeon pea crop was 8.25 and relative change in area under pigeon pea crop was 38.8 percent.



**Table 4.16 Mean, S.D. and t- value for change in area under pigeon pea crop between FLD pigeon pea growers and non-FLD pigeon pea growers:**

S. No.	Beneficiaries	Mean	S.D.	t-value
1	FLD	0.84	0.27	7.94*
2	NON FLD	0.24	0.17	

\*=significant at 0.05 profitability level

The presented t-value of area under pigeon pea crop between FLD and non-FLD pigeon pea growers was 7.94 which was found to be significant at 0.05 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between change in area of FLD pigeon pea growers and non-FLD pigeon pea growers under pigeon pea crop is rejected. Hence it can be gathered that there is significant difference between change in area of FLD and non-FLD pigeon pea growers.

**Table 4.17 Mean, S.D. and t- value for change in productivity under pigeon pea crop between FLD pigeon pea growers and non-FLD pigeon pea growers:**

S. No.	Beneficiaries	Mean	S.D.	t-value
1	FLD	8.25	2.214	16.74*
2	NON FLD	2.75	1.67	

\*=significant at 0.05 profitability level

The presented t-value of productivity under pigeon pea crop between FLD and non-FLD pigeon pea growers was 16.74 which was found to be significant at 0.05 profitability level. Thus, mentioned earlier null hypothesis that there is no difference between change in productivity of FLD pigeon pea growers and non-FLD pigeon pea growers under pigeon pea crop is rejected. Hence it can be gathered that there is significant difference between change in productivity of FLD and non-FLD pigeon pea growers.

#### **4.3 Relationship between independent and dependent variables of FLD pigeon pea growers and non-FLD pigeon pea growers.**

Table 4.18 Correlation between independent variables with area and productivity of FLD pigeon pea growers and non-FLD pigeon pea growers.

Variable		Area	Productivity
AGE	FLD	.474 <sup>NS</sup>	.433 <sup>NS</sup>
	NON FLD	.389 <sup>NS</sup>	.320 <sup>NS</sup>
Education	FLD	.617**	.634**
	NON FLD	.367*	.400*
Land Holding	FLD	.967**	.995**
	NON FLD	.673**	.688**
Occupation	FLD	.786**	.825**
	NON FLD	.760**	.721**
Economic motivation	FLD	.814**	.793**
	NON FLD	.685**	.651**
Risk orientation	FLD	.681**	.727**
	NON FLD	.518**	.522**
Scientific orientation	FLD	.774**	.789**
	NON FLD	.715**	.760**
Information Seeking Behavior	FLD	.897**	.918**
	NON FLD	.774**	.786**
Innovativeness	FLD	.743**	.796**
	NON FLD	.523**	.451**
Social Participation	FLD	.418 <sup>NS</sup>	.410 <sup>NS</sup>
	NON FLD	.312 <sup>NS</sup>	.381 <sup>NS</sup>
Extension Participation	FLD	.814**	.853**
	NON FLD	.667**	.708**
Annual Income	FLD	.732**	.718**
	NON FLD	.544**	.512**

\* indicates correlation is significant at the 0.05 level (2-tailed).

\*\* indicates correlation is significant at the 0.01 level (2-tailed).

NS indicates No significance

The correlation coefficient ('r') between age and area was acquired 0.474 of FLD and 0.389 of non-FLD pigeon pea growers. Similarly, productivity was acquired 0.433 of FLD and 0.320 of non-FLD pigeon pea growers, which is non-significant at 0.05 profitability level. Consequently, it can be gathered that age has no relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between education and area was acquired 0.617 and productivity was acquired 0.634 of FLD pigeon pea growers, which is significant at 0.01 profitability level. Similarly in non-FLD area was acquired 0.367 and productivity was acquired 0.400, which significant at 0.05 profitability level. Therefore, it can be

