A STUDY ON JOB PERFORMANCE OF FARM SCIENTISTS FROM KRISHI VIGYAN KENDRA IN MAHARASHTRA STATE, INDIA

by

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MAY, 2015

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A thesis submitted to the

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In partial fulfillment of the requirements for the degree of

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CERTIFICATE

This is to certify that the thesis entitled, '**JOB PERFORMANCE OF FARM SCIENTISTS FROM KRISHI VIGYAN KENDRA IN MAHARASHTRA STATE, INDIA'** submitted to the Faculty of Agriculture, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri, Maharashtra State, India in partial fulfillment of the requirements for the degree of **MASTER OF SCIENCE (AGRICULTURE) in EXTENSION EDUCATION** embodies the results of a piece of *bonafide* research carried out by **MR. FREDERICK KOBBA** under my guidance and supervision. No part of this thesis has been submitted for any other degree or diploma. All the assistance and help received during the course of investigation and the sources of literature have been duly acknowledged by him.

Place: Dapoli
Dated:

(V. G . Patil)
Chairman
Advisory Committee and
Research Guide

DEPARTMENT OF EXTENSION EDUCATION

COLLEGE OF AGRICULTURE, DAPOLI

Title of thesis	:	Job Performance of Farm Scientists from Krishi Vigyan Kendra in Maharashtra State, India.
Name of the student	:	**Mr. Frederick Kobba**
Registration No.	:	2323
Name of the Research Guide	:	**Dr. V. G. Patil**
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THESIS ABSTRACT

All farm scientists in KVK's may not be equally effective and efficient in performing their duties. It is considered that quality and quantity of performance ma y be by and large, a function of the organizational climate, personal and social qualities and dedicated attitude of the personnel engaged in the organization. With these considerations, the present study was underta-ken in Maharashtra State. The sample constituted of 80 farm scientists from selected Krishi Vigyan Kendras.

The study revealed that, more than three-fifth (61.25 per cent) of the farm scientists belonged to the 'middle' age category andmore than three-fifth (68.75 per cent) of them were 'Master holders'. Majority (95.00 per cent) of the farm scientists were 'married' and most (75.00 per cent) of them had 'rural' background. Most (80.00 per cent) of the farm scientists were 'Subject Matter Specialists' and more than half (57.50 per cent) of them had 'medium' working experience. More than four-fifth (83.75 per cent) of the farm scientists belong to the 'medium' income level and majority (97.5 per cent) of them 'always' used 'Newspapers' for acquiring information. More than three-fifth (63.75 per cent) of the farm scientists had 'medium' level of mass media exposure. Forty per cent of the farm scientists reported that the organizational climate

was ‘fair’ and majority of them reported facilities like computer, internet, vehicles, training hall and instructional farm.

The study revealed that, majority (75.00 per cent) of the farm scientist had ‘medium’ job performance.The variables namely mass media exposure had positive and significant relationship with job performance at 1.00 percent level, while age and number of publicationshad positive and significant relationship with job performance at 5.00 per cent level of probability. The variables namely education, marital status, family background, experience, training received and organizational climate had anon significant relationship with job performance of the farm scientists.

Majority (97.50 per cent) of the farm scientists reported that they ‘always’ conducted training and 62.50 per cent of them were associated with externally funded projects. More than four-fifth (87.00 per cent) of the farm scientists had used ‘all the methods’ of communication for conducting their programmes.

Major constraints like, ‘Lack of funds for maintenance of institutional farms’ (68.75 per cent), ‘Lack of suitable infrastructural facilities’ (50.00 per cent), ‘Vacant posts not filled in time’ (47.50per cent), ‘Inadequatetransportationfacilities’ (45.00 per cent), ‘High cost and non availability of inputs’ (42.50 per cent) and ‘Lack of peoples participation’ (40.00 per cent) were major constraints faced by the farm scientists in their job performance. Three-fifth (60.00 per cent) of the farm scientist suggested for the ‘release of funds well in advance by ICAR’, this was followed by ‘proper and regular linkagewith research scientists’ (56.25 per cent), provision of field staff to all discipline (45.00 per cent), ‘Provision of funds for infrastructural facilities’ (45.00 per cent) and ‘ICAR must update KVK’s regularly’ (42.50 per cent).

