

A STUDY OF THE COMMUNICATION BEHAVIOUR OF AGRICULTURAL EXTENSION PERSONNEL



By

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THESIS

**Submitted in partial fulfilment of the
requirement for the degree
MASTER OF SCIENCE IN AGRICULTURE
(Agricultural Extension)**

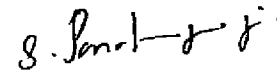
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DECLARATION

I hereby declare that this thesis entitled "A Study of the Communication Behaviour of Agricultural Extension Personnel" is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award to me of any degree, diploma, associateship, fellowship or other similar title, of any University or Society.

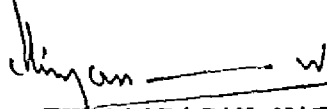


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CERTIFICATE

Certified that this thesis, entitled "A Study of the Communication Behaviour of Agricultural Extension Personnel" is a record of research work done independently by Shri. S. PANDYARAJ, under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship, or associateship to him.

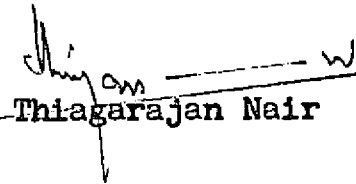


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INTRODUCTION

INTRODUCTION

The entire human population for its livelihood and the industries for its raw materials depend on agriculture. Like all developing countries, the economy of our nation also depends on agriculture. Due to the dependence of major section of our population on agriculture, we cannot even dream of economic development without improvements in agriculture. Many programmes aimed at agricultural development were introduced after independence. A quarter century of planned efforts for agricultural development has resulted in substantial increase of agricultural production. The food production which was only 52.8 million tonnes during 1947-48 would touch 125 million tonnes in 1977-78 and according to the Report of National Commission on Agriculture it would be 230 to 277 tonnes by 2000 A.D. But a comparison of yield levels of our nation with that of other advanced countries will indicate that the present yield level is far from satisfactory in majority of crops.

Agricultural development requires production as well as transfer of new technology. The break through in agricultural research has offered vast opportunities for increasing agricultural production. Today we have technology evolved at our Agricultural Universities and Research Stations which if accepted by the multitude of

farmers, would result in substantial increase in agricultural production. Agricultural extension, a special branch of science dealing with economic and social aspects of farm people, has ploughed in at the right time, in the right way to effectively bridge the farm people and researchers. The transfer of new technology is carried out by the net work of people engaged by the extension agencies. The main task of this agency is to communicate the new technology to the farmers in a way that can be understood, accepted and practiced by the farmers.

The importance of communication can be understood from the observation of Lerner (1966). He pointed out that communication acts as a stimulus for modernization and social change. Rogers and Svenning (1969) also felt that communication process is an integral element of modernization and development. The importance of communication in development was formally recognised by the UNESCO when they approached Professor Schramm for a comprehensive write-up highlighting the symbiotic relationship between the two. Schramm (1964) emphasised the relationships between communication and development in his book 'Mass Media and National Development' and he viewed communication as an indispensable instrument of policy designed for

development. Rao (1966) in a comparative study of two Indian villages obtained correlations between communication and social, economic and political development. It is communication that forms the axis for socio-economic betterment of the people. Communication and development are the two inseparable hands and to attain development, it is essential to have well developed communication system connecting the farmers and researchers.

It is necessary in this context to understand the communication process as viewed by different researchers. Hovland defines communication as the process by which an individual-the communicator, transmits the stimuli to modify the behaviour of other individuals-communicatees. Brown (1958) defined communication as a process of transmitting thoughts or ideas from one person to another for the purpose of creating understanding in the thinking of the person receiving communication. According to Leagans (1961) communication is the process by which two or more persons exchange ideas, facts, feelings or impressions in ways that each gains a common understanding of the meaning, intent and use of messages. It is essential on the part of research

personnel and farmers to act both as communicators and communicatees to attain the aimed improvement in standard of living.

Effectiveness of communication is the result of interaction amongst its components. All the elements of communication process, viz., communicator, message, channel and receiver have to function effectively for the success of the communication act. The communicator can be considered in the pivotal position as a receiver and sender of the message to the targetted audience. A communicator provides the stimulus by way of his communication acts to elicit the desired changes in the response pattern of the farmers. Only very few studies have been conducted to explore the communication efficiency of the communicators. Kanagasabai (1975) concluded from a study conducted in TamilNadu that 48 per cent of Deputy Agricultural Officers were less efficient in their job performance. Sanoria (1977) reported that Assistant Directors of Agriculture and Agricultural Extension Officers had low communication efficiency. Perumal and Rai (1977) observed from a study conducted in TamilNadu that majority (64 per cent) of Deputy Agricultural Officers were average and 15 per cent were below average in their communication behaviour.

These studies indicate that there is vast scope to improve the communication efficiency of Agricultural Extension Personnel. Hence more studies are essential to find out the communication efficiency and the factors associated with it. The present study is an effort in that direction.

Objectives of the study

The following specific objectives have been framed to understand the communication behaviour of Agricultural Extension Personnel.

1. To study the sources from which the Agricultural Extension Officers receive the farm information.
2. To study how the Agricultural Extension Personnel communicate the information to the farmers.
3. To identify the factors associated with the effective communication of Agricultural Extension Personnel.
4. To study the receipt pattern of information feedback by Agricultural Extension Personnel.

Scope and Limitations

The present study would bring to light the pattern of communication of Agricultural Extension Personnel

and the nature of relationship of factors associated with their communication behaviour. These findings when communicated to the Agricultural Extension Officers, would help to improve their receipt as well as dissemination of farm information. At the same time it will help the communication researchers to understand the communicators and the factors associated with their communication behaviour. The professional communication trainers can stress the less efficiency areas to the trainees for increasing their efficiency.

This study has been a modest attempt to present a vivid picture of different aspects of communication activity of Junior Agricultural Officers of the Department of Agriculture. The study was conducted in Trivandrum and Quilon Districts of Kerala State. The findings may not be applicable to the entire Kerala State or to the other parts of the country. However this study attempted to depict clearly the communication behaviour of Agricultural Extension Personnel.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Review of pertinent literature in the area of enquiry to cull out important findings is essential for illuminating the theoretical perspective of the problem of research. Review will also help the researcher to select methodology suitable for his study.

The review included in this chapter is grouped under the following headings.

- A. Review of the concept of communication process as viewed by different researchers.
- B. Review of the factors related with the communication efficiency of the communicator.
- C. Detailed review of the relationship of variables selected for this study with that of communication behaviour.

The review of methodology used by different researchers for the measurement of variables included in this study, is given in the materials and methods chapter.

A. Review of the Concept of Communication Process

The concept of communication process has been explained differently by different communication experts.

Aristotle developed the first rhetorical model on communication with three elements viz., speaker, message and audience. Lasswell (1948) explained the communication process in the form of five questions who? says what? to whom? through what channel and with what effect? Shannon and Weaver (1949) viewed communication process with five ingredients such as source, transmitter, signal, receiver and destination with the inclusion of noise. Schramm (1960) opined that communication is a means for establishing 'commonness' with some one. He explained communication process with elements such as source, encoder, signal, decoder, destination and feedback. He also pointed out that each person in the communication process acts as a source and receiver.

Berlo (1960) presented S-M-C-R model of communication process in which a source (S) sends a message (M) through certain channels (C) to the receiving individual (R). According to Loomis (1960) "Communication is the process by which information, decisions and directive are transmitted among factors and the ways in which knowledge, opinions and attitudes are formed or modified by interaction". Leagans (1961) opined that communication is the process by which two or more people exchange ideas, facts, feelings or

impressions that each gains a common understanding of the meaning, intent and use of message. Likert (1961) felt that communication is a complex process involving many dimensions viz., (a) transmission of material from the sender to the target audience (b) its reception and comprehension (c) its acceptance or rejection. Applbaum et al (1973) extended a summary model with no specific beginning or ending. They felt that principles presented in the summary model can open up new insights and responses within each person for communicating effectively. The explanations offered by different viewers on communication process show that communication process involves many elements and its purpose is to transmit information for gaining a common understanding between the sender and receiver.

B. Review of the factors related with the Communication Efficiency of the Communicator

A summary of review of variables which were reported to have influence on communication behaviour or related aspects is given in Table 1.

Table 1. Review of communicator efficiency factors.

Variables	Researcher who established relationship	Relationship
i. Personal variables		
a. Academic achievements	Dhillon and Sandhu (1977)	No relationship
b. Age	Salvi and Dudhani (1967)	No relationship
c. Caste	Patel and Leagans (1968)	No relationship
d. Communication skills	Dhillon and Sandhu (1977)	No relationship
e. Education	Reddy (1976)	No relationship
f. Education of their wives	Patel and Leagans (1968)	No relationship
g. Experience	Reddy (1976)	No relationship
h. Extent of contact with receivers	Subramaniam and Knight (1977)	Positive relationship
i. Extent of working through opinion leaders	Rogers and Shoemaker (1971)	Positive relationship
j. Father's formal education	Patel and Leagans (1968)	No relationship
k. Hobbies	Kanagasabai (1975)	No relationship
l. Marital status	Patel and Leagans (1968)	Positive relationship
m. Mother's formal education	Patel and Leagans (1968)	No relationship
n. Number of children	Muthayya and Gnanakannan (1973)	Negative and no relationship

Table 1. (contd.)..

Variables	Researcher who established relationship	Relationship
o. Possession of vehicle	Kanagasabai (1975)	No relationship
p. Professional training	Reddy (1976)	No relationship
q. Rural-urban background	Salvi and Dudhani (1967)	Positive relationship
r. Social participation	Sinha <u>et al</u> (1976)	Negative and no relationship
s. Tenure of service at the same place of work	Muthayya and Gnanakannan (1973)	Positive and no relationship
t. Type of family	Trivedi <u>et al</u> (1976)	No relationship
ii. Psychological variables		
a. Aspirations	Sinha <u>et al</u> (1976)	Positive, negative and no relationship
b. Attitude towards bureaucracy	Bhatia and Sandhu (1975)	No relationship
c. Attitude towards inter-personal relationships	Sinha <u>et al</u> (1976)	Positive relationship
d. Attitude towards message	Sinha <u>et al</u> (1976)	Positive and Negative relationship
e. Attitude towards receivers	Reddy (1976)	Positive relationship

Table 1. (contd.).

Variables	Researcher who established relationship	Relationship
f. Attitude towards self	Sinha et al (1976)	No and positive relationship
g. Change proneness	Sinha et al (1976)	Positive and no relationship
h. Credibility	Rogers and Shoemaker (1971)	Positive relationship
i. Democratism.	Sinha et al (1976)	Positive relationship
j. Dogmatism	Muthayya and Gnanakannan (1973)	Negative relationship
k. Dominance	Muthayya and Gnanakannan (1973)	Negative and no relationship
l. Empathy	Rogers and Shoemaker (1971)	Positive relationship
m. Introversion	Muthayya and Gnanakannan (1973)	Negative and no relationship
n. Job perception	Kherde and Sahay (1972)	Positive relationship
o. Job satisfaction	Sinha et al (1976)	Positive and no relationship
p. Knowledge of negative reactions of farmers, fellow workers and superiors	Kherde and Sahay (1972)	No relationship

Table 1. (contd.)..

Variables	Researcher who established relationship	Relationship
q. Knowledge of subject matter	Kherde and Sahay (1972)	Positive relationship
r. Need achievement	Muthayya and Gnanakannan (1973)	Negative, positive and no relationship
s. Pessimism	Muthayya and Gnanakannan (1973)	Negative relationship
t. Risk preference	Sinha <u>et al</u> (1976)	Positive and no relationship
u. Role-responsibility	Kherde and Sahay (1972)	No relationship
v. Self-confidence	Muthayya and Gnanakannan (1973)	Positive and no relationship
iii. Situational variables		
a. Communication facilities	Sinha <u>et al</u> (1976)	Positive, negative and no relationship
b. Physical accessibility	Sinha <u>et al</u> (1976)	Positive, negative and no relationship
c. Supervision and guidance	Sinha <u>et al</u> (1976)	Positive, negative and no relationship
iv. Economic variables		
a. Annual total income	Muthayya and Gnanakannan (1973)	No relationship

Table 1. (contd.).

Variables	Researcher who established relationship	Relationship
b. Parents lands holding	Trivedi et al (1976)	No relationship

The above review revealed that many communicator factors are influencing communication activity and related aspects. It also depicted that many factors showed varied relationship in different areas and with different category of communicators. It led to the conclusion that inconsistency of relationship among communicator factors is existing.

C. Detailed review of the relationship of variables selected for this study with that of communication behaviour

1. Knowledge of subject matter

English and English (1958) defined knowledge as a body of understood information possessed by an individual or by a culture. Reader's Digest Great Encyclopaedic Dictionary gives the meaning of knowledge as "person's range of information theoretical or practical understanding the sum of what is known". Berlo (1960) pointed out that amount of knowledge of subject matter possessed by the source would affect his communication behaviour. Dahama (1968) stressed

that extension workers must have thorough knowledge on the subjects for successful role performance. Kherde and Sahay (1972) found that knowledge of Village Level Workers on multiple cropping was significantly related with their role performance. Chakrawarthy and Singh (1974) concluded that level of technical knowledge of Village Level Workers was one of the most important indicators of their role performance. Based on the above findings it was postulated that there would be a relationship between knowledge of subject matter and communication behaviour.

ii. Communication facilities

According to Chatterjee (1973) communication has two distinct meanings. One is transmission of message from source to receiver and the other is concerned with physical facilitatory or constraining factors, intervening between the source and the recipient of messages. Sinha et al (1976) found that in a study conducted with village level officials, there was a positive relationship between communication facilities and effectiveness of communication in Punjab, but in Bihar it was negatively related and no relationship was observed in Maharashtra, intensive and non-intensive

areas. In case of district-block-level officials they obtained positive relationship between the two variables in Punjab, Maharashtra and also in intensive areas. Based on the above review it was hypothesised that communication facilities might be related with communication behaviour.

✓ iii. Communication skill

Berlo (1960) explained that fidelity of communication would be associated with the communication skill of the source. Leagans (1961) expressed that good communicators should have interest to develop their communication skill. Dube (1958) and Singh (1973) found that the communicators differed greatly in their communication skill and the communication skill was also found to be having influence on the communication effectiveness. Singh and Jha (1971) found communication skill as one of the factors associated with communication fidelity. Parshad and Sandhu (1974) studied communication skills of Village Level Workers in Punjab State. They found that 46.53 per cent of the Village Level Workers were having 'medium' level of communication skills. About 15.97 per cent of the Village Level Workers were

having 'low' level of communication skills and a little over one-third of the Village Level Workers were possessing 'high' level of communication skills. Sinha et al (1976) found that there was no relationship between communication skill and effectiveness of communication of village officials. Dhillon and Sandhu (1977) reported that communication skill was not significantly related with job-effectiveness. The reviews presented above show that there could be a relationship between communication skill and communication behaviour.

iv. Education

Education is the process of producing desirable changes in individuals and these changes occur when individuals are exposed to different, effective learning situations. Dube (1958) reported that University graduates on the whole were found to be ineffective in their job as Village Level Workers. Salvi and Dudhani (1967) reported positive relationship between education and job effectiveness and they concluded that Village Level Workers with relatively better educational status were effective in their job. Patel and Leagans (1968) found that there was significant association between formal education and

effectiveness of Village Level Workers. Kherde and Sahay (1972) found that education had negatively significant relationship with role performance of Village Level Workers. In case of district-block-level officials Sinha et al (1976) reported positive association between education and communication effectiveness in Punjab whereas no relationship in Bihar, Maharashtra, intensive and non-intensive areas. In case of village level officials they obtained negative relationship in Maharashtra. Reddy (1976) found that there was no significant relationship between education and communication behaviour of Village Level Workers. The reviews presented above show that education might have influence on communication behaviour.

v. Professional training

According to Christopher (1970) training is the process of helping members of an organisation to acquire knowledge, skills and attitudes for new ways of behaviour needed by the organisation. Salvi and Dudhani (1967) found that there was significant association between duration of training and Village Level Workers job effectiveness. Kanagasabai (1975) reported that there was significant association between the number of trainings and efficiency of

Deputy Agricultural Officers in Tamil Nadu. Reddy (1976) reported that there was no significant relationship between the communication behaviour of Village Level Workers and their duration of pre-service or in-service training. In case of district-block-level officials of Maharashtra, Sinha et al (1976) reported positive relationship between professional training and communication effectiveness. The Report of the National Commission on Agriculture (1976) emphasised the importance of inservice training to the extension officers for providing specialised guidance to the subordinates and farmers. The research works cited above show that there might be a relationship between the professional training and communication behaviour of Agricultural Extension Personnel.

vi. Attitude towards high yielding varieties of rice

Thurstone (1946) defined attitude as "the degree of positive or negative affect associated with some psychological object". Newcomb (1961) explained attitude as "a state of readiness for motive arousal". Remmers et al (1967) defined attitudes informally as feelings for or against something. Mehrabian (1973) defined attitude as the degree of liking, positive

evaluation and/or preference of one person for another.

