

**A STUDY OF THE SMALL FARMERS IN RELATION
TO THEIR NEEDS AND ADOPTION OF NEW
AGRICULTURAL TECHNOLOGY**

A Thesis submitted to

MAHATMA PHULE KRISHI VIDYAPEETH

(AGRICULTURAL UNIVERSITY)

RAHURI, District Ahmednagar, (Maharashtra State)

in partial fulfilment of the requirements for the degree of

Master of Science (Agriculture)

in

Agricultural Extension

By

PRABHAKAR K. RAUT

B. Sc. (Agri.) First Class

Department of Agricultural Extension

Post-Graduate School, Rahuri

May, 1974

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Approved by the Advisory Committee

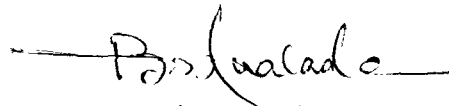
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C E R T I F I C A T E

This is to certify that the thesis entitled " A Study of Small Farmers in Relation to Their Needs and Adoption of New Agricultural Technology." submitted to the Faculty of Agriculture, Mahatma Phule Krishi Vidyapeeth, (Agricultural University), Dhuri, District : Ahmednagar, in partial fulfilment of the requirements of the degree of MASTER OF SCIENCE (AGRICULTURE) in AGRICULTURAL EXTENSION, embodies the results of a piece of bonafied research work carried out by Shri PRADHAKAR K. RAUT, under my guidance and supervision and no part of the thesis has been submitted for any other degree or publication.

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(P. K. RAUT)
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Chapter Opener Page

CHAPTER I
INTRODUCTION

CHAPTER I
I N T R O D U C T I O N

" No plan can have any chance of success unless the millions of small farmers in the country accept its objectives, share in its making, regard it as their own and are prepared to make the sacrifices necessary for implementing it."¹

India is par excellence a land of small peasants. The unit of holding is everywhere small and uneconomic. In the context of the new sense of urgency in tackling the problem of poverty in India (Kisiki Natak) the needs and problems of small farmers and the solutions thereof have come to the forefront. This is quite imperative in view of the fact that about 34.5 per cent of the farmers had land holdings less than 2.5 acres; 37.1 per cent had holdings between 2.5 to 7.5 acres and 28.4 per cent had land holdings of 7.5 acres and above.²

Moreover the number of small farmers is increasing over time mainly because of the break-up of the traditional joint families resulting in sub-division of holdings. In Maharashtra, for example, the number of cultivators rose from 52 lakhs in 1952 to 87 lakhs in 1961, bringing the bulk of the cultivated area into the small farmers category.³ This process of division of farms has an effect in creating smaller and smaller

¹ Grow More Food Inquiry Committee; quoted from Indian Economy Community Development and Panchayati Raj. p.499 1972

² Census Report, Government of India, 1961. ✓

³ V.S. Rao, Problems of Small Farmers and Solutions thereof, Seminar on Problems of Small Farmers, Seminar series, VIII, Bombay: The Indian Society of Agricultural Economics, 1968.

holdings which fall short of an economic size. In general, under the existing farming practices in India, holdings of less than five acres are un-economic and un-profitable.

2 / The small scale farming is largely one of the cereal cultivation which in general is a characteristic of majority of small farmers in India. The proportion of area under food and fodder crops is greater on the small farms since the small farmer is less business minded in his approach to farming, because they do not avail of the irrigation facilities and necessary inputs such as improved seeds, fertilizers, improved implements, and plant protection measures required, for want of sufficient finance and technical knowhow and as such small farmers are compelled to remain as subsistence farmers. In order to transfer the small farmers' subsistence agriculture into an economic one, they should be provided with all facilities to satisfy their needs regarding adoption of new agricultural technology.

+ Food grains constitute 70 to 80 per cent of the calories in the diet of people in India, in general and ruralities in particular. Out of the total population about 66 per cent was engaged in agriculture and 76 per cent cropped area was devoted to the production of food grains in 1970-71.

Despite the allocation of most of the country's resources to meet the food need, the normal food requirement remains unsatisfied in the weaker sections of India, where farm production performances are below the national average. The continued food grain deficiency in many parts of India affects nearly 80 per cent of the population.

Since population has passed 550 millions rising by ten to eleven million each year, the production of food grains despite the occasional surpluses has tended to lag, with the result that the food problem in India threatens catastrophe. The problem of food supply has tantalized India for over one and half century. Therefore, small farmer is sine que non for stepping up the food production to cope up with bursting of the swelling population pressure.

A pre-condition for raising farm productivity levels on the small farm is the transformation of their subsistence agriculture into viable commercial farming. In regards to special characteristics and needs of small farmers, it appears that a well integrated and properly executed programme of technological change offers an effective answer to vexed and vital issue of increasing food production and uplifting the small farmers.

Selective and intensive approach to solve the agricultural production problem has its origin since the birth of the Community Development Programme. Then package programme in 1961-62 was sponsored with an intention to increase food production to meet shortage in shortest possible time. Based on the success of Intensive Agricultural District Programme the package approach was extended in the name of Intensive Agricultural Area Programme in 1964-65. Green Revolution gained real currency when High Yielding Varieties Programme introduced in 1965.

In spite of all these efforts to increase food production it is well known sociological fact that in the Indian villages

by and large most of the best land with irrigation facilities is owned by handful of large joint families generally belonging to the locally dominant caste. As such the main material advantage of agricultural development programme is being taken up by such influential and rich cultivators. The extension workers employed under community development programme worked mainly among this class of people; who traditionally enjoyed position of power and status in village community.

Venkatappiah committee has very recently warned, "More far reaching are the socio-economic implecations of leaving this big section of the cultivating population out of the ambit of the agricultural and other rural development programme". If the fruits of development continue to be denied to large sections of the rural community while prosperity occurs to some, the resulting tensions, social and economic may not only upset the process of orderly and peaceful change in the rural economy but even frustrate the national efforts to step up agricultural production.⁴

Jagjivanram has observed that credit benefite through cooperatives or otherwise, had not percolated to the poor and had been intercepted by the rich.⁵

In India the physical supply of land is limited. Hence more land cannot be brought under the plough. Increase in agricultural production, to meet the needs of the country can

⁴ Report of the All India Rural Credit Review Committee, especially Chapter 18, "Small Farmers Development Agency" December, 1961, pp. 537-589.

⁵ Jagjivan Ram, Indian Express, August, 1969.

be achieved only through the economic use of land. For this, emphasis will have to be placed on the larger yield per hectare which can be obtained only by adopting the recent technology in the agricultural production. For this, detailed knowledge of the adoption of new agricultural technology by small farmers is essential. Emphasis in this matter should be given on small farmers. Since 62 per cent of the operational holdings in India are distributed in the less than 5 acres size groups of which about 19 per cent are below one acre and the fact that in India nearly 72 per cent of the population is engaged in agriculture which constitutes for the national income to the extent of 48 per cent.

Land can not be increased so only way of stepping up the food production is to adopt new agricultural technology.

3. Subramonian has rightly stressed the importance of the improved agricultural technologies and ideas. He has said that "Increased agricultural production will come through the adoption of new techniques and methods and it is just not possible to get a large increase by using the same old plant and animal material on the old soil in the same old ways."⁶

Therefore the present study was taken with an intention to study the small farmers in relation to their needs and adoption of new agricultural technology. The main purpose of study was to study the various characteristics of the small farmers and their influence on the adoption behaviour. Secondly to locate and identify their needs.

⁶ Subramonian, C., Science Reporter, Vol.4, No. 1,2. 1967
p. 4.

It is expected that present study of the small farmers will be useful to the extension agency, Government and private agencies which are engaged in the task of uplifting the small farmers.

The small farmers which constitute the main bulk of the farming community are the clientele of the extension agency. It is imperative that an extension agent should possess knowledge of characteristics and needs of small farmers which influence their adoption behaviour.

Objectives of the Study :

- 1 To study the personal, social and economic characteristics such as Age Education, Caste, Family Size, Size of holding, Income, Social participation, Cosmopolite -ness, Nationality of the small farmers;
- 2 To study the relationship between social, economic and personal characteristics with the adoption of new agricultural technology;
- 3 To study the needs of small farmers regarding the adoption of new agricultural technology;
- 4 To suggest ways and means to planners and policy makers for future actions.

Scope of the study :

This study is in regards with the small farmers from selected development block. It can broaden the knowledge about this audience giving an insight into the characteristics of these farmers. It is hoped that this study would be helpful

to those who are concerned with development programme for identifying the needs and alleviating the problems of small farmers.

The needs and problems of small farmers are vast and complex and prevailed, not only in Maharashtra but in almost all the states of India. Findings of this study may be useful to the planners, extension workers and future studies of the small farmers.

Limitations of the study :

This study involves the characteristics of the small farmers which are responsible for adoption of new agricultural technology. However, it has certain limitations. The study covered the Sangamner Development Block from the Ahmednagar district. It's findings, therefore, are limited to that Development Block and to others where similar conditions exist.

Chapter Opener Page

CHAPTER II
REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

Review of literature is always a stepping stone for an investigator to frame his research project. The review of literature is grouped under following headings :

- (I) Definitions of small farmer;
- (II) Characteristics of small farmers in relation to adoption of new agricultural technology;
- (III) Needs and reasons for non-adoption in relation to adoption of new agricultural technology.

(I) Definitions of small farmer :

Narvati (1951) has defined small farmer as one who struggles for a scanty living as a part time worker because the holding is much below, the economic family holding providing subsistence to the family from the farm

The small farmer have been described in general as being most inefficient having the least describe land and adopting the most backward agricultural techniques. (Anonamous, 1952).

According to Rogers (1965) small farmer is one who is more or less a subsistence farmer but seldom completely self sufficient because of uneconomic holding.

More appropriate and practicable definitiön accepted by Government of Maharashtra (1965) given by Integrated Area Development Scheme is, " the cultivator who cultivates land personally with holding up to 5 acres as with land revenue assessment not exceeding Rs. 10 and whose total farm and non-farm income does'nt exceed Rs. 1800 per annum is small farmer".

According to survey report of the Nalgonda district Administration (1969) the farmer who is having 5 or less than 5 standard acres of land is small farmer.

Subramanian (1969) recommended to use categories adopted by All Indian Rural Credit Survey Committee. The Committee refuse to adopt large, medium and small as mutually exclusive terms and classify farmer in 3 categories i. e. Medium to large, small to medium and Very small to small on the basis of land holding as :

- i) 7.5 and above
- ii) 2.5 to 7.5 and
- iii) less than 2.5 acres respectively.

Parthasarathy (1970) defines a small farmer as poor farmer. For operational convenience a smallness is expressed in terms of acreage yielding less than a defined gross value. A level of Rs. 2400 is chosen for this purpose.

Rath (1970), on an empirical definition of small farmer as one whose total resources position farm as well as non-farm does not enable him to keep him and his family at a sustained minimum level of subsistence it appears that on the basis of certain available data farmers with less than 10 acres in dry region would be called small farmers.

(II) Characteristics of small farmers in relation to adoption of new agricultural technology.

Age :

Gross (1949) reported by his investigation that non-adopters are younger than acceptors of improved agricultural

practices by 4-6 years.

Wilkens (1950) found that the age is negatively associated with the adoption of improved farm practices when certain other factors held constant.

Rajan and Gross (1950) stated that there was a relationship between the young farmers and early adoption of improved agricultural practices.

Hildebrand and Bertenheimer (1958) found that the tendency of younger men to be innovators. There was rather a constant down ward trend in this tendency with increase in age.

Rahudkar (1959) found that nearly 2/3 of farmers who adopted the improved farm practices were middle age group.

Singh and Reddy (1965) found that age was no associated with the acceptance of innovations.

By and others (1968) found that there was no relation between age and adoption of new improved agricultural practices.

Reddy and Kivim (1968) reported that relationship between age and adoption was not significant. Age can be regarded as a factor which cannot be a good predictor of adoption of agricultural innovations.

Education :

Scotland, Swinth and Taves (1952) observed that the number of years of schooling the farmers have the more likely they were to adopt new ideas.

Copp (1956) indicated that the formal education is positively related with adoption of recommended practices.

Hiegal (1967) observed that low income farmers have less education, are less likely to project plans in future and less likely to utilize such key means of gaining greater control over circumstances as credit and modern farming information and practices. In conclusion, he has stated that the problem of substantially increasing returns from agriculture for low income segment of this population will require some quite basic changes in attitudes and values.

Reddy and Singh (1965) found that there was a difference between adopters and non-adopters with respect to education.

Salvi (1968) has noticed a significant association between the adoption of recommended farm practices and the formal education of the farmer.

Laxmanrayan (1967) found that adopters are of better educated than non-adopters.

Salvi (1968) has noticed a significant association between the adoption of recommended farm practices and the formal education of the farmer.

Patil and Singh (1970) observed that there was marked difference between levels of education of adopters and non-adopters of farm planning

Caste :

Wahudkar (1962) concluded that the underdeveloped caste farmers had low agricultural development than the developed ones and the privileged trade agricultural caste farmers had more than both the above categories. He further added that for small farmers living conditions were poor, risk taking ability was less and aspirations and incentives were few but social rights rituals, functions, customs and traditions were predominant.

Mundra and Bhatia (1967) noted that the adoption index with regard to improved seeds is higher in higher caste and lowest in lower caste. It was found that practices which incurred little amount of money are adopted quickly also by lower caste.

Tripathi and Mishra (1971) found that caste is positively associated with adoption.

Rajendra (1968) found that caste was not playing a significant role in adoption.

Size of family :

John (1943) observed that a bigger family size was favourable to cooperative soil conservation activities.

Chopada, Wahudkar and Lape (1959) reported that the size of family had no relationship with adoption of farm practices.

Deshpande and Bikhade (1955) noticed no association between size of family and adoption.

Size of holding :

Ryan and Gross (1949) in their study entitled 'Diffusion and differential acceptance of hybrid seed corn in Iowa rural community established that earlier adopters had larger farms and higher income..

Marsh and Coleman (1955) observed that percentage of adoption of new practices by large farmers was much higher than the small farmers.

Coleman (1955) noticed that farmers with large holding were most often contacted by extension agencies and they were also found to adopt those practices than operators with small holdings.

A nationwide survey was carried out by the National Council of Applied Economic Research to study the factors affecting fertilizer consumption. Findings of this study revealed that fertilizer user on an average holds a much large farm than non-user (Anonymous, 1964).

Brunner and Yang (1967) observed from their studies conducted in South Carolina that families owning large farms accepted practices to extent of 85 per cent and those owning small farms accepted these to the extent of 74 per cent. They found that the size of farm was positively correlated with the adoption of improved practices.

Singh (1968) carried out an investigation in an I. A. A. P. block of Pures district and found that co-efficient of correlation between size of holding and adoption of high yielding varieties of paddy and wheat were non-significant.

Sinha (1970) observed that the farmers of very small size group were low adoptors compared to very large, large medium and small farm size groups of farmers.

Bhowmik, Gupta and Das (1972) stated that in an agricultural community who possess high tenure status were found to have a high receptiveness to agricultural adoption who have high tenure status tend to become more efficient in farming.

Bhattacharya (1972) investigated that there is indirect relationship between land holding and farmers following improved methods of cultivation.

Income :

Jopp (1957) reporting on the relationship of social and economic characteristics of operators to the adoption of recommended farm practice among cattlemen stated that economic condition was significantly related to adoption.

Illigal (1957) studied the effect of farm income on the adoption of practices. He found that the net income of the farm family was directly related to adoption of practices.

Hildebrand and Parthenheimer (1958) observed that a relatively high proportion of the farmers with high net worth were somewhat more willing to innovate than those in an intermediate net worth position.