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Nothing hinders the man who desires to achieve. Every obstacle is simply a course to develop his achievement muscles. It's a strengthening of his powers of accomplishment. This accomplishment has been a long journey in which many have come along with me, whose relentless efforts are worthy of commendation.

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Place: Dapoli.

Date: **(KOBBA . F .)**

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ACRONYMS

AA	Agricultural Assistant
AO	Agricultural Officer
AAO	Assistant Agricultural Officer
ATMA	Agricultural Technology Management Agency
BDO	Block Development Officer
DBSKKV	Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth
DRDO	Defence Research and Development Organization
FLD	Frontline Demonstrations
FYM	Farm Yard Manure
GDP	Gross Domestic product
ICAR	Indian Council of Agricultural Research
IPM	Integrated Pest management
KVK	Krishi Vigyan Kendra
MP	Madya Pradesh
MPKV	Mahatma Phule Krishi Vidyapeeth
M.Sc.	Master of Science
NARP	National Agricultural research Project
NGO	Non Governmental Organization
OFT	Off Farm Trials
Ph.D.	Doctor of Philosophy
PRI	Panchayat Raj Institutions
RAEO	Rural Agricultural Extension Officers
Rs	Rupees
SAU	State Agricultural Universities
S.D	Standard Deviation
S.S.C	Secondary School Certificate
TNAU	Tamil Nadu Agricultural University
TOT	Transfer of Technology
T and V	Training and Visit
TV	Television
VEP	Veterinary Extension Personnel
VEW	Village Extension Worker
VLW	Village Level Worker

APPENDIX I

QUESTIONNAIRE

JOB PERFORMANCE OF FARM SCIENTISTS FROM KRISHI VIGYAN KENDRA IN MAHARASHTRA STATE, INDIA

SECTION A. PERSONAL AND PROFESSIONAL PROFILE OF RESPONDENTS

1. Name of farm Scientist:

……..

2. Age: ……..

3. Name of KVK: …… **4.** Host Organization University/NGO……

5. District: ……

6. Education:

M.Sc. (Agri.) ☐ Ph.D. (Agri.) ☐

Others (Pls. specify) ……..

Major subject…….

7. Marital status:

a) Unmarried ☐ arried ☐ orce ☐

8. Family Background (please tick appropriately)

Sr. NO.	Particulars	Village	Town	City
1	Place of birth			
2	Primary Education			
3	High school Education			
4	Graduation			
5	Post graduation			

9. Post held at present: ……Discipline…….

10. How many years of work experience do you have? ……

11. Income per annum: (Rs)…….

12. Have you received any training? ☐ ☐ No

If yes, please give the details.

Sr. NO.	Subject of training	Name of Institution	Place of Training	Duration of Training(Days)
1				
2				
3				
4				

13. How many publications you have published? Give details.

a) Research papers Yes ☐ No. ☐ , if yes give No……..

b) Popular articles Yes ☐ No. ☐ , if yes give No…….. .

c) Technical Publications (Leaflets, folder, booklet) Yes ☐ No ☐ If yes give No……

d) Radio Talk…….Yes ☐ No ☐

e) TV. Programme Yes ☐ NO ☐

f) Others (Pls. specify)……Yes ☐ No ☐ if Yes give No……..

14. Kindly indicate as to what extent you have used the following mass media for acquiring information input to update yourself.

Sr. NO.	Mass media	Extend of use		
		Always	Sometimes	Never
1	News papers			
2	University Diary			
3	Agril. Magazines			
4	Agril. Research Journals			
5	Seminars/workshops			
6	Television			

7	E-Connectivity			
8	Internet			
9	News letters			

15. Organizational Climate in your KVK(Please put mark in appropriate column)

Sr. NO.	Criteria	Response		
		Good	Fair	Poor
1	Goodwill and assistance from colleagues			
2	Freedom for writing/publishing articles			
3	Competence of boss			
4	Ease in getting adequate information			
5	Work environment			
6	Freedom to plan and organize own work			
7	Efficiency of assistance/subordinates			
8	Opportunity of personal growth and development			
9	Opportunity for participation in setting of goals of work			
10	Praise and recognition for good work by host organization			
11	Evaluation of work			
12	Technical support and help from host organization (University/NGO)			