Berlo (1960) pointed out that attitude toward subject matter would affect the communication behaviour.

Kherde and Sahay (1972) observed no significant relationship between attitude towards high yielding varieties and role performance of Village Level Workers.

Mehrabian and Reed (1973) hypothesised that accuracy of communication is inversely related with the magnitude of the positive (or negative) attitude of the communicator towards the referent of the communication. In case of district-block-level officials

of Punjab, Sinha et al (1976) reported that there was positive relationship between attitude towards message and effectiveness of communication. They also reported positive and negative relationships in intensive and non-intensive areas respectively, in case of village level officials. Singh (1976) also felt that attitude towards message would affect the efficiency of the communicator. Based on the above reviews, it was postulated that attitude towards high yielding varieties of rice might be related with communication behaviour.

vii. Concept of communication

Berlo (1960) opined that knowledge of communication process itself would affect the source behaviour.

Leagans (1961) felt that communication is limited by one's concept of the communication process and the way one thinks about communication will influence its quality. He added further that successful communication is not a single unit act but a series of unit acts which have to be combined into an integrated whole by the communicator for influencing the communicatees. This requires clear conception and understanding of communication process by the communicator. Based on these reviews, it was hypothesised that concept of communication would exhibit a relationship with communication behaviour.

viii. Self-confidence

The Reader's Digest Great Encyclopaedic Dictionary gives the meaning of self-confidence as confidence in oneself. Muthayya and Gnanakannan (1973) obtained positive relationship between self-confidence and job-satisfaction. Khare (1976) pointed out that confidence would play important role in the success of a creator and/or innovator. Based on these reviews, it was postulated that self-confidence might be showing a relationship with communication behaviour.

ix. Information seeking behaviour

Rogers (1966) viewed communication behaviour as the degree to which an individual is willing to seek

information and advice. Kanagasabai (1975) reported that efficiency of Agricultural Extension Officers was not related with their habit of reading literature. Bhatia and Sandhu (1975) reported that magazine reading of Village Level Workers was positively and significantly related with their role performance. This led to the postulation that information seeking behaviour would show a relationship with communication behaviour.

x. Ability to use communicatees' language

Dube (1958), Berlo (1960) and Katz (1960) found language compatibility to be of great importance for fidelity in communication. Singh and Jha (1971) found language compatibility of communicator with that of receivers as a factor associated with communication fidelity. They pointed out that quite often young agricultural graduates were using a lot of technical and complex words while conversing with illiterate and less educated farmers. Singh (1976) also stressed the importance of language compatibility of communicator with that of receivers as a factor associated with efficiency of communicators. This led to the formation of hypothesis that ability to use communicatees' language would be related with communication behaviour.

xi. Attitude towards farmers

Berlo (1960) opined that attitude toward receiver would affect the source communication behaviour. Kherde and Sahay (1972) found a positive association between the favourable attitude towards villagers and the role performance of Village Level Workers. Mehrabian and Reed (1973) hypothesised that the accuracy of communication is inversely correlated with the magnitude of the positive (or negative) attitude of the communicator toward his addressee. Reddy (1976) observed positive relationship between the attitude towards farmers and communication behaviour of Village Level Workers. Sinha et al (1976) pointed out that as attitude towards receivers increased, the effectiveness of communication also improved in case of district-block-level officials in Maharashtra and Bihar and positive relationship was also observed among village officials working in intensive areas. Singh (1976) also stressed that communicator's attitude toward recipient would affect the efficiency of communicator. Based on the above reviews, it was postulated that attitude towards farmers would exhibit a relationship with communication behaviour.

The detailed review of the research works cited above depicted that these selected independent variables

might exhibit a relationship with communication behaviour. It is also found that Khare's (1976) following mention about review that "the more extensive a man's knowledge of what has been done, the greater will be his power of knowing what to do" is a true fact.

MATERIALS AND METHODS

MATERIALS AND METHODS

In this chapter the location of the study, the sampling procedures used, the procedure adopted for selection of variables, derivation of hypothesis, the methods used for measurement of variables selected and the statistical procedures used for analysis are discussed.

Location of the study

The study was conducted in two districts of Kerala State. The two districts selected for the study using the lot method of random selection were Trivandrum and Quilon.

Selection of respondents

Due to the limitations of time and finance it was decided to include only Junior Agricultural Officers working in various development schemes and Intensive Paddy Development Units under the control of the Deputy Directors of Agriculture in the two selected districts. All the Junior Agricultural Officers working in the two districts formed the sample of this study. Total number of respondents was eighty one in this study.

Selection of variables

The variables included in this study were selected by the following method. At first all the variables

related with communication behaviour were identified after a review of research works done on various aspects related with communicator. To select the important variables among them pertinent to the Kerala situation, the prepared list of variables was given to the extension experts of three agricultural colleges at Vellayani, Coimbatore and Madurai. They were requested to indicate the importance of each variable in influencing the communication behaviour by marking on a four point continuum ranging from "least important" to "most important". A weight of four was assigned to "most important", three to "important", two to "less important" and one to "least important". For each variable a score was obtained by adding up the product of the frequency and corresponding weight. The variables were ranked based on the total scores thus obtained. Eleven variables which obtained the first six ranks were finally selected for the study. The selected variables were

1. Knowledge of subject matter.
2. Communication facilities.
3. Communication skill.
4. Professional training.
5. Education.

6. Attitude towards high yielding varieties of rice.
7. Concept of communication.
8. Self-confidence.
9. Information seeking behaviour.
10. Ability to use communicatees' language.
11. Attitude towards farmers.

The list of variables with their rank scores is given as Appendix I.

Derivation of hypothesis

The following are the hypotheses derived for this study.

Hypothesis i) There will be a positive relationship between the communicator technical knowledge of high yielding varieties of rice and his communication behaviour.

Hypothesis ii) The communication behaviour of the communicator may be positively related with the extent of communication facilities available to him.

Hypothesis iii) There will be a positive relationship between the communication skill of communicator and his communication behaviour.

Hypothesis iv) There will be a positive relationship between the educational level of the communicator

and his communication behaviour.

Hypothesis v) There may be a positive relationship between professional training and communication behaviour.

Hypothesis vi) There will be a positive relationship between the communicator attitude towards high yielding varieties of rice and his communication behaviour.

Hypothesis vii) There will be a positive relationship between communicator's concept of communication and his communication behaviour.

Hypothesis viii) There will be a positive relationship between the self-confidence of the communicator and his communication behaviour.

Hypothesis ix) There will be a positive relationship between communicator's information seeking behaviour and his communication behaviour.

Hypothesis x) There will be a positive relationship between communicator's ability to use communicatees' language and his communication behaviour.

Hypothesis xi) There may be a positive relationship between communicator attitude towards farmers and communication behaviour.

Measurement of Dependent Variable - Communication Behaviour

Communication behaviour has been operationalized by different researchers in different ways. Fliegel (1956)

operationalized communication behaviour as information contact and Rogers (1958) as communication competence. Katz and Lazarsfeld (1964) measured communication behaviour from listening and reading habits of the respondents. Singh and Sahay (1970) predicted communication behaviour of farmers from their information seeking habits based on the use of information sources like personal localite, personal cosmopolite and mass media. Singh and Prasad (1974) operationalized communication behaviour of the farm people as the extent to which the farmers are exposed to the different messages from various communication sources for the sake of adopting that message. Murthy and Singh (1974) conceptualized the farmers' communication behaviour as a composite measure of awareness, comprehension, attitude, and adoption. Sandhu and Darbarilal (1976) studied communication behaviour as an individual farmer's exposure to the various information sources through which the technologies are transmitted. Reddy (1976) measured communication behaviour as a composite of awareness, comprehension, attitude, communication skill, and effective use of communication channels.

For this study the communication behaviour of communicators was measured as a composite of the

following specific activities.

1. Information receipt or input.
2. Information processing consisting of information decoding and information encoding.
3. Information communication or output.
4. Information feedback.

Information Input

Information input in relation to communication pattern was studied by Sanoria and Singh (1976 a) as all the activities performed by an individual for acquisition of scientific and technical information related to agricultural technology and measured the same by developing information input index. Information input pattern was operationalized by Ambastha and Singh (1976) as all the activities performed by a farm scientist for the acquisition of scientific and technical information with respect to summer paddy and dwarf wheat technology to perform his role. For the present study, information input was operationalized as the "oftenness" of receipt of information about high yielding varieties of rice from different information sources by the Junior Agricultural Officers.

To measure information input, the Junior Agricultural Officers were asked to indicate how often they

received information from different sources listed for the purpose. The respondents were asked to indicate their responses on a five point continuum ranging from "most often" to "never". The responses were given scores as follows. A score of four was assigned to "most often", three to "often", two to "sometimes", one to "rarely" and zero for "never". The total information input score was obtained for each respondent by adding up the respective scores of the response patterns of the respondents. The scores of all the respondents for each source were added for ranking the sources.

Information Processing

Information Processing was operationalized by Sanoria and Singh (1976 a) for a study on communication pattern of extension personnel as all the activities performed by an individual for evaluation, storage and transformation of scientific and technical information related to agricultural technology. Ambastha and Singh (1976) operationalized information processing pattern as all the activities performed by a scientist for evaluation, storage and transformation of technical information with reference to summer paddy and dwarf wheat

technology. Reddy and Singh (1977), Subramaniam and Menon (1977) also studied information processing as consisting of three aspects such as information evaluation, information storage and information transformation. Ambastha and Singh (1977) measured information processing pattern in terms of exploring probable solutions, innovation evaluation, innovation preservation and innovation transformation.

For the present study, two specific aspects of information processing of Junior Agricultural Officers had been considered. They were information decoding and information encoding.

Information Decoding

Davis (1967) explained decoding as giving meaning to the message by the receiver. Zaidel and Mehrabian (1973) felt that decoding involves ability to discriminate among different cues and they studied decode variations in attitude communicated facially and vocally. Osgood et al (1967) regarded decoding as the process whereby stimulus patterns called signs elicit distinctive representational mediators (significances). It is a process by which the receiver regroupes the new stimuli to make meaning out of it. It is a process of deriving meaning of the communication received.

For the purpose of this study, information decoding was operationalized as the "oftenness" of difficulty felt by the Junior Agricultural Officers in understanding the technical message related with high yielding varieties of rice.

The information decoding was measured in the following way. The respondents were asked to indicate how frequently they felt difficulty in understanding the technical messages related with plant protection measures, fertilizer application, weed control measures, irrigation practices and characteristics of high yielding varieties of rice. The responses were rated on a five point continuum ranging from "most often" to "never". The scoring pattern was as follows

<u>Most often</u>	<u>Often</u>	<u>Sometimes</u>	<u>Rarely</u>	<u>Never</u>
0	1	2	3	4

This method of scoring was done in order to facilitate the efficient communicator to score maximum. But to rank the items according to their degree of difficulty in encoding and decoding a reverse scoring system was followed. The information decoding score for each individual was obtained by adding the scores corresponding to the response pattern of the respondent to the five items given for this purpose. The scores of all the respondents for each item were added for ranking the items.

Information Encoding

Davis (1967) explained encoding as symbolizing the idea or converting it into a message, also selection of media (radio, interview, report etc.,). Osgood et al (1967) depicted that encoding is the selective evocation of overt instrumental acts by the representational mediation process presumably on the basis of differential reinforcement. Many intentionally encoded responses are non-linguistic like facial expressions, gestures etc. But such a behaviour is difficult to quantify and cumbersome to record and also does not yield comparable units. An individual's encoding ability is defined in terms of the discriminability of cues emitted by him for communicating different ideas. (Zaidel and Mehrabian, 1973). In this process the communicator is thinking, planning and organising his thoughts generated by the incoming symbols. The received symbols are related to previous knowledge and experience, and pertinent information is assembled and assessed. Finally the message, the communicator is planning to send is changed into meaningful words and/or gestures.

In this study the information encoding was operationalized as the "oftenness" of difficulty felt by the Junior Agricultural Officers in processing a technical information connected with high yielding varieties of rice into a meaningful message of simple words.

The information encoding was measured in the following manner. The respondents were asked to indicate how frequently they felt difficulty in translating the messages related with plant protection measures, fertilizer application, weed control measures, irrigation practices and characteristics of high yielding varieties of rice. The responses were rated on a five point continuum ranging from "most often" to "never". The responses were scored as shown below.

<u>Most often</u>	<u>Often</u>	<u>Sometimes</u>	<u>Rarely</u>	<u>Never</u>
0	1	2	3	4

The information encoding score for each individual was obtained by adding up the scores corresponding to the response pattern of the respondent to the five items given for this purpose. The scores of all the individuals for each item were added for ranking the items.

Information Output

Sanoria and Singh (1976 a) operationalized information output pattern as the activities performed by an individual for disseminating scientific and technical information to the clients and it was measured by developing information output index. Ambastha and Singh (1976) measured information output pattern as all the activities performed by a researcher for dissemination of scientific information

related to summer paddy and dwarf wheat technology.

For the purpose of this study, the information output was operationalized as the "oftenness" of utilization of different extension methods by the Junior Agricultural Officers for dissemination of technical information related with high yielding varieties of rice to different category of personnel including farmers.

To measure the information output, the respondents were asked to indicate how frequently they were communicating the technical information related with high yielding varieties of rice to the Village Level Workers, Demonstration Assistants, School teachers, Representatives of fertilizer and pesticides firms, Farmers, Local leaders and to other Block personnel. The respondents were also asked to indicate how frequently they were using the different extension methods listed for the purpose of communication of technical information related with high yielding varieties of rice. The responses of both the items were obtained on a five point continuum ranging from "most often" to "never". The scoring pattern was as follows.

<u>Most often</u>	<u>Often</u>	<u>Sometimes</u>	<u>Rarely</u>	<u>Never</u>
4	3	2	1	0

The information output score for each individual was

obtained by adding the scores corresponding to the response patterns of the individual on the two items. The scores obtained by all the individuals for each category of communicatees and communication method were added separately for ranking them.

Information Feedback

According to Berlo (1960) the term 'feedback' names a special aspect of receiver reaction and his reaction is useful to the source for determining its own success. Leavitt and Mueller (1951) pointed out that accuracy of communication increased under 'free feedback' condition. Schramm (1960) emphasised the importance of feedback in communication process. Feffer and Suchotliff (1966) found that communication accuracy was greater when the number of channels available for feedback from the addressee to the communicator was more.

According to Chatterjee (1973) feedback is one of the factors associated with the effectiveness of the change agent. Sahay (1973) explained different forms of feedback and procedure for evaluation of feedback in his paper presented during the first summer institute in agricultural communication. Mehrabian and Reed (1973) hypothesised that accuracy of communication was correlated with the degree of availability of feedback to the communicator. Wilmot (1975)

emphasised the importance of feedback in dyadic communication. Khare (1976) felt that feedback would be an important factor for improvement in quality of communication.

For the present study, information feedback was operationalized as the "oftenness" of receipt of feedback information by the Junior Agricultural Officers on technical, administration and supply of inputs aspects of high yielding varieties of rice from farmers and subordinates through different methods.

The procedure followed for measurement of information feedback is given below. The respondents were asked to indicate how frequently they received information feedback from farmers and subordinates through different extension methods. They were also asked to indicate how frequently they received different types of communication from farmers. The responses were obtained on a five point continuum ranging from "most often" to "never". The responses were scored as follows.

<u>Most often</u>	<u>Often</u>	<u>Sometimes</u>	<u>Rarely</u>	<u>Never</u>
4	3	2	1	0

The information feedback score for each individual was obtained by adding the scores corresponding to the response pattern of the respondent. The scores obtained by the

respondents for each category of personnel sending feedback information and on each type of communication from farmers were added separately for ranking them.

Computation of Communication Behaviour Score

The communication behaviour score was calculated as follows. The raw scores obtained by each individual with respect to the five components used in this study for measuring communication behaviour were converted into standard scores by using the method explained by Guilford (1965).

The formula for conversion of raw scores to standard scores is as follows.

$$X_S = \left(\frac{\sigma_S}{\sigma_O} \right) X_O - \left[\left(\frac{\sigma_S}{\sigma_O} \right) M_O - M_S \right]$$

Where X_S = a score on the standard scale, corresponding to X_O .

