CERTAIN SOCIAL FACTORS ASSOCIATED WITH THE ADOPTION OF RECOMMENDED AGRICULTURAL PRACTICES BY RURAL LOCAL LEADERS AND ORDINARY FARMERS IN INDIA

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By

Sudhakar Shankar Thorat

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ABSTRACT

CERTAIN SOCIAL FACTORS ASSOCIATED WITH THE ADOPTION OF RECOMMENDED AGRICULTURAL PRACTICES BY RURAL LOCAL LEADERS AND ORDINARY FARMERS IN INDIA

by Sudhakar Shankar Thorat

This is a comparative study of the behavior of rural local leaders and ordinary farmers in regard to the adoption of improved agricultural practices.

The study was carried out in the Bhor and Velhe Community Development Blocks of the Poona District, Maharashtra State, India to test the following hypotheses:

Rural local leaders are innovators of recommended agricultural practices.

The rate of adoption of practices of the local leaders and the ordinary farmers is associated with their age, education, caste, income, size of holding, degree of contacts with the information sources, value orientation, social participation and cosmopoliteness.

There is in general a two step flow of information, the first step being from the change agents to the rural local leaders and the second being from the local leaders to the ordinary farmers in the village.

With the help of a schedule, 224 ordinary farmers and 133 local leaders from twenty two villages were

interviewed. The data were tabulated and processed to determine the Pearsonian Product Moment Coefficient of Correlation between the independent variables and the dependent variable viz., adoption.

The average age of all the farmers included in the study was 43 years. The Coefficient of Correlation between the age of the farmers and the adoption rate was found to be nonsignificant at the 5 per cent level. The average age of all the leaders was 42 years. It was found that leadership was in the hands of younger people. The relationship between age of the local leaders and the adoption rate was nonsignificant at 5 per cent level.

Fiftysix per cent of the farmers were illiterate. There was a strong association between the level of education and the adoption rate. The percentage of literacy among the leaders was 84. There was an association between the educational level of a leader and his adoption rate.

The average annual income of a farmer was Rs.1244.00. There was a significant relationship between the annual income of a farmer and his adoption rate. The average annual income of a leader was Rs. 3,247. There was an association between the annual income of a leader and his adoption rate.

The average size of holding for a farmer was 9.00 acres and it was 17 acres in case of a leader. It was

found that there was a significant relationship between the size of holding and the adoption rate.

The average family of a farmer and a leader had 7 and 8.7 members respectively. There was an association between the size of the family and the adoption rate.

Eighty eight per cent of the farmers and 94 per cent of the leaders belonged to advanced castes. There was a relationship between the caste of a farmer or a leader and his adoption rate.

The majority of the farmers were traditional in their value orientation. As against this, the majority of the leaders were rational. The relationship between the value orientation of a farmer or a leader and his adoption rate was significant.

The majority of the farmers had low participation in voluntary organizations. In comparison, the majority of the leaders had high participation in voluntary organizations. The adoption rate of a farmer or a leader was associated with the extent of his social participation.

A great majority of the farmers were localite. In contrast, the leaders were characterized by their cosmopoliteness. There was an association between the adoption rate and the degree of cosmopoliteness.

The farmers had low contact with the information sources as compared to the leaders. This shows that from

the change agents to the local leaders is a major step in the two step flow of information. The adoption rate was associated with the degree of contacts with the information sources.

It was found that 35 per cent of the leaders were innovators of recommended agricultural practices. Therefore, the hypothesis is partially rejected even though the percentage of leaders who are innovators is seven times as great as that in case of the ordinary farmers.

In conclusion, the picture that emerges of local leaders is that of the people from the higher strata of the rural society, with better incomes, larger holdings, belonging to advanced castes, with a rational pattern of value orientation, higher social participation, greater contact with information sources, greater cosmopoliteness, and a higher adoption rate for recommended practices. By virtue of these characteristics of the leaders their place in the agricultural development of India is indisputable and their services need to be used to a greater extent for the diffusion of recommended practices among the common run of farmers.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

CHAPTER I

INTRODUCTION

Agriculture is the major industry in India, 73 per cent of the population being dependent upon it for livelihood. Fifty one per cent of India's national income is derived from agriculture. Inspite of the place of importance occupied by agriculture in the National economy, the actual state of agriculture in India is deplorable. Yields from Indian agriculture are among the lowest in the world. Statistics show that yield of rice in India is only 1,209 lbs. per acre whereas it is 3,750 lbs. per acre in Japan, which is three times as much.[1] The yield per acre of wheat in Egypt is more than three times as much as in India.[2] Agriculture in India is characterized by subsistence farming not only because of the small size of holdings--the average holding being 7.5 acres--but also because of the outdated traditional method of farming.

The total effect of the underdeveloped economy is

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[1]Douglas Ensminger, The Gram Sevak's Guide for Increasing Agricultural Production, New Delhi: The Ministry for Community Development, Government of India, 1958.

[2]R. N. Poduval, Agricultural Development in India, Washington, D.C. : Information Service of India, Jan., 2, 1959, p. 2.

seen in the substandard conditions of living under which 80-85 per cent of India lives.[3] The average annual per capita income in 1958 was just $ 59.00 in stark contrast with that of $ 2,000.00 in the U.S. To add to the problems of slow economic growth is the problem of rapidly increasing population.

The population which was 360 million in 1951 increased to 438 million in 1959 and is expected to be 480 million by 1966, which means that food will have to be provided for 42 million more people by then.[4] There has to be a substantial increase in food production in view of the population problem and even to maintain the existing consumer levels which are among the lowest in the world.

In 1959, a team of American experts presented to the Government of India what is well-known as the Ford Foundation Report. The report states that if India's food production continued to rise only at the present rate the gap between supplies and targets will be 28 million tons by 1965-66. This means that there will be 25 per cent short fall in terms of need which is estimated to be 110 million tons.[5] The report goes on to

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[3]Vera Micheles Dean, New Patterns of Democracy in India, Cambridge, Mass.: Harvard University Press, 1959, p. 101.

[4]Report on India's Food Crisis and Steps to Meet it, New Delhi: Government of India, 1959, pp. 11-13.

[5]Ibid., pp. 11-13.

say that a crisis of this magnitude cannot be met with any conceivable program of imports or rationing. A greatly accelerated expansion of food production is therefore imperative to prevent hunger and possible civic disturbance. The tremendous food shortages in the year 1964-65, the soaring of food prices and the resulting civic disturbances show how serious the food situation is in India to-day.

The Ford Foundation report grimly warned about the consequences of failure in achieving food production targets. It stated, "... without food enough, India's hope for improving human welfare, achieving social justice and securing democracy will become almost impossible of attainment."[6] It is here that the problem of diffusion of technological innovations among the Indian farmers enters into picture.

For hundreds of years the Indian farmers have been farming their lands with the traditional methods which include not more than tilling the soil with a wooden plough, planting some home grown seed, interculturing with hand weeding hooks and leaving the rest to nature. The planting of hybrid seeds having greater vigor, use of chemical fertilizers to enrich the depleted soils, spraying the crops with weedicide like 2,4-D and with

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[6] Ibid., p. 3.

insecticides and fungicides to protect them against pests and diseases have had no place in the traditional hoe-agricultural complex of India. These are modern innovations which are yet to be a part of the know how of the common run of farmers.

As diffusion research in India and other countries has indicated, the problem of adoption of innovations by the farmers is not entirely economic. There are social and cultural dimensions as well to this very vital problem which if tackled properly could revolutionize the whole pattern of Indian Agriculture.

Max Weber has claimed that a major factor responsible for the rise of capitalism and rational organization in Europe and America was the cultural milieu prevalent especially in certain ascetic Protestant groups at that time - the protestant ethic of hard work and thrift, and in the feeling that in hard work was the salvation of man. Perhaps, the tradition-bound social and cultural milieu of the Indian society is such that the modern agricultural innovations do not entirely fit in into the whole cultural pattern. If this is so, is there any class of people in the rural areas of India who have been breaking with the past and adopting new values and new modes of behavior. Quite likely, this new class of people would be the rural local leaders scattered over the 5,58,000 villages of India. The present study is undertaken with a view to studying the adoption behavior

of rural local leaders and the association of certain social and cultural factors with it. In addition, an attempt will be made to find out the place of rural local leaders in the diffusion of innovations. This would be of great importance from the point of view of a strategy of change.

Statement of the problem

For Centuries, Indian village communities have been self-contained isolates. Even during the British regime, the isolation of the villages continued. The British left the villages alone, save for the collection of revenue, maintenance of law and order and a few developmental activities. It is only after independence that the isolation of the village communities has been diminishing.

With the launching of the nationwide Community Development Program in 1952, an agency of social change which was totally external to the social system of the villages, came face to face with the village people. One would expect this to create problems of systemic linkage for both the social systems--the social system of the village and the social system of the Community Development Agency. With this need for systemic linkage between the systems, a new class of people that of rural local leaders emerged which is systemically linking the two social systems.

Also, with the recently institutionalized democratic decentralization of power all over India, an opportunity has been presented to men of ability to assume positions of leadership in the local government structure. The rural leaders have responded favorably to these new opportunities and in increasing numbers they have been competing with each other to assume positions of responsibility. With the colossal importance of the agricultural problem in India, naturally, a question arises as to whether these new elite are an avant-garde or do they constitute a part of the old guard? If they are ahead of their compatriots in the adoption of practices, what are the social and cultural factors associated with their adoption behavior?

Since the rural local leaders are one of the first people in the community to come in contact with the change agents, it would be of importance to find out if these leaders are innovators of recommended agricultural practices and what role they are playing in the diffusion of innovations. While doing this it would be worthwhile to study the adoption rates of ordinary farmers as against those of the local leaders, and also the association of the same social and cultural factors with the adoption of practices in case of ordinary farmers. This would give a comparative picture of the adoption behavior of the rural local leaders as against the ordinary farmers.

Further, it would be important to find out if there is a two step flow of information, the first step, in general, being from the change agents to the local leaders and the second step being from the leaders to the local farmers.

For the purpose of study, various independent variables will be considered to explore their association with the adoption rate of leaders as well as that of farmers.

The first variable that will be considered is age of the leader or a farmer and his adoption rate. An attempt to explore this relationship will enable one to find out the distribution of leaders and farmers in various age groups. Particularly, it will make it possible to find out if the leadership rests in the hands of the older people or the younger set. Because of the tradition bound nature of the Indian Society it may be expected that the leadership will be in the hands of the older people. However, it could also be surmised that the younger leaders are likely to be better educated since they grew up at a time when the school facilities were expanding. Also, since the younger leaders grew up at a time when the spirit and philosophy of Community Development was much in the air they could be expected to have greater familiarity with these programs. In addition, assuming that the Indian social system is

gradually moving from traditionalism to rationality it could be expected that the younger leaders would be more rational. On the basis of these considerations, it may be that the leadership in the Indian villages rests with the younger people.

Regarding the nature of the relationship between age and adoption, it could be expected that since the younger people are plastic and more enterprising, the younger leaders or farmers will have higher adoption rate.

The second variable under consideration will be education. The importance of education in the socialization of an individual is well known. By virtue of being able to read and write, not only that more avenues of acquiring new knowledge are open to such individuals but also they have greater degree of inquisitiveness. Having enough knowledge about improved practices is a prerequisite for their adoption which is more likely to be fulfilled by an educated person. Also, education tends to make a person adopt more rational patterns of behavior which may also have a bearing on his adoption rate.

The next variable under consideration is that of caste. The Hindu social organization is based upon a number of hierarchically arranged castes. The higher castes not only enjoy better social status but are also high up in the economic scale. Because of their better

social status members of higher castes are more likely to greater degree of contacts with the extension service. Also, by virtue of their relatively better economic standing, members of higher castes are likely to be in a better position to adopt the recommended practices.

The next variable that will be taken into consideration is income. With higher income it is possible for an individual to adopt improved agricultural practices since these involve a higher input of capital and labor resources. A study of the income of leader and farmers will also enable to find out to what income groups they belong. This will make it possible to know if the leaders belong to relatively higher income groups as compared to the farmers.

Further, the size of holding of the leaders and the farmers will be considered. With a large size of holding there is a possibility of not only having better capital resources but also there may be a greater willingness on the part of the farmer to take risks. As a result of this, it may be possible that the leaders or farmers having larger holdings will have greater adoption rate. Moreover, obtaining data on the size of holdings will make it possible to compare the leaders and the ordinary farmers on the basis of this criterion.

After this, the degree of contacts of the leaders

and farmers with the information sources will be taken into consideration. Since the rural local leaders are one of the first people in a village to come in contact with the change agents it is likely that they will have greater degree of contacts with the information sources. If the leaders are found to have more contacts with the information sources than the ordinary farmers, it will be possible to test the hypothesis that from change agents to the local leaders is in general a first step in the two step flow of information.

If an individual has more contacts with the information sources it is likely that he may be more knowledgeable in regard to improved agricultural practices. Also, he may have greater confidence in the extension service as a result of his long association with it. This may result in his having a higher adoption rate.

Following this, the value orientation of the leaders and the farmers on the traditionalism-rationality dimension will be given consideration. Many a scholar of the Hindu social organization has observed the crucial role played by tradition in the behavior of the Hindus. By and large, the traditions in rural India are such that the values emanating from them provide cosmological or mythical explanations for the problems and difficulties of every day life. As a result of this, there is a nonrational pattern of behavior which conflicts with

seeking solutions provided by modern science which are a product of empirical, rational exploration. Among other areas of life, this affects the agricultural development of the country. In view of this, it will be necessary to find out if the adoption rates are associated with the value orientation of an individual on the traditionalism-rationality dimension. This will also make it possible to compare the farmers and the leaders on this dimension to find out if the large majority of farmers are still traditional and whether the leaders have been breaking with the past and adopting a more rational pattern of values.

Voluntary organizations like the Farmers Unions, and Cooperative societies have been coming up in the Indian villages only in recent decades. These organizations serve as a place for exchange of thoughts and ideas. In view of this, those leaders and farmers having greater participation in these organizations may be expected to have greater adoption rates.

Because of the isolation of the villages for centuries, an average villager tends to restrict himself to what is happening in the confines of the village. His orientation is more towards the social system of the village rather than external to it. This causes the perpetuation of his traditional pattern of living and may result in a lower adoption rate. In contrast, the

leaders may act as a link between the village and the outside world. Also, by virtue of their better education, they would tend to be more cosmopolite. This may result in their having a higher adoption rate.

With the above points in mind the following hypotheses were framed :

1. Rural local leaders are innovators of recommended agricultural practices.

2. The rate of adoption of practices of local leaders is associated with their age. The adoption rate will be higher in case of younger local leaders than in case of older ones.

3. The rate of adoption of local leaders is associated with their education. The adoption rate will be higher in case of those rural local leaders having more formal education as compared to those having less formal education.

4. The adoption rate of a local leader is associated with his caste. Leaders from privileged castes will have higher adoption rates than those from less privileged castes.

5. The adoption rate of a local leader is associated with his income. The higher the income the greater will be the adoption rate.

6. The adoption rate of a local leader is asso-

ciated with the size of his holding. The bigger the size of holding the greater will be the adoption rate.

7. The rate of adoption of a local leader is associated with the degree of his contacts with the information sources. The greater the extent of contact with the information sources the higher will be the adoption rate.

