A study on impact of training programme of KVK on wheat production technology among the farmers of Bhitarwar block Gwalior district of Madhya Pradesh

THESIS

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Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior

In partial fulfillment of the requirements for

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(EXTENSION EDUCATION & RURAL SOCIOLOGY)

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GWALIOR (M.P.)

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CERTIFICATE – I

This is to certify that the thesis entitled **"A study on impact of training programme of KVK on wheat production technology among the farmers of Bhitarwar block Gwalior district of Madhya Pradesh"** *submitted in partial fulfillment of the requirement for the degree of* MASTER OF SCIENCE *in* AGRICULTURE (Extension Education *& Rural Sociology*) of *RVS Krishi Vishwa Vidyalaya, Gwalior is a record of the bonafied research work carried out by* **Mr. Narendra Singh Yadav** *I.D.No. 216/2006 under my guidance and supervision. The subject of the thesis has been approved by the 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 the investigation has been acknowledged by him.

Place : Gwalior ***(Dr. O.P. Daipuria)***

Date : **Chairman of the Advisory Committee**

THESIS APPROVED BY THE STUDENT'S ADVISORY COMMITTEE

Member **(Dr. R.S. kushwah)** _____

Member **(Dr. A.M. Jaulkar)** _____

Member **(Dr. V.B. Singh)** _____

CERTIFICATE – II

This is to certify that the thesis entitled **"A study on impact of training programme of KVK on wheat production technology among the farmers of Bhitarwar block Gwalior district of Madhya Pradesh"** *submitted by* **Mr. Narendra Singh Yadav** *to the RVS Krishi Vishwa Vidyalaya, Gwalior in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE in AGRICULTURE (Extension Education & Rural Sociology) in* 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 on the same.*

Place: Gwalior **(Dr. O.P. Daipuria)**
Date : **Chairman Advisory Committee**

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Director of Instruction _____

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Date :

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Chapter-I
INTRODUCTION

Achievements of self-sufficiency in food production have been one of the principal objectives of various five-year plans in India. As a result of various programmes launched for achieving self-sufficiency over country has become self-reliant in food production also been maintaining buffer stock but still there is a wide gap between achievable and achieved production which is due to certain set of complex constraints in proper transfer technology and constraints in its adoption at farmers field.

The world is facing a problem of hunger and mal nutrition, which is too solved in, future. The situation is graver due to the fast increasing population of the world. Adoption of improved agricultural practice, remarkable results have been achieved in production. The farmers have capacity to produce more and get high farm income, which was considered unattainable only a few years back.

After independence, several programs and projects have been launched in the country to increase agricultural productivity for solving the food problem; the programmes like community development agriculture area programme, small farmer's development programme were started for agricultural development in India. The aim of this programme was to increase agricultural production.

Wheat is grown in India over an area of about 266.92 lakh ha. with a production of 721.40 lakh tones. The normal National productivity is about 2703 kg/ha. The major Wheat producing States are Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Rajasthan, Bihar, Maharashtra, Gujarat, Karnataka, West Bengal, Uttaranchal, Himachal Pradesh and Jammu & Kashmir. These States contribute about 99.5% of total Wheat production in the country. Remaining States, namely, Jharkhand, Assam, Chhattisgarh, Delhi and other North Eastern States contribute only about 0.5 % of the total Wheat production in the country. Among food grains, wheat stands next to rice, both in area and production. The share of wheat in total food grain production is around 35.5% and share in area is about 21.8% of the total area under food grains. In 2011, wheat production of the country is 86.870 MT which is increased 7.51 % in comparison to last year.

The cultivated area (14.9 million ha) constitutes almost half of the total geographical area of the state. A greater part of the area (62%) is rainfed with large precipitation during monsoon. The black soils/red soils are low to medium in soil fertility. The major crops are soybean, wheat, chickpea and cotton. Madhya Pradesh is an important wheat growing state, accounting for 8.7% of production and 14.3% of the area under cultivation. The area under wheat in the state is 3.7 million ha and the production is 6.1 tonnes, at a productivity of 1.6 tonnes/ha. There is an yield gap of 2.07 tonnes/ha between farmers' fields and frontline demonstrations. Major constraints in production are poor varietal replacement, heat and drought stress and late sowing.

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. Krishi Vigyan Kendra (KVK) is an innovative science- based institution which undertaking vocational training to the farmers, farm women and rural youths, in service training for extension workers conducts on farm research for technology refinement and frontline demonstrations. To show the production potential for latest technologies the KVK functions on the principles of collaborative participation of scientist subject- matter experts, extension workers and farmers.

Imparting learning through "work-experience" to those who are engaged in farming is the main purpose of the KVKs .The syllabus and programme of each KVK is tailored to the felt-needs of the farmers, resources and potential for agricultural growth in a particular area. "Seeing is believing" and "Learning by doing" are the main methods of imparting skill training. The special programme of training under farmers training and education programme was one of the vital steps taken by the government to increase knowledge and skill of farmer in order to adjust themselves to changing situation by adopting scientific method of cultivation.

Training and education are lifelong requirement to improve the living standard of large number of people in the villages. The significance of training for development and mobilization of human resources energies has been recognized

long back, but finding out ways for improving effectiveness of training received attention only recently. Keeping this views, Krishi Vigyan Kendra's are the grass-root level training institutions, designed for bridging the gap between the available technologies at the one end and their application for increased production at the other. Information regarding agricultural inputs, like improved seeds, suitable manures and fertilizers, plant protection manures and credit requirement etc, need urgent attention for fulfilling these tasks. Training is an important component of human resources development.

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. Govt. Institute, Non Govt. Organization, Private agencies and KVK are playing major role for promoting the cultivation of oil seed and conducting Training programme, Exhibition, Kisan Mela, Sangosthi and other programme for dissemination of information about cultivation of oil seed with low cost and environmentally safe condition. The success of any training programme depends greatly on the perception of the trainees towards it. Hence it is worthwhile to assess the impact of cultivation of oil seed training programmes in term of trainees' perception So that the farmers may adopt these technologies and enhance their production with low cost and environmentally safe condition. The success of any training programme depends greatly on the perception of the trainees towards it. Hence it is worthwhile to assess impact of training on production level of wheat crop in terms of trainee's perception.

The training brings out the required change in the individuals behavior for improving his performance. Therefore to determine the impact of training on production level of wheat crop in Bhitarwar block of Gwalior District. The present study was under taken with the following objectives:

Objectives of investigation:

- characteristics of trained farmers and untrained farmers.
- To determine the level of knowledge and adoption of wheat production technology among the trained farmers and untrained farmers.

- To analyze the relationship between personal, socio economic, communicational and psychological characteristics of trained farmers and untrained farmers with their knowledge and adoption of wheat production technology.

Significance of the study:

Knowledge plays an important role in the field of agricultural development by informing the farmers about new techniques in agriculture. It helps 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 To study the personal, socio economic, communicational and psychological irrigation and new plant protection techniques etc.

Limitation of the study:

- The study was confined to the Bhitarwar block of Gwalior 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 educational qualification, caste, family size, social participation, size of land holding, irrigation availability, economic motivation, information seeking behaviour, extension participation, innovativeness, cosmopoliteness and attitude towards farm programmes 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

characteristics, extent of knowledge and adoption of wheat production technology. 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 sixth 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:

Barnell and Hill (1964) pointed out that the basic purpose of training is to increase the skill and efficiency of making decisions about low cost practices.

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

Singh and Sohal (1969) mentioned that the training of farmers bring about all round improvements in their farm organization through adoption of profitable cropping pattern high yielding varieties of crops, balanced use of pesticides and improved work methods. The training programme thus has a greater multiplier effects.

Sharma and Murthy (1971) stated that both trained and untrained farmers as well as progressive and no progressive farmers recognized the need for training in plant protection and use of manures, fertilizers and improved seeds.

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.

Patel (1978) stated that knowledge regarding wheat crop was associated with participation in training programme.

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 medium social participation, income innovativeness and higher knowledge and adoption of hybrid maize practices and also higher yields as compared to untrained farmers under similar situation

Shrivastava (1982) reported significant impact of training on the extent of knowledge adoption and diffusion of improved agricultural practices among the male farmers.

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.

Jaiswal and Rathore (1985) observed that actual adoption was 57.10 per cent amongst irrigated farmers in cultivation of wheat. It was also observed that gap in adoption was highest in respect of fertilizer application, seed treatment and plant protection measures.

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.

Minz (1985) found that the level of knowledge and extent of adoption of PHT of paddy and wheat crop of trained and untrained tribal farmwomen were significantly differed.

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

Jesuraja (1987) reported that there is increase in percentage of respondents who have learned a new skill or whose known skill was further sharpened after training.

Gurjar (1988) found that independent variables like education, social participation, land holding, annual income, cosmopoliteness, 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.

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

Joshi and Thorat (1992) reported that nutrition training had positive impact on respondents with regards to knowledge index and adoption index of consumption aspect of nutritional food.

Jaulkar et al(1992) found that lack of knowledge, lack of adequate faculties 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.

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.

Shrivastava *et al*. (1996) reported that level of knowledge of home practices increased cent percent after the training of female farmers belonging to keddle standards

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, cosmopolite ness and entrepreneurial behaviors their exists significant difference among the groups

Prasad and Singh (1996) revealed that most of the mustard growers had medium to low level of adoption about recommended mustard production technology.

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.

Mahipal and Prasad (1997) reported that a well designed training programme based on the needs of the participants would result in gain in their knowledge substantially which ultimately lead to satisfaction.

Aski *et al.* (1997) reported an increase in knowledge of sugarcane growers due to training.

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.

Sarvathy and Kumari Sushma (2000), revealed on the basis of the findings of the study that rural women proffered orchid cultivation handicraft and processing of fruits as major areas where they need training. Far a training programme to be successful one must recognize the training need of the clients and their situation problem and prospects in the applicability of practices.

Sarada and Rao (2000) conduced from the findings of the study that the variation in extent of perception of drudgery in farm and home activities could be observed in case of trivial women . In almost all the farm activities like channel weeding, transplanting, harvesting, destruction of effected plants parts, winnowing and in home activities like fetching of water collection of fuel/ preparation of cow dunk cokes, mud plastering the perception of drudgery was reported to be more.

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

Choudhary (2000) revealed that the overall gain in knowledge of the training was quite encouraging among all the categories, particularly in secondary studies group and to make training programme more effective for other categories authorities restorable for training should give importance to other teaching aspects appropriate teaching methods should be used and emphasis should be give to teach skill components by making small groups.

Bharti *et.al.* (2000) concluded that the inadequate preliminary knowledge about consumption processing preservation of soybean among literate and illiterate group of rural hose 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

Seth *et al*. (2001) found that the trained women have reported few constraints in performing fruit processing. It the real purpose of training is to be served the university staff should follow the trainees till they get settled in their fruit processing occupation. This calls and effective co ordination of state agriculture universities with other development.

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.

Lal *et al.* (2005) found majority of the farmers belonging to middle aged backward caste with low education status and with marginal land holding and had small size. Majority 51.50 percent of the respondents had medium perception about wheat production technology. Education, social participation, size of land holding, irrigation facility, economic motivation cosmopoliteness and attitude towards improved farm practices were found significant relationship with perception about wheat production technology.

Waman and Ahire (2006) revealed that the majority of wheat growers were having medium level of knowledge and also medium level of adoption of recommended package of practices of wheat production technology. The adoption were noticed to be comparatively less in fertilizer application, seed rate per hectare and spacing while, none of them used any plant protection measures to control pests and diseases.

Dubey and Srivastava (2007) revealed that trainees had high level of knowledge (100 %) whereas in case of non-trainees, 52% high level, 44 % medium level and only 4 % with low level of knowledge. There was a significant difference between trainees and non trainees regarding the knowledge about the package of practices of wheat crop. The study also revealed that most of the trainees (84 %) had higher level of adoption followed by medium level (16 %) whereas, most of the non-trainees had medium level of adoption (64 %) followed by low level of adoption (32 %). This indicates that there had been a significant difference between trainees and non-trainees regarding the extent of adoption of package of practices of wheat crop.