16. Infrastructural facilities available at your KVK.

1) Administrative building Yes ☐ No ☐
2) Training hall…… Yes ☐ No ☐
3) Instructional farm……. Yes ☐ No ☐
4) Farmers Hostel Yes ☐ No ☐
5) Exhibition Gallery Yes ☐ No ☐

6) Demonstration units

a) Poultry Yes ☐ No ☐

b) Diary Yes ☐ No ☐

c) Mushroom Yes ☐ No ☐

d) Goat Yes ☐ No

e) Azolla Yes ☐ No ☐

f) Biofertilizers Yes ☐ No ☐

g) Anyothes Yes ☐ No ☐

7) Soil testing lab Yes ☐ No ☐

8) Plant health clinic Yes ☐ No ☐

9) E-connectivity Yes ☐ No ☐

10) Community radio station Yes ☐ No ☐

11) Conference hall Yes ☐ No ☐

12) Computers/Laptops Yes ☐ No ☐

13) Internet Yes ☐ No ☐

14) Vehicles(Four wheel/Two wheels) Yes ☐ No ☐

15) Kisan mobile Advisory Yes ☐ No ☐

16) Video conference Yes ☐ No ☐

17. Nature and Type of Frontline extension activities organized by KVK Officers

A) Which type of activities do you carry out? Please give details

Sr. NO.	**Type of TOT activity**	**Extent of activities carried out**		
		Always	**Sometimes**	**Never**
1	Frontline Demonstration (FLDs)			
2	Training			
3	On farm trials (OFTs)			
4	Adoption of farm families/Village			
5	Agril. Exhibition			
6	Campaign			

7	Group discussion			
8	Diagnostic visit			
9	Radio Talk			
10	T.V. programmes			
11	Kisan Mela			
12	Technology week			
13	Kisan mobile Advisory			
14	Field day			
15	Others (Pls. specify)			

B) Are you associated with any externally funded projects? Yes ☐ No ☐

If yes please give details.

Sr. NO.	Name of the Project	Funding Agency	Amount (Rs)	Nature of your association (PI/Co-PI)
1				
2				
3				
4				

18. Which category of people do you mostly target for your programmes?

a) Women ☐ b) Men ☐ c) Youth ☐ d) Disabled ☐

e) School dropout children ☐ f) All categories ☐

19. Which method of communication do you use

a) Individual ☐ b) Group ☐ c) Mass media ☐

b) d) All the methods ☐

20. Linkages of KVK's.

Sr. NO.	Name of Organization	Type of Linkage
1	Dept of Agril.	
2	ATMA	
3	ICAR	
4	SAUs	
5	PRIs	
6	Duordorshan	
7	NGOs	
8	DRDO.	
9	Any other	

SECTION B. JOB PERFORMANCE

21. Job Performance of KVK personnel

Sr. NO.	Statements	Response			
		More Frequently	Frequently	Occasionally	Never
A	**Knowledge Building and communicator**				
1	Helping scientist in formulating messages based on agro-climatic situation and farmers local needs in monthly workshops.				
2	Assisting researchers by providing feedback in monthly workshops and getting early solutions to field problems faced by the farmers.				
3	Help in identifying constraints and training need areas on various aspects of crop production.				

4	Discuss field problems and finalize crop wise production recommendation with scientists in Research and Extension Council meetings.				
5	Presenting results of farm trials in Research and Extension Council meetings. Meeting of every stage and help in finalizing the particular crop variety for release.				
6	Assisting research workers to oversee problems and monitoring pests and diseases by providing relevant data during joint field visits.				