X_O = a score on the obtained scale, a raw score.

M_O and M_S = means of X_O and X_S respectively.

σ_O and σ_S = standard deviation of X_O and X_S respectively.

For desired mean 50 and standard deviation 10, the formula will be

$$X_S = \left(\frac{10}{\sigma_O} \right) X_O - \left[\left(\frac{10}{\sigma_O} \right) M_O - 50 \right]$$

By substituting the raw scores and standard deviation of the raw scores, the standard scores for each individual with respect to the five components of communication behaviour were calculated. The communication behaviour score for each individual was obtained by adding the standard scores of each respondent on all the five components of communication behaviour. The communication behaviour scores of the respondents were ranging from 274 to 457 and the mean was 359.

Categorisation of respondents into "low", "medium" and "high" level of Communication Behaviour

The respondents were categorised into "low", "medium" and "high" levels of communication behaviour based on standard deviation and mean of the distribution of the communication behaviour scores obtained by the respondents. The score range of categories was as follows.

Low Communication Behaviour	=	274-323
Medium Communication Behaviour	=	324-394
High Communication Behaviour	=	395-459

Measurement of Independent Variables

In this section the measurement techniques used by the researcher for measuring the variables are explained. A review of the measurement methods used by different researchers for measuring variables included in this study

are also presented.

A. Knowledge of subject matter

Sinha et al (1968) adopted the method of self-appraisal to determine the level of knowledge of the Agricultural Extension Officers on six areas of competency viz.,

1. Subject matter in agriculture.
2. Social system.
3. Programme planning and evaluation.
4. Teaching methods.
5. Organisation and administration.
6. Basic concept in extension.

Shankariah and Singh (1967) developed a schedule to test the knowledge of improved methods of vegetable cultivation based on the teacher made tests. In the present study knowledge was measured through a simple knowledge test. The following procedure was adopted to develop the knowledge test. First a list of questions relating to the various package of practices of high yielding varieties of rice was prepared. This list was presented to ten Junior Agricultural Officers and their knowledge level was obtained. From the responses obtained a difficulty index for each of the question was calculated. Those questions which had average level of difficulty were finally selected for inclusion in the knowledge test. The test had six items and one point was given to each correct answer. The point obtained for each question by a respondent was added up, to obtain the knowledge score.

B. Communication facilities

Sinha et al (1976) measured communication facilities as the number of facilities available to contact officials and citizens. For the present study, communication facilities were measured as the composite of facilities available to use different communication methods, transport facilities available, and the nearness of office of the Junior Agricultural Officer to public conveyance services. The responses on availability of communication facilities were obtained on a three point continuum ranging from "available at all times", "sometimes" and "never". The responses were given scores as follows. A score of two was assigned to "available at all times", one to "sometimes" and zero to "never". The nearness of office to public conveyance services was measured in three categories of less than 0.5 k.m., 0.5 to 1 k.m. and more than 1 k.m. The response to each category was scored from zero to two. Scores corresponding to the response patterns of the respondents for all the items were added to obtain the score on the perception of availability of communication facilities.

C. Communication skill

According to Berlo (1960) communication skill is a composite of skill in writing, speaking, reading, listening and reasoning. Parshad and Sandhu (1974) measured the

communication skill by using rating scales comprising of 1. self-assessed ability to communicate 2. self-assessed level of communication qualities 3. training received by Village Level Workers for conducting various activities and 4. ability to treat a message about selected innovations. Sinha et al (1976) measured the communication skill by asking the respondents to indicate whether they were possessing adequate skills to elicit favourable responses from people. Reddy (1976) measured communication skill of the Village Level Workers from their ability to communicate and their communication qualities. For the present study also self assessment technique was used. The respondents were asked to indicate their skill in writing, talking to farmers and in handling the various communication equipment by agreeing or disagreeing to statements which explained the various aspects involved in the above said three skills. The responses were obtained on a five point continuum ranging from "strongly agree" to "strongly disagree". The scoring pattern was as follows. "Strongly agree" (4), "agree" (3), "undecided" (2), "disagree" (1) and "strongly disagree" (0). The scoring was in the reverse manner for negative statements. The score on communication skill was obtained by adding the scores corresponding to the response pattern of the respondent.

D. Education

In the present study educational status of the respondents was measured by asking them to indicate their formal educational qualification in agriculture.

E. Professional training

In the present study for the measurement of this variable the number of trainings received by the extension personnel on various aspects related to high yielding varieties and other aspects of agriculture was considered. For each training obtained a score of one was given. Professional training score was obtained by adding these scores.

F. Attitude towards high yielding varieties of rice

Attitudes can be measured on the basis of inference drawn from the responses of an individual towards an object. Many attitude scales have been concerned only with the measurement of valence and these scales usually consist of a set of items or statements to which the responses are sought. Generally these statements are evaluative and tap the cognitive and feeling components. Nair (1969), Murthy and Singh (1974) developed these type of scales to measure, the attitude of farmers

towards High Yielding Varieties Programme and I.R. 8 paddy cultivation respectively. Instead of statements, few scales give descriptions or specific actions toward the object and the subjects are asked to indicate whether they would or not take the action specified. Singh and Sinha (1970) felt that semantic differential techniques can also be used for attitude measurement.

Sinha et al (1976) measured attitude towards message as the utility of message sent to different categories of people. The methods that are generally employed for developing a scale to measure attitude are Thurstone successive-interval technique, Summated rating (Likert) technique, the Scalogram analysis and the Semantic differential technique. In this study, attitude towards high yielding varieties of rice was measured by using a Likert scale developed in the department of agricultural extension, college of agriculture, Vellayani. This scale consisted of six statements of which three were positive and three were negative. The responses were rated on a five point continuum ranging from "strongly agree" to "strongly disagree". The responses were given scores as follows. A score of four was assigned to "strongly agree", three to "agree", two to "undecided", one to "disagree", zero for "strongly disagree". Negative

statements were scored in the reverse manner. The attitude scores of the respondents were obtained by adding up the scores corresponding to their response patterns.

G. Concept of communication

In this study, for developing a measurement method for this variable a set of items explaining the communication process and its importance was prepared after going through the available literature and after consultation with extension specialists. The responses to these items were obtained on a five point continuum ranging from "strongly agree" to "strongly disagree". The scoring was done as follows. "Strongly agree" (4), "agree" (3), "sometimes" (2), "rarely" (1) and "never" (0). The scores obtained by a respondent to all items were added to obtain the score on concept of communication.

H. Self-confidence

In the present study for measurement of this variable, a list of items explaining his ability and initiative to achieve his goals was prepared. Some of the items included, were selected from the list of items used by Basavanna (1974) for studying self-confidence as an attitude of self-concept. The responses were obtained on a five point continuum ranging from "strongly agree" to "strongly disagree". The responses were

scored as follows. "Strongly agree" (4), "agree" (3), "undecided" (2), "disagree" (1) and "strongly disagree" (0). The scoring was in the reverse manner for negative statements. The self-confidence score was obtained by adding up the respective scores of the response patterns of the respondents.

I. Information seeking behaviour

To measure this variable, a list of all possible sources available to Agricultural Extension Personnel in Kerala was prepared after consultation with extension officers and extension specialists. The respondents were asked to indicate their preference of the sources to get information on a four point continuum ranging from "always" to "never". The responses were scored in the following manner. A score of four was assigned to "always", three to "sometimes", two to "occasionally" and one to "never". The source preference score was obtained by adding up the scores corresponding to the response patterns of the respondents.

J. Ability to use communicatees' language

In this study, ability to use communicatees' language was measured by obtaining the responses to a set of items concerned with the translation skill and usage of Malayalam language (Communicatees' language). The

responses were obtained on a five point continuum ranging from "strongly agree" to "strongly disagree". The scoring was in the following way. "Strongly agree" (4), "agree" (3), "undecided" (2), "disagree" (1), and "strongly disagree" (0). Ability score was obtained by adding the respective scores of the response patterns of the respondents.

K. Attitude towards farmers

Attitude towards farmers was measured with a scale developed by the researcher for this study. The scale was developed by following the procedure described below.

Selection of statements

Based on the experience of the researcher and in consultation with other extension personnel and experts in agricultural extension, a list consisting of twenty five statements was prepared. In order to obtain a unidimensional scale, these statements were edited and modified using the criteria explained by Edwards (1957) for the selection of statements. Twelve statements were selected and these statements were then presented to the extension experts at College of Agriculture, Vellayani for indicating the extent to which each statement expressed the degree of favourable or unfavourable attitude. The

responses of the judges were obtained on a five point continuum ranging from "most favourable" attitude to "most unfavourable" attitude. These statements were ranked from "most favourable" to "most unfavourable" based on the responses of all the judges. (Appendix II). Based on this ranking three favourable and three unfavourable statements were selected. In toto six statements from the group of 12 statements were selected for inclusion in the study.

Testing the unidimensionality

For testing the unidimensionality of the selected statements it was decided to follow the Guttman method of analysis as explained by Edwards (1957). The selected six statements were presented to the eighty one respondents asking them to indicate their degree of favourableness or unfavourableness for each statement. The responses were obtained on a five point continuum ranging from "strongly agree" to "strongly disagree". The responses were grouped in two categories of "agree" and "disagree" for the purpose finding out the errors. After finding out the errors, the coefficient of reproducibility was calculated by using the formula given below.

$$\text{Coefficient of Reproducibility (CR)} = 1 - \frac{\text{Total number of errors}}{\text{Total number of responses}}$$

In the present study Coefficient of Reproducibility of 0.87 was obtained. Edwards (1957) pointed that the statements are scalable and follow a unidimensional scale if the coefficient of reproducibility is 0.90 or greater. The obtained value of CR was almost nearer to this value. The difference between the Coefficient of Reproducibility (CR) and Minimal Marginal Coefficient of Reproducibility (MMCR) was found to be 0.13. According to Edwards (1957), when a set of statements are said to constitute unidimensionality the difference between CR and MMCR should not exceed 0.20. Hence the statements selected and included in this study can be considered as unidimensional.

Data collection

To collect the needed information for measuring communication behaviour and the selected communicator factors, a questionnaire consisting of the methods described above was prepared. The questionnaire was pretested by obtaining responses from ten post-graduate students at Vellayani who have served as extension officers in the Department of Agriculture. Based on their responses, remarks and suggestions, questionnaire was modified wherever it was felt necessary. The responses from Junior Agricultural Officers were

collected on their meeting day at the office of the Deputy Director of Agriculture. On the meeting day, the questionnaires were distributed to all the Junior Agricultural Officers who attended the meeting. The purpose of the study and method of filling up the questionnaire were explained for eliciting their true responses. In order to convince the respondents of the anonymity of the responses, they were asked to fill up the questionnaire with the pencils supplied and requested not to leave any identification marks on the questionnaire. All the filled questionnaires were collected and later subjected to statistical analysis.

Statistical measures used for analysis

Correlation Correlation technique was applied to test the empirical hypotheses of this study. Correlation analysis was also worked out to test the interrelationship among the components of communication behaviour and the independent variables selected for this study. Significance of correlation was tested at 5 per cent level.

Path analysis The basic logic of path analysis was first explained by Wright (1921). Path analysis is the suitable tool to bridge the gap between social

science theory construction and statistical analysis. Singh (1975) depicted the importance and use of path analysis in social science research. Path analysis is used to determine the direct and indirect effect and the extent of influence of variables on a measure. In this study solutions of path coefficients were worked out using 'Do little' method as explained by Snedecor and Cochran (1967) to find the extent of influence as well as the direct and indirect effects of the selected variables on communication behaviour.

RESULTS

R E S U L T S

In this chapter the results of the study are presented in the following sequences.

- I. Pattern of receipt of technical information on high yielding varieties of rice by Agricultural Extension Personnel.
- II. Communication pattern of technical information on high yielding varieties of rice by Agricultural Extension Personnel.
- III. Communication behaviour of Junior Agricultural Officers.
- IV. Relationship of communicator factors with communication behaviour and score range of respondents on different independent variables.
- V. Pattern of receipt of feedback information by Agricultural Extension Personnel.
- VI. Inter correlation analysis of
 - A) Components of communication behaviour.
 - B) Independent variables.
- VII. Results of the path analysis.

I. Pattern of receipt of technical information on high yielding varieties of rice by Agricultural Extension Personnel.

The receipt pattern of technical information on high yielding varieties of rice by Agricultural Extension Personnel is presented in Table 2.

Table 2. Information receipt pattern of Agricultural Extension Personnel.

Information Sources	Response pattern in percentage					Total Score	Rank
	Most often	Often	Some times	rare-ly	Never		
1. Agricultural guide/diary	30	42	18	9	1	245	1
2. Farm radio broadcast	28	42	20	10	0	234	2
3. Discussion with colleagues	28	34	17	19	2	216	3
4. Monthly meeting of officers	31	31	19	12	7	215	4
5. Agricultural books	17	37	29	16	1	205	5
6. Agricultural journals	16	41	22	19	2	202	6
7. Communication from superior officers	22	28	21	25	4	195	7
8. Newspapers	21	25	26	26	2	191	8
9. Agricultural training	10	24	32	27	7	163	9
10. Agricultural seminars	4	24	42	28	2	160	10

Table 2. (Contd.)

Information Sources	Response pattern in percentage					Total Score	Rank
	Most Often	Often	Some times	Rarely	Never		
11. Agricultural exhibitions	5	16	36	36	7	142	11
12. Personnel of research stations	5	7	25	46	17	111	12
13. Agricultural workshops	1	10	20	34.5	34.5	88	13

It could be observed from the Table 2 that extension personnel received most of the information from agricultural guide/diary supplied by the Department of Agriculture and the least amount of information was received from agricultural workshops. As much as 69 per cent of the respondents received information only rarely or never from agricultural workshops. Only 32 per cent of the respondents reported receipt of information sometimes or often from research personnel. As much as 63 per cent of them received technical information rarely or never directly from the scientists of research stations. Only 41 per cent of the respondents received information often from agricultural journals. About 42 per cent and 37 per cent received information often from farm broadcast and agricultural books respectively.

As much as 70 per cent of the respondents received information from agricultural seminars rarely or sometimes. Similarly as much as 72 per cent of extension personnel reported that they received information rarely or sometimes from agricultural exhibitions.

II. Communication pattern of technical information on high yielding varieties of rice by Agricultural Extension Personnel.

The two aspects studied under information communication were:

- A. Extent of use of different communication channels by the Junior Agricultural Officers.
- B. Frequency of their communication with different categories of people.

Data regarding the extent of use of communication channels is presented in Table 3.

Table 3. Extent of use of communication methods by Junior Agricultural Officers.

Communication Methods	Response pattern in percentage					Total Score	Rank
	Most often	Often	Some- times	Rare- ly.	Never		
A. <u>To Farmers</u>							
1. Personal talks	41	39	15	5	0	256	1
2. Farm visit	43	31	15	6	5	244	2
3. Radio farm broadcast	24	38	27	9	2	220	3

Table 3. (contd.)

Communication Methods	Response pattern in percentage					Total Score	Rank
	Most often	Often	Some- times	Rare- ly	Never		
4. Result demon- stration	24	38	25	11	2	218	4
5. Folders and pamphlets	10	31	37	18	4	182	5
6. Newspapers	11	30	30	27	2	178	6
7. Posters and charts	7	27	42	20	4	174	7
8. Agricultural exhibitions	11	15	31	37	6	152	8
9. Advisory letters to farmers	6	19	37	31	7	150	9
10. Village notice boards	4	11	29.5	29.5	26	111	10
11. Wall paintings	4	7	31	28	30	103	11
<u>B. To officials and other extension workers</u>							
1. Circular letters	23	28	27	15	7	200	1
2. Personal talks/ discussion	4	10	19	33	34	93	2

It could be seen from the above Table 3 that personal talks emerged as the method mostly used by extension personnel for communicating with farmers. Second and third ranks were obtained by farm visit and radio broadcast to farmers. Wall paintings and village notice-boards were not at all utilised by 30 per cent and 26 per cent of the respondents respectively. About 43 per cent

of the respondents felt that they received information rarely or never from agricultural exhibitions. With respect to officials, circular letter was mostly used followed by personal talks/discussions.

The second aspect of the communication pattern studied was the frequency of contact with different category of people. The data pertaining to this aspect are presented in Table 4.

Table 4. Frequency of communication with different category of people.