Chaw (1958) conducted a study at Kodinar taluka in Maharashtra, revealed that small farmers adopted inferior cultivation practices because of their meagre income. It is further stated that the central problem of the small farmer

is imbalance in combination and most of his disabilities arise from it.

Shankariah (1965) observed that adoptors are of better economic conditions than non-adoptors. Bose and Vishnove (1960) concluded that economic conditions always played a dominant role in the acceptance of an innovation.

Rogers (1961) stated that 'Innovators with higher gross income are more efficient and more specialised in operations.

Sen (1958) observed that adoption of agricultural practices was significantly influenced by income.

Irrigation (size of Irrigated Land) :

The programme evaluation organisation (1964) reported in it's report that for both the categories of crops i.e. cash and food crops, the proportion of the area under improved seeds is higher, where the land is irrigated. This difference is most significant in case of wheat and potato.

Orvale (1965) revealed that the farmers having irrigation facilities adopted new technology with much more readiness.

Salvi (1968) found a strong positive association between the use of irrigation on the farm and adoption.

Social Participation :

Cross (1949) stated that the farmers, accepting improved practices had higher social participation than those who did not accept, Rogers and Bose then observed the same findings as above.

Wilkering (1953) observed that formal social participation was also positively associated with adoption of improved farm practices.

Marsh and Coleman (1955) found that social characteristics significantly associated with adoption were participation in formal organizations, meetings sponsored by agricultural agencies and participation in farm bureaus and contact with agricultural agencies.

Copp (1957) reporting on the relationship of social characteristics of farmers to the adoption of recommended practices said that formal social participation, membership in farm organizations and churches were associated significantly with number of practices adopted.

Lionberger and Loughmou (1957) in their observation stated that farm operators who participated in formal organizations had an improved farm practice rating of 14.7 compared to 9.4 for non-participants. The reason for non-participation or partial participation includes, no availability of water at sowing time, lack of drainage facilities, inability to incur expenditure on land levelling high cost of fertilizers and inadequate cooperative credit.

Hopper and Stangland (1958) found that with few exceptions social participation was positively associated with the acceptance of improved farm practices.

Kaludkar (1954) concluded that the farmers participating in social and economic organizations by holding some

official positions had done more agricultural improvement but small farmers had less social participation than big farmers.

Venkatappiah (1967) member of Planning Commission reported that a 'significant' portion of the non-participants had small holdings but a sizable portion of big cultivators even in Punjab had not at that stage adopted the new varieties.

Mukherji (1970) pointed out that the small farmers (cultivating less than 5 acres) do not lag very much behind large farmers, although initially their rate of participation had been much lower for a variety of reasons.

Cosmopolitanness :

Eliegal and others (1968) stated that the urban contacts serves as communication variable in two ways - first by bringing individuals through the village; into direct contacts with agents of change whose headquarter and personal are usually located in town and cities, secondly by directly urbanising the individual and his village making for more freedom of mobility and choice and lessening the pressure. It is concluded that urban contacts does facilitate adoption and help to promote change.

Extension Contacts and sources of information :

Coleman (1951) observed a direct relationship between extension contacts and the level of adoption of practices. He also found that educated persons are more often reached by extension people than the uneducated farmers.

Wilkering (1951) reported that farmers of upper socio-economic levels use agricultural agencies for source of information while those of lower socio-economic levels use other farmers and dealers as their main source of information.

Coleman (1951) reported that farmers of highest socio-economic status and operators of large farms were contacted more by the extension agents. Contact with extension workers increased with increase in status.

Spicer (1956) reported that the farmers responded favourably to the personal approach.

Bose (1961) concluded that contacts with formal and informal agencies are significantly related to the adoption of practices.

Singh and Sehgal (1963) concluded that the persons with higher educational and economic status who are receiving greater attention from extension agency.

Kevlin and Hlegal (1968) observed that extension knowledge and contact, functional literacy and exposure to mass media are consistently found to be positively related to adoption of innovations and are often used as indicators of modernization.

Ramaswamy (1972): A research conducted by the Coimbatore Agricultural College and Research Institute in 1970 has reported that small farmers having less than 2.5 acres are heavily dependant on private agencies to an extent of 64.5% of their credit-requirement.

Singh and Haque (1972) investigated that in context of communication of innovations to the farmers on cultivation and management practices of High Yielding Varieties of Crops, personal of extension agency particularly V.L.W. have been found to be most frequently utilized source of information.

Rationality :

Alfred and Aurbach (1958) revealed that there is a relationship between certain socio-cultural variables which have classically been related to adoption of recommended farm practices and rationality in decision taking. Rationality was conceptualized as variable intervening between the operation of socio-cultural variables and act of adoption. It was also found that greater the contacts with extension service, higher the rationality while large size of farm and age invercely related to rationality

Rogers (1952) in his study of Diffussion of Innovation found that more innovative farmers utilized more rational means to reach their goal.

(III) Needs and Reasons for non-adoption in relation to adoption of new agricultural technology :

Bhattacharjee (1950) concluded that the prominent needs of the small farmers were investment and working capital. This was the major handicap in the way of their improvement. Without sufficient capital their income cannot be increased.

Vankatoppai (1969) emphasized following needs of small farmers :

- 1 Adequate and timely supply of inputs including water;
- 2 Credit facilities;
- 3 Fragmentation of land;
- 4 Satisfactory arrangements for marketing and storage;
- 5 Security for tenure.

Conference for Asia and far East (1972) emphasized the need for boosting farm output with priority for development of rural area as a whole. The dominant theme identified by the Conference was the concern for the small farmers as the active participant in the development process. The conference inter alia recommended measures to strengthen the extension services to meet the needs of small farmers.

Shaw (1958) A study of Kodinar taluka in Maharashtra revealed that small farmers adopted inferior cultivation practices because of their meagre income. Further it is stated that the central problem of the small farmer is imbalance in combination and most of his disabilities arise from it. Regarding fertilizers and improved implements distributed by cooperatives the benefit obtained by the small farmer was relatively less.

Dube (1953) studied the reasons for non-adoption of improved agricultural practices. He reported that practices were not timely elements of precision and timing were alien and practices were incompatible with local social context

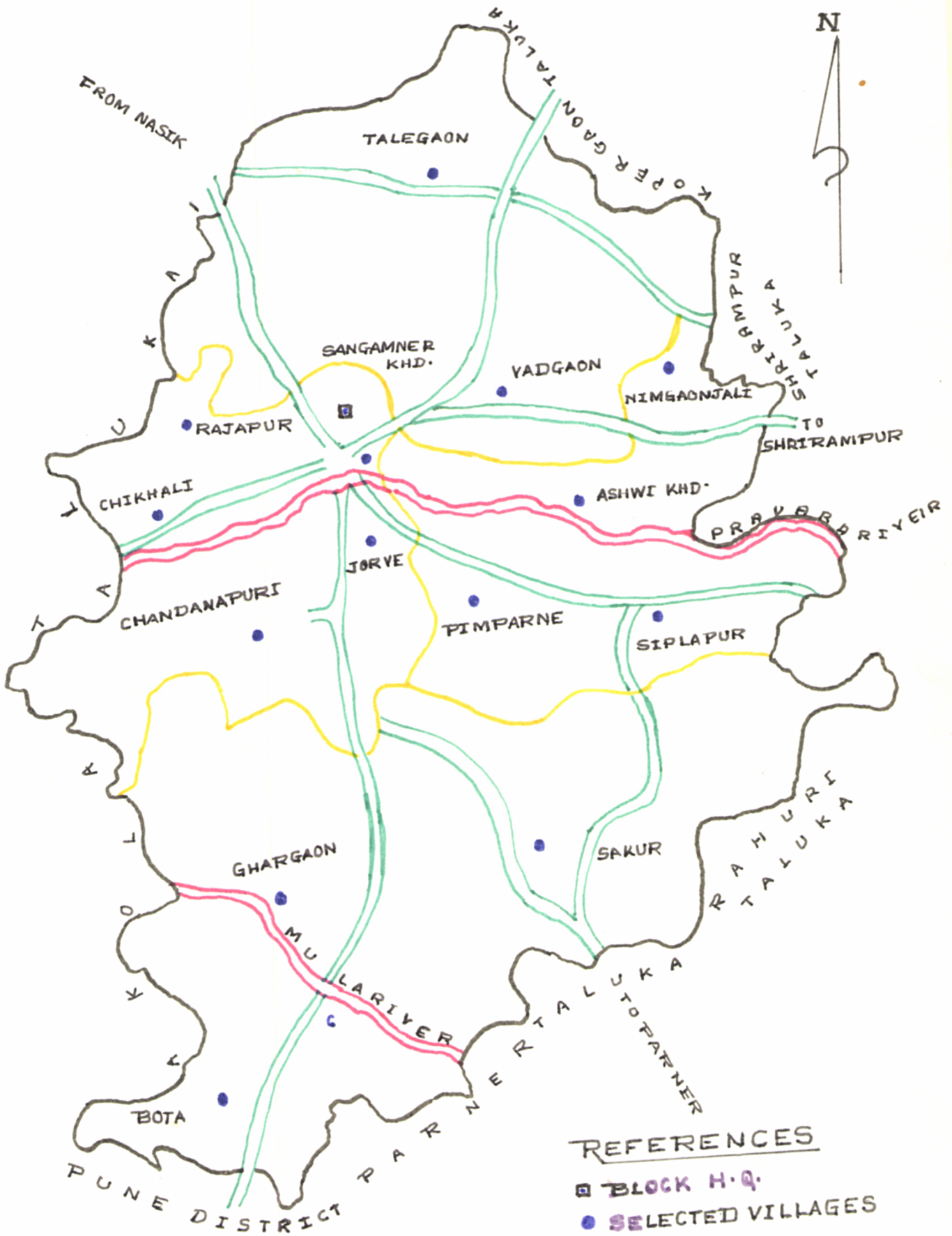
and specific needs. He also stated that practices were coupled with unreliable supply, time and dependability. He concluded that the economic goals and perspectives of small farmers were limited by an extremely low level of aspiration.

Singh (1968) carried out an investigation in I.A.D.P. block of Bahabad and found that there was significant variation in the extent of adoption of high yielding varieties due to differences in socio-economic status of farmers. He also found that lack of timely and adequate irrigation was most important factor reported by farmers as reason for non-adoption of high yielding varieties.

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CHAPTER III
METHODOLOGY

MAP OF SANGAMNER BLOCK



REFERENCES

- BLOCK H.Q.
- SELECTED VILLAGES
- == ROAD
- ~ RIVER
- BLOCK BOUNDRY



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CHAPTER III
METHODOLOGY

This chapter deals with 'where' and 'how' the study was carried out. The chapter includes information on :

- I Location of Research Site;
- II Area and Population;
- III Climate and Soil;
- IV Selection of Villages;
- V Selection of Small Farmers;
- VI Designing of Interview Schedule;
- VII Pre-testing of Schedule;
- VIII Procedure for Collection of Data;
- IX Working of Scores;
- X Meaning of the Terms Used;
- XI Statistical Analysis.

I Location of Research Site :

The study was carried out in Sangannor Block of Ahmednagar District of Maharashtra State. Ahmednagar District is situated in the Central part of Maharashtra between 18.2 degrees north latitude and 73.9 degrees to 75.5 degrees east longitude. It is surrounded by Aurangabad and Nasik districts on north by Bhir and Osmanabad districts on east Poona and Thane districts on the south-west and Solapur district on the south. This district is biggest in Poona division and second in the State next to Chandrapur district.

Sangannor Block is situated to the north-west of Ahmednagar district 90 kilometres away. 141 kilometres from

Poona by north side, 70 kilometres from Nasik by south side. The Pravara and Tula rivers run through this taluka from west to east. The western portion of the taluka is hilly and known as 'Pathar'.

II Area and Population :

Taluka came in existence as a development block in first April Nineteen Sixty. At present the block is in second stage since Nineteen Sixty Nine. The area of the block is 515.6 sq miles and the population of the taluka is 2,18,797 as per 1971 census; out of which 1,90,725 is rural population. Area of the taluka is 168,321 hectares while only 1,04,107 hectares are under cultivation and out of which only 1,206 hectares are under canal irrigation. Number of wells in taluka are 9,250.

The 'Integrated area Development Block' was inaugurated in April, 1969 and it was enforced in November, 1969. The total land holders in block are 30,559, out of which 18,470 are small holders. There are altogether 107 villages in the block, and the average population per village panchayat is 1,514.

III Climate and Soil :

Taluka is situated on deccan plateau. Climate with prevalence of westerly breeze is generally dry, pleasant and agreeable during the greater part of the year. The maximum temperature recorded during 1971 was 42°C whereas minimum temperature recorded was 8.8°C in January, 1971. The summer

season is extremely hot for short period and same is the case with winter season. The tract receives the rains from south-west monsoon from middle of June and lasts till the end of October. The average rain-fall is 11"-15" and because of less rain-fall the taluka have to suffer the draught condition.

This taluka is having variety of soils. In general, soils are poorly fertile, depth of which ranges from 6"-12". However, medium to deep black soils are found in southern and western part of the taluka. Nearly half of the total area is covered by hills. Soils are deficient in nitrogen and phosphorous. Due to deficiency of plant nutrient in soil, the average yields are low. This condition can be improved by addition of manures and fertilizers.

IV Selection of Villages :

The block consists of 137 villages. The list of all the villages was taken from the block development office. Out of these 137 villages, 14 villages were selected by using three digit random number table.

V Selection of Farmers :

It was intended to take up the study in block where Integrated Area Development Scheme operates. By using Shri V.S. Page's criteria for the selection of small farmers, a list of small farmers is already prepared by the Taluka Panchayat committee office. The same list of small farmers was taken and used for the selection of small farmers. By using 10th number method of random selection 250 small farmers were selected.



VI Designing of Interview Schedule :

After having reached to the frame work of study by reviewing the related literature on the same topic, the interview schedule was prepared. The schedule was designed in Marathi, the local language. Questions having two meanings, leading questions and contrasting statements were avoided. Logical sequence and briefness was observed while designing schedule. The language of the question was kept simple for easy understanding by the respondents.

Questions were asked to obtain the information on age, education, caste, size of family, size of holding, annual income, cropping pattern, social participation, cosmopolitan-ness, rationality and contact with extension agency.

VII Pre-testing of schedule :

The schedule designed was pre-tested by interviewing 15 farmers personally in order to have clarity of questions. Accordingly, some minor changes were made in the schedule in the light of difficulties encountered by the respondents during pre-testing.

VIII Procedure for Collection of Data :

The author visited 250 small farmers from the fourteen villages, personally in order to obtain required information from the respondent. In order to develop intimacy towards the farmers author contacted first Block Development Officer, almost all Gram Sevaks from fourteen villages and local leaders. Small farmers were convinced about the purpose and utility of study.

It was granted that information obtained from the respondent would be kept confidential and would be used for the purpose of study only.

IX Working of Scores - Social Participation :

The social participation score was worked out by assigning score one for membership and score two was assigned for the office bearers in any organization. The respondents having score 0 to 3 were considered to have lower social participation. While respondents whose scores were above three were considered as high social participation

Cosmopolitaness :

Each statement having positive answer regarding cosmopolitaness of respondent was given one score. Total score of respondent was then calculated and by arranging total scores of respondents in ascending order; value of the medium item was found out. Respondents having score three and less were considered to have low cosmopolitaness and respondents having total score above three were considered to have high cosmopolitaness.

Adoption Score :

Adoption Index was calculated by totalling number of years through which a farmer has used the various agricultural practices. Farmers having total score 26 and less were considered as low adopters and farmers having score 27 and above were considered as high adopters.