B	**Help seeking**				
1	Seeking help in testing a new promising practice under resource constraints and abilities of the farmers.				
2	Seeking guidance in action plan meeting from scientists in properly laying out the demonstrations/farm trials.				
3	Taking help in getting the exhibits, specimen etc. from the scientists.				
4	Seeking help in solving immediate problems in the field				
C	**Knowledge updating**				
1	Receiving training on practical aspects of advanced crop production technology of kharif and rabi seasons.				
2	Receiving in service training/refresher courses meant for the field level extension workers in areas such as IPM practices, agro forestry, sustainable agriculture etc.				
D	**Facilitator**				
1	Acting as facilitator in ensuring farmers' participation in several university extension programmes like Krishi Mela, Agril. exhibition, workshop etc.				
2	Acting as a facilitator in conduct of farm trials.				
E	**Information seeking**				
1	Seek relevant information from scientists through media namely, radio broadcast, T.V programme, attending phone calls and by reading literature published by scientists				
2	Seeking scientific information from scientists to prepare extension literature and publish in the form of leaflets, folders, farm magazines, pamphlets etc.				
F	**Technology Development**				
1	Looking for field problems faced by farmers for which there is no technology and helping researchers to				

	design programme in need based manner				
2	Helping researchers to choose thrust areas for research which reflect the problem of majority of farmers.				
3	Taking technology from researchers to conduct farm trials in farmers' fields.				
4	Seek technology guidance while conducting farm trials				
5	Presenting results of the farm trials laid out at various locations in the farmers field in Research and Extension Council meetings				
6	Discussing with the researchers about results and come to consensus for recommendation of technology after considering reaction of the farmers				

22. Constraints faced by the Officers in the implementation of KVK programmes

a) Do you face any constraint in the implementation of KVK programmes?

Yes ☐ No ☐

b) If yes which type of constraints do you face?

1)……

2)……

3)……

4)……

5)……

6)……..

23. Suggestions on how to overcome the constraints in the implementation of KVK programmes

1)……

2).....

3)……..

4)……

5)……

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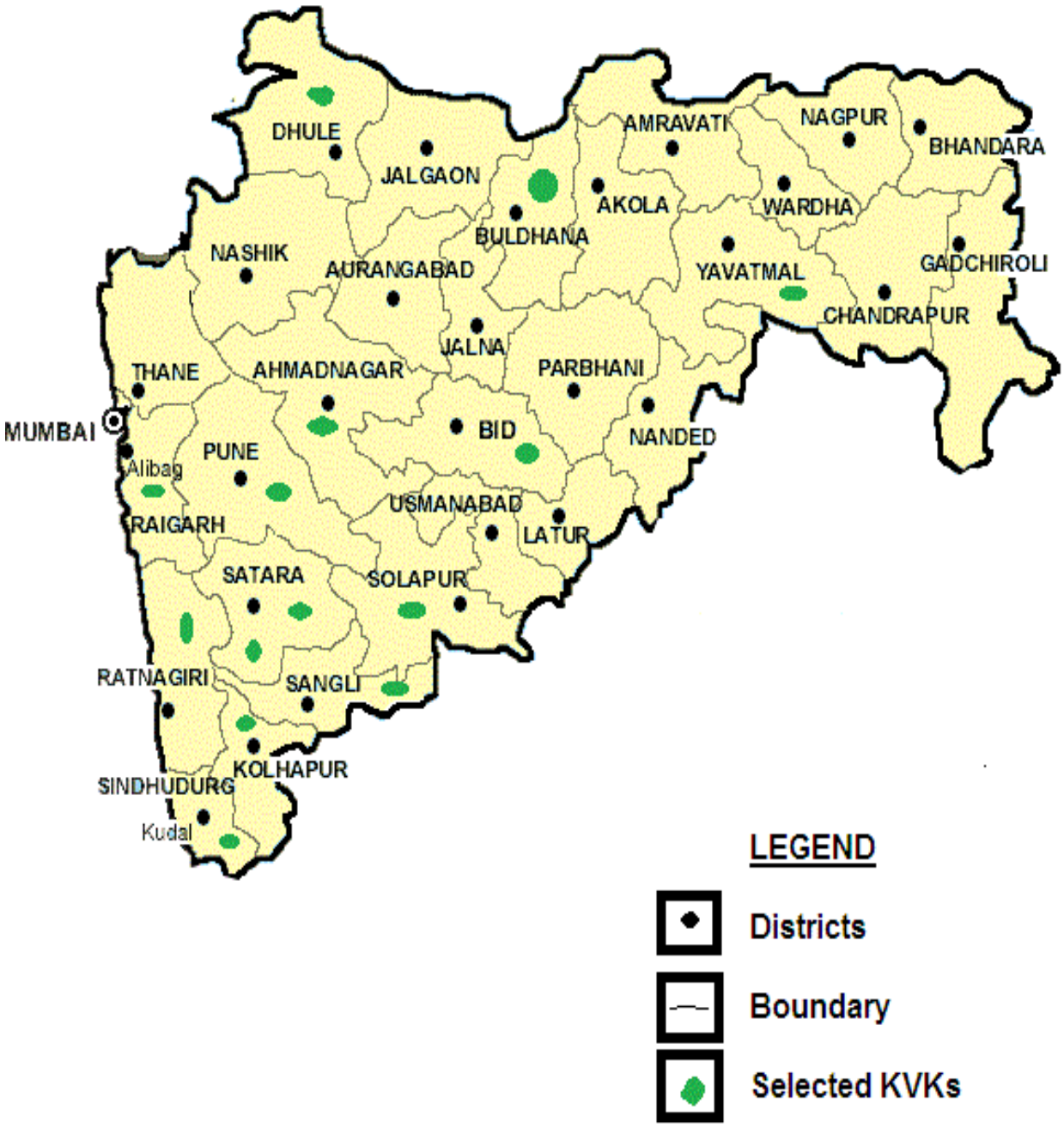
FIG. 1 MAP OF MAHARASHTRA STATE SHOWING STUDY AREA