Category of communicatees	Response pattern in percentage					Total Score	Rank
	Most often	Often	Some-times	Rare-ly	Never		
1. Farmers	53	32	12	3	0	272	1
2. Demonstration Assistants	51	35	6	6	2	263	2
3. Village level Workers	43	25	22	6	4	241	3
4. Local leaders	32	35	22	10	1	232	4
5. School teachers	1	27	25	32	15	136	5
6. Representatives of fertilizers and pesticide firms	6	18	22	39	15	132	6
7. Other block personnel (like B.D.O.)	2	6	24	30	38	85	7

It was evident from the data presented in Table 4 that Junior Agricultural Officers were spending most of the time

for communicating technical information to the farmers. As much as 85 per cent of them reported that they often or most often communicated technical information to the farmers. At the same time they gave sufficient attention to communicate information to Demonstration Assistants and Village Level Workers. But their efforts to communicate information to persons of agricultural input supply agencies were minimum.

III. Communication Behaviour of Agricultural Extension Personnel.

Before explaining the relationship of different variables with communication behaviour, it is necessary to understand the communication behaviour of respondents. As explained in the materials and methods chapter, Communication Behaviour Scores were derived by summing up the standard scores of the five components of communication behaviour. A study of the distribution of the scores of the respondents on all the five components will be useful. The data regarding information input and information output have already been presented in Tables 2, 3 and 4 respectively. The data regarding information feedback are presented in Tables 20 and 21. The data regarding decoding and encoding of the communicators are presented in Table 5.

Table 5. Information processing of Agricultural Extension Personnel.

Processing Aspects	Decoding						Encoding							
	Response pattern in %					Total Rank Score	Response pattern in %					Total Rank Score		
	Most often	Often	Some- times	Rare- ly	Never		Most often	Often	Some- times	Rare- ly	Never			
Information related to the plant protection measures for high yielding varieties of rice.	7	11	17	39	26	130	1	7	15	19	28	31	103	5
Information about the weed control measures of high yielding varieties of rice.	4	9	25	40	22	107	2	3	15	31	31	20	123	1
Information about the characteristics of high yielding varieties of rice.	6	9	28	23	34	106	3	9	15	21	21	34	118	2
Information pertaining to the irrigation practices of high yielding varieties of rice.	6	9	21	36	28	104	4	5	10	32	27	26	114	4
Information about the recommended doses of fertilizers and manures for high yielding varieties of rice.	9	11	16	21	43	98	5	9	16	22	17	36	117	3

The data showed that Junior Agricultural Officers experienced more difficulty in understanding the information related with plant protection measures of high yielding varieties of rice and less difficulty with respect to fertilizer and manurial recommendations. In case of encoding, they reported least difficulty for information related with plant protection measures of high yielding varieties of rice and the highest difficulty in information connected with weed control measures.

Data pertaining to the communication behaviour of Junior Agricultural Officers are presented in Table 6.

Table 6. Distribution of respondents according to their communication behaviour score.

	Low communica- tion behaviour	Medium communica- tion behaviour	High communica- tion behaviour
Frequency	18	56	7
Percentage	22	69	9
Mean = 359	S.D. = 35		
Score range of low communication behaviour =	274 - 323		
Score range of medium communication behaviour =	324 - 394		
Score range of high communication behaviour =	395 - 459		

Data showed that 22 per cent, 69 per cent, and 9 per cent of the respondents belonged to "low", "medium", and "high" levels of communication behaviour respectively.

It was also observed that 57 per cent of the respondents was below the mean value of communication behaviour and the rest 43 per cent had scores equivalent to mean and above.

IV. Relationship of Communicator Factors with Communication Behaviour and Score Range of Respondents on Independent Variables.

A. Knowledge of subject matter

1. General knowledge level of the J.A.Os.*:

The knowledge level of respondents is shown in Table 7.

Table 7. Distribution of respondents according to their knowledge scores on subject matter.

Know- ledge Scores	Frequency of respondents			Total frequ- ency	Per- cent- age	Cumula- tive frequ- ency	Cumula- tive per- centage
	in low C.B.	in medium C.B.	in high C.B.**				
0	3	1	0	4	5	4	5
1	0	1	0	1	1	5	6
2	0	2	0	2	2.5	7	8.5
3	1	0	0	1	1	8	9.5
4	3	5	0	8	10	16	19.5
5	0	2	0	2	2.5	18	22
6	4	6	3	13	16	31	38
7	4	11	2	17	21	48	59
8	0	17	1	18	22	66	81
9	3	8	1	12	15	78	96
10	0	3	0	3	4	81	100
Total	18	56	7	81	100		

Mean = 6.64

S.D. = 2.67

*J.A.Os. = Junior Agricultural Officers.

**C.B. = Communication behaviour.

It could be observed from the Table 7 that 38 per cent of the respondents had scores ranging from 0-6 (below mean). As much as 62 per cent had scores ranging from 7-10 (mean and above). As much as 22 per cent of the respondents obtained a score of 8 on this measure. The maximum score of 10 was obtained only by 4 per cent of the respondents.

ii. Relationship with communication behaviour

Null Hypothesis: There is no relationship between knowledge of subject matter and communication behaviour.

The computed correlation coefficient of 0.193 was not significant. So hypothesis was accepted. It was concluded that knowledge of subject matter was not related with communication behaviour.

B. Communication facilities.

Availability of communication facilities

a. Data pertaining to the response regarding the availability of communication facilities to the extension personnel is presented in Table 8.

Table 8. Response regarding the availability of communication facilities.

Facilities	Responses in frequency			Total Score	Rank
	Available at all times	Some-times	Never		
Facilities to conduct meetings.	30	48	3	108	1
Facilities to conduct method demonstration.	9	62	10	90	2

Table 8. (contd.)

Facilities	Responses in frequency			Total Score	Rank
	Available at all times	Some-times	Never		
Facilities to conduct campaigns.	15	59	7	89	3
Facilities for field trips/tours.	22	44	15	88	4
Facility of notice boards.	23	35	23	81	5
Bus facilities.	14	45	22	73	6
Facilities to conduct result demonstration.	13	57	11	73	6
Telephone.	7	29	45	43	7
Facilities to screen films/slides.	3	36	42	42	8
Government vehicle for transport.	4	28	49	36	9

The data revealed that J.A.Os were able to get facilities to conduct meetings. Besides, facilities to conduct method demonstration, campaigns, field trips/tours were also available to the J.A.Os. Availability of facilities for screening films/slides, vehicle for transport and telephone were found to be minimum.

b. Distribution of respondents according to their scores on perception of available communication facilities is given in Table 9.

Table 9. Distribution of respondents according to their scores on the availability of communication facilities.

Communication facilities Scores	Frequency of respondents			Total frequency	Per-cent age	Cumulative frequency	Cumulative percentage
	in low C.B.	in medium C.B.	in high C.B.				
5-6	0	3	0	3	4	3	4
7-8	3	5	1	9	11	12	15
9-10	5	7	0	12	15	24	30
11-12	4	15	1	20	25	44	55
13-14	3	13	1	17	21	61	76
15-16	3	8	1	12	15	73	91
17-18	0	3	2	5	6	78	97
19-20	0	1	1	2	2	80	99
21-22	0	1	0	1	1	81	100
Total	18	56	7	81	100		

Mean = 12.18

S.D. = 3.23

The above data revealed that most of the respondents were having only limited facilities. As much as 55 per cent of the respondents had scores below or equivalent to mean on this variable. About 25 per cent of the respondents obtained a score of 11-12 and another 21 per cent scored 13-14 on this measure.

ii. Relationship with communication behaviour

Null Hypothesis: There is no relationship between the perception of availability of communication facilities and communication behaviour.

The correlation coefficient obtained was 0.103 and it was not significant. Hence hypothesis was accepted. The

conclusion drawn was that there was no significant relationship between communication facilities and communication behaviour.

C. Communication skill.

i. Communication skill of J.A.Os

Table 10 shows the distribution of respondents according to their scores on communication skill.

Table 10. Distribution of respondents based on their scores on communication skill.

Communication skill Scores	Frequency of respondents			Total frequency	Per-cent- age	Cumula- tive frequ- ency	Cumula- tive percen- tage
	in low C.B.	in medium C.B.	in high C.B.				
20-27	1	0	0	1	1	1	1
28-35	0	0	0	0	0	1	1
36-43	1	1	0	2	2	3	3
44-51	3	4	0	7	9	10	12
52-59	2	14	0	16	20	26	32
60-67	9	23	3	35	43	61	75
68-75	0	10	1	11	14	72	89
76-83	1	4	2	7	9	79	98
84-91	1	0	1	2	2	81	100
Total	18	56	7	81	100		

Mean = 62.6

S.D. = 11.2

Data presented in the above Table 10 indicated that majority (68 per cent) scored 60 and above on this measure. As much as 43 per cent of the respondents obtained scores ranging from 60 to 67. No individual obtained scores between 30 to 36. As much as 20 per cent and 14 per cent of the

respondents obtained scores ranging from 52-59 and 68 to 75 respectively.

ii. Relationship with communication behaviour

Null Hypothesis: There is no relationship between communication skill and communication behaviour of Agricultural Extension Officers.

The computed correlation coefficient of 0.319 showed that communication skill was positively and significantly related with communication behaviour. Hence hypothesis was refuted.

D. Education.

The raw data presented in Table 11 showed clearly that there was no much variation among the respondents on their educational qualification.

Table 11. Frequency distribution of respondents according to their educational qualification.

B.Sc. (Ag.)	B.Sc. (Ag.) M.Sc. (Ag.)	B.Sc. (Ag.) M.Sc. (Ag.)	K.G.T.E. certificate	V.E.O. training	B.A. B.Sc. (Ag.) M.Sc. (Ag.)	B.Sc. (Ag.)	Total respondents
70	4	1	1	3	1	1	81

K.G.T.E. Certificate - Kerala Government Technical Education Certificate.

V.E.O. Training - Village Extension Officers Training.

It could be observed from the Table 11 that as many as 70 (86 per cent) respondents were B.Sc. (Ag.) holders. As there was

not much variation in the level of education of the respondents, it was not felt necessary to include this variable in the correlation analysis.

E. Professional training.

i. Training of J.A.Os

Distribution of extension personnel according to the number of trainings undergone by them is presented in Table 12.

Table 12. Distribution according to number of trainings received by extension personnel.

Number of Trainings	Frequency of respondents			Total frequency	Percentage	Cumulative frequency	Cumulative percentage
	in low C.B.	in medium C.B.	in high C.B.				
0	0	7	1	8	10	8	10
1	9	23	1	33	41	41	51
2	5	11	4	20	25	61	76
3	2	10	1	13	16	74	92
4	2	5	0	7	8	81	100
Total	18	56	7	81	100		

Mean = 2.23

S.D. = 1.10

The above data revealed that 90 per cent of respondents received either one training or more. As much as 49 per cent had undergone training 2 to 4 times. The percentage of respondents who had never undergone any training was only ten.

ii. Relationship with communication behaviour

Null Hypothesis: There is no relationship between professional training and communication behaviour of extension personnel.

The calculated correlation coefficient was $-.048$. Though negative it was not significant. Hence hypothesis was accepted. It was concluded that professional training had no relationship with communication behaviour.

F. Attitude towards high yielding varieties of rice.

i. Attitude of J.A.Os

The attitude scores obtained by the respondents are presented in Table 13 given below.

Table 13. Distribution of respondents according to their attitude scores towards high yielding varieties of rice.

Attitude Scores	Frequency of respondents			Total frequency	Per-cent- age	Cumula- tive frequ- ency	Cumula- tive percent- age
	in low C.B.	in medium C.B.	in high C.B.				
6- 7	0	5	2	7	9	7	9
8- 9	2	4	0	6	7	13	16
10-11	6	10	1	17	21	30	37
12-13	5	11	0	16	20	46	57
14-15	2	9	0	11	14	57	71
16-17	3	9	3	15	18	72	89
18-19	0	6	0	6	7	78	96
20-21	0	2	1	3	4	81	100
Total	18	56	7	81	100		

Mean = 12.88

S.D. = 3.78

The above data revealed that 37 per cent of the respondents obtained scores below mean (6-11) and the rest 63 per cent scored equivalent or above mean (12-21). As much as 21 per cent and

20 per cent of respondents obtained scores 10-11 and 12-13 respectively.

ii. Relationship with communication behaviour

Null Hypothesis: There is no relationship between attitude towards high yielding varieties of rice and communication behaviour of extension personnel.

The computed correlation coefficient was $-.020$ and though negative it was not significant. So hypothesis was accepted. It led to the conclusion that attitude towards high yielding varieties of rice was not related with communication behaviour.

G. Concept of communication.

i. Communication concept of J.A.Os

Data pertaining to the responses of extension personnel on their concept of communication are given in Table 14.

Table 14. Distribution of respondents according to their communication concept scores.

Communi- cation concept Scores	Frequency of respondents			Total frequ- ency	Per- cent- age	Cumula- tive frequ- ency	Cumula- tive percen- tage
	in low C.B.	in medium C.B.	in high C.B.				
11-12	1	0	0	1	1	1	1
13-14	0	0	0	0	0	1	1
15-16	1	1	0	2	2.5	3	3.5
17-18	0	4	0	4	5	7	8.5
19-20	7	5	1	13	16	20	24.5
21-22	3	13	0	16	20	36	44.5
23-24	3	22	2	27	33	63	77.5

Table 14. (Contd.)

Communi- cation concept Scores	Frequency of respondents			Total frequ- ency	Per- cent- age	Cumula- tive frequ- ency	Cumula- tive percen- tage
	in low C.B.	in medium C.B.	in high C.B.				
25-26	2	6	1	9	11	72	88.5
27-28	1	3	0	4	5	76	93.5
29-30	0	2	1	3	4	79	97.5
31-32	0	0	2	2	2.5	81	100
Total	18	56	7	81	100		

Mean = 22.75

S.D. = 3.65

Data presented in Table 14 indicated that 44.5 per cent of the respondents obtained scores below mean and the rest had scores equivalent to mean or above. As much as 33 per cent of the respondents obtained scores 23-24. The score range of 21.22 was obtained by 20 per cent of the respondents.

ii. Relationship with communication behaviour

Null Hypothesis: There is no relationship between concept of communication and communication behaviour of extension personnel.

The calculated correlation coefficient was 0.417 which was significant. Hence hypothesis was rejected. It was concluded that concept of communication had significant positive relationship with communication behaviour.

H. Self-confidence.

i. Self-confidence of J.A.Os

The self-confidence scores of the respondents is presented in Table 15.

Table 15. Distribution of respondents according to their scores of self-confidence.

Confidence Scores	Frequency of respondents			Total frequency	Per-cent- age	Cumula- tive frequ- ency	Cumula- tive percen- tage
	in low C.B.	in medium C.B.	in high C.B.				
11-12	2	0	0	2	2	2	2
13-14	0	0	0	0	0	2	2
15-16	1	5	0	6	7	8	9
17-18	3	5	0	8	10	16	19
19-20	3	5	0	8	10	24	29
21-22	3	13	1	17	21	41	50
23-24	4	15	2	21	26	62	76
25-26	2	5	0	7	9	69	85
27-28	0	3	0	3	4	72	89
29-30	0	3	0	3	4	75	93
31-32	0	2	4	6	7	81	100
Total	18	56	7	81	100		

Mean = 22.5

S.D. = 5.00

Data presented in the above Table 15 showed that half of the respondents was below mean and the other half was equivalent or above mean on this measure. As much as 26 per cent and 21 per cent of the respondents obtained scores of 23-24 and 21-22 respectively on level of self-confidence.

ii. Relationship with communication behaviour

Null Hypothesis: There is no relationship between self-confidence and communication behaviour of extension personnel.

Computed correlation coefficient was 0.420 which was significant. Hence hypothesis was refuted. It was concluded

that self-confidence was positively and significantly related with communication behaviour.

I. Information seeking behaviour.

i. Information seeking behaviour of J.A.Os

a. Preference of information sources:

The responses on the preferences of information sources of extension personnel are presented in Table 16.

Table 16. Preference for information sources by Junior Agricultural Officers.

Information Sources	Responses in frequency				Total Score	Rank
	Always	Some-times	Occasion-ally	Never		
Agricultural guides/diaries	45	27	8	1	203	1
Newspapers	50	19	12	0	200	2
Agricultural books	43	26	11	1	192	3
Radio farm broadcast	43	24	13	1	190	4
Agricultural journals	43	22	14	2	187	5
Monthly meeting of officers	30	36	14	1	176	6
Discussion with colleagues	21	41	18	1	163	7
Superior officers	22	38	19	2	161	8
Agricultural training	24	31	23	3	157	9
Agricultural seminars	25	23	32	1	153	10
Personnel of research stations	19	27	28	7	139	11

Table 16. (Contd.)

