



**A study on adoption behaviour about mustard production technology  
among the farmers of Sabalgarh block  
of Morena district (M.P.)**

000217



**THESIS**

*Submitted to the*

**Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya Gwalior  
In partial fulfillment of the requirements for  
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**MASTER OF SCIENCE**

*In*

**AGRICULTURE**

**(EXTENSION EDUCATION & RURAL SOCIOLOGY)**

*By*

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GWALIOR (M.P.)**

**2011**


## CERTIFICATE - I

This is to certify that the thesis entitled, "**A study on adoption behaviour about mustard production technology among the farmers of Sabalgarh block of Morena district (M.P.)**" submitted in partial fulfilment of the requirement of the degree of Master of Science in Agriculture (Extension Education) of the R.V.S. Krishi Vishwa Vidyalaya, Gwalior is a record of the bonafide research work carried out by **Mr. Mahendra Singh Jatav** under my guidance and supervision. The subject of the thesis has been approved by Student's Advisory Committee and the Director of Instruction.

No part of the thesis has been submitted for any degree or diploma (Certificate awarded etc.) or has been published/published part has been fully acknowledged. All the assistance and help received during the course of investigation has been acknowledged by him.


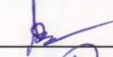
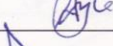
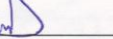
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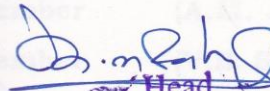
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**CERTIFICATE - II**

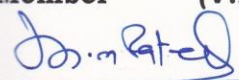
This is to certify that the thesis entitled, **“A study on adoption behaviour about mustard production technology among the farmers of Sabalgarh block of Morena district (M.P.)”** submitted by **Mr. Mahendra Singh Jatav** to the R.V.S. Krishi Vishwa Vidyalaya, Gwalior in partial fulfilment of the requirements for the degree of Master of Science in Agriculture (Extension Education) in the Department of Extension Education, College of Agriculture, Gwalior has been, after evaluation, approved by the External Examiner and by the Student’s Advisory Committee after an oral examination of the same.

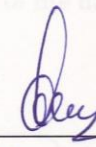
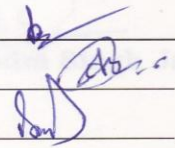
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Place: Gwalior

Date: 24/08/01

  
(Mahendra Singh Jatav)

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## Chapter I

### INTRODUCTION

Our country produces a large number of oil seeds such as mustard, groundnut, soybean, sesame, linseed, castor, niger and sunflower are the most important oil seeds in the country. Mustard is the major rabi oilseed crops of India. It occupies a prominent place being next in importance to groundnut both in area and production meeting the fat requirement of about 50 percent population in the state of Uttar Pradesh, Punjab, Rajasthan, Madhya Pradesh, Bihar, Orissa, west Bengal and Assam. India is one of the largest producer of rape seed and mustard in the world. India's contribution in the world's rape seed and mustard production is the highest of any country. The production of rape seed and mustard in India is around 16.2 million tones which accounts for about 18 percent of the oil seed production of country.

Mustard & rapeseeds are known by different names in different places e.g., sarson, rai or raya, toria or lahi. While sarson and toria (lahi) are generally termed as rapeseeds, rai or raya or laha is termed as mustard. The oil obtained from different types show slight variation in percentage of oil. The oil content varies from 37 to 49 percent. The seed and oil are used as condiment in the preparation of pickles and for flavoring curries and vegetables. The oil is utilized for human consumption throughout northern India in cooking and frying purposes. It is also used in soap making, in mixtures with mineral oils for lubrication. Rape seed oil is used in the manufacture of greases. The oil cake is used as the cattle feed and manure. Green stems and leaves are a good source of green fodder for cattle. The leaves of young plants are used as green vegetables as they supply enough vitamins and minerals in the diet. In the tanning industry, mustard oil is used for softening leather.

Mustard is an economic cash crop that has a distinct place in rotation with small grains. Mustard is available in three types: yellow, brown and oriental. Yellow mustard (*Sinapis alba*) is the most common type grown in North Dakota. Only small acreages of brown and oriental (*Brassica juncea*) are being grown. Yellow mustard is most

commonly used for a table or "hotdog" mustard, while brown and oriental are used for oil and spices.

It was the condiment, not the plant that was originally called mustard. The condiment got its name because it was made by grinding the seeds of what was once called the senfy plant into a paste and mixing it with must (an unfermented wine). Mustard is one of the oldest spices and one of the most widely used. The Chinese were using mustard thousands of years ago and the ancient Greeks considered it an everyday spice. The first medical mention of it is in the Hippocratic writings, where it was used for general muscular relief. The Romans used it as a condiment and pickling spice. King Louis XI would travel with his own royal mustard pot, in case his hosts didn't serve it. Today, world consumption of mustard tops 400 million pounds. As India imports huge quantity of edible oil, less than satisfactory production of mustard seed could be a major cause of concern on country's edible oil imports bill. Mustard oil is one of the largest consumed edible oil in India.

Madhya Pradesh is a paradise for oil seed crop within the total oil seeds production rapeseed mustard accounted a greater share. Chambal division of M.P. is a bowl of golden grain rapeseed & mustard. Rapeseed and mustard have greater role in the form economy of Chambal division of northern M.P. during the year 2007 its production was 0.76 million tones and productivity having 1048 kg/ha average yield.

Agriculture development is intimately related with the application of science and technology in the sector. Therefore, increase in agriculture production and the economic and social benefits are directly dependent on the extent to which farmers use the improved technology. The technology transfer through training, demonstration and extension activities has been viewed as most important critical factors for increasing agriculture production.

In recent years, cultivation of oil seed is very popular due to non availability of cooking oil & high price of oil. The various extension agencies are continuously making efforts to create awareness among the farmers about cultivation of oil seed. It has been observed that the majority of the farmers are still lagging behind the

adoption of modern technology. It becomes a serious concern to administration, agricultural scientists and extension workers. It thus becomes necessary to assess the barriers which influence the farmer's decision at farm level adoption of agricultural technology. There is a growing need to approach the farmers as quickly as possible and to assist them in increasing their present level of production. To perform this task successfully it is necessary to understand the adoption behaviour of farmers and to identify the factor which is responsible for low productivity of mustard crop.

Keeping this in view, the present study entitled, "A study on adoption behaviour about mustard production technology among the farmers of Sabalgarh block of Morena district (M.P.)", is undertaken with the following objectives:

1. To study the personal and socio economic characteristics of the farmers.
2. To determine the adoption behaviour of the farmers regarding recommended mustard production technologies.
3. To analyze the relationship of adoption behaviour of the farmers regarding recommended mustard production technologies with their personal and socio economic characteristics.
4. To find out the constraints responsible for low productivity of mustard crop.

#### **Significance of the study:**

Mass media play an important role in the field of agricultural development by informing the farmers about new techniques in agriculture. They help to narrow the gap between research result and their application by the farmers. A stage has come where one can not apply yesterday method today and be in business tomorrow. Agriculture has achieved a status of business enterprise. Hence, farmers need latest information regarding the current researches, latest varieties evolved, methods of fertilizer application, methods of seed treatment and seed inoculation, new techniques of irrigation, new concept of IPM & INM and new plant protection techniques etc.

**Limitation of the study:**

The study was confined to the Sabalgarh block of Morena district, Madhya Pradesh. Due to lack of time and resources it was not possible to cover large area in the study; therefore, the data was based on the sample of 120 respondents. Due to limited time and resources, the variables- education, caste, family background, social contact, land holding, scientific orientation, information source, extension contact, attitude towards training programme, Knowledge about mustard production technology and adoption of mustard production technology were measured by putting direct questions to each respondent.

The study was carried on limited number of respondents hence the findings may not be generalized and the results may be applicable to the research area only.

**Organizations:**

This study is organized into five chapters. Chapter one deals with the introduction followed by second chapter review of literature on socio-personal socio-economic and extension communicational characteristics, perceived effectiveness of farm broadcast. Chapter third deals with the methodological aspects of the present investigation. Chapter four comprises the result and discussion of the study. Last but not the least summary, conclusion and suggestions of the study have been included in fifth chapter, followed by bibliography and appendices.

## Chapter – II

### REVIEW OF LITERATURE

For developing a conceptual frame and an appropriate design for the study, the review of the post studies is necessary. Many studies so far have been conducted in the field of dissemination of farm information through mass media. A few of them which are more relevant have received here:

Singh (1968) defined training as "The process by which the desired knowledge, skill, attitude and ideas are included, fostered and reinforced in an organism.

Madalla and Rajwadi (1976) indicated that there was a positive relationship between education and adoption of improved farm practices.

Sharma and Sharma (1977) in his study on adoption of high yielding varieties of wheat by the small farmers found a significant association between the availability of credit and their adoption behaviour.

Pathak *et. al.* (1979) reported that there was significant difference in the levels of knowledge between farmers who had conducted and participated in national demonstration and those farmers who had not participated and conducted National demonstrations in relation to jute and wheat crops.

Krishna and Jalihal (1981) reported that the trained farmers had higher knowledge of hybrid maize practices and also higher yields as compared to untrained farmers under similar situation

Deshpande(1982). Showed non-significant association between age and adoption of pulses and oilseeds crop growers.

Gupta (1983) found that training of extension personnel and farmers have a vast potential in the development of skill and utilization of farm technology for increasing production.

Tripathi (1985) found that the trained farmers have high level of knowledge as well as high level of adoption. He also observed that the average yield of wheat potato and paddy crops obtained by the trained farmers were comparatively higher than the untrained farmers.

Das (1986) reported that the training programme served farmers very well as the increases in their technical know ho was quite substantial.

Gurjar (1988) found that independent variables like education, social participation, land holding, annual income, cosmopolitaness, attitude towards mustard production technology and knowledge about mustard production technology were significant relationship with dependent variable- technological gap in adoption of package of practices of mustard cultivation.

Rajgopal (1989) reported that the group participation in extension training activities for farmers may be introduced for making them understand the comparative advantage among the different farmers groups through agricultural technology

Patel and Trivedi (1990) reported that majority of the rural women preferred their own village as suitable training venue Magsnar Posh (December-January) as suitable time for training and choice of female teacher trainer for imparting training to them. Majority of trained rural women preferred five days training duration with six months interval whereas majority of untrained rural women suggested three days training duration every year as an interval at training.

Chauhan (1990) reported that the training on watershed substantially increased the knowledge of ADOs about watershed practices.

Mahale (1991) reported that providing training to the rural women at institution is found to be helpful in increasing the knowledge level.

Mahadik and Dantare (1991) observed that literacy had positive relation with the extent of adoption of mustard crop production technology and so was the case of institutional membership.

Latoria and Raghuwanshi (1991) reported that educated farmers adopted more plant protection measure than the uneducated farmers. They also stated that farmers with extension contact adopted more plant protection measures.

Gautam *et al.* (1991) reported that most of the respondents had medium knowledge level and medium adoption of recommended wheat and mustard production technology.

Sakharkar *et al.* (1992) concluded that education social participation, socio-economic, status, risk preference, management orientation, innovation proneness, extension contact, mass media exposure and cosmopolitaness have significant association with knowledge and adoption and communication characteristics have shown a positive association with the adoption.

Jaulkar *et al.* (1992) found that lack of knowledge, lack of adequate facilities at training centre, less use of audio visual aids, facility of lodging boarding, transport and other convenience were not adequate. lack of readable material and lack of off campus training at village level were most important constraints faced by the mustard and wheat growers and he was suggested frequent use of audio visual aids, syllabus of training programme should be prepares based on the needs of the farmers, training should be given in local language and facility of lodging boarding, transport and other convenience were adequate.

Vekaria *et al.* (1993) reported that the knowledge of the farmers was positively and significantly related with adoption of modern agricultural technology.

Sharma (1993) reported that most of the respondents suggested that proper cost of return should be ensure, electricity for irrigation should be provided timely, credit facility should be provided, agricultural resources and equipment should be available at low cost and technical suggestions for improved technology should be provided in time.

Kumar *et al.* (1994) reported enhancement in gain in knowledge of agricultural assistants through the training programmes.

Mahipal and Prasad (1995) reported that training has contributed significantly in acquisition of higher knowledge of the participants on various aspects of dry land agriculture technologies.

Sharma, (1996) revealed that the yield gap between demonstration mustard farms and domestic farms in a Rajasthan study was 27per cent. The main constraints to increasing the production of mustard are lack of technical knowledge, high cost of fertilizers, seed and protection measures, and shortage of money: 61% of farmers did not have adequate credit facilities.

Shailaya *et al.* (1996) concluded that economic motivation risk taking ability, decision making ability achievement motivation management orientation are the major dimensions of entrepreneurial behaviour. The trained rural women differ significantly with the untrained in their educational status family educational status occupation information seeking behaviors and perceived knowledge of the technology with respect to mass media contact level of aspiration, cosmopolitaness and entrepreneurial behaviors their exists significant difference among the groups

Prasad and Singh (1996) found that majority of the respondents had medium level of adoption about recommended mustard production technology and they also observed that the maximum gap in plant protection measures followed by skill gap observed in seed rate and spacing, water management, varieties, fertilizer management, selection of soil type and land preparation, intercultural operation and plant protection of paddy crops.

Prasad and Singh (1996) found that high technological gaps existed in seed and seed treatment, water management, fertilizer management, pest control and disease control in relation to marginal and small farmers.

Singh *et al.* (1997) Constraint analysis was conducted on data collected from Beenawas and Chodha villages in Jodhpur district, Rajasthan, India (n=160, year not given). Significant differences were observed in farmers' knowledge index (FKI) and in farmers' adoption index. Besides the technical constraints, socioeconomic constraints and lack of infrastructural facilities are major factors limiting mustard production.

Gautam, *et al.* (1997) revealed that the majority of rape seed and mustard seed crops produced in Madhya Pradesh, India, are produced in the Gird region, a comparison is presented of relative growth rates, magnitude of change, instability of area, production and yield per ha for the two crops in the state, and the region during period I (1968-78) and period II (1979/80-1989). Data are presented from the publications of the Madhya Pradesh Agricultural Statistics, the Commissioner of Land Records and Settlement, and the Government of Madhya Pradesh.

Thakur and Patel (1998) revealed that the result of path analysis show that family age knowledge of crop and education were the most important

variable effecting directly and positively on mixed farming productivity of farm women as well as providing channel for indirect positive effect on dependent variable . It was also observed that almost all the independent variable canalized through family income. Hence family income is the most crucial factor as for as mixed farming productivity of farmwomen is concerned. Farm family with high income can easily invest more in farm inputs which are turn increased the adoption of improved practices and hereby increase the productivity.