8. The adoption rate of a rural local leader is associated with his value orientation on the traditionalism rationality dimension. The more traditional a leader the lesser will be his adoption rate. The more rational a leader/higher the will be his adoption rate.

9. The rate of adoption of a local leader is related to his social participation. The greater the social participation of a local leader the higher will be his adoption rate.

10. The adoption rate of a local leader is associated with his cosmopoliteness. The more cosmopolite is a local leader the higher will be his adoption rate.

11. There will be similar kinds of relationships as mentioned above between the independent variables and the dependent variable in case of ordinary farmers. The only difference will be that the ordinary farmers will have lower adoption rate, lesser education, lower income, will be more traditional in their value orientation, will have lesser social participation and will be more

localite as compared to the rural local leaders.

12. There is in general a two step flow of information, the first step being from the change agents to the rural local leaders and the second being from the local leaders to the ordinary farmers of the village.

As regards the outline of the thesis, to begin with, there will be a review of literature in which the pertinent literature on some concepts of leadership, definitions of leadership, role of voluntary leaders, the two step flow of information, cosmopoliteness, social participation and values as related to adoption will be included. Consideration will also be given to personal characteristics of farmers and adoption, and to the role played by sources of agricultural information. Following this, there will be a presentation of the methodology used for the study. In this section, the location of the fieldwork, procedure of sampling, preparation of the schedule, procedure for collection of data and the information regarding the duration of the study will be given. This will be followed by a presentation of the statistical methods used and the definition of terms used.

The next section will consist of the presentation of data. For the convenience of presentation, the distribution of farmers and leaders according to age, education, caste, size of holding, income, size of family, value orientation, social participation, cosmopoliteness

and contacts with sources will be given. An attempt will be made to test the various hypotheses regarding the nature of relationship between these independent variables and the dependent variable viz. adoption.

Following this, the ordinary farmers and the local leaders will be classified into various adopter categories viz., innovators, early adopters, early majority, late majority and the laggards. This will make it possible to test the hypothesis regarding the innovativeness of the local leaders. Finally, on the basis of the available data the hypothesis regarding the two step flow of information will be tested. After this, there will be a section on discussion of the findings in which the implications of the findings will be discussed. Finally, the summary and conclusions of the study will be presented.

CHAPTER II

REVIEW OF LITERATURE

LEADERSHIP

Some concepts of Leadership

Leadership is one of the thorny problems which philosophers and social scientists have tried to explore for a long time. This has resulted in much speculation as can be seen from a host of theories advanced by a number of people. Some of the more important approaches of these are dealt with in the following paragraphs.

Ross and Hendry take three broad approaches to leadership viz., (1) leadership as traits within the individual, (2) as a function of the group and (3) as a function of the situation.[1] Leadership as traits within the individual is also known as "great-man theory". In this theory it is maintained that a person becomes a leader by virtue of certain desirable traits within him. This led the students of leadership to prepare long drawn out lists of such traits. However, these studies did

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[1] Murray G. Ross and Charles E. Hendry, New Understandings of Leadership - A Survey and Application of Research, New York : Association Press, 1957, pp. 17-31.

not all agree regarding the traits necessary for leadership. Ross and Hendry report a study made by Bird of various such studies in traits, in which he found that of the 79 traits mentioned in the different studies only five per cent were common to one or more investigations.[2] Thus, no consistent pattern of traits characterizing a leader can be theorized. Ross and Hendry report about Stogdile's comprehensive study of leadership traits made in 1948. This study is of importance because it shows the more commonly identified traits which are (1) physical and constitutional factors (height, weight, physique, energy, health, appearance), (2) intelligence, (3) self-confidence, (4) sociability, (5) will (initiative, persistence, ambition), (6) dominance and (7) surgency (talkativeness, cheerfulness, geniality, enthusiasm, expressiveness, alertness and originality).[3]

The second major conception of leadership is the theory of leadership as a function of the group. This theory arises out of the study of interaction between leaders and non-leaders. Ross and Hendry mention Cattell as saying that, "all group functions are leadership functions."[4] This approach by Cattell is also known as the

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[2] Loc. cit.

[3] Loc. cit.

[4] Loc. cit.

factor analysis approach because it looks at leadership in terms of different problem solvers rising to different occasions.[5] Cartwright and Zander explain this by saying that leadership may be performed by one or more members, who help the group to achieve its objectives.[6]

The third major conception of leadership is leadership as a function of the situation. This involves consideration of not only the group in which the leader operates but also the situation which the group encounters.[7] For example, A. J. Murphy says that a leader noted for his "dominance" may become "shy" when placed in a situation in which his skills are not useful. Sanford's approach as mentioned by Ross and Hendry maintains that there are three basic and delineable factors in any leadership phenomena, namely, (a) the leader, (b) the situation and (c) the follower and that all these factors should be dealt with simultaneously.[8] Although there are these three basic approaches to the problem of leadership none of these taken separately provides an adequate theory of leadership necessitating consideration of all three together.

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[5]Thomas B. Averill, Leadership Training : Community Services Manual No. 1, Manhattan, Kans., Dept. of Continuing Education, 1959, pp. 5-7.

[6]Loc. cit.

[7]Ibid., pp. 26-31.

[8]Loc. cit.

Leadership Defined

Leadership has been defined by a number of people in a variety of ways each definition emphasizing one aspect or the other to the problem. Some important definitions are as follows.

According to Tead "leadership is the activity of influencing people to co-operate toward some goal which they come to find desirable."[9] The unique emphasis here is the satisfaction and the sense of fulfillment secured by the followers.

Sanderson and Polson cite Bernard as saying that "any person who is more than ordinarily efficient in carrying psychosocial stimuli to others and is thus effective in conditioning collective responses may be called a leader."[10]

Eubank's definition referred to by Duncan and Roberts appears to be based on the "traits theory". The definition reads, "leadership implies dominance of persons, by one abler than the masses, through skill, intelligence, strength, or by whatever means, wherein the leader's precedence or ascendancy is acknowledged by those who are followers."[11]

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[9] Ordway Tead, The Art of Leadership, New York: McGraw Hill Book Company, Inc., 1935, p. 20.

[10] Dwight Sanderson and Robert A. Polson, Rural Community Organization, New York: John Wiley and Sons, Inc., 1939, pp. 359-360.

[11] Otis Durant Duncan and James W. Roberts, Aids to Leadership Development, Stillwater, Oklahoma: Farm Bureau Federation, 1958, (mimeographed), p. 1.

A. J. Murphy is reported as saying that leadership is "....that element in a group situation which, when made conscious and controlling, brings about a new situation that is more satisfying to the group as a whole" (than the former one).[12]

Bogardus defines a leader "as a person who exerts special influence over a number of people."[13] Kelsey and Hearne have defined local leader as a person, who because of special interest and fitness, is selected to serve as a leader in advancing some phase of the local extension program.[14]

Larson states that leadership is a process of influencing the activities of a group in its efforts towards a particular end.[15]

Duncan and Roberts sum up leadership as, "....a pattern of roles and functions necessary to carrying on the work of groups, or of societies, which by common acceptance center in individuals of recognized capacities for their execution."[16]

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[12] Loc. cit.

[13] E.S.Bogardus, Leaders and Leadership. New York: D. Appleton, 1914.

[14] L.D.Kelsey and C.C.Hearne, Co-operative Extension Work, Ithaca, N.Y.Comstock Publishing Associates, 1955, p.131.

[15] Olaf F.Larson in Summary of Leadership Training Conference for County Agricultural Agents. Ithaca, N.Y. (Unpublished), p. 3.

[16] Loc. cit.

Niederfrank makes a useful classification of leadership into organizational and project leadership. He defines organizational leadership as, "...that which has to do with club offices, committees, meetings, organizing, reporting, and the like."[17] Project leadership involves responsibility for subject matter and it is the job of the project leaders to know more about the subject and to get more facilities to adopt the recommended practices of the subject.

Role of Voluntary Leaders

The above mentioned definitions show what role the leaders play in groups and organizations in general but they do not refer to leadership from the point of view of strategy of change. For the purposes of the problem under consideration it is necessary to discuss this.

Two kinds of leaders are mainly involved in extension work who are classified as professional and non-professional. The professional leader is paid for his work and hence it is obligatory on him to act as a leader, whereas the non-professional or the lay leader volunteers work for one reason or the other except that of getting paid for. It is on these leaders that the foundation

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[17] E.J.Niederfrank, Organizational Leadership, Washington D.C. : U.S.D.A., Federal Extension Service, 1958, p. 1.

of the extension work rests. A brief discussion of why this is so is given below.

Sanderson and Polson say that even with the best procedures and programs, the sine que non of success in community organization is effective leadership.[18] They further state that "the feasibility of any community program depends primarily upon leadership, upon leaders who can see the situation more clearly than the rank and file."[19] Niederfrank says that local leaders are more competent not only than the other local people but also the extension workers in identifying the needs and interests of the people.[20] He therefore affirms that it is a sound procedure to ask leaders to assist in planning the teaching program.

Brunner and Yang say that voluntary leaders are important in extension because they try out new practices first and thus demonstrate their validity under local conditions.[21] Brunner and Yang go on to say that local leaders vouch for the possibly strange teachings of the extension worker. They also state that the more people

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[18] Sanderson and Polson, op.cit., p. 242.

[19] Loc. cit.

[20] E.J.Niederfrank, On Leadership, Washington, D.C.: U.S.D.A., Fed. Extension Service, 1955, p. 1 (mimeographed paper).

[21] Edmund de S. Brunner, and E.H.Sin Pao Yang, Rural America and the Extension Service, Bureau of Publications, Teachers College, Columbia University, 1949, p. 181.

an extension worker must serve the more necessary local leaders become. Based on his experience in the Middle East, Asghar Fathi states, "After the experience of (the) opinion leaders or influentials has proven successful, then the rank and file gradually follow suit. Therefore, to maximize the probability of success in (the) projects ... the first target of the change agents should be to reach informal opinion leaders."[22] Explaining the importance of lay leaders in extension work in India Chitambar et al. say that certain persons in each locality have a great influence on their fellows and that extension work becomes much more successful when it works primarily through them.[23] Albert Mayer says that lay leaders are important in India's Community Development work to make thinking, activities and programs more indigenous, self-sustained and self renewing.[24]

According to Carl C. Taylor, "there are thousands of local group leaders in Indian villages. Nothing is more important in the community development program than to locate, use and develop them."[25] As said by Rahudkar,

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[22] Asghar Fathi, "Leadership and Resistance to Change: A Case from an Underdeveloped Area", Rural Sociology, 30:2 (June 1965), p. 207.

[23] J.B.Chitambar, et al., Experiment in Extension : The Gaon-Sathi, Bombay : Geoffrey Cumberlege, 1956, pp. 127-130.

[24] Albert S. Mayer, Pilot Project India : The Story of Rural Development at Etwah, Uttar Pradesh. Berkeley and Los Angeles, Calif: University of California Press, 1958, p. 222.

[25] Carl C. Taylor, A Critical Analysis of India's Community Development Programme, Community Projects Administration, Government of India, 1957.

"the voluntary, functional and natural leaders are the only persons who can successfully bring about, steadily maintain and progressively improve upon, social changes and development in the village life."[26]

The Two Step Flow of Information

Local leaders play a key role in the net work of personal relationships in a social system. Lazarsfeld and others analyzed the 1940 elections in the U.S. and suggested that "ideas flow from the radio and print to the opinion leaders and from them to the less active sections of the population.[27] They called this the "two step flow of communication." During this study they found that personal contacts appear to have been more effective than the mass media in influencing voting decisions.[28] According to Rogers, "This ... hypothesis has been used in several studies and, with modification, is probably the most popular framework, explicitly or implicitly used in diffusion research."[29] Rogers stated that the first step mainly involves a transfer of information from the channels of communication to the

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[26]W.B.Rahudkar, "Local Leaders and their Adoption of Farm Practices", Nagpur Agricultural College Magazine, Vol. 34: 1-2, 1960.

[27]Paul F. Lazarsfeld et al., The People's Choice, New York: Columbia University Press, 1948, p. 151.

[28]Loc. cit.

[29]Everett M. Rogers, Diffusion of Innovations, New York; The Free Press of Glencoe, 1962, p. 213.

opinion leaders while the second step may involve the spread of influence in addition to the transfer of information.[30]

Rogers states that there is need to standardize the criterion of opinion leadership so that the findings of various studies could be more precisely compared.[31] Rogers goes on to comment that recent research evidence suggests a multistep flow in which opinion leaders may influence other opinion leaders and they, in turn, influence the followers.[32]

Cosmopoliteness and the Flow of Information

Merton worked on the "two step flow" hypothesis and the opinion leaders as the major recipients. He compared the mass media exposure of "local influentials" who are at the center of the network of primary group relationships, and the "cosmopolitan influentials", who serve as the connecting link between the community and the outside world.

Merton observes that the influence of the local influentials is due to their place in the elaborate network of personal relationships. Their influence does not rest so much on what they know but on whom they know.

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[30] Loc. cit.

[31] Loc. cit.

[32] Ibid., p. 214.

The cosmopolitan influential secures position in local influence structure because of the prestige of his previously acquired skills and achievements rather than due to personal ties. The cosmopolitan influentials make greater use of organizational channels to influence than of personal contacts, whereas local influentials make more use of the personal contacts to influence than organizational channels.[33]

Lionberger in his study of Missouri community farmers found that the leaders' receptivity to new ideas about farming and their position in the community social structure was such that they served as "low resistance avenues through which farm information was channelled to other operators."

In his study of medical doctors Katz found that opinion leaders were more likely to participate in out-of-town meetings.[34] In his Missouri Community study Lionberger found that leaders tended to belong more to formal organizations located outside the community.[35]

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[33] R.K.Merton, "Patterns of Influence: A Study of Interpersonal Influence and Communication Behavior in a Local Community", in Lazarfeld and Stanton (Ed.), Communications Research, 1948-49, pp. 180-219.

[34] Elihu Katz, "The Two step Flow of Communication: An uptodate Report on an Hypothesis", Public Opinion Quarterly, 21: 61-78.

[35] H.F.Lionberger, Adoption of New Ideas and Practices, Ames, Iowa : Iowa State University Press, 1960. p. 61.

Rogers quotes van den Ban as saying that farm opinion leaders in the Netherlands had many more contacts with urban centres than the followers. He also found that opinion leadership was more closely related to cosmopoliteness in the modern communities than in the community with more traditional norms.[36] Rahudkar found that opinion leaders had more informal and formal contacts outside the village than the followers.[37]

Social Participation and Adoption

The more the social participation the more it is likely that the individual would be exposed to new ideas. Also, greater the social participation, greater is the extent to which an individual may pass on new ideas to others. Lionberger found that leaders tended to belong more to formal organizations than the ordinary farmers.[38] Van den Ban found that farm opinion leaders had greater participation in formal organizations than did farmers with less influence.

Rahim in his study of adoption behavior in a Pakistan village found that opinion leaders were members of more organizations than their followers.[39]

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[36] Rogers, 1962, op.cit., p. 240.

[37] Rahudkar, op.cit.

[38] Lionberger, op.cit.

[39] S.A.Rahim, The Diffusion and Adoption of Agricultural Practices : A Study in a Village in East Pakistan, Comilla : Pakistan Academy for Village Development, 1961, p. 58.