Information Sources	Responses in frequency				Total Score	Rank
	Always	Some-times	Occasion-ally	Never		
Agricultural exhibitions	17	28	30	6	137	12
Agricultural workshops	21	23	27	10	136	13

Data presented in Table 16 indicated that the foremost information source sought by extension personnel was agricultural guide/diary. Secondly they preferred newspapers and thirdly agricultural books for seeking information. The responses also revealed that Junior Agricultural Officers had little liking to seek information either from agricultural workshops or from agricultural exhibitions. They were also not interested to seek information from agricultural seminars, agricultural training and personnel of research stations.

b. The distribution of Agricultural Extension Personnel according to their information seeking behaviour scores is presented in Table 17.

Table 17. Distribution of respondents by their information seeking behaviour scores.

Information seeking Scores	Frequency of respondents			Total frequency	Per-cent-age	Cumula-tive frequ-ency	Cumula-tive percen-tage
	in low C.B.	in medium C.B.	in high C.B.				
24-26	1	0	0	1	1	1	1
27-29	3	1	0	4	5	5	6
30-32	0	2	0	2	2	7	8

J. Ability to use communicatees' language.

i. Ability of J.A.Os to use communicatees' language

Table 18 shows the distribution of extension personnel according to their ability in using the communicatees' language.

Table 18. Distribution of respondents according to their scores on ability to use communicatees' language.

Ability Scores	Frequency of respondents			Total frequency	Per-centage	Cumula-tive frequ-ency	Cumula-tive percen-tage
	in low C.B.	in medium C.B.	in high C.B.				
0	0	1	0	1	1	1	1
1	0	0	0	0	0	1	1
2	0	0	0	0	0	1	1
3	3	0	0	3	4	4	5
4	2	1	0	3	4	7	9
5	0	4	0	4	5	11	14
6	2	3	0	5	6	16	20
7	2	7	2	11	13	27	33
8	2	6	0	8	10	35	43
9	6	22	1	29	36	64	79
10	0	4	1	5	6	69	85
11	1	2	1	4	5	73	90
12	0	6	2	8	10	81	100
Total	18	56	7	81	100		

Mean = 7.89

S.D. = 2.55

It was evident from the data obtained on this variable that 36 per cent of the respondents obtained a score of 9. As much as 40 per cent of the respondents in the medium

level of communication behaviour obtained a score of 9.

The percentage of respondents in the low and high categories who obtained this score was 33 and 14 respectively.

ii. Relationship with communication behaviour

Null Hypothesis: There is no relationship between ability to use communicatees' language and communication behaviour of extension personnel.

The computed correlation coefficient of 0.145 was not significant. Hence hypothesis was accepted. It led to the conclusion that ability to use communicatees' language had no relationship with communication behaviour.

K. Attitude towards farmers.

i. Attitude of J.A.Os towards farmers

Attitude scores of extension personnel towards farmers is presented in Table 19 given below.

Table 19. Distribution of respondents on attitude scores towards farmers.

Attitude Scores	Frequency of respondents			Total frequency	Per-cent- age	Cumula- tive frequ- ency	Cumula- tive percen- tage
	in low C.B.	in medium C.B.	in high C.B.				
9-10	4	2	0	6	7	6	7
11-12	5	4	1	10	12	16	19
13-14	4	11	1	16	20	32	39
15-16	1	16	1	18	23	50	62
17-18	2	10	1	13	16	63	78

Table 19. (Contd.)

Attitude Scores	Frequency of respondents			Total frequency	Per-cent age	Cumula-tive frequ-ency	Cumula-tive percen-tage
	in low C.B.	in medium C.B.	in high C.B.				
19-20	2	10	1	13	16	76	94
21-22	0	2	0	2	2	78	96
23-24	0	1	2	3	4	81	100
Total	18	56	7	81	100		

Mean = 15.66

S.D. = 3.60

Data presented in Table 19 showed that 23 per cent and 20 per cent of respondents obtained attitude scores of 15-16 and 13-14 respectively. It was also evident that 29 per cent of the respondents with medium level of communication behaviour scored 15-16 on this attitude measurement.

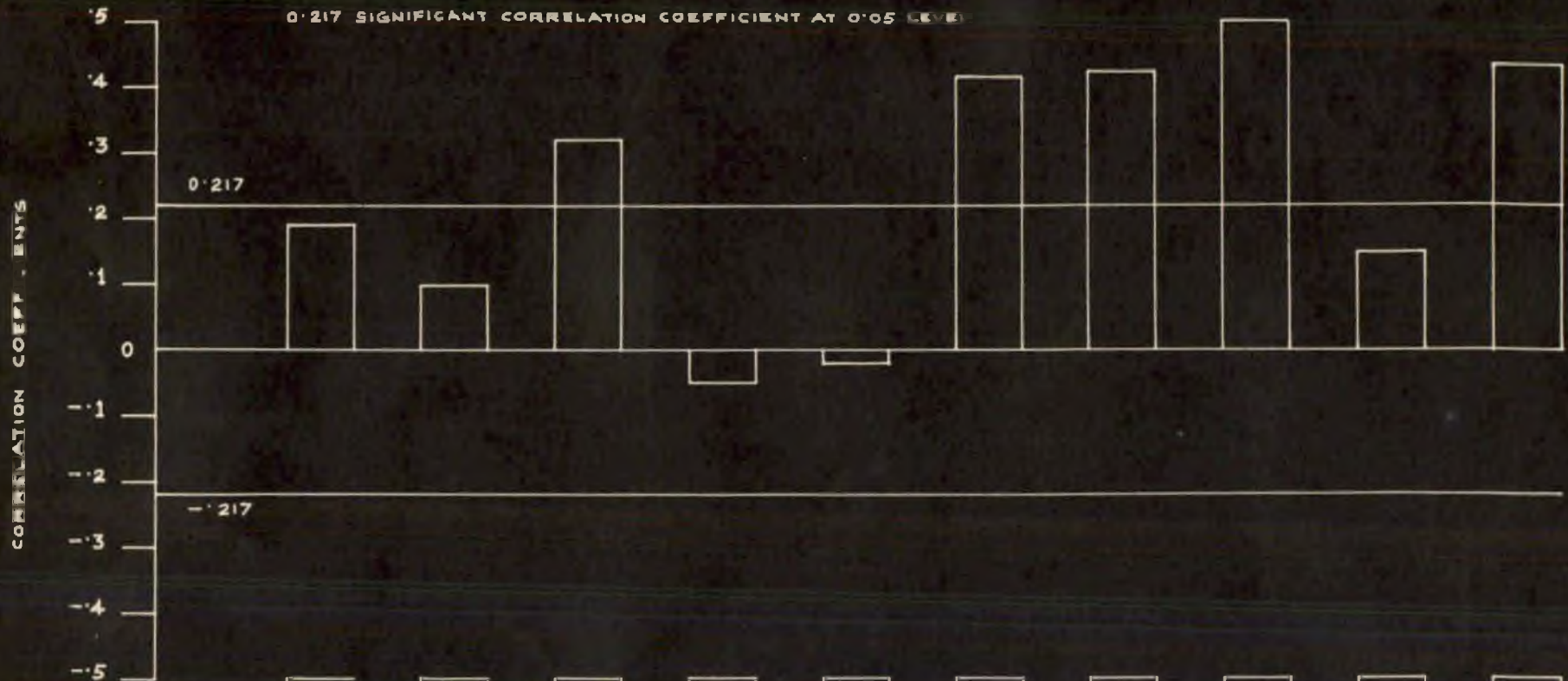
11. Relationship with communication behaviour

Null Hypothesis: There is no relationship between attitude towards farmers and communication behaviour of extension personnel.

Correlation coefficient was 0.425 which was significant. So hypothesis was rejected. It was concluded that attitude towards farmers was significantly and positively related with communication behaviour.

Figure 1 shows the relationship of the variables with communication behaviour.

FIG. 1 . RELATIONSHIP OF COMMUNICATOR FACTORS WITH COMMUNICATION BEHAVIOUR.



X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀
INDEPENDENT VARIABLES									
X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀
KNOWLEDGE OF SUBJECT MATTER	COMMUNICATION FACILITIES	COMMUNICATION SKILL	PROFESSIONAL TRAINING	ATTITUDE TOWARDS HIGH-YIELDING VARIETIES OF RICE	CONCEPT OF COMMUNICATION	SELF CONFIDENCE	INFORMATION SEEKING BEHAVIOUR	ABILITY TO USE COMMUNICATEES' LANGUAGE	ATTITUDE TOWARDS FARMERS

V. Pattern of receipt of feedback information by Agricultural Extension Personnel.

The two aspects studied under this were

- A) Type of information feedback received by J.A.Os.
- B) The methods through which feedback information was received.

A) Type of information feedback-

Data pertaining to different types of information feedback are presented in Table 20.

Table 20. Type of information feedback received by extension personnel.

Type of information feedback	Response pattern in percentage					Total Score	Rank
	Most often	Often	Some times	rare-ly	Never		
Communication on supply of inputs	41	32	19	7	1	246	1
Communication on technical aspects	22	33	30	15	0	213	2
Communication on administration aspects (sanction of loan etc.)	2	8	32	35	23	106	3

Data showed that most of the information received by extension personnel was on supply of inputs followed by technical and administration aspects.

B) Data related with the ways through which information feedback occurred are presented in the Table 21 given below.

Table 21. Methods of receipt of information feedback.

Methods of information feedback	Response pattern in percentage					Total Score	Rank
	Most often	Often	Some times	Rare-ly	Never		
i. From farmers							
During discussion with farmers	36	43	17	4	0	252	1
During farmers meeting	35	38	21	6	0	244	2
During farmers training	29	36	28	7	0	231	3
Office call by farmers	23	41	16	11	9	210	5
Through personal letters	6	16	33	36	9	142	6
ii. From subordinates							
From subordinate officers	25	35	28	11	1	219	4

It was observed that most often extension personnel received feedback information while discussing with farmers. The second and third ranks were obtained by farmers meeting and farmers training. It was also found that farmers seldom write to extension personnel.

VI. Intercorrelation analysis.

Intercorrelation analysis was carried out in order to find out the relationship among the various components

of communication behaviour and the different independent variables.

A. Intercorrelation analysis of the components of communication behaviour.

In order to test the relationship of the five factors included for the computation of communication behaviour intercorrelation analysis was worked out. Results of this analysis are presented in Table 22. The Fig. 2 shows the results of this analysis.

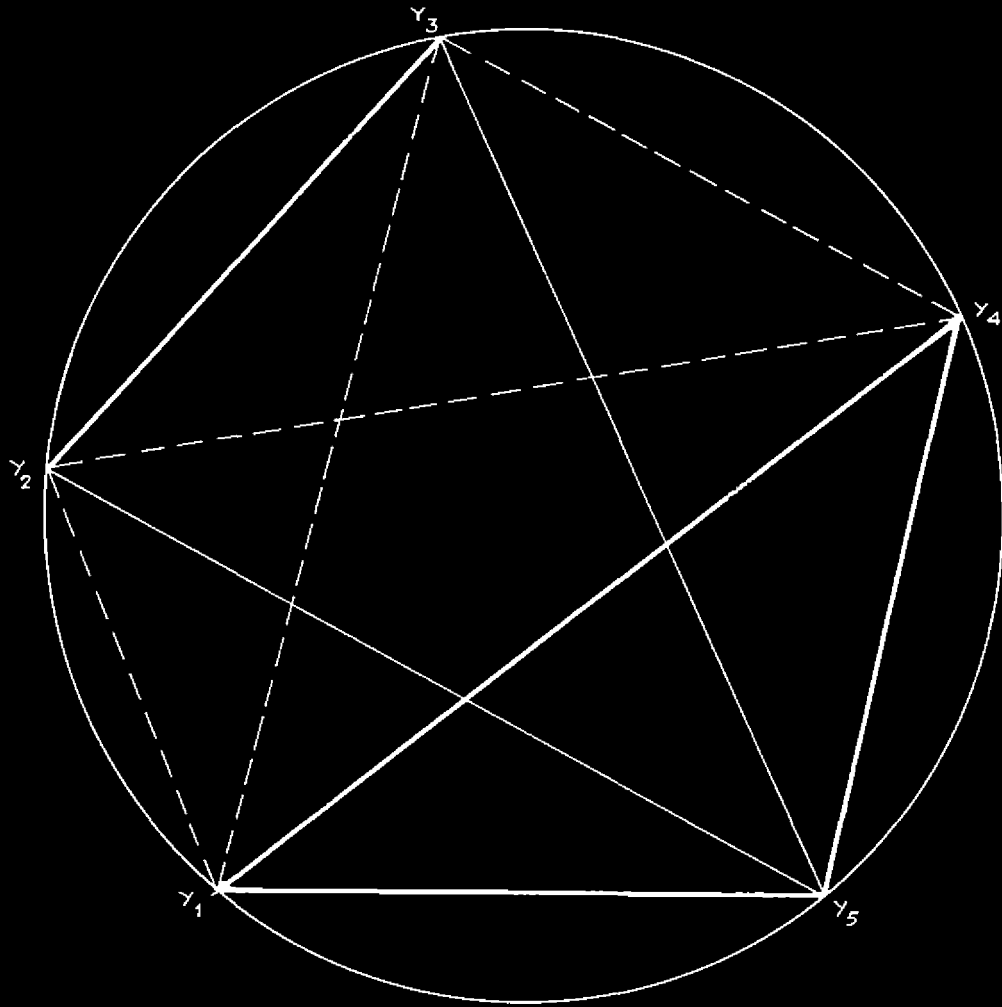
Table 22. Intercorrelation of components of communication behaviour.

Components	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅
Information input Y ₁	-	-.1120	-.0891	.5152*	.4777*
Decoding Y ₂		-	.6887*	-.0589	.0045
Encoding Y ₃			-	-.1556	.0328
Information output Y ₄				-	.5015*
Information feedback Y ₅					-

*Significant at 0.05 level.

Correlation analysis showed that information input was significantly correlated with information output and feedback. There was significant correlation between

FIG. 2. INTERCORRELATION DIAGRAM - COMPONENTS OF COMMUNICATION BEHAVIOR.



—————	POSITIVE SIGNIFICANT
—————	POSITIVE
- - - - -	NEGATIVE
Y ₁	INFORMATION INPUT
Y ₂	DECODING
Y ₃	ENCODING
Y ₄	INFORMATION OUTPUT
Y ₅	INFORMATION FEED BACK

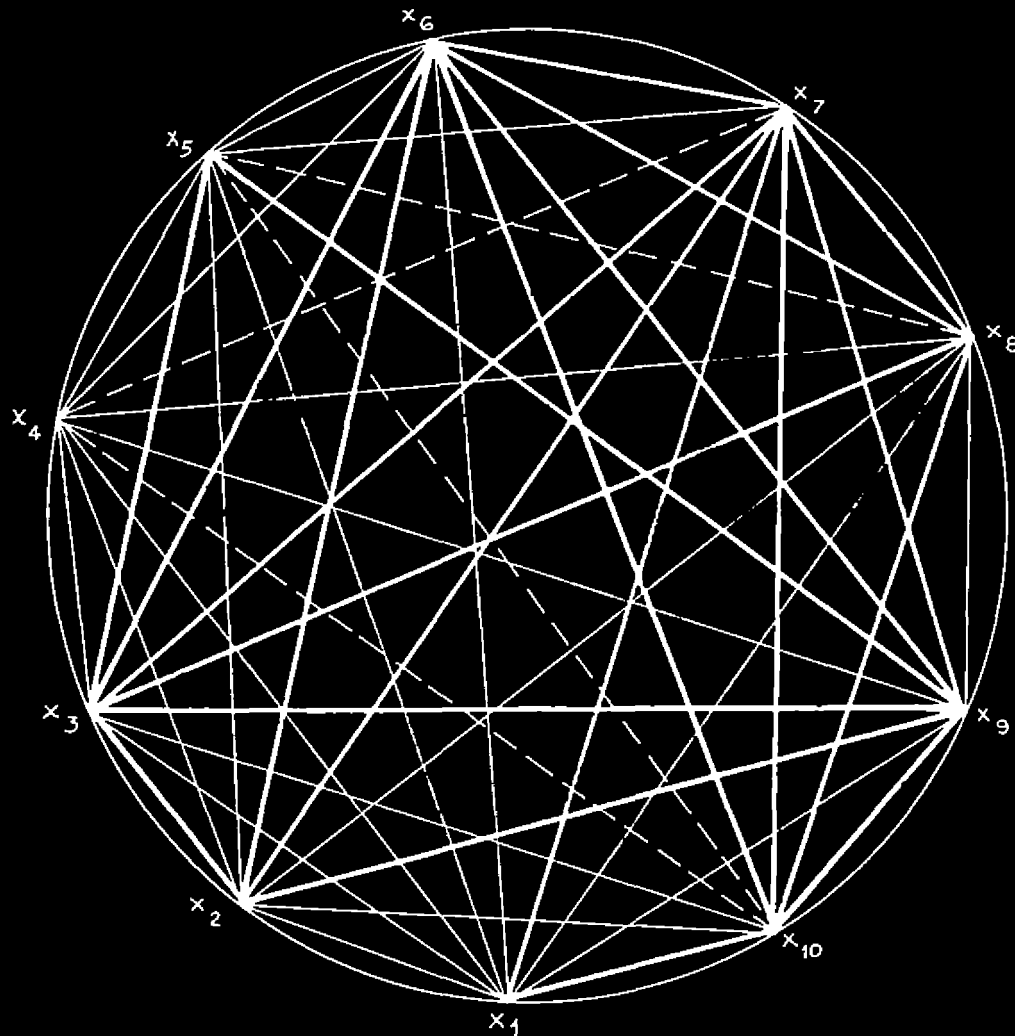
decoding and encoding and also between information output and feedback.