VITAE

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W.A.E.C	West Africa Examination Council	2002	Pass	**Pass**
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- LICCSAL Business College 2008
- Result monitoring and evaluation, Dakar Senegal 2009
- Integrated Agricultural Research and Development (IAR4D) 2009
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Fig. 2 Distribution of farm scientists according to their age

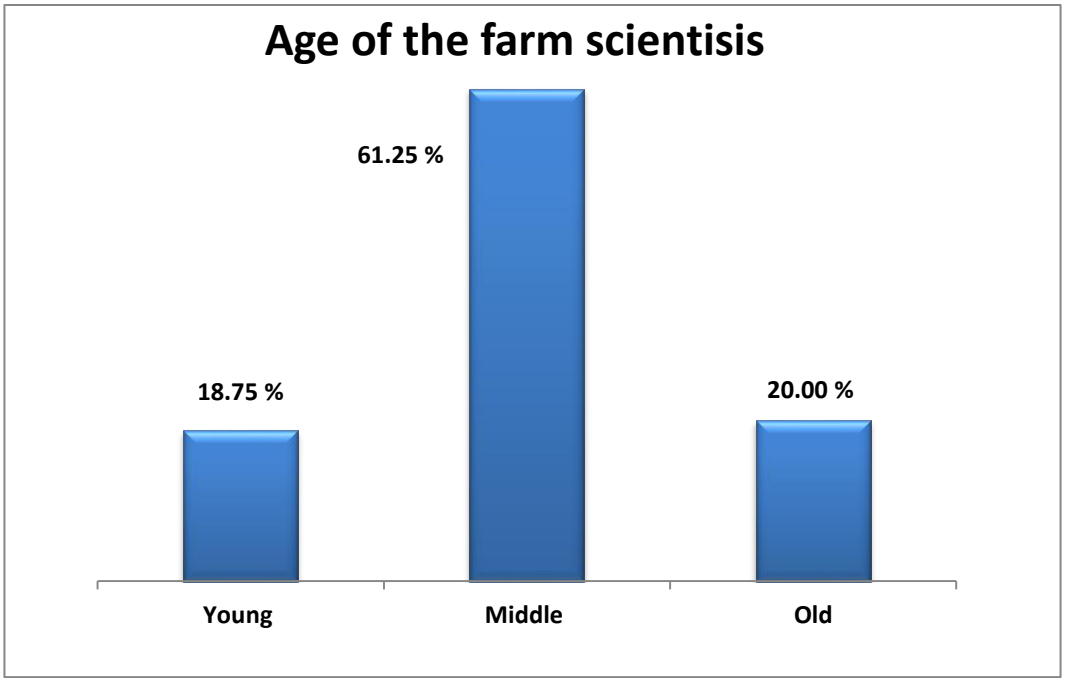

Fig. 3 Distribution of farm scientists according to their educational qualification