Singh and Prasad (1998) reported an increase in knowledge of farmers about rice production technology due to training.

Singh (1998) in their study stated that women constitute a major percentage of agriculture work forces. They have in accessibility to modern technology credit training and other facilities available to male workers and farmers. Their roll has become passive due to ignorance of modern input and method of cultivation. Their main energy is spent in procuring fuel & fodder, food and water leaving very little time to improve their skills. In the process they have logged behind their male colleagues in use of improved crop production and processing tools and machinery.

Khalge *et al.* (1998) concluded that the recommended package of practices of Bajra cultivation namely, deep ploughing, collection of burning of stubble, 3-4 harrowing, seed rate, use of improved variety sowing time hoeing and weeding and harvesting and threshing were popular practices among Bajra growers

Sharma *et al.*(1999) A study was conducted in Ambah Sub-Division of Madhya Pradesh to examine the relationships between selected characteristics of farmers and their knowledge of management practices for mustard [*Brassica juncea*] production. The age of respondents showed significant correlation with knowledge, while education, landholding and caste were significantly related to knowledge of some important practices. Type of family and annual income were related to knowledge of only a few practices. Multiple determination indicates that caste type of family, annual income and landholding together affected the knowledge of plant protection measures by 78.88%.

Singh and Rajput (2000) from their finding led to conclude that lack of irrigation facility, low price for farm produce, lack of communication, lack of capital and high prices of fertilizer were the major constraints faced by farmers in adoption of wheat production technology.

Paniker and Choudhary (2000) concluded from the study that the rural women need training mostly in seed treatment and use of improved seed.

Kubde *et al.* (2000) concluded that the study indicated the potato growers deficient in respect of knowledge about spacing disease control and treatment of tubers before sowing. The majority of respondents adopted the practices recommended for soybean crop were improved variety, time of harvesting, seed rate and spacing.

Bharti *et al.* (2000) concluded that the inadequate preliminary knowledge about consumption processing preservation of soybean among literate and illiterate group of rural house wives was found increased significantly after giving the knowledge about soybean through the teaching aids i.e. demonstration which is considerate as one of the most effective teaching aids which helps to increase the proper use of local available cheapest source of protein in soybean . Which create uplift the protein energy, malnutrition among different segments of population

Dutt and Mishra (2002) concluded that most of the respondents adopted inter-culture practice, followed by irrigation and seed rate. They found that the level of adoption of pulse production technology by the respondents was found to be positive and highly significantly correlated with caste, education, social-participation, socio-economic status and knowledge. No such correlation was observed with family size. However, incase of age, the relation has been found to be significant but negative.

Kawale *et al.*(2003) revealed that majority of the respondents (n=120 mustard growers) were middle-aged, educated up to primary education level, small land holders, having membership only in one organization, and had medium annual income, medium level of material possession, medium extension participation and risk taking ability. Out of ten independent variables, education,

social participation, extension participation and irrigation potential had significant and positive relationship with adoption of mustard production technology.

Prajapati and Kushwaha(2003) Based on data collected from 80 mustard growers in the Bundelkhand area of Uttar Pradesh, India, this paper: identifies the oilseed cropping systems in the study area; measures the farmers' adoption level of mustard production technology; and determines the constraints responsible for low adoption.

Rudra,et al.(2004) observed that during a participatory rural appraisal approach was used to identify the factors responsible for the low productivity of mustard in Cooch Behar district, West Bengal, India, and to assess the impact of training on the adoption of recommended practices for mustard cultivation. It was found that the major factors responsible for the low productivity of mustard production were: use of traditional variety; late sowing; imbalanced use of fertilizer; and improper pest control. Poor level of adoption was observed in backward classes as compared to other classes. Skill-oriented training support has helped the farmers to reach an average yield of 4.26 quintal/acre, which is two times higher than the average yield at district level.

Malik et al. (2005) observed that among a sample of 100 rapeseed-mustard growers in Bhiwani district, Haryana, India, to determine the correlates of farmers' knowledge about rapeseed-mustard production technology pre- and post-training. Results revealed that education, material possession, mass media exposure, extension contact, scientific orientation and risk preference were significantly and positively correlated with the knowledge level of farmers pre- and post-training.

Sachan *et al.* (2005) reported that the most responsible factors for non adoption of plant protection were lack of knowledge about advantage of seed treatment and plant protection mean sums. High cost and non availability of effective fungicides sprayers and dusters were also responsible factors for non adoption.

Chatterjee *et al.* (2005) in their study on the impact of MAPWA fund that the adoption of milk production and seed production technology as well as making NADEP was higher amongst trained farmwomen than the untrained farmwomen. The study also revealed at personal attributes have the impact and

significant bearing on adoption of the technology which should be highlighted and if dealt which can produce maximum output from the farmwomen in adoption of the improved practices.

*Singh (2007)* revealed that the relationship between the socio-economic characteristics of farmers and technological gaps in adoption of the technology. The study revealed that 68.2% of farmers belonged to medium technological gap category and there was a high technological gap in seed treatment, method of sowing, dose, time and method of application of fertilizers and herbicide, irrigation and plant protection measures. Out of 16 variables, 9 variables namely, education, caste, irrigation facilities, type of family, extension contact, sources of information and knowledge were negatively and significantly correlated with overall technological gap, whereas, age and farming experiences were positively and significantly correlated with overall technological gap. The 16 independent variables taken together explained 53.7% of the variation in technological gap, and knowledge of farmers was the most important predictor of the technological gap.

*Bhushan(2010)* reported that a sample of 240 respondents was gathered through simple random sampling technique. Ten independent variables namely knowledge, family education, source of information utilized, age, social participation, socio economic status, experience, no. of animals owned by the farmers, farm size and family size were identified through pilot study of the area and review of literature. For measuring these variables already available scales were adopted and wherever the tools were not available the same were constructed. The findings indicated that independent variables knowledge, experience in farming, socio-economic status, family education, social participation, sources of information and farm size were positively and significantly associated with the adoption of Scientific Technological Practices (STPs) of agriculture by the farmers. While the remaining independent variables age, number of animals owned and family size were not significantly contributed with the adoption of Scientific Technological Practices (STPs).

*Badodiya et al.(2011)* reported, "Mustard is a very important crop of India as well as Madhya Pradesh and its play a greater role in economic development. The present study was conducted in Morar block of Gwalior district of (M.P)." He

consisted the sample of 100 respondents spread over 10 villages of the block. Data were collected with the help of structured interview schedule. The maximum 40.00 percent of the respondents have medium level of adoption of mustard production technology. Out of 12 independent variables, 10 variables, viz., education, size of land holding, social participation, occupation, socio-economic status, information source, attitude towards improved mustard production technology, cosmopolitaness and knowledge about mustard production technology, were found positive and significant relationship with the adoption behavior of farmers and age was found negative and significant relationship while type of family & size of family were found no relationship with adoption behavior of mustard growers. Lack of technical knowledge / lack of awareness, lack of demonstration and training and lack of proper diffusion of improved mustard production technology.

## MATERIAL AND METHODS

### Chapter – III

## MATERIALS AND METHODS

The chapter deals with the background information about the study area, hypotheses and their measurements, methods and the procedures adopted for the collection of data required for the study. It also describes the method used for analysis of data and tests applied. For better comprehension, this chapter is divided into following sub heads:

- Background information about the study area
- The problem
- Hypotheses of the study
- Sample design
- Variable used in the study
- Concept and operationalization.
- Instruments of data collection
- Method of data collection.
- Presentation of data
- Statistical analysis of data.

### Background information about the study area:

Basic information of the study area like location, climate and rainfall, soil, geography, culture, land etc. are necessary to gathered information and consolidation of the facts. Background information of the study area is presented as under:

### Locale of the study:

The district's name is derived from a combination of "mor" and "raina", which means "the place where peacocks are found in abundance". Morena is

located at 26°18'N 78°00'E 26.30°N 78.00°E. Geographically, Morena is an interesting place as Madhya Pradesh touches two neighboring states i.e. Rajasthan and Uttar Pradesh here. Morena touches Dholpur (Rajasthan) in North-West and Pinahat (Agra, Uttar Pradesh) in North-East. The neighboring districts are Bhind, Gwalior, Shivpuri and Sheopur. Morena district has a total area of 4,998.78 square kilometers, with a population of about 1,587,264 that is often widely dispersed. The district's literacy rate is 65.58%, higher than the national average. Morena's divisional and administrative headquarters is the town of Morena.

### **Land & Main crops**

Wheat is the most important food grain in the district. Mustard is the most important oil seed grown in the district, Bajra is the major kharif crop. Sandy loam soil is generally found in the block as well as district. This soil is quite suitable for growing mustard, wheat, jowar, maize, bajra, arhar, moong, til etc.

### **Climate and rainfall:**

The district has moderate climate. The maximum temperature was recorded to be 46 °C in summer and minimum 1.5 °C in winter. The rainy season extends from June to mid September in the block. On an average, 750.50 mm rainfall is received during monsoon. Maximum rainfall is recorded in the month of July –August.

### **Communication:**

The approach roads of the villages are moderate in condition. Communication means are limited and a limited percentage of educated people are observed in the area which prohibits the use of written communication media.

### **The problem:**

Our country produces a large number of oil seeds such as mustard, groundnut, soybean, sesame, linseed, castor, niger and sunflower are the most important oil seeds in the country. Mustard is the major rabi oilseed crops of

India. India is one of the largest producer of rape seed and mustard in the world. India's contribution in the worlds rape seed and mustard production in the highest of any country. The production of rape seed and mustard in India is around 16.2 million tones which accounts for about 18 percent of the oils seed production of country.

In recent years, cultivation of oil seed is very popular due to non availability of cooking oil & high price of oil. The various extension agencies are continuously making efforts to create awareness among the farmers about cultivation of oil seed. The people of our country are far from satisfactory knowledge about recommended cotton production technology and its adoption which result in low production and low income also. Therefore, mustard production in the country needs to be changed from traditional farming to commercialize farming in area and is only possible when cotton growers leave their traditional practices and adopt improved mustard technology. Modern mustard technology has tremendous potential for high production but the average yield of mustard in Gird region is very low among the mustard growers. There are various factors, which are responsible for low yield. Thus, there was a need to identify the present knowledge and adoption level of mustard growers and factors which are responsible for low yield.

An attempt was also made to find out the relationship between socio-personal, economic, socio-communicational and psychological attributes with technological knowledge and adoption of mustard growers and to identify the reasons for low adoption of the modern technology.

The categorization was followed according to Dwarkunath (1973). The categorization was as follows:

S. No.	Category	Scores
1	Young (Below 35 years)	1
2	Middle (35-45 years)	2
3	Old (Above 45 years)	3

## Variables used in the study:

Independent and dependent variables selected for this study were as follows:-

### 1. Independent variables

#### Personal and Socio-economic characteristics:

1. Age
2. Education
3. Family background
4. Size of family
5. Social participation
6. Size of land holding
7. Information source
8. Mass media exposure
9. Extension contact
10. innovativeness
11. Attitude towards improved farm practices
12. Knowledge about mustard production technology

### 2. Dependent variable:

Adoption behaviour about mustard production technology

#### A. Independent variables-

##### Age:

Age refers to the number of years an individual has lived since his birth at the time of interview. Age of respondent was recorded by asking him what his age was. The categorization was followed according to Dwarkinath (1973). The categorization was as follows:

S. No.	Category	Scores
1.	Young (Below 35 years)	1
2.	Middle (35-45 years)	2
3.	Old (Above 45 years)	3

### Education-

Educational status was operationalized as the number of year of formal education acquired by the respondent at the time of enquiry and the scores assigned according to socio-economic status scale developed by the Venkatarmaiah and Sethurao (1983). The status of education was considered, illiterate, primary school, middle school, high school and above high school. The categorization was as follows:

S. No.	Categories	Scores
1.	Illiterate	0
2.	Up to primary	1
3.	Up to middle	2
4.	High school	3
5.	Higher secondary and above	4

### Family background-

It is the status of an individual occupies in society with reference to the prevailing average standard of working pattern, effective income, material possession and social participation. The family background was measured with the help of structure schedule. The categorization was as follows:

S. No	Category	Scores
1	Poor (Mean - 1SD)	1
2	Moderate (Mean $\pm$ 1SD)	2
3	Good (Mean + 1SD)	3

### Size of family:

This refers to the number of the family members who are residing in the house with the respondents. The size of family was operationalized as below:

S. No.	Categories	Scores
1.	Small (4 members)	1
2.	Medium (5 to 6 members)	2
3.	Large (More than 6 members)	3

### Social participation-

It refers to the participation of an individual in any social, religious and political organization. Social participation was measured with the help of structured schedule. The categorization was as follow:

S. No	Category	Scores
1	Low (No or member in one Organization )	1
2	Medium (Member in two Organization)	2
3	High (Member in more than two organization)	3

### Size of land Holding-

It is the area of land possessed by an individual. The land holding was measured with the help of structured schedule. The categories were classified in the following manner are as follows:

S. No.	Category	Scores
1	Marginal (<1ha.)	1
2	Small (1-2ha.)	2
3	Medium (2 - 5ha.)	3
4	Large (> 5 ha.)	4

#### Information source-

It refers to the degree of frequency of contact by an individual with various information sources. This is the pattern by which a farmer gets his information either seeking on its own or as a consequence. In the present study, the degree of frequency of contact with information sources of respondent was measured on three point's response category namely "Less frequently" and "Frequently" and "more frequently" for each of information sources consulted by the respondent a score of 1, 2 and 3 were assigned respectively. The total scores were computed for each respondent by summing the scores. The categorization was as follows:

S. No	Category	Scores
1	Low (Mean - 1SD)	1
2	Medium (Mean $\pm$ 1SD)	2
3	High (Mean + 1SD)	3

### Mass media exposure:

Mass media exposure refers to the extent to which the related technology (mustard production technology) are exposed to the different message or information from various mass media like radio, television, newspaper and other reading materials. The respondents were asked about the number of times they were obtained the information about mustard production technology to radio, television, newspaper and magazine. The score from each individual was obtained by summing up the scores received from him for all the four media. The categorization was as follows:

S. No.	Category	Scores
1	Low (Mean – 1SD)	1
2	Medium (Mean $\pm$ 1SD)	2
3	High (Mean + 1SD)	3

### Extension contact-

Contact with extension personnel refers to the number of times a person had contacted to the Agricultural Extension Personnel viz. Agricultural Officers, VLW's, Scientists, Field Officers, RAEO's etc. It is a degree to extent of involvement by the farmers with extension personnel of different extension agencies. The respondents were asked to mention how many times during the last season he had contacted. A score for no. of personnel contacts was given and was added with the number of times he had contacted. Thus, a total contact score was derived and formulated in to three categories:

S. No	Category	Scores
1	Low (Mean – 1SD)	1
2	Medium (Mean $\pm$ 1SD)	2
3	High (Mean +1SD)	3

### **Innovativeness:**

Innovativeness is the degree to which an individual adopts new ideas or technology relatively earlier than others in his social system. It was measured with the help of a self rating scale developed by Moulik (1965). The categorization was as follows:

S. No	Category	Scores
1	Low (Mean – 1SD)	1
2	Medium (Mean $\pm$ 1SD)	2
3	High (Mean +1SD)	3

### **Attitude towards mustard production technology -**

Attitude has been defined as the degree of positive or negative effect associated with some psychological object. Attitude in this study refers to the feeling and reaction of the farmers towards mustard production technology. The attitude of the farmers was measured with the help of scale developed by Singh (1990). The categorization was as follows:

S. No.	Categories	Scores
1.	Low (Mean – 1SD)	1
2.	Medium (Mean $\pm$ 1SD)	2
3.	High (Mean +1SD)	3

## B. Dependent variable-

### Knowledge about mustard production technology-

The knowledge for the purpose of present study was operationalized as the amount of understanding information processed by the farmers regarding recommended package of practices of mustard.