B. Interrelationship of communicator factors.

For the purpose of testing the interrelationship of independent variables, intercorrelations of these factors were worked out. This interrelationship is shown in Fig. 3. Table 23 shows the correlation values of these factors.

It could be seen from Table 23 that knowledge of subject matter was significantly related with self-confidence and communication facilities. Attitude towards farmers was significantly correlated with communication skill, concept of communication, self-confidence and ability to use communicatees' language. Communication skill was found to be having significant correlation with attitude towards high yielding varieties of rice, concept of communication, self-confidence, information seeking behaviour and ability to use communicatees' language. Professional training was not significantly correlated with any of the communicator factors. Attitude towards high yielding varieties of rice showed significant relationship with ability to use communicatees' language. Concept of communication was found to be significantly correlated with self-confidence, information seeking

FIG. 3 - INTER CORRELATION DIAGRAM - INTER RELATIONSHIP OF INDEPENDENT VARIABLES.



——— POSITIVE SIGNIFICANT
 - - - - - NEGATIVE
 ——— POSITIVE

X_1 - KNOWLEDGE OF SUBJECT MATTER
 X_2 - ATTITUDE TOWARDS FARMERS
 X_3 - COMMUNICATION SKILL
 X_4 - PROFESSIONAL TRAINING
 X_5 - ATTITUDE TOWARDS HIGH YIELDING VARIETIES OF RICE

X_6 - CONCEPT OF COMMUNICATION
 X_7 - SELF-CONFIDENCE
 X_8 - INFORMATION SEEKING BEHAVIOUR
 X_9 - ABILITY TO USE COMMUNICATES LANGUAGE
 X_{10} - COMMUNICATION FACILITIES

Table 23. Intercorrelation of independent variables.

Independent variables	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀
Knowledge of subject matter (X ₁)	-	.083	.171	.146	.057	.215	.255*	.058	.165	.225*
Attitude towards farmers (X ₂)		-	.341*	.097	.108	.320*	.254*	.187	.253	.152
Communication skill (X ₃)			-	.133	.299*	.514*	.424*	.390*	.431*	.199
Professional training (X ₄)				-	.053	.031	-.033	.096	.127	.022
Attitude towards high yielding varieties of rice (X ₅)					-	.128	.161	-.144	.343*	-.020
Concept of communication (X ₆)						-	.367*	.318*	.390*	.345*
Self-confidence (X ₇)							-	.418*	.408*	.510*
Information seeking behaviour (X ₈)								-	.209	.333*
Ability to use communicatees' language (X ₉)									-	.273*
Communication facilities (X ₁₀)										-

*Significant at 0.05 level.

behaviour, ability to use communicatees' language and communication facilities. Self-confidence was significantly related with information seeking behaviour, ability to use communicatees' language and communication facilities. There was significant correlation between information seeking behaviour and communication facilities. Ability to use communicatees' language was significantly correlated with communication facilities.

VII. Results of Path Analysis.

Path analysis was worked out in order to find the direct and indirect effects of the selected factors on communication behaviour. It was also useful to know the extent of influence of the selected factors on communication behaviour. For working out path analysis 9 factors were selected. They were:

X ₁	=	Knowledge of subject matter.
X ₂	=	Attitude towards farmers.
X ₃	=	Communication skill.
X ₄	=	Professional training.
X ₅	=	Attitude towards high yielding varieties of rice.
X ₆	=	Concept of communication.
X ₇	=	Self-confidence.
X ₈	=	Information seeking behaviour.
X ₉	=	Ability to use communicatees' language.

The results of this analysis are presented in Table 24. The influence of communication facilities (X_{10}) on communication behaviour was studied separately and the path coefficient was 0.0834. Only 0.7 per cent of the variation in communication behaviour was attributable to communication facilities (X_{10}).

The results of path analysis revealed that maximum direct effect on communication behaviour was found to be contributed by information seeking behaviour (X_8) followed by concept of communication (X_6), attitude towards farmers (X_2), self-confidence (X_7), knowledge of subject matter (X_1), attitude towards high yielding varieties of rice (X_5) and communication skill (X_3).

The high direct effect of information seeking behaviour was intensified by the indirect positive effects of (X_1) knowledge of subject matter, (X_2) attitude towards farmers, (X_3) communication skill, (X_6) concept of communication, (X_7) self-confidence though it is reduced to some extent through the negative indirect effects via (X_4) professional training, (X_5) attitude towards high yielding varieties of rice and (X_9) ability to use communicatees' language. In case of concept of communication its direct effect was intensified by the indirect positive effects via (X_1) knowledge of subject matter,

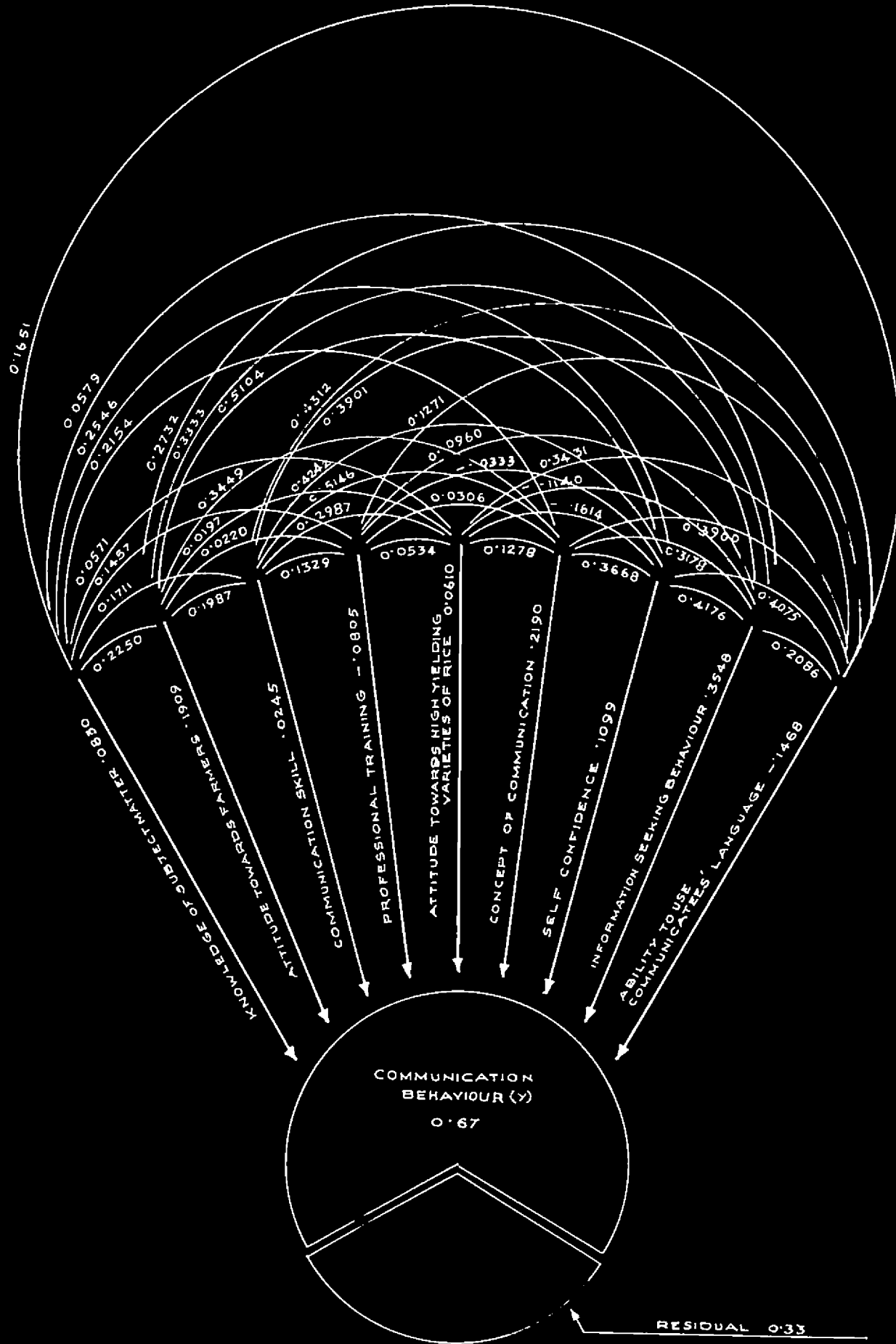
Table 24. Direct and indirect effects of component factors on communication behaviour.

	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	Correlation coefficient
X ₁	<u>.0830</u>	.0429	.0042	-.0117	.0035	.0472	.0280	.0205	-.0242	.1935
X ₂	.0187	<u>.1909</u>	.0049	.0018	-.0012	.0755	.0561	.1181	-.0401	.4246**
X ₃	.0142	.0379	<u>.0245</u>	-.0107	.0182	.1125	.0467	.1384	-.0633	.3185**
X ₄	.0121	-.0042	.0033	<u>-.0805</u>	.0033	-.0067	-.0037	.0340	-.0187	-.0477
X ₅	.0047	-.0038	.0073	-.0043	<u>.0610</u>	.0280	.0177	-.0404	-.0504	-.0199
X ₆	.0179	.0658	.0126	-.0025	.0078	<u>.2190</u>	.0403	.1128	-.0572	.4164**
X ₇	.0211	.0974	.0104	.0027	.0098	.0803	<u>.1099</u>	.1482	-.0598	.4200**
X ₈	.0048	.0636	.0096	-.0077	-.0070	.0696	.0456	<u>.3548</u>	-.0306	.5029**
X ₉	.0137	.0521	.0106	-.0102	.0209	.0854	.0448	.0738	<u>-.1468</u>	.1445

Underlined values indicate the direct effects of factors on communication behaviour.

**Significant at 0.01 level.

(X₂) attitude towards farmers, (X₃) communication skill, (X₅) attitude towards high yielding varieties of rice, (X₇) self-confidence and (X₈) information seeking behaviour, though it was diminished little by the negative indirect effects through (X₄) professional training and (X₉) ability to use communicatees' language. The direct positive effect of (X₂) attitude towards farmers, and its indirect positive effects via (X₁) knowledge of subject matter, (X₃) communication skill, (X₄) professional training, (X₆) concept of communication, (X₇) self-confidence and (X₈) information seeking behaviour increased the direct positive association between (X₂) attitude towards farmers and communication behaviour, though it was minimised by the negative indirect effects via (X₅) attitude towards high yielding varieties of rice and (X₉) ability to use communicatees' language. Path diagram (Fig. 4) shows the direct effect of these factors on communication behaviour. The fraction of variance on communication behaviour, attributable to these nine factors (X₁ - X₉) was 0.67.



PATH DIAGRAM

DISCUSSION

D I S C U S S I O N

The discussion of the results of this study given in the chapter on results is presented below.

I. Pattern of receipt of Technical Information.

The results revealed that Junior Agricultural Officers were receiving technical information with respect to high yielding varieties of rice mostly from the guide/diary supplied by the Department of Agriculture. These diaries/guides which contain latest technical information on different aspects related with agriculture are regularly supplied to the extension officers. Since these guides were readily available they were highly depending on this source of information. The findings also revealed that the other important sources of information were radio, discussion with colleagues, monthly meeting of officers, agricultural books and agricultural journals. Ray (1975) also reported that extension officers were getting technical information mostly from official letters, leaflets/pamphlets, folders, agricultural magazines and official magazines. Sanoria and Singh (1976 b) concluded that block level extension personnel used mostly extension publications, farm radio broadcast and meetings-seminars for receipt of information.

In this study radio was also emerged as an important source of information to J.A.Os. The specialists of the Agricultural University and Department of Agriculture are regularly presenting broadcasts on technical aspects related with agriculture. Since these broadcasts give latest and detailed information it can serve as an important source of information to the extension personnel also. The findings also revealed that extension personnel seldom get technical information directly from the research personnel. This might be due to the lack of mutual contact between the scientists of research stations and extension personnel. Trainings, seminars, exhibitions and workshops were also found to be less important sources of information. In the trainings that are imparted to J.A.Os, the scientists and experts are discussing the latest developments in the field of agriculture. In spite of this fact, it received lower importance. This might be due to the indifferent attitude of the Junior Agricultural Officers towards training. This finding is again supported by the other finding that the professional training received had no relationship with communication behaviour. As seminars workshops, exhibitions were not frequently conducted these emerged as sources of lower importance. Ambastha and Singh (1977) also reported that research seminar/workshop were comparatively sources of lesser importance for information to the scientists.

II. Communication Pattern of Information.

In this study, personal talks and farm visits emerged as the methods most utilized by extension personnel for information communication. It might be due to the fact that an extension worker could talk to his communicatees personally and visit his farm whenever he found that convenient. This was in accordance with the findings of Hiranand and Jain (1967) who reported that personal contact, meetings, group discussions and demonstrations were the main extension methods used by block personnel. Kar et al (1970) observed that personal contact was used most extensively by the extension workers. Ambastha and Singh (1976) also reported that office call by farmers, followed by advisory letters and farm/home visit were the methods often used by the farm scientists to contact farmers. Junior Agricultural Officers were also found to be communicating information most often through radio, result demonstration, folders/pamphlets and newspapers. Due to the spread of transistor radios and the allotment of considerable time for broadcasts related with agriculture, radio has become a quick and convenient method of communication with rural people. Extension personnel and specialists are frequently given opportunities to present technical information through radio.

This might be the reason for including this as an important method of communication by the Junior Agricultural Officers. Since the conduct of result demonstration and distribution of folders and pamphlets are the regular activities of the Junior Agricultural Officers, these also emerged as methods often used for communication. In Kerala the high literacy combined with the large number of newspapers in local language gave an opportunity to the extension personnel to use this media for extension work. Most of these newspapers now have regular pages at fixed days dealing with farming aspects and agricultural personnel are also contributing to them regularly. Exhibitions, posters and charts, letters to farmers were not found to be important methods for communication. This might be due to the fact that extension personnel were not getting sufficient opportunities to use these methods due to the limitations of finance and workload.

Data pertinent to the different category of communicates, revealed that J.A.Os were spending most of the time for communicating with farmers. At the same time they were spending sufficient time in communicating with local leaders and other extension workers. This was an indication that they were performing their expected roles. Little time was spent for communication of information to

representatives of input supply agencies. This might be due to the fact that these representatives who were also graduates in Agriculture might not have sought technical information directly from J.A.Os.

III. Relationship of Communicator Factors.

Out of the ten variables examined for their relationship with communication behaviour 5 variables viz., knowledge of subject matter, communication facilities, professional training, attitude towards high yielding varieties of rice and ability to use communicatees' language were not related with communication behaviour. The rest of the variables such as communication skill, concept of communication, self-confidence, information seeking behaviour and attitude towards farmers showed a significant and positive relationship with communication behaviour.

A. Knowledge of subject matter

Contrary to the findings of Kherde and Sahay (1972), Chakravarthy and Singh (1974) and the hypotheses postulated by Berlo (1960) and Dahama (1968), this study revealed that knowledge was not an important communicator factor which affected the communication behaviour. A perusal of the data presented in Table 7 would reveal that great majority of J.A.Os had a high knowledge of the technical

matter related with high yielding varieties of rice. Almost all the members of a group who exhibited a different communication behaviour had high knowledge score. This might be the reason why, this factor did not emerge as an important variable which affected communication behaviour.