gathered that education has positive and significant relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between land holding and area was obtained 0.967 of FLD and 0.673 of non-FLD pigeon pea growers. Similarly, productivity was obtained 0.995 of FLD and 0.688 of non-FLD pigeon pea growers. Which is significant at 0.01profitability level. Consequently, it can be gathered that land holding has positive and significant relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between occupation and area was revealed the value 0.786 of FLD and 0.760 of non-FLD pigeon pea growers. Similarly, productivity was revealed the value 0.825 of FLD and 0.721 of non-FLD pigeon pea growers, which is significant at 0.01 profitability level. Consequently, it can be gathered that occupation has positive and significant relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between economic motivation and area was acquired 0.814 of FLD and 0.685 of non-FLD pigeon pea growers. Similarly, productivity was acquired 0.793 of FLD and 0.651 of non-FLD pigeon pea growers, which is significant at 0.01profitability level. Therefore, it can be gathered that economic motivation has positive and significant relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between risk orientation and area was revealed the value 0.681 of FLD and 0.518 of non-FLD pigeon pea growers. Similarly, productivity was revealed the value 0.727 of FLD and 0.522 of non-FLD pigeon pea growers, which is significant at 0.01 profitability level. Therefore, it can be gathered that risk orientation has positive and significant relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between scientific orientation and area was acquired 0.774 of FLD and 0.715 of non-FLD pigeon pea growers. Similarly, productivity was acquired 0.789 of FLD and 0.760 of non-FLD pigeon pea growers, which is

significant at 0.01 profitability level. Therefore, it can be gathered that scientific orientation has positive and significant relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between information seeking behavior and area was acquired 0.897 of FLD and 0.774 of non-FLD pigeon pea growers. Similarly, productivity was acquired 0.918 of FLD and 0.786 of non-FLD pigeon pea growers, which is significant at 0.01 profitability level. Therefore, it can be gathered that information seeking behavior has positive and significant relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between innovativeness and area was obtained 0.743 of FLD and 0.523 of non-FLD pigeon pea growers. Similarly, productivity was obtained 0.796 of FLD and 0.451 of non-FLD pigeon pea growers, which is significant at 0.01 profitability level. Consequently, it can be gathered that innovativeness has positive and significant relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between social participation and area was acquired 0.418 of FLD and 0.312 of non-FLD pigeon pea growers. Similarly, productivity was acquired 0.410 of FLD and 0.381 of non-FLD pigeon pea growers, which is non-significant at 0.05 profitability level. Therefore, it can be revealed that social participation has no relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between extension participation and area was acquired 0.814 of FLD and 0.667 of non-FLD pigeon pea growers. Similarly, productivity was acquired 0.853 of FLD and 0.708 of non-FLD pigeon pea growers, which is significant at 0.01 profitability level. Therefore, it can be concluded that extension participation has positive and significant relation with area and productivity of FLD and non-FLD pigeon pea growers.

The correlation coefficient ('r') between annual income and area was acquired 0.732 of FLD and 0.544 of non-FLD pigeon pea growers. Similarly, productivity was acquired 0.718 of FLD and 0.512 of non-FLD pigeon pea growers, which is significant at

0.01 profitability level. Therefore it can be determined that annual income has positive and significant relation with area and productivity of FLD and non-FLD pigeon pea growers.

#### 4.4 Problems faced by the beneficiaries and suggestions given by them.

**Table 4.19 Problems faced by FLD pigeon pea growers**

<b>S. No</b>	<b>Problems</b>	<b>No. of respondent</b>	<b>Percentage</b>	<b>Rank</b>
<b>1</b>	Lower price at the time of harvesting	<b>40</b>	<b>80.00</b>	<b>I</b>
<b>2</b>	High infestation of insects	<b>30</b>	<b>60.00</b>	<b>II</b>
<b>3</b>	Lack of technical knowledge	<b>17</b>	<b>34.00</b>	<b>III</b>
<b>4</b>	FLD pigeon pea growers have lack of capital	<b>4</b>	<b>8.00</b>	<b>V</b>
<b>5</b>	Lack of irrigation facilities	<b>15</b>	<b>30.00</b>	<b>IV</b>

Table 4.19 presented the problems faced by beneficiaries of pigeon pea growers. The data indicate that the 80.00 per cent (rank 1<sup>st</sup>) of farmers faced major problem of lower price at the time of harvesting, 60.00 per cent (rank 2<sup>nd</sup>) of farmers faced high infestation of insects, 34.00 per cent (rank 3<sup>rd</sup>) farmers faced lack of technical

knowledge, 8.00 per cent (rank 5<sup>th</sup>) of farmers faced lack of capital and 30.00 per cent (rank 4<sup>th</sup>) farmers faced lack of irrigation facilities.