Daya Ram et al. (2010) revealed that education, size of land holding, average annual income and marketing facilities were most important factors to effect the adoption of farmers of wheat production technologies as the ‘r’ values were found 0.20128 in case of education (significant at 5 per cent level of probability), 0.27788, 0.36250 and 0.30509 respectively in case of size of land holding, average annual income and marketing facilities (significant at 1 per cent level of probability). Further, study reveals that size of land holding and value orientation were most important

factors for predicting the adoption of improved wheat cultivation technologies by practicing farmers.

Chapter – III
RESEARCH METHODOLOGY

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:

I. Background information about the study area
II. The problem
III. Hypotheses of the study
IV. Sample design
V. Variable used in the study
VI. Concept and operationalization.
VII. Instruments of data collection
VIII. Method of data collection.
IX. Presentation of data
X. 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 study was conducted in Bhitarwar block of Gwalior district of Madhya Pradesh. There are four blocks in the district namely-Dabara, Morar, Ghantigaon and Bhitarwar.

Land & Main crops

Sandy loam and black loam soil is generally found in the block. This soil is

quite suitable for growing Mustard, Wheat, Jowar, Bajara, Paddy, Sugarcane and Til etc. Vegetable cultivation is also popular in Gwalior District.

Climate and rainfall:

The climate is generally moderate & dry hot and the rainfall is between 650 to 750 mm.

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.

(II) The problem:

Our country produces a large number of cereal seeds such as paddy, wheat, maize, bajra, jowar are the most important cereal crops in the country. Wheat is the major rabi cereal crops of India. India is one of the largest producer of wheat in the world. Among food grains, Wheat stands next to Rice, both in area and production. The share of Wheat in total food grain production is around 35.5% and share in area is about 21.8% of the total area under food grains.

Training is vital and essential to induce motivation, create confidence develop skill and increase efficiency in an individual. Its effectiveness depends to large extent on the identification of training needs. Keeping this in view, the Indian Council of Agricultural Research initiated a chain of Krishi Vigyan Kendra (Farmers science centre) all over the country. These Kendras aimed at using “Work Experience” as the main training device based on “Learning by doing”. In the agricultural development, there is a need to equip the farmers engaged in these activities with necessary knowledge and skill through training. The training helps to build up confidence and to take an active part in actual implementation of the modern agricultural technology. Training of farmers has assumed further importance and urgency in the context of the improved practices in agriculture and allied fields. It is therefore, necessary to identify the areas of training in which the person require training. Training will be more effective and purposeful if it is based on and synchronized with the local needs and requirements. The various extension agencies are continuously making

efforts to create awareness among the farmers about agriculture. Training and education are lifelong requirement to improve the knowledge and skill of the people. The value of any training programme can only be judged through trainees' perception and response. It was therefore, felt necessary to study the impact of training on production level of wheat crop in terms of trainee's perception.

Selection of the area and respondents:

The study was conducted in Gwalior district of M.P. out of 4 blocks in the district, the Bhitarwar block was selected purposively because its having maximum number of trained farmers in wheat production technology. A list of villages where training programme are conducted by KVK was prepared and out of which 2 villages were selected randomly. A village wise list of trained farmers, who are trained in wheat production technology by Krishi Vigyan Kendra, was prepared and from each village thirty trained and thirty untrained farmers was selected by using simple random sampling method. Thus, the total sample was consisted of 120 respondents for the study.

Variables and their measurement

The different dependent and independent variables were used in study are presented in below with their empirical measurement: -

Table 1 dependent and independent variables and their measurement

S. No.	Variables	Measurement
A	**Independent variables**	
1	Age	Chronological age
2	Education	Structural schedule
3	Social participation	Structural schedule
4	Size of land holding	Structural schedule
5	Annual income	Structural schedule
6	Irrigation facility	Structural schedule
7	Source of information	Structural schedule
8	Innovativeness	Nandapurakar()

9	Cosmopoliteness	Structural schedule
B	**Dependent variable**	
1	Knowledge about wheat production technology	Knowledge index
2	Adoption of wheat produ Technology	Adoption index

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 is. . The categorization was as follows:

S. No.	Categories	Scores
1.	Young (<35 years)	1
2.	Middle (35-50 years)	2
3.	Old (>50 years)	3

Education-

Educational status is operationalized as the number of year of formal education acquired by the respondent at the time of enquiry and the scores assigned. The status of education was considered, illiterate, primary school, middle school, high school and above. The categorization was as follows:

S. No.	*Category*	*Scores*
1.	illiterate	1
2.	Functionally illiterate	2
3.	Up to primary	3
4.	Up to middle	4
5.	High school	5
6	Higher secondary & above	6

Social participation-

It refers to the participation/member 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***
1	Low (< Mean – SD)
2	Medium (Between Mean ± SD)
3	High (> Mean + SD)

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:

S. No.	***Category***	***Scores***
1	Marginal (<1ha)	1
2	Small (1-2ha)	2
3	Medium (2.1 - 5ha)	3
4	Large (> 5 ha)	4

Annual Income: -

It is considered as the income of an individual from the agricultural as well as subsidiary occupation within the year. The annual income categories was classified in the following manner are as follows

S. No	***Category***
1.	Low (< Mean – SD)
2.	Medium (Between Mean ± SD)
3.	High (> Mean + SD)

Irrigation facility:

It has been operationally defined as the fraction of the total area being irrigated and was expected in term of percentage to total area. On the basis of range of scores, the following three categories were developed.

S. No.	*Category*
1.	Low (< Mean – SD)
2.	Medium (Between Mean ± SD)
3.	High (> Mean + SD)

Sources of information

It is operationalised as the degree to which a respondent is exposed to the information of wheat production technologies from various source and channels of communication and was measured with the help of index. Many channels of locality cosmopolite interpersonal and mass media communication were considered. The three categories were formulated as:

S. No.	**Category**
1.	Low (< Mean – SD)
2.	Medium (Between Mean ± SD)
3.	High (> Mean + SD)

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 develop by Nandapurkar(19). The categorization was as follows:

S. No.	*Category*
1	Low (< Mean – SD)
2	Medium (Between Mean ± SD)
3	High (> Mean + SD)

Dependent variables-

Knowledge about wheat 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 wheat.

For the study of knowledge seven recommended practices of wheat production technology viz. field preparation, improved varieties, seed treatment, time of sowing, & method, irrigation management, recommended dose of manure & chemical fertilizers, and plant protection were selected. The weightage of 2 for complete knowledge and 1 for partial knowledge were assigned for each practice. The total score obtained by the respondents from all seven practices was the knowledge score of the individual respondent.

S. No.	***Category***
1	Low (< Mean – SD)
2	Medium (Between Mean ± SD)
3	High (> Mean + SD)

Adoption of wheat production technology:

The adoption behaviour of wheat production technology refers to the extent of adoption of recommended improved farm practices. The questions were regarding field preparation, improved varieties, seed treatment, time of sowing, & method, irrigation management, recommended dose of manure & chemical fertilizers, and plant protection were selected.

The weightage of 2 for complete adoption and 1 for partial adoption of each practice were assigned. The total score obtained by the respondent from all the seven 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 categorization was based on the mean. The following categories were used in the study.

S. No.	*Category*
1	Low (< Mean – SD)
2	Medium (Between Mean ± SD)
3	High (> Mean + SD)

Instrument of data collection:

The data was 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.

Presentation of data:

The data collected was 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 with the help of statistical tools like- mean, S.D., percentage and Karl Pearson's coefficient of correlation which are as follows:

i). Mean:

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

$$\bar{X} = \frac{\sum x}{n}$$

Where,

$\bar{X}$ = Mean
$\sum X$ = 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) Standard deviation

The standard deviation is the square root of the arithmetic average of the squared deviation of various values from their arithmetic mean.

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

Where,

Σx	=	deviation of the score from mean
n	=	number of observation

iv) Karl Pearson's Correlation coefficient (r)

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

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

Where,

r	=	Correlation coefficient
n	=	Number of respondents
x	=	Independent variables
y	=	Dependent variable
$\sum xy$	=	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

Chapter – IV

RESULTS AND DISCUSSION

The results of the present investigation have been described in this chapter which has been organized according to the objectives of the study. For convenience of interpretation and presentation of findings it has been presented into following parts:

- Personal, socio economic, communicational and psychological characteristics of trained farmers and untrained farmers.
- Level of knowledge and adoption of wheat production technology among the trained farmers and untrained farmers.
- Relationship between personal, socio economic, communicational and psychological characteristics of trained farmers and untrained farmers with their knowledge and adoption of wheat production technology

A. Personal, socio economic, communicational and psychological characteristics of trained farmers and untrained farmers

In case of social field a large number of attributes are not amenable to gradual measurement but their study is of a primary importance. Very frequently, in any experimental work we deal with some characteristics or attributes that are susceptible of accurate measurement, although it is possible divide population into two or more categories with reference to these attributes.

The data compiled in the following tables shows the attributes of respondents in study area. The different selected attributes of the respondents were considered in this study, which has already been described in the chapter of materials and methods. Basic statistical values of these selected attributes are briefly discussed for clarity of understanding.

Age-

The age of respondents was considered as length of number of years. The data presented in Table-4.1and Fig.4.1 reveals that majority of the respondents, in case of trained farmers, (46.67%) were of middle age group followed by young age

group (31.67%) and old age group (21.66%) respectively. The mean score of young age group was 0.60, 0.89 for middle age group and 0.41 for old age group. The overall mean score was found to be 1.90.

Table-4.1 Distribution of the respondents according to their age-

S.N.	Categories	Trained farmers	Mean	Non trained farmers	Mean
1	Young	19 (31.67)	0.60	18 (30.00)	0.57
2	Middle	28 (46.67)	0.89	30 (50.00)	0.95
3	Old	13 (21.66)	0.41	12 (20.00)	0.38
Total		**60 (100.00)**	**1.90**	**60** (**100.00**)	**1.90**

Similarly in case of non- trained (50.00%) were in middle age group followed by young age group (30.00%) and old age group (20.00%) respectively. The mean score of young age group was 0.57, 0.95 for middle age group and 0.38 for old age group. The overall mean score was found to be 1.90.

Thus, it can be concluded that in study area, majority of the trained as well as non trained farmers were in middle age group.

Education-

Education was considered as the number of year of formal education acquired by the respondents which may affect the knowledge and adoption of improved technology and development of any trade. The data presented in table- 4. 2 and Fig. 4.2 shows that maximum numbers (31.67%) of trained farmers were found to possess primary school level of education. The Table also shows that 10.00 per cent respondents were illiterates, 20.00 per cent respondents were functionally literate, 18.33 per cent respondents had middle school education and 13.33 per cent respondents had high school and 06.67 per cent had higher secondary and above education. The category wise mean score was found to be 0.23 for illiterate, 0.45 for functionally literate, 0.71 for primary school, 0.41 for middle school, 0.30 for high school and 0.15 for higher secondary and above level. The overall mean score was found to be 2.25.