B. Communication facilities

The availability of communication facilities to the extension personnel also emerged as a factor which had no relationship with communication behaviour. Similar finding was obtained by Sinha et al (1976) who reported that there was no relationship between communication facilities and effectiveness of communication in a study conducted with village officials in Maharashtra. At the same time they obtained positive relationship between these two variables in Punjab. A perusal of data in Table 3, regarding the extent of use of communication methods would reveal that majority of them were using personal talks and farm visits. These methods did not require the facilities, the availability of which were measured in this study. This could be the reason for not obtaining a positive relationship between communication facilities and communication behaviour.

C. Professional training

There was no indication of the significant relationship between the professional training received and communication behaviour. This was in accordance with the findings of Kherde and Sahay (1972), Bhatia and Sandhu (1975), Reddy (1976) and Sinha et al (1976). However this finding was in contradiction with the findings of Salvi and Dudhani (1967), Patel and Leagans (1968). The reason for such a finding, inspite of the fact that the extension officer gets a chance to know and discuss the latest developments in agriculture during training, can be traced to the attitude of J.A.Os towards training. As much as 90 per cent of the respondents had undergone training which is evident from the data presented in Table 12. As pointed out by Sundararajan (1976) the difficulties like non-receipt of training orders in time and difficulties in getting relieved, inadequate hostel and transport facilities etc., were faced by the trainees during training situations. These might have produced an unfavourable attitude towards training. And because of this negative attitude they might not have considered training as an important source of information. Besides,

extension personnel had only little liking to seek the information from training which could be seen from data presented in Table 16. This also supported the view that they had unfavourable attitude towards training.

D. Ability to use communicatees' language

Ability to use communicatees' language was found to be another factor which had no relationship with communication behaviour. In all the available literature dealing with communication, this was mentioned as an important factor contributing to the communicator efficiency. Subramaniam and Knight (1977) obtained positive relationship between communication fidelity and language compatibility of the communicator with that of receivers. Dube (1958), Berlo (1960) and Singh (1976) also stated that language compatibility of the communicator with that of receivers would be related with efficiency in communication. The data presented in Table 18 revealed that as much as 80 per cent of the respondents in the study had above average ability in using the communicatees' language. The reason for not obtaining a significant correlation could be attributed to the high scores obtained by the majority of the respondents on this measure due to

the over rating of respondents on their ability in using the communicatees' language.

E. Attitude towards high yielding varieties of rice

This study revealed that attitude towards high yielding varieties of rice which was the subject matter of communication studied, had no significant relationship with communication behaviour. Communication of technical information on high yielding varieties of rice was the official responsibility of the extension officers. The officers were given definite targets for the popularisation of high yielding varieties within a specified time limit. They had to achieve these targets in order to convince the superiors of their efficiency. So irrespective of their attitude towards the content of communication they had to undertake communication activities. Also according to Fishbein (1973) an individual's attitude towards an object would be related with specific behaviour only if his attitude towards the object is correlated with his attitude towards performing that specific behaviour. The finding of this study is in line with the view. It might not be the attitude towards the content but the attitude towards communication act that might have influenced the communication behaviour.

Wicker (1969) also felt that attitude and behaviour must be measured during separate occasions in order to obtain the valid results. Simultaneous measurement of behaviour and attitude in this study might have resulted in not obtaining a significant relation.

Similar result was also reported by Kherde and Sahay (1972), Bhatia and Sandhu (1975). This was also in line with the findings of Sinha et al (1976) who reported no relationship between attitude towards message and effectiveness of communication. But this finding was in disagreement with the hypotheses of Berlo (1960) and Mehrabian and Reed (1973).

F. Communication skill

Correlation analysis of the communication skill indicated that communication skill was positively and significantly related with communication behaviour. Skill in doing an act would definitely be related with the efficiency in the performance of that act. The more the skill in doing an act, the more will be the efficiency in performing that act. Junior Agricultural Officers, who had superior skill in writing, talking and handling of equipment were found to be more efficient communicators. This finding was in accordance with the findings of Sinha et al (1976).

Berlo (1960) also stated that communication skill would affect the communication behaviour of the source. But this was in contrary with the findings of Dhillon and Sandhu (1977) who reported that communication skill had no relationship with job effectiveness.

G. Concept of communication

As hypothesised a significant positive correlation was obtained between concept of communication and communication behaviour. Those who had a clear and better concept of the communication process were found to be better communicators. This finding was in conformity of the views of Berlo (1960) and Leagans (1961).

H. Self-confidence

Self-confidence was found to be another factor significantly correlated with communication behaviour. One should have confidence in himself for efficiently discharging his duties and responsibilities. Naturally a J.A.O., who is having more confidence in himself can interact with farmers frequently and effectively too. An indication of such a positive relationship could also be seen from the report of Muthayya and Gnanakannan (1973) who reported positive correlation

between self-confidence and job-satisfaction.

I. Information seeking behaviour

There was significant positive relationship between information seeking behaviour and communication behaviour. According to Berlo (1960) one cannot communicate what one does not know. For knowing what he has to know, the communicator has to seek information from the sources which he likes. It is obvious that a communicator who readily seeks information from his preferred sources of information may know the content of his communication better. Such an individual may exhibit a high communication behaviour. As this aspect had not been included in any of the previously reported studies, it is difficult either to support or contradict this finding in the light of the findings of similar studies. It may be worthwhile to mention the study of Kanagasabai (1975) who obtained result which can be considered as contradictory to the finding of this study. He reported that habit of reading literature was not related with the efficiency of Deputy Agricultural Officers in Tamil Nadu. However Bhatia and Sandhu (1975) reported positive relationship between magazine reading and job-effectiveness of the Village Level Workers.

J. Attitude towards farmers

This factor namely attitude towards farmers had shown significant relationship with communication behaviour. This was in accordance with the findings of Kherde and Sahay (1972) who reported positive relationship between attitude towards villagers and role performance of Village Level Workers. Reddy (1976) also obtained positive correlation between attitude towards farmers and communication behaviour. At the same time Bhatia and Sandhu (1975) found that attitude towards villagers was not related with job-effectiveness.

This result might be due to the fact that a communicator can communicate to his receivers or farmers effectively only when he is having interest in their welfare and favourable attitude towards farmers. Extension officers interested in the uplift of the farmers may have positive attitude towards them and may undertake more communication behaviour. This finding showed that it is the attitude towards the communicatees rather than the attitude towards the content of communication which influenced the communication behaviour.

IV. Pattern of receipt of Feedback Information.

Data with regard to the type of feedback information revealed that Junior Agricultural Officers received more feedback on supply of inputs. The farmers were getting technical information through radio, folders, newspapers and demonstration. They might not have discussed technical aspects with J.A.Os more often as they were getting the information from other sources. Because of use of high yielding varieties and improved technology, it has become inevitable for the farmers to take efforts for getting the inputs in time. As the availability of inputs is the problem being repeatedly faced by the peasants, they naturally have anxiety to get their inputs in time and in enough quantity too. This might be the reason why the J.A.Os were getting more information feedback on supply of inputs.

Most of the information feedback were received during discussion with farmers. During discussion farmers get enough time and opportunity to reveal their inner ideas, thoughts and feelings. In a discussion situation the farmers are usually limited in number and hence extension personnel can hear and clear their specific problems. Because of the more possibility of exchange of ideas and feelings between the communicators and

communicatees during this situation, the J.A.Os were getting more information feedback during farmers discussion. The farmers had to meet the J.A.Os for getting the inputs required for the cultivation of high yielding varieties and this might have provided them a chance for discussion.

V. Intercorrelation Analysis: Components of Communication Behaviour.

Five components which were assumed to be independent were considered for measuring communication behaviour in this study. The intercorrelation analysis between the five components revealed that they were not independent as assumed. The information input, information output and information feedback were significantly related. Such interrelationship between information input and output was also obtained by Singh and Ambastha (1975) and Sanoria and Singh (1976 a). An individual who is receiving more information may have better knowledge of the subject matter and hence may also be trying to communicate more. When he is communicating more he will naturally be receiving more feedback information from the communicatees.

The other two components, decoding and encoding behaviour, were also significantly related. Zaidel and Mehrabian (1973) also reported such positive

relationship though not significant. Decoding and encoding are both mental activities. In decoding the communicator regroups the stimuli received to put into some order in order get meaning and in encoding his thought symbols are arranged into meaningful words. Therefore it stands to reason that an individual who is capable for decoding will also be capable for encoding. From the above interrelationships obtained in this study it can be concluded that any one factor from the group of information input, information output and information feedback combined with either decoding or encoding behaviour will give a valid measure of the communication behaviour.

VI. Intercorrelation and Path Analysis of Independent Variables.

A. Intercorrelation of Independent Variables

As shown below intercorrelation analysis of the independent variables revealed that excepting professional training (X_4) all other variables were interrelated.

1) Knowledge of subject matter was significantly related with self-confidence and communication facilities. J.A.Os with sound technical knowledge were more self-confident. Similarly a self-confident J.A.O. also

perceived more availability of communication facilities. It could be concluded that knowledge gave more self-confidence which resulted in the greater perception of availability of communication facilities.

ii. Attitude towards farmers Four variables viz., communication skill, concept of communication, self-confidence and ability to use communicatees' language were significantly related with attitude towards farmers. Extension personnel with superior communication skill, clear understanding of the communication process, good ability to use Malayalam language were more self-confident and they had a favourable attitude towards farmers.

iii. Communication skill was significantly correlated with attitude towards high yielding varieties of rice, concept of communication, self-confidence, information seeking behaviour and ability to use communicatees' language. This showed that a J.A.O. who is having favourable attitude towards high yielding varieties of rice, a clear concept about the communication process, more self-confidence and good in using the language Malayalam will naturally seek more information and such a person will definitely have a good communication skill.

iv. Professional training This variable did not exhibit any significant relationship with the selected variables. The number of trainings received by J.A.Os had no relationship with the other factors studied. As explained earlier, the negative attitude of J.A.Os towards training, might be the reason why this variable did not show significant relationship with any of the other variables.

v. Attitude towards high yielding varieties of rice This variable exhibited significant positive relationship with ability to use communicatees' language. This suggested that a person having a favourable attitude towards communicatees will be efficient in using communicatees' language. Because of favourable attitude he may interact more with communicatees and this may give him better ability to use their language.

vi. Concept of communication Four variables such as self-confidence, information seeking behaviour, ability to use communicatees' language and communication facilities were significantly related with concept of communication. A J.A.O. who knows thoroughly the communication process, its elements and inter-relationship will be confident, with high information

seeking habits, good skill in using communicatees' language and because of these factors he will have favourable attitude towards peasants too.

vii. Self-confidence This variable was significantly and positively related with all the variables except professional training and attitude towards high yielding varieties of rice. This suggested that extension personnel who were confident in themselves had better communication skill, better communication concept, better ability in using communicatees' language, more information seeking habits, sound knowledge of subject matter and favourable attitude towards high yielding varieties of rice and receivers.

viii. Information seeking behaviour Information seeking behaviour was found to be having significant and positive relationship with communication facilities, self-confidence, concept of communication and communication skill. This revealed that a confident person who may have a clear concept of communication may exhibit good communication skill. He may have right perception about the communication facilities available to him and may seek information from the sources of his choice.

ix. Ability to use communicatees' language This variable did not exhibit significant relationship only with three variables viz., knowledge of subject matter, professional training and information seeking behaviour. This showed that ability to use communicatees' language was independent of technical knowledge, receipt of training and nature of information seeking of J.A.Os. This also suggested that extension personnel good in using Malayalam language had favourable attitude towards message, receiver, more confidence, good communication skill and clear perception of the communication process and communication facilities.

x. Communication facilities Five variables namely knowledge of subject matter, concept of communication, self-confidence, information seeking behaviour and ability to use communicatees' language were significantly correlated with communication facilities. This led to the conclusion that a J.A.O. perceiving in the right way about the facilities available to him for communication would have sound technical knowledge, more confidence, high information seeking habits, good understanding of the communication process as well as an expert in using the communicatees' language.

B. Results of Path Analysis.

Path analysis showed that information seeking behaviour had maximum direct effect on communication behaviour followed by concept of communication, attitude towards farmers, self-confidence, knowledge of subject matter, attitude towards high yielding varieties of rice and communication skill. Comparatively higher direct effect was contributed by information seeking behaviour, concept of communication and attitude towards farmers. Since the information seeking behaviour showed the maximum positive direct effect and also the highest positive correlation with communication behaviour, this variable should be a criterion in understanding the communication behaviour. Because of the comparatively higher contributions of concept of communication and attitude towards farmers, these two factors are also to be considered for defining communication behaviour.

SUMMARY

S U M M A R Y

The present study was geared to measure the communication behaviour of Agricultural Extension Personnel of Kerala as well as the factors associated with their communication behaviour. The specific objectives designed for this study were

1. To study the sources from which Agricultural Extension Officers receive the farm information.
2. To study how the Agricultural Extension Personnel communicate the farm information to the farmers.
3. To identify the factors associated with the effective communication of Agricultural Extension Personnel.
4. To study the receipt pattern of information feedback of Agricultural Extension Personnel.

This study was conducted in Trivandrum and Quilon districts, which were selected by adopting lot method of random sampling. Eleven variables were selected for inclusion in the study based on the rating of extension experts on importance of variables related with communication behaviour of extension personnel. Responses were collected through a distributed questionnaire from 81 J.A.Os.

The results of this study are summarised as follows.

1. It was evident from the study that majority (69 per cent) of the Junior Agricultural Officers were having "medium" level of communication behaviour. About 22 per cent and 9 per cent of the respondents showed "low" and "high" levels of communication behaviour respectively.
2. The findings revealed that Junior Agricultural Officers received most of the information from Agricultural guide/diary and they used personal talks most often to communicate the message to farmers.
3. It was also seen that extension personnel paid maximum attention for communicating information to the farmers.
4. It was found that factors such as communication skill, concept of communication, self-confidence, information seeking behaviour and attitude towards farmers were positively and significantly related with communication behaviour. Two variables viz., professional training and attitude towards high yielding varieties of rice exhibited negative relationship but were not significant. Variables

like knowledge of subject matter, communication facilities and ability to use communicatees' language did not show any significant relationship with communication behaviour.

5. They also received maximum amount of feedback during discussion with farmers mostly connected with supply of inputs.
6. Results also showed that Junior Agricultural Officers had least difficulty in understanding the information related with manures and fertilizers and faced highest difficulty with regard to the information on plant protection measures of high yielding varieties of rice.
7. At the same time they also expressed least difficulty in processing the information related with plant protection measures of high yielding varieties of rice and faced maximum obstacles while processing the information on weed control measures of high yielding varieties of rice.
8. Intercorrelation analysis indicated that measurement of either decoding or encoding combined with anyone of the three factors information input, information output or information feedback would be enough for defining communication behaviour.

9. Results of path analysis showed that 67 per cent of variation in communication behaviour could be explained by nine factors namely information seeking behaviour, concept of communication, attitude towards farmers, self-confidence, communication skill, knowledge of subject matter, ability to use communicatees' language, professional training and attitude towards high yielding varieties of rice. Information seeking behaviour was found to have maximum effect on communication behaviour.

The findings led to the conclusion that there exists vast scope for further improvement of communication behaviour of Junior Agricultural Officers. Extension personnel should be helped to get technical information from mass media and also use other personal and impersonal communication methods. Special programmes may be broadcast through radio exclusively for the benefit of extension officers. At the same time Junior Agricultural Officers should also try to get more of feedback of information from farmers, so that all areas connected with the peasants of this state can be explored by the researchers for scientific solutions.

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APPENDICES

APPENDIX I

Importance of the variables associated with communication behaviour of extension personnel, as indicated by the extension experts of Agricultural Colleges at Vellayani, Coimbatore and Madurai.

