ROLE EXPECTATIONS AND ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS UNDER TRAINING AND VISIT SYSTEM

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Affectionatly Dedicated to

My Beloved Parents

and

Sister

Department of Agricultural Extension
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CERTIFICATE

This is to certify that the thesis entitled "ROLE EXPECTATIONS AND ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS UNDER TRAINING AND VISIT SYSTEM" submitted by Mr. G. KUMARASWAMY for the degree of MASTER OF SCIENCE (AGRICULTURE) in AGRICULTURAL EXTENSION of the University of Agricultural Sciences, Bangalore is a record of research work done by him during the period of study in this University under my guidance and supervision, and the thesis has not previously formed the basis of the award of any degree, diploma, associateship, fellowship or other similar titles.

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(G. KUMARASWAMY)

LIST OF TABLES

LIST OF TABLES
(continued)

LIST OF FIGURES

INTRODUCTION

I. INTRODUCTION

Developing countries are launching and carrying forward nationwide programmes of modernizing agriculture with a view to achieve socio-economic change, since majority of the population depends on agriculture for their livelihood in these countries. India, being predominantly an agricultural country, has been striving hard to achieve modernization in agriculture through many innovative programmes.

After independence, many programmes were undertaken in India to improve agricultural production. Community Development Programme was started during 1952 to improve the quality of life of rural people. Target Oriented Programmes like Small Farmers' Development Agency, Marginal Farmers' and Agricultural Labourers' Programme and Tribal Development Programme were launched as a strategy for reaching all sections of rural population. This system worked well for quite sometime. It created awareness among the rural people that it was possible to improve farm production using modern methods of farming and also by utilizing the infrastructure created by the development blocks. After few years, it was learnt that this system was found inadequate to meet the requirements of agricultural extension work to reach and influence all farmers who were ready to adopt the new technology. The field workers, namely, the village level workers being multipurpose workers, could

not devote much time for agricultural extension work. Various constraints were experienced in this system as observed under.

1. Lack of single line of command
2. Dilution of efforts by assigning multi-purpose role to field extension workers
3. Excessively large areas of operation for village level workers
4. Lack of regular training programmes for updating the knowledge of extension workers
5. Lack of communication net work and support from research, and
6. Duplication of services by various agencies involved in the development activities.

In order to overcome these problems new approach in extension for transfer of farm technology to farmers was adopted in 1974, when the "Training and Visit" (T & V) system was introduced in Chambal Command Area in Rajasthan and Madhya Pradesh. Later on, it was extended all over the country by 1985.

Training & Visit (T & V) approach as stated by Government of India (1981) would aim at improving the efficiency of Agricultural Extension System by giving attention to the following aspects :

1. Extension professionalism
2. Single line of command
3. Concentration of effort
4. Time bound work
5. Field operation
6. Regular and continuous training
7. Close linkage with research.

Training and Visit system has been widely adopted in India since its introduction in the year 1974. The results of the working of this system have been quite encouraging. Ray et al. (1979) in their study in Hoogly district of West Bengal pointed out that after implementation of T & V system area under high yielding varieties of crops has been phenomenally increased. The new knowledge on farming disseminated by 'Training and Visit' system had the potential to increase the cropping intensity, employment of family labour, extent of adoption of recommended practices. Thus, it was pointed out that 'Training and Visit' system had considerable positive impact on the farming economy of Hoogly district.

Benor and Baxter (1984) observed that "in India after the introduction of T & V system in Chambal (Rajasthan), farmers increased paddy yields from about 2.1 tonnes to over 5.0 tonnes per hectare in two years and average wheat yields (irrigated and unirrigated) rose from 1.3 tonnes to

nearly 2.0 tonnes per hectare after two seasons and have since risen higher."

Further, identifying the force behind this impressive record it was pointed out that attitude of the extension staff was the most significant one. The main idea of the system is to have competent, well informed village level extension workers who will have frequent training and pay regular visit to farmers to give relevant technical messages and bring farmers' problems to research.

The key factor for the success of the new system is the basic extension functionary, namely, the Agricultural Assistant. These functionaries with an intensive time bound extension programme of Training and Visit are the carriers of new farm technology to the farming community. The diffusion of technology is not just communication of information, but it requires persons capable of communicating to clientele system in such a manner that the farmers are motivated for action at farm and homes. Being the grass root level workers, Agricultural Assistants have to have constant interaction with different types of farmers. They form a crucial link between research system and clientele system. The extent to which technologies ultimately reach the clientele level and become adopted depends very much upon the extent to

which these agents are capable of playing their role and their ability to apply techniques of change.

The initial success of the Training and Visit system drew the attention of policy makers leading to its operation and introduction in several states of India. As a result, the 'Training and Visit' system (better known as Agricultural Extension Project) was implemented in three phases commencing from 2nd October 1978 in the state of Karnataka. The first phase starting from 2nd October 1978 covered five districts and second phase which started in April 1979 covered seven districts. The last phase which was started from April 1980 covered the remaining seven districts of the state.

According to Jaiswal (1983), the main thrust of the 'Training & Visit' system is on the definite and systematic programme for field level extension workers including clearly specified schedules of work and duties, regular and close supervision. Agricultural Assistants are given training in the technology which they have to disseminate through selected contact farmers.

The general organizational structure of 'Training & Visit' system is based on the total number of farm families to be assisted in a given state or area and on defining the number of families which one Agricultural Assistant

can reasonably be expected to cover. The Agricultural Assistants are regularly trained and guided in their work by the Subject Matter Specialists and Assistant Agricultural Officers.

Agricultural Assistants under 'Training and Visit' system are expected to select contact farmers, visit them on a regular schedule basis and educate them on important aspects of crop technology. Agricultural Assistants also have to motivate the farmers to participate in various extension activities and conduct various group action programmes.

Need for the study

Past attempts have shown that the ultimate success of agricultural programmes largely depend on the performance of grass root level workers. Under Training and Visit system Agricultural Assistants who are the grass root level workers play the key role for the success of the system and they form the main link between the scientists and the farmers in disseminating scientific knowledge. It is necessary to make an assessment of the role performance of this important functionary in the 'Training and Visit' system so that based on the results, improvement can be brought about.

Underscoring the importance of evaluation of job performance Goodale (1975) pointed out

> "The assessment of an employee's job performance is important both for the worker and his superior for understanding the level of efficiency in the job".

The researchers in management science have often brought to light that the success or failure of performance of a job by individuals in an organisation is dependent upon the availability of physical and material facilities for their job and also their socio-psychological and organization's environmental factors.

Ramshiva Reddy (1982) reported that Agricultural Assistants were normal in their performance level but not very satisfactory. So, there is a scope for improvement. It is necessary to know how far the Agricultural Assistants perform their expected roles. Research needs to be conducted to know the status of the performance of Agricultural Assistants against expectations so that gaps, if any, can be identified. It is also worth investigating the factors that are responsible for their better performance so that these factors can be manipulated by the managers of the system.

Keeping in view the above points, a research study on "Role expectations and role performance of Agricultural Assistants working under Training and Visit system" was proposed to be conducted with the following objectives.

1. To ascertain the role expectations of Agricultural Assistants
2. To assess the role performance of Agricultural Assistants
3. To identify the gaps between role expectations and role performance of Agricultural Assistants and
4. To assess the selected personal characteristics associated with the role performance of Agricultural Assistants.

Scope and Limitations of Study

The present investigation envisages to study the role expectations and role performance of Agricultural Assistants. It is intended to know how these grass root level functionaries perform their expected roles to help the farmers so that the gaps can be identified. Further, the study is aimed at providing information on factors influencing the performance of their role. Thus, the present study would serve as an eye opener for extension agencies and concerned administrators, from the view point of Agricultural Assistants performance. This would help the administrators and supervisors in understanding the problems of "Training and Visit" system's operation in its proper perspective. Thus, the findings of the study are going to be of much use to the extension administrators, educators and extension personnel at different levels.

The study however, has some of the following limitations.

1. It is a single student's investigation with limitations on time and other resources, which determined purposive selection of the locale of the study and restricted the sample size.

2. It is based on the expressed opinions of the respondents which may not be free from their individual biases and prejudices, though enough care was exercised to isolate such biases entering into the data collected.

3. The implications of the findings of this study are applicable to the area of investigation and the areas with similar environmental conditions only.

Definitions of the terms used in the study

Role Expectation : It refers to the prescriptions of the job items of the post of Agricultural Assistant as determined by the authority.

Role performance : It refers to the way of behaving or fulfilling the prescribed job items by Agricultural Assistant .

Abbreviations used in the study

The following abbreviations are used in this study.

T & V system	:	Training and Visit system
ADA	:	Assistant Director of Agriculture
AO	:	Agriculture Officer
AAO	:	Assistant Agricultural Officer
AEO	:	Agricultural Extension Officer
AA	:	Agricultural Assistant
VLW	:	Village Level Worker.

REVIEW OF LITERATURE

II. REVIEW OF LITERATURE

The present investigation was mainly an effort to study the role performance of Agricultural Assistants against their role expectation and the personal characteristics associated with the performance. Considering the objectives of the study the review of literature has been presented under the following heads:

1. Role
2. Role Expectation
3. Role Performance
4. Personal Characteristics Associated with Role Performance
   - (a) Age
   - (b) Education
   - (c) Experience
   - (d) Rural urban background
   - (e) Training
   - (f) Mass media exposure

1. Role

Lynton (1945) designates the role as the sum total of culture patterns associated with a particular status. He views 'role' as dynamic aspect of status, which consists of attitudes, values and behaviour ascribed by the society to any and all persons occupying this status.

He, further states that the term can even be extended to include the legitimate expectations of such persons with respect to the behaviour towards these persons in other statuses as within the same system. In so far as role represents overt behaviour, it is what the individual has to do in order to validate his occupation of the status.

Pearson (1951) refers to role as "what the actor does in his relations with others seen in the context of its functional significance for the social system".

2. Role Expectation

According to Newcomb (1951) role expectations constitute the ways of behaving which are expected of any actor occupying a certain position.

Sargeant (1951) calls role as a pattern or type of social behaviour which seems situationally appropriate to an actor in terms of demands or expectations of those in his group.

Preiss (1954) studied the resulting role conflicts among Michigan county extension agents. His analysis suggested that the more successful county agents were those who disregarded expectation of the extension service bureaucracy in favour of those of their local client system.

Dube (1958) observed that the village level workers were not clear about their actual position, role, functions and responsibilities in community development organization.

According to Bible and Brown (1960) role expectations, as operationally defined in their study, refer to the definition by the county agents appropriate behaviour for the position of senior county agricultural agent, which they occupy. Thus, role expectation is what the county agents think they should do, may or may not do or should not do as incumbents of the position, senior county agricultural agent.

Wilkening (1958) found that the county agents indicated that there was considerable disagreement between the role expectations by local client system of the county and the agent's self-definition of his role. For example, the change agents perceived their role as one of education, but their clients expected them to provide services also.

Khan et al. (1964) defined role expectations as the prescriptions and proscriptions held by members of a role set. Accordingly, the role expectations are also communicated to the role position. They are the ways of behaving which are expected of any individual who occupies a certain position.

Khan et al. (1964) further pointed out that from the stand point of actors in social situations the expectation that one actor holds a specific position is in part a funct. of his situational specifications of this function. They may partly be a function of his perception of the other position, the incumbent occupies.

An expectation is an evaluative standard applied to the behaviour of an incumbent of a particular position, according to Katz and Khan (1966).

In a study undertaken by Lewis (1983) to investigate the expected importance and actual importance of 13 roles of public junior community college presidents for two years, it was found that of the 13 roles the presidents expected, 10 roles were most important and three roles were least important.

Keeping the above literature review in mind, role expectation for this study was defined as the ways of behaving which are expected of any incumbent occupying a certain position.

3. Role Performance

Davis (1949) defined role performance as "how an individual actually performs in a given position, as distinct from how he is supposed to perform". We call this in a simple term, "role performance". It is what the actors do as position occupants.

Mc Neill (1960) made an appraisal of job performance of workers in different industries, firms and organisations with the help of job performance chart.

Rajagopalan (1965) while studying the role performance of nurses observed that the correct perception of the attributes of a role performance and conversely incorrect role perception leads to improper and unsatisfactory role performance.

Khosla (1966) studied role expectation and role performance of VLWs and revealed that administration in Community Development Blocks was top heavy and there was undue pressure on VLWs from superior officers to achieve unrealistic physical targets.

Singh et al. (1967) in their study on job performance of VLWs in Community Development Blocks of Patna found that 60 per cent of them were above average, 30 per cent average and 10 per cent below average. It was revealed that Project Executive Officers, Agricultural Extension Supervisors and Co-operative Extension Supervisors had very close agreement in their evaluation of the job performance of village level workers.

Kolte (1972) found that about 56 per cent of Agricultural Extension Officers in Udaipur district of Rajasthan obtained job performance scores below average and the rest (44 per cent) above average.

Chakravarthy and Singh (1974) in their study on measuring the performance of VLWs concluded that the VLWs job was primarily that of an educator, communicator and change agent.

The study conducted in Tamil Nadu by Perumal (1975) revealed that 15.75 per cent of Agricultural Extension Officers had above average scores, while 70.08 per cent and 14.17 per cent of them had average and below average scores, respectively, on their overall job performance.

Koontz and Odonell (1976) stated that the performance appraisal is a major key to managing itself. It is, of course, important to management development, because, if a manager's strengths and weaknesses are not known, it would be only accidental, if developmental efforts were aimed in the right direction. The author further opined that if a business or government agency, charitable organisation or even an University is to reach its goals effectively and efficiently, ways of accurately measuring performance must be found and implemented.

Janardhan (1977) in his study on the job performance of AEOs found that 41 per cent of the AEOs were in medium performance category while 32 and 27 per cent of them were in low and high job performance categories, respectively.