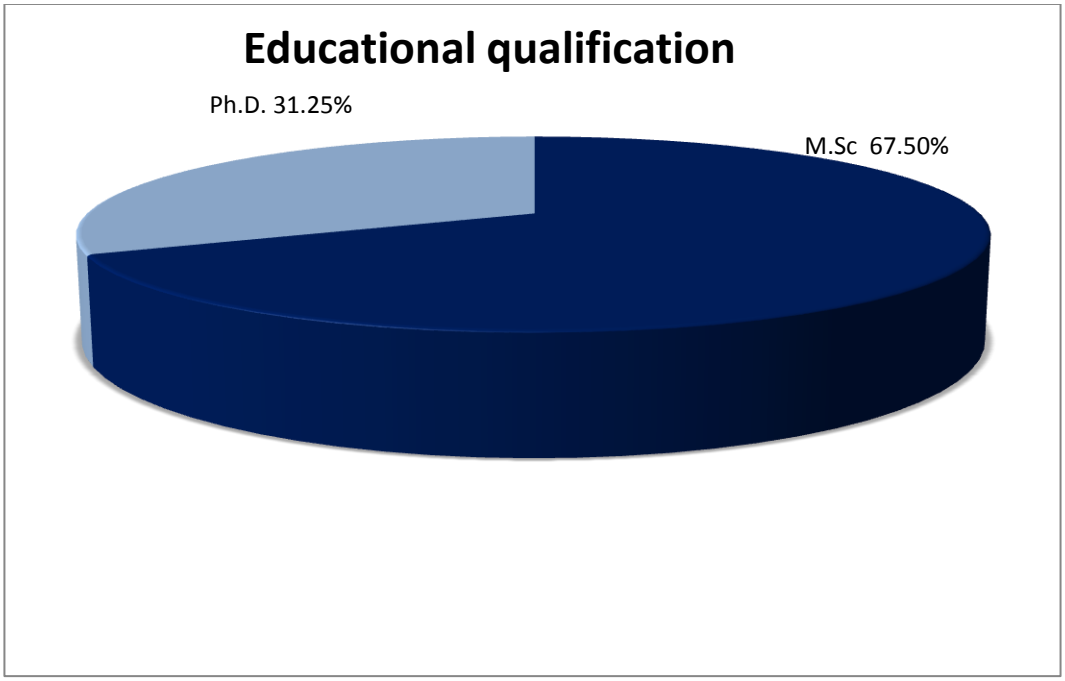

Fig. 4 Distribution of the farm scientistsaccording to marital status

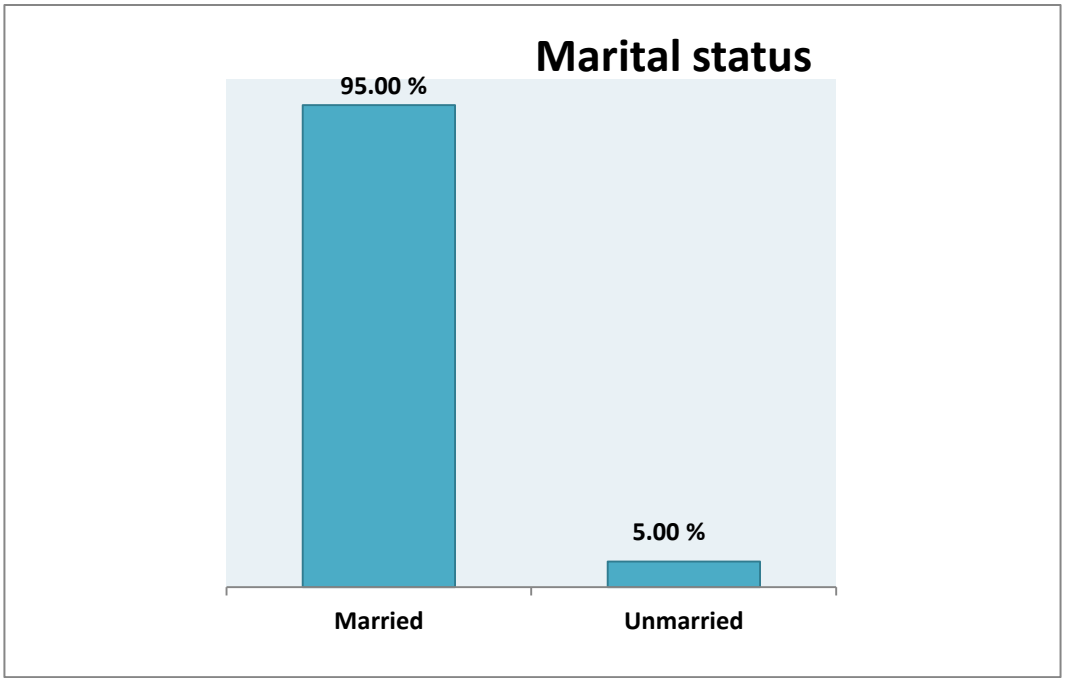

Fig. 5Distribution of the farm scientists