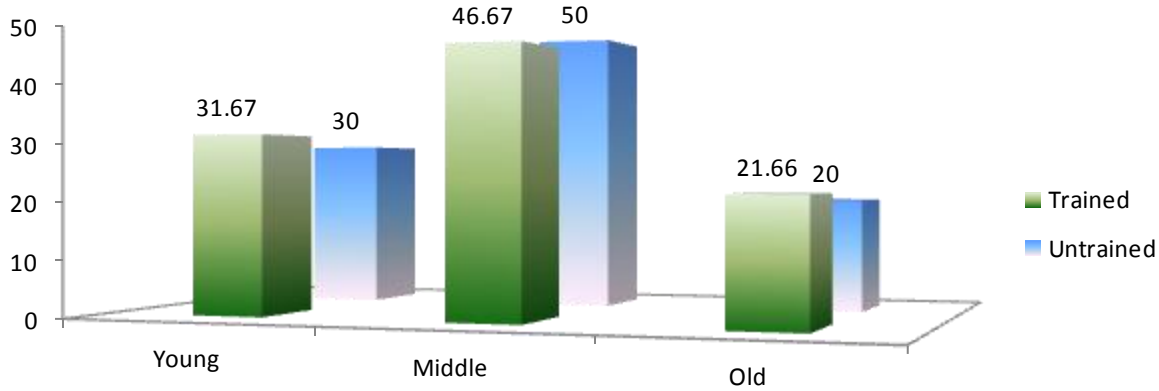

Fig.4.1 Distribution of the respondents according to their age

Table-4.2 Distribution of the respondents according to their education-

S.N.	Categories	Trained farmers	Mean	Non trained farmers	Mean
1	Illiterate	06 (10.00)	0.23	06 (10.00)	0.22
2	Functionally literate	12 (20.00)	0.45	12 (20.00)	0.44
3	Primary school	19 (31.67)	0.71	21 (35.00)	0.76
4	Middle school	11 (18.33)	0.41	10 (16.67)	0.36
5	High school	08 (13.33)	0.30	08 (13.33)	0.29
6	Higher secondary & above	04 (06.67)	0.15	03 (05.00)	0.11
Total		**60 (100.00)**	**2.25**	**60 (100.00)**	**2.18**

In case of non trained farmers maximum numbers (35.00%) of were found to possess primary school level of education. The Table also shows that 10.00 per cent non trained were illiterates, 20.00 per cent were functionally literate, 16.67 per cent had middle school education, 13.33 per cent had high school and only 05.00 per cent had higher secondary and above education. The category wise mean score was found to be 0.22 for illiterate, 0.44 for functionally literate, 0.76 for primary school,

0.36 for middle school, 0.29 for high school and 0.11 for higher secondary and above level. The overall mean score was found to be 2.18.

Thus, it can be concluded that overall majority of the trained farmers as well as non trained farmers were literates and were in primary school category.

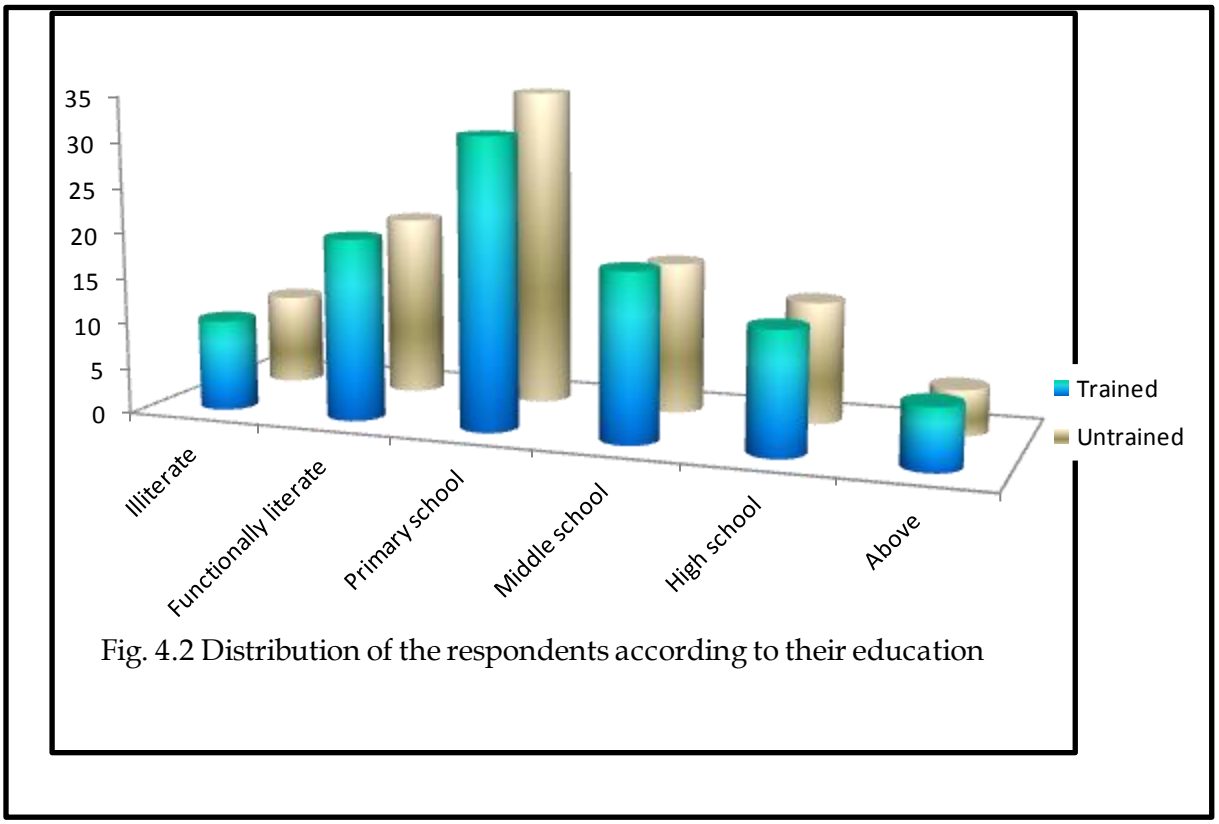

Fig. 4.2 Distribution of the respondents according to their education

Social Participation-

Table-4.3 Distribution of the respondents according to their social participation-

S.N.	Categories	Trained farmers	Mean	Non trained farmers	Mean
1	Low	14 (23.33)	0.46	18 (30.00)	0.55
2	Medium	34 (56.67)	1.12	34 (56.67)	1.04
3	High	12 (20.00)	0.39	08 (13.33)	0.24
Total		**60 (100.00)**	**1.97**	**60 (100.00)**	**1.83**

The level of social participation or involvement in society reflected their contribution towards development of related enterprise .The data in Table 4.3 and

fig.4.3 shows that out of the total 60 trained farmers, 56.67 per cent had medium social participation, followed by 23.33 per cent respondents who had low social participation and only 20.00 per cent were found to have high social participation. The overall mean of respondents was found to be 1.97. The mean of the low social participation category was found to be 0.46 while that of the medium and high category was 1.12 and 0.39 respectively.

Similarly, out of the total 60 non trained farmers, 56.67 per cent had medium social participation, followed by 30.00 per cent who had low social participation and only 13.33 per cent were found to have high social participation. The overall mean of non trained farmers was found to be 1.83. The mean of the low social participation category was found to be 0.55 while that of the medium and high category was 1.04 and 0.24 respectively.

Thus, it can be concluded that majority of the trained as well as non trained farmers had medium social participation.

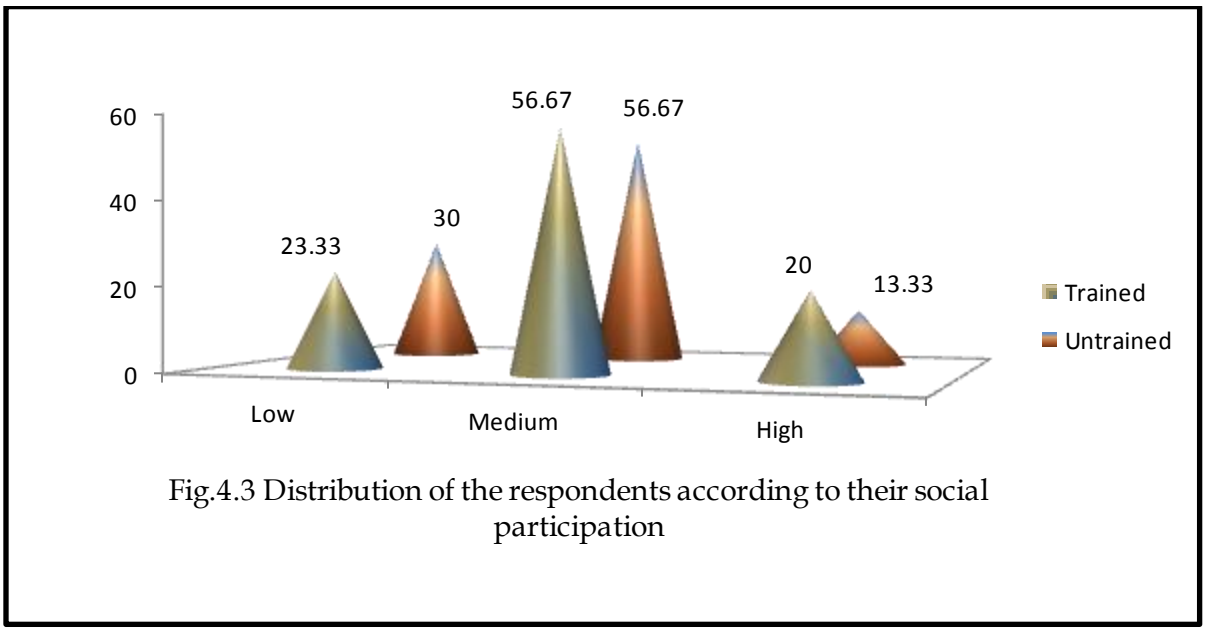

Fig.4.3 Distribution of the respondents according to their social participation

Size of land holding-

Table 4.4 Distribution of the respondents according to their size of land holding-

S.N.	Categories	Trained farmers	Mean	Non trained farmers	Mean
1	Marginal	13 (21.67)	0.49	17 (28.33)	0.59

2	Small	26 (43.33)	0.99	27 (45.00)	0.93
3	Medium	12 (20.00)	0.46	10 (16.67)	0.35
4	Large	09 (15.00)	0.34	06 (10.00)	0.21
Total		**60 (100.00)**	**2.28**	**60 (100.00)**	**2.08**

The data in Table 4.4 and fig.4.4 indicates that out of the total 60 trained farmers, the majority (43.33%) of the trained farmers had size of land holding under small farmers group. The next category of (21.67%) trained farmers belonged to marginal size of land holding, followed by medium category (20.00%) and large category (15.00%) respectively. The overall mean score of size of holding was found to be 2.28. The mean of size of land holding were 0.49, 0.99, 0.46 and 0.34 in respect of marginal, small, medium and large size farmers respectively.

The data also revealed that out of the total 60 non trained farmers, the majority (45.00%) had size of land holding under small farmers group. The next category of (28.33%) non trained farmers belonged to marginal size of land holding, followed by medium category (16.67%) and large category (10.00%) respectively. The overall mean score of size of holding was found to be 2.08. The mean of size of land holding were 0.59, 0.93, 0.35 and 0.21 in respect of marginal, small, medium and large size farmers respectively.

Thus, it can be concluded that majority of the trained and non trained farmers had small size of land holdings.

Annual income-

For fostering rapid acceptance of new technology, the respondent must inculcate the nature of annual income. The data in Table 4.5 and fig. 4.5 show that out of the total 60 trained farmers, 33.33 per cent had low level of annual income while 46.67 per cent were having medium and only 20.00 per cent had high annual income. The mean of the low annual income category was found to be 0.63 while that of the medium category was 0.87 and high category was 0.37. The overall mean score was 1.87.