**Table 4.20 Suggestions made by FLD pigeon pea growers.**

<b>S. No</b>	<b>Suggestions</b>	<b>No. of respondent</b>	<b>Percentage</b>	<b>Rank</b>
<b>1</b>	Seed, fertilizer and other inputs should be given in proper time.	<b>40</b>	<b>80.00</b>	<b>I</b>
<b>2</b>	Proper marketing system should be available in the area.	<b>30</b>	<b>60.00</b>	<b>III</b>
<b>3</b>	Timely availability of plant protection chemicals.	<b>37</b>	<b>74.00</b>	<b>II</b>
<b>4</b>	Irrigation facilities should be available at the time.	<b>20</b>	<b>40.00</b>	<b>IV</b>
<b>5</b>	Loan facilities should be provided in time.	<b>4</b>	<b>8.00</b>	<b>V</b>

Table 4.20 indicates the suggestions given by FLD beneficiaries. Data revealed that higher percentage of seed fertilizer and other input should be given in proper time 80.00 per cent (rank 1<sup>st</sup>), proper marketing system should be available in the area 60.00 per cent (rank 3<sup>rd</sup>), timely availability of plant protection chemicals 74.00 per cent (rank 2<sup>nd</sup>), irrigation facilities should be available at the time 40.00 per cent (rank 4<sup>th</sup>), loan facilities should be provided in time 8.00 per cent (rank 5<sup>th</sup>).

## **CHAPTER-5**

### **DISCUSSION**

Scientific investigation helps in determining appropriate methods and procedures for conducting research. The available literatures are directly, indirectly related to the present study and their object and the findings presented under the following sub heads:

- 1) Profile of FLD and non-FLD pigeon pea growers.
- 2) Impact of FLD on area and productivity of pigeon pea growers.
- 3) Relationship between independent and dependent variable of FLD and non-FLD pigeon pea growers.
- 4) Problem faced by the beneficiaries and to suggestions given by them.

#### **5.1 Profile of FLD and non-FLD farmers.**

The attributes of FLD and non-FLD pigeon pea growers namely personal, socio-personal, economical, psychological and communicational has been studied and findings of each attribute of FLD and non-FLD pigeon pea growers is described along with the logical support.

The study shows that majority of the respondents from both the groups belongs to middle age (36-50 years). The finding was similar to Patel (2006), Prasad (2017), Kumari (2015).

The study shows that majority of FLD pigeon pea growers belongs to middle education (50.00%) and non-FLD belongs to primary education (37.50%). The finding was similar to Patidar (2011), Nagle (2011), Parmar (2014).

The study revealed that majority of FLD pigeon pea growers belongs to medium size of land holding (42.50%) and non-FLD pigeon pea growers belongs to small (47.50%) size of land holding. The finding was similar to Jatav (2010), Patidar (2011), Prasad (2017).

The study shows that majority of FLD pigeon pea growers (47.50%) and non-FLD pigeon pea growers (42.50%) depends on their own cultivation. The finding was supported by Singh (2009).

The study revealed that majority of FLD pigeon pea growers belongs to medium (62.50%) economic motivation and non-FLD belongs to low (47.50%) economic motivation. The finding was similar to Prasad (2017).

The study shows that majority of respondents from both the groups belongs to low risk orientation of FLD (50.00%) and non-FLD (57.50%). The finding was similar to Mandloi (2007).

The study shows that majority of respondents from both the groups belongs to medium scientific orientation of FLD pigeon pea growers (47.50%) and non-FLD pigeon pea growers (52.50%). The finding was similar to Channappa (2018).

The study revealed that majority of FLD pigeon pea growers belongs to medium (42.50%) information seeking behavior and non-FLD pigeon pea growers belongs to low (47.50%) information seeking behavior. The finding was similar to Raghuwansi (2012).

The study shows that majority of FLD pigeon pea growers belongs to medium (57.50%) innovativeness and non-FLD belongs to low (52.50%) innovativeness. The finding was similar to Muttanna (2013) and Chaitra (2014).

The study shows that majority of social participation belongs to both FLD (42.50%) and non-FLD (60.00%) to low social participation. The finding was similar to Rajput (2006).