With a view to assess the needs of small farmers in

relation to adoption of new agricultural technology, a close end questions were asked having categories like;

- i) Economical needs;
- ii) Social needs;
- iii) Supplies;
- iv) Government Administration;
- v) Needs regarding family.

X Meaning of the Terms Used :

1) Small farmer :

Small farmer is one who cultivates land personally with holding upto 5 acres as with land revenue assessment not exceeding Rs. 10 and whose total farm and non-farm income does not exceed Rs.1800 per annum.

2) Cosmopolitaness :

It is the degree to which an individual's orientation is external to a particular social system.

3) Rationality :

It is the use of most effective measures to reach a given goal.

4) Awareness :

The individual know of the new idea but lacks information about it.

5) Adoption :

It is the continued use of a recommended farm practice.

6) Adoption Index :

It is a measure of adoption of improved farm practices. It is the total number of years for which a farmer has used different improved practices on his farm.

Each year of adoption of improved practices was credited one score and on the basis of total score received, the farmers were classified as high adoptors and low adoptors.

High adoptors :

These farmers having total score of 27 and above.

Low adoptors :

These farmers having a total score upto 26.

VI Statistical Analysis :

The data pertaining to the personal, social and economical characteristics, needs and adoption was then processed by preparing primary and secondary tables. Secondary tables were used for chi-square test. The chi-square test was used to find out association between different characteristics of farmers: their needs and their adoption of new agricultural technology.

Following Chi-square formulae were used for the calculations :

$$1) \chi^2 = \frac{N^2}{r_1 r_2} \sum_j \frac{e_j^2}{c_j} - \frac{r_1^2}{N}$$

where,

N = total number of observations

r_1 = total of 1st row

r_2 = total of 2nd row

c_j = total of j^{th} column

($j = 1, 2, \dots, n$)

a_j = observed frequency of j^{th} cell of 1st row

($j = 1, 2, \dots, n$)

d. f. = $(n-1)(n-1)$ =

$$ii) \chi^2 = \frac{(ad-bc)^2 (a+b+c+d)}{(a+b)(a+c)(b+d)(c+d)}$$

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CHAPTER IV

PRESENTATION OF DATA

CHAPTER IV

P R E S E N T A T I O N O F D A T A

In this chapter the data pertaining to the personal, social and economic characteristics, cropping pattern, availability of irrigation, sources of information and needs of small farmers are presented. Also the information regarding the nature of relationship between these variables and dependent variable is presented.

The data collected from 250 small farmers from Sangamner Development Block, District - Ahmednagar are classified and presented into two parts.

First part deals with the distribution of small farmers according to their age, education, caste, family size, availability of irrigation, total size of holding, cropping pattern including food and cash crops, secondary occupation, income, social participation, rationality, cosmopolitaness, extension contact, sources of information, adoption of improved agricultural practices and the needs of small farmers.

Second part deals with the nature of association between various characteristics of small farmers; their needs and adoption level.

PART - I

(A) PERSONAL CHARACTERISTICS

Table : 1 : Distribution of small Farmers According to their Age :

Sr. No.	Age groups	Number of small Farmers	Percent N=250
1	Upto 30 years	32	12.8
2	31 to 50 years	157	62.8
3	51 and above years	61	24.4
	TOTAL	250	100.0

From the table table 1, it can be seen that the largest number of small farmers i. e. 62.8 per cent were from the age group 31 to 50 years. There were 24.4 per cent of the small farmers in the age group 51 and above, while the lowest number of small farmers i. e. 12.8 per cent belonged to the age group upto 30 years

Table : 2 : Distribution of small Farmers According to Their Formal Education :

Sr. No.	Educational Level	Number of small Farmers	Percent N=250
1	No education	132	52.80
2	Upto 4th standard	71	28.40
3	5th and above	47	18.80
	TOTAL	250	100.00

The formal educational status of the small farmers is presented in above table. Table reveals that nearly half of the small farmers i. e. 52.80 per cent had not received any sort of formal education. A little more than one fourth of

the small farmers i.e. 28.40 per cent received the formal education upto 4th standard and very small portion of the small farmers i.e. 18.80 per cent had formal education to the extent of 5th standard and above.

Table : 3 : Distribution of Small Farmers According to their Caste :

Sr. No.	Castes	Number of Small Farmers	Percent N=250
1	Lower Caste	110	44.00
2	Higher Caste	140	56.00
	TOTAL	250	100.00

A glance at the above table reveals that a little more than half belonged to the higher caste. Little less than half belonged to the lower caste i.e. 56 per cent and 44 per cent respectively.

Table : 4 : Distribution of Small Farmers According to their Family Size :

Sr. No.	Size of Family	Number of Small Farmers	Percent N=250
1	Upto 5 members	94	37.60
2	6 to 10 members	124	49.60
3	11 and above	32	12.80
	TOTAL	250	100.00

It is evident from the table that the large number of small farmers i.e. 49.60 per cent were in the family size of 6 to 10 members. 37.60 per cent of the farmers were found in the category of upto 5 members. Only 12.80 per cent farmers had family size of eleven and above members.

(B) SOCIAL CHARACTERISTICS :**Table : 5 : Distribution of small Farmers according to Their social participation :**

Sr. No.	Participation score	Number of Farmers	Percent N=250
1	Low	174	69.60
2	High	76	30.40
	TOTAL	250	100.00

Majority of the Small Farmers, i. e. 69.60 per cent had low social participation and 30.40 per cent had of the small farmers were having high social participation.

Table : 6 : Distribution of small Farmers according to Their Cosmopolitaness :

Sr. No.	Cosmopolitaness score	Number of Small Farmers	Per cent N=250
1	Low	163	65.20
2	High	87	34.80
	TOTAL	250	100.00

It can be seen from the table that 65.20 per cent respondents had low cosmopolitaness score while 34.80 per cent respondents were received high cosmopolitaness score.

Table : 7 : Distribution of small Farmers according to Their Nationality :

Sr. No.	Nationality	Number of Small Farmers	Percent N=250
1	Low	166	66.40
2	High	84	33.60
	TOTAL	250	100.00

It is evident from the table that 66.40 per cent of Small Farmers had low rationality level, whereas 33.60 per cent were in high rationality level.

Table : 8 : Distribution of Small Farmers according to Their Extension Contacts :

Sr. No.	Extension Contact	Number of Small Farmers	Percent N=250
1	Low	148	59.20
2	High	102	40.80
	TOTAL	250	100.00

It reveals from the table that majority of Small Farmers i.e. 59.20 per cent had extension contacts whereas respondents having high extension contacts were only 40.80 per cent.

(C) AGRICULTURAL CHARACTERISTICS :

Table : 9 : Distribution of Small Farmers according to Their Annual Total Income :

Sr. No.	Income (Rupees)	Number of Farmers	Percent
1	Upto 500	53	21.20
2	501 to 1000	120	48.00
3	1001 and above	77	30.80
	TOTAL	250	100.00

It can be seen from the table that majority of respondents i.e. 48.00 per cent were from the income group of Rs. 501 to 1000. 30.80 per cent respondents had income group of Rs. 1001 and above. About 21.00 per cent respondents were in income group upto Rs. 500.

Table 10 : Distribution of small Farmers According to Their Income from Agriculture :

Sr. No.	Income (Rupees)	Number of Farmers	Percent N=250
1	Upto 200	20	8.00
2	201 to 500	76	30.40
3	501 to 1000	102	40.80
4	1001 and above	52	20.80
TOTAL		250	100.00

Above table reveals that 8.00 per cent of respondents had very less income i.e. upto Rs. 200 from agriculture. 30.00 per cent and 40.00 per cent respondents were in the income group of Rs. 201 to 500 and Rs. 501 to 1000 respectively. 20.00 per cent respondents had received income of Rs. 1001 and above from agriculture.

Table 11 : Distribution of small Farmers according to Their Income From Secondary Occupation :

Sr. No.	Income (Rupees)	Number of Farmers	Percent N=139
1	Upto 200	46	33.09
2	201 to 500	42	30.22
3	501 to 1000	35	25.18
4	1001 and above	16	11.51
TOTAL		139	100.00

It reveals from above table that 139 respondents i.e. 55.60 per cent were having secondary occupation. Among these respondents 33.09 per cent had income group upto Rs. 200, 30.22 per cent were received from secondary occupation income between Rs. 201 to 500, 25.18 per cent were found in the income group of Rs. 501 to 1000 and only 11.51 per cent respondents had

income of Rs. 1001 and above from secondary occupation.

Table : 12 : Distribution of Small Farmers According to Their Secondary Occupation :

Sr. No.	Occupation	Number of Farmers	Percent N=139
1	Labour	100	71.94
2	Service	21	15.11
3	Dairy and Poultry	10	7.19
4	Other	8	5.76
TOTAL		139	100.00

It is evident from table that majority of small farmers i.e. 71.94 per cent had secondary occupation as labourer. Fifteen per cent respondents were doing service. About 7 per cent and 5 per cent farmers were engaged in dairy, poultry and other type of occupation respectively.

Table : 13 : Distribution of Small Farmers According to Their Size of Holding :

Sr. No.	Size of Holding	Number of Farmers	Per cent N=250
1	Upto 1 acre	22	8.80
2	2 to 3 acres	85	34.00
3	4 to 5 acres	79	31.60
4	6 and above acres	64	25.60
TOTAL		250	100.00

It reveals from the table that 34.00 per cent respondents had holdings 2 to 3 acres and 31.60 per cent respondents had 4 to 5 acres. Holdings of 6 acres and above were possessed by 25.60 per cent respondents. Only 22 respondents were found in size of holding upto 1 acre.

Table : 14 : Distribution of Small Farmers According to Their Availability of Irrigation :

Sr. No.	Availability of Irrigation	Number of Farmers	Per cent N=250
1	No Irrigation	161	64.40
2	Irrigation	89	35.60
TOTAL		250	100.00

From the above table it is seen that majority of the respondents i.e. 64.40 per cent were not having the irrigation facilities, while only 1/3 respondents i.e. 35.60 per cent availed of the irrigation facilities.

CROP GROWING PATTERN :

Table : 15 : Distribution of Small Farmers According to Food Crops Grown by Them :

Sr. No.	Type of Food Crop	Number of Farmers	Per cent N=250
1	Bajra	248	99.20
2	Wheat	57	22.80
3	Jowar	53	21.20

It is evident from the above table that most of the farmers were growing food crops. About 99.00 per cent respondents had Bajra crop. Twenty-two per cent and 21.20 per cent respondents had wheat and Jowar crops respectively.

Table : 16 : Distribution of Small Farmers According to Commercial Crops grown by them :

Sr. No.	Type of Commercial Crop	Number of Farmers	Percent (N=250)
1	Sugarcane	17	6.8
2	Cotton	3	1.2
3	Groundnut	15	6.0
4	Other (Vegetable)	35	14.0

It can be seen from the above table that only 70 respondents i.e. 28.00 per cent respondents were taking cash or commercial crops. Considering the total number of respondents i.e. 250, it was seen that 6.8 per cent had sugarcane crop, 1.2 per cent respondents were having cotton. Majority of respondents i.e. 14.00 per cent were having vegetables and 6.00 per cent respondents had groundnut as commercial crop.

Table : 17 : Distribution of Small Farmers According to Their Sources of Information:

Sr. No.	Source of Information	Number of Farmers	Per cent (N=250)
1	Neighbours	220	88.00
2	Friends	149	59.60
3	Relatives	118	47.20
4	Progressive Farmers	107	42.80
5	Leaders	21	8.40

From the above table it is learnt that 88.00 per cent farmers were receiving information from their neighbours. 59.60 per cent farmers received information from friends. Progressive farmers and leaders were used as a source of information by 42.80 per cent and 8.40 per cent farmers

respectively.

Table : 18 : Distribution of Small Farmers According to Sources of Information (Extension Personnel):

Sr. No.	Extension Personnel	Number of Farmers	Per cent N=250
1	Block Development Officer	38	15.20
2	Extension Officer	44	17.60
3	Agricultural Assistant	160	64.00
4	Village Level Workers	190	76.00

It is evident from the table that largest number of farmers 76.00 per cent were using village level workers as their source of information for new agricultural technology. Agricultural Assistant was ranked second to act as source of information for 64.00 per cent farmers. Block Development Officer and Extension Officer were used as source of information by 15.20 per cent and 17.60 per cent farmers respectively.

Table : 19 : Distribution of Small Farmers According to Sources of Information (Group Media):

Sr. No.	Source of Information	Number of Farmers	Per cent N=250
1	Meeting	150	60.00
2	Group Discussion	51	20.40
3	Demonstration	47	18.80
4	Agricultural Exhibition	52	20.80
5	Educational Tour	34	13.60

It revealed from the table that more than half of the farmers i.e. 60 per cent farmers attended meetings to get information regarding new agricultural technology. Nearly equal number of farmers i.e. 30.40 per cent and 20.80 per cent farmers were involved in group discussion and agricultural exhibitions respectively for getting information.

About 18.8 per cent farmers had been shown demonstrations to have information about new agricultural technology and very less i.e. 13.60 per cent farmers had an occasion to join educational tour for obtaining information about new practices.

Table : 27 : Distribution of Small Farmers according to Their Sources of Information (Mass Media) :

Sr. No.	Source of information	Number of Farmers	Percent N=250
1	Radio	164	65.60
2	Movie Pictures	103	41.20
3	Letters	38	15.20
4	Posters	40	16.00
5	News papers	44	17.60
6	Agricultural Magazines	55	22.40

It is seen from the table that there were 65.60 per cent radio listeners for securing information. About 41.20 per cent farmers had seen pictures for obtaining information. Letters and Posters were used as information source by 15.20 per cent and 16.00 per cent respondents respectively. 17.60 per cent farmers used News paper while 22.40 per cent farmers used Agricultural Magazines as their source of information.

Table : 21 : Distribution of Small Farmers according to Their Source of Information (Commercial Media) :

Sr. No.	Source of Information	Number of Farmers	Per cent N=250
1	Salesman	43	17.20
2	Representative	31	12.40

It is clear from the table that 17.20 per cent and 12.40 per cent farmers only had salesman and representative to act as their source of information respectively. Out of total sample of 250 farmers only 74 farmers i.e. 29.6 per cent have used commercial media as their source of information

Table : 22 : Distribution of Small farmers According to Other Sources of Information (Institutional) :

Sr. No.	Source of Information	Number of Farmers	Per cent N=250
1	Cooperative Society	185	74.00
2	Gram-Panchayats	73	29.20
3	Youth Club	13	5.20
4	Farmers' Organization	11	4.40

It is revealed from the table that majority of farmers i.e. 74.00 per cent were using cooperative societies as source of information. Twenty-nine per cent farmers used Gram-Panchayats as source of information. While very low i.e. 5.20 per cent and 4.40 per cent farmers used Youth Club and Farmers' Organization for getting information respectively.

Table : 23 : Distribution of Small Farmers According to Their Awareness Index :

Sr. No.	Awareness Index.	Number of Farmers	Per cent N=250
1	Low	130	52.00
2	High	120	48.00
	TOTAL	250	100.00

It can be seen from the table that 52.00 per cent farmers had low awareness index whereas 48.00 per cent farmers were having high awareness index.

Table : 24 : Distribution of Small Farmers According to Their Adoption Index :

Sr. No.	Adoption Index	Number of Farmers	Per cent N=250
1	Low	153	61.20
2	High	97	38.80
	TOTAL	250	100.00

Above table showed that more than the half farmers i.e. 61.20 per cent were in low adoption index category whereas 38.80 per cent farmers had high adoption index.