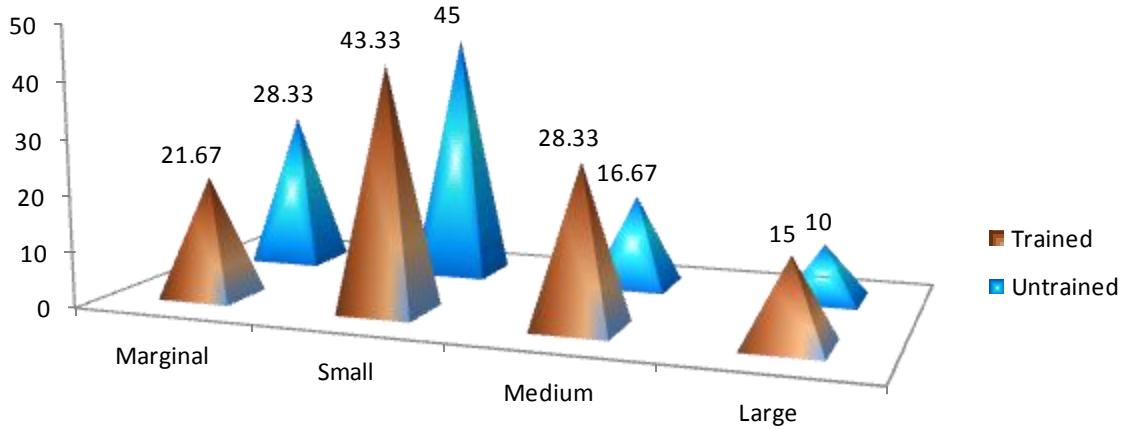

Fig.4.4 Distribution of the respondents according to their land holding

Table -4.5 Distribution of the respondents according to their annual income-

S.N.	Categories	Trained farmers	Mean	Non trained farmers	Mean
1	Low	20 (33.33)	0.63	26 (43.33)	0.73
2	Medium	28 (46.67)	0.87	27 (46.00)	0.75
3	High	12 (20.00)	0.37	07 (11.67)	0.20
Total		**60 (100.00)**	**1.87**	**60 (100.00)**	**1.68**

It is also observe that out of the total 60 untrained farmers, 43.33 per cent had low level of annual income while 46.00 per cent were having medium and only 11.67 per cent had high annual income. The mean of the low annual income category was found to be 0.73 while that of the medium category was 0.75 and high category was 0.20. The overall mean score was 1.68.

Thus, it can be concluded that majority of the trained as well as untrained farmers were in medium annual income category.

Irrigation facility-

The Table 6 and fig.6 shows that out of total 60 respondents 26.67 per cent was found in the low irrigation facility category. The highest trained farmers (41.67%) were in the medium category followed by 31.66 per cent in high category. The mean

of the low irrigation facility category was found to be 0.55, while that of the medium category it was 0.85 and for high category it was found to be 0.65. The overall mean was 2.05.

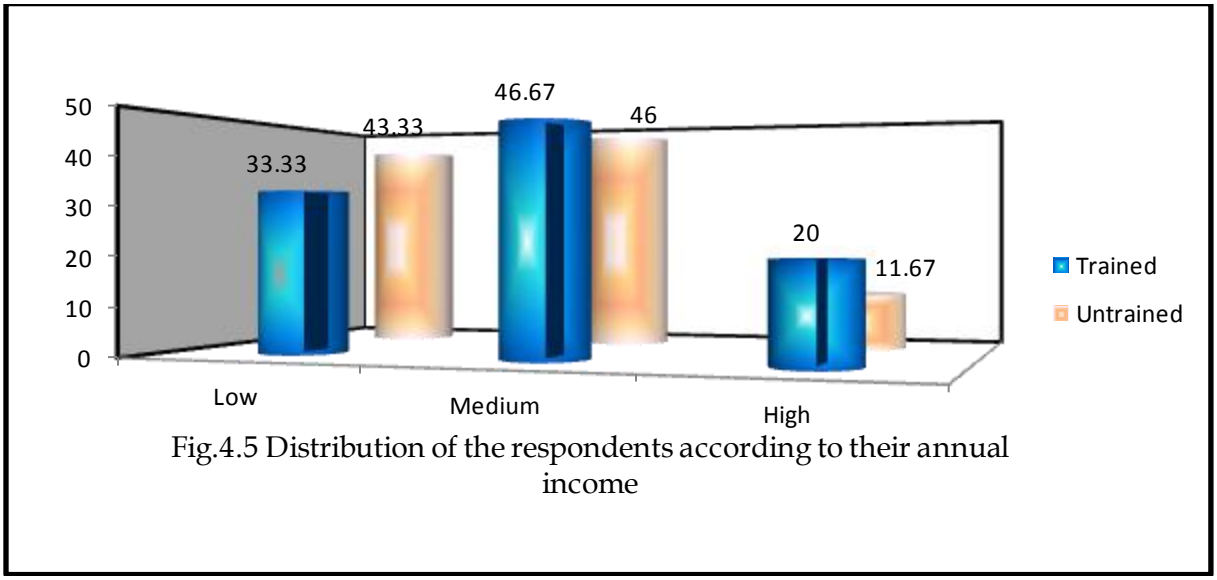

Fig.4.5 Distribution of the respondents according to their annual income

Table -4.6 Distribution of the respondents according to their irrigation facility-

S.N.	Categories	Trained farmers	Mean	Untrained farmers	Mean
1	Low	16 (26.67)	0.55	23 (38.33)	0.72
2	Medium	25 (41.67)	0.85	21 (35.00)	0.66
3	High	19 (31.66)	0.65	16 (26.67)	0.50
Total		**60 (100.00)**	**2.05**	**60 (100.00)**	**1.88**

in case of untrained farmers, out of total 60 respondents, maximum 38.33 per cent were found in the low irrigation facility category while, 35.00 per cent were in the medium category followed by 26.67 per cent in high category respectively. The mean of the low irrigation facility category was found to be 0.72, while that of the medium irrigation facility category was 0.66 and high category was found to be 0.50. The overall mean was 1.88.

Thus, it can be concluded that majority of the trained as well as untrained farmers were in medium irrigation facility category.

Source of information-

For fostering rapid acceptance of new technology, the respondent must inculcate the source of information. The data in Table 4.7 and fig.4.7 shows that out of the total 60 trained farmers, 26.67 per cent had low level of source of information while 51.67 per cent were having medium and only 21.66 per cent had high source of information. The mean of the low source of information category was found to be 0.52 while that of the medium category was 1.01 and high category was 0.42. The overall mean score was 1.95.

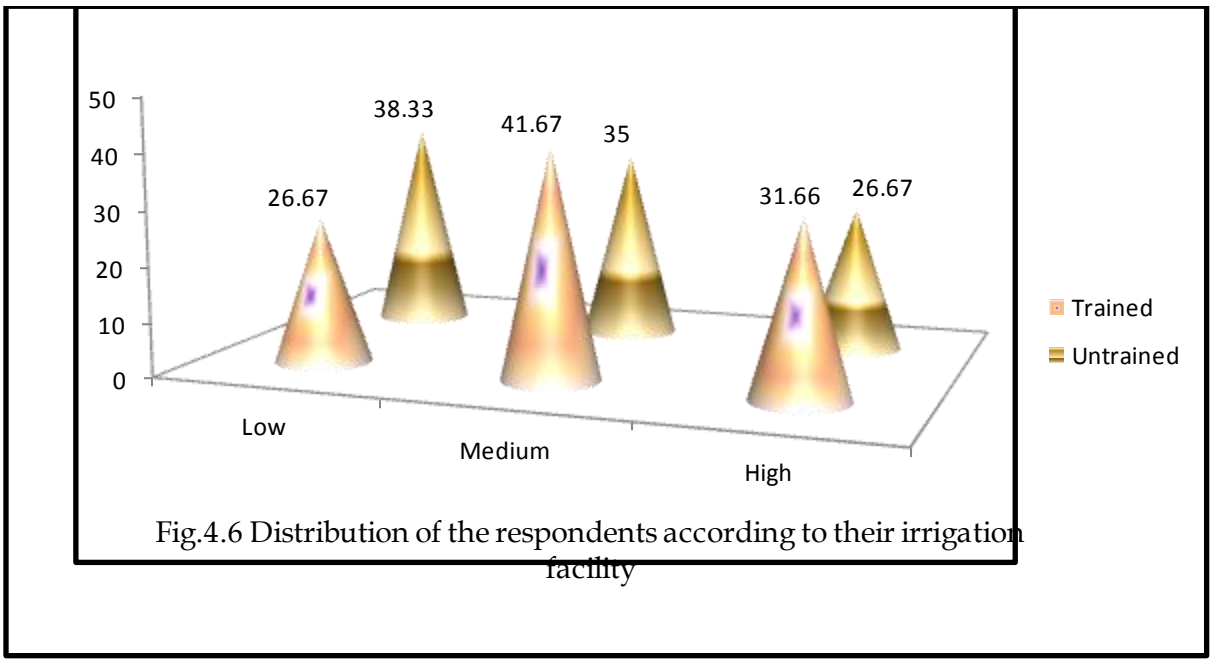

Fig.4.6 Distribution of the respondents according to their irrigation facility

Table- 4.7 Distribution of the respondents according to their information source-

S.N.	Categories	Trained farmers	Mean	Untrained farmers	Mean
1	Low	16 (26.67)	0.52	23 (38.33)	0.62
2	Medium	31 (51.67)	1.01	27 (45.00)	0.87
3	High	13 (21.67)	0.42	10 (16.67)	0.37
Total		**60 (100.00)**	**1.95**	**60 (100.00)**	**1.87**

In case of untrained farmers the majority of the untrained farmers, (38.33%) had low level of source of information while 45.00 per cent were having medium and

only 16.67 per cent had high source of information. The mean of the low source of information category was found to be 0.62 while that of the medium category was 0.87 and high category was 0.37. The overall mean score was 1.87.

Thus, it can be concluded that majority of the trained as well as untrained farmers were in medium source of information category.

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 untrained farmers. The data in Table 4.8 and fig.4.8 shows that out of the total 60 trained farmers, 23.33 per cent were in the low innovativeness category, while 50.00 per cent were in the medium category and only 26.67 per cent were in high category. The mean of the low innovativeness category was found to be 1.42 while that of the medium category was 3.03 and high category was 1.62.The overall mean score of this category was found to be 6.07.

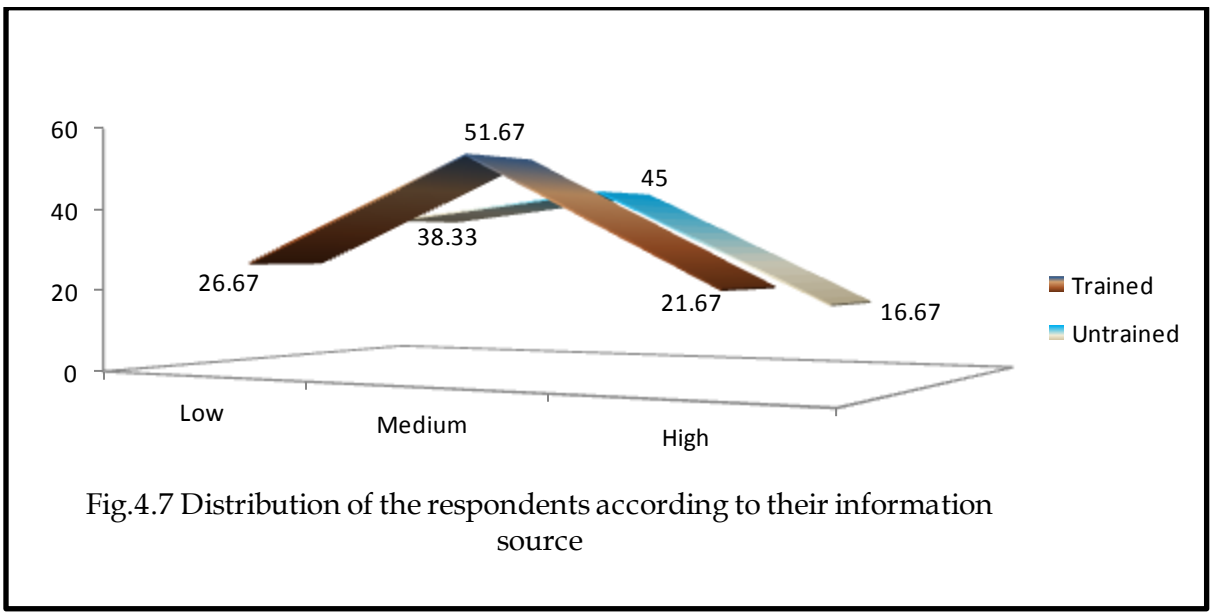

Fig.4.7 Distribution of the respondents according to their information source

Table- 4.8 Distribution of the respondents according to their innovativeness-

S.N.	Categories	Trained farmers	Mean	Untrained farmers	Mean
1	Low	14 (23.33)	1.42	20 (33.33)	1.94
2	Medium	30 (50.00)	3.03	26 (43.33)	2.52
3	High	16	1.62	14	1.36

		(26.67)		(23.34)	
Total		**60 (100.00)**	**6.07**	**60 (100.00)**	**5.82**

It can be also concluded that out of the total 60 untrained farmers, 33.33 per cent were in the low innovativeness category, while 43.33 per cent were in the medium category and only 23.34 per cent were in high category. The mean of the low innovativeness category was found to be 1.94 while that of the medium category was 2.52 and high category was 1.36.The overall mean score of this category was found to be 5.82.