Values and adoption

The importance of the value system to social change can be understood from the following statement by Nelson et al. "The value system is expressed by and governs behavior, and therefore values and behavior can only be fully understood when considered together."[40]

The value system includes four aspects: "prescribed goals towards which people should strive, prescribed means of achieving these goals, sanctions enforcing conformity, and the organization of these prescriptions so that there is no contradiction or conflict among them."[41] Lionberger defines value as "importance ratings which people attach to things, conditions and circumstances."[42] The simplest scheme of value orientations is the dichotomy of traditionalism and rationality.[43]

The general and important function of the value system is to produce structure. Consequently an important function of the value system is to produce or prevent changes in that structure.[44] Becker uses the term "secular" to describe value systems which are oriented towards change and for those oriented away from change he

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[40] Nelson, op.cit., p. 93.

[41] Loc. cit.

[42] Lionberger, op.cit., p. 92.

[43] Nelson, op.cit., p. 98.

[44] Ibid., p. 124.

uses the term "sacred".[45]

Newcomb defines attitudes as predispositions to act, perceive, think, and feel in relation to something.[46] According to Lionberger, research in farm practice adoption has not made a clear-cut distinction between values and attitudes.

Various studies have shown association of different types of values with adoption. Wilkening in his study of adoption of improved farm practices as related to family factors found a relationship between family values and adoption. Family values which were positively associated with adoption rates were a desire by farmers and their wives for a high school or college education for their children, and precedence of education for children over work or expenditures for the farm.[47] Also, emphasis on owning a farm free of debt was generally found to be negatively associated with the adoption of improved farm practices.[48]

Wilkening and Johnson found that even though

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[45]Howard Becker, Through Values to Social Interpretation, Durham, N.C.: Duke University Press, 1950, Chap. 5.

[46]Theodore M. Newcomb, Social Psychology, New York: The Dryden Press, 1950, p. 119.

[47]E.A.Wilkening, Adoption of Improved Farm Practices as Related to Family Factors. Madison: Wisconsin A.E.S. Research Bulletin 193, Dec. 1953.

[48]Ibid.

economic gains as a goal orientation was most important, noneconomic reasons were of importance in some decisions and also that the economic factor tended to be discounted where immediate economic advantage was not readily apparent.[49]

Hoffer and Stangland studied values related to the adoption of four improved corn-growing practices in Michigan. They found that farmers who identified themselves with efficiency and self-reliance models presented to them by the researchers were much more likely to have adopted each of the four practices considered than those who did not. On the other hand, those who identified themselves with models emphasizing security and conservation in farming were much less likely to have accepted eachof these practices than those who did not identify themselves in this manner.[50,51]

Ramsey et al. studied values related to the adoption of improved dairy practices and to knowledge, critical evaluation, and use of agricultural lime. They found that associations between adoption rates and twelve values

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[49] E.A.Wilkening and D. Johnson, "A case study in decision making among a farm owner sample in Wisconsin". The Research Clinic on Decision Making. Pullman : State College of Washington, August 1958, pp. 1-20.

[50] C.R.Hoffer and D. Stangland, Farmers' Reactions to New Practices. East Lansing: Michigan A.E.S. Technical Bulletin 264, February, 1958.

[51] C.R.Hoffer and D. Stangland, "Farmers' Attitudes and Values in Relation to Adoption of Approved Practices in Corn Growing", Rural Sociology, 23, June 1958, pp. 112-20.

scaled according to Guttman scale was very small.[52]

The New York Study by Ramsey et al. showed that adoption was negatively but significantly associated with security and traditionalism. The value orientations of emphasis on material achievement, science and material comfort were found to be positively related to knowledge, critical evaluation and use of lime practices. A desire for security and emphasis upon traditionalism was negatively related to adoption. However, all corelations were low. Four of the most highly correlated value variables explained only about 10 per cent of the total variation in the lime scale. These were belief in science, material comfort, security and tradition.

In a Kansas study, Copp found that the degree of acceptance of professional and scientific values in farming and flexibility of the farmer's mental approach to problem of farm operation were positively related to adoption of recommended practices.[53]

High values upon individual achievements and satisfactions are positively associated with adoption of new practices. These achievements and satisfactions

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[52] C.E.Ramsey, R.A.Polson and G.E.Spencer, "Values and Adoption of Practices", Rural Sociology, 24, March, 1959, pp. 35-47.

[53] J.H.Copp, Personal and Social Factors Associated with the Adoption of Recommended Farm Practices Among Cattlemen. Kansas A.E.S. Research Bul., Manhattan Kans., 1956.

include formal education for family members, modern living conveniences, and family recreation. Attitudes pertaining to the participation of family in decision making and in the operation of the farm are associated with the acceptance of changes in farming.[54]

Fliegel assessed farm operators attitudes toward farm practices by means of seven questions on the respondent's reaction to the use of particular practices on his own farm. He found that this attitude was related to adoption.[55]

When rationality is defined in terms of increasing profits in farming, it may operate as an intervening variable between contacts with educational agencies, and the adoption of new farm practices. Exposures to reliable sources of information may create a state of rationality which in turn predisposes an individual to the adoption of new practices.

PERSONAL CHARACTERISTICS OF FARMERS AND ADOPTION

Age :- The relationship between age and adoption has not yet been conclusively established. Wilkening

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[54]Subcommittee for the Study of Diffusion of Farm Practices, The Rural Sociological Society, Sociological Research on the Diffusion and Adoption of New Farm Practices, Kentucky Agr. Expt. Sta. Rept., RS-2, June 1952, Mimeo.

[55]F.C.Fliegel, "A Multiple Correlation Analysis of Factors Associated with the Adoption of Farm Practices", Rural Sociology, 21 (1956): 284-292.

[56]A.Dean, H.A.Aurbach and C.P.Marsh, "Some Factors Related to Rationality in Decision Making Among Farm Operators", Rural Sociology, 23, June 1958, pp. 121-35.

found that age of the farmer is negatively associated with adoption of improved practices, other things being equal.[57] Findings of several other research workers are in line with those of Wilkening.[58] Some research workers have reported highest adoption at middle age.[59]

Copp found that adoption is associated with age in a curvilinear fashion rather than there being a strong linear association.[60] The curvilinear relationship suggests that the young man just entering the farm business is generally in a weak position to adopt better farming methods.

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[57] E.A.Wilkening, Acceptance of Improved Farm Practices in Three Coastal Plain Counties, North Carolina A.E.S.Tech. Bul. 98, May, 1952.

[58] N.Gross and M.J.Taves, "Characteristics Associated with Acceptance of Recommended Farm Practices", Rural Sociology, 17, Dec. 1952, pp. 321-27. C.V.Hess and L.F. Miller. Some Personal, Economic, and Sociological Factors Influencing Dairymens Actions and Success. State College: Pennsylvania A.E.S.Bul. 577, June, 1954. H.F.Lionberger. Information seeking Habits and Characteristics of Farm Operators. Columbia: Missouri A.E.S. Research Bul. 581, April, 1955. C.P.Marsh and A.L.Coleman. "The Relationship of Farmer Characteristics to the Adoption of Recommended Farm Practices," Rural Sociology, 20 Sept.-Dec., 1955, pp. 289-96.

[59] M.C.Wilson and G. Gallup, Extension Teaching Methods and Other Factors That Influence Adoption of Agricultural and Home Economics Practices, Washington, U.S.D.A.Fed. Ext. Service, Circular 495, August 1955.

[60] J.H.Copp, M.L.Sill, and E.J.Brown, "The Function of Information Sources in the Farm Practice Adoption Process", Rural Sociology, 23, (June 1958) : 146-157.

In their study of adoption as related to time sequence, Beal and Rogers found that the innovators and the earlier adopters tended to be of older age than the late adopters.[61] Contrary to this, Gross found that non-adopters of the McLean system of sanitation were, on an average, 6.4 years younger than the adopters.[62]

Education: The more the education one has the more one is likely to be receptive to new ideas. Several researchers report that education is definitely associated with the adoption rate of a farm operator.[63]

Copp found a strong linear association between the adoption index and the amount of formal education.[64] However, Conghenour considers formal education to be relatively unimportant as a factor which decides adoption rate of a farmer.[65]

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[61] G.M.Beal and E.M.Rogers, The Adoption of Two Farm Practices in a Central Iowa Community, Iowa State Univ. A.E.S. Spec-Rept. 26, Ames, 1960.

[62] N.Gross, "The differential characteristics of Acceptors and Non-acceptors of an Approved Technological Practice", Rural Sociology, 14, (June 1949): 148-156.

[63] Hoffer and Stangland, op.cit., H.F.Kaufman and E.M.Boyant. Characteristics of Farmers ... Recommended Practices. Mississippi A.E.S. Info. Sheet 608, State College 1958; Wilson and Gallup, op.cit.; E.M.Rogers and R.L.Pitzer, The Adoption of Irrigation by Ohio Farmers, Ohio A.E.S. Res. Bul. 851, Wooster, 1960; Wilkening, op.cit., March and Coleman, op.cit.

[64] Copp (1956), op.cit.

[65] C.M.Conghenour, Agricultural Agencies as Information Sources for Farmers in a Kentucky County, 1950-55, Kentucky A.E.S. Progress Rept. 82, Lexington, 1959.

ECONOMIC CHARACTERISTICS

Income of the farmer : It is difficult to determine whether higher income comes first or higher rate of adoption precedes higher income. Where income is high, one is likely to find high adoption; where adoption is high, income very likely will also be high.

It has been reported in several studies that the income of the farmers is positively associated with the adoption rate of practices.[66] Fliegel observed that there was a highly significant tendency for those farmers who ranked high in the adoption of farm practices to report relatively high net farm incomes.[67]

Size of farm : Several research studies have indicated that the farm size is positively associated with the adoption rate of a farmer.[68] However, Hoffer and Stangland report that a farmer having small or large holding

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[66] Kaufman and Bryant, op.cit.; Gross and Taves, op.cit. Caughenour, op.cit.; H.F.Lionberger, Sources and Use of Farm and Home Information by Low Income Farmers in Missouri, Missouri A.E.S. Res. Bul. 472, Columbia 1951.

[67] F.C.Fliegel, "Farm Income and the Adoption of Farm Practices", Rural Sociology, 22 (June 1957), pp. 159-162.

[68] Copp (1958), op.cit., F.C.Fliegel, "A Multiple Correlation Analysis of Factors Associated with Adoption of Farm Practices", Rural Sociology, 21, September-December 1956, 284-92. H.F.Lionberger and C.M.Coughenour, Social Structure and Diffusion of Farm Information. Columbia : Missouri A.E.S. Res. Bull. 631, April 1957, Wilkening (1952), op.cit.

do adopt practices equally.[69] Beal and Rogers found that the average size of the farm was smaller in case of laggards than that other adopter categories.[70]

SOURCES OF AGRICULTURAL INFORMATION

The term source refers to people and agencies which act as providers of agricultural information. These are (i) mass media which include newspapers, magazines, radio and movies (ii) government agencies such as the national extension service and (iii) commercial sources which include local dealers and salesmen,[71] (iv) informal sources such as a farmer's neighbors and friends.

In some cases, communication of farm information is a planned and purposeful function involving complex organizations and procedures. In other cases, agricultural information may be communicated without planning as is the case the chance meeting of two people with common interests.[72]

Mass Media

In terms of creating awareness about a new idea,

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[69] Hoffer and Stangland, op.cit.

[70] Beal and Rogers, op.cit.

[71] Lionberger (1960), op.cit., p. 42.

[72] Ibid., p. 43.

mass media are most important. However, personal influence of neighbors and friends is most effective in convincing farmers to actually try new farm practices.[73]

Various researchers have indicated that in the U.S., farm magazines and farm papers are used more frequently than newspapers, radio or television.[74] According to Lionberger, farm magazines and to a lesser degree newspapers also serve a very useful function of instruction.[75] They supply information about the nature of change, how it operates and the results that can be obtained.

Lionberger reports that an intensive study of radio listening by the Department of Agriculture, Bureau of Agricultural Economics, showed a high interest on the part of farm people in agricultural information programs.[76]

Government Agencies

Many researchers have indicated that innovators have close contact with one or more of the educational

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[73]Everett M. Rogers, Social Change in Rural Society. New York : Appleton Century Crofts, Inc., 1960, p. 406.

[74]G.M.Beal, "Information Sources in the Decision-Making Process", The Research Clinic on Decision Making. Pullman : State College of Washington, August, 1958, pp. 36-51. G.M.Beal and J.M.Bohlen, The Diffusion Process. Ames : Iowa. A.E.S. Special Report 18, March 1957.

[75]Lionberger (1960), op.cit., p. 45.

[76]Loc. cit.

agencies.[77] Most studies have showed that government agencies are most used at the evaluation and trial stages of the adoption process.[78]

According to Lionberger, government agencies "head the list for early adopters in general and as sources of information for all adopter groups about the special qualities and use of such complex practices as soil and water management." He further states that "the fact that such agencies ordinarily are designed to render other services to farmers, as well as disseminate information, tends to strengthen their position as information sources. For example, the county agent ... is in a position to test soil samples for farmers and to interpret the results."[79]

Commercial sources

Research in the role played by commercial dealers in the adoption process indicates that this source of information is mostly used at the trial stage.[80] Lionberger

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[77]Copp, op.cit. (1956); Lionberger, op.cit. (1955) Wilkening op.cit. (1952).

[78]Beal, op.cit. (1958), (1957); J.H.Copp et al., "The Function of Information Sources in the Farm Practice Adoption Process", Rural Sociology, 23, June 1958, pp.146-57.

[79]Lionberger, op.cit. (1960), p. 47.

[80]Beal, op.cit. (1958), Beal and Bohlen, op.cit., 1958, G.M. Beal and Rogers, E.M. "Informational Sources in the Adoption Process of New Fabrics", Journal of Home Economics, 49 (October 1957), pp. 630-34.

states that this is understandable, since much of the new equipment and many new products require special instructions for proper use. He further states that even though dealers may not be the major factor in decisions to change, they very frequently enter into discussions leading to decision.[81]

As Lionberger puts it, commercial dealers are "in a very strategic position to communicate information, to instruct, and to help evaluate."[82]

Informal source

Informal sources such as neighbors and friends play an important role in the communication of farm information and in the trial and evaluation stages of the adoption process.[83] When the final decision for the adoption of a practice is to be made most of all it is other farmers who are consulted. This is more so for new practices associated with existing farm operations where professional specialized knowledge is not called for. According to Lionberger, for late adopters other farmers are the most important source of information at the awareness stage as well as the trial stages.

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[81] Lionberger, op.cit. (1960), pp. 47-48.

[82] Loc.cit.

[83] G.M.Beal, "How Farmers Accept a New Practice, 2,4-D: Sources of Information Analyzed by Time", Paper given at Midwest Sociological Society Meeting, April 1956; Beal op.cit. (1958), Beal and Bohlen, op.cit., Beal and Rogers, op.cit.

CHAPTER III

METHODOLOGY

Location of the field work

The study was carried out in the development block of the Extension Wing of the College of Agriculture, Poona. This is a block of 107 villages in the Bhor taluka and Velhe Mahal of the Poona District. These villages serve as a laboratory for imparting practical training in Agricultural Extension to the undergraduate as well as graduate students of the College of Agriculture, Poona.

The block had its inception in 1955. Ever since, there has been an Additional District Agricultural Officer in charge of the extension activities in the block. He has a complement of staff to assist him in this work. These are : One Agricultural Supervisor, one Engineering Overseer, one Cooperative Officer, five Agricultural Assistants and one Veterinary Stockman.