NEEDS :

Table : 25 : Distribution of Small Farmers According to Their Economic Needs :

Sr. No.	Economic Needs	Number of Farmers	Per cent N=250
1	Availability of timely loans	.... 247	98.80
2	Availability of sufficient loans	.... 94	37.60
3	Availability of Long term loans	.... 133	53.20
4	Availability of loans with the least interest	.... 175	70.00
5	Availability of Economic Holdings	.... 85	34.00
6	Availability of secondary Occupation	.... 68	27.20
7	Availability of loans for secondary occupation.	.... 114	45.60
8	Availability of loans without security	.... 150	60.00

Above table reveals that availability of timely loans was perceived by 98.80 per cent farmers as their need. Availability of economic holding and long term loans were felt as a need by 34.00 per cent and 53.20 percent farmers. Loans without security and with least interest were felt as a need by 60 per cent and 70 per cent farmers respectively. About 45 per

cent and 37.60 per cent farmers were in need of loans for secondary occupation and sufficient loans respectively, whereas 27.20 per cent farmers perceived secondary occupation as their needs.

Table : 26 : Distribution of Small Farmers according to their Social Needs :

Sr. No.	Social Needs	Number of Farmers	Percent N=250
1	Quick communication of information regarding improved agricultural practices	.... 120	51.60
2	Communication of information on the farms and home of small farmers	.... 140	56.00
3	Due to poverty small farmers should not be neglected	.... 120	51.60
4	Small Farmer must get help from gram-panchayat and Cooperatives	.... 161	64.40
5	Small farmers should get representation on Co-operative or other institutions	.... 163	65.20
6	Demonstration should be arranged on small farmers' farm.	.... 114	45.60

Help from Gram-Panchayats and Cooperatives and representation in the same were needs of 64.40 per cent and 65.20 per cent farmers respectively. Immediate flow of information to small farmers and the same on the farm and home were felt as needs by 51.60 per cent and 53.00 per cent farmers. Due to poverty small farmers should not be neglected was the need

expressed by 51.60 per cent farmers. While demonstrations of improved Agricultural practices should be taken on small farmers' farm was felt as a need by 45.50 per cent farmers.

Table : 27 : Distribution of small farmers according to their needs about supplies :

Sr. No.	Needs regarding supplies	Number of Farmers	Percent N=280
1	Proper distribution of hybrid seeds	.... 134	53.60
2	Seeds should be distributed timely and in sufficient quantity	.... 103	41.20
3	Seeds should be sold at cheaper rate	.... 156	62.40
4	Farm equipments should be made available on hired basis and in concessional rates.	.... 168	67.20
5	Sufficient and timely provision of fertilizers	.... 141	56.40
6	Insecticides, pesticides and equipments be made available in concessional rates.	.... 152	64.80
7	Availability of Irrigation water	.... 166	66.40
8	Preference to small farmers in distribution of Agricultural requisites.	.... 116	46.40

Proper distribution of hybrid seeds and timely and sufficient distribution of the same were perceived as needs by 53.60 per cent and 41.20 per cent farmers respectively. Farm equipment on hired basis and provision of sufficient and timely fertilizers were the needs of 67.20 per cent and 56.40 per cent farmers

respectively. Seeds, insecticides and pesticides, equipments for the same in controlled rate were perceived by 62.40 per cent and 64.80 per cent farmers respectively as their needs. Majority i.e. 66.40 per cent farmers felt availability of irrigation as important need and 46.40 per cent farmers thought that, preference should be given to small farmers in distribution of farm requisites; they felt it as a need.

Table : 28 : Distribution of Small Farmers According to Their Government Administrative Needs :

Sr. No.		Number of Farmers	Percent N=250
1	Government officials should reach small farmers and give cooperation to them	160	64.00
2	Small farmers should get benefit from all development programme	151	60.40
3	Suitable programme planning for small farmers	185	73.20
4	Administrative difficulties should be solved in village itself	184	72.80
5	Good treatment from Government officials to small farmers	137	54.80

It can be seen from above table that 64.00 per cent and 60.40 per cent farmers perceived Government officials should reach small farmers and small farmers should get benefit from all development programmes, as their needs. Most of the farmers i.e. 73.20 per cent were of the view that planning strategy should be in accordance with small farmers 72.80 per cent farmers were of the opinion that the difficulties should be

solved in village itself. Whereas 54.80 per cent small farmers were in need of good treatment from the Government officials.

Table : 29 : Distribution of Small Farmers According to their Family Needs :

Sr. No.	Needs of Family	Number of Farmers	Per cent N=250
1	Need of good house	211	84.40
2	educational facilities for children	45	18.00
3	Medical facilities free or in concessional rates and in village itself.	165	66.00
4	Employment to other family members	130	52.00

Majority of small farmers i.e. 84.40 per cent were in need of good house. 66.00 per cent farmers were demanding medical aid in village itself and that with concessional rate or free. Fifty-two per cent farmers were in need of employment for remaining family members, and only 18.00 per cent farmers were demanding for educational facilities to their children.

PART IIRELATIONSHIP OF CHARACTERISTICS OF SMALL FARMERS AND THEIR
NEEDS WITH ADOPTION INDEX :Table : 30 : Distribution of small farmers according to Their
Age and Adoption of New Agricultural Technology:

Adoption Index	Upto 30 years N=32	31 to 50 years N=157	51 and above years N=61	Total N=250
Low	65.33	62.42	55.74	61.20
High	34.37	37.58	44.26	38.80
TOTAL	100.00	100.00	100.00	100.00

Chi-square = 1.13

D.F. = 2

Not significant.

It is evident from above table that association between age and adoption of new agricultural technology was statistically non-significant.

Table : 31 : Distribution of Small Farmers According to Their
Formal Educational Level and Adoption of New
Agricultural Technology :

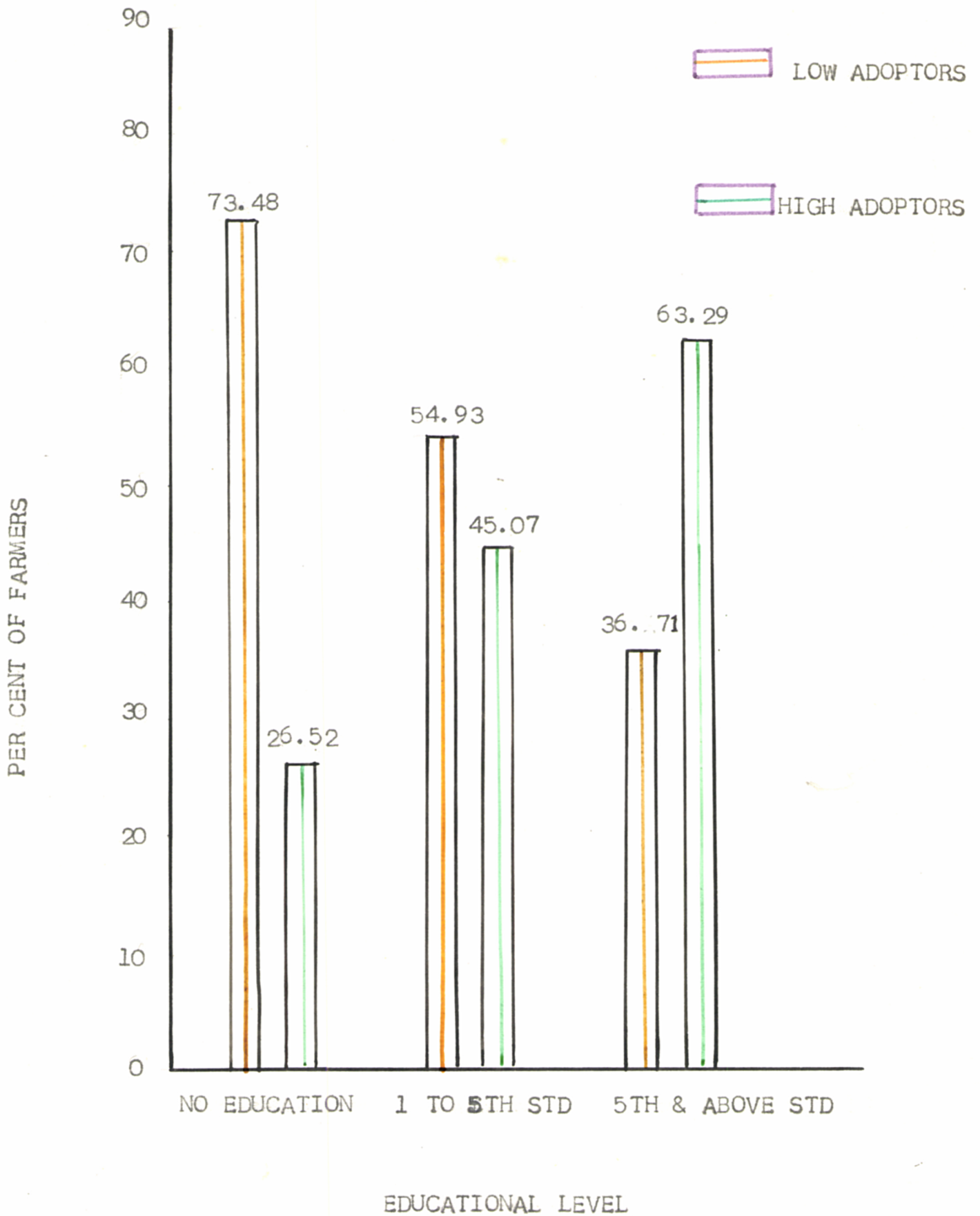
Adoption Index	No formal education N=132	Upto 4th Standard N=171	5th standard and above N=47	Total N=250
Low	73.48	54.93	31.71	61.20
High	26.52	45.07	68.29	38.80
TOTAL	100.00	100.00	100.00	100.00

Chi-square = 21.93

D.F. = 2

Significant at 0.05 level.

DISTRIBUTION OF THE SMALL FARMERS ACCORDING
TO THEIR FORMAL EDUCATION AND ADOPTION
OF NEW AGRICULTURAL TECHNOLOGY



Above table reveals that there was strong statistically significant relationship between formal education of the small farmers and adoption. Farmers who had formal education were found to be adopting more new agricultural technology as compared to uneducated farmers.

Table : 32 : Distribution of Small Farmers According to Their Caste and Adoption of New Agricultural Technology :

Adoption Index	Lower Caste (N=110)	Higher Caste (N=140)	Total (N=250)
Low	68.18	55.71	61.20
High	31.82	44.29	38.80
TOTAL	100.00	100.00	100.00