Kherde and Sahay (1979) observed that VLWs rated their performance as very good, good and average in all the major eight roles i.e., educational, organisational, service, planning, supply, works, supervision and office work. However, planning and supply roles were not endorsed as very good by any one of the VLWs.

Ramashiva Reddy (1982) in his study on the job performance of Agricultural Assistants of Mandya district in Karnataka reported that about 51.54 per cent of Agricultural Assistants were in low job performance category, while 48.46 per cent of them were in high job performance category, Further, the results indicated that the two categories of Agricultural Assistants differed significantly in respect of their job performance.

Allard (1983) in his study to determine the predominant tasks performed by Administrative Assistants found that 75 tasks performed by them were predominant and 34 were not predominant.

Shivalingegowda (1985) while studying the job perception, job performance and job satisfaction of University Extension Guides in Karnataka revealed that 50 per cent of the Extension Guides were in high performance category and the remaining 50 per cent of them were in low performance category.

Rao and Sohal (1987) found that among the five methods of performance appraisal of employees, viz., self-rating, superior rating, subordinate rating, beneficiary rating and job performance in terms of physical achievements, record performance rating had more discriminating power in rating the veterinary surgeons followed by self-rating.

4. Factors Associated with Role Performance

(a) Age

Wilkening (1957) reported that the age of county extension agents was positively associated with their effectiveness in carrying out extension work in their county.

Frutchy (1958) observed that more effective and less effective workers did not differ significantly in their age.

Salvi and Dudhani (1967) reported that job effectiveness of village level workers was not influenced by age.

Patel and Leagons (1968) found that in Surat and Mahasana districts of Gujarat, Village Level Workers in the age group of 26-35 years were more effective than other age categories.

Kherde and Sahay (1972) observed in Union Territory of Delhi and Karnal district of Haryana that the age of village level workers was positively related to his role performance. Further, this relationship showed that more the age, higher the performance of the village level worker.

Reddy (1976) in his study in Bangalore and Kolar districts of Karnataka revealed positive influence of age on the efficiency of 'Gramasevaks'.

Rajagopal (1977) indicated that there was no association between age and performance of 'Gramasevaks' and Agricultural Extension Officers, whereas there was significant relationship between age and performance of Managing Directors of Farmers' Service Societies. Among Managing Directors, majority (75 per cent) belonged to below 40 years age group and they were in high performance category.

Janardhan (1979) pointed out that Agricultural Extension Officers of younger age category had better levels of job performance as compared to old age group of Agricultural Extension Officers.

Veerabhadraiah (1980) reported no significant association between age and performance of Deputy Directors and Assistant Directors of Agriculture.

Ramashiva Reddy (1982) observed in Mandya district of Karnataka that the age of Agricultural Assistants was not associated with their job performance.

Shobana (1982) revealed that there was no significant positive correlation between age and performance of Junior Agricultural Officers of Kerala.

Nikhade and Kitey (1984) in Seloo, Deoli and Wardha Panchayat Samities of Maharashtra noted significant association between age and performance of Village Level Workers as rated by Block Development Officers, Agricultural Officers and farmers i.e., the VLWs of the age group of 30-40 years were more effective, as compared to VLWs of higher age levels.

Shivalinge Gowda (1985) pointed that there was no significant relationship between age and job performance of University Extension Guides in Karnataka.

Mishra et al. (1988) in their study in Jabalpur district observed that majority of Rural Agriculture Extension Officers of the middle age group i.e., between 30-40 years performed better than other age categories.

Thus, some of the past studies have pointed out that there was association between age of extension workers and their performance while some studies revealed non-significant association.

(b) Education

Dube (1958) observed that University graduates on the whole had not proved to be successful as VLWs.

Rahudkar (1962) found that 'Gramasevaks' having higher secondary education were in the most effective group, those

below higher secondary standards were in the least effective group, while graduates were found to be mediocres.

Bisen and Dahama (1965) in their study in 'Mahakaushal' region of Madhya Pradesh revealed that academic qualifications had positive effect on the role performance of Agricultural Extension Officers.

Salvi and Dudhani (1967) reported that in Poona district of Maharashtra 'Gramasevaks' with relatively better educational status (formal education) tended to be more effective in their jobs.

Patel and Leagons (1968) revealed that in Gujarath effective Village Level Workers were either college graduates or Diploma holders in agriculture.

Somasundaram (1971) revealed that education has some positive influence on the role performance of agricultural leaders, but the influence was statistically not significant.

Kherde and Sahay (1972) observed that education of the VLW was negatively correlated with his role performance, which means more educated VLWs were not effective performers when compared to those having lower education.

Rajgopal (1977) pointed out that there was no association between educational level and role performance of Managing Directors of Service Co-operative Societies and 'Gramasevaks'.

Janardhan (1979) reported that educational qualification of Agricultural Extension Officers was found to have no association with their job performance.

Ramashiva Reddy (1982) found that the level of formal education of the Agricultural Assistants had very little influence on their performance.

Shobana (1982) revealed that education was negatively related with the role performance of Junior Agricultural Officers of Kerala.

Laxmi Devi and Venku Reddy (1984) observed negative association between education and role performance of rural women in farm activities.

Mishra et al. (1988) found that majority of Rural Agricultural Extension Officers having education above high school level performed their roles better.

The findings of most of the studies have led to the conclusion that educational level of extension workers was associated with their performance, while only few studies indicated contrary results.

(c) Experience

Frutchy (1988) revealed that more effective and less effective extension workers did not differ significantly in their tenure as extension workers.

Kahudkar (1969) pointed out that 'Gramasevaks' with more than two years of service were found to be more effective than those with less than two years of service.

Rajagopal (1977) found no significant relationship between experience and performance.

Veerabhadraiah (1980) reported that there was no association between experience and job performance of Deputy Directors and Assistant Directors of Agriculture.

Ramashiva Reddy (1982) indicated that experience of Agricultural Assistants was not associated with their performance.

Shobana (1982) observed that experience was not significantly related with performance.

Nikhade and Kitey (1984) summarised that VLWs with experience of 3-5 years performed better than the less experienced ones.

Shivalingegowda (1985) concluded that the length of experience had no significant relationship with job performance of extension guides.

Mishra et al. (1988) found that majority of the Rural Agricultural Extension Officers possessing more than 10 years of service experience performed better.

Thus, some studies revealed that length of experience was related to performance, while some other studies indicated that experience was not associated with performance level of extension workers.

(d) Rural Urban Background

Ney (1952) found that rural background was one of the factors positively associated with the effectiveness of county agents.

Kelsey and Hearne (1955) opined that the extension agent should have rural background to be effective in his work.

Rahudkar (1962) observed that the rural background was positively associated with the effectiveness of village level worker.

Bisen and Dahama (1965) reported that performance of extension worker was influenced by his rural background.

Patel and Leagons (1968) found that most effective VLW was the son of a farmer with rural background of more than t n years.

Reddy (1976) reported non-significant association between rural background and performance of extension personnel in Karnataka.

Rajagopal (1977) found that rural urban background was not associated with the role performance of Managing Directors of Service Cooperative Society, Agricultural Extension Officers and 'Gramasevaks'.

Janardhana (1979) pointed out that Rural urban background was not significantly associated with job performance of Agricultural Extension Officers.

Ramashiva Reddy (1982) concluded that there was no relation between rural urban background and job performance of Agricultural Assistants.

Shobana (1982) found that rural urban background was negatively associated with the role performance of Junior Agricultural Officers of Kerala.

Laxmi Devi and Venku Reddy (1984) pointed out negative association between urban contact and performance of rural women in farm activities.

Shivalinge Gowda (1985) observed that rural/urban background of University Extension Guides in Karnataka had significant relationship with job performance.

Mishra et al. (1988) found that majority of Rural Agricultural Extension Officers in Jabalpur who had agricultural background were better performers.

Thus, majority of the studies concluded that rural background was associated with the job performance of extension personnel, while few indicated contradictory results.

(e) Training

Helsey (1956) stated that it was the overall objective of every training programme to cause people to become interested in their work and to aid them acquire knowledge and skill necessary to do that work.

Verheij (1966) found that the performance of extension worker was influenced by the trainings he had received.

Salvi and Dudhani (1967) observed that the VLW who received training for longer periods tended to be more effective.

Patel and Leagons (1968) reported that VLWs who received extension training were more effective than those having no training.

Kherde and Sahay (1970) found significant relationship between in-service training of extension personnel and their job performance.

Daulat Singh and Srivastava (1970) concluded that among extension personnel, formal training of extension

officers in agriculture, had been responsible for better understanding of their job.

Jha and Sharma (1973) indicated that after the successful completion of training programme the Grama-sevaks had shown actual gain in knowledge.

Janardhana (1979) revealed that training received after becoming Assistant Agricultural Officer was not associated with the job performance.

Veerabhadraiah (1980) reported that there was no association between training in administration management and job performance of Deputy Directors and Assistant Directors of Agriculture in Karnataka.

Ramashiva Reddy (1982) found that there was no relationship between training and job performance of AAs.

Shobana (1982) observed that there was no significant positive correlation between training and role performance of Junior Agricultural Officers of Kerala.

According to Nikhade and Kitey (1984) training received had not shown much difference in the performance levels of Village Level Workers.

Mishra et al. (1988) found that majority of Rural Agricultural Extension Officers of Jabalpur who received refresher training performed their roles better.

Thus, majority of the studies concluded that training given to extension personnel was associated with their performance, while some of the studies found no relationship of training with performance.

(f) Mass media exposure

Ramashiva Reddy (1982) reported that there was significant association between the extent of mass media participation and job performance of AAs.

Shivalinge Gowda (1985) revealed that there was non-significant relationship between mass media participation and job performance of extension guides in Karnataka.

Based on the above findings, it may be concluded that mass media participation had both positive and negative impact on the job performance of extension workers.

METHODOLOGY

III. METHODOLOGY

In this chapter, the methodology adopted for the study is presented under the following six sub-headings.

1. Locale of the study
2. Selection of respondents
3. Methods of data collection
4. Methods used for quantifying independent variables
5. Methods used for quantifying dependent variables
6. Statistical tests and techniques used

1. Locale of the Study

There are eight agricultural divisions in Karnataka each headed by a Joint Director of Agriculture. Among these eight divisions, Shimoga division was randomly selected for conducting study. In this division, there are two districts namely Chitradurga and Shimoga. Chitradurga district was randomly selected for the study. Chitradurga district consists of nine taluks, viz., (1) Challakere, (2) Chitradurga, (3) Davanagere, (4) Harihara, (5) Hiriyur, (6) Holalkere, (7) Hosadurga, (8) Jagalur and (9) Molakalmuru. Five taluks were randomly selected after arranging the taluks in an alphabetical order and referring to the random number tables. The five taluks, thus, selected were (1) Challakere, (2) Harihara, (3) Hiriyur, (4) Jagalur and (5) Molakalmuru.

FIG.1 MAP OF CHITRADURGA DISTRICT SHOWING SELECTED TALUKS FOR THE STUDY.

2. Selection of Respondents

There are 120 posts of AAs in these five taluks of the district. But, at the time of conducting the study there were only 106 AAs in position. All the AAs working in these five taluks were included as respondents for the study. Data were collected from 98 Agricultural Assistants who were available at their work spots at the time of data collection. In addition superior officers performance ratings were taken from 19 AAOs and five ADAs of these taluks under whom these 98 AAs were working. The talukwise break up of respondents is given below.

Taluks	Total No.of posts of AAs	No. of AAs in position	No. of AAs responded	No. of AAOs in position	No. of ADAs in position
Challakere	33	30	26	5	1
Harihara	22	20	19	3	1
Hiriyur	25	21	20	4	1
Jagalur	22	20	18	4	1
Molkalmuru	18	15	15	3	1
Total	120	106	98	19	5

3. Methods of Data Collection

The study was conducted during the year 1989-90. The respondents were interviewed during July-August 1989. The data were collected from the AAs by means of personal

contact with the help of structured interview schedule. The schedule was in simple english language. Whenever respondents could not understand it in proper perspective, the researcher himself explained in the local language (Kannada) for better understanding.

For getting superior officers rating of the performance of AAs , the schedules were given to 5 ADAs and 19 AAOs under whom these 98 AAs were working.

4. Methods of Quantifying Independent Variables

Based on the review of literature and the opinion gathered from the ADAs concerned, the following six independent variables were identified to have relationship with the performance of level of AAs.

(a) Age
(b) Education
(c) Experience
(d) Rural/urban background
(e) Training
(f) Mass media exposure

These independent variables were operationalised as follows:

(a) Age : Age was operationalised as the number of years completed by the respondent at the time of investigation.

The respondents were categorised into two groups based on their age.

Category	Age
Young	35 years and below
Old	Above 35 years

(b) Education : Education refers to the number of years of schooling. Respondents were asked to furnish information about their years of schooling. Based on the number of years of schooling, they were categorised as under.

Category	Age
Low	Below 11 years of schooling
High	Above 11 years of schooling

(c) Experience : It refers to the number of years of experience as AA or VLW at the time of investigation. Based on the length of experience of respondents, they were grouped into the following categories.

Category	Experience
Low	8 years and below
Medium	9-16 years
High	Above 16 years

(d) Rural-urban background : Rural-urban background was quantified using the procedure adopted by Hosur (1977).

Information about rural-urban background was obtained in respect of native place, father's occupation, places where the respondent had completed his formal education upto primary, high school and college, number of years of stay in rural areas during his service. Areas with less than 5000 population were considered as rural for this purpose.

The following procedure was used to quantify the rural-urban background of the respondents.

Item	Score
(a) Native place	
i. Rural area	2
ii. Urban area	1
(b) Place of study upto primary education	
i. Rural area	2
ii. Urban area	1
(c) High school	
i. Rural area	2
ii. Urban area	1
(d) College	
i. Rural area	2
ii. Urban area	1
(e) Number of years of stay in rural area during service	
i. Upto 5 years	1
ii. 6-10 years	2
iii. 11-15 years	3
iv. Above 15 years	4

The composite score for rural urban background was arrived at by summing up the scores obtained by the respondent on each item. The maximum score possible was 12.