Thus, it can be concluded that majority of the trained as well as untrained farmers were in medium category regarding innovativeness.

Cosmopoliteness-

The technological development observed in urban and rural areas seems to be much different and urban areas visualize more technological advancement. Hence, the visit or orientations outside of the social system play an important role in development. Table 4.9 and fig. 4.9 show that out of the total 60 trained farmers, the highest 41.67 per cent respondents were in the medium category of cosmopoliteness followed by 30.00 per cent respondents who were in the high category while 28.33 per cent trained farmers were found in low category. The mean of the low cosmopoliteness was found to be 0.57, which was less than 0.84 and 0.61 for medium and high categories respectively. The overall mean score was 2.02.

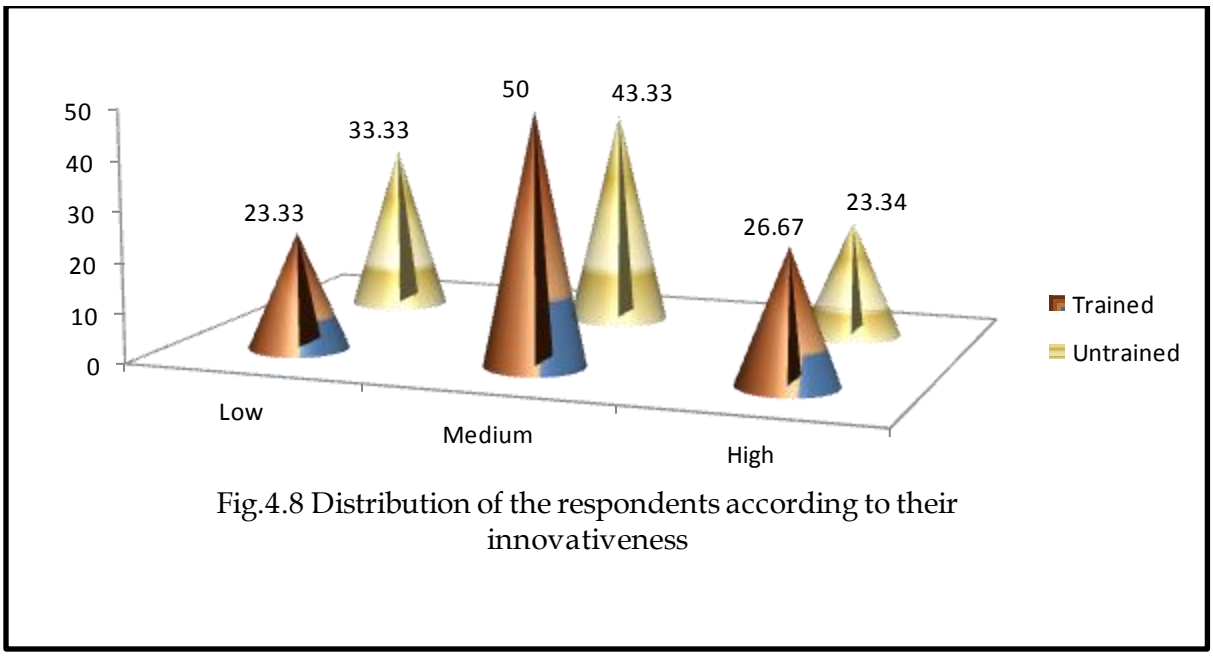

Fig.4.8 Distribution of the respondents according to their innovativeness

Table-4.9 Distribution of the respondents according to their cosmopoliteness-

S.N.	Categories	Trained farmers	Mean	Untrained farmers	Mean
1	Low	17 (28.33)	0.57	21 (35.00)	0.68
2	Medium	25 (41.67)	0.84	25 (41.67)	0.81
3	High	18 (30.00)	0.61	14 (23.33)	0.46
Total		**60 (100.00)**	**2.02**	**60 (100.00)**	**1.95**

Similarly, in case of untrained farmers, 23.33 per cent were found in high category of cosmopoliteness. The highest 41.67 per cent untrained farmers were in the medium category of cosmopoliteness followed 35.00 per cent by in low category. The mean of the low cosmopoliteness was found to be 0.68, for medium category it was 0.81 and 0.46 for high category. The overall mean score was 1.95.

Thus, it can be concluded that majority of the trained farmers as well as untrained farmers were in medium category regarding cosmopoliteness.

B. Level of knowledge and adoption of wheat production technology among the trained farmers and untrained farmers

Since the majority of farmers in India are poor, they do not want to take risk at the cost of sufferings of their family members if they perceive and have a fear to loose their existing level of production. All farmers want food, fiber and money with which they could buy other commodities for family use. They want security, if they perceive that they will be secured if they adopt the new agricultural practices, and can get more yield, they may try innovations in their fields.

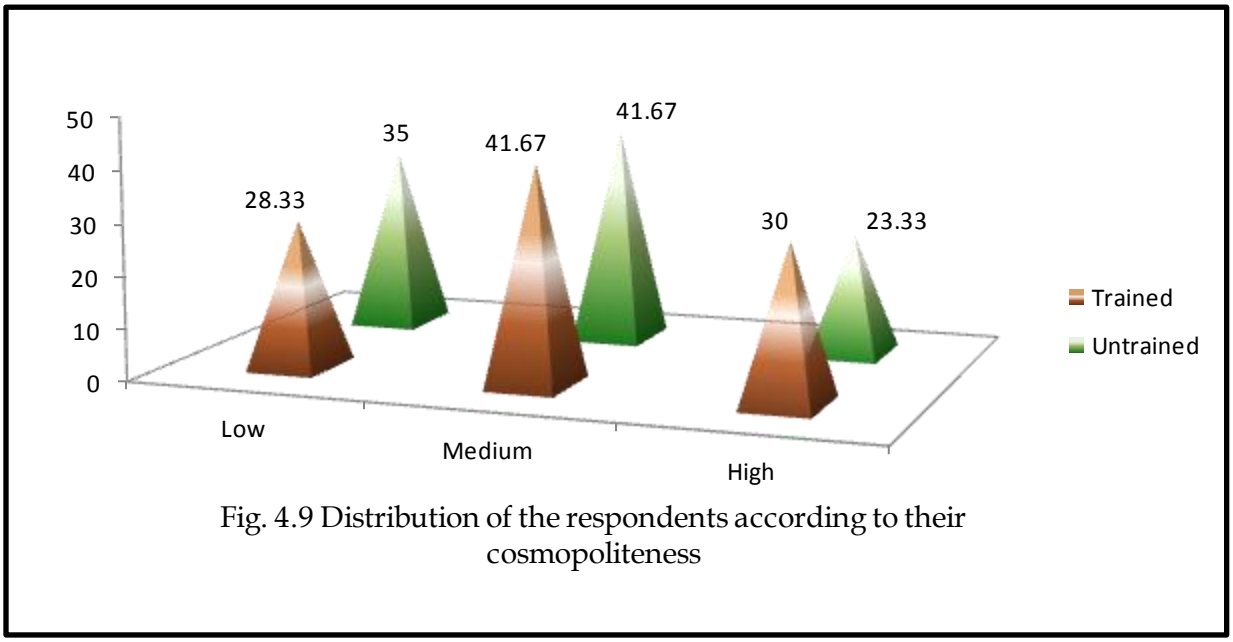

Fig. 4.9 Distribution of the respondents according to their cosmopoliteness

Table-4.10 Practice wise level of knowledge of wheat production technology among the trained and untrained farmers-

S.N.	Practices	Level of knowledge			
		Trained farmers (N=60)		Untrained farmers (N=60)	
		Complete	Partial	Complete	Partial
1	Field preparation	56 (93.33)	04 (06.67)	48 (80.00)	12 (20.00)
2	Improved variety	46 (76.67)	14 (23.33)	15 (25.00)	45 (75.00)
3	Seed treatment	32 (53.33)	28 (46.67)	09 (15.00)	51 (85.00)
4	Time of sowing & method	54 (90.00)	06 (10.00)	46 (76.67)	14 (23.33)
5	Irrigation management	40 (66.67)	20 (33.33)	18 (30.00)	42 (70.00)
6	Manure & fertilizer application	44 (73.33)	16 (26.67)	24 (40.00)	36 (60.00)
7	Plant protection	36 (60.00	24 (40.00))	16 (26.67)	44 (73.33)

It has been observed that the farm population has not been able to harvest the modern technology as expected because the majority of the farmers do not adopt the improved technology. The main reasons for low adoption or poor preferential adoption and non adoption of the improved technology in India are lack of

technological knowledge, improper guidance, poor availability of resources, small and scattered holdings, poor socio-economic conditions, illiteracy, backwardness and high rate of population growth. Under such circumstances, the prime need is to enhance farmers, field productivity. As, agriculture alone contributes more than 15 per cent of the gross national income, thus there seems to be no other alternative for increasing crop production than to adopt the improved technologies.

The data presented in Table 4.10 showing level of knowledge about soil conservation methods and technology among the trained farmers and untrained farmers in the study area.

It can be observed from the above Table that out of 60 trained farmers 93.33 per cent had complete knowledge in respect of field preparation while 06.67 per cent had partial knowledge. It is also observed that out of 60 untrained farmers 80.00 per cent had complete knowledge in respect of field preparation while 20.00 per cent had partial knowledge.

Regarding improved variety, 76.67 per cent trained farmers had complete knowledge while 23.33 per cent had partial knowledge and 25.00 per cent untrained farmers had complete knowledge while 75.00 per cent had partial knowledge.

About seed treatment 53.33 per cent of the trained farmers had complete knowledge while 46.67 per cent of them had partial knowledge. In case of untrained farmers, 15.00 per cent of had complete knowledge while 85.00 per cent of them had partial knowledge.

In case of time of sowing & method 90.00 per cent trained farmers expressed complete knowledge while 10.00 per cent expressed partial knowledge. In case of untrained farmers, 76.67 per cent expressed complete knowledge while 23.33 per cent had partial knowledge.

Regarding irrigation management, 66.67 per cent trained farmers while 33.33 per cent expressed partial knowledge. in case of untrained farmers, 30.00 per cent had complete knowledge while 70.00 per cent had partial knowledge.

With regards to manure & fertilizer application 73.33 per cent of the beneficiaries gained complete knowledge while 26.67 per cent gained partial knowledge. Similarly, 40.00 per cent of the untrained farmers gained complete knowledge while 60.00 per cent gained partial knowledge.

In case of plant protection 60.00 per cent trained farmers expressed complete knowledge while 40.00 per cent expressed partial knowledge. In case of untrained

farmers, 26.67 per cent expressed complete knowledge while 73.33 per cent had partial knowledge.

The above findings are in accordance with the findings of Krishna and Jalihal (1981), Gautam et al.(1991) and Minz (1985).