In addition to the extension activities of the College of Agriculture, Poona the area has been under the National Extension Service since 1954. Under this program the usual staff allocated to a Community Development Block has been working in this area. These are one Block

Development Officer, one Social Education Organizer, one Cooperative Officer, one Engineering Overseer, one Extension Officer Education and a Gramsevak (village level worker in each village) of Bhor taluka. The Velhe Mahal in which some of the villages of the block come has a similar organizational set up. Thus the people of this area have come under the influence of considerable extension activities for the past few years.

The Development Block is situated to the south of Poona City along the Poona Bangalore National Highway. The nearest village in the Block is about 12 miles and the farthest one about 45 miles from Poona City. The Block lies between 18° and 18°-39' north latitudes and 73°-45' and 74°-8' east longitudes. On the east the boundary of the Block meets that of Haveli and Purandhar talukas of the Poona district. On the south side of the block are Wai taluka and Khandala Peta of Satara district, while on the west lie parts of Bhor and Velhe Mahal.

Out of the 107 villages in the Block 88 are from Bhor taluka and 19 from Velhe Mahal of Poona districts. The block covers an area of 1,23,385 acres out of which 51,764 acres are cropped. The population of the Block is 65,000 comprising mainly of people dependent on farming.

On the basis of soil types, rainfall and crops, the block can be divided into three distinct zones. The

western zone has mostly light soils and receives an annual rainfall of about 400 centimeters. The main crops of the area are hill millets and coarse varieties of paddy. The central zone receives an annual rainfall of 80 to 100 centimeters and has soils ranging from medium black to heavy. In this zone middle and late varieties of paddy are grown in Kharif. On heavy soils a second crop is taken after paddy which is usually wheat, gram or peas. The eastern zone receives an annual rainfall of 50 to 55 centimeters. The soils here are medium black to heavy with Kharif crops like drilled paddy, bajri, groundnut, french beans and peas. In the Rabi season the farmers of this zone grow jowar, wheat, gram and peas.

Crops in all the three zones are mainly rainfed because of the limited irrigation facilities. The main source of irrigation is from wells. Some villages have constructed small earthen dams across streams which irrigate a limited number of acres.

The area under different crops in the Development Block is given in Table 1.

Sampling

A list of all the 107 villages in the development block was obtained. Out of these, twentytwo villages were selected where considerable extension work has been in progress.

Table 1

AREA UNDER DIFFERENT CROPS[1]

Name of the Crop	Area in Acres
Rabi Jowar	20,017
Paddy	8,331
Bajri	6,156
Nachani	4,152
Kharif Jowar	3,386
Gram	2,644
Beans	1,968
Wheat	1,746
Peas	1,536
Miscellaneous crops	1,828
Total	51,764

For selecting the leaders 15 randomly selected informants in each village were asked to designate the leaders. They were asked the following sociometric questions: (i) Who are the Gram Panchayat, Co-operative Society and Farmers' union office bearers? (ii) Who are the persons who act as a link between the Government officials and the village people? (iii) Who are the people who mediate between quarrels and factions in the village? (iv) Who are the persons whom you consider to be the leaders in the village? From the answers to these questions those who received three or more mentions were selected as leaders.

[1] Extension Wing, College of Agriculture, Poona records (unpublished), 1959.

For selecting ordinary farmers, the names of the farmers in each village were alphabetically arranged. From this list, farmers were selected randomly by regular interval method. On an average six leaders and twelve ordinary farmers from each village were selected.

Preparation of the Schedule

A schedule was prepared to serve as an outline while interviewing the leaders as well as the ordinary farmers. The schedule was in Marathi, the language of the people of this area.

There were 15 items in this schedule. The first nine items pertained to the face data regarding the person interviewed. This covered questions regarding age, caste, education, family structure, size of holding and annual income.

The tenth item was regarding the adoption behavior of the person interviewed. In this ten practices recommended by the Extension Wing and the National Extension Service were listed. These practices were such that they would be common to most of the farmers in this area. Questions were put to find out whether a particular practice was applicable to a farmer or not, whether he was using it and if yes, since when.

Item numbers 11 and 12 were put to find out the information sources of the farmer. In this various change

agents, leaders, friends and relatives and other group and mass contact extension methods were listed.

Item number 13 related to tapping the values of the farmers and the leaders regarding various aspects of life. In this were included statements which covered values regarding (i) Caste System, (ii) Supernatural power, (iii) agricultural magic, (iv) tradition, (v) Joint family system, (vi) family planning, (vii) faith in the extension service, (viii) risk taking, (ix) education and (x) contentment with the existing situation. There were 21 such statements tapping values in the areas as mentioned here. These statements were put on a five point scale and the responses were tapped on the continuum (i) strongly agree, (ii) agree, (iii) uncertain, (iv) disagree and strongly disagree.

Item number 14 sought to find out the extent of social participation of the person interviewed. In this twelve activities and organizations common in the villages were listed in which a person could participate.

Item number 15 was framed to find out whether the orientation of a person was more towards the local community (localite) than the outside world or vice versa (cosmopolite). This included 18 questions from the responses to which the degree of localite or cosmopolite orientation of a person could be judged.

Before the schedule was finalized, it was pretested

in two villages not included in the study. In the light of the pretesting, some questions were modified and the schedule was finalized.

Procedure for Collection of Data

The selected villages were visited to obtain the required information. Interviewing was done generally in the morning and evening when the farmers had a free time. Care was taken to take the farmer into confidence by explaining the purpose of the study. By and large, the Indian farmers are afraid of any inquiries. For this reason it was necessary to allay their fears at the time of every interview, by telling them that information given by them would not harm them in any manner.

Duration of the study

The field work for the study was started in November 1964 and was concluded in March 1965. This was a period when the farmers are generally free from agricultural work. This helped in making it possible to contact practically all the farmers and leaders included in the study.

Statistical Methods used

To find out the association between the various independent variables and the dependent variable viz. adoption, Pearsonian Product Moment Coefficient of Corre-

lation will be worked out. On the basis of the values obtained for the coefficient of correlation, the convention was adopted specifying that coefficients which could have occurred 5 or more times out of 100 due to chance were not significant. All others were considered significant.

To categorize the farmers and the leaders according to their degree of innovativeness, the frequency distribution in each of these categories will be made use of. The technique that will be used in this respect is discussed elsewhere (see pp. 77-78).

DEFINITION OF TERMS USED

1. Leader : A person who influences the group in its efforts of achieving a common objective.

2. Local Leader : A leader who comes from the local village community.

3. Adoption : Use of a recommended practice included in the study for a year or more.

4. Adoption index : It represents the total number of years the different practices included in the study were being used by a farmer or a leader.

5. Values : "Values are objects in the world to which attitudes are addressed."[2] The values of an individual may be traditional and discourage the adoption of new ideas, or they may be rational and encourage the use of innovations.

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[2]Don Martindale, The Nature and Types of Sociological Theory, Boston : Houghton Mifflin Co., 1960, p. 350.

6. Traditionalism : As used in this study, traditionalism is the "uncritical adoption of precedents as the criterion of decision making."[3]

7. Rationality : This is defined as "uncritical adoption of the consequences as the criterion of decision making."[4]

8. Social Participation : This refers to participation in the different social institutions or organizations listed in the schedule. Participation is one social institution or organization has been given a score of one.

9. Cosmopoliteness : As used in the study, "Cosmopoliteness is the degree to which an individual's orientation is external to a particular system."[5] For each item indicating an orientation external to the social system a score of one has been given.

10. Localiteness : This is the degree to which an individual's orientation is internal to a particular social system.

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[3] Nelson, et al., op. cit., p. 111.

[4] Loc. cit.

[5] Rogers, 1962, op.cit., p. 17.

CHAPTER IV

PRESENTATION OF DATA

For the convenience of presentation, the distribution of farmers and local leaders according to age, education, caste, size of holding, income, size of family, values, social participation, cosmopoliteness and contacts which information sources will be given. An attempt will be made to test the various hypotheses regarding the nature of relationship between these independent variables and the dependent variable viz. adoption.

Following this, the ordinary farmers and the local leaders will be classified into various adopter categories viz. innovators, early adopters, early majority, late majority and laggards. This will make it possible to test the hypothesis regarding the innovativeness of the local leaders. Finally, on the basis of the available data the hypothesis regarding the two step flow of information will be tested.

Characteristics of the Sample and Adoption

1. Age: The agewise distribution of farmers according to various categories is presented in Table 1a.

TABLE 1a

DISTRIBUTION OF FARMERS BY AGE

Sr. No.	Age (Years)	Number of farmers	Percentage
1	Below 25	22	9.8
2	26-35	67	29.9
3	36-45	45	21.9
4	46-55	42	18.8
5	Above 55	44	19.6
	Total	224	100.0

The average age of all the farmers included in the study was 43 years. The maximum age was 85 years while the minimum was 18 years. Ten percent of the farmers were below 25 years, 30 percent between 26 and 35 years and 22 percent between 36 and 45 years of age. The percentage of farmers between 46 and 55 years was 19 and those above 55 years was 20 per cent.

To find out the coefficient of correlation between age of the farmers and adoption, the farmers were categorized into 9 categories according to adoption index ranging from 0 to 41 and above. The data were cross-tabulated for two variables. The coefficient of correlation (Υ) worked out to 0.07 which was found to be non-significant at 5 per cent level. This indicates that there is no positive relationship between the age of a

farmer and his adoption behaviour. This corroborates the findings of several other researchers.

The distribution of rural local leaders according to age is presented in Table below :

TABLE 2

DISTRIBUTION OF LEADERS BY AGE

Sr. No.	Age (Years)	Number of leaders	Percentage
1	Below 25	1	0.7
2	26-35	46	34.6
3	36-45	42	31.6
4	46-55	30	22.6
5	Above 55	14	10.5
	Total	133	100.0

The average age of all the leaders included in the study was 42 years. The maximum age of a local leader was found to be 75 years and the minimum 25 years. The above table shows that 67 per cent of the leaders were below the age of 45 years and 33 per cent were above 45 years in age. This shows that contrary to the commonly held belief that the leadership in Indian villages is in the hands of elderly people because of the tradition bound nature of the society, the leadership is in the hands of younger people. This is because patterns of new leadership have been emerging in recent years with the widely sweeping changes in the rural areas that started first

with the Community Development Program and recently with the democratic decentralization of power at all levels in the governmental structure of India.

As regards the nature of relationship between age and adoption, it was hypothesized that the younger a local leader the higher would be his adoption rate. This is because a younger person is more plastic and thereby more receptive to new ideas and practices. However, the co-efficient of correlation between age of the leaders and the adoption index came to 0.08 which was found to be non-significant at 5 per cent level. This indicates that the adoption behavior of a local leader does not vary with age (Hypothesis number 2). It also shows that the older leaders have been able to keep pace with the younger leaders. This must be due to their longer experience in farming and a contact with the Extension Service for a greater number of years.

2. Education : Education refers to formal education received by a farmer or a leader. Distribution of farmers according to the formal education received is presented in Table 3.

The above table shows that a large number of the farmers i.e. 56 per cent were illiterate. Forty four per cent of the farmers had received formal education ranging from 1 to 11 grades. There were no college graduates among the farmers. For those who had received

TABLE 3

DISTRIBUTION OF FARMERS BY THEIR FORMAL EDUCATION

Sr. No.	Grades	Number of farmers	Percentage
1	No education	126	56.3
2	1 - 4	61	27.2
3	5 - 7	32	14.3
4	8 and above	5	2.2
	Total	224	100.0

some formal education the average education was 4.5 grades. Among those who had received formal education, the percentage of those having education between 1 and 4 grades was 27 per cent; those who received education between 5 and 7 grades was 14 per cent and those having education above 8th grade were only 2 per cent. This indicates that even for a good number of farmers who were fortunate to receive some formal education the level of education was low. The large percentage of illiteracy and the low level of education among the farmers can be explained by the fact that until recently a large number of the villages in India did not have schools. Moreover, a large number of the farmers did not place any value on education until recent times. Education was not supposed to be necessary for the children of a farmer. This did not

help the situation regarding rural education.

An attempt was made to statistically test the hypothesis that the adoption rate of a farmer is associated with the degree of his formal education. The coefficient of correlation in this respect was found to be 0.33 which was significant at 1 per cent level. This shows that the level of formal education received by a farmer and his adoption behavior are highly correlated. With the expanding school facilities, the institution of the Compulsory Education Act for children between 6 and 14 years of age, the adult education drives and the opening of colleges in rural India, there will be a great increase in the number of educated farmers in the villages. With this rise in literacy and the levels of education in the villages, there is every reason to believe that the adoption of improved practices will spread faster.

The distribution of leaders according to formal education received by them is presented in Table 4.

TABLE 4

DISTRIBUTION OF LEADERS ACCORDING TO FORMAL EDUCATION RECEIVED

Sr. No.	Grades	Number of leaders	Percentage
1	No formal education	21	15.8
2	1 - 4	47	35.3
3	5 - 7	55	41.4
4	8 and above	10	7.5
	Total	133	100.0

The above table shows that only 16 per cent of the leaders were illiterates as against the very high percentage of illiteracy of 56 per cent among the ordinary farmers. Eighty four per cent of the leaders had received formal education ranging from 1st to 11th grades. There were no college graduates among the local leaders. As earlier mentioned, this is because of the limited educational facilities in the rural areas. Moreover, those few people from the villages who are fortunate enough to receive college education prefer urban jobs because of the lure of the convenience and amenities obtaining in the cities as against all the insanitary conditions and lack of conveniences and that of recreational, school and medical facilities in the villages. Moreover, the white collar orientation of the present Indian educational system discourages many young people from taking to farming. The admonition of "back to the villages" of many an Indian leader like Gandhi, Nehru, Vinoba Bhave and Jayaprakash Narayan has had little effect even on those with rural background who managed to get collegiate education. If the better educated people preferred to stay on their farms they will not only be model farmers but also they will add a new dimension to the emerging structure of leadership in the village communities of India. This will provide an effective instrument of social change for those engaged in the Community Development Program.

As for the levels of education of the leaders, it was found that 16 per cent of the leaders had received no formal education and 35 per cent of them had received education between 1 and 4 grades. Those with education between 5 and 7 grades were 41 per cent and those who had received education upto 8th grade and beyond were only 8 per cent. As presented earlier, the percentages of ordinary farmers who had received education for 1 to 4, 5 to 7 and 8 to 11 grades were 27, 14 and 2 per cent respectively. This shows that in comparison with the ordinary farmers a large number of rural local leaders are better educated even though not very highly educated.

One of the hypotheses in the study was that the rate of adoption of a local leader will be associated with the level of his formal education. This hypothesis was tested statistically by calculating the coefficient of correlation between these two variables. The value of "r" in this respect came to 0.21 which was significant at 5 per cent level (Hypothesis number 2). That the coefficient of correlation was not highly significant i.e. at 1 per cent level indicates that even the less educated or illiterate leaders have a relatively high adoption rate. This is probably because the disadvantages of illiteracy in case of these leaders are offset by their greater contact with the extension service and higher degree of cosmopoliteness which makes them more knowledgeable in com-

parison with the ordinary farmers.

3. Income : Income here refers to the annual gross income received by a farmer's or leader's family from all sources. The distribution of ordinary farmers according to their annual income is given in Table 5.