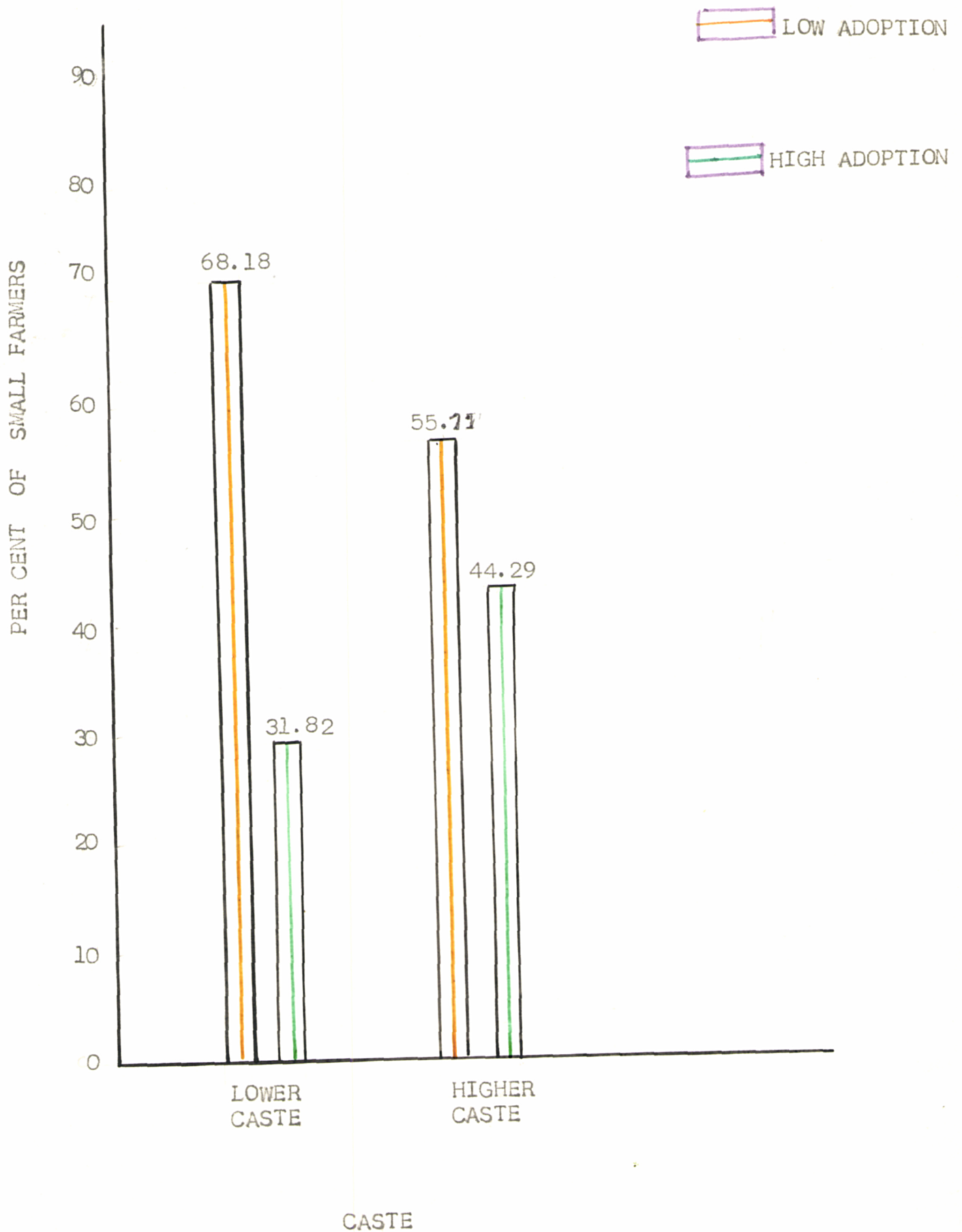
Chi-square = 4.03

D. F. = 1

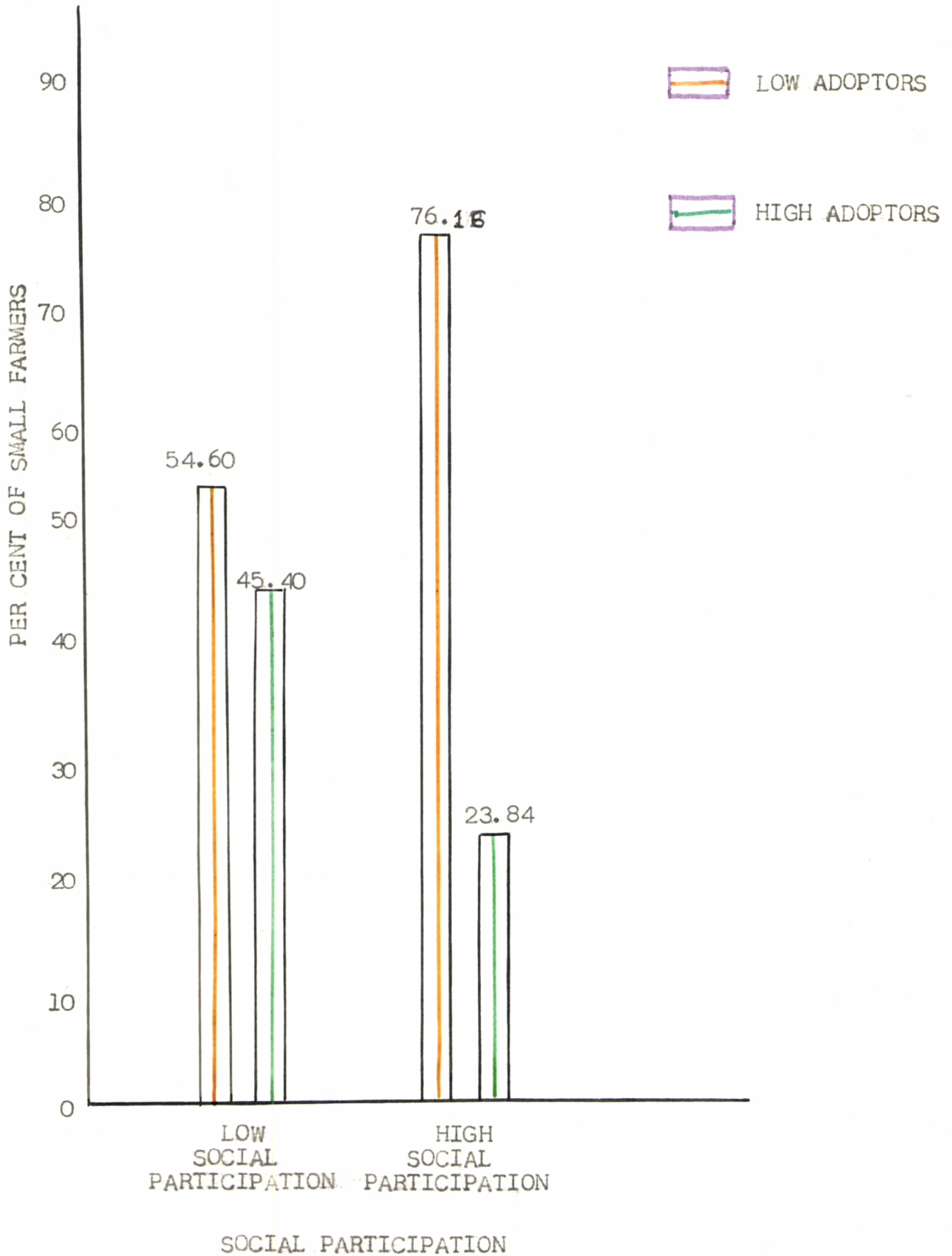
Significant at 0.05

Table 32 reveals that there was statistically significant association between caste of the farmers and adoption of new agricultural technology. Farmers who belonged to the higher caste were found to be high adoptors of new agricultural technology as compared to the farmers who were from the lower caste.

DISTRIBUTION OF THE SMALL FARMERS ACCORDING TO THEIR CASTE AND ADOPTION OF NEW AGRICULTURAL TECHNOLOGY



DISTRIBUTION OF THE SMALL FARMERS ACCORDING TO THEIR SOCIAL PARTICIPATION AND ADOPTION OF NEW AGRICULTURAL TECHNOLOGY



It can be seen from above table that there was statistically significant association between social participation and adoption of new agricultural technology. Higher the social participation, there is higher adoption of new agricultural technology.

Table : 36 : Distribution of small Farmers According to Their Cosmopolitaness and Adoption of New Agricultural Technology :

Adoption Index	Lower N=163	Higher N = 87	Total N=250
Low	65.03	54.02	61.20
High	34.97	45.98	38.80
TOTAL	100.00	100.00	100.00

Chi-square = 28.90

D.F. = 1

Significant at 0.01 level

The association between the cosmopolitaness and adoption of new agricultural technology was found to be statistically significant. From the table 36, it was seen that farmers having more cosmopolitaness adopt more new agricultural technology than the farmers having low cosmopolitaness.

Table : 37 : Distribution of small Farmers According to Their Nationality and Adoption of New Agricultural Technology :

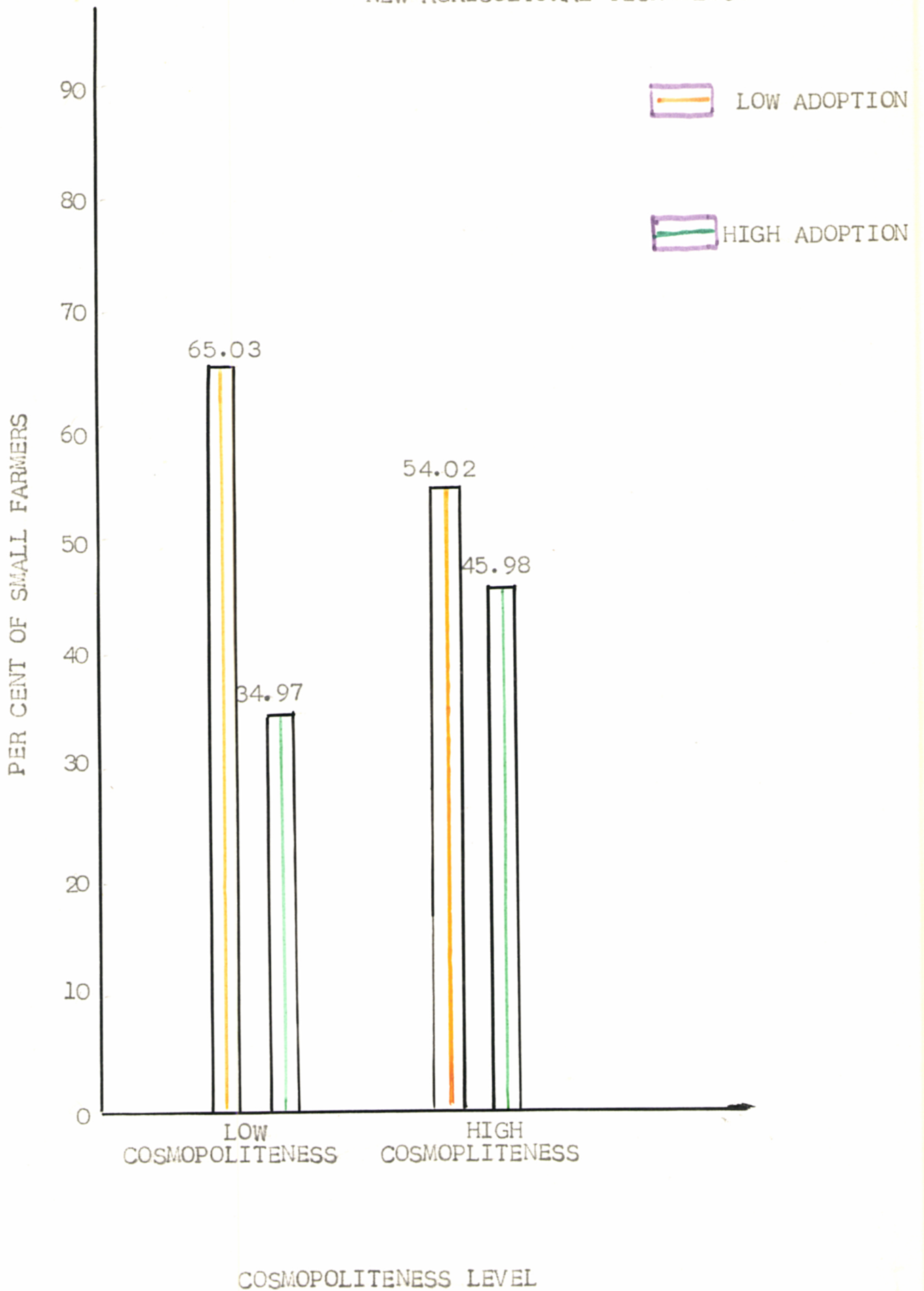
Adoption Index	Low N=166	High N=084	Total N=250
Low	54.22	75.00	61.20
High	45.78	25.00	38.80
TOTAL	100.00	100.00	100.00

Chi-square = 10.14

D.F. = 1

Significant at 0.01 Level.

DISTRIBUTION OF THE SMALL FARMERS ACCORDING TO THEIR COSMOPOLITENESS AND ADOPTION OF NEW AGRICULTURAL TECHNOLOGY



Analysis of table 37 reveals that there was a statistically significant association between the rationality and adoption of new agricultural technology.

Table : 38 : Distribution of Small Farmers According to Their Extension Contacts and Adoption of New Agricultural Technology :

Adoption Index	Low N=148	High N=102	Total N=250
Low	59.59	49.02	61.20
High	37.41	50.98	38.80
Total	100.00	100.00	100.00

Chi-square = 10.76

D.F. = 1

Significant at 0.01 level.

It is seen from the above table that there was a statistically significant association between extension contact and the adoption of new agricultural technology.

Table : 39 : Distribution of Small Farmers According to Their Annual Income and Adoption of New Agricultural Technology :

Adoption Index	Upto Rs. 500 N=35	Rs. 500 to Rs. 1000 N=120	Rs. 1000 & above N=77	Total N=250
Low	71.70	66.67	45.45	61.20
High	29.30	33.33	54.55	38.80
TOTAL	100.00	100.00	100.00	100.00

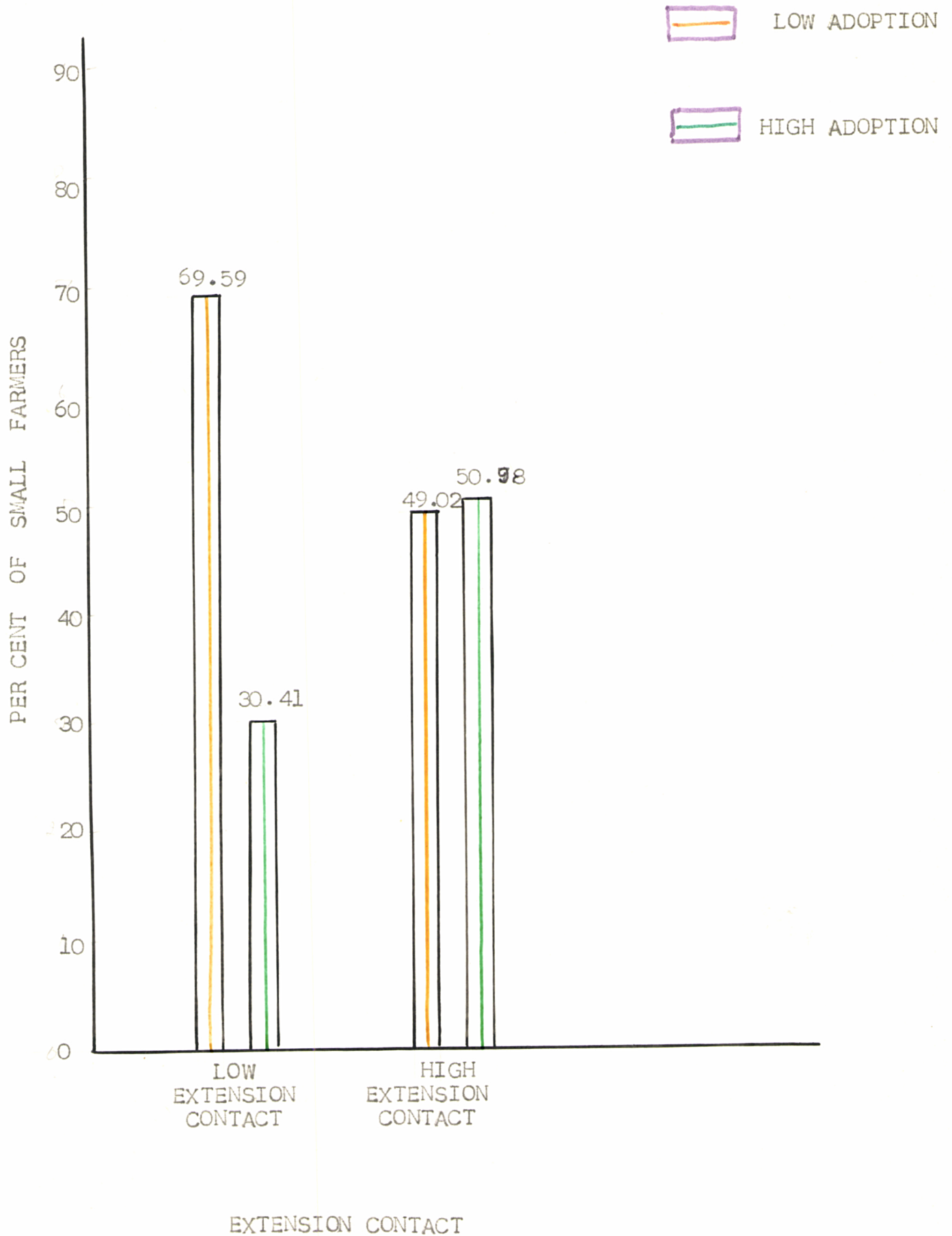
Chi-square = 11.99

D.F. = 2

Significant at 0.01 level.

Analysis of above table indicated that there was statistically significant association between income of farmers and adoption of new agricultural technology.

DISTRIBUTION OF THE SMALL FARMERS ACCORDING TO THEIR EXTENSION CONTACT AND ADOPTION OF NEW AGRICULTURAL TECHNOLOGY



DISTRIBUTION OF THE SMALL FARMERS ACCORDING TO THEIR ANNUAL INCOME AND ADOPTION OF NEW AGRICULTURAL TECHNOLOGY

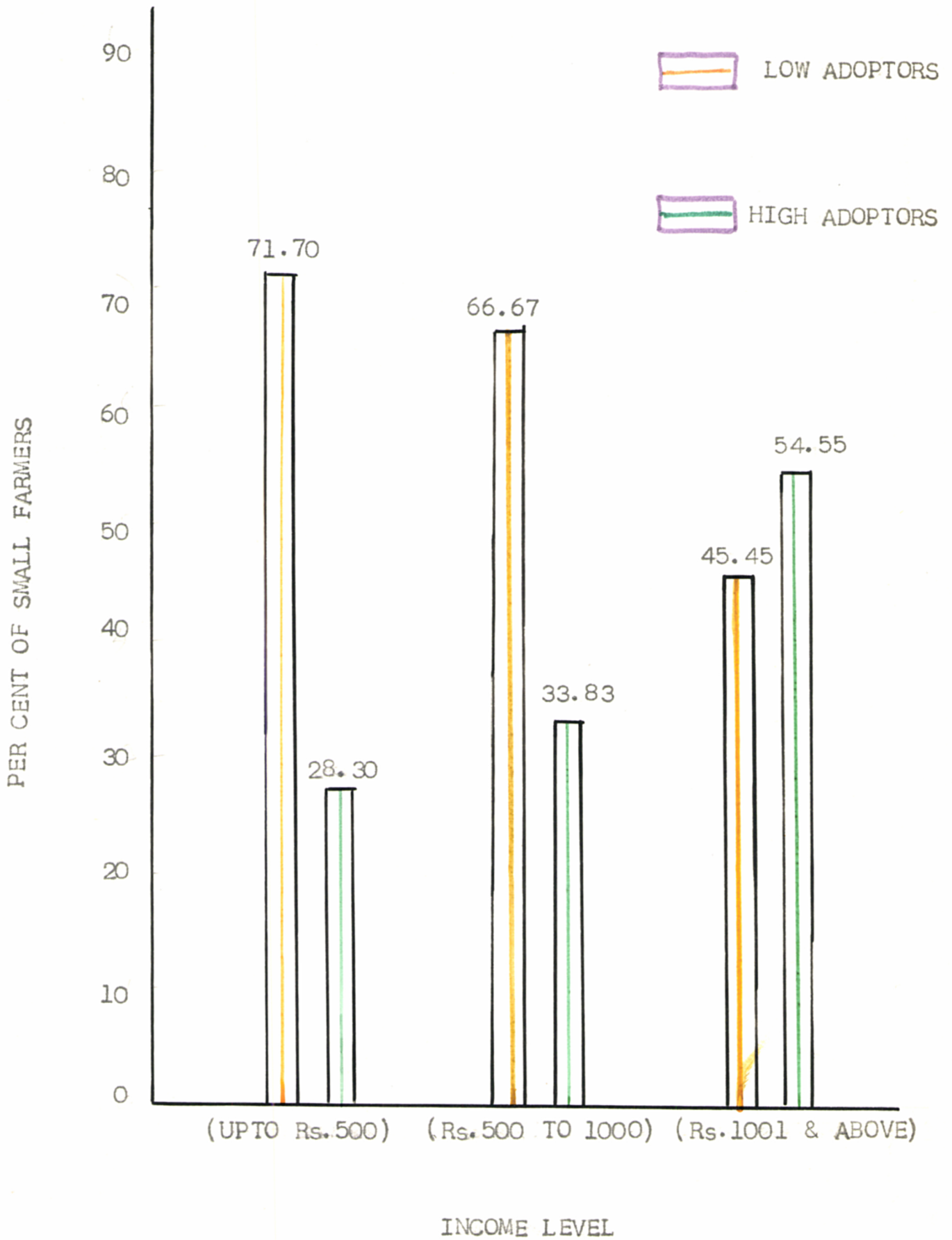


Table : 40 : Distribution of Small Farmers according to Their Size of Land Holding and Adoption of New Agricultural technology :

Adoption Index	Upto 1 acre N=22	2-3 acres N=85	4-5 acres N=79	6 and above acres N=63	Total N=250
Low	50.00	74.12	60.76	40.44	61.20
High	50.00	25.88	39.24	51.56	38.56
TOTAL	100.00	100.00	100.00	100.00	100.00

Chi-square = 11.87

D.F. = 3

Significant at 0.01 level.