Table- 4.11 Practice wise extent of adoption of wheat production technology among the trained and untrained farmers-

S.N.	Practices	Extent of adoption			
		Trained farmers (N=60)		Untrained farmers (N=60)	
		Complete	Partial	Complete	Partial
1	Field preparation	52 (86.67)	08 (13.33)	40 (66.67)	20 (33.33)
2	Improved variety	32 (53.33)	28 (46.67)	16 (26.67)	44 (73.33)
3	Seed treatment	28 (46.67)	32 (53.33)	07 (11.67)	53 (88.33)
4	Time of sowing & method	46 (76.67)	14 (23.33)	42 (70.00)	18 (30.00)
5	Irrigation management	27 (45.00)	33 (55.00)	17 (28.33)	43 (71.67)
6	Manure & fertilizer application	33 (55.00)	27 (45.00)	28 (46.67)	32 (53.33)
7	Plant protection	21 (35.00)	39 (65.00)	12 (20.00)	48 (80.00)

The data presented in Table 4.11 reveals the Practice wise extent of adoption of wheat production technology among the trained and untrained farmers.

In case of field preparation 86.67 per cent trained farmers had complete adoption while 13.33 per cent had partial adoption. Similarly, in case of untrained farmers, 66.67 per cent respondents had complete adoption while 33.33 per cent had partial adoption.

In case of improved variety 53.33 per cent trained farmers had complete adoption and 46.67 per cent of trained farmers had partial adoption. Similarly, 26.67 per cent untrained farmers had complete adoption and 73.33 per cent had partial adoption.

With regards to seed treatment 46.67 per cent trained farmers had complete adoption while 53.33 per cent of trained farmers had partial adoption. Similarly,

11.67 per cent untrained farmers had complete adoption and 88.33 per cent untrained farmers had partial adoption.

Regarding time of sowing & method 76.67 per cent trained farmers had complete adoption while 23.33 per cent of trained farmers had partial adoption. Similarly, 70.00 per cent untrained farmers had complete adoption and 30.00 per cent untrained farmers had partial adoption.

In case of irrigation management 45.00 per cent trained farmers had complete adoption while 55.00 per cent of trained farmers had partial adoption. Similarly, 28.33 per cent untrained farmers had complete adoption and 71.67 per cent untrained farmers had partial adoption.

Regarding manure & fertilizer application 55.00 per cent trained farmers had complete adoption while 45.00 per cent of trained farmers had partial adoption. Similarly, 46.67 per cent untrained farmers had complete adoption and 53.33 per cent untrained farmers had partial adoption

With regards to plant protection 35.00 per cent trained farmers had complete adoption while 65.00 per cent of trained farmers had partial adoption. Similarly, 20.00 per cent untrained farmers had complete adoption and 80.00 per cent untrained farmers had partial adoption.

The above result confirms the findings as reported by Krishna and Jalihal (1981), Gautam et al.(1991) and Minz (1985).

C. Relationship between personal, socio economic, communicational and psychological characteristics of trained farmers and untrained farmers with their knowledge and adoption of wheat production technology

I. Relationship between independent variables of trained farmers with their level of knowledge about wheat production technology

The zero order correlation coefficient of attributes of trained farmers namely- age, education, social participation, size of land holding, annual income, irrigation facility, source of information, innovativeness and cosmopoliteness were determined with level of knowledge about wheat production technology which is furnished in Table 4.12.

Table -4.12 Relationships between independent attributes of trained farmers with their level of knowledge about wheat production technology

S. No.	*Attributes*	*Correlation coefficient 'r'*
1	*Age*	*0.062*
2	*Education*	*0.421***
3	*Social participation*	*0.340***
4	*Size of land holding*	*0.297**
5	*Annual income*	*0.305**
6	*Irrigation facility*	*0.301**
7	*Source of information*	*0.331***
8	*Innovativeness*	*0.320**
9	*Cosmopoliteness*	*0.335***

** Significant at 1% level of probability

* Significant at 5 % level of probability

The findings with reference to each independent attributes is presented below-

Attributes of trained farmers:

1. Age:

Null hypothesis: There is no relationship between age and level of knowledge about wheat production technology.

Empirical hypothesis: There is a positive relationship between age and level of knowledge about wheat production technology.

The computed correlation coefficient (0.062) was found no significant relationship. Hence, the null hypothesis was accepted and original proposition that there is a relationship between age of the trained farmers and their level of knowledge about wheat production technology was rejected.

2. Education:

Null hypothesis: There is no relationship between education and level of knowledge about wheat production technology.

Empirical hypothesis: There is a positive relationship between education and level of knowledge about wheat production technology.

The correlation coefficient (0.421) was found significant at 0.01 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between education of the trained farmers and their level of knowledge about wheat production technology was accepted.

Thus, this positive nature of phenomenon was confirmed by the present results indicating the relationship with level of knowledge about wheat production technology.

Social participation:

Null hypothesis: There is no relationship between social participation and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between social participation and level of knowledge about wheat production technology

The computed correlation coefficient (0.340) was found significant at 0.01 level of probability. Hence, the null hypothesis was rejected and original proposition that there is a significant relationship between social participation of the trained farmers and their level of knowledge about wheat production technology was accepted.

Size of land holding:

Null hypothesis: There is no relationship between size of land holding and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between size of land holding and level of knowledge about wheat production technology.

The correlation (0.291) was found significant at 0.05 level of probability. Hence, the null hypothesis was rejected and original proposition that there is positive relationship between size of land holding of the trained farmers and their level of knowledge about wheat production technology was accepted.

Size of land holding is a factor that is related to working level, which leads to minimize level of knowledge about wheat production technology. Thus, this might be the reason for significant relationship of these factors.

Annual income:

Null hypothesis: There is no relationship between annual income and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between annual income and level of knowledge about wheat production technology

The correlation coefficient (0.369) was found significant at 0.01 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between annual income of the trained farmers and their level of knowledge about wheat production technology was accepted.

Irrigation facility:

Null hypothesis: There is no relationship between irrigation facility and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between irrigation facility and level of knowledge about wheat production technology

The correlation coefficient (0.261) was found significant at 0.05 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between irrigation facility of the trained farmers and their level of knowledge about wheat production technology was accepted. Similar findings were also reported by Kherde and Sahay (1979) and Gupta (2001).

Source of information:

Null hypothesis: There is no relationship between source of information and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between source of information and level of knowledge about wheat production technology.

The correlation coefficient (0.231) was found significant at 0.05 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between source of information of the trained farmers and their level of knowledge about wheat production technology was accepted.

Innovativeness:

Null hypothesis: There is no relationship between innovativeness and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between innovativeness and level of knowledge about wheat production technology.

The correlation coefficient (0.290) 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 trained farmers and their level of knowledge about wheat production technology was accepted.

Cosmopoliteness

Null hypothesis: There is no relationship between cosmopoliteness and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between Cosmopoliteness and level of knowledge about wheat production technology

The correlation coefficient of cosmopoliteness (0.235) was found significant at 0.05 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between cosmopoliteness of the trained farmers and their level of knowledge about wheat production technology was accepted.

Almost similar findings reported by Gurjar (1988) and Lal *et al.* (2005).

II. Relationship between independent variables of trained farmers with their adoption of wheat production technology

A fictional relationship between attributes of trained farmers and their adoption of wheat production technology and practices was computed and presented in Table 4.13. The relationship observed for each attributes is describing asunder:

Table -4.13 Relationships between independent attributes of trained farmers and extent of adoption-

S .No.	***Attributes***	***Correlation coefficient 'r'***
1	*Age*	*0.035*
2	*Education*	*0.393***
3	*Social participation*	*0.316**
4	*Size of land holding*	*0.279**

5	*Annual income*	*0.361***
6	*Irrigation facility*	*0.224*
7	*Source of information*	*0.224*
8	*Innovativeness*	*0.282**
9	*Cosmopoliteness*	*0.244*

Attributes of trained farmers:

Age:

Null hypothesis: There is no relationship between age and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between age and adoption of wheat production technology.

The computed correlation coefficient (0.035) was found no significant relationship. Hence, the null hypothesis was accepted and original proposition that there is a relationship between age of the trained farmers and their adoption of wheat production technology was rejected.

Education:

Null hypothesis: There is no relationship between education and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between education and adoption of wheat production technology.

The correlation coefficient (0.393) was found significant at 0.01 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between education of the trained farmers and their adoption of wheat production technology was accepted.

Social participation:

Null hypothesis: There is no relationship between social participation and adoption of wheat production technology..

Empirical hypothesis: There is a positive relationship between social participation and adoption of wheat production technology.

The computed correlation coefficient (0.316) 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 trained farmers and their adoption of wheat production technology was accepted.

Size of land holding:

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

Empirical hypothesis: There is a positive relationship between size of land holding and adoption of wheat production technology.

The correlation (0.279) was found significant at 0.05 level of probability. Hence, the null hypothesis was rejected and original proposition that there is positive relationship between size of land holding of the trained farmers and their adoption of wheat production technology was accepted.

Annual income:

Null hypothesis: There is no relationship between annual income and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between annual income and adoption of wheat production technology.

The correlation coefficient (0.361) was found significant at 0.01 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between annual income of the trained farmers and their adoption of wheat production technology was accepted.

Irrigation facility:

Null hypothesis: There is no relationship between irrigation facility and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between irrigation facility and adoption of wheat production technology.

The correlation coefficient (0.224) was found non-significant. Hence, the null hypothesis was accepted and original proposition that there is significant relationship between irrigation facility of the trained farmers and their adoption of wheat production technology was rejected

Similar findings were also reported by Kherde and Sahay (1979) and Gupta (2001).

Source of information:

Null hypothesis: There is no relationship between source of information and adoption of wheat production technology**.**

Empirical hypothesis: There is a positive relationship between source of information and adoption of wheat production technology.

The correlation coefficient (0.224) was found non-significant. Hence, the null hypothesis was accepted and original proposition that there is significant relationship between source of information of the trained farmers and their adoption of wheat production technology was rejected.

Innovativeness:

Null hypothesis: There is no relationship between innovativeness and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between innovativeness and adoption of wheat production technology.

The correlation coefficient (0.282) 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 trained farmers and their adoption of wheat production technology was accepted

Cosmopoliteness

Null hypothesis: There is no relationship between cosmopoliteness and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between Cosmopoliteness and adoption of wheat production technology.

The correlation coefficient of cosmopoliteness (0.244) was found non-significant. Hence, the null hypothesis was accepted and original proposition that there is significant relationship between cosmopoliteness of the trained farmers and their adoption of wheat production technology was rejected Almost similar findings reported by Gurjar (1988) and Lal *et al.* (2005).

III. Relationship between independent attributes of untrained farmers and their level of knowledge about wheat production technology

The zero order correlation coefficient of attributes of untrained farmers namely- age, education, social participation, size of land holding, annual income, irrigation facility, source of information, innovativeness and cosmopoliteness were determined with level of knowledge about wheat production technology which is furnished in Table 4.14.

Table-4.14 Relationship between independent attributes of untrained farmers and level of knowledge about wheat production technology-

S. No.	Attributes	Correlation coefficient 'r'
1	Age	0.087
2	Education	0.342**
3	Social participation	0.281*
4	Size of land holding	0.229
5	Annual income	0.294*
6	Irrigation facility	0.254
7	Source of information	0.221
8	Innovativeness	0.103
9	Cosmopoliteness	0.219

Attributes of untrained farmers:

1. Age:

Null hypothesis: There is no relationship between age and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between age and level of knowledge about wheat production technology.

The computed correlation coefficient (0.087) was found no-significant relationship. Hence, the null hypothesis was accepted and original proposition that there is a relationship between age of the untrained farmers and their level of knowledge about wheat production technology was rejected.

2. Education:

Null hypothesis: There is no relationship between education and level of knowledge about wheat production technology.