For the study of knowledge ten recommended practices of mustard production technology viz. improved varieties, sowing time & methods, recommended dose of chemical fertilizers, irrigation management, and plant protection were selected. The weightage of 3 for high knowledge 2 for medium knowledge and 1 for low knowledge were assigned for each practice. The total score obtained by the respondents from all ten practices was the knowledge score of the individual respondent.

Finally this raw adoption score obtained by individual respondent was converted into adoption index as below:

$$\text{Knowledge index} = \frac{\text{Sum of the knowledge scores obtained by respondent}}{\text{Sum of obtainable knowledge score}} \times 100$$

The following categories were used in the study-

S. No	Category	Scores
1	Low (Mean - 1SD)	1
2	Medium (Mean ± 1SD)	2
3	High (Mean +1SD)	3

## B. Dependent variable-

### Adoption behaviour about mustard production technology

The adoption behaviour of mustard production technology refers to the extent of adoption of recommended improved farm practices. The questions were regarding improved varieties, sowing time & methods, recommended dose of chemical fertilizers, irrigation management, and plant protection were selected.

The weightage of 3 for high adoption, 2 for medium adoption and 1 for low adoption of each practice were assigned. The total score obtained by the respondent from all the ten practices was the adoption score of individual respondent. Finally this raw adoption score obtained by individual respondent was converted into adoption index as below:

$$\text{Adoption index} = \frac{\text{Sum of the adoption scores obtained by respondent}}{\text{Sum of obtainable adoption score}} \times 100$$

The following categories were used in the study.

S. No	Category	Scores
1	Low (Mean – 1SD)	1
2	Medium (Mean $\pm$ 1SD)	2
3	High (Mean +1SD)	3

## **Hypothesis of the study:**

### **General Hypothesis:**

Selected variables are significantly related with perceived effectiveness of farm broadcast.

### **Null Hypothesis:**

1. There is no relationship between age and adoption behaviour about mustard production technology.
2. There is no relationship between education and adoption behaviour about mustard production technology.
3. There is no relationship between family background and adoption behaviour about mustard production technology.
4. There is no relationship between size of family and adoption behaviour about mustard production technology.
5. There is no relationship between social participation and adoption behaviour about mustard production technology.
6. There is no relationship between size of land holding and adoption behaviour about mustard production technology.
7. There is no relationship between information source and adoption behaviour about mustard production technology.
8. There is no relationship between mass media exposure and adoption behaviour about mustard production technology.
9. There is no relationship between extension contact and adoption behaviour about mustard production technology.
10. There is no relationship between innovativeness and adoption behaviour about mustard production technology.
11. There is no relationship between Attitude towards improved farm practices and adoption behaviour about mustard production technology.
12. There is no relationship between Knowledge about mustard production technology and adoption behaviour about mustard production technology.

### **Selection of the District and block-**

The study was conducted purposively in Morena district due to maximum area and production of mustard. The district comprises 7 blocks namely- Morena, Jora, Kailarash, Sabalgarh, Pahargarh, Ambah, and Porsa. Out of which Sabalgarh block of Morena district was selected purposively due to the convenience of the researcher and maximum area covered under of mustard crop with comparison to other block of the district.

### **Selection of area and respondents-**

A list of mustard growing villages of Sabalgarh block was prepared and 10 villages were selected randomly. After the selection of the villages, a village wise list of the mustard growing farmers of the selected 10 villages was prepared and 12 farmers from each village were randomly selected. Thus, the total sample consisted of 120 farmers spread over eleven selected villages.

### **Total number of selected trained farmers in the respective villages of Sabalgarh block-**

<b>S. No.</b>	<b>Name of village</b>	<b>Number of selected farmers</b>
1	Tentra	12
2	Madeva ka pura	12
3	Bawadi pura	12
4	Kiratpur	12
5	Pacher	12
6.	Kemarakala	12
7	Gondolihar	12
8	Kempura	12
9	Dongarpur	12
10	Bhimnagar	12
	<b>Total</b>	<b>120</b>

**Instruments of data collection:**

The instrument of data collection was the interview schedule which was prepared on the basis of the objectives of the study. Before the actual collection of data the interview schedule was pre tested for the convenience of data collection. The interview schedule was prepared in Hindi.

**Method of data collection:**

The data were collected through a well structured and pre tested interview schedule. The researcher was personally meet to the respondents and explained to them about the purpose of the study. The data were collected and recorded in free and frank atmosphere where the interviewer and interviewee had a good rapport.

**Presentation of data:**

The data collected were tabulated and presented in the form of tables and figures as per necessity.

**Statistical analysis of the data:**

The statistical tests and procedures were used for analyzing the data of the investigation, included mean, percentage and Karl Pearson's coefficient of correlation which are as follows:

**i). Mean:**

Mean was obtained by dividing the sum of the scores by the total number of cases involved. The formula for determining mean is :

$$\bar{X} = \frac{\sum_{i=1}^n x_i}{n} \quad [i = 1, 2, 3, \dots, n]$$

Where,

$$\bar{X} = \text{Mean}$$

Where,  $\sum x_i$  = Sum of all the pairs in a distribution

$n$  = Total number of items involved.

## ii) Percentage

The term 'percentage' means a fraction whose denomination is 100 and the numeration of the fraction is called percentage. For calculating percentage, frequency was multiplied by 100 and divided by total respondents.

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

Where,

P = Percentage

X = Frequency of respondents

N = Total number of respondents

## iii) Karl Pearson's Correlation coefficient (r)

It (r) was used to find out the relationship between independent and dependent variables and is defined as

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

Where,

$n$  = Number of respondents

$x$  = Independent variables

$y$  = Dependent variable

$r$  = 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 the squared independent variable

$\sum y^2$  = Sum of the squared dependent variable

$(\sum x)^2$  = Square of the summation of the independent variable

$(\sum y)^2$  = Square of summation of the dependent variable

## RESULTS & DISCUSSION

## CHAPTER - IV RESULTS AND DISCUSSION

The present study was carried out to assess the adoption behaviour about recommended mustard production technology among the farmers. Personal and socio-economic characteristics of the farmers have been considered to know their effect on the knowledge level and adoption behaviour. This chapter describes the result of the present study. It has been organized according to the objectives of the study and presented under following sub-heads.

- Personal and socio economic characteristics of the farmers.
- Adoption behaviour of the farmers regarding recommended mustard technologies.
- Relationship of adoption behaviour of the farmers regarding recommended mustard technologies with their personal and socio economic characteristics.
- Constraints responsible for low productivity of mustard crop.

### **Personal and socio economic characteristics of the farmers**

A general and brief profile of the respondents on the basis of personal and socio-economic attributes is presented here.

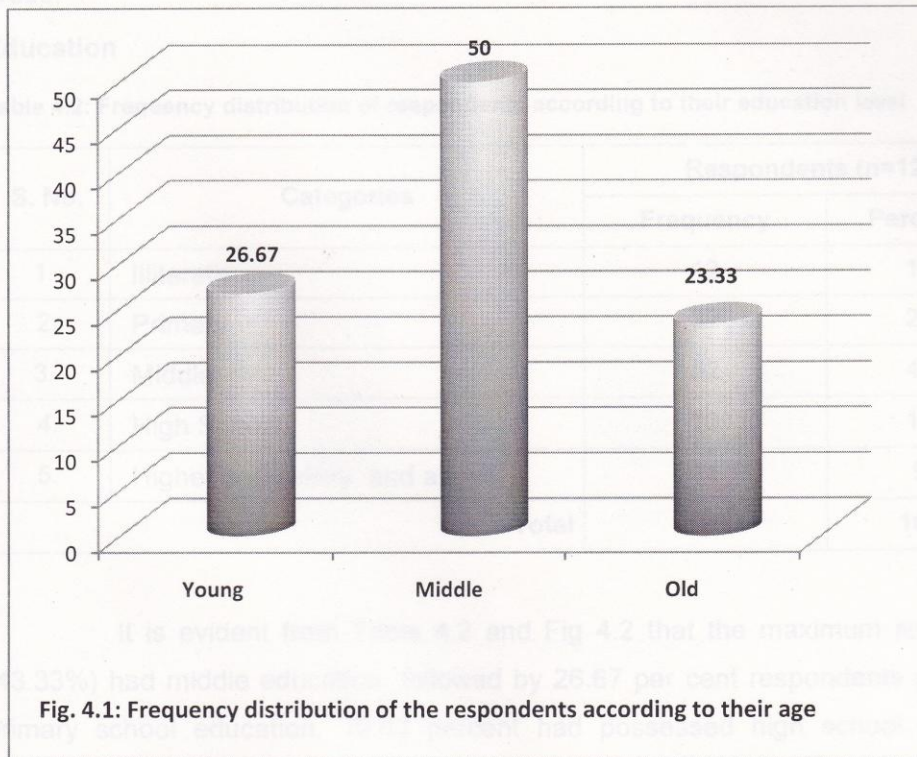
#### **Age:**

**Table 4.1: Frequency distribution of the respondents according to their age**

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Young	32	26.67
2.	Middle	60	50.00
3.	Old	28	23.33
<b>Total</b>		<b>120</b>	<b>100.00</b>

The age of respondents was considered as one of the important factors. The data presented in Table 4.1 and Fig.4.1 reveals that majority of the respondents (50.00%) were of middle age group followed by young age group (26.67%) and old age group (23.33%) respectively.

Thus, it can be concluded that majority of the respondents were in middle age group.



**Fig. 4.1: Frequency distribution of the respondents according to their age**

It is evident from Table 4.2 and Fig 4.2 that the maximum respondents (41.67%) had middle education, followed by 26.67 per cent respondents possessed primary school education, 19.11 per cent respondents possessed above secondary education, 10% illiterate and only 9.11 per cent of the respondents possessed above higher secondary and above education.

Thus, it has been inferred that most of the respondents were middle passed.

#### Family background

The data in Table 4.3 and Fig. 4.3 indicates that most of the respondents (48.33%) belonged to moderate family back ground, followed by (26.87 %) good family back ground category. A low percentage of respondents (25.00%) belonged to poor family back ground category.

The age of respondents was considered as length of number of years. The data presented in Table 4.1 and Fig.4.1 reveals that majority of the respondents (50.00%) were of middle age group followed by young age group (26.67%) and old age group (23.33%) respectively.

Thus, it can be concluded that majority of the respondents were in middle age group.

### Education

Table 4.2: Frequency distribution of respondents according to their education level

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Illiterate	12	10.00
2.	Primary	32	26.67
3.	Middle	52	43.33
4.	High School	13	10.83
5.	Higher secondary and above	11	9.17
<b>Total</b>		<b>120</b>	<b>100.00</b>

It is evident from Table 4.2 and Fig 4.2 that the maximum respondents (43.33%) had middle education, followed by 26.67 per cent respondents possessed primary school education, 10.83 percent had possessed high school education, illiterate (10%) and only 9.17 per cent of the respondents possessed above higher secondary and above education.

Thus, it has been inferred that most of the respondents were middle passed.

### Family background

The data in Table 4.3 and Fig. 4.3 indicates that most of the respondents (48.33%) belonged to moderate family back ground, followed by (26.67 %) good family back ground category. A low percentage of respondents (25.00%) belonged to poor family back ground category.

Table 4.3: Frequency distribution of respondents according to their level of education

S. No.	Categories	Respondents	
		Frequency	Percentage
1.	Poor	30	25.00
2.	Moderate	50	41.67
3.	Rich	40	33.33
	Total	120	100.00

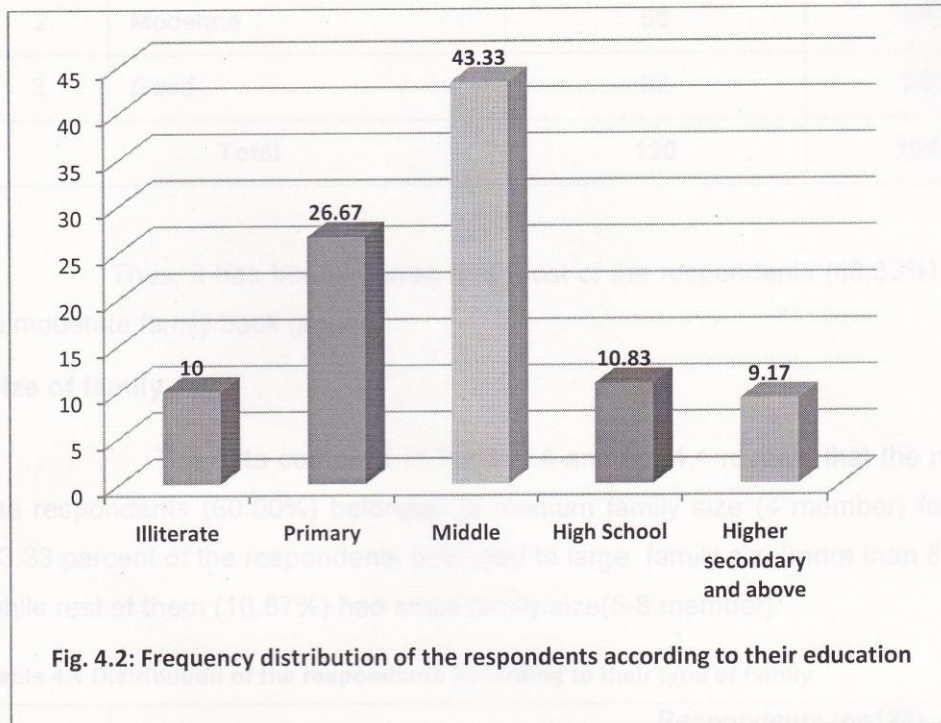


Fig. 4.2: Frequency distribution of the respondents according to their education

S. No.	Categories	Respondents	
		Frequency	Percentage
1.	Small(4 member)	20	16.67
2.	Medium(5-8 member)	72	60.00
3.	Large(more than 8 member)	28	23.33
	Total	120	100.00

Thus, it has been inferred that most of the respondents belonged to medium family size.