Based on the scores obtained, the respondents were grouped into two categories taking mean as the central point (9.61).

Category	Score
Urban background	Respondents with score of 9.61 and less
Rural background	Respondents with more than 9.61 score

(e) Training : The quantification of this variable was arrived at by the procedure followed by Hosur (1977).

The information regarding the training aspects of AAs was obtained under three heads :

(i) Pre-service training
(ii) Inservice training
(iii) Any other special training

A score of one was assigned to every six months of training that the respondent has undergone. The maximum score obtainable was 4 points in case of a respondent who has obtained two years integrated pre-service training.

While assigning the scores for inservice training and other special training, the frequency and duration of training obtained were also considered. Every training

course with a duration of three months or less was assigned one score, three to six months duration was assigned a score of two and training course of above six months duration was given a score of three.

The composite score for training was arrived at by summing up the score obtained by the respondent under each head. The maximum score possible was 10.

Based on the score obtained, the respondents were grouped into two categories taking mean as the central point (3.39).

Category	Score
Low	Agricultural Assistants with a score of 3.39 and less
High	Agricultural Assistants with more than 3.39 score

(f) Mass media exposure : The operationalisation of the variable was arrived at by the procedure followed by Hosur (1977).

Detailed information about the mass media exposure of the respondents was obtained with respect to (i) their reading habits and frequency of reading, and (iii) their listening habits to radio and frequency of listening to programmes on agriculture and TV viewing.

To arrive at a composite score for mass media exposure the following scoring pattern was followed.

Category	Reading habit	Score
(a) Media		
Newspaper	Reading	1
	Not reading	0
Magazines	Reading	1
	Not reading	0
Journals related to agriculture	Reading	1
	Not reading	0
Books on agriculture	Reading	1
	Not reading	0
Extension literature (leaflets, folders etc.)	Reading	1
	Not reading	0
	Sub-total	5

(b) Frequency of reading

Item	Frequency	Score
Newspaper	Daily	3
	Weekly once or twice	2
	Monthly once or twice	1
	Never	0
Magazines, journals, books, extension literature etc.	Daily	3
	Weekly once or twice	2
	Monthly once or twice	1
	Never	0
	Sub-total	6

(c) Frequency of listening to radio programme on agriculture

Frequency	Score
Daily	3
Weekly once or twice	2
Monthly once or twice	1
Never	0
Sub-total	6

(d) Frequency of viewing agricultural programmes on television

Frequency	Score
Weekly	2
Occasionally	1
Never	0
Sub-total	3
Grand total	16

The composite score was obtained by summing up the scores obtained by the respondent. Maximum possible score was 16. Based on the scores obtained AAs were categorised into two groups taking the mean as the central point(9.35).

Category	Score
Low	AAs with score of 9.35 and less
High	AAs with score of more than 9.35

5. Methods Used for Quantifying Dependent Variables

(a) Role expectation : Keeping in view the objectives of the study, the job chart of AAs prescribed by the Department of Agriculture, Government of Karnataka, was studied in detail. Specific areas of role expectation and sub-areas were arrived at. The specific areas of role expectations of Agricultural Assistants are : (i) planning, (ii) participation in fortnightly training, (iii) visits to farmers' field, (iv) maintenance of diary, (v) supply and service, (vi) production of quality seeds and storage,

(vii) crop cutting experiments and (viii) biogas work implementation.

The number of sub-items under each specific areas are as follows :

Specific area	Number of sub-items
i. Planning	6
ii. Participation in fortnightly training	7
iii. Visits to farmers' field	16
iv. Maintenance of diary	5
v. Supply and service	5
vi. Production of quality seeds and storage	6
vii. Crop cutting experiments	3
viii. Biogas work implementation	5
Total	53

(b) Role performance : As specified 53 job items categorised into eight specific areas, as described under role expectation, were considered for assessing the role performance of AAs.

The "Role performance instrument" was a Likert type scale of five point continuum. The responses were collected on a five point response category namely, "excellent", "very good", "good", "fair" and "poor" with scores of 5, 4, 3, 2 and 1 assigned, respectively. The scores obtained in respect of each of the statements were added to obtain the

total scores for the respondents. Thus, maximum and minimum scores obtainable were 265 and 53 respectively by each of the respondents.

In order to measure the performance, self-rating performance scores and superior officers performance rating scores by AAOs and ADAs were taken. To know the agreement between the performance rating scores of AAs, AAOs and ADAs "the Kendall Coefficient of Concordance" (W) test was applied. It was found that there was no concordance between the self-rating performance scores of AAs and superior officer performance ratings namely, AAOs and ADAs. But there was concordance between the performance rating scores of AAOs and ADAs. So, it was decided to reject the self-rating performance scores of AAs. Performance rating was arrived at after combining the rating scores of AAOs and ADAs and taking the average.

By dividing the maximum obtainable scores i.e., 265 by two the respondents were classified as under.

Performance category	Score
Low performance	Agricultural Assistants with score 132.5 and below
High performance	Agricultural Assistants with score above 132.5

6. Statistical tests and techniques

The data obtained were tabulated and analysed with the help of following statistical tests.

The Kendall Coefficient of Concordance (W)

This test as indicated by Sidney Siegel (1956) was used to find out the agreement among self-performance rating and ratings by AAOs and ADAs.

$$W = \frac{S}{\frac{1}{12} K^2 (N^3 - N)}$$

where, S = Sum of squares of the observed deviations from the mean of R_j

that is, $S = (R_j - \frac{R_j}{N})^2$

K = number of sets of rankings e.g., the number of judges

N = Number of entities (objectives or individuals) ranked

$\frac{1}{12} K^2(N^3-N)$ = Maximum possible sum of squared deviations i.e., the sum S which would occur with perfect agreement among K rankings.

To test the significance of W, the following formula was used.

$$X^2 = K (N - 1) W$$

with df = N - 1

Simple percentages: The analysis of performance of Agricultural Assistants was done by using simple percentages.

Paired 't' test : To find out the difference between the mean expectation score and mean performance score, this test was used. 't' values were calculated by the formula given below.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{s^2 \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

where, $\bar{X}_1$ = Mean expectation score

$\bar{X}_2$ = Mean performance score

n_1 = Number of respondents (Agricultural Assistants) in high performance group

n_2 = Number of respondents (AA) in low performance group

$$s^2 = \frac{(n_1 - 1)\, s_1^2 + (n_2 - 1)\, s_2^2}{\sqrt{(n_1 - 1) + (n_2 - 1) \text{ or } n_1 + n_2 - 2}}$$

where, S = Pooled variation

s_1^2 = Variation of expectation score $= \frac{(\bar{X}_1 - \bar{X})^2}{n_1 - 1}$

s_2^2 = Variation of performance score $= \frac{(\bar{X}_2 - \bar{X})^2}{n_2 - 1}$

n_1 = Number of AAs in high performance group

n_2 = Number of AAs in low performance group.

The computed values of the 't' test were compared with the table 't' values to test the significance of the differences between mean expectation scores and mean performance scores at 1 and 5 per cent levels.

Chi-square test : This test was used to find out the goodness of fit between the dependent and independent variables considered for the study. This test was chosen because, some of the variables involved in the study were of qualitative nature.

$$X^2 = \frac{(O - E)^2}{E}$$

where, O = Observed number of cases

E = Expected number of cases

Σ = Directs one to sum overall (K) categories

The computed values of X^2 were compared with table 'X^2' values to test the significance at 1 and 5 per cent levels.

HYPOTHESES

Based on the literature review made in Chapter II, the following hypotheses were developed and used in this study.

1. There will be no difference in the overall role expectation and role performance by AAs in T & V system.

2. There will be no difference in the role expectation and role performance by AAs in specific job areas.

3. There is no association between personal characteristics like age, education, experience, rural-urban background, training and mass media exposure and role performance by AAs in T & V system.

RESULTS

IV. RESULTS

In this chapter the results of the study are presented under the following headings.

1. Overall role performance of Agricultural Assistants under 'Training and Visit' system.
2. Role performance of Agricultural Assistants in specific job areas.
3. Overall difference between role expectation and role performance of Agricultural Assistants.
4. Difference between role expectation and role performance of Agricultural Assistants in specific job areas.
5. Association between different personal characteristics and role performance of Agricultural Assistants.

OVERALL ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS UNDER 'TRAINING AND VISIT' SYSTEM

The results on the overall role performance of AAs are presented in Table 1.

The results indicated that only 40 per cent of the AAs were in high performance category as against 60 per cent in low performance category.

Table 1. Overall role performance of Agricultural Assistants.

(N = 98)

Sl. No.	Performance category	Respondents	
		Number	Per cent
1.	High	39	39.80
2.	Low	59	60.20
	Total	98	100.00

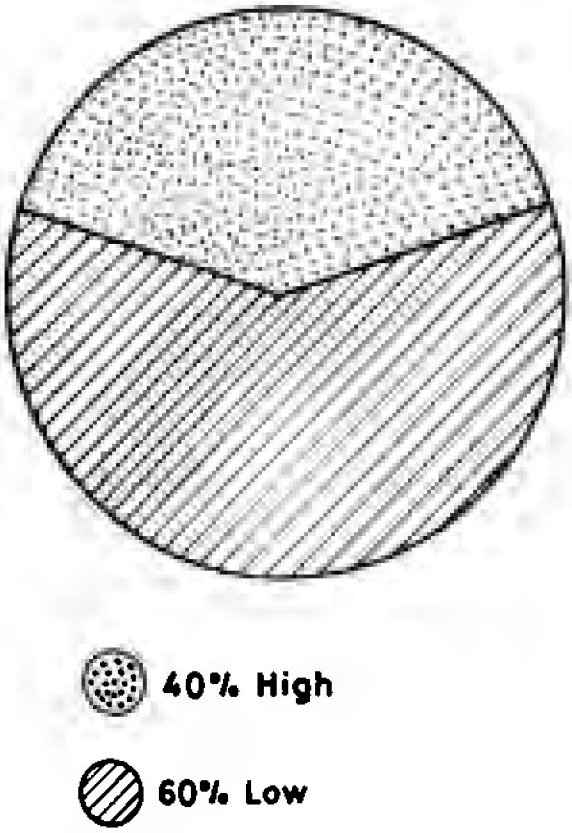

FIG. 2 OVERALL ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS

ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN SPECIFIC JOB AREAS

1. Planning : The results on the role performance of AAs with respect to specific job area of planning are presented in Table 2.

The results indicated that while 54 per cent of them were in high performance category, the remaining 46 per cent were in low performance category.

2. Participation in fortnightly training : The results on role performance of AAs with respect to participation in fortnightly training are presented in Table 3.

The results revealed that 54 per cent of the AAs were in low performance category as against 46 per cent belonging to high performance category.

3. Visits to farmers' fields : The results on the role performance of AAs with respect to specific job area of visits to farmers' fields are presented in Table 4.

The results pointed out that as against 59 per cent of AAs belonging to low performance category there were only 41 per cent under high performance category.

4. Maintenance of diary : The results on role performance of AAs with respect to maintenance of dairy are presented in Table 5.

Table 2. Role performance of Agricultural Assistants in specific area of planning.

(N = 98)

Sl. No.	Performance category	Respondents	
		Number	Per cent
1.	High	53	54.08
2.	Low	45	45.92
	Total	98	100.00

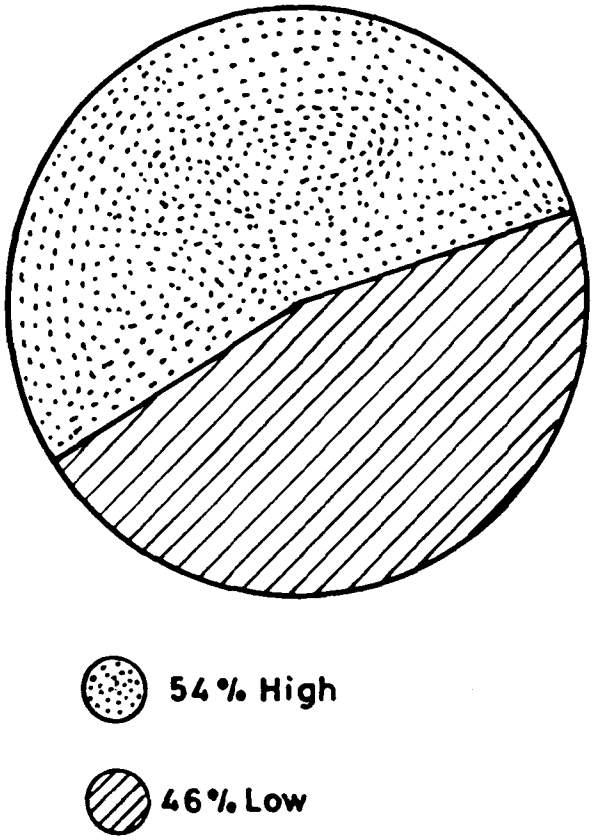

FIG.3 ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN THE SPECIFIC AREA OF PLANNING.

Table 3. Role performance of Agricultural Assistants in specific area of participation in fortnightly training.