TABLE 5

DISTRIBUTION OF FARMERS ACCORDING TO ANNUAL INCOME

Sr. No.	Range in Rs.	Number of farmers	Percentage
1	Upto 500	43	19.2
2	501-1000	76	33.9
3	1001-1500	45	20.0
4	1501-2000	29	13.0
5	2001-2500	14	6.3
6	2501-3000	12	5.4
7	Above 3000	5	2.2
	Total	224	100.0

The average annual income of a farmer was Rs.1244.00. The table shows that 19 per cent of the farmers have very poor income i.e. upto Rs. 500. Thirty four per cent of the farmers have income between Rs. 501 and 1000. Those having income ranging from Rs. 1001 to 2000 were 33 per cent. Farmers having income between Rs. 2001 and 3000 were 12 per cent and those with income above Rs. 3000 were only 2 per cent. This shows that 53 per cent of the farmers belonged to the low income group, 45 per cent to the middle

income group and 2 per cent to the high income group.

The hypothesis that the adoption rate of farmers is associated with their annual income was tested statistically. The coefficient of correlation worked out to 0.75 which was significant at 1 per cent level. The very high correlation between these two variables indicates that the higher the income, the higher is the adoption rate of a farmer. It could also be interpreted that those farmers having a higher adoption rate tend to have higher income as a result of the recommended practices adopted by them.

On the basis of the available data, the annual income of the leaders can be compared with that of the ordinary farmers. The distribution of leaders according to the annual income is presented in Table 6.

TABLE 6

DISTRIBUTION OF LEADERS ACCORDING TO ANNUAL INCOME

Sr. No.	Range	Number of leaders	Percentage
1	Upto 500	1	0.7
2	501-1000	13	9.8
3	1001-1500	18	13.5
4	1501-2000	11	8.3
5	2001-2500	31	23.3
6	2501-3000	10	7.5
7	Above 3000	49	36.9
	Total	133	100.0

The average annual income of a leader came to Rs.3,247.

The minimum income was Rs. 500 and the maximum Rs. 16,000. The above table shows that only 1 leader had an income upto Rs. 500. Ten per cent of the leaders had income between Rs. 501 and 1000. Twenty two per cent of the leaders were in the income group of Rs. 1001 to 2000. Those who had income ranging from Rs. 2001 to 3000 were 31 per cent and those whose income exceeded Rs. 3000 were 37 per cent. Thus only 11 per cent of the leaders were in the low income group, those in the middle income group were 53 per cent and those in the high income group were 37 per cent. As mentioned earlier, the corresponding figures for the ordinary farmers were 53, 45 and 2 per cent respectively. This shows that the leaders belonged to higher income groups as compared to the ordinary farmers.

The hypothesis that the adoption rate of local leaders is associated with their annual income or vice versa was tested by finding out the coefficient of correlation. The value of "r" came to 0.54 which was significant at 1 per cent level (Hypothesis number 3). This indicates that higher the annual income higher is the adoption rate. It could also be said that higher adoption rate contributes to higher income.

4. Size of holding : The size of holding refers to the total holding/owned by a farmer or a leader. This includes the cultivable land, cultivable fallow and the uncultivable

fallow and the uncultivable waste. The distribution of farmers according to the size of holding is presented in Table 7.

TABLE 7

DISTRIBUTION OF FARMERS ACCORDING TO SIZE OF HOLDING

Sr. No.	Holding size acres	Number of farmers	Percentage
1	Upto 5 acres	73	32.6
2	6-10	71	31.7
3	11-15	44	19.6
4	16-20	23	10.3
5	21 and above	13	5.8
	Total	224	100.0

The average size of the holding was 9.0 acres. The minimum size was half an acre and the maximum was 65 acres. The above table shows that 33 per cent of the farmers had holdings upto 5 acres in size. Those who had holdingsbetween 6 and 15 acres were 51 per cent. Ten per cent of the farmers had holdings between 16 and 20 acres and only 6 per cent had holdings above 20 acres in size. This shows that 64 per cent of the farmers had small size holdings, 30 per cent had medium size holdings and only 6 per cent had large size holdings.

The hypothesis that/larger the size of holding the greater will be the adoption rate was tested by calculating the coefficient of correlation. The value of "r" was

found to be 0.55 which was found to be significant at 1 per cent level. This shows that those farmers with large size holdings tend to have greater adoption rate.

As found earlier, the leaders have relatively higher income than the ordinary farmers. Similarly, it could be expected that the leaders have large size farms than the farmers. The distribution of leaders according to their size of holding is presented in Table 8.

TABLE 8

DISTRIBUTION OF LEADERS ACCORDING TO SIZE OF HOLDING

S.No.	Size of holding acres	Number of leaders	Percentage
1	Upto 5	21	15.8
2	6-10	32	24.1
3	11-15	25	18.8
4	16-20	18	13.5
5	21 and above	37	27.8
	Total	133	100.0

The average size of the holding was 17.00 acres. The maximum size was 78 acres and the minimum 1 acre. The table shows that 16 per cent of the leaders had holdings upto 5 acres in size. Twenty four per cent of the leaders had holdings ranging from 6 to 10 acres in size. Those having holdings between 11 and 15 acres were 19 per cent and those with holdings from 16 to 20 acres were 14 per cent. The percentage of leaders whose holdings

exceeded 21 acres was 28 per cent. Thus 40 per cent of the leaders had small size holdings i.e. upto 10 acres, 32 per cent had medium size holdings i.e. between 11 and 20 acres and 28 per cent had large size holdings i.e. 21 acres and above. The corresponding figures for the farmers were 64 per cent, 30 per cent and 6 per cent. This shows that a large number of the leaders had bigger size holdings as compared to the ordinary farmers.

The hypothesis that the adoption rate of a leader is associated with the size of holding was tested statistically. The coefficient of correlation in this respect worked out to 0.48 which was significant at 1 per cent level (Hypothesis number 4). This shows that the bigger the farm size/greater is the adoption rate of a leader.

5. Family size : An attempt was made in the study to find out if there was an association between family size and the adoption rate of a farmer or a leader. The distribution of the farmers according to family size is presented in Table 9.

The average family had 7 members. The largest family had 27 members and the smallest had 1 member. The table shows that 8 per cent of the farmers had family size between 1 and 3. Forty four per cent of the farmers had a family size from 4 to 6. Twenty nine per cent of the farmers had families ranging from 7 to 10

TABLE 9

DISTRIBUTION OF FARMERS ACCORDING TO FAMILY SIZE

Sr.No.	Category	Family size	Number of farmers	Percentage
1	Small	1- 3	17	7.6
2	Medium	4- 6	98	43.7
3	Large	7-10	86	38.4
4	Very large	11 and above	23	10.3
		Total	224	100.0

in size. Those whose families exceeded 10 were 10 per cent.

The hypothesis that the greater the family size, the higher will be the adoption rate was tested by working out the coefficient of correlation. The value of "r" came to 0.21 which was significant at 5 per cent level. This shows that the greater was the number of members in a family, the higher was its adoption rate. This is because the recommended agricultural practices generally involve greater inputs of labor resources which becomes possible when there are more members in a family.

The distribution of leaders according to family size is presented in Table 10.

The average family size of a leader was 8.7. The minimum size was 1 and the maximum was 26 members. There were 6 per cent families with 1 to 3 members. The percentage of leaders having 4 to 6 members in the family was

TABLE 10

DISTRIBUTION OF LEADERS ACCORDING TO FAMILY SIZE

Sr.No.	Category	Family size	Number of leaders	Percentage
1	Small	1- 3	8	6.0
2	Medium	4- 6	39	29.3
3	Large	7-10	55	41.4
4	Very large	11 and above	31	23.3
		Total	133	100.0

29 and that with 7 to 10 members was 41 per cent. There were 23 per cent leaders whose family size exceeded 10. On comparison with the ordinary farmers, it is seen that the proportion of leaders having very large families is more by 10 per cent than in case of the ordinary farmers.

It was hypothesized that larger the family size greater would be the adoption rate. This hypothesis was tested by working out the coefficient of correlation between these two variables. The value of "r" was found to be 0.20 which was significant at 5 per cent level (Hypothesis number 5). This shows that the greater the number of members in a leader's family, the greater is likely to be the adoption rate. The explanation for this is the same as in case of the ordinary farmers. With larger number of members in the family, more labor becomes available for work on the farm. The improved practices involve greater use of labor resources which is possible if one has a larger family.

6. Caste : Traditionally, the Hindu society has been divided into a number of hierarchically arranged castes. Membership of a caste group is decided by birth. A person cannot change his caste no matter how advanced he is educationally or economically. Since the higher castes enjoyed better social status, they have been economically more sound than the depressed castes. The higher castes belong predominantly to priesthood, landholding and business vocations. The lower castes are generally artisan or provide other services to the higher castes. If at all the lower castes are engaged in cultivating land they have very small holdings or are landless laborers. Eighty five per cent of the people from the untouchable castes are landless laborers.[1]

Since the lower castes have the lowest social status and are economically backward, it was hypothesized that their adoption rate will be lower than that of the higher castes. The farmers included in the study were classified into two categories viz. advanced and less privileged. The advanced castes include Brahmin, Maratha, Prabhu, Wani, Gurav, Sutar and Mali. The less privileged castes were the untouchables (Neo Buddhists), Barber, Ramoshi, Washerman, Tamboli, Cobbler, Mang and Oilman.

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[1] Harijan Vikasacha Palla, Editorial, Sakal, Poona, Budhwar Peth, May 19, 1965, p. 2.

Out of the 224 farmers, 197 i.e. 87.9 per cent belonged to the advanced castes and 27 i.e. 12.1 per cent belonged to the less privileged castes. The mean adoption score for the advanced castes was 11.9 whereas it was only 3.4 in case of the less privileged castes. Fifty per cent of the members of the less privileged castes had an adoption score of zero whereas in case of the advanced caste the percentage of those having zero adoption score was only 8.1. This shows that there is an association between caste and the adoption rate, members of higher castes have higher adoption rates than those of the lower castes. These findings are very important from the point of view of the change agents.

When the caste composition of the leaders was studied, it was found that 93.9 per cent of the leaders belonged to the dominant caste of the area, the Marathas. Out of the remaining 6.1 per cent, 3 were Brahmins and there was 1 each from the Gurav, Mali, Cobbler, Vadar and Neo-Buddhist castes. The average adoption score for leaders from advanced castes was 26.8 whereas it was only 9 in case of leaders from less privileged castes. This shows that there is an association between the caste of a leader and his adoption rate (Hypothesis number 6).

7. Values : The farmers and leaders were classified according to their degree of traditionalism or rationality. Those whose scores on the value scale ranged from 0 to 44

were classified as traditional and those whose scores were between 45 and 88 were categorized as rational. Further, finer distinctions on these dimensions were made on the basis of the value scores. Those in the score range of 0 to 22 were termed very highly traditional, those between 23 and 33 were classified as highly traditional and those in the range of 34 to 44 were called as traditional. Similarly, those in the score range of 45 to 55 were considered rational, between 56 to 66 were termed as highly rational and those who were above 66 were classified as very highly rational.

The distribution of farmers according to value scores is presented in Table 11.

TABLE 11

DISTRIBUTION OF FARMERS ACCORDING TO THEIR VALUE SCORES

Sr.No.	Category	Range of scores	Number of farmers	Percentage
1	Very highly traditional	0-22	27	12.0
2	Highly traditional	23-33	74	33.0
3	Traditional	34-44	66	29.5
4	Rational	45-55	48	21.4
5	Highly rational	56-66	8	3.6
6	Very highly rational	67-88	1	0.5
		Total	224	100.0

The average value score for a farmer was 36.4 which showed their traditional orientation. The minimum score was 13 and the maximum was 70. The table shows that an overwhelming majority of the farmers i.e. 75 per cent were traditional in their value orientation. Only 25 per cent of them were rational in their values. Twelve per cent of the farmers were very highly traditional, 33 per cent were highly traditional and 29 per cent were traditional. Twenty one per cent of them were rational, 4 per cent were highly rational and hardly 0.5 per cent were very highly rational.

One of the important hypotheses in the study was that the rate of adoption of a farmer was associated with his value orientation, on the traditionalism rationality dimension. The more traditional a farmer/lesser the would be his adoption rate; the greater the degree of rationality, the greater would be the adoption rate. The hypothesis was tested by working out the coefficient of correlation between value scores and the adoption rate. The value of "r" came to 0.57 which was significant at 1 per cent level. This shows that the degree of value orientation on the traditionalism rationality dimension is highly associated with the adoption rate of a farmer.

The distribution of leaders according to their value scores is presented in Table 12.

The average value score of a leader was 49.3 which

TABLE 12

DISTRIBUTION OF LEADERS ACCORDING TO VALUE SCORES

Sr. No.	Category	Value score range	Number of leaders	Percentage
1	Very highly traditional	0-22	1	0.8
2	Highly traditional	23-33	9	6.8
3	Traditional	34-44	34	25.6
4	Rational	45-55	46	34.6
5	Highly rational	56-66	34	25.6
6	Very highly rational	67-88	9	6.8
		Total	133	100.0

shows that on an average the leaders were rational as compared to the ordinary farmers. The minimum value score was 21 and the maximum was 75. The above table shows that 33 per cent of the leaders were traditional whereas 67 per cent were rational in their value orientation.

When the further distinctions in traditionalism and rationality are considered only 1 leader was very highly traditional, 7 per cent of the leaders were highly traditional and 25 per cent of them were traditional. As regards rationality, 35 per cent of the leaders were rational, 26 per cent were highly rational and 7 per cent were very highly rational. When the leaders were compared with the farmers it was found that the majority of the farmers were traditional whereas the majority of the leaders were rational in their value orientation. These results have important implications for a strategy of change.

The hypothesis that the adoption rate of local leaders is associated with their value orientation on the traditionalism rationality dimension was tested statistically. The coefficient of correlation between the value scores and the adoption rate came to 0.54 which was significant at 1 per cent level (Hypothesis number 7). It is interesting to note that the value of "r" is almost the same in the nature of relationship between these two variables in case of farmers as well as the leaders. The high value of the coefficient of correlation indicates that there is a strong association between the value orientation of a leader and his adoption rate. These findings have significant implications from the point of view of those engaged in directed change.

8. Social Participation : The distribution of farmers according to their participation in various voluntary organizations is presented in Table 13.

TABLE 13

DISTRIBUTION OF FARMERS ACCORDING TO SOCIAL PARTICIPATION

Sr.No.	Category	Scores range	Number of farmers	Percentage
1	Low participation	1- 3	106	47.3
2	Moderate participation	4- 6	88	39.3
3	High participation	7- 9	23	10.3
4	Very high participation	10-12	7	3.1
		Total	224	100.0

The table shows that a majority of the farmers i.e.

47 per cent had low participation in voluntary organizations. Thirty nine per cent of the farmers had moderate participation, 10 per cent had high participation, and only 3 per cent had very high participation.

It was hypothesized that the adoption rate of a farmer is associated with his social participation. The hypothesis was tested statistically by working out the coefficient of correlation between social participation and adoption rate. The value of "r" was found to be 0.54 which was significant at 1 per cent level. This shows that the greater the social participation/higher is the adoption rate of a farmer.

The distribution of leaders according to their social participation is given in Table 14.