**Table 4.3: Frequency distribution of respondents according to their family background**

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Poor	30	25.00
2.	Moderate	58	48.33
3.	Good	32	26.67
Total		120	100.00

Thus, it has been inferred that most of the respondents (48.33%) belonged to moderate family back ground.

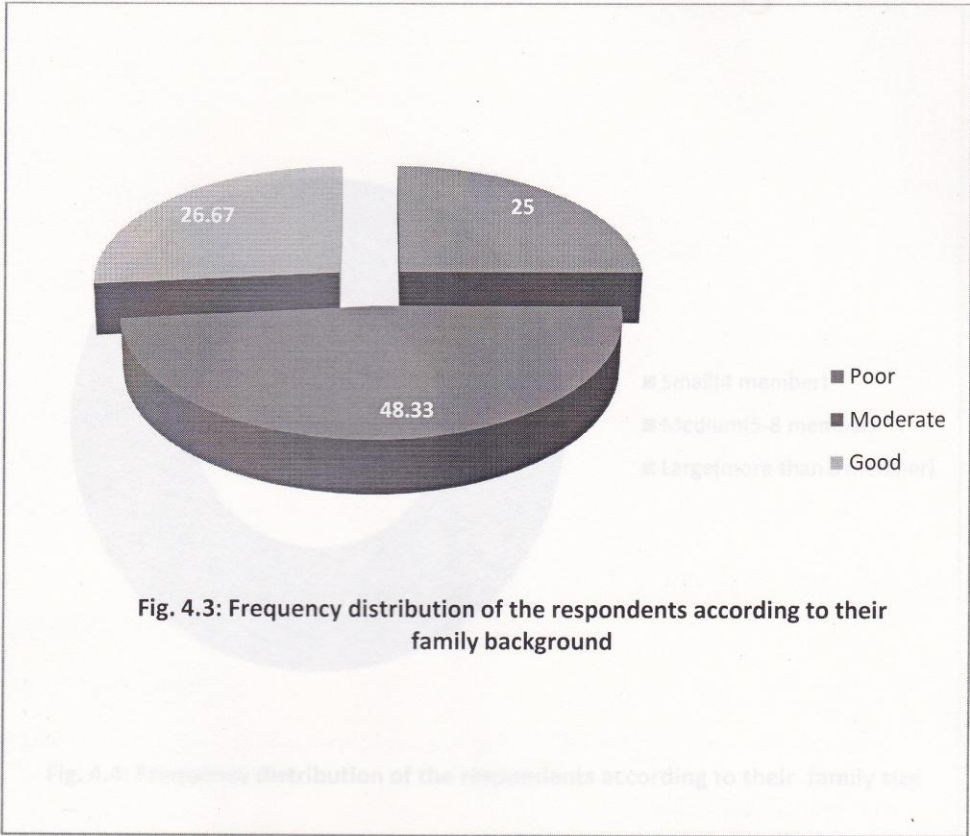
#### **Size of family**

The data compiled in Table 4.4 and fig. 4.4 reveals that the majority of the respondents (60.00%) belonged to medium family size (4 member) followed by 23.33 percent of the respondents belonged to large family size(more than 8 member) while rest of them (16.67%) had small family size(5-8 member).

**Table 4.4 Distribution of the respondents according to their type of family**

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Small(4 member)	20	16.67
2.	Medium(5-8 member)	72	60.00
3.	Large(more than 8 member)	28	23.33
Total		120	100.00

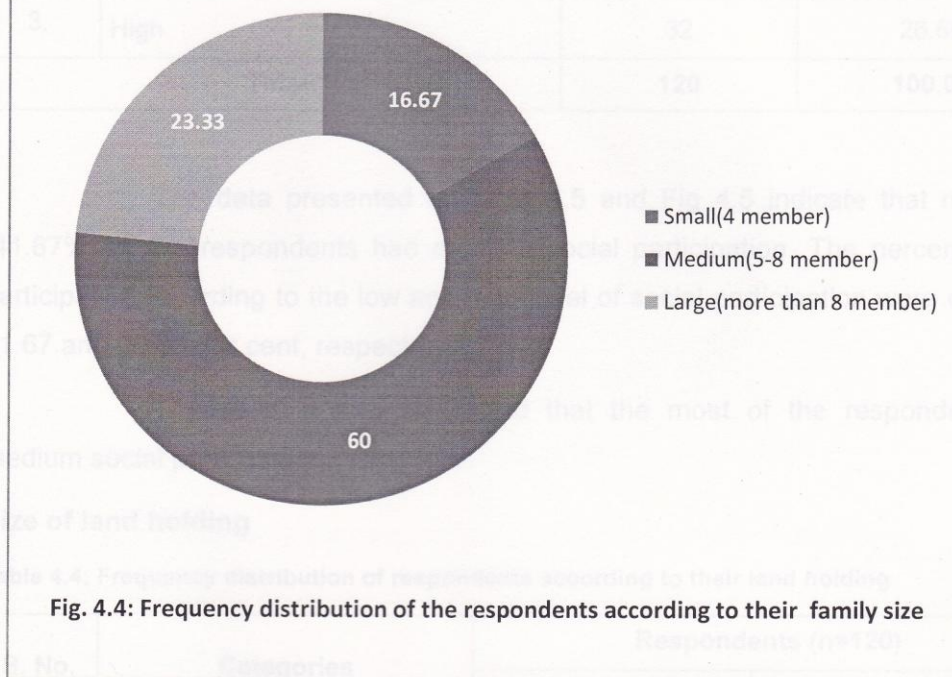
Thus, it has been inferred that most of the respondents belonged to medium family size.



## Social participation

Table 4.5: Frequency distribution of respondents according to their social participation

S. No	Categories	Respondents (n=120)	
		Frequency	Percentage
1	Low	38	31.67
2	Medium	50	41.67
3	High	32	26.65
	Total	120	100.00



## Size of land holding

Table 4.4: Frequency distribution of respondents according to their land holding

S. No	Categories	Respondents (n=120)	
		Frequency	Percentage
1	Marginal (<1 ha)	44	36.67
2	Small (1-2 ha)	40	33.33
3	Medium (2-5 ha)	20	16.67
4	Large (>5 ha)	16	13.33
	Total	120	100.00

Fig. 4.4: Frequency distribution of the respondents according to their family size

## Social participation

Table 4.5: Frequency distribution of respondents according to their social participation

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Low	38	31.67
2.	Medium	50	41.67
3.	High	32	26.66
Total		120	100.00

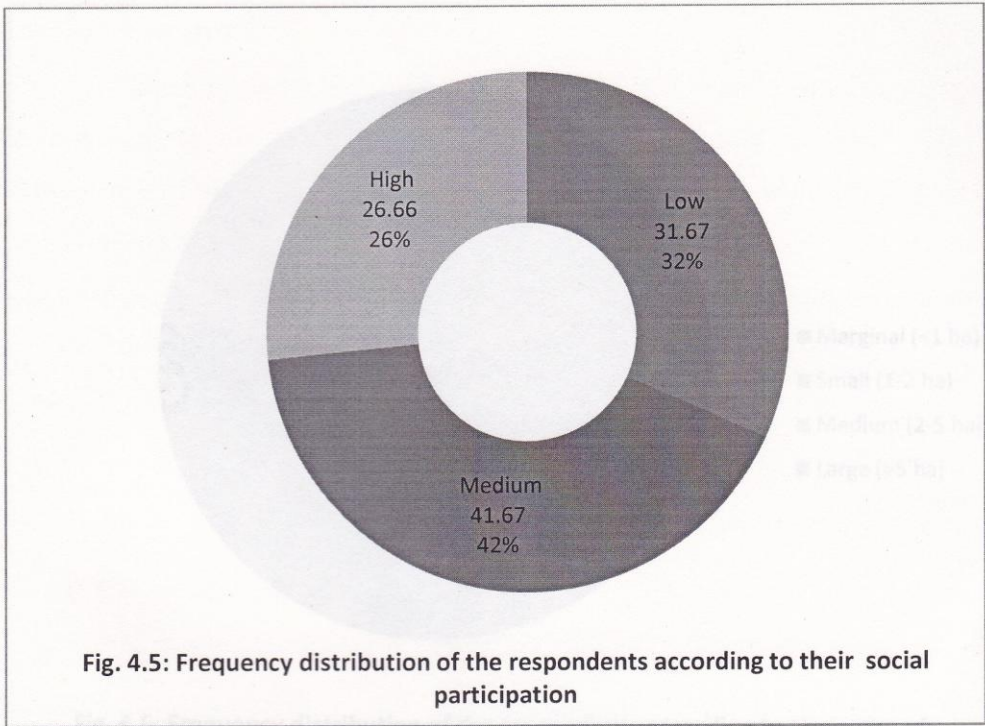
The data presented in Table 4.5 and Fig 4.5 indicate that maximum (41.67%) of the respondents had medium social participation. The percentages of participation regarding to the low and high level of social participation were observed 31.67 and 26.66 per cent, respectively.

Therefore, it may be stated that the most of the respondents has medium social participation.

## Size of land holding

Table 4.4: Frequency distribution of respondents according to their land holding

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Marginal (<1 ha)	44	36.67
2.	Small (1-2 ha)	40	33.33
3.	Medium (2-5 ha)	20	16.67
4.	Large (>5 ha)	16	13.33
Total		120	100.00



**Fig. 4.5: Frequency distribution of the respondents according to their social participation**

A perusal of the data presented in Table 4.6 and Fig 4.6 reveal that the maximum (36.67 %) of the respondents hold to marginal farm size (<1 ha), whereas, 33.33 per cent, 16.67 per cent and 13.33 per cent of them hold to small farm size (1-2 ha), medium farm size (2-5 ha), and large farm size (>5 ha), respectively.

Thus, the data clearly indicated that the most of the respondents were of marginal farm size.

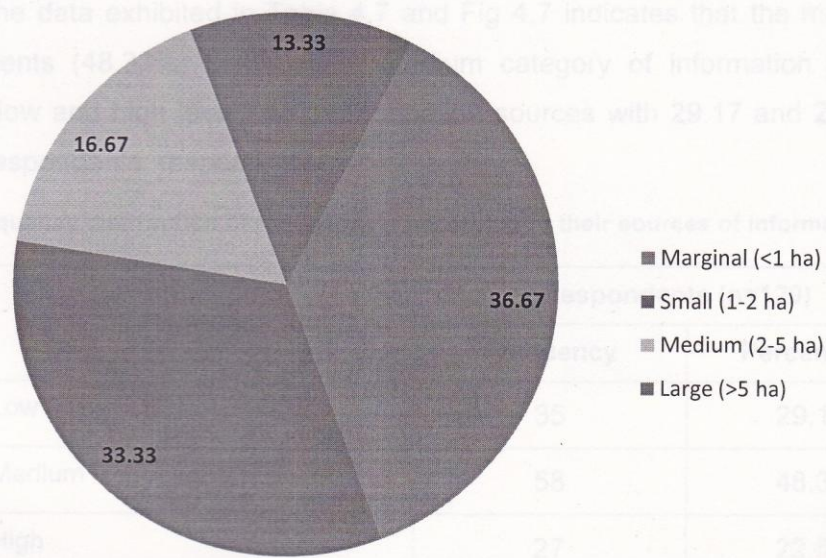
#### Information sources

The data exhibited in Table 4.7 and Fig 4.7 indicates that the majority of the respondents (48.33 %) were in medium category of information sources, followed by low mass media exposure category with 29.17 and 22.50 per cent of the respondents.

Table 4.7: Frequency distribution of the respondents according to their sources of information

No.	Category	Frequency	Percentage
1.	Low	27	22.50
2.	Medium	58	48.33
3.	High	35	29.17
	Total	120	100.00

Fig. 4.6: Frequency distribution of the respondents according to their size of land holding



belonged to medium category of information sources.

#### Mass media exposure

Now-a-days the success of any programme or acceptance of new technology largely depends upon mass media exposure. The data in the Table 4.8 and Fig. 4.8 shows that out of the total 120 respondents, 22.50 per cent respondents were found to be in low mass media exposure category while 48.33 per cent were in medium mass media exposure category and only 29.17 per cent were in high mass media exposure category.

A perusal of the data presented in Table 4.6 and Fig 4.6 reveal that the maximum (36.67 %) of the respondents hold to marginal farm size (<1 ha), whereas, 33.33 per cent, 16.67 per cent and 13.33 per cent of them hold to small farm-size (1-2 ha), medium farm size (2-5 ha) and large farm size (>5 ha), respectively.

Thus, the data clearly indicated that the most of the respondents were of marginal farm size.

### Information sources

The data exhibited in Table 4.7 and Fig 4.7 indicates that the majority of the respondents (48.33%) belonged to medium category of information sources, followed by low and high level use of information sources with 29.17 and 22.50 per cent of the respondents, respectively.

**Table 4.7: Frequency distribution of respondents according to their sources of information**

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Low	35	29.17
2.	Medium	58	48.33
3.	High	27	22.50
Total		120	100.00

Hence, it may be stated that maximum number of the respondents belonged to medium category of information sources.

### Mass media exposure

Now-a-days, the success of any programme or acceptance of new technology largely depends upon mass media exposure. The data in the Table 4.8 and Fig. 4.8 shows that out of the total 120 respondents, 36.67 per cent respondents were found to be in low mass media exposure category while 35.83 per cent were in medium mass media exposure category and only 27.50 per cent were in high mass media exposure category.