(N = 98)

Sl. No.	Performance category	Respondents	
		Number	Per cent
1.	High	45	45.92
2.	Low	53	54.08
	Total	98	100.00

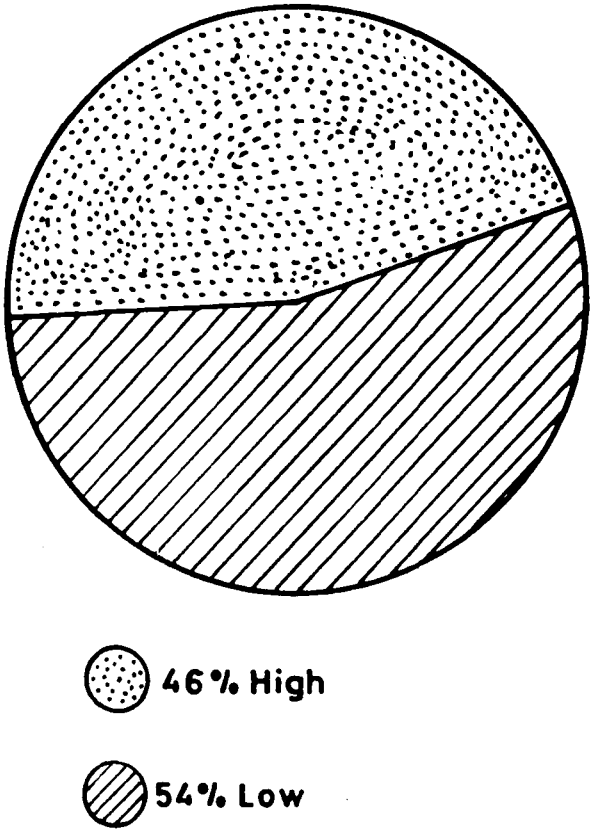

FIG.4 ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN THE SPECIFIC AREA OF PARTICIPATION IN FORT-NIGHTLY TRAINING.

Table 4. Role performance of Agricultural Assistants in specific area of visits to farmers' field.

(N = 98)

Sl. No.	Performance category	Respondents	
		Number	Per cent
1.	High	40	40.92
2.	Low	58	59.18
	Total	98	100.00

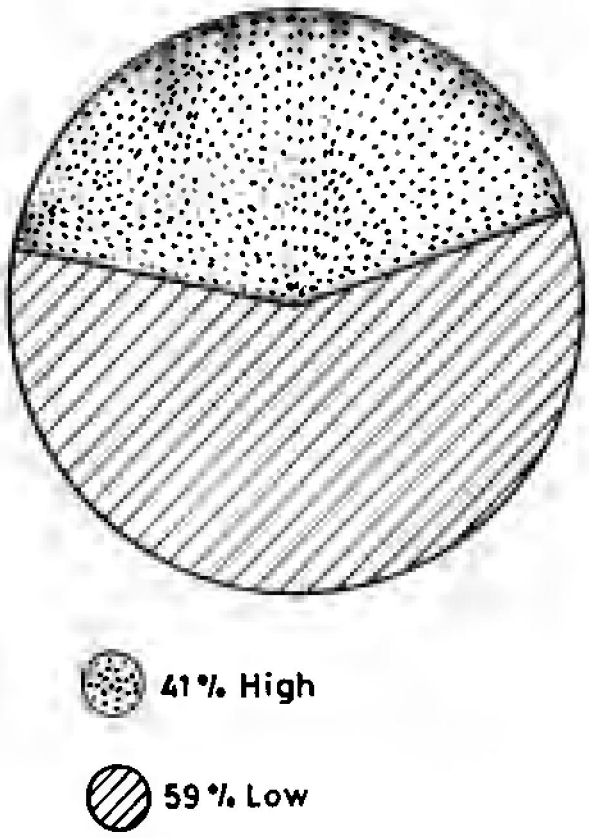

FIG. 5 ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN THE SPECIFIC AREA OF VISITS TO FARMERS FIELD.

Table 5. Role perfomrnace of Agricultural Assistants in specific area of maintenance of diary.

(N = 98)

Sl. No.	Performance category	Respondents	
		Number	Per cent
1.	High	40	40.82
2.	Low	58	59.18
	Total	98	100.00

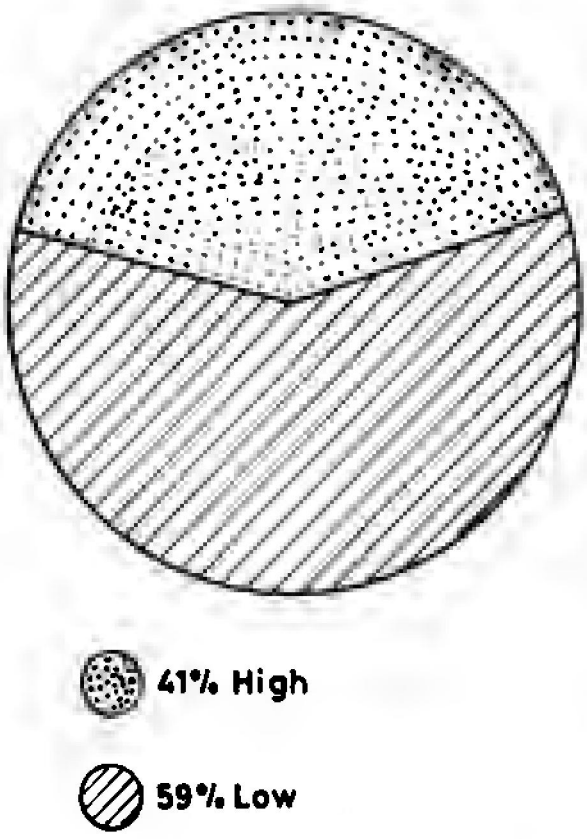

FIG. 6 ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN THE SPECIFIC AREA OF MAINTENANCE OF DIARY.

The results revealed that 59 per cent of AAs were in low performance category compared to 41 per cent in high performance category.

5. Supply and services : The results on the role performance of AAs with respect to supply and services are presented in Table 6.

The results indicated that 54 per cent of the AAs were in low performance category while 46 per cent belonged to high performance category.

6. Production of quality seeds and storage : The results on the role performance of AAs with respect to production of quality seeds and storage are depicted in Table 7.

The results revealed that 67 per cent of the AAs were in low performance category as against only 33 per cent falling under high performance category.

7. Crop cutting experiments : The results on the role performance of AAs with respect to crop cutting experiments are given in Table 8.

The results pointed out that 53 per cent of the AAs were in high performance category, as against 47 per cent in low performance category.

8. Biogas work implementation : The results on the role performance of AAs with respect to biogas work implementation are presented in Table 9.

Table 6. Role performance of Agricultural Assistants in specific area of supply and services.

(N = 98)

Sl. No.	Performance category	Respondents	
		Number	Per cent
1.	High	45	45.92
2.	Low	53	54.08
	Total	98	100.00

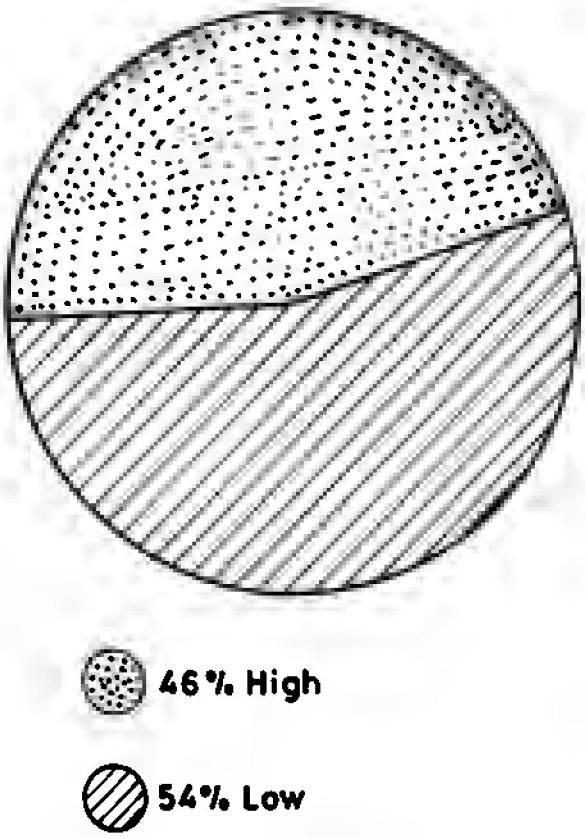

FIG.7 ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN THE SPECIFIC AREA OF SUPPLY AND SERVICES.

Table 7. Role performance of Agricultural Assistants in specific area of production of quality seeds and storage.

(N = 98)

Sl. No.	Performance category	Respondents	
		Number	Per cent
1.	High	32	32.65
2.	Low	67	67.35
	Total	98	100.00

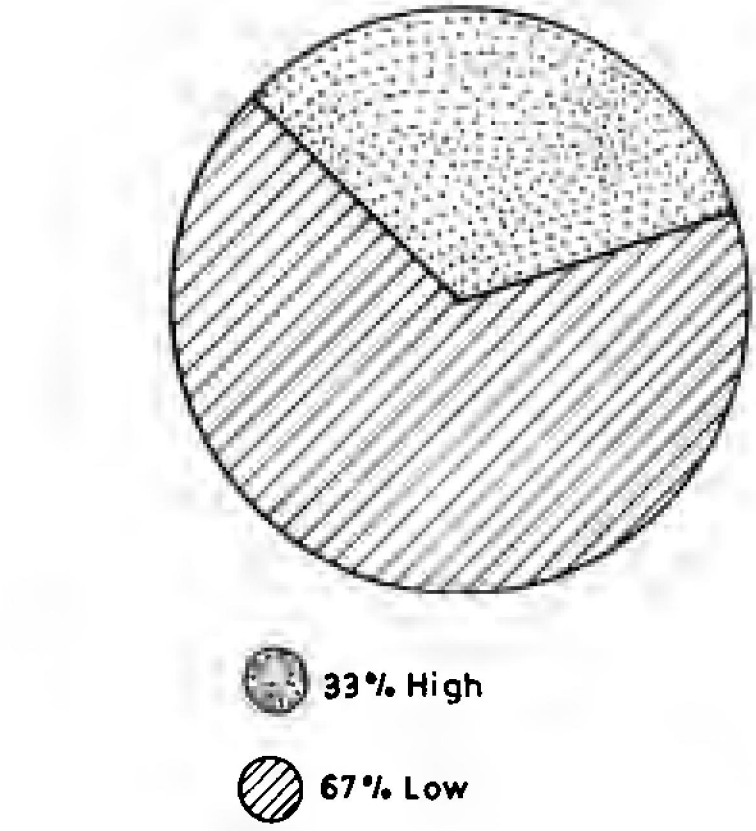

FIG.8 ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN THE SPECIFIC AREA OF PRODUCTION OF QUALITY SEEDS AND STORAGE.

Table 8. Role performance of Agricultural Assistants in specific area of crop cutting experiments.

(N = 98)

Sl. No.	Performance category	Respondents	
		Number	Per cent
1.	High	52	53.06
2.	Low	46	46.94
	Total	98	100.00

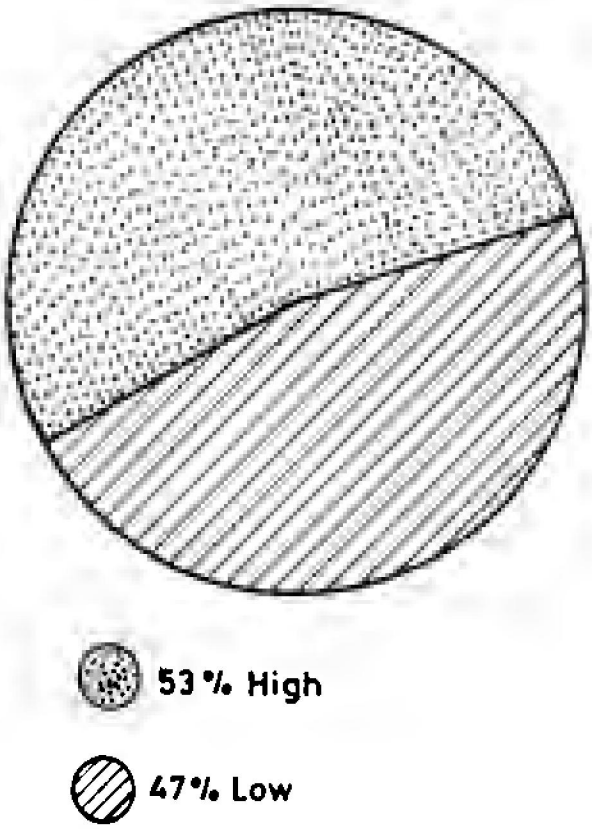

FIG. 9 ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN THE SPECIFIC AREA OF CROP CUTTING EXPERIMENTS.

Table 9. Role performance of Agricultural Assistants in specific area of biogas work implementation.

(N = 98)

Sl. No.	Performance category	Respondents	
		Number	Per cent
1.	High	8	8.16
2.	Low	90	91.84
	Total	98	100.00

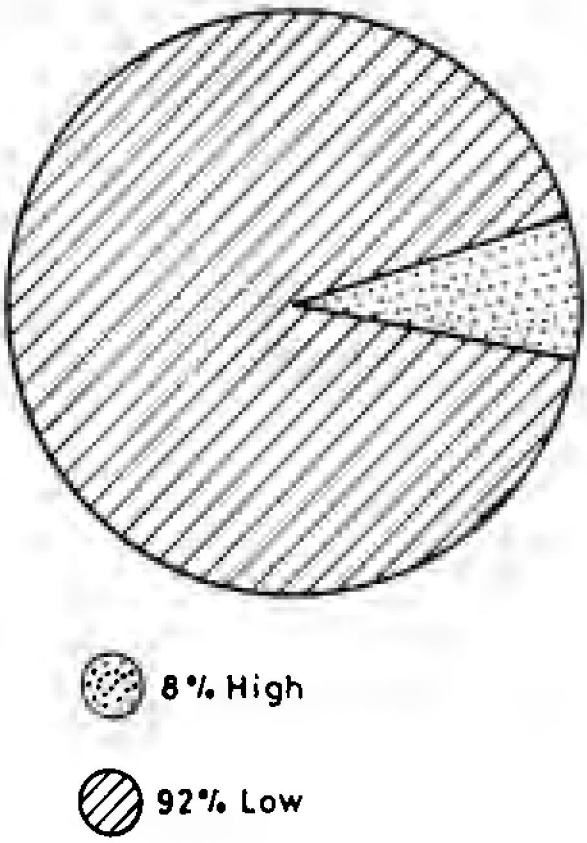

FIG. 10 ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN THE SPECIFIC AREA OF BIO-GAS WORK IMPLEMENTATION

The results indicated that 92 per cent of AAs were in low performance group compared to only 8 per cent in the high performance group.