Empirical hypothesis: There is a positive relationship between education and level of knowledge about wheat production technology.

The correlation coefficient (0.342) was found significant at 0.01 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between education of the untrained farmers and their level of knowledge about wheat production technology was accepted.

Social participation:

Null hypothesis: There is no relationship between social participation and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between social participation and level of knowledge about wheat production technology

The computed correlation coefficient (0.281) was found significant at 0.05 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between social participation of the untrained farmers and their level of knowledge about wheat production technology was accepted.

Size of land holding:

Null hypothesis: There is no relationship between size of land holding and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between size of land holding and level of knowledge about wheat production technology.

The correlation coefficient (0.229) was found non-significant Hence, the null hypothesis was accepted and original proposition that there is relationship between size of land holding of the untrained farmers and their level of knowledge about wheat production technology was rejected.

Annual income:

Null hypothesis: There is no relationship between annual income and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between annual income and level of knowledge about wheat production technology

The correlation coefficient (0.294) was found significant at 0.05 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between annual income of the untrained farmers and their level of knowledge about wheat production technology was accepted.

Irrigation facility:

Null hypothesis: There is no relationship between irrigation facility and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between irrigation facility and level of knowledge about wheat production technology

The correlation coefficient (0.254) was found non-significant Hence, the null hypothesis was accepted and original proposition that there is significant relationship between irrigation facility of the untrained farmers and their level of knowledge about wheat production technology was rejected.

Source of information:

Null hypothesis: There is no relationship between source of information and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between source of information and level of knowledge about wheat production technology.

The correlation coefficient (0.254) was found non-significant .Hence, the null hypothesis was accepted and original proposition that there is significant relationship between source of information of the untrained farmers and their level of knowledge about wheat production technology was rejected.

Innovativeness:

Null hypothesis: There is no relationship between innovativeness and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between innovativeness and level of knowledge about wheat production technology.

The correlation coefficient (0.103) was found non--significant. Hence, the null hypothesis was accepted and original proposition that there is significant and positive relationship between innovativeness of the untrained farmers and their level of knowledge about wheat production technology was rejected.

Cosmopoliteness

Null hypothesis: There is no relationship between cosmopoliteness and level of knowledge about wheat production technology**.**

Empirical hypothesis: There is a positive relationship between Cosmopoliteness and level of knowledge about wheat production technology

The correlation coefficient of cosmopoliteness (0.219) was found non-significant. Hence, the null hypothesis was accepted and original proposition that there is significant relationship between cosmopoliteness of the trained farmers and their level of knowledge about wheat production technology was rejected.

Almost similar findings reported by Gurjar (1988) and Lal *et al.* (2005).

IV. Relationship between independent attributes of untrained farmers and their level of adoption of wheat production technology

The zero order correlation coefficient of attributes of untrained farmers namely-age, education, social participation, size of land holding, annual income, irrigation facility, source of information, innovativeness and cosmopoliteness were determined with level of adoption of wheat production technology which is furnished in Table 4.15.

Table-4.15 Relationship between independent attributes of untrained farmers with adoption of wheat production technology

S. No.	*Variables*	*Correlation coefficient 'r'*
1	Age	0.056
2	Education	0.319*
3	Social participation	0.228
4	Size of land holding	0.215
5	Annual income	0.218
6	Irrigation facility	0.204
7	Source of information	0.130
8	Innovativeness	0.082
9	Cosmopoliteness	0.108

Attributes of untrained farmers:

Age:

Null hypothesis: There is no relationship between age and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between age and adoption of wheat production technology.

The computed correlation coefficient (0.056) was found negatively significant at 0.01 level of probability. Hence, the null hypothesis was accepted and original proposition that there is a relationship between age of the untrained farmers and their adoption of wheat production technology was rejected.

Education:

Null hypothesis: There is no relationship between education and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between education and adoption of wheat production technology.

The correlation coefficient (0.319) was found significant at 0.01 level of probability. Hence, the null hypothesis was rejected and original proposition that there is significant relationship between education of the untrained farmers and their adoption of wheat production technology was accepted.

Social participation:

Null hypothesis: There is no relationship between social participation and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between social participation and adoption of wheat production technology.

The computed correlation coefficient (0.228) was found non-significant. Hence, the null hypothesis was accepted and original proposition that there is significant relationship between social participation of the untrained farmers and their adoption of wheat production technology was rejected.

Size of land holding:

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

Empirical hypothesis: There is a positive relationship between size of land holding and adoption of wheat production technology.

The correlation (0.215) was found non-significant. Hence, the null hypothesis was accepted and original proposition that there is relationship between size of land holding of the untrained farmers and their adoption of wheat production technology was rejected.

Annual income:

Null hypothesis: There is no relationship between annual income and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between annual income and adoption of wheat production technology.

The correlation coefficient (0.218) was found non-significant. Hence, the null hypothesis was accepted and original proposition that there is significant relationship between annual income of the untrained farmers and their adoption of wheat production technology was rejected

Irrigation facility:

Null hypothesis: There is no relationship between irrigation facility and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between irrigation facility and adoption of wheat production technology.

The correlation coefficient (0.204) was found non-significant .Hence, the null hypothesis was accepted and original proposition that there is relationship irrigation facility of the trained farmers and their adoption of wheat production technology was rejected.

Source of information:

Null hypothesis: There is no relationship between Source of information and adoption of wheat production technology**.**

Empirical hypothesis: There is a positive relationship between Source of information and adoption of wheat production technology.

The correlation coefficient (0.130) was found non-significant. Hence, the null hypothesis was accepted and original proposition that there is significant relationship between Source of information of the untrained farmers and their adoption of wheat production technology was rejected.

Innovativeness:

Null hypothesis: There is no relationship between innovativeness and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between innovativeness and adoption of wheat production technology.

The correlation coefficient (0.082) was found non-significant. Hence, the null hypothesis was accepted and original proposition that there is significant and positive relationship between innovativeness of the untrained farmers and their adoption of wheat production technology was rejected.

Cosmopoliteness

Null hypothesis: There is no relationship between cosmopoliteness and adoption of wheat production technology.

Empirical hypothesis: There is a positive relationship between Cosmopoliteness and adoption of wheat production technology.

The correlation coefficient of cosmopoliteness (0.108) was found non-significant. Hence, the null hypothesis was accepted and original proposition that there is significant relationship between cosmopoliteness of the untrained farmers and their adoption of wheat production technology was rejected.

Almost similar findings reported by Gurjar (1988) and Lal *et al.* (2005).

Chapter – V

SUMMARY, CONCLUSION AND SUGGESTIONS

Summary & Conclusion:

India has plenty resources of land, water and solar energy as environmental blessings and abundance of human resources but the nation exhibits a great deal of diversity in terms of soil, climate and topography which tends to cripple its agricultural production.

Wheat is grown in India over an area of about 266.92 lakh ha. with a production of 721.40 lakh tones. The normal National productivity is about 2703 kg/ha. The major Wheat producing States are Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Rajasthan, Bihar, Maharashtra, Gujarat, Karnataka, West Bengal, Uttaranchal, Himachal Pradesh and Jammu & Kashmir. These States contribute about 99.5% of total Wheat production in the country. Remaining States, namely, Jharkhand, Assam, Chhattisgarh, Delhi and other North Eastern States contribute only about 0.5 % of the total Wheat production in the country. Among food grains, Wheat stands next to Rice, both in area and production. The share of Wheat in total food grain production is around 35.5% and share in area is about 21.8% of the total area under food grains.

Training and education are lifelong requirement to improve the living standard of large number of people in the villages. The significance of training for development and mobilization of human resources energies has been recognized long back, but finding out ways for improving effectiveness of training received attention only recently. Keeping this views, Krishi Vigyan Kendra's are the grass-root level training institutions, designed for bridging the gap between the available technologies at the one end and their application for increased production at the other. Information regarding agricultural inputs, like improved seeds, suitable manures and fertilizers, plant protection manures and credit requirement etc, need urgent attention for fulfilling these tasks. Training is an important component of human resources development.

The training brings out the required change in the individuals behavior for improving his performance. There for to determine the impact of training on

production level of wheat crop in bhitarwar block of Gwalior District. The present study was under taken with the following objectives:

Objectives of investigation:

- To study the personal, socio economic, communicational and psychological characteristics of trained farmers and untrained farmers.
- To determine the level of knowledge and adoption of wheat production technology among the trained farmers and untrained farmers.
- To analyze the relationship between personal, socio economic, communicational and psychological characteristics of trained farmers and untrained farmers with their knowledge and adoption of wheat production technology.

In order to fulfill these objectives, the study was conducted in Gwalior district of M.P. out of 4 blocks in the district, the Bhitarwar block was selected purposively because its having maximum number of trained farmers in wheat production technology. A list of villages where training programme are conducted by KVK was prepared and out of which 2 villages were selected randomly. A village wise list of trained farmers, who are trained in wheat production technology by Krishi Vigyan Kendra, was prepared and from each village thirty trained and thirty untrained farmers was selected by using simple random sampling method. Thus, the total sample was consisted of 120 respondents for the study. . The data were collected with the help of pre-tested interview schedule. The data thus collected was tabulated and presented in the form of tables and graphs as per necessity. Keeping in view the objectives of the study and to draw logical results mean, percentage, standard deviation and correlation tests was applied where they were required.

A. Distribution of trained farmers and untrained farmers according to their attributes-

The study revealed that the majority of the trained farmers were of middle aged (46.67%), educated upto primary school level (31.67%), had medium social participation (56.67%), having small size of land holding (43.33%), medium range of annual income (46.67%), medium socioeconomic status (63.34%), medium

irrigation facility (41.67%), medium source of information (51.67%), medium innovativeness (50.00%) and medium cosmopoliteness (41.67%).

In case of untrained farmers the majority were in middle aged group (50.00%), educated upto primary school level (35.00%), had medium social participation (56.67%), having small size of land holding (45.00%), medium range of annual income (46.00%), low irrigation facility status (38..33%), medium source of information (45.00%), medium innovativeness (43.33%) and medium cosmopoliteness (41.67%).

B. Level of knowledge and extent of adoption of wheat production technology among the trained and untrained farmers-

Level of knowledge regarding wheat production technology-

The significant majority of the trained farmers had complete knowledge in all the practices while no partial knowledge was observed. In case of untrained farmers partial knowledge was observed in almost all the practices while complete knowledge was not observed.

Extent of adoption regarding wheat production technology-

The significant majority of the trained farmers had complete adoption in following practices i.e. field preparation, improved variety, time of sowing & method and manure & fertilizer application while partial adoption was observed in rest of the practices. In case of untrained farmers complete adoption was observed in field preparation and time of sowing & method while partial adoption was observed in rest of the practices.

C. Relationship between personal, socio economic, communicational and psychological characteristics of trained farmers and untrained farmers with their knowledge and adoption of wheat production technology-

Relationship between independent attributes of trained farmers and their level of knowledge about wheat production technology-

It was revealed from the present study that out of nine independent attributes of trained farmers, education, social participation, source of information, and cosmopoliteness were found significant with level of knowledge about wheat production technology at 1% level of significance while size of land holding, annual income, irrigation facility and innovativeness were found significant with level of knowledge about wheat production technology at 5% level of significance and only one attributes found non significant i.e. age.

Relationship between independent attributes of trained farmers and their extent of adoption of wheat production technology-

It was revealed from the present study that out of nine independent attributes of trained farmers, education and annual income were found significant with adoption of wheat production technology at 1% level of significance while size of land holding, irrigation facility, source of information, innovativeness and cosmopoliteness were found significant with adoption of wheat production technology at 5% level of significance and only one attributes found non significant i.e. age.

Relationship between independent attributes of untrained farmers and their level of knowledge about wheat production technology-

It is evident from the present study that in case of untrained farmers, out of nine independent attributes only education was found significant with level of knowledge about wheat production technology at 1% level of significance and rest of the attributes found significant with level of knowledge about wheat production technology at 5% level of significance except age, source of information and innovativeness.