It is evident from the table that association between size of land holding and adoption was found to be statistically significant.

Table : 41 : Distribution of Small Farmers according to Their availability of Irrigation and Adoption of New Agricultural Technology :

Adoption Index	No irrigation N = 161	Irrigation N = 89	Total N=250
Low	72.05	41.57	61.20
High	27.95	58.43	38.80
Total	100.00	100.00	100.00

Chi-square = 28.42

D.F. = 1

Significant at 0.01 level.

It can be seen from above table that there was strong statistically significant association between availability of irrigation and adoption of new agricultural technology.

DISTRIBUTION OF THE SMALL FARMERS ACCORDING TO THEIR SIZE OF HOLDING AND ADOPTION OF NEW AGRICULTURAL TECHNOLOGY

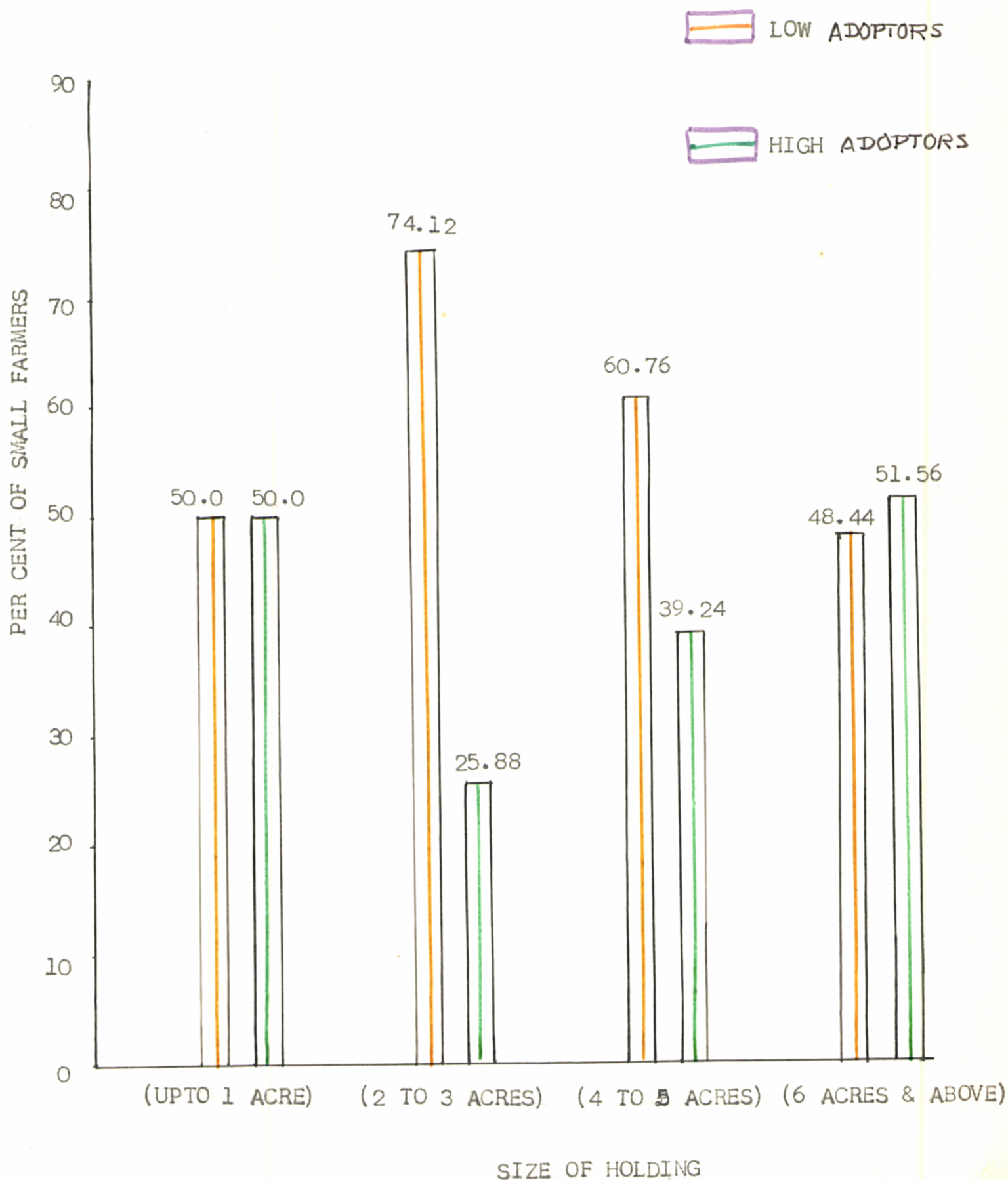


Table : 42 : Distribution of small Farmers according to Their extent of source of information used Adoption of New Agricultural Technology :

Adoption Index	Less sources N=100	More sources N=150	Total N=250
Low	48.00	70.00	61.26
High	52.00	39.00	38.80
TOTAL	100.00	100.00	100.00

Chi-square = 5.44.

D.F. = 1

Significant at 0.05 level.

Analysis from above table revealed that there was statistically significant association between extent of sources of information used and Adoption.

Table : 44 : Distribution of small Farmers according to Their extent of needs and Adoption of New Agricultural Technology :

Adoption Index	Less Needs N = 82	More Needs N = 158	Total N=250
Low	70.73	56.35	61.20
High	29.27	43.45	38.80
TOTAL	100.00	100.00	100.00

Chi-square = 17.71

D.F. = 1

Significant at 0.01 level.

It is indicated from the table that there existed statistically significant association between extent of needs expressed by farmers and adoption of new agricultural technology.

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CHAPTER V
DISCUSSION

CHAPTER V

DISCUSSION

Small farmer is talk of the day and the strategy for the agricultural development. As most of the small farmers do not have irrigation facilities and inputs to increase their farm produce and thereby increase their income; they borne in poverty and live in poverty. They have to face innumerable problems and needs in agriculture. This ultimately compel them to till their soil in their traditional way. Therefore the study entitled "Small Farmers in Relation to their Needs and Adoption of New Agricultural Technology" was felt to be essential.

In this chapter, discussion regarding the nature of association of some personal, social and economical characteristics of the small farmers and the adoption of new agricultural technology is presented. Further the data regarding the needs of small farmers in relation to adoption of new agricultural technology are also discussed.

PERSONAL CHARACTERISTICS :

Age :

The relationship between the age and adoption is somewhat inconclusive though most of the research workers have found that the age of the farmers has no direct effect on the adoption of new agricultural technology. It was also found in this investigation that there was no association between the age of small farmers and the adoption of new agricultural technology. Similar findings were reported by Singh and Reddy (1965) and Reddy and Kivlin (1968).

Education :

Out of the total respondents 52.80 per cent had not received any sort of formal education. About 28.40 per cent were received formal education upto 4th standard only, and a very little number of farmers i.e. 12.80 per cent had 5th and above standard of formal education. This might be due to the fact that higher educational facilities are not available at villogo level and small farmers are not aware of the importance of the education or they may not afford to send their children for higher education.

Formal education of the small farmers and adoption of new agricultural technology were studied in order to see the association in between them. It was found that there was a strong statistically significant association between the two. This shows that adoption of new agricultural technology was more in educated farmers. Similar observations were recorded by Jopp (1955), Salvi (1968) and Illiegel (1960).

Caste :

The caste is accorded to a person by virtue of his birth. In general, the person, belonging to the lower caste has lower socio economic status, lower social participation and low cosmopolitaness. This is likely to affect his adoption behaviour. In view of this the caste was studied to find out relationship, if any, with the adoption of new agricultural technology.

Out of total sample 56.00 per cent and 54.00 per cent respondents were belonging to higher caste and lower caste respectively. The relationship between the caste and adop-

-tion of new agricultural technology was found to be statistically significant. This indicates that higher caste farmers adopt more new agricultural practices than the lower caste farmers. This finding is in line with that of Chucker (1962) and Kundra and Bathoni (1967).

Size of Family :

Bigger size families needs no hiring of the labour. Adoption of new agricultural technology required considerable amount of labour. To hire labourers for this purpose adds to the cost. The factor, size of family was studied with this view.

The sample was categorized into three groups on the basis of number of members in a family as upto five members, six to ten members and eleven and above. The percentage distribution was 37.60 per cent, 49.60 per cent and 12.80 per cent respectively. Association between the size of family and the adoption of new agricultural technology was found to be statistically non-significant. This findings confirm with the findings of Deshpande and Mikhade (1965).

SOCIAL CHARACTERISTICS

Social Participation :

Social participation means taking active part in various social organizations. Participation in social activities enables the farmer to establish wider contacts with other members of society. This facilitates in exchanging the knowledge, skills and experience resulting in changing the behaviour and attitudes of an individual. With this fact in mind the present point was analysed in the study.

According to the scores given to the respondents categories such as low level of social participation and high level of social participation were formed. There were 69.60 per cent farmers having low level of social participation and 30.40 per cent farmers with higher level of social participation. This might be due to the fact that small farmers are mostly deprived of all things, such as Education, Income, Land holding, etc., which are responsible for the social participation of the farmers. This was further studied and tested to see the association between social participation and adoption of new agricultural technology. It was observed that there was statistically significant relationship between social participation and the adoption. Similar findings were noted by Wilkoning (1953) and Marsh and Salzman (1955).

Cosmopolitaness :

Cosmopolitaness is the degree to which an individual's orientation is external to a particular social system. Cosmopolitaness depends upon, higher education, more extension contacts, more visits to outside villages, radio listening etc. These factors make the farmer to equip himself with knowledge of improved agricultural technology.

It was hypothesized that those with more cosmopolitaness score (i.e. 3 and above) adopt more new agricultural technology. The statistical test revealed that there was statistically significant association between cosmopolitaness and adoption. About 65.00 per cent were having low cosmopolitaness, out of the total sample. This might be due to the fact that small farmers might be deprived of the above said things.

Extension Contact :

Majority of the small farmers (i.e. 59.20 per cent) had comparatively low extension contacts and 40.80 per cent farmers had high extension contacts. Poverty, low social status and lack of education of the small farmers might be the main reasons for not receiving attention from extension agents.

In this study an attempt was also made to find out whether extension contacts of the small farmers has any association with the adoption of new agricultural technology. There was statistically significant relationship between extension contacts and Adoption.

Past studies revealed that the adoptors tend to have more extension contacts as compared to the non-adoptors. This study also indicates that small farmers having more extension contacts in larger number were the adoptors and those who were having less extension contacts were the non-adoptors of new agricultural technology. Mostly the small farmers having less contact with extension agencies because of their illiteracy and low social status and poverty. They use to prefer localite source of information for getting their needs satisfied. Bose (1961) and Coleman (1951) stated similar findings.

ECONOMIC CHARACTERISTICS

Income :

It was observed that majority of the farmers i.e. 48.00 per cent had their income of Rs. 501 to Rs. 1000. This indicates that majority of farmers had low income. 21.20 per cent farmers were having income only upto Rs. 500 and 30.80 per cent farmers

had income of Rs. 1001 and above.

Annual income is a key factor in all occupations. The farmer with sound economic background can afford to invest money in agriculture without much difficulty.

There was found to be a statistically significant association between the annual income and the adoption of new agricultural technology. This might be due to the fact that the farmers with high annual income can spend more, utilise more resources and are easily prepared to take risk for adoption of new farm practices, while those having low annual income cannot afford to do so because failure may affect family maintenance. This finding is supported by other findings such as (Illegai, 1957), Hildebrandh and Partenheimer (1958), Law (1959) and Shankariah (1965).

Income from Agriculture :

Agriculture is the backbone of Indian economy. Main source of income for rural community is the farming business. Very less number of small farmers i.e. 20.30 per cent exceeds income of Rs. 1000 from agriculture. Majority of small farmers i.e. 40.80 per cent had meagre income between Rs. 500 to 1000 while 30 per cent had income Rs. 200 to 500 and very less income i.e. upto 200 obtained by 8.00 per cent farmers from agriculture.

In general, the lower income might be due to subsistence agriculture and traditional way of farming.

Further it might be due to inavailability of irrigation, capital, and various inputs such as fertilizers, improved seeds, and effective plant protection measures and lastly proper marketing of the produce.

Income from subsidiary Occupation :

Majority of farmers i.e. 33.09 per cent had income less than Rs. 200, only from subsidiary occupation. About 11 per cent farmers had income of Rs. 1001 and above. This might be due to insufficient capital for investment in secondary occupation and secondly due to lack of business mind.

Secondary Occupation :

Majority of the small farmers were working as labourers i.e. 71.94 per cent. About 15 per cent were doing the service and very less i.e. 7.19 per cent had dairy and poultry as their secondary occupation. This might be because of the very small size of the holding which results in the meagre income. Lack of knowledge, skill and traditional mind were also the reasons for very rare secondary occupation such as dairy and poultry.

Size of Holding :

The farmers with very small size of holdings may be reluctant to adopt new agricultural technology, because size of holding is related to the level of income and in turn the level of income is related to the adoption of new agricultural practices. Therefore, it is many times stated that size of holding is associated with the adoption of new agricultural technology by small farmers.

Study revealed that there was a significant relationship between size of holding and adoption of new agricultural technology by the small farmers. This may be due to the fact that

small farmers cannot bear the risk on very small piece of land. This finding is in line with that of Sinha (1970), Bruner and Young (1967) and Bhattacharya (1972).

Irrigation :

Irrigation is an asset to agriculture. It is helpful in increasing crop production. It reduces the danger from vagaries of nature. By virtue of this, the farmer having irrigated land can adopt new agricultural technology. To explore nature of relationship between availability of irrigation and adoption of improved practices, the factor irrigation was included in this study.

The data reveals that majority of small farmers i.e. 64.40 per cent were not avail of the irrigation facility while only 35.60 per cent had irrigation facilities. Most of them had wells as their irrigation source and that also were dry due to famine during last three years.