TABLE 14

DISTRIBUTION OF LEADERS ACCORDING TO SOCIAL PARTICIPATION

Sr. No.	Category	Score range	Number of leaders	Percentage
1	Low participation	1- 3	4	3.0
2	Moderate participation	4- 6	22	16.5
3	High participation	7- 9	53	39.9
4	Very high participation	10-12	54	40.6
		Total	133	100.0

The table shows that only 3 per cent of the leaders had low participation as against 47 per cent in case of farmers. Seventeen per cent of the leaders had moderate

participation in comparison with 39 per cent in case of ordinary farmers. Those leaders who had high participation were 40 per cent as against only 10 per cent in case of farmers. The percentage of leaders having very high participation was 41 in comparison with only 3 per cent of the farmers. This shows that the leaders were very active participants in the voluntary organizations in a village.

One of the hypotheses in the study was that the adoption rate of a local leader is associated with his social participation. When tested statistically by working out the coefficient of correlation between these two variables the hypothesis proved to be valid. The value of "r" was found to be 0.39 which was significant at 1 per cent level (Hypothesis number 8). This indicates that there is a strong association between adoption rate and social participation of a leader.

9. Cosmopoliteness : The distribution of farmers according to their cosmopoliteness or localiteness is presented in Table 15.

The table shows that a great majority of the farmers i.e. 88 per cent of them were localite in different degrees. Only 12 per cent of them were cosmopolite. Fifty five per cent of the farmers were very highly localite, 19per cent were highly localite and 13 per cent were localite. As for cosmopoliteness, 7 per cent of the farmers were

TABLE 15

DISTRIBUTION OF FARMERS ACCORDING TO COSMOPOLITENESS OR LOCALITENESS

Sr. No.	Category	Score range	Number of farmers	Percentage
1	Very highly localite	0- 3	124	55.4
2	Highly localite	4- 6	42	18.8
3	Localite	7- 9	30	13.4
4	Cosmopolite	10-12	16	7.1
5	Highly cosmopolite	13-15	11	4.9
6	Very highly cosmopolite	16-18	1	0.4
		Total	224	100.0

cosmopolite, 5 per cent were highly cosmopolite and only 1 farmer was very highly cosmopolite.

The hypothesis that the adoption rate of a farmer is associated with his degree of cosmopoliteness was put to statistical test. The coefficient of correlation between these two variables was found to be 0.49 which was significant at 1 per cent level. This shows that there is an association of a high degree between the adoption rate of a farmer and his cosmopoliteness.

The distribution of leaders according to the degree of cosmopoliteness or localiteness is presented in Table 15.

It will be seen that a large majority of the leaders i.e. 83 per cent are cosmopolite whereas only 27 per cent of them are localite. As for the degrees of localiteness

TABLE 16

DISTRIBUTION OF LEADERS ACCORDING TO COSMOPOLITENESS OR LOCALITENESS

Sr. No.	Category	Scores range	Number of leaders n=133	Percentage
1	Very highly localite	0- 3	9	6.76
2	Highly localite	4- 6	12	9.02
3	Localite	7- 9	15	11.27
4	Cosmopolite	10-12	30	22.57
5	Highly cosmopolite	13-15	34	25.57
6	Very highly cosmopolite	16-18	33	24.81
		Total	133	100.00

7 per cent of the leaders were very highly localite, 9 per cent were highly localite and 11 per cent were localite. Regarding cosmopoliteness, 23 per cent of the leaders were cosmopolite, 26 per cent were highly cosmopolite and 25 per cent were very highly cosmopolite. When it is compared that 88 per cent of the farmers were localites whereas only 27 per cent of the leaders were localites it could be said that in general the local leaders have a high degree of cosmopoliteness.

It was one of the hypotheses in the study that the adoption rate of a leader is associated with his degree of cosmopoliteness. The hypothesis when tested statistically was proved to be valid. The coefficient of correlation between the two variables came to 0.76 which was significant at 1 per cent level (Hypothesis number 9).

The very high value of "r" in this respect indicates that there is a strong association between the adoption rate of a leader and his cosmopoliteness.

10. Contact with information sources : There were 17 items for which contact was measured. The distribution of farmers according to the degree of their contacts with the information sources is presented in Table 17.

TABLE 17

DISTRIBUTION OF FARMERS ACCORDING TO THEIR CONTACT WITH THE INFORMATION SOURCES

Sr.No.	Category	Source range	Number of farmers	Percentage
1	Low contact	0- 5	74	33.0
2	Moderate contact	6-11	109	48.7
3	High contact	12-17	41	18.3
		Total	224	100.0

The table shows that 33 per cent of the farmers had low contact with the information sources, 49 per cent had moderate contact and only 18 per cent had high contact.

The hypothesis that the adoption rate of a farmer is associated with his contacts with the information sources was tested statistically. The coefficient of correlation between these two variables came to 0.69 which was significant at 1 per cent level. This indicates that there is a high association between the adoption rate of a farmer and his contacts with the information sources.

The distribution of leaders according to their contacts with the information sources is presented in Table 18.

TABLE 18

DISTRIBUTION OF LEADERS ACCORDING TO THEIR CONTACT WITH THE INFORMATION SOURCES

Sr. No.	Category	Score range	Number of leaders n=133	Percentage
1	Low contact	0- 5	5	3.7
2	Moderate contact	6-11	34	25.6
3	High contact	12-17	94	70.7
		Total	133	100.0

It will be seen that only 4 per cent of the leaders had low contact with the information sources, 26 per cent had moderate contact and 71 per cent had high contact. As earlier mentioned the percentages in case of farmers for these categories were 33, 49, and 18 respectively. This shows that whereas a large majority of the farmers had moderate to low contacts with the information sources, a great majority of the leaders had high contacts with the information sources. This proves the hypothesis that from change agents and other information media to the local leaders is a major step in the two step flow of information. Further, since the local leaders are the major recepients of information in a village it could be said that the in-

-formation flows from the change agents to the local leaders and further downward to the ordinary farmers in the village (Hypothesis number 12).

An hypothesis in the study was that the adoption rate of a leader is associated with his contacts with the information sources. The hypothesis was tested by finding out the coefficient of correlation which came to 0.64. It was found to be significant at 1 per cent level (Hypothesis number 10). This indicates that there is a strong association between the adoption rate of a local leader and his contacts with the information services.

Local Leaders as Innovators

An important hypothesis in the study was that local leaders are innovators of recommended agricultural practices. For testing this hypothesis, a frequency distribution curve was plotted on the basis of the adoption scores of farmers. The adoption of new practices over time is normally distributed.[2] Hence the normal distribution was used for categorizing the farmers. The normal distribution has two parameters, the median (Mdn) and the standard deviation (σx), which are used to divide the

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[2]P.S.Savant, A Study of Different Categories of Adopters of Recommended Farm Practices. Unpublished Masters Thesis, Poona: University of Poona, 1964, p. 49.

distribution into five areas. These five areas according to the degree of innovativeness are termed innovators, early adopters, early majority, late majority and laggards. The farmers whose adoption score was zero were analysed separately. The median of the adoption scores was 7.31 and the standard deviation was 10.6.

The area lying to the left, beyond the median plus two standard deviations (Mdn. + 2 σx) was considered as the innovators, i.e. the farmers with an adoption score of 30 or above. The second group to the left of the median between median plus two standard deviation (Mdn. + 2 σx) and median plus one standard deviation (Mdn. + σx), i.e. between 18 and 29 adoption scores was termed early adopters. The third group was also to the left of the median, between median plus one standard deviation (Mdn. + σx) and median (Mdn.) i.e. between 8 and 17 adoption scores. This group was called as the early majority.

The late majority was considered to be between median minus one standard deviation (Mdn. - σx) and the median (Mdn.) i.e. between 1 and 7 adoption scores. The last group of farmers beyond the median minus one standard deviation (Mdn. - σx) i.e. with the adoption score of zero were termed as laggards.

On the basis of this method, the distribution of farmers according to various adopter categories is given in Table 19.

TABLE 19

DISTRIBUTION OF FARMERS ACCORDING TO VARIOUS ADOPTER CATEGORIES

Sr.No.	Category	Adoption scores range	Number of farmers	Percentages
1	Innovators	30 and above	15	6.6
2	Early adopters	18-29	38	17.0
3	Early majority	8-17	56	25.0
4	Late majority	1- 7	86	38.4
5	Laggards	0	29	13.0
		Total	224	100.0

It will be seen from the above table that only 6.6 per cent of the farmers were innovators. Seventeen per cent of them were early adopters, 25 per cent were in early majority and 38.4 per cent were in the late majority category. Thirteen per cent of the farmers were laggards.

The distribution of leaders can be delineated in the same categories as above on the basis of similar ranges of adoption scores. This is presented in Table 20.

TABLE 20

DISTRIBUTION OF LEADERS ACCORDING TO VARIOUS ADOPTER CATEGORIES

Sr.No.	Category	Adoption scores range	Number of leaders	Percentages
1	Innovators	30 and above	49	36.9
2	Early adopters	18-29	35	26.3
3	Early majority	8-17	28	21.0
4	Late majority	1- 7	17	12.8
5	Laggards	0	4	3.0
		Total	133	100.0

The above table shows that 37 per cent of the leaders were innovators, 26.3 per cent were early adopters and 21 per cent were in the early majority category. The percentage of leaders in the late majority and laggards categories was 12.8 and 3 respectively. When the percentage of innovators among leaders is compared with that among the farmers it will be seen that 37 per cent of the leaders were innovators whereas only 7 per cent of the farmers were innovators. The average adoption score of a leader was 26.40 whereas it was 10.9 in case of a farmer. This shows that the adoption rate of an average leader is 2.5 times that of a farmer.

It had been hypothesized that the local leaders are innovators of recommended agricultural practices. Since only 37 per cent of the leaders were found to be innovators the hypothesis is partially rejected even though the percentage of leaders who are innovators is six times as much as that in case of the ordinary farmers (Hypothesis number 1).

The t test was used to test whether the difference between the adoption scores of leaders and farmers was significant. The value of t came to 7.61 which was found to be significant at the one per cent level of probability.

CHAPTER V

DISCUSSION

The study has shown that 67 per cent of the leaders were below the age of 45 years. This shows that the leadership is in the hands of younger people. It is a commonly held notion that because of the tradition-bound nature of the Indian rural society the leadership would be in the hands of older people. The study has revealed that the actual situation as it exists today is contrary to this notion.

This is because new patterns of social change have been institutionalized in recent years with the launching of the Community Development Program in 1952 and the democratic decentralization of power in 1963. With these programs being brought face to face with the village people, the age-old isolation of the villages has been decreasing at a fast rate. With this, a need arose for the systemic linkage of the social system of the villages with that of the change agents. This required a new kind of leadership. A leadership that was equipped with formal education being imparted in the villages only in the recent decades, a leadership that was knowledgeable about

the objectives of the Community Development Program and the democratic decentralization of power, a leadership that trusted the new government and did not fear it, a leadership that had some experience in the voluntary organizations started in the villages only in recent years and a leadership that had caught on with the spirit of rising expectations that arose with the attainment of independence, was better equipped for the new tasks. The older people grew up at a time when there were no schooling facilities in the villages, when the government was mainly concerned with the collection of the land revenue, when the government was that of a foreign rule and was something to be feared since the idea of a welfare state was lacking. Also, at that time very few newspapers reached the villages and radios were practically non-existent in the villages. This left the villages by and large out of the mainstreams of new thoughts and ideas which began to sweep India even during the British times. Because of all these factors, the older people in the villages were not equipped to handle the new tasks that came with the institution of the popular government in India.

In the study, it was found that the age of a leader or that of an ordinary farmer had no association with their adoption rate. This is in line with the findings of several other research workers. This also shows that the older leaders have been able to keep pace with the younger

leaders, as far as their adoption behavior is concerned. This must be because of their longer experience in farming and contact with the Extension service for a greater number of years.

It was found that 56 per cent of the farmers were illiterate as against only 16 per cent of illiterates in case of the leaders. Also, the comparison of percentages for school grades completed in case of farmers and leaders indicates that a great majority of the leaders had much better education than the ordinary farmers. This is because of the fact that having some formal education where a large majority of the people are illiterate makes it easier for a person with such education to be a leader.

It was seen that there is a strong association between the formal education received by a leader or a farmer and his adoption rate. This has significant implications for a strategy of change. This shows the need for stepping up the literacy drives in the rural areas of India and for expanding the school facilities. Also, the enforcement of the compulsory education Act which requires enrolment of all children between the ages of 6 and 14 needs to be done with greater vigilance. It was found during the socio-economic study of Natambi village which was carried out in the same area where the present study was conducted, that in spite of the compulsory education Act 50 per cent of the children of school going age do not attend the

school.[1]

When the annual income of the leaders was compared with that of farmers it was found that a large majority of the leaders were from higher income groups as compared with the farmers. This indicates that only those who were from higher income groups were able to take up leadership in the villages. This is so because a higher income gives a higher status to a person which makes it easier for him to be a leader. Also, with a better income a person is likely to be free from financial worries and can give some of his time to community work.

It was seen that the annual income of a leader or a farmer and his adoption rate were strongly associated. This shows that those with higher annual income adopt improved practices to a greater degree. It could also be said that those leaders or farmers who have a higher annual income have it because they had adopted a greater number of recommended practices for a longer number of years.

In comparison with the farmers, a large number of leaders had bigger size holdings. This and the fact that the leaders were from higher income group, shows that the leaders had a higher economic status than that of the farmers. Also, since they were better educated and assumed positions of leadership it could be said that the leaders

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[1]Professor of Agricultural Extension, Natambi: A Socio-Economic Study, Poona : College of Agriculture, 1965, p. 54.

had a higher social status. On the basis of the economic and social aspects it could be said that the leaders enjoy a high socio-economic status and form a part of the rural elite. It is one of the findings of sociologists that people from higher strata of the society set the pace for the lower strata in terms of patterns of behavior where open classes prevail. In this light, the place of rural local leaders in the agricultural development of India is indisputable. The more enlightened are the rural local leaders, the sooner they break with the apathetic pattern of the past, the more rapidly they develop self help and initiative rather than looking for paternalistic help from government, the quicker they adopt recommended practices and sooner they contribute to greater increase in agricultural production, the more rapidly will the force of social change be set in motion, so as to change the traditional hoe agricultural complex of India.

It was observed during the study that larger the size of holding of a leader or a farmer the greater is his adoption rate. This shows that those farmers or leaders who are owners of larger holdings are in a better position to adopt recommended practices. This is because a bigger farmer may have greater willingness to take risk because of his relatively sound economic condition. Also, with a larger holding a farmer can have enough area to experiment with new practices. Moreover, the comparatively sound economic position of a bigger holder makes it possible

for him to invest in fertilizers, seeds, fungicides, insecticides and in having irrigation facilities which are a part of improved technique of crop production.

The fact that owners of larger holdings have greater adoption rate indicates the need for still faster industrialization in India so as to take the pressure off the land. With this, the size of holdings would increase provided that the population growth is kept within reasonable limits. With increase in the size of holdings the adoption of recommended practices will take place at an accelerated rate.

The comparison of family size in case of leaders and the farmers indicates that a larger number of leaders had very large families as compared to the ordinary farmers. This may be due to the fact that the leaders have larger holdings which require greater labor resources. This entails the leaders having extended families by virtue of the economic necessity.