OVERALL DIFFERENCE BETWEEN ROLE EXPECTATION AND ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS

The results on overall difference between role expectation and role performance of AAs are presented in Table 10.

The 't' test worked out revealed that there was highly significant difference between the two mean scores.

This pointed out that there was a wide gap between overall role expectation and overall role performance by AAs.

DIFFERENCE BETWEEN ROLE EXPECTATION AND ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN SPECIFIC JOB AREAS

The results in respect of difference between role expectation and role performance of AAs in eight specific job areas are presented in Table 11 to 18.

1. Planning : The 't' test conducted for the data with respect to planning showed highly significant difference between the two mean scores.

Table 10. Overall difference between role expectation and role performance of Agricultural Assistants.

(N = 98)

Role expectation mean score	Role performance mean score	't' value
265	131.31	18.36**

** = Significant at 1 per cent level.

Table 11. Difference between role expectation and role performance in specific area of planning.

(N = 98)

Specific area	Expectation mean score	Performance mean score	't' value
Planning	30.00	16.70	31.66**

** = Significant at 1 per cent level.

This implied that there is a large gap between role expectation and role performance in the specific area of planning.

2. Participation in fortnightly training : The 't' test conducted for the data with respect to participation in fortnightly training demonstrated highly significant difference between the two mean scores.

This showed a large gap between expectation and performance of roles in the specific job area of participation in fortnightly training.

3. Visits to farmers' fields : The 't' test conducted for the data with respect to specific area of visits to farmers fields pointed out highly significant difference between the two mean scores.

This revealed a large gap between expectation and actual performance of roles in the specific job area of visits.

4. Maintenance of diary : The 't' test applied for the data with respect to specific job area of maintenance of diary showed highly significant difference between the two mean scores.

This showed that there was a wide gap between expectation and actual performance of roles in the specific area of maintenance of diary.

Table 12. Difference between role expectation and role performance in specific area of participation in fortnightly training.

(N = 98)

Specific area	Expectation mean score	Performance mean score	't' value
Participation in fortnightly training	35.00	17.91	38.84**

** = Significant at 1 per cent level.

Table 13. Difference between role expectation and role performance in specific area of visits to farmers' fields.

(N = 98)

Specific area	Expectation mean score	Performance mean score	't' value
Visits to farmers' field	80.00	43.82	28.08**

** = Significant at 1 per cent level.

Table 14. Difference between role expectation and role performance in specific area of maintenance of diary.

(N = 98)

Specific area	Expectation mean score	Performance mean score	't' value
Maintenance of diary	25.00	12.13	42.90**

** = Significant at 1 per cent level.

5. Supply and services : The 't' test conducted for the data with respect to specific job area of supply and services revealed highly significant difference between the two mean scores.

This clearly demonstrated a wide gap between expectation and actual performance of roles in respect of supply and services.

6. Production of quality seeds and storage : The 't' test applied for the data with respect to specific area of production of quality seeds and storage showed highly significant difference between the two mean scores.

This explained a significant difference between expectation and actual performance of roles in respect of production of quality seeds and storage.

7. Crop cutting experiments : The 't' test conducted for the data with respect to crop cutting experiments pointed out highly significant difference between the two mean scores.

This showed a significant gap between expectation and actual performance of roles in the area of crop cutting experiments.

8. Biogas work implementation : The 't' test worked out for the data with respect to biogas work implementation indicated highly significant difference between the two mean scores.

Table 15. Difference between role expectation and role performance in specific area of supply and services.

(N = 98)

Specific area	Expectation mean score	Performance mean score	't' value
Supply and services	25.00	12.53	40.80**

** = Significant at 1 per cent level.

Table 16. Difference between role expectation and role performance in specific area of production of quality seeds and storage.

(N = 98)

Specific area	Expectation mean score	Performance mean score	't' value
Production of quality seeds and storage	30.00	13.82	43.72**

** = Significant at 1 per cent level.

Table 17. Difference between role expectation and role performance in specific area of crop cutting experiments.

(N = 98)

Specific area	Expectation mean score	Performance mean score	't' value
Crop cutting experiments	15.00	8.09	40.76**

** = Significant at 1 per cent level.

Table 18. Difference between role expectation and role performance in specific area of biogas work implementation.

(N = 98)

Specific area	Expectation mean score	Performance mean score	't' value
Biogas work implementation	25.00	9.00	64.00**

** = Significant at 1 per cent level.

This pointed out a big gap between expectation and performance of roles in the specific job area of biogas work implementation by Agricultural Assistants.

ASSOCIATION BETWEEN DIFFERENT PERSONAL CHARACTERISTICS AND ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS

The relationship of several personal characteristics, namely, age, education, experience, rural-urban background, training and mass media exposure and performance are presented here under.

1. Age and role performance : The information in respect of age and role performance of AAs are presented in Table 19.

The chi-square test conducted showed non-significant results which implies that the age of AA is not related with his role performance.

2. Education and role performance : Table 20 gives the information on education and role performance of AAs.

The results of chi-square test indicated non-significant results. Hence it is shown that educational level of AA is not associated with the level of performance.

3. Experience and role performance : Data on the length of experience and role performance of AAs are presented in Table 21.

Table 19. Age and role performance of Agricultural Assistants.

(N = 98)

Sl. No.	Category	Level of performance			X^2 value
		Low	High	Total	
1.	Young	39	23	62	0.51^{NS}
2.	Old	20	16	36	
	Total	59	39	98	

NS = Non-significant

Table 20. Education and role performance of Agricultural Assistants.

(N = 98)

Sl. No.	Category	Level of performance		Total	X^2 value
		Low	High		
1.	SSLC and below	38	22	60	0.63^{NS}
2.	Above SSLC	21	17	38	
	Total	59	39	98	

NS = Non-significant

Table 21. Experience and role performance of Agricultural Assistants.

(N = 98)

Sl. No.	Category	Level of performance		Total	X^2 value
		Low	High		
1.	Below 8 years	31	18	49	
2.	9-16 years	18	16	34	1.04^{NS}
3.	Above 16 years	10	5	15	
	Total	59	39	98	

NS = Non-significant.

The chi-square test carried out for the data showed non-significant results. This showed that there was no relationship between length of experience and role performance of AAs.

4. Rural-urban background and role performance : Table 22 points out information on rural-urban background and role performance of AAs.

The chi-square test carried out for the data indicated non-significant results. This revealed that there was no relationship between rural-urban background and their role performance by AAs.

5. Training and role performance : The data in respect of training received and role performance by AAs are presented in Table 23.

The chi-square test conducted for the data gave non-significant results. This implied that there is no association between training received and role performed by AAs.

6. Mass media exposure and role performance : The information in respect of mass media exposure of AAs and their role performance is shown in Table 24.

The chi-square test conducted for the data pointed out non-significant results. This revealed that there was no relationship between mass media exposure and role performance.

Table 22. Rural-urban background and role performance of Agricultural Assistants.

(N = 98)

Sl. No.	Category	Level of performance		Total	X^2 value
		Low	High		
1.	Rural	37	19	56	3.09^{NS}
2.	Urban	22	20	42	
	Total	59	39	98	

NS = Non-significant

Table 23. Training and role performance of Agricultural Assistants.

(N = 98)

Sl. No.	Category	Level of performance		Total	X^2 value
		Low	High		
1.	Low	27	18	45	
					0.001^{NS}
2.	High	32	21	53	
	Total	59	39	98	

NS = Non-significant

Table 24. Mass media exposure and role performance of Agricultural Assistants.

(N = 98)

Sl. No.	Category	Level of performance		Total	X^2 value
		Low	High		
1.	Low	27	19	45	0.001^{NS}
2.	High	32	20	53	
	Total	59	39	98	

NS = Non-significant

DISCUSSION

V. DISCUSSION

The results of the study are discussed in detail in this chapter under the following headings :

1. Overall role performance of Agricultural Assistants under 'Training and Visit' system.

2. Role performance of Agricultural Assistants in specific job areas.

3. Overall difference between role expectation and role performance of Agricultural Assistants.

4. Difference between role expectation and role performance of Agricultural Assistants in specific job areas.

5. Association between different personal characteristics and role performance of Agricultural Assistants.

OVERALL ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS UNDER 'TRAINING AND VISIT' SYSTEM

Results in Table 1 indicates that majority (60 per cent) of the AAs were in low role performance category, while only 40 per cent of them were in high role performance category as rated by their superior officers i.e., AAOs and ADAs. This finding is in line with the findings

of Kolte (1972), Perumal (1975) and Janardhan (1979). The finding of Kolte indicated that 56 per cent of AEOs had their performance level below average, while Perumal's study indicated that 84 per cent of them were under medium and low performance groups and in Janardhan study nearly 73 per cent of AEOs were under low and medium performance levels.

Thus, the study indicated that there is ample scope for increasing the performance of AAs under T & V system. The low role performance of AAs may be attributable to several reasons. The AAs have been called upon to adjust to a different working environment in the system. In the T & V system, the job expectations are entirely different from that of old system for which the AAs are not geared to be equal to the task assigned. Either the expectations are high or unrealistic or the AAs do not have proper working conditions to perform better. Therefore, more training and guidance as to what their roles are in the new systems have to be provided to the AAs by the Supervisors of the system. It is also very essential that the working climate needs to be changed to improve their performance. Above all, the basic problem lies with the recruitment. While selecting AAs it is very essential that suitable candidates having right attitude to do field work need to be recruited.

When supply and service facilities to the farmers happen to be inadequate, the performance abilities of AAs get lowered. Mere technical guidance and advice will not help increase agricultural production unless these guidance and advice are matched by supply and services such as seeds, fertilizers, chemicals, credit etc. This aspect needs to be given attention to in the system.

ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN SPCEIFIC JOB AREAS

The role performance of AAs in specific areas against what is expected of them is given below in order to know the areas in which AAs performance is weak and needs strengthening.

1. Planning : Table 2 points out the role performance of AAs with respect to specific area of planning. About 54 per cent of AAs were found to be in the high performance category compared to 46 per cent in the low performance category.

Eventhough more than 50 per cent of the AAs came under high performance category, there is lot of scope to improve. There seems to be no systematic planning for better utilisation of scarce resources like money, men and time. This aspect needs lot of emphasis and the immediate supervisors like AAOs and AOs have to guide and monitor the planning aspects regularly.

Since timely operations in agriculture are important, planning at the field level is of paramount importance. Effective planning of extension activities require more than a translation of general objectives and strategies into specific production recommendations and an attempt to ensure the availability of inputs required by the farmers to implement these recommendations. The AA being the grass root level worker is the proper person to decide about the local priorities, needs and resources available for implementation. Since AA is a liaison man between the farmers and the Government, he should ensure feed back at lower levels especially at the fortnightly training session where AAs must report on farmers' resource conditions and reactions to production recommendations. For this he has to have statistics about the area, production of different crops, level of production, constraints for production, research results. Besides, he has to work and plan in collaboration with local input agencies and farmers.

2. Participation in fortnightly training : In the specific area of participation in fortnightly training about 54 per cent of the AAs were under low performance category and 46 per cent of them under high performance category as depicted in Table 3.

This kind of result may be due to the fact that many of the AAs are not attending fortnightly trainings on a regular basis and also not participating actively in the

training programmes by asking questions, seeking clarifications, getting solutions to the problems putforth by farmers during the visit of AAs to their plots.

Apart from field work, the other main responsibility of the AA is to receive training. The training most frequently and regularly held for the AA is the fortnightly training session. It is here that the AA, together with his AAO, learns the recommendations and their impact points for the coming two fortnights. Fortnightly training is also an important venue for feed back from the field to other extension staff and to research and input organizations. The AA must report thoroughly on the field situation, problems faced by the farmers, their reactions to the previous recommendations, local market conditions and the demand for and availability of different inputs and services in his circle.

The results indicate that the AAs performance with regard to fortnightly training session is only an average and it needs to be improved. For this the AAOs who are the immediate supervisors have to play a creative role.

3. Visits to farmers' fields : The results on role performance of AAs in the specific area of visits to farmers' field are presented in Table 4. It indicates that majority (59 per cent) of them were under low performance category while only 41 per cent of them were under high performance category. The reason for low performance is that many of the AAs are not following the schedule of visits.

In the T & V system all extension staff make field visits but the frequency and intensity of contact with farmers by AA is much more than that of other staff. Visits of AAs should be field oriented, regular, specific and purposeful. During the field visit the AA should discuss with the farmers the field situation, answer their questions raised or make note of them to discuss in the next fortnightly meeting, teach the farmers about specific recommendations to fit the resources of the individual farmer using teaching aids and demonstrating the actual field operations. He is also to tell the farmers of the day of his next field visit.

The results clearly show that majority of the AAs (59 per cent) fall in low performance category on this very important duty. The AAs have the primary duty to spend lion share of their time in the field observing crops, discussing with farmers, demonstrating the new techniques and observe the adoption of recommended practices and get feed back. The fact that 59 per cent of the AAs do not score well on this count implies that there is something radically wrong in the system. Recruiting persons who have affinity for field work, providing incentives like quarters and transport facilities besides tightening the supervision aspect may go a long way in streamlining this very important part of the duty which subscribes tangibly to the increase in agricultural produc-

tion by farmers. It also helps better rapport with farmers, better feed back to research and better image formation of the extension system.

4. Maintenance of diary : The results in Table 5 reveal that 59 per cent of AAs were low performance and 41 per cent of them were high performers with regard to maintenance of diary. This shows the importance attached to this crucial document by AAs. Diary consists of daily record of the work, observations made during the visit, problems noticed and solutions offered by them and also recording problems which need to be discussed during fortnightly training.