Table 4.6: Frequency distribution of respondents according to their mass media exposure

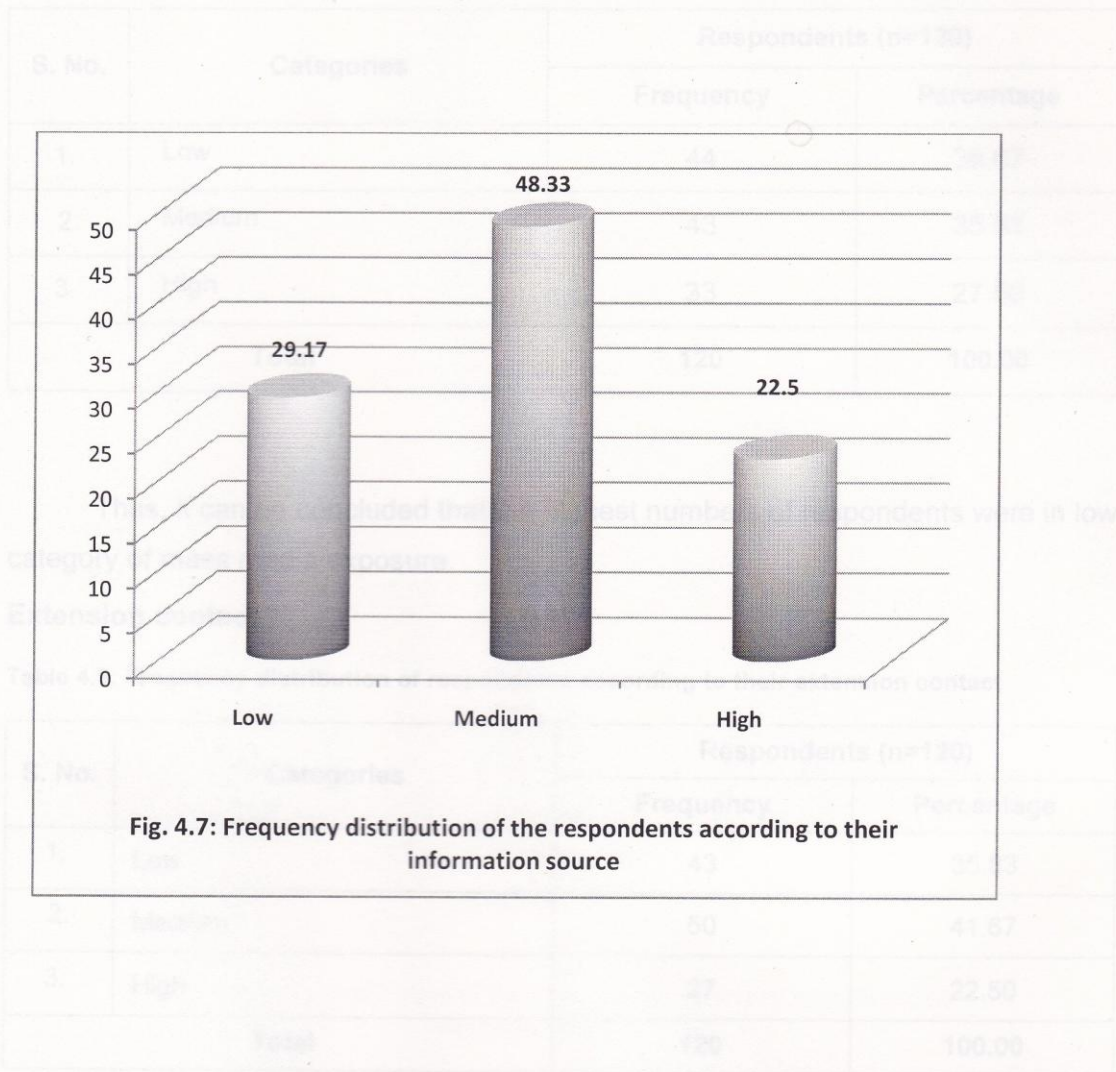


Fig. 4.7: Frequency distribution of the respondents according to their information source

The data in the Table 4.9 and Fig. 4.7 reveal that maximum number of the beneficiaries (41.67%) had medium extension contact while 35.83 per cent and 22.50 per cent were having low and high extension contact respectively.

Therefore, it may be referred that maximum numbers of the respondents had medium extension contact.

**Table 4.8: Frequency distribution of respondents according to their mass media exposure**

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Low	44	36.67
2.	Medium	43	35.83
3.	High	33	27.50
Total		120	100.00

Thus, it can be concluded that the highest numbers of respondents were in low category of mass media exposure.

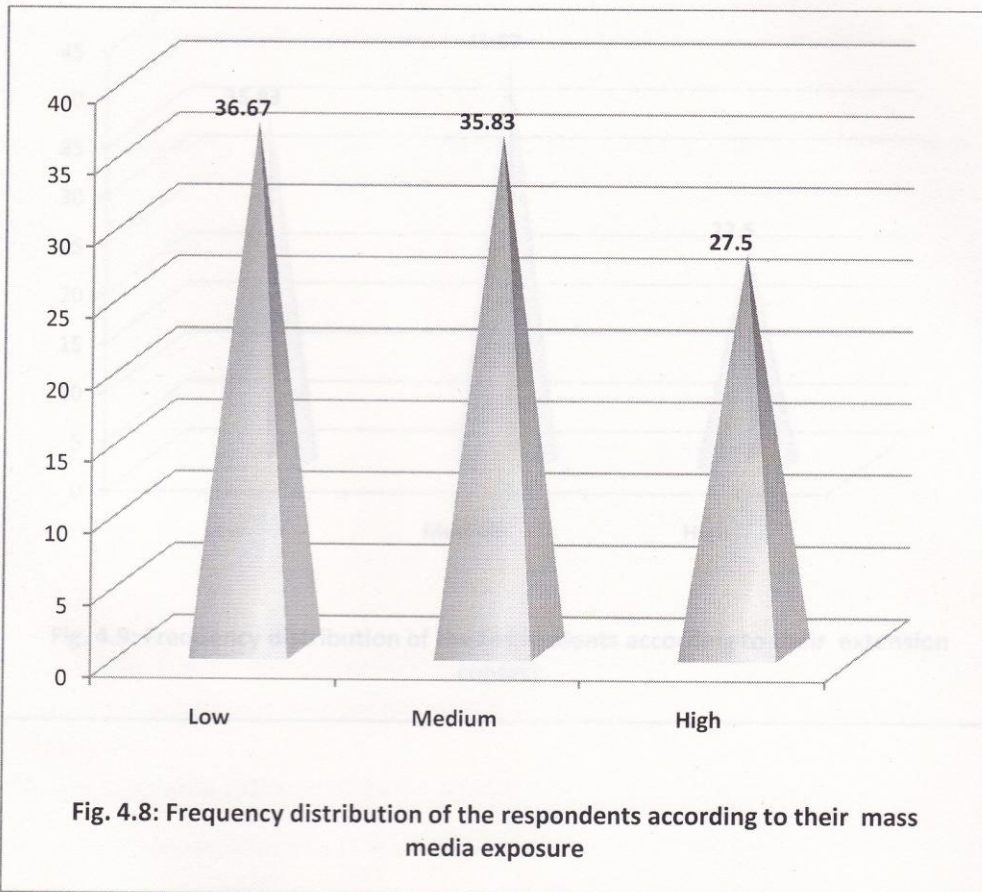
#### **Extension contact**

**Table 4.9: Frequency distribution of respondents according to their extension contact**

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Low	43	35.83
2.	Medium	50	41.67
3.	High	27	22.50
Total		120	100.00

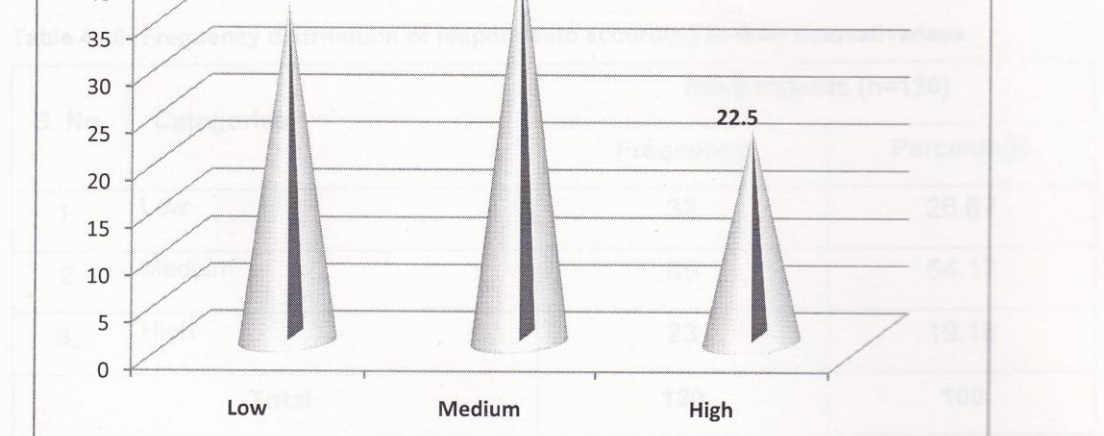
The data in the Table 4.9 and Fig. 4.9 refers that maximum number of the beneficiaries (41.67%) had medium extension contact, while 35.83 per cent and 22.50 per cent were having low and high extension contact, respectively.

Therefore, it may be referred that maximum numbers of the respondents had medium extension contact.



### Innovativeness

Innovativeness of an individual plays an important role in adoption of new innovations/technology at a faster rate than others. Hence, greater and quicker adoption requires the innovative nature of the respondents. The data in Table 4.10 and Fig. 4.9 shows that out of the total 120 respondents, 35.83 per cent were in the medium innovativeness category, while 25.67 per cent were in the low innovativeness category and only 19.17 per cent were in high innovativeness category.



**Fig. 4.9: Frequency distribution of the respondents according to their extension contact**

### Attitude towards improved farm practices

**Table 4.11: Frequency distribution of respondents according to their attitude towards improved farm practices -**

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Low	29	24.17
2.	Medium	57	47.50
3.	High	34	28.33
Total		120	100

## Innovativeness

Innovativeness of an individual plays an important role in adoption of new innovations/technology at a faster rate than others. Hence, greater and quicker adoption requires the innovative nature of the respondents. The data in Table 4.10 and Fig. 4.10 shows that out of the total 120 respondents, 54.17 per cent were in the medium innovativeness category, while 26.67 per cent were in the low innovativeness category and only 19.16 per cent were in high innovativeness category.

Table 4.10: Frequency distribution of respondents according to their innovativeness

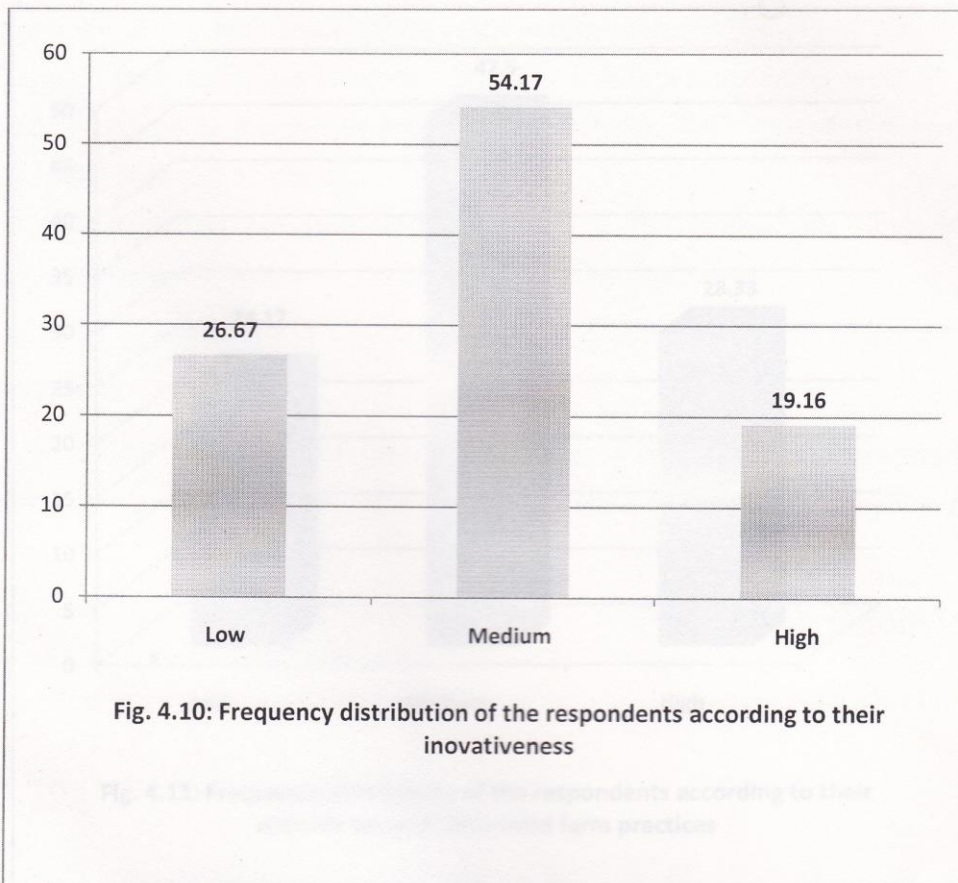
S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Low	32	26.67
2.	Medium	65	54.17
3.	High	23	19.16
Total		120	100

Thus, it can be concluded that majority of the respondents were in medium category regarding innovativeness.