It was found that the larger the size of family of a leader or a farmer, the greater was his adoption rate. This may be due to the fact that with a larger family greater inputs of labor are possible which are necessary for the recommended practices. However, as mechanization of Indian agriculture progresses a larger family may not necessarily be an advantage in the adoption of recommended agricultural practices.

It was observed that the caste of a farmer or a leader was associated with his adoption rate. The advanced castes had a higher adoption rate as compared to the less privileged castes. The advanced castes include Brahmin, Maratha, Jain, Mali, Goldsmith and Carpenter. The backward castes are Neo Buddhists, Mang, Barber, Rope maker, Ramoshi and Oilman. The advanced castes generally have larger holdings as compared to the less privileged castes. Also, their annual income is more than the backward castes. This makes it possible for the advanced castes to adopt a greater number of recommended practices for a longer time. Moreover, farming is the main occupation for the advanced castes whereas the backward castes are generally artisans or provide other services to the village people. Hence, agriculture is only a secondary occupation for them. Also, since the less privileged castes do not form a part of the dominant caste in the village they are likely to be neglected by the change agents. The study shows that the change agents need to guard against such discrimination and provide special attention to the less privileged castes in view of their lower adoption rate.

Regarding the value orientation of the farmers on the traditionalism-rationality dimension, a large majority of the farmers were found to be traditional. As compared to this, a large majority of the leaders were rational in their value orientation. It was observed that the more

traditional was a farmer or a leader the lesser was his adoption rate; the greater the rationality the greater was the adoption rate.

Larson states that, "the core of a cultural system is its values", which indicates the significant role values play in determining the nature of culture.[2] As said by K. William Kapp and Lore L. Kapp, culture refers to "those general uniformities of behavior which find an expression in an essential core of traditional (i.e. historically derived and selected) ideas, beliefs, concepts and values which are acquired in the course of a prolonged process of enculturation and are transmitted by symbols."[3] This definition also brings out the central role played by values in a cultural system. As stated by W.A.Anderson, "ideas that foster values rule" which shows the crucial role values play in governing behavior.[4]

As Max Weber has shown in his work Protestent Ethic and the Rise of Capitalism, it was the cultural milieu prevalent in Europe at that period of history that gave

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[2] Olaf F. Larson, "How Does our Rural Cultural Heritage Aid or Hinder Solutions to Rural Life Problems," in The New Rural Society : Prices and Rewards of Progress, Proceedings of the American Country Life Association, Chicago: Prairie Farmer Publishing Company, 1957, p. 13.

[3] K. William Kapp and Lore L. Kapp, "Hindu Culture and Economic Development" in Hindu Culture, Economic Development and Economic Planning in India, Bombay : Asia Publishing House, 1963, p. 7.

[4] W.A.Anderson, "Oriental Values and Technical Cooperation", Rural Sociology, 21:1, March 1956, p. 65.

rise to capitalism. The protestant ethic of hard work and thrift and the belief that in hard work was the salvation of man led to the rise of capitalism. Similarly it can be said that the problem of diffusion of innovations in India is as much social and cultural as it is economic. The values held by a large majority of farmers in India assume added significance in governing their behavior when the closed nature of the Indian social system is considered. As said by K. William and Lore L. Kapp, "Group membership shapes the aspirations and desires of the great majority of the people of India and these group aspirations are in turn moulded by the traditional patterns of behavior prescribed for the various status groups of Hindu Society. Hence the premium on tradition-determined action rather than voluntaristic individual action. Thus tradition is permitted to play a much more important role in India than in the Western Societies."[5]

Anderson states, "If I were to characterize by a single phrase one important force that, with few exceptions, controls the activities of the village farmer in the Orient, I would say: "It is the strong hold that values emanating from the past have on him. He lives in a world that has to be sufficient unto itself, and from it came values he

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[5]K. William Kapp and Lore L. Kapp, op.cit., p. 10.

now thinks are sufficient for himself."[6]

The impact of group values on individual behavior is illustrated by Samuel A. Stouffer in the following example: "In a few urban slum areas it was found that almost all boys were juvenile delinquents, the codes or values to which they conformed and which were sanctioned by their adult role models were at variance with the larger society. The better integrated a boy was with his gang and the more isolated he was from the larger society the less conflict of values he experienced....Treatment of gang members as individual behavior problems was certain to be ineffective; what was required was a restructuring of group values, particularly by organized cooperation of adult role models..."[7] Based on this observation, and based upon the findings of this study it could be said that the values of a large majority of farmers in India and of the reference groups to which they belong are such that there is more a tendency to stick to what was traditional rather than experiment with new ways provided by modern science.

Consulting a priest to find out an auspicious day for planting crops, the belief that visitation by crop pests and diseases was part of a Divine plan, for example, the

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[6] Anderson, op.cit. (1956), p. 67.

[7] Samuel A. Stouffer, "Sociology and the Strategy of Social Science", in Social Research to Test Ideas : Selected Writings of Samuel A. Stouffer, New York : Free Press of Glencoe, 1962, p. 6.

attack by locusts in Rajasthan was looked to as a visit by an army of God Indra rather than an unwelcome attack by a crop destroying pest,which made the work of plant protection officers difficult, or the belief in many areas of Maharashtra that the black smut of Jowar is a result of touching the ears of oxen while sowing rather than a result of a seed borne fungus all go to show that there are cosmological and mythical explanations in the minds of many an Indian farmer for what the scientists have shown as biological and natural causes.

These cosmological and mythical explanations prevail not only in the area of agriculture but also in other areas of life. For example, consulting a Bhagat or a priest to cure illnesses, making pledges to Gods and Goddesses in case of epidemics like small pox and cholera, the belief that personality disorders are a result of possession by evil spirits and ghosts, all go to show that there is a pattern of resorting to non-rational explanations for the problems and difficulties of every day life.

To use Sorokin's typology, the Indian culture is Ideational i.e. it places emphasis on the "Super-sensory, Super-rational God", and is characterised by beliefs in which, "the Sensory reality and value (are) either a mere illusion or the least important, least real, sometimes even negative reality and value..."[8] In contrast, the western

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[8] Charles P. Loomis, "Social Change and Social Systems" in Sociological Theory, Values and Socio-cultural Change : Essays in Honor of Pitirim A. Sorokin, Edward A. Tiryakian (Ed.), New York : The Free Press of Glencoe, 1963, p. 212.

societies are sensate, emphasizing that "true reality and true value is sensory.... beyond the reality and value perceived by our sense organs there is no other reality or no value."[9]

The consideration that seeds need to be planted when there are optimum moisture conditions prevalent in the soil, hybrid seeds give bountiful returns, fertilizers need to be added to prevent the crops from going hungry, plant diseases and pests can be controlled by appropriate measures are a part of a rational way of looking at life. Also, vaccination against small pox and cholera, consulting a medical doctor the first thing in an illness, the belief in the germ theory, deficiency theories and psychosomatic theories about illnesses are part of a behavior pattern which is rational. However, to a great extent this rational pattern of behavior conflicts with the existing pattern of traditional non-rational behavior in rural India. This is where the major explanation for the slow progress of agricultural and economic development, public health drives and educational improvement in rural India lies. As said by the Kapps, "so far India's development efforts have met with only limited success mainly because ancient traditions still pervade virtually every phase of Hindu social organization."[10] In the light of this, what is

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[9] Loc. cit.

[10] Kapp, op.cit., p. 40.

needed is a restructuring of values so that the conflict between the traditional and rational value orientations will be lessened and there would be a new, largely rational pattern as in the developed societies of the world.

Fortunately, as this study has shown, there is a class of rural elite, the rural local leaders who have been breaking with the past. The explanation for their relatively higher degree of innovativeness and greater adoption rate for the improved agricultural practices lies in their having more education, greater contacts with the information sources, more active participation in voluntary organizations and their cosmopoliteness which all together have restructured their values and made them adopt a more rational pattern of values. No doubt, these leaders are an avant-garde which is setting up more functional role models and has been setting the stage for the reordering of values which would be conducive to the agricultural, social and economic development of India.

This shows the crucial role that the rural local leaders are playing in setting loose the forces of desirable social change in India. In view of this, the change agents need to pay particular attention to the leaders for using them as instruments of directed change. For this purpose, more and more methods and result demonstrations could be conducted on the farms of these leaders, an exhaustive listing of these leaders can be made and in-

formation literature can be mailed to them periodically, the leaders can be urged and trained to participate more effectively in such organizations as the Farmers' Unions, Cooperative Societies and Gram Panchayats. Also, training camps in improved techniques of production and in the philosophy of Community Development may be conducted for the leaders and the agricultural production campaigns, public health and literacy drives can be spearheaded by bringing about more active participation by the leaders at the village level. Moreover, the leaders can be made more knowledgeable by chalking out a continuing education program by the various schools and colleges as in the U.S. and periodical visits and trips by leaders should be arranged to agricultural experiment stations, colleges, schools and the fields of progressive cultivators to bring them upto-date on the latest findings of research. In addition, the leaders could be trained in using the various extension teaching methods like flannelgraphs, charts, posters, exhibits, flash cards, exhibitions, movies, method and result demonstrations so that their services could be utilized as supplementary and complementary to the extension education imparted by the change agents.

In the light of the above discussion, the consideration that the Government of Maharashtra is at present giving to appointing the rural local leaders as honorary agents at the village level is a most welcome proposal.[11]

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[11] M.B.Ghatge, Director of Agriculture, Maharashtra State, "Address to the Agricultural Research Conference", May, 1965 (unpublished).

This will institutionalize a new category of change agents at the village level so that their services can be utilized in a more organized and systematic manner. Also, this will make the leaders view their role expectations in a new light so that the tempo of directed change in the villages of India could be accelerated to a great extent.

It was observed that a large majority of the farmers had low participation in voluntary organizations and a majority of the leaders had high social participation. It was seen that the adoption rate of a farmer or a leader was associated with his social participation. This shows that there is a need for developing the voluntary organizations in the villages and to see that they function properly. It is only in recent years that voluntary organizations are being established in the villages under the guidance of the change agents. However, the voluntary organizations have not yet taken deep roots as can be seen from the low participation of farmers in these organizations. It is in these organizations that an exchange of ideas takes place and a ground is prepared for the adoption of recommended practices. From this view point, there is a need for fostering these organizations especially those like Farmers Unions and Co-operative Societies which are directly concerned with the improvement in agricultural techniques. Also, a proper leadership needs to be trained in democratic procedures and in the effective functioning

of organizations so that these organizations will be working with vigor.

It was found that a great majority of the farmers were localite. As against this a great majority of the leaders were cosmopolite. It was observed that there was a strong association between the degree of cosmopoliteness of a farmer or a leader and his adoption rate. The greater was the degree of cosmopoliteness the greater was the adoption rate. Since cosmopoliteness plays such an important role in increasing the adoption rate, measures need to be taken to increase the cosmopoliteness of the farmers. For this purpose it is necessary that more and more newspapers reach the villages, cheaper radio sets are manufactured which will be within the reach of the common farmer, leaflets and bulletins are sent to them periodically informing them of the latest developments in agriculture and field trips to agricultural experiment stations, schools, colleges and to fields of progressive farmers are arranged to widen their horizons. All these things will contribute to making the farmers not only more cosmopolite but also rational so that the adoption of recommended practices is facilitated.

It was observed that 82 per cent of the farmers had low to moderate contacts with the information sources. As compared to this 71 per cent of the leaders had high contacts with the information sources. It was seen that

there was an association between the adoption rate of a farmer or a leader and his degree of contacts with the information sources. This shows that there is a need for making the activities of the extension service more extensive as well as intensive. The variety of extension teaching methods like individual contact, result and method demonstrations, flannelgraphs, posters, charts, exhibits, radio, movies, leaflets, bulletins, meetings, exhibitions need to be used on a larger scale.

It had been hypothesized that the local leaders will be the innovators of improved agricultural practices. This hypothesis has been partially rejected as only 37 per cent of the leaders were found to be innovators. However, it cannot be ignored that a relatively high percentage of leaders were innovators as compared to the ordinary farmers, since only 7 per cent of the farmers were innovators. Even then, the performance of the rural elite, the rural local leaders whom one would expect to be far ahead of the common farmers in regard to adoption of improved practices is not as good as was expected. This shows that the extension service has not paid particular attention to the rural local leaders by way of seeing that a greater number of them would be adopters of recommended practices to a higher degree. If a greater number of leaders are so educated that they would adopt a greater number of practices earlier, they would set an example

for other farmers. Also they will be important foci of result and method demonstrations in recommended practices.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Agriculture is the major industry in India. In spite of its importance in the national economy, the actual state of agriculture is deplorable. Yields are among the lowest in the world, one of the important reasons being the traditional outdated method of farming.

As diffusion research has shown, adoption of innovations by the farmers is not entirely motivated by economic factors. There are social and cultural dimensions to this very vital problem which if tackled properly could revolutionize the whole pattern of Indian agriculture.

Max Weber has claimed that a major factor responsible for the rise of capitalism and rational organization in Europe and America was the cultural milieu prevalent especially in certain ascetic protestant groups at that time. Perhaps, the tradition-bound social and cultural milieu of the Indian society is such that the modern agricultural innovations and national value orientation do not entirely fit into the whole cultural pattern. Even if this is so, the local leaders in rural India have been breaking with the past and adopting new values and new modes of behavior.

The present study is an analysis of the adoption behavior of rural local leaders and the association of certain social and cultural factors with it. In addition, the adoption behavior of ordinary farmers was also studied to get a comparative picture.

Since the rural local leaders are one of the first people in a community to come in contact with the change agents, it was considered important to find out if these leaders were innovators of recommended agricultural practices, and what role they were playing in the diffusion of innovations. Further, an effort was made to find out if there was a two step flow of information, the first step, in general, being from the change agents to the local leaders and the second step being from the leaders to the ordinary farmers.

The hypotheses that were tested are as follows :-

Rural local leaders are innovators of recommended agricultural practices. They are among the first people in a community to adopt improved practices.

The rate of adoption of practices of local leaders is associated with their age, education, caste, income, size of holding, degree of contacts with the information sources, value orientation, social participation and cosmopoliteness.

There is in general a two step flow of information, the first step being from the change agents to the rural

local leaders and the second being from the local leaders to the ordinary farmers in the village.

To test the above hypotheses, the study was carried out in the development block of the Extension Wing of the College of Agriculture, Poona. The block had its inception in 1955. Ever since, considerable extension work has been in progress in this area.

For selecting the villages, a list of all the 107 villages in the development block was obtained. Out of these, twenty-two villages were selected where considerable extension work was in progress. The leaders were selected on the basis of sociometric choices made by local informants. The ordinary farmers were selected randomly by regular interval method from an alphabetically arranged list.

A schedule was prepared to serve as an instrument to be used in while interviewing the leaders as well as the ordinary farmers. There were 16 items in the schedule. The first nine items pertained to the face data regarding the person interviewed. This covered questions regarding age, caste, education, family structure, size of holding, and annual income. The tenth item dealt with the adoption behavior. In this ten practices recommended by the Extension Wing and the National Extension Service were listed. Questions were put to find out if a particular practice was applicable to a farmer or not, whether he was

using it, and if yes, for how long a period of time.

Item numbers 11 and 12 were put to find out the information sources of the farmer. Item number 13 was included to ascertain the values of the farmers and the leaders regarding various aspects of life. In this were included statements which covered values regarding (i) caste system, (ii) supernatural power, (iii) agricultural magic, (iv) tradition, (v) joint family system, (vi) family planning, (vii) faith in the extension service, (viii) risk taking, (ix) education and (x) contentment with the existing situation. These statements were put on a five point scale.