The diary is a personal record of an officer's, worker's activities primarily designed to help the person work effectively. The only written report required of AA is the daily diary. Properly used, a well designed diary can greately enhance the effectiveness of extension work. Diary of AA is used to record three main items. First, they serve as a handy record of relevant basic data of the area served by AA. In the diary the area of the AAs circle is defined and the basic characteristics of farmers and the agricultural practices followed in the area are recorded. Second, there is a daily record of crop conditions, production problems and farmers reactions to

recommendations. Third, since the main recommendations and impact points from fortnightly training sessions are recorded in it, diary is an important day-to-day guide for the AA in his field activities.

The results clearly indicate that the AAs are not taking this important work seriously. There is a need to guide the AAs in the maintenance of proper diary which could be done by their immediate supervisors.

5. Supply and service : In this specific area 54 per cent of the AAs were under low performance category as against 46 per cent of them being under high performance category as revealed in Table 6. The unsatisfactory performance of AAs in ascertaining the requirement of inputs and communicate it to the concerned authorities at operational level to make timely supply, informing the farmers about the availability of inputs, sources of credit and distribution of minikits are the causes for the kind of results obtained.

The timely supply of agricultural inputs like seeds, fertilizers, chemicals, credit, power, fuel, irrigation water, implements and so on is as important to agricultural development as supplying suitable technical advice. Extension cannot make a significant impact on agricultural production, if the inputs required to implement its advice are not available. Extension advice is also important

for input utilization, since little can be achieved by farmers who do not know how to use input utilization, since little can be achieved by farmers who do not know how to use inputs efficiently and profitably. Thus, agricultural input and agricultural extension are mutually dependent. However, the linkage does not go to the extent of handling or distributing the inputs by AAs or AAOs. But they have an important role in advising input agencies of the actual supply situation in the field and anticipated demand and thereby coordinating input supply with farmers' needs. This restricted involvement of extension staff in inputs is a radical change from the close involvement with inputs of the earlier multifunctional extension system.

The results categorically show that the AAs have not been successful in coordinating the input supply at operational level. This situation calls for coordinated efforts on the part of the AAs as well as on the local input agencies. The AAs have the responsibility of advising the input agencies of the supply situation in the rural areas and of the anticipated demand, and advising farmers on availability of inputs, input prices and input outlets to ensure adoption of production recommendations. Field staff of input agencies bear responsibility for veryfying supply and demand trends. For all these, it is the responsibility of the AA to encourage representatives

of input agencies to participate in fortnightly training sessions. The problem lies in reciprocating the efforts of AAs by the input agencies.

6. Production of quality seeds and storage : In this area about 67 per cent of AAs were in low performance category and remaining 33 per cent belonged to high performance category as given in Table 7. This shows that AAs had poor performance in the activities like advising the farmers on the production of quality seeds, organising training programmes, making frequent visits to farmers fields where seed production has been taken up, conducting method demonstration on the storage of grains etc. The poor performance of AAs in this aspect might be due to the fact that the production, certification and distribution of seed is not AAs responsibility in the system as it is entrusted to some other agencies like seed certification and seed federation agencies in the state.

7. Crop cutting experiments : Table 8 shows that 53 per cent of AAs belonged to high performance category while 47 per cent under low performance group. Probable reason for this kind of a situation may be that many of the AAs were not performing these activities effectively, since they were not very much involved in training and conducting of crop cutting experiments, as it is the primary responsibility of the statistical department in the state and these agencies have not taken up seriously the role of AAs in this

aspect. This explains the lack of coordination at the operational level.

8. Biogas work implementation : Most of the AAs (92 per cent) were under low performance category in this area as indicated in Table 9. This may be due to the fact that this work is also entrusted to the biogas supervisors attached to the Block Development Officer, whose exclusive work is to promote this work. Nevertheless, biogas work has been taken up successfully by AAs in the areas where there are banks to sanction loans and subsidies. It is possible that the AAs located near the Nationalised bank branches were more successful in getting this work done than others.

OVERALL DIFFERENCE BETWEEN ROLE EXPECTATION AND ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS

The information in Table 10 reveals the difference between role expectation and role performance of Agricultural Assistants in the T & V system. The 't' test worked out for the data indicated highly significant differences, thus, pointing out a wide gap between overall role expectation and role performance. The probable reasons for this kind of findings may be that the Agricultural Assistants have not been able to play their roles as expected because of several limiting factors operating

in the system. It is interesting to note that majority of the AAs come under low performance category. Also it is to be noted with concern that in all the 8 sub areas of job prescription there is a significant difference between what are expected and what are performed.

Inspite of the best training given to AAs on a regular basis and despite weaning him from other developmental works and putting him in agricultural department exclusively, there are some inherent problems in the system. May be that the farmers are not too responsive to the new technology is perhaps the reason for unsatisfactory results. Coupled with this is the unkind environment. Since the whole area where in the research was conducted is a dry tract with very scanty rainfall, crop production is found to be risky. Therefore, the farmers are not responsive to the new technology which is risky and capital intensive, bad market and low prices would wash of their borrowed capital and hard labour. This kind of apathy on the part of the farmers is not conducive for agricultural development and this needs to be broken by better educational and motivational methods and also ensuring confidence in the dryland technology.

Hence the hypothesis set for the study that there is no difference between overall role expectation and role performance by AAs in T & V system was rejected.

DIFFERENCE BETWEEN ROLE EXPECTATIONS AND ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS IN SPECIFIC JOB AREAS

The perusal of Tables 11 to 18 indicated vast difference in the performance against the role expectation by AAs in the 'T & V' system in the specific area of planning, participation in fortnightly training, visits to farmers' field, maintenance of diary, supply and services, production of quality seeds and storage, crop cutting experiments and biogas work implementation. When this data were subjected to 't' test, the results have shown that there is significant difference between role expectation and role performance by AAs in all the job items prescribed. This implies that there is a long way for the AAs to improve their role performance. This wide gap between what is expected and what is achieved is probably due to many constraints operating in the 'T & V' system. Therefore, it is suggested that the functionary like AA who serves as a liaison between the farmers and Government should be able to gear up his task to the expected level of the Government so that the farmers receive greater satisfaction of the service. The fact that this is not happening in the field as shown by the results indicates an unsatisfactory aspect of the situation in the working of the 'T & V' system.

This trend needs to be arrested from the point of view of effective implementation of 'T & V' programme. The role areas like "planning" are very essential for agricultural operations and if the AA is not well worsed in the aspects of planning of extension activities like sheduling of visits,collection of statistics, planning for inputs etc., agricultural development suffers a great deal. Therefore, it is necessary that the AA has to be properly trained by the managers of the system with respect to some of the elements of planning for better performance.

Fortnightly training programme to the AAs are organised by the subject matter specialists who are trained by the Master trainers about new technology in the monthly workshops. Fortnightly trainings provide opportunities for the AAs to get messages for the coming two fortnights and also interact with the subject matter specialists to get solutions for many of the field problems they encounter. This kind of feed back is possible only when the AAs regularly attend the fortnightly training programme, actively participate in deliberations. The fact that this is not happening in the field to the expected level indicates much disappointment to both the farmers and managers of the system. Therefore, it is necessary that there should be a clean mandate to AAs to attend workshops meant for

them, besides trainers in the fortnightly workshop i.e., subject matter specialists of Agronomy, Plant Protection, inputs etc., have to make the training programmes attractive to the AAs by discussion, use of specimen, audio-visual aids etc., instead of providing stereotype lecturing and message formation.

Visits to farmers field by the AA is of paramount importance in the T & V system, because it is here that the AA renders help to the farmers by giving timely messages, teaching them skills and advicing them on day-to-day field operations. Therefore, it is emphasised in the system that there should be fixed visits by AAs to the farmers fields. The fact that the visits by AAs to farmers field is far below the expected level is not encouraging. Therefore, it is suggested that the superior officers like AAOs, AOs and ADAs should closely supervise the visits of AAs to the farmers field and provide constructive guidance for better performance in this important item of the job.

In the diary the AAs record of their work, observations, problems, important messages to be communicated, supply position etc., would help AAs to perform better. It is found that the AAs are lagging behind even in this aspect of the job. So the AAOs should closely monitor follow up activities and help the AAs to do better in the matter of maintenance of diary.

Supply and service is an important component of the T & V system, mere giving of messages will not help for adoption. The messages have to be backed by supply and services like seeds, fertilizers, credit etc. Therefore, it has become mandatory that the local input agencies should participate in the fortnightly training programmes organised so that extension functionary come to know as to what is available and where. This would help tailoring the messages to the availability of the inputs. A close rapport building between extension functionary on the field and local input agencies is very important for the successful implementation of T & V system. It is therefore suggested that the field functionary like AA should not stop his work by mere dispensation of messages to farmers but he should continue follow up with the input agencies to make available the required inputs to the farmers.

Good seed coupled with better agronomic practices is the only hope for higher production and the purity of seeds has to be maintained. There should be seed multiplication programme on a systematic basis for, the AAs should act as a link between the farmers and seed certification, distribution agencies. The results of the investigation reveal that the guidance provided by the AAs to the farmers in this aspect of the job is not satisfactory. This may be due to the fact that AAs

have not been trained in seed production technology and also due to the fact that the seed certification and seed marketing federation agencies in the state, have not made any effort to involve, train, and educate AAs in these activities, eventhough, they do not have the field functionaries like AAs for visiting farmers' field and providing guidance to the farmers. The lack of coordination at the operational level between two government agencies is responsible for low performance of AAs in the important task of production of quality seeds.

The crop cutting experiments are needed to know the production levels and to determine the progress achieved, the Department of Statistics is entrusted with the task of carrying on crop cutting experiments at the field level to record the yields of different crops in collaboration with the Department of Agriculture. The fact that the AAs performance in this activity is far below the expected level indicated their non-involvement in the process. Since the Statistical Department does not have the staff at the village level, it is incumbent on their part to make use of this functionary for crop cutting experiments. The fact that this has not happened indicates lack of coordination between the two agencies at the field level. It is economical and also useful, if the AAs are trained on

crop cutting experiments and their services are made use of since the AAs are involved in motivating farmers about the use of new technology. It is likely that they may evince more interest in ascertaining the progress of the recommendations which are reflected in yield levels.

Biogas is an important programme to solve the crisis of energy besides it is a boon to the farmers from the point of view of enrichment of manures. This important segment of rural development is carried out by multi-agencies. Since the biogas programme involves farmer's family and his production, the Department of Agriculture needs to have a concern for this programme. Therefore, the biogas programme is promoted by Department of Agriculture along with other agencies, it is quite possible to think that farmers do not have sufficient resources to invest on biogas plant and expect the Government help in this regard by way of loan or subsidies. This important rural development work needs to be channelised through AA who naturally has the concern for the farmers in the villages whatever may be the nodal agencies for implementing this programme. AA should be deeply involved in this work at village level by these agencies for better implementation. The fact that there is a wide gap between expectation and achievement by AA in this field suggests that the AA's involvement in the task is only superficial and there is complete absence of coordination among various

agencies implementing this programme. A clear cut policy of the Government in implementing biogas programme and role of AAs in it has to be laid out for better progress of the programme.

Hence, the hypothesis set for the study that there is no difference between role expectation and role performance of AAs in specific job areas was rejected and alternative hypothesis that there is difference between role expectation and role performance was accepted.

ASSOCIATION BETWEEN PERSONAL CHARACTERISTICS AND ROLE PERFORMANCE OF AGRICULTURAL ASSISTANTS

1. Age and role performance : The results in Table 19 indicate the non-significant association between age and role performance of respondents.

This finding is on par with the findings of Frutchy (1958), Salvi and Dudhani (1967), Rajgopal (1967), Veerabhadraiah (1980), Ramashiva Reddy (1982), Shobana (1982), Shivalingegowda (1985) and Laxmidevi and Venku Reddy (1984) who found no association between age and role performance. However, Wilkening (1957), Patel and Leagons (1968), Kherde and Sahay (1972), Reddy (1976), Janardhan (1979), Nikhade and Kitey (1984) found significant association between age of the respondents and their performance.

The results imply that physiological phenomena of

age has no influence either positive or negative on the performance of AAs. The hypothesis that younger the age the performance will be better since young people are active, dynamic, enthusiastic and possess energy to do lot of activities does not get support. On the other hand, aged persons with their experience will be better in their performance, also do not find evidences. This implies that the performance of AAs is independent of the age. This suggests that young and old AAs are alike in performing their jobs.

2. Education and role performance : The results indicated that there was no significant association between educational qualification of AAs and their role performance (Table 20). Majority of the AAs were matriculates and only few had graduated. Hence, the distribution was very uneven. This could be the reason for non-significant association of education and performance. This finding is in complete agreement with the findings of Dube (1958), Kherde and Sahay (1972), Rajagopal (1977), Janardhan (1979), Ramashiva Reddy (1982), Shobana (1982), Laxmidevi and Venku Reddy (1984) who found non-significant association of educational qualification with performance. However, Rahudkar (1962), Bisen and Dhama (1963), Salvi and Dudhani (1967), Patel and Leagons (1968), Nikhade and Kitey (1984) and Mishra (1988) found significant association of educational qualification of respondents with role performance.

Education through which one learns the knowledge and skills and changes attitude to mould his personality should have had its impact on the performance of AA. Because of uniform educational levels due to recruitment policies, the impact of education on performance is not felt. The other reason may be that for a field workers' job like AA, any higher academic achievement may be a handicap as they become status conscious and do not work on the field.

3. Experience and role performance : The findings in Table 21 reveal that experience and role performance were found to be not significantly associated.