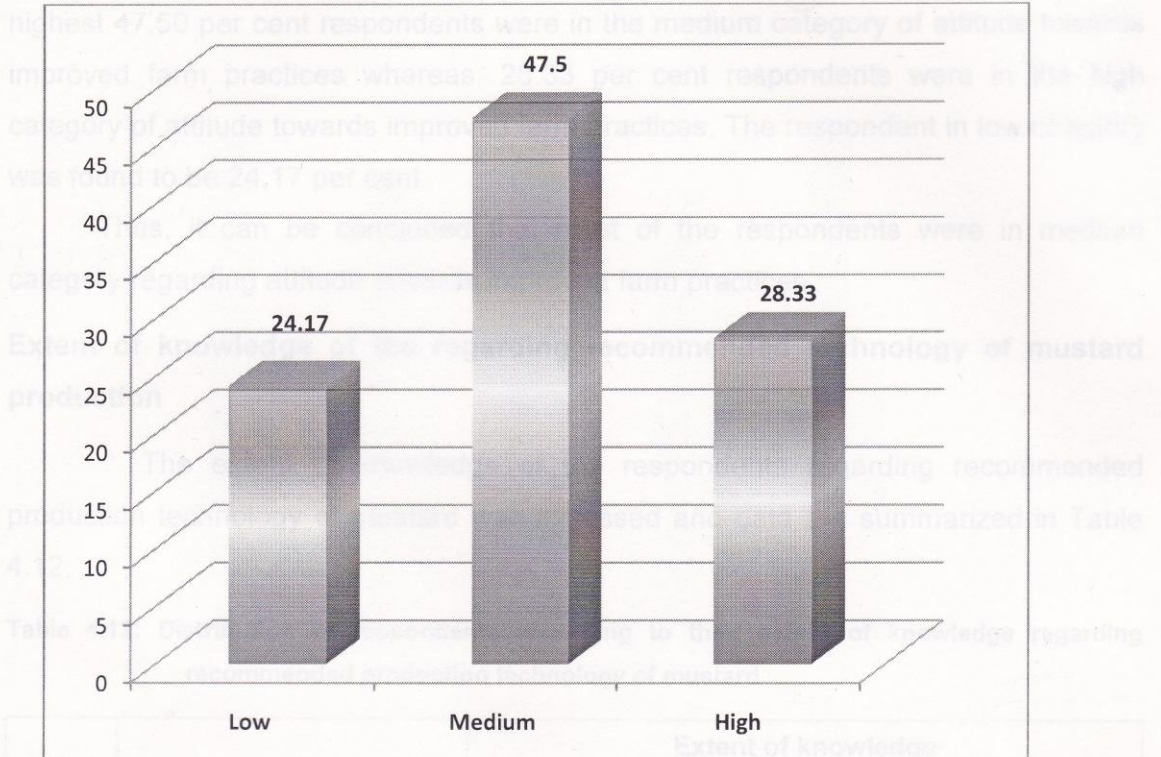
## Attitude towards improved farm practices

Table 4.11: Frequency distribution of respondents according to their attitude towards improved farm practices -

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Low	29	24.17
2.	Medium	57	47.50
3.	High	34	28.33
Total		120	100



For favorable attitude towards improved farm practices, the attitude of respondents must be positive. In order to increase the level of knowledge, respondents must be made aware of the recent knowledge about the new agricultural technology. Table 4.11 and Fig. 4.11 shows that out of the total 120 respondents,



**Fig. 4.11: Frequency distribution of the respondents according to their attitude towards improved farm practices**

S.No.	Improved practice	Extent of knowledge		High	
		No.	%	No.	%
1	Improved variety	33	27.5	89	74.16
2	Sowing time and methods	25	20.8	95	79.16
3	Manure and fertilizers	37	30.8	83	69.16
4	Irrigation and drainage	37	30.8	83	69.16
5	Plant protection measures	22	18.3	98	81.66

For favorable attitude towards improved farm practices, the attitude of respondents must be positive. In order to increase the level of knowledge, respondents must be made aware of the recent knowledge about the new agricultural technology. Table 4.11 and Fig. 4.11 shows that out of the total 120 respondents, highest 47.50 per cent respondents were in the medium category of attitude towards improved farm practices whereas, 28.33 per cent respondents were in the high category of attitude towards improved farm practices. The respondent in low category was found to be 24.17 per cent.

Thus, it can be concluded that most of the respondents were in medium category regarding attitude towards improved farm practices.

#### **Extent of knowledge of the regarding recommended technology of mustard production**

The extent of knowledge of the respondents regarding recommended production technology of mustard was assessed and data are summarized in Table 4.12.

**Table 4.12: Distribution of respondents according to their extent of knowledge regarding recommended production technology of mustard**

S. No.	Name of technology	Extent of knowledge					
		Low		Medium		High	
		No.	%	No.	%	No.	%
1.	Improved variety	23	19.17	62	51.67	35	29.16
2.	Sowing time and methods	22	18.33	58	48.33	40	33.34
3.	Manure and fertilizers	17	14.17	66	55.00	36	30.00
4.	Irrigation and drainage	21	17.50	55	45.83	45	37.50
5.	Plant protection measures	22	18.33	64	53.33	34	28.34

In case of improved variety the majority 51.57 per cent of respondents were found median level of knowledge followed by 29.16 and 19.17 per cent of the respondents were high and low level of knowledge.

With regards to the sowing time and methods, most of them 48.33 per cent of the respondents possessed median level of knowledge, followed by 33.34 per cent of respondents had high level of knowledge and 18.33 per cent of the respondents low level of knowledge.

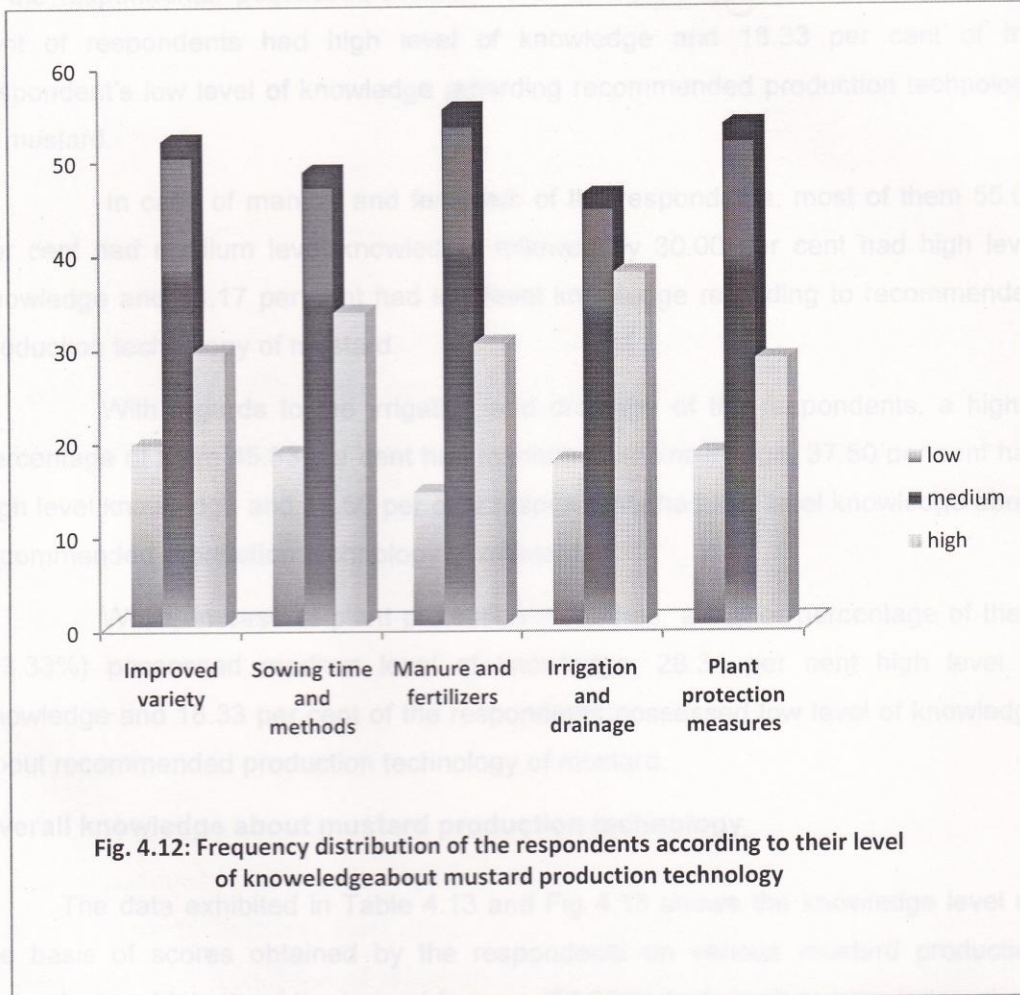
in case of manure and fertilizer most of the respondents, most of them 55.56 per cent had medium level of knowledge, followed by 33.34 per cent had high level of knowledge and 11.17 per cent had low level of knowledge.

With regards to irrigation and drainage most of the respondents, a higher percentage of them 47.50 per cent had high level of knowledge, followed by 37.50 per cent had medium level of knowledge and 15.00 per cent had low level of knowledge.

Overall knowledge about mustard production technology, next high level of knowledge about recommended production technology of mustard.

The data exhibited in Table 4.13 and Fig. 4.12 shows the knowledge level on the basis of scores obtained by the respondents on various mustard production technology.

mustard production technology whereas, 31.67 per cent respondents had high knowledge about mustard production technology and 77.78 per cent of the respondents were found in low category of knowledge level about mustard production technology.



**Fig. 4.12: Frequency distribution of the respondents according to their level of knowledge about mustard production technology**

In case of improved variety the majority 51.67 per cent of respondents were found medium level of knowledge followed by 29.16 and 19.17 per cent of the respondents were high and low level of knowledge.

With regards to the sowing time and methods, most of them 48.33 per cent of the respondents, possessed medium level of knowledge, followed by 33.34 per cent of respondents had high level of knowledge and 18.33 per cent of the respondent's low level of knowledge regarding recommended production technology of mustard.

In case of manure and fertilizers of the respondents, most of them 55.00 per cent had medium level knowledge, followed by 30.00 per cent had high level knowledge and 14.17 per cent had low level knowledge regarding to recommended production technology of mustard.

With regards to the irrigation and drainage of the respondents, a higher percentage of them 45.83 per cent had medium level knowledge, 37.50 per cent had high level knowledge and 17.50 per cent respondents had low level knowledge about recommended production technology of mustard.

While, in case of plant protection measures, a higher percentage of them (53.33%) possessed medium level of knowledge, 28.34 per cent high level of knowledge and 18.33 per cent of the respondents possessed low level of knowledge about recommended production technology of mustard.

### **Overall knowledge about mustard production technology**

The data exhibited in Table 4.13 and Fig 4.13 shows the knowledge level on the basis of scores obtained by the respondents on various mustard production technologies. Majority of the trained farmers (50.83%) had medium knowledge about mustard production technology whereas, 31.67 per cent respondents had high knowledge about mustard production technology and 17.50 per cent of the respondents were found in low category of knowledge level about mustard production technology.

**Table 4.13: Frequency distribution of respondents according to their knowledge about mustard production technology**

S. No.	Categories	Respondents (n=120)	
		Frequency	Percentage
1.	Low	21	17.50
2.	Medium	61	50.83
3.	High	38	31.67
<b>Total</b>		<b>120</b>	<b>100.00</b>

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Therefore, it can be concluded that above half of the mustard growers were having medium knowledge of mustard production practices.

**Extent of adoption of the regarding recommended technology of mustard production**

The extent of adoption of recommended production technology of mustard by the respondents was assessed and is presented in Table 4.14.

In case of improved variety the majority 48.33 per cent of respondents had medium level of adoption behaviour followed by 35.00 and 16.67 per cent of the respondents had medium low and high level of adoption behaviour about recommended production technology of mustard.

With regards to the sowing time and method, most of them 47.50 per cent of the respondents had medium level of adoption behaviour; followed by 32.50 per cent respondents had low level of adoption behaviour and 20.00 per cent of the respondents had high level of adoption behaviour about recommended production technology of mustard.

In case of manure and fertilizer, most of 44.17 per cent of the respondents had medium level adoption behaviour, followed by 30.00 per cent had low and 25.83 per cent had high level of adoption behaviour about recommended mustard production technology.

Table 4.14: Distribution of respondents according to their extent of adoption regarding recommended production technology of mustard

S. No.	Name of technology	Adoption behaviour					
		Low		Medium		High	
		No.	%	No.	%	No.	%
1	Improved variety	42	35.00	58	48.33	20	16.67
2	Sowing time and method	38	32.50	57	47.50	24	20.00
3	Manure and fertilizers	30	30.00	53	44.17	31	25.83
4	Watering and drainage	35	34.17	52	43.33	33	27.50
5	Pest protection measures	31	31.67	50	41.67	32	26.66

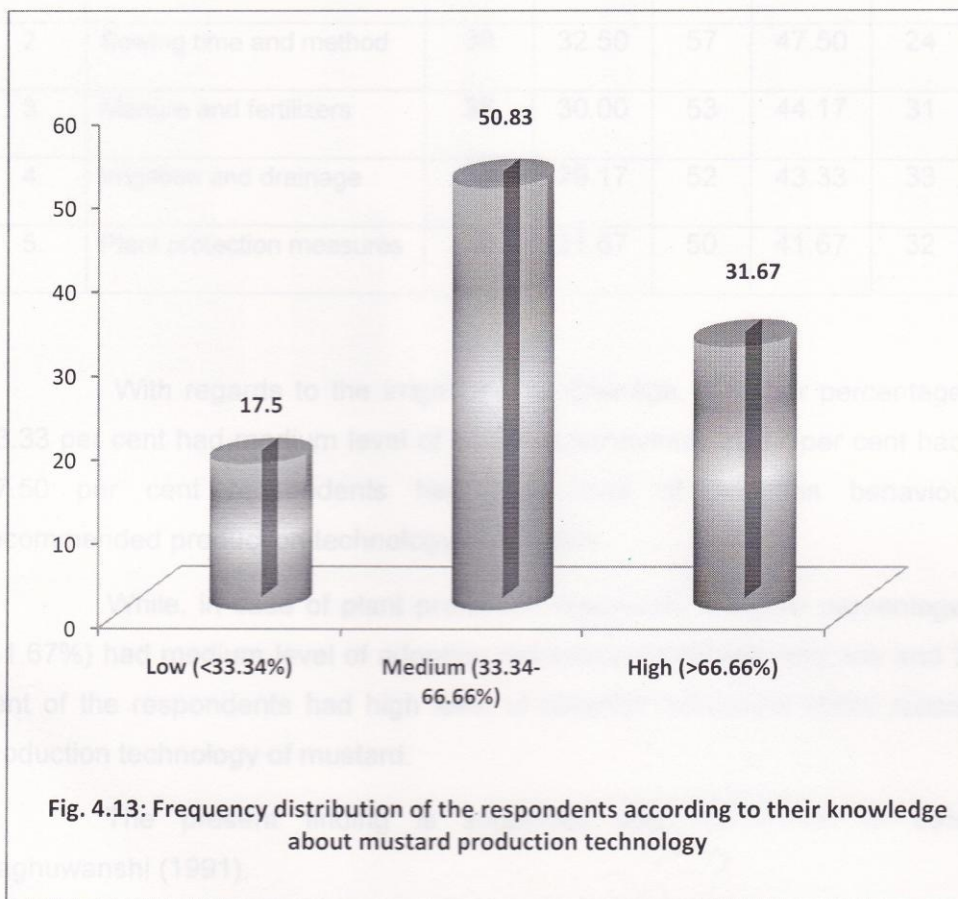


Fig. 4.13: Frequency distribution of the respondents according to their knowledge about mustard production technology

Adoption behaviour of the farmers regarding recommended mustard production technologies

The distribution of the respondents according to their extent of adoption (overall) of selected mustard production technologies is shown in Table 4.15.