There was found to be a statistically significant relationship between the availability of irrigation and adoption of new agricultural practices. The farmers tend to adopt new practices if at all there is irrigation source. This is because uncertain rains, the farming becomes a gamble on rains. This finding is in line with that of Singh (1967).

Cropping Pattern :

About 99.00 per cent small farmers were taking food crops. Out of the total sample most of the farmers i.e. 99.20 per cent were growing Bajra crop while others i.e. 22.80 per cent and

21.20 per cent farmers afford to take crops like wheat and jowar respectively.

This may be due to the fact that the proportion of area under food and fodder is greater on the small farms. Since the small farmer is less business minded in his approach to farming. Cereal cultivation is the general characteristic of small farmer in India.

Awareness :

Awareness is the first step of adoption process. More than half of the total farmers in the sample i.e. 52.00 per cent were in low awareness category. This may be due to the less extension contacts, less social participation, less cosmopolitaness and less education. Similar findings were reported by Patel (1965).

Adoption :

Adoption is the last stage in the process of adoption. Most of the small farmers had low adoption level i.e. 61.20 per cent. This may be due to the factors such as small holding, dry land, meagre income, less extension contact, less social participation, less education and so on.

Sources of Information :

Sources of information play an important role in adoption of new agricultural technology.

Majority of small farmers were using the localite sources of information such as friends, neighbours, V.L.W.. Among these V.L.W. had more impact on the farmers. Small

number of farmers were using mass media as the sources of information. Among the mass media sources radio was used comparatively by more number of small farmers.

Among the group media sources, meetings were predominantly observed to have more influence on small farmers to get information regarding new farm practices.

Reasoning can be given for above phenomenon as the local sources are more close to farmers i.e. in village itself and had more intimacy with farmers. Illiteracy might be the main cause for non-use of literature in connection with getting the information regarding new farm practices.

So far as other institutional sources are concerned, cooperative society was sine qua non for giving information regarding new farm practices. This may be due to spread of cooperative societies in most of the villages.

It was found in this study that extent of use of various sources of information was less in majority of farmers i.e. 65.33 per cent. This may be due to total effect of above mentioned reasons.

There was statistically significant association between extent of sources of information used and adoption of new agricultural technology. This finding is in line with that of Wilkening (1951).

Needs :

The gap between the situation and objective is the area of needs. This area becomes well defined after the situations

and the objectives are determined by the leaders, extension workers and specialists.

Need is what one desires. It is lack of something. Need is the difference between "what is" and "what ought to be".

Needs of small farmers are numerous but which can be minimised by effective extension service. The degree of help received by farmers through extension agency and degree of felt needs of the farmers for improved practices are the most important factors considered in influencing the adoption behaviour of the farmers. The level of adoption of small farmers could be raised considerably by providing them proper guidance oriented towards solving their needs.

Legislature and planning at the administrative level are not sufficient. The programme has to arise from the felt needs of the people if it is to be really meaningful for them.

In this study needs of small farmers were studied. Majority of small farmers 67.20 per cent had more needs to satisfy themselves. This may be due to negligence towards them in different development programmes on the part of government and lack of knowledge poverty, etc., on the part of small farmer himself.

There was found to be statistically significant association between the extent of needs and adoption of new agricultural technology. Similar findings were reported by workers in the field.

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CHAPTER VI
SUMMARY AND CONCLUSION

CHAPTER VI SUMMARY AND CONCLUSION

Rural society in India suffers from many social and economical problems. The planners are trying their best to utilize the resources of nation to increase food production. The only alternative to increase food production per hectare is to adopt improved agricultural technology.

In agriculture sector, the small farmers account for about 60 per cent of the total holdings and hence play a key role in national economy. Small holdings, lack of irrigation, lack of capital and social participation are the characteristics of small farmers resulting in vicious cycle of poor resources, smaller investment, lower returns which breed poverty. Thus one cannot think of an all round economic development in agriculture and even economic well being of the nation, unless these farms and their owners are improved. The small farmer is now the strategy for agricultural development. The importance and urgency of the needs of small farmers are vast and obvious and cannot be over emphasised. The data regarding the number of small holdings and the area to which they refer show that they are significant enough from the point of view of production. There is evidence that the productivity of small farmers is not inferior to that of large farmers operating in similar conditions.

The present study was planned to study the nature of relationship between some personal, social and economic characteristics of small farmers, i.e. age, education, caste, size of family, total size of holding, irrigation, annual income, social participation, extension contacts, rationality with the

adoption of new agricultural technology. Secondly, it was intended to know the extent of needs of the small farmers and its association with adoption of new agricultural technology.

The study was conducted in the Sangamner Development Block in Amadnagar district of Maharashtra State. The Block has total number of 137 villages. Out of these, 14 villages were selected by random method with the help of three digit random number table. A sample of 250 small farmers was drawn by choosing 10th number from the list of the small farmers which was obtained from the block office. The interview schedule was designed and finalised after pre-testing which included question pertaining to various personal, social and economic attributes and the needs regarding adoption of new agricultural technology felt by the small farmers.

From the data obtained the adoption index was calculated. From the calculated adoption index, small farmers were categorised into two groups i.e. 'high adoptors' and 'low adoptors'. The data obtained were processed and statistically analysed by employing the Chi-square test to find out the association between the characteristics of small farmers and the adoption of new agricultural technology. Out of 250 small farmers interviewed 153 were low adoptors and 97 were high adoptors. Thus the data obtained were processed and statistically analysed by employing the Chi-square test to find out the association between the characteristics of the small farmers and the adoption of new agricultural technology.

It was revealed that there was a statistically significant relationship between the small farmer's education, caste, size

of holding, income, irrigation facilities, social participation, extension contacts, rationality, extent of information, sources used and needs and adoption of new agricultural technology, while relationship between the small farmer's age, size of family and adoption of new agricultural technology was found to be statistically non-significant.

Conclusions :

The conclusions of the study are as under :

- 1 The majority of small farmers were in the age group of 31 to 50 years. There were 24.4 per cent of the farmers in the age group 51 and above. The lowest per cent of the farmers i. e. 12.8 per cent were found in the age group upto 30 years. The relationship between age of small farmers and the adoption of new agricultural technology was found to be statistically non-significant.
- 2 The majority of the small farmers i. e. 52.80 per cent were illiterate. About 28.00 per cent farmers had education upto 4th standard, and only 18.80 per cent of the small farmers were learned above 5th standard among which only 7 had education above 8th standard. There was a strong statistically significant association between the education of the small farmers and the adoption of new agricultural technology.
- 3 Fifty-six per cent of the small farmers belonged to the higher caste i. e. Maratha and 44 per cent of the small farmers belonged to the lower caste i. e. other than Maratha. The relationship between caste and the adoption of new agricultural technology was found to be statistically

significant.

- 4 Forty-nine per cent of the small farmers belonged to the family size of 6-10 members. About 37.00 per cent and 12.80 per cent of the farmers belonged to the family size of upto 5 members and 11 and above members respectively. The relationship between the family size and the adoption of new agricultural technology was found to be statistically non-significant.
- 5 Majority of the small farmers i.e. 69.60 per cent had low social participation whereas 30.40 per cent of the farmers had high social participation. The association between social participation of the small farmers and the adoption of new agricultural technology was found to be statistically significant.
- 6 Sixty-five per cent of the small farmers had low cosmopolitanism while 34.80 per cent of the farmers had high cosmopolitanism. There was found to be statistically significant relationship between the cosmopolitanism and the adoption of new agricultural technology.
- 7 Majority of the small farmers i.e. 66.40 per cent were irrational in their thinking towards economic, social, religious and technological aspects of life while 33.80 per cent of the small farmers were rational in their approach towards the aspects of life mentioned above.

There was found to be a statistically significant relationship between the rationality and adoption of new agricultural technology.

- 8 A statistically significant association was observed between the extension contacts of the small farmers and the adoption of new agricultural technology. About 59 per cent of the small farmers had low extension contacts and 40.00 per cent of the small farmers had high extension contact.
- 9 Nearly 40.00 per cent of the small farmers had annual income between Rs. 501 and Rs. 1000. Thirty per cent of the farmers had annual income 1001 and above 21.20 per cent of the small farmers had income upto Rs. 500. It may be because of small holdings, lack of irrigation and labour work instead of secondary occupations. It was seen that the higher income helped in higher adoption. A statistically significant relationship was noticed between annual income and the adoption of non-agricultural technology.
- 10 Majority of the small farmers were working as agricultural labourers while very few were engaged in secondary occupation like dairy and poultry. It may be due to lack of adequate finance for starting the secondary occupation and lack of knowledge regarding the same.
- 11 Majority of the small farmers i.e. 34.00 per cent had land holding 1 to 3 acres while very less i.e. 25 per cent had land holding 5 acres and above. There existed a statistically significant relationship between the size of holding and the adoption of new agricultural technology. It goes without saying that higher the size of holding, higher would be the adoption of new agricultural technology.

- 12 The relationship between the availability of irrigation facilities and adoption of new agricultural practices was found to be statistically significant. Majority of the small farmers did not have irrigation facilities whereas only 35.60 per cent of the farmers had irrigation facilities.
- 13 Almost all the small farmers had food crops especially bajra crop. Because growing food grains is a general characteristics of the small farmers. Very few i.e. 28.00 per cent had commercial or cash crops.
- 14 Neighbours and friends were the major sources used by small farmers to secure information regarding improved practices among the non-official sources. Village level worker was most important source for securing agricultural information among the different extension personnels. Among the group media meeting was more useful source for small farmers in getting information regarding new agricultural technology among the group media sources. Radio, movie pictures were frequently used by the small farmers for securing information regarding new practices among mass media source of information.

Among the institutional source of information, cooperative society played dominant role in giving information about new practices to the small farmers. There was found to be statistically significant association between extent of information sources used and adoption of new agricultural technology.
- 15 Availability of timely loans, loans with least interest and

loans without security, were needs felt by majority of small farmers i.e. 98.80 per cent, 70.00 per cent and 60.00 per cent respectively among the economic needs.

Representation in cooperatives and necessary help through them were the needs perceived by the small farmers in general.

Availability of farm equipments on hire basis and availability of irrigation water were the important needs of the small farmers among the needs regarding supplies. Suitable programme planning and solving the different problems of small farmers in village itself were felt as needs by majority of small farmers i.e. 73 and 74 per cent respectively amongst the needs regarding the government administration.

Majority of the small farmers i.e. 64 per cent were in need of good houses while 50 per cent and 52 per cent of the small farmers were demanding for free medical aid in village itself and employment to the other members of the family.

There was found to be a statistically significant relationship between the extent of needs of the small farmers and adoption of new agricultural technology.

IMPLICATIONS

The findings of this investigation would be useful to those who are concerned with the planning, execution, social activities and task of uplifting the rural community.

In the present circumstances increasing the food production would not be achieved unless a large number of small farmers who are mostly cereal growers adopt the new agricultural technology.

because it is quite imperative in view of the fact that a major problem of India is scarcity of food. While adopting the new agricultural technology, many problems and needs would come in the way of small farmers. Some of the factors may be personal, social, economical and situational. Knowledge of these factors is essential for effective designing and implementing of programmes to help the audience of small farmers, the neglected sector of society. Therefore, the efforts of extension agencies and such other agencies engaged in the welfare of small farmers should be directed towards removing these obstacles, and helping the small farmers.

In this investigation, the lack of irrigation was the paramount reason for non-adoption of new agricultural technology. Therefore, it may be suggested that irrigation facilities should be developed to the fullest extent so that there would be greater scope for adoption of new agricultural technology.

It has also been found that majority of the small farmers are illiterate, so in this connection special emphasis on adult education classes may improve their education level which ultimately useful in changing their knowledge, skill and attitude. The results of this study indicated that majority of small farmers had low social participation and low extension contacts. Therefore step should be taken by change agents to increase their contacts and participation by planning separate extension programmes for small farmers.

The investigation established a fact that most of the small farmers have low rationality i.e. they are traditional minded

and more localite in nature. They are still not reached by extension workers. They are living their life in their own traditional way. To bring these small farmers in new walks of modern life is sine qua non for well being of the rural community as a whole. This can be achieved by creating a new faith and interest in new agricultural technology by conducting result demonstrations, method demonstrations, arranging study tours, field trips, film show and agricul - tural exhibition more frequently.

This study would be useful in many aspects of improving small farmers to the Integrated Area Development scheme which is under implementation in the same block where the investigation was carried out.

The investigation regarding the various social needs , economical needs and needs regarding supplies would be useful to different agencies to identify the needs according to their importance to the small farmers and make concerted efforts to satisfy them. It is also hoped that these find- ings will be useful in developing action programmes to help small farmers effectively.

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APPENDICES

APPENDIX - I

Statement showing the number of Small Farmers in the
Sample from the selected villages

Sr.No.	Name of Village	Number of Small Farmers in the Sample
1	Ashvi Khd.	08
2	Bota	25
3	Chandanapuri	24
4	Chikhali	06
5	Ghargoon	20
6	Jerve-Kolhewadi	25
7	Ningoon-Jali	25
8	Pinarne	10
9	Rajapur	18
10	Sakur	40
11	Sanganner Khd.	04
12	Shipalapur	13
13	Talegaon	12
14	Vadgaonpan	20
	TOTAL	<u>220</u>

APPENDIX - II

* A STUDY OF SMALL FARMERS IN RELATION TO THEIR NEEDS
AND ADOPTION OF NEW AGRICULTURAL TECHNOLOGY *

1 Name of the Farmer :

2 Age : Education : Caste :

3 Number of Members in the family

4 Land holding :

Kind of holding

Acres-Gunthas

Unirrigated

Irrigated

Total :

5 Cropping Pattern :

Which crops do you take ?

Sr.No.	Kind of crops	Area		Production (t/s)
		Acres	Gunthas	
(A) Food Grains				
1	Bajra			
2	Jowar			
3	Wheat			
4	Others (which)			
<hr/>				
(B) Commercial Crops (Cash Crops)				
1	Sugarcane			
2	Cotton			
3	Groundnut			
4	Others (which)			
<hr/>				
TOTAL				
<hr/>				

6 Are you doing any Secondary Occupation ? Yes/No
If yes, which one ?

7 What is your total annual income from agriculture and secondary occupation ?

Sr.No.	Kind of income	Rs.
1	From Agriculture	
2	From Secondary Occupation	
TOTAL		

8 Will you please tell about your participation in rural Social Organization/Institutions

Sr.No.	Institutions	Member	Office bearer
1	Gram Panchayat		
2	Cooperative Society		
3	Taluka Sale and Purchase Organization		
4	Farmers Union		
5	Youth Clubs		
6	Bhajan Mandals		
7	Farm Radio Forums		
8	Panchayat Samiti		
9	Village Parishad		
10	Political Party - which one ?		
11	Other organization which one ?		

9 Cosmopolitaness :

1	Do you visit taluka place ?	Yes/No
2	Do you visit District place ?	Yes/No
3	Do you visit progressive cultivators farm outside of your village ?	Yes/No
4	Do you participate in Agricultural exhibition ?	Yes/No
5	Do you participate in Crop competition ?	Yes/No
6	Do you hear radio ?	Yes/No
7	Do you see movie picture ?	Yes/No
8	Do you read Agricultural Magazines ?	Yes/No
9	Do you read News papers ?	Yes/No
10	Do you discuss with other persons regarding happenings in the country ?	Yes/No

10 Rationality :

- | | | |
|----|--|--------|
| 1 | To adopt new agricultural technology is a proper way for increasing agricultural production? | Yes/No |
| 2 | If at all you get more income from other Occupations, are you prepared to go for it rather than cultivating farm ? | Yes/No |
| 3 | Education is essential for life | Yes/No |
| 4 | Is it necessary for your son to go for education who is going to till your land | Yes/No |
| 5 | Do you think that due to over population our economic problems are increasing ? | Yes/No |
| 6 | Castes are originated by God | Yes/No |
| 7 | Do you think that poverty comes according to one's luck ? | Yes/No |
| 8 | Cow goes off milk due to evil eye | Yes/No |
| 9 | Children is a gift of god | Yes/No |
| 10 | Our present life is the result of the deeds in the past life. | Yes/No |

11 From which source do you get information regarding improved agricultural practices ?

A Un-official source :

- i) Neighbours
- ii) Friend circle
- iii) Relatives
- iv) Progressive Farmers
- v) Leaders

B Extension Agencies :

- i) Block development Officer
- ii) Extension Officer
- iii) Agricultural Assistant
- iv) Village level worker.