The study revealed that majority of respondents from both the groups belongs to low extension participation of FLD (40.00%) and non-FLD (55.00%) pigeon pea growers. The finding was similar to Doddamani (2010)

The study shows that majority of FLD pigeon pea growers belongs to medium (57.50%) annual income and non-FLD pigeon pea growers belongs to low (47.50%) annual income. The finding was similar to Prajapati (2016) and Patel (2006).

The t-value of age, education, size of land holding, occupation, economic motivation, risk orientation, scientific orientation, information seeking behavior, innovativeness, social participation, extension participation and annual income was found to be significant. The finding was supported by Verma (2013), Dayaram (2010), Jatav (2010), Tala (2011).

## **5.2 Impact of FLD on area and productivity of pigeon pea growers.**

Along with FLD pigeon pea growers in area under pigeon pea crop there was 45.5 percent relative change and 38.8 percent relative change in productivity of pigeon pea crop shown in front line demonstration.

The t-value of area and productivity increment was found to be highly significant between FLD and non-FLD pigeon pea growers.

## **5.3 Relationship between independent and dependent variables of FLD and non-FLD pigeon pea growers.**

The study indicated that independent variables namely education, size of land holding, occupation, economic motivation, risk orientation, scientific orientation, information seeking behavior, innovativeness, extension participation and annual income was significantly related with their area and productivity during front line demonstrated pigeon pea shown in farmer field. Hence, it rejected the null hypothesis that “there was significant relation between age, education, size of land holding, occupation, economic motivation, risk orientation, scientific orientation, information seeking behavior, innovativeness, social participation, extension participation and annual income with their area and productivity during FLD pigeon pea growers”. Hence null hypothesis is rejected. The finding is similar to Verma (2013), Dayaram (2010), Jatav (2010), Tala (2011).

Further it was indicated that independent variables namely age and social participation had no significant relation with their area and productivity during front line demonstrated pigeon pea shown in farmer field. Hence, it accepted the null hypothesis that “there was non- significant relation between age and social participation with their

area and productivity during FLD pigeon pea growers". Hence null hypothesis is accepted. The finding was similar to Jatav (2010), Tala (2011).

#### **5.4 Problem faced by the beneficiaries and to suggestions given by them.**

It is measured from the data presented that the major problems observed by FLD pigeon pea growers were lower price at the time of harvesting, infestation of insect and pest highly, lack of technical knowledge, FLD pigeon pea growers have lack of capital and lack of irrigation facilities. The finding was similar to Borole (2010), Tawle and Pawar (2011).

The study indicated that the FLD farmers under pigeon pea crop. Majority of the respondent suggested that higher percentage of seed, fertilizers & other input provide in proper time, after that timely availability of plant protection chemicals, proper marketing system should be available in area and irrigation facilities should be available at the time, loan facilities should be provided in time. The finding was similar to Patel (2012), Amule (2016).

## CHAPTER- 6

### SUMMARY, CONCLUSION AND SUGGESTIONS

#### 6.1 Summary:

Pigeon pea (*cajanus cajan*) commonly known as red gram or tur is a very old crop of the country. After gram, arhar is second most important pulse crop in the country. It mainly eaten in the form of split pulses as `dal` seeds of arhar are also rich in iron, iodine, essential amino acids like lycine, threonine, cystine and arginine etc.

Front line demonstrations (FLDs) are the concept of field demonstration evolved by the Indian council of agriculture research (ICAR) with the inception of the technology mission on oil seed crops (TMOs) during mid-eighties. The field demonstration conducted under the close supervision of scientists of the national agriculture research system is called front line demonstration, because the technologies are demonstrated for the first time by the scientists themselves before being fed into the main extension system of the state departments of agriculture.

1. Profile of FLD and non-FLD pigeon pea growers.
2. Impact of FLD on area and productivity of pigeon pea growers.
3. Relationship between independent and dependent variables of FLD pigeon pea growers.
4. Problem faced by the beneficiaries and to suggestions given by them.

According to these objectives, the study was conducted in Sehore district of Madhya Pradesh during 2019-20. The district comprises with five blocks namely, Astha, Budhni, Nasrullaganj, Icchawer and Sehore. The Sehore block selected purposely and the list of villages obtained from pigeon pea project, college of agriculture Sehore. Four villages and 40 FLD and 40 non-FLD pigeon pea growers are selected randomly. Thus the 80 respondent were selected for the study. The data collection of FLDs pigeon pea growers with the help of pre tested interview schedule using survey method.