It was observed from the data presented in Table 4.15 & fig-4.13 that most of the farmers (45.00%) had medium adoption behaviour about recommended

**Table 4.14: Distribution of respondents according to their extent of adoption regarding recommended production technology of mustard**

S. No.	Name of technology	Adoption behaviour					
		Low		Medium		High	
		No.	%	No.	%	No.	%
1.	Improved variety	42	35.00	58	48.33	20	16.67
2.	Sowing time and method	39	32.50	57	47.50	24	20.00
3.	Manure and fertilizers	36	30.00	53	44.17	31	25.83
4.	Irrigation and drainage	35	29.17	52	43.33	33	27.50
5.	Plant protection measures	38	31.67	50	41.67	32	26.66

With regards to the irrigation and drainage, a higher percentage of them 43.33 per cent had medium level of adoption behaviour, 29.17 per cent had low and 27.50 per cent respondents had high level of adoption behaviour about recommended production technology of mustard.

While, in case of plant protection measures, a higher percentage of them (41.67%) had medium level of adoption behaviour, 31.67 per cent low and 26.66 per cent of the respondents had high level of adoption behaviour about recommended production technology of mustard.

The present finding is supported with the works of Latoria and Raghuwanshi (1991).

#### **Adoption behaviour of the farmers regarding recommended mustard production technologies**

The distribution of the respondents according to their extent of adoption (overall) of selected mustard production technologies is shown in Table 4.15.

It was observed from the data presented in Table 4.15 & fig.4.13 that most of the farmers (45.00%) had medium adoption behaviour about recommended

production technology of mustard followed by 31.67 per cent respondents had high adoption behaviour about recommended production technology of mustard and only 23.33 per cent of the respondents had low adoption behaviour about recommended production technology of mustard.

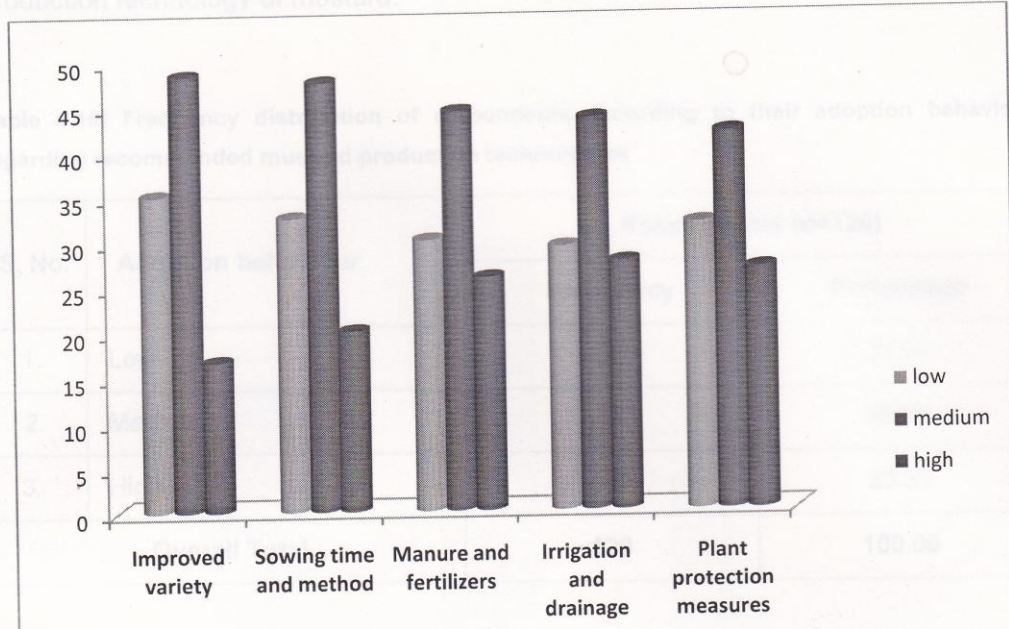


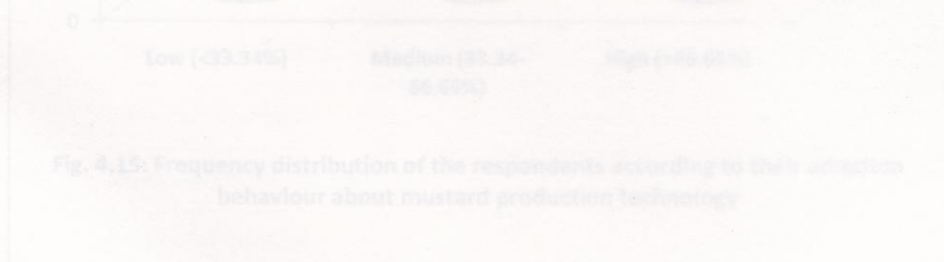
Fig. 4.14: Frequency distribution of the respondents according to their extent adoption about mustard production technology

production technology of mustard followed by 31.67 per cent respondents had high adoption behaviour about recommended production technology of mustard and only 23.33 per cent of the respondents had low adoption behaviour about recommended production technology of mustard.

**Table 4.15: Frequency distribution of respondents according to their adoption behaviour regarding recommended mustard production technologies**

S. No.	Adoption behaviour	Respondents (n=120)	
		Frequency	Percentage
1.	Low	38	31.67
2.	Medium	54	45.00
3.	High	28	23.33
<b>Overall Total</b>		<b>120</b>	<b>100.00</b>

Thus, it has been inferred that most of the respondents (45.00%) had medium adoption behaviour about recommended production technology of mustard.



**Fig. 4.15: Frequency distribution of the respondents according to their adoption behaviour about mustard production technology**

Relationship of adoption behaviour of the farmers regarding recommended mustard technologies with their personal and socio economic characteristics

The characteristics of respondents, independent and dependent variables namely age, education, family background, size of family, social participation, size of land holding, information source, mass media exposure, extension contact, innovativeness, attitude towards improved farm practices, knowledge about mustard production technology and adoption behaviour about mustard production technology were examined for the study. The zero order correlation coefficient of independent and dependent variables of farmers is given in Table 4.15.

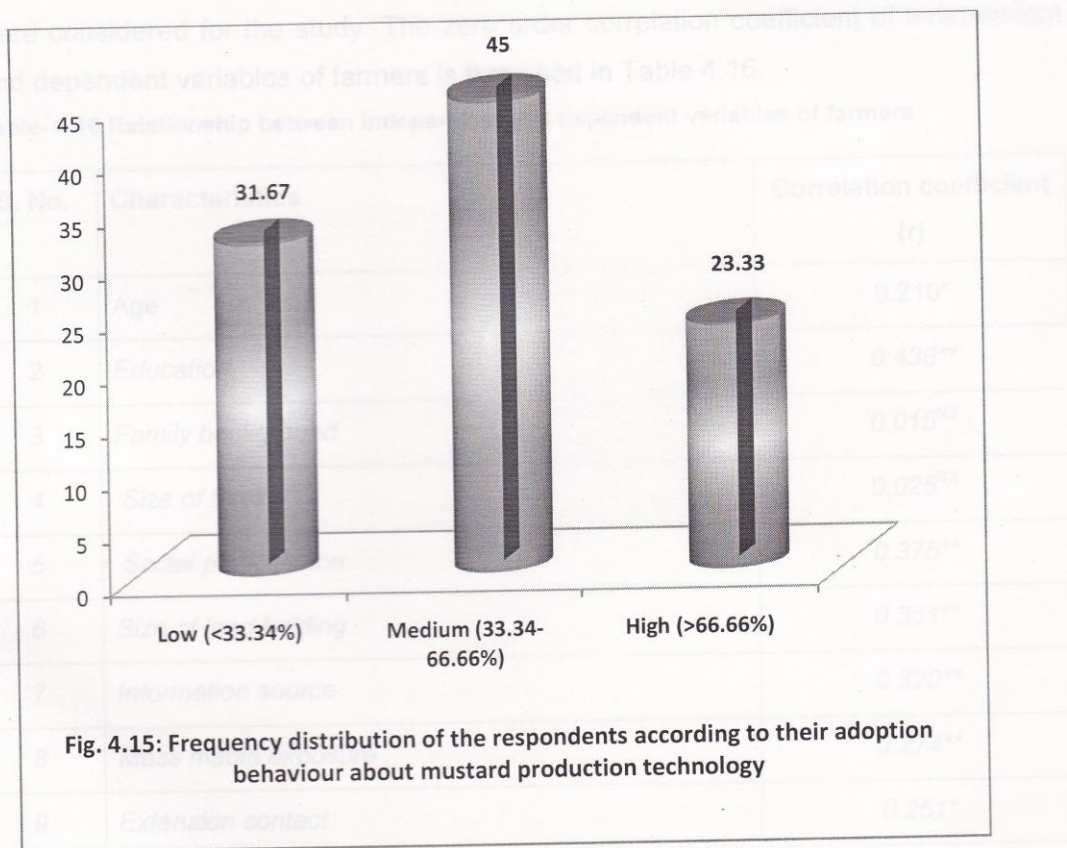


Fig. 4.15: Frequency distribution of the respondents according to their adoption behaviour about mustard production technology

No.	Characteristics	Correlation coefficient (r)
1	Age	0.210*
2	Education	0.438**
3	Family background	0.015**
4	Size of land holding	0.025**
5	Size of family	0.378**
6	Information source	0.351**
7	Extension contact	0.320**
8	Innovativeness	0.251*
9	Attitude towards improved farm practices	0.247*
10	Knowledge about mustard production technology	0.312**
11	Adoption behaviour about mustard production technology	0.390**

\*\* Significant at 1 % level of probability

\* Significant at 5 % level of probability

**Relationship of adoption behaviour of the farmers regarding recommended mustard technologies with their personal and socio economic characteristics**

The characteristics of respondents, independent and dependent variables namely age, education, family background, size of family, social participation, size of land holding, information source, mass media exposure, extension contact, innovativeness, attitude towards improved farm practices, knowledge about mustard production technology and adoption behaviour about mustard production technology were considered for the study. The zero order correlation coefficient of independent and dependent variables of farmers is furnished in Table 4.16.

**Table- 4.16 Relationship between independent and dependent variables of farmers**

S. No.	Characteristics	Correlation coefficient (r)
1	Age	0.210*
2	Education	0.438**
3	Family background	0.015 <sup>NS</sup>
4	Size of family	0.025 <sup>NS</sup>
5	Social participation	0.375**
6	Size of land holding	0.351**
7	Information source	0.320**
8	Mass media exposure	0.274**
9	Extension contact	0.251*
10	Innovativeness	0.247*
11	Attitude towards improved farm practices	0.312**
12	Knowledge about mustard production technology	0.395**

\*\* Significant at 1 % level of probability

\* Significant at 5 % level of probability

Family It can be observed from the table that correlation coefficients in respect of age (0.210), education (0.438), social participation(0.375), size of land holding (0.351), information source (0.320), mass media exposure (0.274), extension contact (0.251), innovativeness(0.274), attitude towards improved farm practices (0.340), knowledge about mustard production technology (0.395), were found positively significant with adoption behaviour about mustard production technology whereas family background (0.015) and size of family (0.025) were found no significant relationship. The findings with reference to each independent characteristic is presented below-

**Age:**

**Null hypothesis:** There is no relationship between age and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between age and adoption behaviour about mustard production technology.

The computed correlation coefficient (0.210) was found significant relationship. Hence, the null hypothesis was rejected and original proposition that there is positive relationship between age of the respondents with adoption behaviour about mustard production technology was accepted.

**Education:**

**Null hypothesis:** There is no relationship between education and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between educational status and adoption behaviour about mustard production technology.

The correlation coefficient (0.448) was found significant at 0.01 level of probability. This shows a positive relationship of education with adoption behaviour about mustard production technology of the respondents. Hence, the null hypothesis was rejected and original proposition that there is positive relationship between educational status and adoption behaviour about mustard production technology was accepted.

**Family background:**

**Null hypothesis:** There is no relationship between family background and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between family background and adoption behaviour about mustard production technology.

The computed correlation coefficient (0.015) was found significant. This shows a positive relationship of family background with adoption behaviour about mustard production technology. Hence, the null hypothesis was accepted and original proposition that there is positive relationship between family background and adoption behaviour about mustard production technology of was rejected.

**Size of family:**

**Null hypothesis:** There is no relationship between size of family and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between size of family and adoption behaviour about mustard production technology.

The correlation (0.025) was found non significant relationship. Hence, the null hypothesis was accepted and original proposition that there is significant relationship between size of family of the respondents with adoption behaviour about mustard production technology was rejected.

**Social participation:**

**Null hypothesis:** There is no relationship between social participation and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between social participation and adoption behaviour about mustard production technology

The computed correlation coefficient (0.375) was found significant at 0.01 level of probability. Hence, the null hypothesis was rejected and original proposition that

there is significant relationship between social participation of the respondents with adoption behaviour about mustard production technology was accepted.

**Size of land holding:**

**Null hypothesis:** There is no relationship between size of land holding and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between size of land holding and adoption behaviour about mustard production technology.

The correlation (0.351) was found significant at 0.01 level of probability. Hence, the null hypothesis was rejected and original proposition that there is positive relationship between size of land holding and adoption behaviour about mustard production technology was accepted.

**Information Source:**

**Null hypothesis:** There is no relationship between information source and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between information source and adoption behaviour about mustard production technology.

The correlation coefficient (0.320) was found significant at 0.01 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between source of information of the respondents with adoption behaviour about mustard production technology was accepted.

**Mass media exposure:**

**Null hypothesis:** There is no relationship between mass media exposure and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between mass media exposure and adoption behaviour about mustard production technology.

The correlation coefficient (0.274) was found significant at 0.05 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between mass media exposure of the respondents with adoption behaviour about mustard production technology was accepted.

#### **8. Extension contact:**

**Null hypothesis:** There is no relationship between extension contact and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between extension contact and adoption behaviour about mustard production technology.