Item number 14 sought to find out the extent of social participation. Item number 15 pertained to determining whether a person was cosmopolite or localite from his responses to 18 questions.

With the help of the above interview schedule, 133 local leaders and 224 ordinary farmers were interviewed. The data obtained were tabulated and processed to determine the Pearsonian Product Moment Coefficient of Correlation between the independent variables and the dependent variable viz., adoption.

The average age of all the ordinary farmers included in the study was 43 years. The maximum age was 85 years while the minimum was 18 years. The coefficient of correlation between the age of the farmers and the adoption rate was found to be nonsignificant at the 5 per cent level. The

average age of all the leaders was 42 years. The maximum age of a leader was 75 years and the minimum 25 years. Sixty seven per cent of the leaders were below the age of 45 years. This shows that the leadership is in the hands of younger people. The relationship as reflected by the Pearsonian Product Moment Coefficient of Correlation between age of the local leader and adoption rate was nonsignificant at the 5 per cent level.

A large number of the ordinary farmers i.e. 56 per cent were illiterate. For those who had received formal education the average education was 4.5 grades. It was found that even for a good number of farmers who had received some formal education the level of education was low. It was observed that there was a strong association between the level of education and adoption rate. The percentage of literacy among the leaders was found to be 84. In comparison with the ordinary farmers the local leaders were found to be better though not very highly educated. When tested statistically, it was found that there was a positive correlation between the education level of a leader and his adoption rate. However, the degree of association was not very high. As indicated below this may be due to the fact that the disadvantages of illiteracy in the case of leaders are offset by the advantages of greater cosmopoliteness and higher degree of contact with the extension service.

The average annual income of an ordinary farmer was

Rs. 1244.00. Fifty three per cent of the farmers were classified as belonging to the low income groups, 45 per cent to the middle income group and only 2 per cent to the high income group. It was observed that there was a strong positive association between the annual income of a farmer and his adoption rate.

The average annual income of a leader came to Rs.3,247 which is almost three times as much as the ordinary farmers. Only 11 per cent of the leaders were in the low income group, 53 per cent were in the middle income group and 37 per cent belonged to the high income group. It was found that there was an association between the annual income of a leader and his adoption rate.

The average size of holding of an ordinary farmer was 9.0 acres. Sixty four per cent of the farmers were classified as having small size holdings, 30 per cent with medium size of holdings and only 6 per cent with large size holdings. It was observed that there was a significant positive correlation between the size of holding and the adoption rate of a farmer.

The average size of holding of a leader was 17 acres. Forty per cent of the leaders had small size holdings, 32 per cent had medium size holdings and 22 per cent had large size holdings. This shows that a large number of the leaders had bigger holdings than ordinary farmers. The hypothesis stating that the adoption rate of a leader is

associated with the size of holding was validated through the statistical procedures used.

The average family of an ordinary farmer had 7 members. Eight per cent of the farmers had small size families, 44 per cent had medium size families, 38 per cent had large size families and 10 per cent had very large size families. The hypothesis that the greater the family size, the higher will be the adoption rate was observed to be significant when tested statistically.

The average family size of a leader was 8.7. Six per cent of the families were classified as falling in the small size group, 29 in the medium size group and 41 in the large size group. There were 23 per cent leaders who had very large size families. The hypothesis that the greater the family the higher would be the adoption rate was found to be valid as determined by the coefficient of correlation.

Eightyeight per cent of the farmers belonged to the advanced castes and 12 per cent belonged to the less privileged castes. It was found that there was an association between caste and adoption rate; a member of the advanced or higher ranking caste had higher adoption rate as compared to one from the less privileged or lower ranking castes. Ninetyfour per cent of the leaders belonged to the advanced castes. They had on an average three times as high an adoption rate as the leaders from less privileged castes. The relationship between the caste or rank of a leader

and his adoption rate is clearly established.

In regard to the value orientation of the ordinary farmers, an overwhelming majority of the farmers, i.e. 75 per cent of the farmers were classified as traditional. The average value score of an ordinary farmer was 36.4. The average value score of a leader was 49.3 which shows that on an average the leaders were more rational than the ordinary farmers. Sixtyseven per cent of the leaders were classified as rational in their value orientation. The hypothesis that the adoption rate of an ordinary farmer or a local leader is associated with his value orientation was found to be valid when tested statistically.

A majority of the ordinary farmers, i.e. 47 per cent, had low participation rates in voluntary organizations. As against this, only 3 per cent of the leaders had low participation rates. Eighty one per cent of the leaders had high participation in voluntary organizations, as against 13 per cent in the case of ordinary farmers. It was found that the adoption rate of a farmer or a leader was associated positively with his extent of social participation in the voluntary organizations.

As regards cosmopoliteness or localiteness, a great majority of the ordinary farmers, 88 per cent of them, were classified as localites. As against this 83 per cent of the leaders were cosmopolite. It was observed that there was a positive association between the adoption rate of a

farmer or a leader and his degree of cosmopoliteness.

There were 17 items on the basis of which contact with information sources was measured. Only 18 per cent of the farmers had high contact with the information sources. In comparison with this, 71 per cent of the leaders had high contact with the information sources. This shows that from change agents to the local leaders is a major step in the two step flow of information. The hypothesis stating that the adoption rate of a farmer or a leader is positively associated with his contacts with the information sources was found to be valid when tested statistically.

An important hypothesis in the study states that local leaders are innovators when it comes to adopting recommended agricultural practices. It was found that 37 per cent of the leaders were innovators as compared to 7 per cent in the case of ordinary farmers. Therefore, the hypothesis is partially rejected even though the percentage of leaders who are innovators is five times as great as that in case of the ordinary farmers.

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APPENDIX

INTERVIEW SCHEDULE

CERTAIN SOCIAL FACTORS ASSOCIATED WITH THE ADOPTION OF RECOMMENDED AGRICULTURAL PRACTICES BY RURAL LOCAL LEADERS AND ORDINARY FARMERS IN INDIA

1. Name of the ordinary farmer or leader _____

2. Village _____

3. Taluka _____

4. Age _____

5. Education _____

6. Caste _____

7. Number of members in the family.

	Relation with the head of the family	Age	Education
Adults			
1. Males			
2. Females			
Minors			
1. Males			
2. Females			

8. Total area of cultivated land _____acres

   (a) Cropped area: Irrigated _____acres
   Dry _____acres
   (b) Cultivable Waste _____acres
   (c) Uncultivable waste _____acres

9. Total annual income Rs. _____

(a) From agriculture Rs. _____
(b) From secondary occupations Rs. _____

10. Information regarding recommended practices

Recommended Practice	Whether applicable		Whether adopted		If adopted since when
	Yes	No	Yes	No	
1. Use of improved varieties of paddy					
2. Use of improved varieties of Jowar					
3. Green Manuring					
4. Use of fertilizers					
5. Use of insecticides and fungicides					
6. Use of dusters and sprayers					
7. Sulphur treatment of Jowar seed					
8. Use of Japanese Method of paddy cultivation					
9. Keeping improved breeds of poultry					
10. Side grafting of mangoes					

11. Do you receive information about recommended agricultural practices from the following sources?

	Yes	No
1. Block Development Officer	[ ]	[ ]
2. Extension Officer Agriculture	[ ]	[ ]
3. Gram Sevak (village level worker)	[ ]	[ ]
4. Professor of Agricultural Extension	[ ]	[ ]
5. Additional District Agricultural Officer	[ ]	[ ]
6. Agricultural Assistant	[ ]	[ ]
7. Local Leaders	[ ]	[ ]
8. Friends, neighbors and relatives	[ ]	[ ]

12. Do you receive information from the following channels?

	Yes	No
1. Meetings	[ ]	[ ]
2. Demonstrations	[ ]	[ ]
3. Movies	[ ]	[ ]
4. Radio	[ ]	[ ]
5. Contact with Gramsevak or other Extension agents	[ ]	[ ]
6. Leaflets, bulletins	[ ]	[ ]
7. Magazines	[ ]	[ ]
8. News papers	[ ]	[ ]
9. Exhibitions	[ ]	[ ]

13. For tapping values :

What are your opinions regarding the following statements? (These were on a five point scale viz. (i) strongly agree, (ii) agree, (iii) uncertain, (iv) disagree, (v) strongly disagree)

1. Regarding caste system:
   - (i) It is necessary to see the blood relations while arranging marriages.
   - (ii) It will not mind accepting tea from an untouchable.
   - (iii) I would vote for the member of my own caste even if he is not competent.
   - (iv) It is necessary to give concessions to the untouchables in education and for jobs.

2. Regarding illness:
   - (i) Very often some illnesses are caused by black magic and could be cured by <u>bhagat</u> only.
   - (ii) It is necessary to make a pledge to Gods in the case of an illness.

3. Regarding agricultural magic:
   - (i) If a cow suddenly stops giving milk it is due to evil eye.
   - (ii) I always make it a point to start my sowing on an auspicious day.

4. Regarding traditional ways :
   - (i) On the whole the old ways of doing things are the best.
   - (ii) I always like to do things the way my fore-fathers taught me to do.

5. Regarding joint family:
   - (i) It is good for brothers to live together even if there are quarrels.

(ii) In a joint family all the powers should be in the hands of the head of the household.

6. Regarding family planning :
   (i) India's economic progress is hampered by the rapidly increasing population.
   (ii) It is good to use contraceptives to regulate the size of the family.

7. Regarding the faith in the extension service:
   (i) I like people who are always willing to seek advice from agricultural officers on their farm problems.
   (ii) I believe that number of things which the Gramsevak recommends do not always work out well for the farmers.

8. Regarding taking risks :
   (i) I would not like to be the first farmer in our village to try new seed on my farm.
   (ii) I do not like farmers taking risks in borrowing money from cooperative societies to buy new fertilizer or new seed.

9. Regarding education :
   (i) At the best a farmer needs to learn only how to read and write.
   (ii) If the boys and girls are given higher education, they often lose respect for the parents.

10. Regarding contement:
   (i) A person should always be content with his lot.

14. Do you participate in the following activities?

	Yes	No
1. Grampanchayat member	[ ]	[ ]
2. Cooperative Society member	[ ]	[ ]
3. Arranging village fair	[ ]	[ ]
4. National festivals	[ ]	[ ]
5. Bhajani Mandal	[ ]	[ ]
6. Farmers' Union	[ ]	[ ]
7. School committee	[ ]	[ ]
8. Political party membership	[ ]	[ ]
9. Agricultural Exhibition	[ ]	[ ]
10. Judicial Council	[ ]	[ ]
11. Shramadan	[ ]	[ ]
12. Milk Collection Cooperative	[ ]	[ ]

15. To Measure Cosmopoliteness :

	Yes	No
1. More than one visit to Poona	[ ]	[ ]
2. More than one visit to Taluka headquarters per week	[ ]	[ ]
3. Do you personally know the Block Development Officer?	[ ]	[ ]
4. Do you personally know the Extension Officer Agriculture?	[ ]	[ ]
5. Do you personally know the Professor of Agricultural Extension?	[ ]	[ ]
6. Do you personally know the Additional District Agricultural Officer?	[ ]	[ ]
7. Do you meet the Gramsevak once or more than once per week?	[ ]	[ ]
8. Do you personally know the office bearers of the Taluka Panchayat Samiti?	[ ]	[ ]
9. Do you personally know the office bearers of the Zilla Parishad?	[ ]	[ ]
10. Have you visited the College of Agriculture, Poona?	[ ]	[ ]
11. Have you visited the farms of the progressive farmers outside the village?	[ ]	[ ]
12. Have you participated in an agricultural exhibition?	[ ]	[ ]
13. Do you read newspapers daily?	[ ]	[ ]
14. Do you read agricultural magazines?	[ ]	[ ]
15. Do you listen to radio farm forums?	[ ]	[ ]
16. Have you worked as a demonstration farmer?	[ ]	[ ]
17. Have you participated in crop competitions?	[ ]	[ ]
18. Do the fertilizer and insecticides companies' agents see you when in the village?	[ ]	[ ]

THE "VALUE SCALE"

Item number 13 in the interview schedule, the 'value scale', was designed to ascertain the value orientation of an ordinary farmer or a leader. There were 21 statements in the scale, responses to which helped to determine whether an individual was traditional or rational.

Each statement ascertained the value orientation on a continuum with five points viz., (i) strongly agree, (ii) agree, (iii) uncertain, (iv) disagree and (v) strongly disagree. Strong agreement with certain statements indicated maximum traditionalism and strong agreement with some of them showed maximum rationality.

An individual's response to each statement on a particular point of the continuum was weighed. For example, on certain statements where strong agreement with a statement indicated maximum traditionalism the weightage was as below: 0 - strongly agree; 1 - agree; 2 - uncertain; 3 - disagree; 4 - strongly disagree. The weightage given was reversed where strong agreement with certain statements indicated maximum rationality.

In order to enable one to obtain the total score for an individual, the Likert method or the method of

summated ratings was followed.[1] Thus, by multiplying the weights assigned to the two ends of the five point continuum with 21 one gets the range of 0 to 88. The middle point of this range i.e. 44 was taken as the dividing line between traditionalism and rationality.

Reliability of the Scale

To test the realiability of the scale, the "split-half method"[2] was used. For this purpose, 100 schedules selected randomly from the total sample of the ordinary farmers were analyzed further. The total number of responses to each point on the continuum for all the statements of the scale was obtained.

So that the scale could be split into two equal halves, the number of individuals who had responded as "uncertain" were divided into two equal halves and added to the totals on either side. Thus, the scale was reduced to a four point scale.

Correlation was found out for the two halves of the test which worked out to 0.90. This value was corrected by the Spearman-Brown Prophecy Formuba to obtain the reliability of the scale.[3] The reliability of coefficient that was worked out by this method came to 0.95.

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[1] Allen L. Edwards, Techniques of Attitude Scale Construction, New York : Appleton-Century-Crofts, Inc., 1957, pp. 151-152.

[2] H.E.Garrett, Statistics in Psychology and Education, Bombay: Allied Pacific Ltd., 1961, p. 339.

[3] Loc. cit.

Adoption Scores

Adoption index represents the total number of years the different practices included in the study were being used by a farmer or a leader. There were 10 practices listed in the Schedule. Questions were asked to find out for how many years each practice was being used. The adoption index represented the total number of years these different practices were being used. If a practice was not applicable to a farmer the average of the number of years all other practices were being used was added to the adoption index.

TABLE INDICATING CORRELATION COEFFICIENTS BETWEEN THE INDEPENDENT VARIABLES AND THE DEPENDENT VARIABLE VIZ., ADOPTION

Sr.No.	Independent Variable	Correlation Coefficient	
		Ordinary Farmers	Leaders
1	Age	0.07	0.08
2	Education	0.33 **	0.21 *
3	Income	0.75 **	0.54 **
4	Size of holding	0.55 **	0.48 **
5	Family Size	0.21 *	0.20 *
6	Values	0.57 **	0.54 **
7	Social Participation	0.54 **	0.39 **
8	Cosmopoliteness	0.49 **	0.76 **
9	Contact with Information Sources	0.69 **	0.64 **

** Significant at 1 per cent level.

* Significant at 5 per cent level.