according to their family background

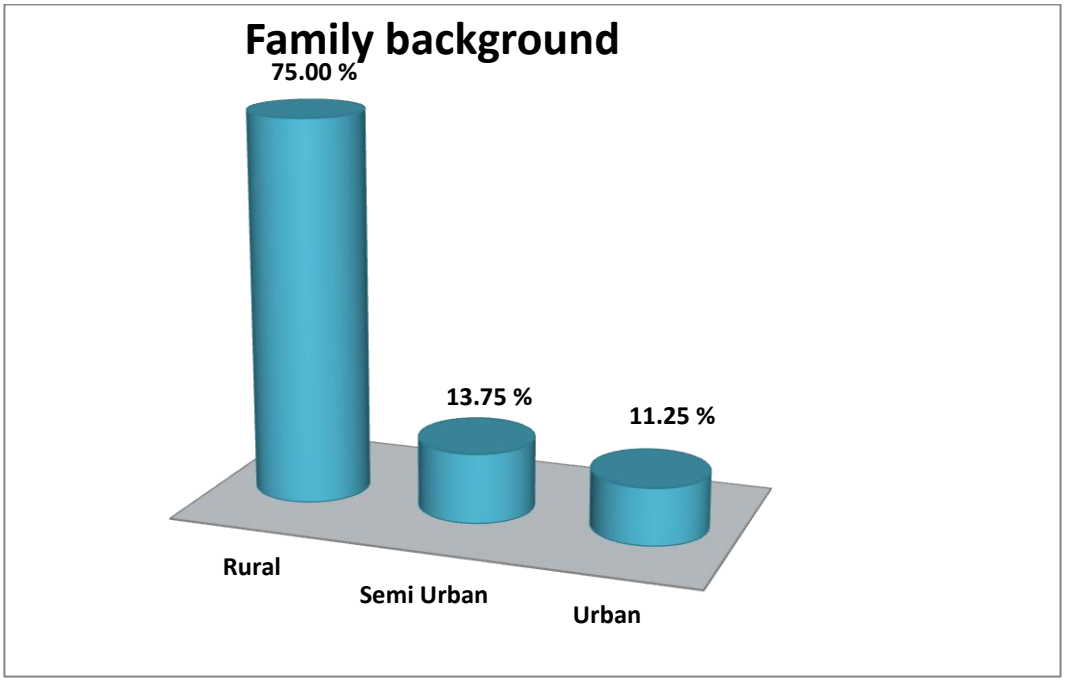

Fig. 6 Distribution of the farm scientists according to their post

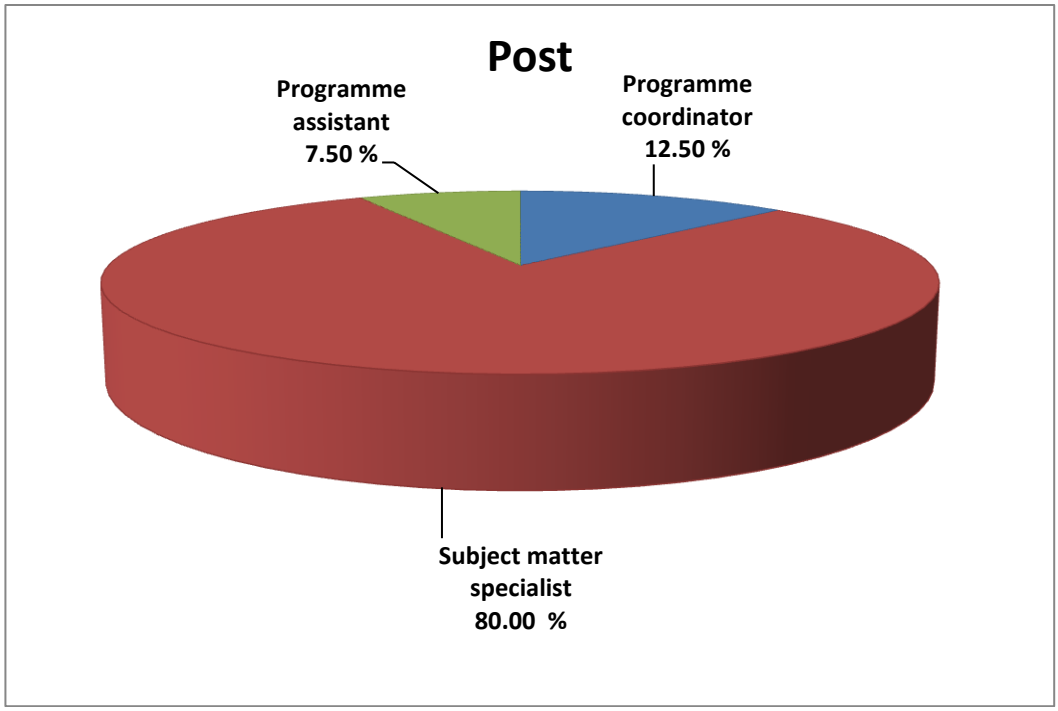