This finding gets the support by results of studies of Frutchey (1958), Rajagopal (1977), Veerabhadraiah (1980), Ramashiva Reddy (1982), Shobana (1982), Nikhade and Kitey (1984) and Shivalingegowda (1985) who found non-significant relationship between length of experience and performance. However, Rahudkar (1962) and Mishra (1988) found significant association between length of experience and performance of extension personnel.

It is possible that more experience may have resulted in the declining efficiency by the AAs due to the advance in age and impairment of senses to hear, read and see. Apart from the physical handicap to learn and act, the aged persons are likely to feel the work monotonou

To break this monotony and to encourage them to sustain their interest in the work, it is very necessary to provide incentives like free accommodation, transport and some rural allowance, besides, establishing a promotional policy with liberal rules, thus, providing opportunity for them for higher mobility in the hierarchy.

4. Rural-urban background and role performance : An examination of the results in Table 22 reveals that performance of AAs is not significantly related to their rural/urban background. This finding is similar to the findings of Reddy (1976), Rajagopal (1977), Janardhan (1979), Ramashiva Reddy (1982), Shobana (1982) and Laxmidevi and Venku Reddy (1984) who found non-significant association of rural-urban background with role performance. However, Ney (1952), Mahudkar (1982), Bisen and Dhama (1965), Shivalingegowda (1985) and Mishra et al. (1986) found significant association between rural-urban background and performance.

There is an assumption that persons coming from the same socio-economic environment will have a sort of affinity for that class of people and work more efficiently than others in new environment. Since AAs job is 100 per cent located in rural area, people from rural background may perform their duties better in such situations because of homophily and better command of local situations, but the results have proved otherwise. This might be due to the

fact that most of the AAs possess rural background as they are drawn from rural areas only and urban people naturally shun such jobs which are strenuous and require long hours of work on the field.

5. Training and role performance : There was no significant association between training received by the AAs and their role performance, as indicated in Table 23. This finding is similar to the findings of Janardhan (1979), Veerabhadraiah (1980), Reddy (1982), Shobana (1982) and Nikhade and Kitey (1984) who found non-significant association between training and role performance. However, Verheij (1966), Salvi and Dudhani (1967), Patel and Leagons (1968), Kherde and Sahay (1970), Singh and Srivastava (1970), Jha and Sharma (1973) and Mishra et al. (1988) found significant relationship between training and performance of extension personnel.

The plausible reasons may be that most of the AAs get almost similar type of trainings and variations are seldom seen. Apart from this, in the T & V system there is a regular fortnightly training arranged by the SMS to the AAs on the technology to be given to the farmers for adoption in the ensuing fortnight. This being common for all the AAs there was very little variation found on this count among AAs.

6. Mass media exposure and role performance : Table 24 reveals non-significant association between mass media exposure and role performance of AAs. This finding is in contrast to the findings of Ramashiva Reddy (1982) and Shivalingegowda (1985) who found significant association between mass media exposure and job performance of AAs and Extension Guides, respectively.

Inspite of the fact that the mass media exposure is the cause for modernising the people; it is of limited use to put the people for action. Mass media might have been responsible for the AAs to acquire more knowledge and information but they have not been of much use for bringing higher performance on the field. The results of the study suggest that eventhough majority of the AAs had higher mass media exposure, many of them were not performing better.

Hence, the hypotheses set for the study that there is no association between personal characteristics viz., age, education, experience, rural/urban background, training and mass media exposure and role performance by AAs was accepted.

SUMMARY

VI. SUMMARY

India, being predominently an agricultural country, has been striving hard to increase agricultural production through the application of science and technology by multitude of farmers. Training and Visit system is a reorganised agricultural extension system for achieving increased agricultural production, where the Agricultural Assistant has to play a pivotal role, as he happens to be the initiator, legitamizer, motivator and executor of all agricultural extension programmes at the village level. Nevertheless, the important grass root level functionaries are not able to be equal to the task expected of them and their performance level is always assumed to be for below the expectations. It is not known why this wide gap between what is expected and what is performed? Very few scientific investigations have been conducted in this area.

Hence, the present investigation was taken up with the following objectives :

1. To ascertain the role expectations of Agricultural Assistants
2. To assess the role performance of Agricultural Assistants
3. To identify the gaps between role expectations and role performance and
4. To identify the personal characteristics associated with the role performance of Agricultural Assistants.

The study was conducted in Chitradurga district of Karnataka State during the year 1989. There are 9 taluks in Chitradurga district out of which five taluks were randomly selected for conducting the study. Five taluks selected were : Challakere, Harihara, Hiriyur, Molakalmuru and Jagalur. All the 98 AAs available at the time of investigation in these five taluks were taken as respondents. Superior Officer's ratings were taken from all the Assistant Agricultural Officers and Assistant Directors of Agriculture of these taluks. The sample consisted of 98 Agricultural Assistants, 19 Assistant Agricultural Officers and 5 Assistant Directors of Agriculture. Age, education, experience, rural-urban background, training and mass media exposure were taken as the independent variables.

The questionnaire was administered personally to all the selected AAs and handed over to AAOs and ADA. The information was obtained using appropriate rating scales developed for the study.

The data collected were put to analysis with the help of statistical tools to test the significance. The Kendall coefficient of concordance (W), paired 't' test and chi-square tests were used to analyse the data.

The main findings of the study are briefly presented as follows:

Summary

1. Majority (60 per cent) of Agricultural Assistants were in low performance category when their overall performance was considered.

2. Majority of the AAs were in high performance category in the areas of planning (54 per cent) and crop cutting experiments (53 per cent).

3. Majority of AAs were in low performance category in respect of participation in fortnight trainings (54 per cent), visit to farmers fields (59 per cent), maintenance of diary (59 per cent), supply and services (54 per cent), production of quality seeds and storage (67 per cent) and biogas work implementation (90 per cent).

4. There was a wide gap between overall role expectation and overall role performance of Agricultural Assistants and also with respect to different job areas.

5. The independent variables viz., age, education, experience, rural-urban background, training and mass media exposure of AAs were not significantly associated with their performance.

Implications and suggestions

The present investigation was an attempt to study the role expectations and role performance of AAs in the T & V system in Karnataka. It was also an attempt to

identify some personal characteristics associated with the performance.

The study has categorically revealed that majority of Agricultural Assistants were low performers. There was a wide gap between role expectation and role performance. The personal characteristics considered viz., age, education, experience, rural-urban background, training and mass media exposure were found to have no significant association with performance.

The fact that majority of the AAs were low performers and there was a significant gap between what is expected of AAs and what is performed by them clearly shows the tardy implementation of T & V system at the field level. This implies that either the expectations are very high and unrealistic or there are no serious efforts on the part of the AAs to be equal to the task assigned to them. Besides, the environment in the system may not be conducive for better performance by the AAs.

Despite regular training and supervision and guidance by the superiors, the performance of the AAs is at the low ebb in all the areas studied. This indicates that the training and supervision in the system are not effective and there is a need to have effective training programmes and efficient supervision and guidance mechanisms in the

system. The immediate supervisors of AAs are the AAOs and AOs who have to train and guide the AAs properly. The low performance of AAs implies that the AAOs and AOs are not effectively guiding and helping the AAs to discharge their functions.

The performance of the AA is good when the recommendations he makes are put into practice by the farmers. This depends upon the availability of inputs, supply and services over which the AAs have no control. No doubt, they have to coordinate with the input agencies at the local level. Since AAs status may not be adequate to bring about such a kind of coordination, there is a need for coordination at different levels to streamline supply and services, which are very essential for better performance. The managers of the T & V system need to rethink about how to achieve better coordination at different levels to provide needed inputs to the farmers.

It was also found that personal characteristics viz., age, education, experience, rural-urban background, training and mass media exposure of AAs were not associated with their performance. This has got wider ramifications for recruitment and training of AAs. This is probably due to the fact that all these characteristics are uniform with most of the respondents. This implies that there are factors other than these which determine the performance of

AAs. Future researchers may concentrate on identifying those factors which have a direct bearing on the performance of AAs.

REFERENCES

VII. REFERENCES

*Allard, J.R., 1983, An analysis of tasks performed and investigation of this motivating potential of the Administrative Assistants job category as manifested in small and large organizations. Dis.Abstract, 44(6) : 1307.

Anonymous, 1958, Report of the Agriculture Administration Committee, Ministry of Food and Agriculture, New Delhi.

Anonymous, 1969, A note on programmes since inception of IADP. Mandya district Intensive Agriculture District Programme.

Anonymous, 1981, Agricultural Extension - The Training and Visit system operational notes. Directorate of Extension, Ministry of Agriculture & Co-operation, Government of India, New Delhi.

Anonymous, 1982, Job chart of various extension functionaries under training and visit system (World Bank assisted Extension project in Karnataka), Karnataka State Department of Agriculture, Sheshadri Road, Bangalore.

Benor, D. and Boxter, M., 1984, Training and Visit Extension. The World Bank, Washington, D.C., USA.

Bible, B.L. and Brown, E.J., 1960, Perception of role expectations and role performance of county members. Paper presented at the Annual Meeting of the Rural Sociological Society. The Pennsylvania State University, University Park, Pennsylvania.

Bisen, J.P. and Dhama, O.P., 1965, Role workload and training needs of Agricultural Extension Officers. Indian J. Extn. Educ., (1 & 2) : 139.

Chakravarthy, T.K. and Singh, R.N., 1974, Measuring the performance of VLW. Behavioural Sci. and C.D., 8 : 1-4.

Daulat Singh and Srivastava, 1970, Training of Extension Personnel and Farmers in Uttar Pradesh. Research in Extension Education. Indian Society of Extension Education, New Delhi, pp. 62-64.

Davis, 1949, Human Society. The McMillan Co., New York.

Dube, S.C., 1958, India's Changing Villages. Routledge and Keg Paul Ltd., London, p. 159.

Edwards, A.L., 1957, Techniques of attitude scale construction. Appleton Century Crafts, Inc., New York.

*Frutchey, F.P., 1958, Differential characteristics of the more effective and less effective teachers : A summary report of nine studies, U.S.D.A. Department of Agricultural Extension Service, Washington.

Godale, J.G., 1975, How to improve ratings of employees performance. Personnel, 22(1) : 20-34.

*Helsey, D., 1956, Summary records of the International Seminars on methods of Programme Planning in Agriculture and Home Economics and Extension. Indian J. Agron., 9(1) : 51.

Hosur, G.P., 1977, "A study on achievement motivation of Gramasevaks of Dharwad district, Karnataka." Unpublished M.Sc.(Agri.) thesis in Agricultural Extension, U.A.S., Bangalore.

Jaiswal, N.K., 1983, Training of teacher under T & V problem identification, Hyderabad.

Janardhana, K.S., 1979, "A study of job performance and job satisfaction of AEOs and Factors associated with their performance." M.Sc.(Agri.) thesis (Unpub.), U.A.S., Bangalore.

Jha, P.N. and Sharma, B.M., 1973, Impact of Institutional Training in Applied Nutrition on Village Level Workers. Indian J. Exten. Edun., 9 : 49-51.

*Katze, D. and Khan, R.L., 1966, The social psychology of organizations. Wiley Eastern Private Ltd., New Delhi.

Kelsey, L.D. and Hearne, C.C., 1955, Co-operative extension work. Comstock Publishing Associate, New York, p. 490.

Khan, R.L., Wolfe, D.M., Quinn, R.P., Snoet, J.D. and Rosenthal, R.A., 1964, Organizational stress : Studies in role Conflict and ambiguity. John Willey & Sons, Inc., New York.

Kherde, R.C. and Sahay, B.N., 1979, Role performance of Village Level Workers in Agriculture production. Indian J. Extn. Educ., (1 & 2) : 67-69.

Kherde, R.L. and Sahay, B.N., 1972, Role performance and role prediction of VLW's in the new strategy of agricultural production. Indian J. Extn. Educ., 8(1 & 2) : 67-70.

*Khosla, P.P., 1966, Role expectation and role performance of VLWs. Review Extension Research, 6 : 1-3.

*Kolte, N.V., 1972, Prediction of effective job performance of Agricultural Extension Officers of the Community Development Blocks, Unpublished Ph.D. thesis.

Koontz, H. and O'Donell, C., 1976, Management a system and contingency analysis of managerial functions. McGraw Hill, Kogakusha Ltd., Tokyo.

Laxmi Devi, A. and Venku Reddy, S., 1984, Role expectation and role performance of rural women in Farm activities. Indian J. Extn. Edn., 20 (3&4) : 27-34.

Lewis, B., 1983, An analysis of the expected and actual importance of selected roles for two year public junior community College Presidents.

Lynton, R., 1945, The cultural basis of personals. New York.

*Mc Neill, H.M., 1960, An analysis of factors used in Formal Appraisal of Country Extension Personnel. Unpublished M.Sc. thesis, University of Wisconsin, Madison, p. 59.

Mishra, P.K., Jaiswal, D.K. and Anupam Mishra, 1988, "Factors affecting the role performance of Rural Agricultural Extension Officers working in Jabalpur district. Maharashtra J. Extn.Educ., 7 : 231-233.

Newcomb, T.M., 1951, Sociology and psychology in J. Gillin (ed.). For a Science of Social Man. The Mc Millan Co., New York.

Ney, N.J., 1952, The relationship of certain factors to county agent success. Research Bulletin, 498, Agricultural Experiment Station, University of Missouri, Missouri.

Nikhade, D.M. and Kitey, P.V., 1984, "Role performance of village level workers in agricultural development programme". Maharashtra J. Extn. Educ., 3 : 111-112.

Patel, I.C. and Leagons, P.J., 1968, Some background and personal traits related to VLWs effectiveness. Indian J. Extn. Educ., p. 1-10.

Pearsons, T., 1951, The social system. The Free Press, New York, pp. 38-39.

*Perumal, G., 1975, A study of job performance psychological characteristics, communication behaviour and training aspects of Agricultural Extension Officers of Tamil Nadu, Unpublished Ph.D. thesis, IARI, New Delhi.