The correlation coefficient of extension contact (0.251) was found significant at 0.05 level of probability. This means that there is a positive relationship between extension contact and adoption behaviour about mustard production technology. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between extension contact and adoption behaviour about mustard production technology was accepted.

#### **Innovativeness:**

**Null hypothesis:** There is no relationship between innovativeness and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between innovativeness and adoption behaviour about mustard production technology.

The correlation coefficient (0.247) was found significant at 0.05 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant and positive relationship between innovativeness of the respondents with adoption behaviour about mustard production technology was accepted.

#### **9. Attitude towards training programme:**

**Null hypothesis:** There is no relationship between attitude towards improved farm practices and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between attitude towards improved farm practices and adoption behaviour about mustard production technology.

The correlation coefficient (0.312) was found significant at 0.01 level of probability. This shows a positive relationship between attitude towards improved farm practices and adoption behaviour about mustard production technology. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between attitude towards training programme and adoption behaviour about mustard production technology was accepted.

#### 10. Knowledge about mustard production technology:

**Null hypothesis:** There is no relationship between knowledge about mustard production technology and adoption behaviour about mustard production technology.

**Empirical hypothesis:** There is a positive relationship between knowledge about mustard production technology and adoption behaviour about mustard production technology.

The correlation coefficient (0.395) was found significant at 0.01 level of probability. This means that there is a positive relationship between knowledge about mustard production technology and adoption behaviour about mustard production technology. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between knowledge about mustard production technology and adoption behaviour about mustard production technology was accepted.

12.	Non-availability of advanced agricultural information	53	44.17	XII
14.	Non-availability of improved implements	45	37.50	XIV
15.	Lack of irrigation facility	58	48.33	XI

It is evident from the data in Table 4.26 that the major constraints of non-adopting the recommended technologies of mustard were reported as high cost of

### Constraints responsible for low production of mustard crop

The constraints faced by the respondents were asked and are presented in Table 4.17.

**Table 4.17: Distribution of respondents according to constraints reported by them which were responsible for low production of mustard crop**

S. No.	Constraints	Respondents (n=120)		Rank
		No.	%	
1.	High cost of inputs	85	70.83	I
2.	Lack of regular technological guidance	62	51.67	VIII
3.	Lack of training facility	60	50.00	IX
4.	Insufficient credit from cooperative societies	79	65.83	III
5.	Non-availability of soil testing facility	74	61.67	IV
6.	Lack of knowledge regarding credit and grant facility	71	59.17	V
7.	Lack of knowledge of insecticides/fungicides	69	57.50	VI
8.	Lack of social participation	46	38.33	XIII
9.	Lack of risk bearing ability	62	51.67	VIII
10.	Untimely availability of improved seeds	65	54.17	VII
11.	Lack of capital	59	49.17	X
12.	No proper return of produce	80	66.67	II
13.	Non-availability of advanced agricultural information	53	44.17	XII
14.	Non-availability of improved implements	45	37.50	XIV
15.	Lack of irrigation facility	58	48.33	XI

It is evident from the data in Table 4.26 that the major constraints of non-adopting the recommended technologies of mustard were reported as high cost of

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inputs (70.83%), no proper return of produce (66.67%), insufficient credit from cooperative societies (65.83%), non-availability of soil testing facility (61.67%), lack of knowledge regarding credit and grant facility (59.17%), lack of knowledge of insecticides/fungicides (57.50%), untimely availability of improved seeds (54.17%), lack of regular technological guidance and lack of risk bearing ability (51.67%), lack of training facility (50.00%), lack of capital (49.17%), lack of irrigation facility (48.33%), non-availability of advanced agricultural information (44.17%), lack of social participation (38.33%) and non-availability of improved implements (37.50%), respectively.

Thus, the constraints narrated by most of the respondents were high cost of inputs, non-availability of soil testing facility, insufficient credit from cooperative societies, no proper return of produce, lack of knowledge regarding credit and grant facility, lack of knowledge of insecticides/fungicides, untimely availability of improved seeds, lack of regular technologies guidance and lack of risk bearing ability, lack of training facility, lack of capital, lack of irrigation facility, non-availability of advanced agricultural information, lack of social participation and non-availability of improved implements, did not affect the adoption behaviour more.

The findings of Sharma (1996), Jaulkar *et al.* (1992) support the present result in general.

## CHAPTER – V

### SUMMARY, CONCLUSIONS AND SUGGESTIONS

#### **Summary & conclusions**

Mustard is an economic cash crop that has a distinct place in rotation with small grains. Mustard is available in three types: yellow, brown and oriental. Yellow mustard (*Sinapis alba*) is the most common type grown in North Dakota. Only small acreages of brown and oriental (*Brassica juncea*) are being grown. Yellow mustard is most commonly used for a table or "hotdog" mustard, while brown and oriental are used for oil and spices.

It was the condiment, not the plant that was originally called mustard. The condiment got its name because it was made by grinding the seeds of what was once called the senry plant into a paste and mixing it with must (an unfermented wine). Mustard is one of the oldest spices and one of the most widely used. The Chinese were using mustard thousands of years ago and the ancient Greeks considered it an everyday spice. The first medical mention of it is in the Hippocratic writings, where it was used for general muscular relief. The Romans used it as a condiment and pickling spice. King Louis XI would travel with his own royal mustard pot, in case his hosts didn't serve it. Today, world consumption of mustard tops 400 million pounds. As India imports huge quantity of edible oil, less than satisfactory production of mustard seed could be a major cause of concern on country's edible oil imports bill. Mustard oil is one of the largest consumed edible oil in India.

It has been observed that the majority of the farmers are still lagging behind the adoption of modern technology. It becomes a serious concern to administration, agricultural scientists and extension workers. It thus becomes necessary to assess the barriers which influence the farmer's decision at farm level adoption of agricultural technology. There is a growing need to approach the farmers as quickly as possible and to assist them in increasing their present level of production. To perform this task

successfully it is necessary to understand the adoption behaviour of farmers and to identify the factor that influences their adoption behaviour.

Keeping this in view, the present study entitled, "A study on adoption behaviour of mustard production technology among the farmers of Sabalgarh block of Morena district (M.P.)", is undertaken with the following objectives:

- To study the personal and socio economic characteristics of the farmers.
- To determine the adoption behaviour of the farmers regarding recommended mustard technologies.
- To analyze the relationship of adoption behaviour of the farmers regarding recommended mustard technologies with their personal and socio economic characteristics of the farmers.
- To find out the constraints responsible for low productivity of mustard crop.

The study was conducted purposively in Sabalgarh Block of Morena district due to maximum acreage under wheat cultivation in the block. The selected block comprises of 178 villages. A list of mustard growing village was prepared with help of extension officials. Out of these 10 villages were selected randomly. After the selection of the villages, a village wise list of mustard growers was prepared and 12 farmers from each village were randomly selected. Thus, the total sample was consisted of 120 farmers. The data were collected through personal interview method with the help of pre-tested interview schedule, which was prepared on the basis of objectives of investigation and variables. The interview schedule was thoroughly discussed with the member of the advisory committee and their suggestions were incorporated. The collected data were classified, tabulated and analyzed with the help of statistical tools like- simple mean, percentage, and correlation coefficient test for drawing the logical conclusion and results.

#### **Personal and socio economic characteristics of the farmers**

A higher percentage of respondents were belonged to middle age group, other backward caste category, middle & primary school passed, moderate family

back ground, medium family size, medium social participation, marginal size of land holding, medium category of information sources, low category of mass media exposure, medium extension contact, medium category regarding innovativeness, medium category regarding attitude towards improved farm practices and medium knowledge of mustard production practices.

### **Adoption behaviour of the farmers regarding recommended mustard production technologies**

Dependent variable of a higher percentage of respondents was belonged to medium adoption behaviour about recommended production technology of mustard.

### **Relationship of adoption behaviour of the farmers regarding recommended mustard technologies with their personal and socio economic characteristics**

It can be observed from the table that correlation coefficients in respect of age (0.210), education (0.438), family background (0.015), size of family (0.025), social participation(0.375), size of land holding (0.351), information source (0.320), mass media exposure (0.274), extension contact (0.251), innovativeness(0.274), attitude towards improved farm practices (0.340), knowledge about mustard production technology (0.395), were found positively significant with adoption behaviour about mustard production technology whereas family background (0.015) and size of family (0.025) were found no significant relationship.

### **Constraints responsible for low production of mustard crop**

The main constraints reported by the respondents which affected the levels of adoption adversely were high cost of inputs, non-availability of soil testing facility, insufficient credit from cooperative societies, no proper return of produce, lack of knowledge regarding credit and grant facility, lack of knowledge of insecticides/fungicides, untimely availability of improved seeds, lack of regular technological guidance and lack of risk bearing ability, lack of training facility, lack of capital, lack of irrigation facility, non-availability of advanced agricultural information,

lack of social participation and non-availability of improved implements, did not affected the adoption behaviour more.

#### **Suggestions for further work**

In view of the present study, following points are suggested for further research work:

- ❖ The study was undertaken in Sabalgarh Block of Morena district only similar studies may be followed in other blocks of the district to confirm the results of the study.
- ❖ The study should be conducted with a larger sample size in different areas under varying agro-physical and socio-cultural conditions.
- ❖ In this study, the dependent and independent variables were limited and therefore further study may be conducted with more variables.
- ❖ To study the adoption behaviour about mustard production technology, some more agricultural practices may be included for the investigation.

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Title of the research problem –

A study on adoption behaviour of  
mustard productin technology among the farmers of Sabalgarh block  
of Morena district (m.p)

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### साक्षात्कार अनुसूची

1. कृषक का नाम .....
2. पिता का नाम .....
3. गाँव का नाम .....
4. विकास खण्ड का नाम .....
5. जिला का नाम .....
6. कृषया आप अपनी आयु बतलाये  
अ. 35 वर्ष से कम  
ब. 35 वर्ष से 50  
स. 50 वर्ष से अधिक
7. कृषया आप अपनी शिक्षा के विषय में बताइयें ।  
अ. अशिक्षित  
ब. प्राथमिक  
स. माध्यमिक  
द. हाई स्कूल  
ई. हाई स्कूल से अधिक
8. कृषया आप अपनी परिवारिक पृष्ठ भूमि के बारे में बताइयें ।  
अ. खराब  
ब. सामान्य  
स. अच्छी (सुदृढ)

9. कृपया आप अपने परिवार के सदस्यों की संख्या के बारे में जानकारी दीजिये ।  
 अ. चार सदस्य संख्या  
 ब. पाँच से छः सदस्य संख्या  
 स. छः से अधिक सदस्य संख्या

10. कृपया आप अपनी समाज में सहभागिता के बारे में जानकारी दीजिये ।

क्रमांक	संस्थाएँ	सहभागिता
1.	शिक्षा समिति	
2.	विकास समिति	
3.	पंचायत समिति	
4.	न्याय समिति	
5.	भजन मण्डल	
6.	अन्य	

11. कृपया आप अपनी जोत के आकार के बारे में जानकारी दीजिये ।  
 अ. सीमान्त (1 हेक्टेयर से कम )  
 ब. लघु (1 से 2 हेक्टेयर)  
 स. मध्यम (2.1 से 5 हेक्टेयर)  
 द. बड़ा ( 5 हेक्टेयर से अधिक )

12. कृपया आप अपने सूचना स्रोतों के विषय में जानकारी दीजिये ।  
 अ. ग्राम सेवक  
 ब. कृषि अधिकारी  
 स. कृषि वैज्ञानिक / विषय वस्तु विशेषज्ञ  
 द. पड़ोसी / रिश्तेदार / दोस्त  
 ई. रेडियो , टी.वी.  
 फ. पत्र, पत्रिकाएँ, एवं अन्य

13. कृपया आपको मीडिया द्वारा प्रदर्शन से कितनी जानकारी प्राप्त हुई है बताइये ।  
 अ. कम  
 ब. मध्यम  
 स. अधिक

17. कृपया आप सरसों उत्पादन तकनीकी के ज्ञान के विषय में जानकारी दीजिये।

क्रमांक	पंक्तियाँ	ज्ञान का स्तर		
		कम	मध्यम	अधिक
1.	उन्नत किस्म किस्म का नाम बीजावर			
14.	आप अपने प्रसार सम्पर्कों के बारे में जानकारी दीजिये । अ. कम (3 से कम सम्पर्क) ब. मध्यम (3 से 6 सम्पर्क) स. अधिक (6 से अधिक सम्पर्क)			
2.	दवाई का समय एवं विधि			
15.	कृपया आप अनुसंधित सरसों उत्पादन की तकनीकी को कब ग्रहण किया जानकारी दीजिये । अ. तुरन्त (जानकारी मिलते ही ) ब. कुछ लोगों को अपनाता देखकर स. अन्त में (सोच समझकर)			
4.	सिंचाई प्रबंधन			
16.	कृपया आप सरसों उत्पादन तकनीकी के प्रति अपनी अभिवृत्ति के बारे में समझाइये । अ. कम (कम रुझान) ब. मध्यम ( सामान्य) का नाम भाव स. अधिक (अधिक रुझान)			
5.	रोग का नाम दवाई का नाम मात्रा			

17. कृपया आप सरसों उत्पादन तकनीकी के ज्ञान के विषय में जानकारी दीजिये।

क्रमांक	पद्धतियाँ	ज्ञान का स्तर		
		कम	मध्यम	अधिक
1.	उन्नत किस्में किस्म का नाम बीजदर ..... ..... .....			
2.	बुवाई का समय एवं विधि ..... ..... .....			
3.	अनुसंशित उर्वरक N. P. K. S. ..... ..... .....			
4.	सिंचाई प्रबंधन ..... ..... .....			
5.	पौध संरक्षण कीट का नाम      दवाई का नाम, मात्रा ..... ..... ..... रोग का नाम      दवाई का नाम, मात्रा ..... ..... .....			

18. कृपया आप अपने अंगीकरण के व्यवहार के सम्बन्ध में जानकारी दें ।

क्रमांक	पद्धतियाँ	अंगीकरण के व्यवहार का स्तर		
		कम	मध्यम	अधिक
1.	उन्नत किस्में किस्म का नाम बीजदर ..... ..... .....			
2.	बुवाई का समय एवं विधि ..... ..... .....			
3.	अनुसंशित उर्वरक N. P. K. S. ..... ..... .....			
4.	सिचाई प्रबंधन ..... ..... .....			
5.	पौध संरक्षण कीट का नाम    दवाई का नाम, मात्रा ..... ..... ..... रोग का नाम    दवाई का नाम, मात्रा ..... ..... .....			