For the study selected variables is 12, independent variable namely age, education, size of land holding, occupation, economic motivation, risk orientation, scientific orientation, information seeking behavior, innovativeness, social participation, extension participation and annual income and dependent variable, impact of FLD on area and productivity of pigeon pea growers.

Statistical analyzed and tabulated using frequency, percentage, arithmetic mean, standard deviation, t-value and correlation between independent and dependent variables.

### **1. Profile of FLD and non-FLD pigeon pea growers.**

The traits are personal, socio-economical, social, psychological and communicational have been studied. On the basis of calculation the majority of FLD pigeon pea growers belongs to middle age, middle school level of education, medium size of land holding, medium economic motivation, medium type of scientific orientation, medium information seeking behavior, medium innovativeness and medium annual income. The majority of non-FLD pigeon pea growers belongs to middle age, primary education, small size of land holding, low economic motivation, medium scientific orientation, low information seeking behavior, low innovativeness and low income.

The majority of FLD pigeon pea growers and non-FLD belongs to occupation depends upon their own cultivation.

The majority of FLD and non-FLD pigeon pea growers belongs to low risk orientation, low social participation and low extension participation.

### **2. Impact of FLD on area and productivity of pigeon pea growers.**

Along with FLD pigeon pea growers in area under pigeon pea crop there was 45.5 percent relative change and 38.8 percent relative change in productivity of pigeon pea crop shown in front line demonstration.

The t-value of area and productivity increment was found to be highly significant between FLD and non-FLD pigeon pea growers.

### **3. Relationship between independent and dependent variables of FLD and non-FLD pigeon pea growers.**

The study shows that the education, size of land holding, occupation, economic motivation, risk orientation, scientific orientation, information seeking behavior, innovativeness, extension participation and annual income had significant relation with their area and productivity increment of FLD pigeon pea growers.

Further study shows that the age and social participation had no significant relation with their area and productivity of FLD pigeon pea growers.

### **4. Problem faced by the beneficiaries and to suggestions given by them.**

It is observed from the data presented that the major problems indicated by FLD pigeon pea growers were lower price at harvesting, infestation of insect and pest highly, lack of irrigation facility, lack of technical knowledge and FLD pigeon pea growers have lack of capital.

The study indicated that the FLD pigeon pea growers under pigeon pea crop. Majority of the respondent suggested that higher percentage of seed, fertilizers & other input provide in proper time, timely availability of plant protection chemicals, proper marketing system should be available in area, irrigation facilities should be available at the time and loan facilities should be provided in time.

### **Conclusion:**

In front line demonstrated field shows that the higher percentage of production and productivity increases over traditional practices. Every farmer should be adopted improved practices of pigeon pea to enhance the more growth of their crop and also suggest other farmers for adoption of new technology.

The FLDs shows that great impact on the use or improved practices, varieties, intercultural operation and other recommended practices under study of pigeon pea crop. Overall trend in conducted front line demonstration in field of pigeon pea was increased production and relative change in area 45.5% and relative change in productivity 38.8%. There was a positive impact of the FLD program in enhancing

productivity. Therefore, it is recommended that extension agencies engaged in application of agriculture technologies and FLDs on farmer field in large scale.

**Suggestions:**

1. Since the present study indicates that the field functionaries and scientists of pigeon pea research project of college should maintain the regularity of supervision on farmers field and motivate the farmers for become more innovative and involved in awareness.
2. It is suggested that the farmers to use of front line demonstration trials field as a transfer of technology tool.
3. It is suggested that technical guidance and advanced practices applied in their demonstration trials field and maintained contact to farmers in daily basis.
4. Analysis of their problems and give suggestions for effective production and give awareness for any constraints develop in their work.
5. Supply of input and fertilizers on time and give information of any government policies and price change.
6. It is suggested that provide adequate financial support to FLDs program under the close supervision of agricultural scientists.

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## CURRICULUM VITAE

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For the partial fulfillment of the master's degree programme she was allotted a research problem on **“A Study on Impact of Front Line Demonstration on Area and Productivity of Pigeon pea growers in Sehore district (M.P.)”** which was successfully conducted by her and being submitted in the form of this thesis.