*Preiss, J.J., 1954, Functions of relevant power and authority groups in the evaluation of county agents performance. Ph.D. thesis, East Lansing, Michigan, State University.

*Rahudkar, W.W., 1962, The relationship of certain factors to the success of village level workers. Rural Social., 22 : 418-427.

Rajagopalan, C., 1965, Role perception and role performance. Indian Journal of Social work. p.31-37.

Rajagopal, T.R., 1977, A study of role perception and performance of managing directors, AEO and Gramasevaks of Farmers Service Societies and the Factors associated with their performance. Unpublished M.Sc.(Agri.) thesis, U.A.S.,Bangalore.

Ramashiva Reddy, K.C., 1982, A study on job perception, job performance and job satisfaction of Agricultural Assistants in Agricultural Extension Project in Karnataka. Unpublished M.Sc.(Agri.) thesis, U.A.S., Bangalore.

Rao, S.V.N. and Sohal, T.S., 1987, Performance of Veterinary Surgeons. Indian J. Extn. Educ., 24(1 & 2) : 8-14.

Ray, A.K., Atteri, B.R., Sen, A.C. and Mathur, P.N.,1979, Quantitative and qualitative impact of training and visit system on different groups of farmers - A case study of Hoogly district, West Bengal. Indian J. Agric. Econ., 34(4) : 11-20.

Reddy, B.H.N., 1976, VLWs and their working environment in Karnataka State. Indian J. Extn. Educ., 12(3&4): 28-33.

Salvi and Dudhani, C.M., 1967, Role of personal characteristics in the job effectiveness of village level workers. Indian J. Extn. Educ., 3(3) : 127-131.

Sargent, S., 1951, Concept of role and ego in contemporary psychology. John H. Rohrer and Muzafer Sherif (Eds.). Social Psychology at Cross Roads. Harper and Brothers, New York.

Shivalingegowda, N.S., 1985, A study on job perception, job performance and job satisfaction of Extension Guides in Karnataka. Unpublished M.Sc.(Agri.) thesis, U.A.S., Bangalore.

Shobana, G., 1982, An analysis of the role of Junior Agriculture Officers in implimenting Agricultural Development Programmes in Kerala. M.Sc. (Agri.) thesis (Unpublished), Department of Extension, College of Agriculture, Vellayani, Trivendrum.

Siegel, S., 1956, Non-parametric statistics for the behavioural sciences. Mc. Graw Hill Book Co. Ltd., Inc., New York.

Singh, B.N., Singh, R.P. and Singh, S.N.P., 1967, Job performance of village level workers. Indian J. Extn. Educ., 3(3) : 11-16.

*Somasundaram, S., 1971, A study on agricultural leaders and their roles in selected Agricultural Extension projects in Jhanavoor Panchayat Union, Tamil Nadu, Unpublished M.Sc. Dissertation, TNAU.

Veerabhadraiah, V., 1980, Time management, job involvement and job performance of Extension Supervisors. Ph.D. thesis, U.A.S., Bangalore.

Verheiji, E.W.M., 1960, Working conditions in agricultural extension work in India. Indian J. Extn. Educ., 1(4) : 247.

Wilkening, E.A., 1957, The county Extension agent in Wilconsin. Wilconsin Agril. Expt. Station, Dis. Bull., No. 203.

*Wilkening, E.A., 1958, Consensus in role definition of county Extension Agents, between the agents and local sponsoring committee members. Rural Social., 23 : 184-187.

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*Original not seen.

APPENDICES

VIII. APPENDICES

APPENDIX - I

INTERVIEW SCHEDULE

PART-I

1. General information

   (i) Name of the Agricultural Assistant : _____

   (ii) Taluk :_____ Circle : _____

2. Age _____ years

3. Education [Please (_/) mark against your answer]

   Below SSLC / SSLC passed / PUC passed / Diploma in Agriculture / Graduate / Any other specify : _____

4. Rural-urban background [Please (_/) mark against your answer]

   (i) Native place : Rural / Urban

   (ii) Father's occupation : Farming / Service / Business / Others

   (iii) Place of study upto : Primary : Rural / Urban
   High School : Rural / Urban
   College : Rural / Urban

   (iv) Number of years you have stayed in rural areas _____ years.

5. Experience

   (i) Total experience ____ years

   (ii) As Agricultural Assistant ____ years

(iii) Other experience (specify) :

(a) _____ Years

(b) _____ Years

(c) _____ Years

6. Mass media exposure

(a) Do you read the following? [Please (_/) mark against your answer]

Newspaper / Magazines / Journals / Books on Agriculture / Extension Literature like folders, leaflets etc. Any other specify _____

(b) i. How often do you read newspaper? [Please (_/) mark against your answer]

Daily / Weekly once or twice / Monthly once or twice

ii. How often do you read journals? Magazines? [Please (_/) mark against your answer]

Daily / Weekly once or twice / Monthly once or twice

(c) How often do you listen to radio? [Please (_/) mark appropriate answer]

Daily / Weekly once or twice / Monthly once or twice

(d) Frequency of viewing agriculture programme on television.

Weekly / Occasionally / Never

7. Are you trained after your appointment? YES / NO

If yes, what type of training?

Name of the training	Duration	Place of training
i. Preservice training	_____	_____
ii. Inservice training	_____	_____
iii. Any other specify	_____	_____

PART-II

(Performance rating)

Below are some of the role expectations. Rate your performance against the dimension given under :

Sl. No.	Role expectations	Performance				
		Excellent	Very good	Good	Fair	Poor
1	2	3	4	5	6	7
I.	Planning					
1.	Collection of basic statistics on villages and farm families					
2.	Collection of agricultural statistics on crops, rainfall, land holdings etc.					
3.	Analysis of agricultural information					
4.	Dividing the farmers into eight groups and selection of contact farmers for each group consisting small farmers and marginal farmers					
5.	Preparing the map of the area of operation					

1	2	3	4	5	6	7
6.	Explaining in detail to the contact farmers their role and responsibility and informing them about the names of other farmers in their group					
II.	Participation in fortnightly training					
7.	Attending fortnightly training sessions regularly for the last one year					
8.	Active participation in the training session by way of asking questions, providing information, seeking clarification etc.					
9.	Bringing field problems to the attention of SMSs and getting solutions					
10.	Assisting SMSs and AAOs in finalizing useful and practical messages to be given to farmers during the ensuing visit					
11.	If there are unsolved problems in the field fixing the dates for the visits of SMSs to such fields to give solutions					
12.	To participate actively in skill practice during training sessions					
13.	Obtaining information regarding the practices relevant and timely to the area during this training-sessions					
III.	Visits to farmers field					
14.	Preparation of schedule of visits well in advance for every fortnight					

1	2	3	4	5	6	7
15.	Following the schedule of visits to contact farmers on specific dates					
16.	Visiting all the contact farmers and maximum number of other farmers					
17.	Visiting farmers fields to teach them skill, solve individual problems and suggest technology suited to their conditions					
18.	Visiting the fields and observing as to what extent the farmers have adopted the recommendations that were given to them during the previous visit					
19.	Ascertaining the reasons from farmers for non-adoption of recommended practices					
20.	Organising training camps, meetings and group discussions to farmers					
21.	Clarifying doubts on fields problem of farmers					
22.	Conducting method demonstrations					
23.	Conducting farm trials					
24.	Conducting field visits to demonstration plots					
25.	Collection of soil samples from farmers					
26.	Sending them to laboratories for analysis					
27.	Communicating the results of soil test to the farmers					

1	2	3	4	5	6	7
28.	Ensuring the adoption of soil test results by farmers					
29.	Guiding and motivating contact farmers and other farmers to accept and adopt all recommended practices					
IV.	Maintenance of diary					
30.	Maintenance of daily record of the work in the diary					
31.	Recording in the diary observations made during the visit to farmers fields					
32.	Recording in the diary the problems noticed in the field					
33.	Recording in the diary the solutions offered					
34.	Recording separately such problems which need to be discussed at the time of fortnightly training session with SMS					
V.	Supply and services					
35.	Ascertaining the requirement of inputs such as seeds, plant protection chemicals, fertilizers, credit etc., for the area for each season					
36.	Communicating the indent of inputs required for his circle to the concerned AAO and ADAs.					
37.	Arrange for repairs and maintenance of plant protection equipments					

1	2	3	4	5	6	7
38.	Informing the farmers about the source of credit such as banks and co-operative societies					
39.	Distribution of minikits and subsidies to farmers					
VI.	Production of quality seeds and storage					
40.	Advising the farmers on the production of quality seeds					
41.	Training the farmers on the method of selecting quality seeds from their own produce					
42.	Organising training programmes for farmers willing to takeup seed production					
43.	Making frequent visits to farmers plots where seed production is taken up and advising them suitably					
44.	Conducting training programmes on the storage of grains for the benefit of contact farmers and other farmers in the village					
45.	Conducting method demonstration on the storage of grains in the bins					
VII.	Crop cutting experiments					
46.	Informing the concerned farmers about the visit of crop cutting experiment team					

1	2	3	4	5	6	7
47.	Assisting the other Departmental Officers in crop cutting experiments					
48.	Maintaining the results of crop cutting experiments for doing extension work					
VIII.	Biogas work implementation					
49.	Motivating farmers to take up biogas plant					
50.	Assisting farmers to get credit and subsidy					
51.	Assisting farmers in the installation and maintenance of biogas plants					
52.	Maintaining records regarding biogas plants in his circle					
53.	Participation in biogas training programmes					

APPENDIX-II

EVALUATION OF THE PERFORMANCE BY ASSISTANT AGRICULTURAL OFFICERS AND ASSISTANT DIRECTORS OF AGRICULTURE

Name of AA:_____ Circle: _____ Taluka:_____

Given below are some of the Role expectations of Agricultural Assistants. You are requested to rate the performance of all Agricultural Assistants working under you against each one of the expectations.

Sl. No.	Role expectations	Performance				
		Excellent	Very good	Good	Fair	Poor
1	2	3	4	5	6	7
I.	Planning					
1.	Collection of basic statistics on villages and farm families					
2.	Collection of agricultural statistics on crops, rainfall, land holdings etc.					
3.	Analysis of agricultural information					
4.	Dividing the farmers into eight groups and selection of contact farmers for each group consisting small farmers and marginal farmers					
5.	Preparation of map of the area of operation					

1	2	3	4	5	6	7
6.	Explaining in detail to the contact farmers their role and responsibility and informing them about the names of other farmers in their group					
II.	Participation in fortnightly training					
7.	Attending fortnightly training sessions regularly for the last one year					
8.	Active participation in the training session by way of asking questions providing information, seeking clarifications etc.					
9.	Bringing field problem to the attention of SMSs and getting solutions					
10.	Assisting SMSs and AAOs in finalizing useful and practical messages to be given to farmers during the ensuing visit					
11.	If there are unsolved problems in the field fixing the dates for the visits of SMSs to such fields to give solutions					
12.	To participate actively in skill practice during training sessions					
13.	Obtaining information regarding the practices relevant and timely to the area during this training session					
III.	Visits to farmers field					
14.	Preparation of schedule of visits well in advance for every fortnight					

1	2	3	4	5	6	7
15.	Following the schedule of visits to contact farmers on specific dates					
16.	Visiting all the contact farmers and maximum number of other farmers					
17.	Visiting farmers fields to teach them skill, solve individual problems and suggest technology suited to their conditions					
18.	Visiting the fields and observing as to what extent the farmers have adopted the recommendations that were given to them during the previous visit					
19.	Ascertaining the reasons from farmers for non-adoption of recommended practices					
20.	Organising training camps, meetings and group discussions to farmers					
21.	Clarifying doubts on field problems of farmers					
22.	Conducting method demonstrations					
23.	Conducting farm trials					
24.	Conducting field visits to demonstration plots					
25.	Collection of soil samples from farmers					
26.	Sending them to laboratories for analysis					

1	2	3	4	5	6	7
27.	Communicating the results of soil test to the farmers					
28.	Ensuring the adoption of soil test results by farmers					
29.	Guiding and motivating contact farmers and other farmers to accept and adopt all recommended practices					
IV.	Maintenance of diary					
30.	Maintenance of daily record of the work in the diary					
31.	Recording in the diary observations made during the visit to farmers field					
32.	Recording in the diary the problems noticed in the field					
33.	Recording in the diary the solutions offered					
34.	Recording separately such problems which need to be discussed at the time of fortnightly training session with SMS					
V.	Supply and services					
35.	Ascertaining the requirement of inputs such as seeds, plant protection chemicals, fertilizers, credit etc., for the area for each season					
36.	Communicating the indent of inputs required for his circle to the concerned AAO and ADAs					

1	2	3	4	5	6	7
37.	Arrange for repairs and maintenance of plant protection equipments					
38.	Informing the farmers about the source of credit such as banks and co-operative societies					
39.	Distribution of minikits and subsidies to farmers					
VI.	Production of quality seeds and storage					
40.	Advising the farmers on the production of quality seeds					
41.	Training the farmers on the method of selecting quality seeds from their own produce					
42.	Organising training programmes for farmers willing to takeup seed production					
43.	Making frequent visits to farmers plots where seed production is taken up and advancing advising them suitably					
44.	Conducting training programmes on the storage of grains for the benefit of contact farmers and other farmers in the village					
45.	Conducting method demonstration on the storage of grains in the bins					

1	2	3	4	5	6	7
VII.	Crop cutting experiments					
46.	Informing the concerned farmers about the visit of crop cutting experiment team					
47.	Assisting the other departmental Officers in crop cutting experiments					
48.	Maintaining the results of crop cutting experiments for doing extension work					
VIII.	Biogas work implementation					
49.	Motivating farmers to take up biogas plant					
50.	Assisting farmers to get credit and subsidy					
51.	Assisting farmers in the installation and maintenance of biogas plants					
52.	Maintaining records regarding biogas plants in his circle					
53.	Participation in biogas training programmes					