Relationship between independent attributes of untrained farmers and their extent of adoption of wheat production technology-

It is revealed from the present study that in case of untrained farmers, out of nine independent attributes, only education was found significant with adoption of wheat production technology at 1% level of significance, social participation, size of

land holding, annual income and irrigation facility were significant with adoption of wheat production technology at 5% level of significance while age source of information, innovativeness and cosmopoliteness were no significant relationship with adoption of wheat production technology.

Similar findings were also reported by Benerjee (1976), Vijayaraghvan and Somasundram (1975), Chouhan and Sinha (1979), Jagdale and Nimbalkar (1993), Tailor *et al*. (1998), Saraswati et al. (2000) and Yadav et al. (2003).

Implications:

1. The independent attributes having significant relationship with level of knowledge and extent of adoption needs to look upon for better results.
2. Emphasis should be given on the various aspects of practices which have partial adoption to improve the adoption rate. Hence, attention should be paid on the trained farmers as well as on the untrained farmers to increase their adoption rate which is turn will increase the overall sustainable development of the area.
3. The attention should be paid on the constraints faced by trained farmers in adoption of recommended wheat production technology.

Suggestions for future work:

1. The study may be repeated in other areas also.
2. The investigation may be done on the watershed areas as well as on the other similar programmes.
3. The problems may be studied in detail and depth to understand them.
4. For the better understanding of the problem there should be a detailed study of the constraints perceived by the trained farmers.
5. Study was conducted on a small sample and result may be useful to that particular area only. Hence, study of this nature may be undertaken covering large area and bigger sample size to arrive at generalization.

6. Limited independent and dependent attributes were included in this study. Future study may cover with more attributes of the purpose of detailed research.

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साक्षात्मकार प्रष्नावली

निर्देषक
डॉ. ओ. पी दैपुरिया
कृषि विस्तार षिक्षा विभाग
कृषि महाविद्यालय
ग्वालियर (म0 प्र0)

अनुसंधानकर्ता :–
नरेन्द्र सिंह यादव
एम.एससी. (ए.जी)
विस्तार षिक्षा अंतिम वर्ष
कृषि महाविद्यालय
ग्वालियर (म0 प्र0)

Title – A study on impact of training programme of KVK of wheat production technology among the farmer of Bhitarwar block, Gwalior Distt. Of M.P.

1. कृषक का नाम .....
2. ग्राम का नाम .....
3. ग्राम पंचायत का नाम .....
4. जिले का नाम .....

I

1. उम्र ..... वर्ष
2. षिक्षा :– अनपढ़ / प्राथमिक शाला / माध्यमिक शाला / हाईस्कूल / हायर सेकेण्ड्री एवं अधिक
3. जाति .....
4. आपके परिवार में कुल कितने सदस्य है.....
5. कृपया आप अपनी सामाजिक भागीदारी के बारे में बताये।

क्रं.	समाजिक संस्था	सदस्य	सहभागिता	
			हमेशा	कभी – कभी
1	युवा मंडल			
2	पंचायत समिति			
3	शिक्षा समिति			
4	विकास समिति			
5	अन्य			

6. कृपया आप अपनी जोत के बारे में बतायेः–

सिचिंत .....असिंचित ..... कुल क्षेत्रफल .....(हेक्टर में)

7. कृपया आप अपनी वार्षिक आय के बारे में बतायेः–

कृषि .....

अन्य .....

कुल आय .....

8. कृपया आप अपने सिंचाई सुविधा के बारे में बतायें–

क्रं.	सिंचाई सुविधा	क्षेत्र (हेक्ट0 में)
1	ट्यूब बेल	
2	नहर	
3	तालाब	

4	कुँआ	
5	अन्य	

9. कृपया आप अपने सूचना स्त्रोत के बारे में बतायेंः–

क्रं.	सूचना स्त्रोत	हमेशा	कभी कभी	कभी नही
1	कृषि विस्तार अधिकारी			
2	कृषि वैज्ञानिक			
3	प्रसार अधिकारी			
4	कृषि विकास खण्ड अधिकारी			
5	थ्वश्व विद्यालय वैज्ञानिक			
6	स्थानीय नेता			
7	टेलीविजन/ रेडियो			
8	समाचार पत्र /पत्रिका			
9	पडोसी /मित्र			
10	अन्य			

10. **नवाचारिता**

क्रं.	कथन	पूर्णतः सहमत	सहमत	कोई विचार नहीं	असहमत	पूर्णतः असहमत
1	एक किसान को खेती की नई तकनीकी पुरानी परम्परागत तकनीक की तुलना में अच्छा परिणाम देती है।					
2	किसान को खेती का अधिक अनुभव होते हुये भी कृषि की नई तकनीकी का उपयोग करना चाहिये					
3	यद्वपि कृषि की नई विधियॉ अधिक समय लेती है, किन्तु इसके लिये प्रयास करना उचित है।					
4	एक अच्छा किसान नये विचार या जानकारी को अपने प्रक्षेत्र पर प्रयोग करके देखता है।					
5	खेती की परम्परागत विधियों को किसान का जीवन स्तर उठाने के लिये धीरे–2 बदलना चाहिये।					
6	क्या आप पूर्वजों द्वारा अपनाये जाने वाली तकनीक को नये					

	तरीके से आज के समय में उत्तम मानते है।					

11. कृपया आपने गेहूँ उत्पादन तकनीकी की जानकारी कहॉ – 2 से प्राप्त की।

क्रं.	स्त्रोत	भ्रमण	
		हमेशा	कभी– कभी
1	ग्राम		
2	ब्लॉक		
3	तहसील		
4	जिला		
5	संभाग		
6	अन्य		

12. कृपया आप गेहूँ उत्पादन तकनीकी के बारे में जानकारी दीजियेः–

1. क्या आप गेहूँ की उन्नतषील किस्मों की जानकारी है : हॉ / नहीं

हॉ तो जानकारी दीजिये :–

सिंचित दषा के लिये जातियों का नाम	असिंचित /सिंचित दषा के लिये जातियों का नाम	बीजदर

क्या आपको गेहूँ उत्पादन के लिये प्रति **हेक्ट0**उपयुक्त बीज दर की जानकारी है :– हॉ /नहीं

हॉ तो जानकारी दीजिये :–

क्रं.	बुबाई का समय	बीज दर मात्रा (किग्रा/हेक्ट0)
1	समय पर बुबाई	
2	देरी से बुबाई	

2 क्या आपको गेहूँ बीज उपचार के बारे में जानकारी है :– हॉ /नहीं हॉ तो जानकारी दीजिये

क्रं.	दवा का नाम	मात्रा (ग्राम / किग्रा)	विधि का नाम
1			
2			

3 क्या आपको गेहूँ के विपुल उत्पादन के लिये खेत की तैयारी कैसे करना चाहिये जानकारी हैः हॉ / नहीं

हॉ तो जानकारी दीजिये–

क्रं.	जुताई के प्रकार	समय	संख्या
1	गहरी जुताई		
2	उथली जुताई		

4 क्या आपको गेहूँ की बुबाई का उपयुक्त समय की जानकारी है :– हॉ/ नहीं

हॉ तो जानकारी दीजियेः–

क्रं.	बुवाई का समय	तारीख
1	समय पर बुवाई	
2	देरी से बुवाई	

क्या आपको गेहूँ बुवाई की विधि के बारे में जानकारी है :– हॉ / नहीं हॉ तो जानकारी दीजियेः–

क्रं.	बुबाई की विधि का नाम	बीज दर
1	सीडड्रिल के द्वारा	
2	छिड़काव के द्वारा	

5 क्या आपको गेहूँ उत्पादन के लिये रासायनिक उर्वरकों की जानकारी है– हॉ/ नही

हॉ तो जानकारी दीजिये–

क्रं.	उर्वरको का नाम	मात्रा	विधि
1			
2			
3			
4			

6 क्या आपको गेहूँ का विपुल उत्पादन के लिये सिंचाई अवस्था और सिंचाई समय के बारे में जानकारी है– हॉ / नहीं हॉ तो जानकारी दीजिये–

क्रं.	सिंचाई अवस्था	सिंचाई समय
1		
2		
3		
4		
5		
6		

7 क्या आपको गेहूँ में खरपतवार नियंत्रण की जानकारी है – हॉ /नहीं

हॉ तो जानकारी दीजिये –

(A)

क्रं.	नियंत्रण विधि का नाम	समय
1	यांत्रिक विधि	
2	सस्य विधि	

(B) रासायनिक विधि –

क्रं.	खरपतवारनाषी का नाम	मात्रा	विधि
1			
2			
3			

I- पौध संरक्षण –

A- क्या आपको गेहूँ में लगने वाले कीटों की जानकारी है – हॉ/नहीं

हॉ तो जानकारी दीजिये–

क्रं.	कीट का नाम	दवाई का नाम	दवाई की मात्रा
1			
2			
3			

B- क्या आपको गेहूँ में लगने वाले रोगो की जानकारी है– हॉ/नहीं

हॉ तो जानकारी दीजिये–

	रोगों का नाम	दवाई का नाम	दवाई की मात्रा
1			
2			
3			
4			

13. अंगीकरण संबंधी जानकारी –

1. कृपया आप गेहूँ उत्पादन के लिये कौन – 2 सी किस्मों को लगाते है।

सिंचित दषा के लिये जातियों का नाम	असिंचित/अर्द्धसिंचित दशा के लिये जातियों का नाम	बीजदर

कृपया आप गेहूँ उत्पादन के लिये प्रति **हेक्ट0** कितनी बीज दर की मात्रा रखते है–

क्रं.	बुबाई का समय	बीजदर मात्रा (किग्रा/हेक्ट0)
1	समय पर बुबाई	
2	देरी से बुबाई	

2. कृपया आप गेहूँ बीज उपचार के लिये कौन सी दवा का प्रयोग करते है।

क्रं.	दवा का नाम	मात्रा ग्रा./किग्रा.	विधि
1			
2			

3. कृपया आप गेहूँ का अच्छा उत्पादन लेने के लिये खेत की तैयारी कैसे करते है।

क्रं.	जुताई के प्रकार	समय	संख्या
1	गहरी जुताई		
2	उथली जुताई		

4. कृपया आप गेहूँ की बुबाई किस समय करते है।

क्रं.	बुबाई का समय	तारीख
1	समय पर बुबाई	

2	देरी से बुबाई	

कृपया आप गेहूँ की बुबाई किस विधि से करते है–

क्रं.	बुबाई की विधि का नाम	बीज दर
1	सीडड्रिल के द्वारा	
2	छिडकाव के द्वारा	

5. कृपया आप गेहूँ उत्पादन के लिये कौन –2 से रासायनिक उर्वरकों का प्रयोग करते है–

क्रं.	उर्वरक का नाम	मात्रा	विधि
1			
2			
3			
4			

6. कृपया आप गेहूँ की सिंचाई किस अवस्था और किस समय करते है–

क्रं.	सिंचाई अवस्था	सिंचाई समय
1		
2		
3		
4		
5		
6		

7. कृपया आप गेहूँ में खरपतवार नियंत्रण किस विधि से करते है–

क्रं.	नियंत्रण विधि का नाम	समय
1	यांत्रिक विधि	
2	सस्य विधि	

रासायनिक विधि –

क्रं.	खरपतवारनाषी का नाम	मात्रा	विधि
1			
2			
3			

पौध संरक्षण –

A. आपके यहॉ गेहूँ की फसल में कौन–2 से कीट लगते है

क्रं.	कीट का नाम	दवाई का नाम	दवाई की मात्रा
1			
2			
3			

आपके यहॉ गेहूँ की फसल में कौन–2 से रोग लगते है–

क्रं.	रोगों का नाम	दवाइ का नाम	दवाइ की मात्रा
1			
2			
3			
4			