C Group media :

- i) Meetings
- ii) Group discussion
- iii) Demonstrations
- iv) Agricultural exhibition
- v) Educational tour

D Mass media :

- i) Radio
- ii) Movie pictures
- iii) Pamphlets
- iv) Circular letters
- v) News papers
- vi) Agricultural magazines

E Commercial media :

- i) Salesman
- ii) Representative

F Other source (Institutions)

- i) Cooperative Society
- ii) Grampanchayats
- iii) Youth clubs
- iv) Farmers organizations

12 Extension Contacts :

- | | | |
|---|---|--------|
| 1 | Did extension workers visit your farm ? | Yes/No |
| 2 | Have you visited extension officials(workers) in their office ? | Yes/No |
| 3 | Do you remain present for meetings organized by extension workers ? | Yes/No |
| 4 | Do you remain present for the demonstrations organized by extension workers ? | Yes/No |
| 5 | Do you meet Block Development Officer ? | Yes/No |
| 6 | Do you meet President of Panchayat Samiti ? | Yes/No |
| 7 | Do you meet President of illa Parishad ? | Yes/No |

13 The list of new Agricultural Technological practices is given in following table. Will you please answer the following questions regarding adoption ?

- i) Do you know following improved practices ? If yes, since how long have you adopted it

Sr. No.	Improved Agricultural technological practices	Do you know		If yes, since when	Have you adopted		If yes, since when
		Yes	No		Yes	No	
1	Use of iron plough						
2	Hybrid Bajra						
3	Hybrid Jowar						
4	High yielding varieties of wheat						
5	High yielding varieties of rice						
6	Seed treatment of hybrid bajra seeds before sowing.						
7	Use of chemical fertilizers						
8	Use of insecticides and pesticides						
9	Use of compost manures						
10	Keeping improved poultry birds.						

15 Needs :

A Economic Needs :

1) Credit should be available :

- i) In time
- ii) sufficient
- iii) Long term
- iv) With least interest
- v) Lending should be economic
- vi) Secondary occupation is essential support subsistence farming
- vii) Credit should be available for secondary occupation.
- viii) Credit should be available without security.

B Social Needs :

- i) Information regarding improved agricultural technology should reach small farmers at an earliest.
- ii) Information should be received on farm or at home through V.L.C.

(vi)

- (iii) Small Farmers should not be neglected due to his poverty.
- iv) Proper help should be made available to small farmers by cooperatives and Gram Panchayats.
- v) Representation should be given to small farmers, in cooperatives and other institutions.
- vi) Demonstrations should be organized by extension workers on the farm of small farmers.

C) Supplies :

- i) Distribution of improved seeds should be proper.
- ii) Distribution of improved seeds should be timely and sufficient.
- iii) Distribution of improved seeds should be at cheaper rate.
- iv) Farm implements should be made available on hire basis in concessional rates.
- v) Fertilizers should be available in time, sufficient and with controlled rate.
- vi) Supply of irrigation water is necessary.
- vii) While distributing agricultural requisites preference should be given to the small farmers.

D) Administrative needs :

- i) Government officials should reach at the door of the small farmer with agricultural information and should render necessary cooperation.
- ii) Small farmers should get benefit of all development programmes.
- iii) Programmes suitable for the development of small farmers should be planned and extended.
- iv) All administrative difficulties encountered in farming business should be solved in village itself.
- v) Small farmers should get good treatment from the Government officials.

E) Needs regarding family :

- i) Necessity of good house.
- ii) Needs of educational facilities in village for children
- iii) Need of free or concessional medical aid in village itself.
- iv) Employment to the other members of family.

**सडलन डेतक-डरडडर नरनर डरनर सुडररररत डरडरतुडर
डरडरतुड डरडर डरडररर डरडररररररर
डरडररररर**

१) डेतक-डरडर नरड

२) डड

डरडरर

डरड

३) डुडुडरडर डरडर

डरडररर

डरडरर

ॡ) डुडुडरररर डरडररररर डरडरर

ॣ) डररर डेतुडर डरडरररर डेत

डरडरररर डरडर	डेत	
	डरडर	डुडु
डरडररर		
डरडररर		
डरडर		

॥) डरडर डेतुडर डरडर डेतुडर :

ड. न. डरडरर डरडर	डेत		डरडर
	डरडर	डुडु	

ड) डरडरररररर डरडर

१) डरडर

२) डरर

३) डरडु

ॡ) डरर (डेतुडर)

ॣ) डरररर डरडर

॥) डेत

१) डरडुड

२) डरडुडुड

ॡ) डरर (डेतुडर)

ॣ) डरडुड

॥) डरडर डेतुडर डरडर डरडर :

डरडर डरडरर डेतुडर :

८) आपसे शीतो व जोड़पेडावापसून मिळणारे वहीनेक उत्पन्न कित्ते जाते ?

उत्पन्नाचा प्रकार	स्थाने
शीतोवापसून	
जोड़पेडावापसून	
रक्कूण	

९) आपसे प्रमाण संश्लेषित सडमालोत्पन्न सगिला :

क्र. नं.	संख्या	संभाव्य	पद शीपकारी	मर्जावरीक
१)	संभाव्यत्व			
२)	सडकारी सोसायटी			
३)	तासुका ज. वि. संघ			
४)	शीतकारी संघ			
५)	तरुण मंडळ			
६)	मजनी मंडळ			
७)	नभोवर्गीय शीतकारी मंडळ			
८)	संभाव्यता समिती			
९)	वित्ता परिषद .			
१०)	राजकीय पदा (कोणता)			
११)	इतर संख्या (कोणती)			

१०) म

१) कुडी तासुकाच्या ठिकाणी भेटी घेता काय ?	होय / नाही
२) कुडी वित्तयोग्या ठिकाणी भेटी घेता काय ?	होय / नाही
३) कुडी बाहेरगावच्या पुढारलेल्या शीतकारी-यांच्या शीतता भेटी घेता काय ?	होय / नाही
४) कुडी शीतकारी प्रवर्तनात भाग घेता काय ?	होय / नाही
५) कुडी विकाने चढाओढात भाग घेता काय ?	होय / नाही
६) कुडी रेडियो ऐकता काय ?	होय / नाही
७) कुडी सिनेमा पहाता काय ?	होय / नाही
८) कुडी शीतोवापसून वहीनेके वाचता काय ?	होय / नाही
९) कुडी वर्तमानपत्रे वाचता काय ?	होय / नाही
१०) कुडी वेगवेगळ्या पदांमध्ये विषयी कोणत्या वर्षी करता काय ?	होय / नाही .

(११) १) शेतोषे उन्नत वाढीवण्याचे दृष्टीने सुधारतेत्या पध्दतीचा अर्थात करणे योग्य आहे .

होय / नाही .

- | | |
|--|------------|
| १) शेतोषाच्या इतर उद्योगधंद्यात अन्न वेगळे मिळत असतील तर शेतोष सोडून इतर उद्योग करण्याची सुचवी तयारी आहे काय ? | होय / नाही |
| २) शिक्षण हे विषयज्ञता आवश्यक आहे ? | होय / नाही |
| ३) धरण्या शेतोषाच्या धंद्यात जगाच्या तुल्यता सुलभा शिक्षणारी मरुती आहे काय ? | होय / नाही |
| ४) लोकसंख्या वाढल्यामुळे आपले शरीरिक प्रयत्न विकट आहेत असे आपणांस वाटते काय ? | होय / नाही |
| ५) जातीच्या हायवर्गने निर्माण केल्या आहेत . | होय / नाही |
| ६) वहीरड हे मातोवले येते . | होय / नाही |
| ७) मुले होणे ही इतरांचे वेवणी आहे . | होय / नाही |
| ८) मार्गला दृष्ट लागून तिचे दूध मते . | होय / नाही |
| ९) आपले सध्याचे आयुष्य गेल्या जन्मातील कुठ्यावर अवलंबून आहे . | होय / नाही |

(१२) सुधारतेत्या शेतो पध्दती विषयोषे मंडीती आपणांस आलोसपैकी कोणत्या मार्गने मिळते .

अ) अर्थोपचारिक मार्ग

क) गटसंघर्ष मार्गाने

- १) शेतारी
- २) विध्वंसक
- ३) नातेवार्तिक
- ४) ग्रामसंघोष शेतकरी
- ५) पुढारी .

- १) सभ्य
- २) गटसंघर्ष
- ३) आत्मसंघर्ष
- ४) शेतो प्रवर्तनी .
- ५) शैक्षणिक सहल .

ब) विस्तार योजना

ड) सामुदायिक मार्गाने

- १) गटसंघर्ष अधिकारी
- २) विस्तार अधिकारी
- ३) शेतकी मदतसंघ
- ४) आत्मसंघ

- १) शैक्षणिक
- २) शिक्षण
- ३) इतरपक्षे
- ४) परिपत्रके
- ५) वर्तमानपत्रे
- ६) शेतोविषयक मंडीके .

ग) व्यावहारिक मार्ग

क) इतर मार्ग (संध्या)

- १) शिकते
- २) श्रुतिनिधी

- १) सहकारी सोसायटी
- २) ग्रामसंघोष
- ३) तत्त्व मंडीके
- ४) शेतकरी संघ .

११) विस्तार संदर्भ

- १) शैली विस्तार कार्य कर्तव्यी तुम्ह्या शैलीवर वेटी दिव्या बाधित काय, ? होय / नाही
दिव्या बाधित, मीळ्यातुन - वर्षातुन -
- २) तुम्हो शैली विस्तार कार्यकर्तव्यी त्यांच्या प्रोत्साहने वाठून वेट घेता काय ? होय / नाही
वेट बाधित मीळ्यातुन वर्षातुन
- ३) विस्तार कार्यकर्तव्यी बाधित केलेल्या सभेला तुम्ही इतर रडतात काय ? होय / नाही
रडतात बाधित मीळ्यातुन वर्षातुन
- ४) विस्तार कार्यकर्तव्यी बाधित केलेल्या प्रात्यक्षिकस तुम्ही इतर रडतात काय ? होय / नाही
रडतात बाधित मीळ्यातुन वर्षातुन
- ५) गट विकास अधिका-यिती वेट होते का ? होय / नाही
होय बाधित मीळ्यातुन वर्षातुन
- ६) सभासतीवे वेट होते काय ? होय / नाही
मीळ्यातुन वर्षातुन
- ७) विला परिवर्धेच्या कार्यकर्तव्यी वेट होते काय ? होय / नाही
मीळ्यातुन वर्षातुन

१४) कुम्हो अस्तोतरेको कोनया गोप्यो कुम्होत मडिहो अहेत ?

कोनया कुम्हो प्रस्कारित अथवात अणया अहेत अणि नसत्यास त्यापो कारणे कोनतो ?

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अ. न. सुधारतेत्या वचतो मडिहो अहे को ? असत्यास अथवात केता असत्यास नसत्यास
हेतु नाही केवलासुन अहे को केवलासुन कारणे
हेतु नाही
.....

- १) लोकांती नगरया उपयोग
- २) संकरोत वावरी
- ३) संकरोत ज्यारी
- ४) मण्डपया अधिक उचम्य
वेणया जाती
- ५) मातहया अधिक उचम्य
वेणया जाती
- ६) वेरणापूर्वी वावरीया
विद्यायापो प्रज्ञेया
- ७) रसायनिक अताया वावर
- ८) विक संरक्षक औषधीया
वावर
- ९) कंबोड अताया वावर
- १०) सुधारतेत्या कोनया
वाक्ये .

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१५) मरया

अ) मरिथक

- १) कर्म वेवेयर विद्यायास हवे
- २) कर्म पुरेसे विद्यायास हवे
- ३) कर्म रिधि मुहत्तीच अताये .
- ४) कर्म कर्मो अताये विद्याये .
- ५) जीवन मोठी अताया .
- ६) मोतीयर भागसत नाही अहणुन मोतीयर अतायक अहे .
- ७) मोतीयरसत कर्म विद्याये .
- ८) तारण न अथता मरजेअताये कर्म विद्याये .

ब) सामाजिक

- १) सुधारलेल्या रीती पध्दतीची मंडीतही लागू होणे समजले पाहिजे .
- २) ग्रामसेवकांमार्फत रीतीची मंडीतही धरून जगण रीतीवर निष्कल मंडीतही पाहिजे .
- ३) परिस्थिती मदीच असल्याने महान क्षेत्र-योग्ये दुर्लभ होऊ नये .
- ४) सहकारी संस्था . ग्रामसेवकायत यथिकरून योग्य ती मदत निष्कली पाहिजे .
- ५) सहकारी जगण इतर संस्थांमध्ये महान क्षेत्र-याताही स्थान दिले पाहिजे .
- ६) निष्कार क्षेत्र-योग्ये महान क्षेत्र-योग्ये जगणवर प्राथमिके घ्यावात .

क) पुरवठा विभाग

- १) संकरोत जगण सुधारलेल्या विभागाचे वाटचल पुरोवर होत नाही ते नोंद घ्यावे .
- २) विभागे वेळेवर व पुरेसे निष्कल नाही ते निष्कल .
- ३) विभागे महान आहेत ते सबलतीच्या दराने निष्कल .
- ४) रीतीविषयक जगणारे वेळे परवडत नाही ते सबलतीच्या दराने माहयाने उपलब्ध करावेत .
- ५) जते महान आहेत तो सबलतीच्या दराने वेळेवर व पुरेसा जगणवर निष्कलीत .
- ६) विक्रीवरून जगणे जगण सहीतच स्वतः वरत उपलब्ध करून द्यावेत .
- ७) रीतीत पाहणे नाही, पुरवठा पुरवठा होणे जगणवर आहे .
- ८) रीतीविषयक वस्तुवा पुरवठा करताना महान क्षेत्र-याता जगणवर देण्यात यावे .

ड) शासकीय

- १) सरकारी क्षेत्रातही जगण्या पर्यंत येत नाहीत त्यांच्याकडून मंडीतही व सहकार्य निष्कले पाहिजे .
- २) सरकारी योजनांचा जगणवा महान क्षेत्र-याता निष्कल नाही ते निष्कल .
- ३) महान क्षेत्र-योग्ये सोडव्या जगण योजना पाहिजेत .
- ४) महान क्षेत्र-योग्ये शासकीय जगण वातावरण सोडव्यानेत त्यांना लागू होण्या जगण विलंबाकडे ठिकठिक ठेवताहे भाग्यवान जगण नये .
- ५) सरकारी क्षेत्रातही योग्य जगण वस्तुवा निष्कलीत .

ड) कौटुंबिक

- १) रजिस्ट्रारही जगण्या धराची जगणिकता आहे .
- २) कुलासही रजिस्ट्रारही जगण आहे .
- ३) धरातीत जगणांना जगणिकता देता यावे .
- ४) जगणा वेळेवेळी जगण सबलतीच्या दराने व जगण शासनातही उपलब्ध करावी .
- ५) कुटुंबातील इतर जगणांना जगण निष्कलीत .