Sl.No.	Variable	Total Score	Rank
1.	Knowledge of subject matter	48	1
2.	Communication facilities	47	2
3.	Communication skill	46	3
4.	Education	45	4
5.	Professional training	45	4
6.	Attitude towards message	45	4
7.	Concept of communication	45	4
8.	Self-confidence	44	5
9.	Information seeking behaviour	44	5
10.	Ability to use communicatees' language	44	5
11.	Attitude towards receivers	43	6
12.	Motives of communication	42	7
13.	Availability of various extension aids	42	7
14.	Social participation	41	8
15.	Credibility	41	8
16.	Role responsibility	41	8
17.	Job perception	40	9
18.	Job satisfaction	40	9
19.	Incentives	40	9
20.	Attitude towards self	39	10
21.	Attitude towards inter-personal relationship	39	10

APPENDIX I Continued

Sl.No.	Variable	Total Score	Rank
22.	Democratism	39	10
23.	Supervision and guidance	39	10
24.	Extent of working through opinion leaders	38	11
25.	Extent of contact with receivers	38	11
26.	Recognition of others' accomplishments	38	11
27.	Empathy	38	11
28.	Change proneness	37	12
29.	Physical accessibility	37	12
30.	Possession of vehicle	37	12
31.	Academic achievements	36	13
32.	Experience (years of service)	36	13
33.	Knowledge of negative reactions of farmers, fellow workers and superiors	35	14
34.	Rural-urban background	34	15
35.	Aspirations	34	15
36.	Need achievements	34	15
37.	Recognition of communicator by receivers	34	15
38.	Age	32	16
39.	Hierarchial position	31	17
40.	Risk preference	30	18
41.	Tenure of service at the same place of work	28	19
42.	Hobbies	28	19
43.	Dogmatism	28	19
44.	Pessimism	28	19
45.	Introversion	25	20
46.	Attitude towards bureaucracy	25	20

APPENDIX I Continued

Sl.No.	Variable	Total Score	Rank
47.	Dominance	24	21
48.	Caste	23	22
49.	Parents' land holding	21	23
50.	Indebtedness	20	24
51.	Type of family	19	25
52.	Annual total income	19	25
53.	Land holding of the communicator	19	25
54.	Total value of property (Rs.)	19	25
55.	Marital status	18	26
56.	Father's formal education	17	27
57.	Mother's formal education	17	27
58.	Education of their wives	16	28
59.	Annual total expenditure	16	28
60.	Number of children	14	29

APPENDIX II

Instrument for measuring attitude of extension personnel towards farmers

Reflection of the degree of favourableness or unfavourableness of attitude of the statements as judged by extension experts at College of Agriculture, Vellayani.

Sl. No.	Attitude Statements	Responses of the judges in frequency				
		Most favourable attitude	Favourable attitude	Neutral attitude	Unfavourable attitude	Most unfavourable attitude
1.	The Farmers of our State can never improve.	0	0	0	3	7
2.	Trying to improve the life of farmers is waste of time and energy.	0	0	0	4	6
3.	Even if God want to improve the life of farmers he will not be able to do so.	0	0	0	2	8
4.	If given a chance, our farmers will also show their ability for economic improvement.	2	8	0	0	0
5.	The farmers of our state can be compared with the Progressive farmers of the world.	3	3	3	1	0
6.	It is a pleasant experience to work for the development of our farmers.	2	6	2	0	0

APPENDIX II Continued

Sl. No.	Attitude Statements	Responses of the judges in frequency				
		Most favourable attitude	Favourable attitude	Neutral attitude	Unfavourable attitude	Most unfavourable attitude
7.	The Agricultural Extension Officers are the most unfortunate group of officers as they have to work with farmers.	0	0	0	5	5
8.	Our farmers are not at all interested in development	0	0	1	4	5
9.	Improving our farmers is just a dream which can't become true.	0	0	0	4	6
10.	Our farmers will attain economic improvement one day or other.	3	4	2	1	0
11.	Our farmers never wish to work for economic improvement.	0	0	1	6	3
12.	I am proud that I am working with farmers.	7	3	0	0	0

APPENDIX III

Questionnaire

Instrument used for obtaining responses from Junior Agricultural Officers for measuring their communication behaviour.

A Study on Communication Behaviour of Agricultural Extension Personnel.

1. Working as Junior Agricultural Officer in I.P.D. Unit/Coconut package programme/Farms/others.
2. Please mention your total service: _____ years.

I. As an Agricultural Extension Officer you might have received technical information on high yielding varieties in the last year. Please indicate how often did you get the information about the high yielding varieties of rice from the following sources by marking a tick mark (/) in the appropriate column.

Information Sources	Most Often	Often	Some times	Rarely	Never
1. Farm radio broadcast					
2. News Papers					
3. Communication from superior officers					
4. Personnel of Research stations					
5. Agricultural Seminars					
6. Agricultural Workshops					

APPENDIX III Continued

Information Sources	Most Often	Often	Some times	Rarely	Never
7. Agricultural Training					
8. Agricultural Journals					
9. Agricultural Exhibitions					
10. Discussion with Colleagues					
11. Monthly meeting of Officers					
12. Agricultural Books					
13. Agricultural Guides/ Diaries					
14. Any others					

II. It has been pointed out that some of the technical information on high yielding varieties are difficult to understand. Have you felt difficulty at any time in understanding the technical message on the following aspects? Please make a tick mark (/) in the appropriate column.

Items	Most Often	Often	Some times	Rarely	Never
1. Information about the characteristics of high yielding varieties of rice					
2. Information about the plant protection measures for high yielding varieties of rice					

APPENDIX III Continued

Items	Most Often	Often	Some times	Rarely	Never
4. Information about the recommended doses of fertilizers and manures for High yielding varieties of rice.					
4. Information about the weed control measures of high yielding varieties of rice.					
5. Information pertaining to the irrigation practices of high yielding varieties of rice.					

III. An extension officer has to process the technical information into a form which could be easily understood by the farmers before he undertakes efforts to communicate the message to farmers. Have you ever experienced difficulty to process the following information about High Yielding Varieties of rice into a simple message which could be understood clearly by the farmers. Please make a tick mark (/) in the appropriate column.

Items	Most Often	Often	Some times	Rarely	Never
1. Information about the characteristics of high yielding varieties of rice.					
2. Information pertaining to the plant protection measures of high yielding varieties of rice.					

APPENDIX III Continued

Items	Most Often	Often	Some times	Rarely	Never
3. Information related to the fertilizers and manurial doses of high yielding varieties of rice.					
4. Information about the weed control measures of high yielding varieties of rice.					
5. Information pertaining to the irrigation practices of high yielding varieties of rice.					

IV. As an extension officer you might have communicated technical information on High Yielding Varieties of rice to different people. How often did you communicate the technical information pertaining to the High Yielding Varieties of rice to the following personnel? Please mark a tick mark (/) in the appropriate column.

Category of Communicatees	Most Often	Often	Some times	Rarely	Never
1. Village Level Workers.					
2. Demonstration Assistants.					
3. School teachers.					
4. Representatives of Fertilizers and Pesticide Firms.					
5. Farmers.					
6. Local Leaders.					
7. Other block personnel (like B.D.O.)					
8. Any others.					

APPENDIX III Continued

V. Many methods are available for an extension officer to communicate technical information to the farmers. How often did you use the following media and methods for communicating technical information about the High Yielding Varieties of rice to farmers. Please mark a tick mark (/) in the appropriate column.

Communication Methods	Most Often	Often	Some times	Rarely	Never
A. To Farmers.					
1. Farm Visit.					
2. Result demonstration.					
3. Advisory letters to farmers.					
4. Posters and Charts.					
5. Folders and Pamphlets.					
6. Wall paintings.					
7. Village Notice Boards.					
8. Agricultural Exhibitions.					
9. Radio farm broadcast.					
10. Newspapers.					
11. Personal talks.					
B. To officials & other extension workers.					
12. Circular letters to the subordinate officers.					
13. Personal talks/discussions.					
14. Any others.					

APPENDIX III Continued

VI. On many occasions you might have received doubts, comments etc., from various people on High Yielding Varieties. How often did you receive opinion, feelings, doubts, ideas, thoughts and comments about high yielding varieties of rice from farmers and subordinate officers. Please indicate with a tick mark (/) in the appropriate column.

Methods of Informa- tion feedback	Most Often	Often	Some times	Rarely	Never
--------------------------------------	---------------	-------	---------------	--------	-------

- A. From Farmers
 1. Through personal letters from farmers.
 2. Office call by farmers.
 3. During discussion with farmers.
 4. During farmers meetings.
 5. During farmers' training.
- B. From Subordinates.
 6. From your subordinate officials.
 7. Any others.

VII. What are the types of communication you receive from farmers?

Type of Information feedback	Most Often	Often	Some times	Rarely	Never
---------------------------------	---------------	-------	---------------	--------	-------

1. Communication on technical aspects.
2. Communication on administration aspects.
3. Communication on supply of inputs.
4. Any others.

APPENDIX III Continued

VIII. A) 1

1. A farmer goes to an extension officer with a diseased specimen of IR-20 rice crop. He identifies it as blast and recommends spraying with fytolan. Whether the recommendation is correct/wrong.
2. A farmer interested in growing rice crop comes to you for selecting a variety suitable to be grown in an area where water stagnation and flooding are possible. Please mention the variety you will recommend to him.
3. Rice variety. can be grown in poor drainage soils where IR-8 and Jaya may not perform well.
4. Farmer 'X' to whom you have recommended an insecticide application before five days comes to you again, asking for a suitable herbicide for immediate application in his field. Will you recommend immediate application.
Yes/No

5. Please indicate your recommendation of Plant protection chemicals for the following

	Name of Chemical	Quantity/Ha. or percentage
a) Brown Plant hopper of rice		
b) Sheath Blight of rice		

6. Mention two short duration high yielding varieties of rice that can be grown as first crop.
 1.
 2.

B. An extension officer requires many facilities for communicating technical information. Please mention the communication facilities available to you by marking a tick mark (/) in the appropriate column.

APPENDIX III Continued

Facilities	Available at all times	Some times	Never
1. Facilities to conduct meetings.			
2. Facilities for field trips/tours.			
3. Facilities to conduct method demonstrations.			
4. Facilities to conduct result demonstrations.			
5. Facilities to screen films/slides.			
6. Facilities to conduct campaigns.			
7. Facility of notice boards.			
8. Government Vehicle for transport.			
9. Public transport (Bus) facilities in your area.			
10. Telephone.			
11. Any others.			

Please indicate the nearness of your office to the following places:-

	Less than 0.5 K.M.	0.5 to 1 K.M.	More than 1 K.M.
1. To Bus Stand.			
2. To Railway Station.			
3. To the nearest bus stop.			

C) A set of statements are presented below. Please indicate to what extent these statements are applicable to you. Express your agreement or disagreement to each statement by marking a tick mark (/) in the appropriate column.

APPENDIX III Continued

Items	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
1)1. I talk too fast when I have to convey a message to a group.					
2. I prepare well, when I have to deliver a talk.					
3. At the end of a talk, I never forget to summarize the points.					
4. I talk only when others are willing to hear.					
5. I talk on subjects which are interesting to the farmers.					
6. I use simple language in my talk.					
7. While delivering a talk I look to the faces of audience.					
ii)1. I use simple effective words in writing.					
2. I state the main points in the first few sentences regardless of the form of writing.					
3. I use short paragraphs while writing.					
4. I write from the stand point of readers' interest.					
5. While writing I substitute difficult words with easy ones.					

APPENDIX III Continued

Items	Strongly Agree	Agree	Undeci- ded	Dis- agree	Strong- ly dis- agree
6. I use examples to illustrate the main points.					
7. I split the long, complex sentences into short, simpler ones.					
iii) 1. I can conduct a method demonstration perfectly.					
2. I can handle a slide projector confidently.					
3. I can do tape recording perfectly.					
4. I can use other aids like charts, flannel graphs without any difficulty.					
5. I can plan and conduct a result demonstration perfectly.					
6. While using the aids I make sure it suits to the message communicated.					
7. I keep the aids out, right until actually required for use.					
8. I display only one aid at a time.					

D. Please state your educational qualification.

- | | |
|----------------------------|-------------------------|
| 1. B.Sc. (Ag.) | 4. K.G.T.E. Certificate |
| 2. B.Sc. (Ag.) M.Sc. (Ag.) | 5. V.E.O. Training |
| 3. B.Sc. M.Sc. (Ag.) | 6. Others |

- E) 1. Have you undergone any Inservice Training related with High Yielding Varieties and communication aspects? Yes/No.
2. If yes, mention the number of times you have undergone training : ----

APPENDIX III Continued

F) Please indicate your agreement or disagreement to the following statements by marking a tick mark (/) in the appropriate column.

Statements	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
1. If farmers take up the cultivation of High Yielding Varieties of Paddy the food problem of our state can be solved to a great extent.					
2. High Yielding Varieties of Paddy will not give High Yields consistently in our situation.					
3. Cultivation of High Yielding Varieties of Paddy should be made compulsory by legislation.					
4. It is more advantageous for the farmer to invest in other crops than to spend money in the cultivation of High Yielding Varieties of paddy.					
5. Cultivation of High Yielding Varieties of paddy is more profitable than all other paddy varieties.					
6. Large scale failure of paddy crop due to pests and diseases is because of cultivation of High Yielding Varieties.					

G) Below are given some opinions. Please indicate whether you agree or disagree with the statements by marking a (/) mark in the appropriate column.

APPENDIX III Continued

Statements	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
1. Communication is the act of sending message through talking and/or writing.					
2. Communication process is sending as well as receiving of messages without changing the meaning.					
3. Communication is a process of transmitting ideas from one person to another.					
4. Communication serves as means for establishing commonness with some one.					
5. Communication is the vital element of modernization and economic development.					
6. Communication is give and take of ideas which help in mutual understanding of ideas or principles.					
7. Training in communication is essential to become an effective communicator.					
8. For effective communication certain principles and techniques are to be followed.					

H. Please indicate your agreement or disagreement to the following statements by marking in the appropriate column.

Items	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
1. I feel no obstacle can stop me from achieving my final goal.					
2. I am generally confident of my own ability.					

APPENDIX III Continued

Items	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
3. I am bothered by inferiority feelings.					
4. I don't have initiative.					
5. I usually work out things for myself rather than get some one to show me.					
6. I get discouraged easily.					
7. Life is a strain for me much of time.					
8. I find myself worrying about something or other.					

I) An extension officer can get the latest technical information from different sources. Please indicate from which of the following sources you would like to get information about High Yielding Varieties of rice. (Please assume that all these sources are available to you whenever required).

Information Sources	I prefer to get information always	I prefer to get information some times	I prefer to get information occasionally	I never prefer to get information
1. Radio Farm Broadcast.				
2. Newspaper.				
3. Agricultural Books.				
4. Agricultural Guides/ Diaries.				
5. Agricultural Journals.				
6. Agricultural Seminars.				
7. Agricultural Workshops.				
8. Agricultural Training.				
9. Agricultural Exhibitions.				
10. Superior Officers.				

APPENDIX III Continued

Information Sources	I prefer to get information always	I prefer to get information some times	I prefer to get information occasionally	I never prefer to get information
---------------------	------------------------------------	--	--	-----------------------------------

11. Personnel of Research Stations.
12. Discussion with Colleagues.
13. Monthly meeting of Officers.
14. Any others.

J) Please indicate your agreement or disagreement with respect to each of the following items.

Items	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
1. I can readily translate any scientific information in English to Malayalam.					
2. Farmers never find difficulty in understanding the language I use.					
3. I can say suitable Malayalam words for highly technical words in English.					

K) Please indicate to what extent you agree or disagree to the statements given below:-

APPENDIX III Continued

Statements	Strongly Agree	Agree	Undeci- ded	Dis- agree	Strongly disagree
1. The farmers of our state can be compared with the progressive farmers of the world.					
2. Even if god want to improve the life of farmers he will not be able to do so.					
3. If given a chance our farmers will also show their ability for economic improvement.					
4. The agricultural extension officers are the most unfortunate group of officers as they have to work with farmers.					
5. I am proud that I am working with farmers.					
6. Farmers of our state can never improve.					

A STUDY OF THE COMMUNICATION BEHAVIOUR OF AGRICULTURAL EXTENSION PERSONNEL

By

S. PANDYARAJ

ABSTRACT OF A THESIS

Submitted in partial fulfilment of the
requirement for the degree
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A B S T R A C T

This study of the communication behaviour of Agricultural Extension Personnel was designed to measure the communication behaviour of Junior Agricultural Officers as well as the factors associated with them. This study was conducted in Trivandrum and Gullon districts which were selected by using lot method of random sampling.

1. It was evident that majority (69 per cent) of the Junior Agricultural Officers were having "medium" level of communication behaviour.
2. They were receiving farm information mostly from Agricultural guide/diary and used personal talks very often for communicating with farmers.
3. Five variables viz., communication skill, concept of communication, self-confidence, information seeking behaviour and attitude towards farmers were significantly and positively related with communication efficiency of the communicator.
4. It was also found that Junior Agricultural Officers received maximum amount of information feedback during discussion with farmers mostly related with supply of inputs.

5. Intercorrelation analysis led to the conclusion that measurement of decoding or encoding and any one of three factors such as information input, information output or information feedback would be enough for defining communication behaviour.

6. Path analysis worked out to find out the direct and indirect effects of the selected factors on communication behaviour revealed that 67 per cent of the communication behaviour could be explained by nine factors namely knowledge of subject matter, attitude towards farmers, communication skill, professional training, attitude towards high yielding varieties of rice, concept of communication, information seeking behaviour, self-confidence and ability to use communicatees' language. Among these factors, information seeking behaviour was found to have maximum effect on communication behaviour.