Fig. 7Distribution of the farm scientists according to their working experience

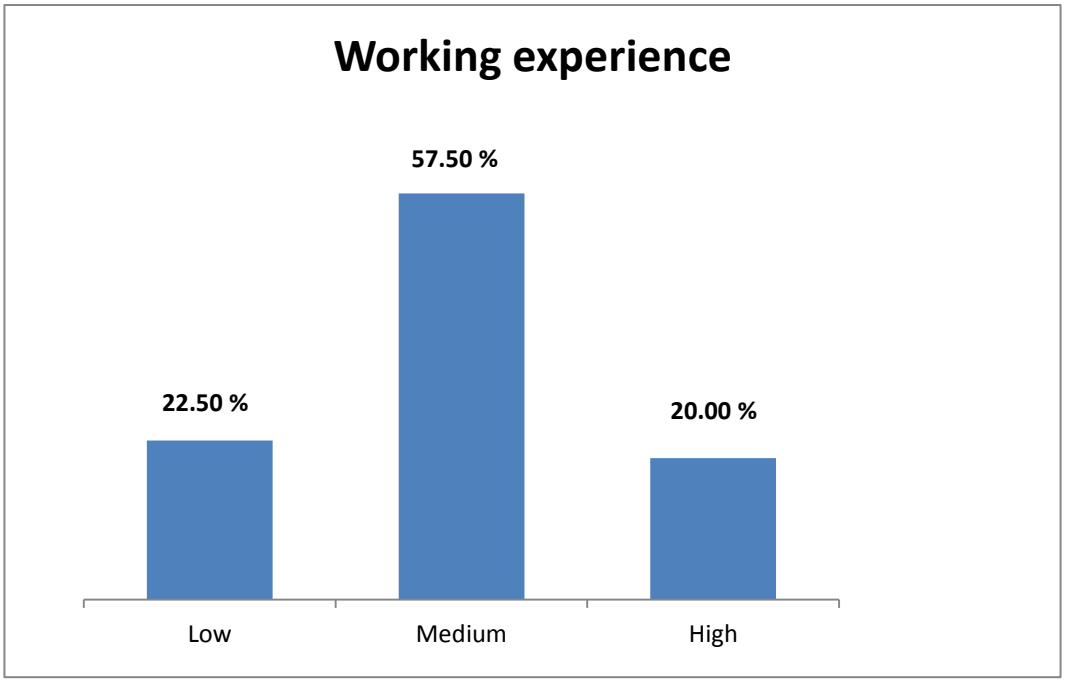

Fig. 8 Distribution offarm scientists according to their annual income

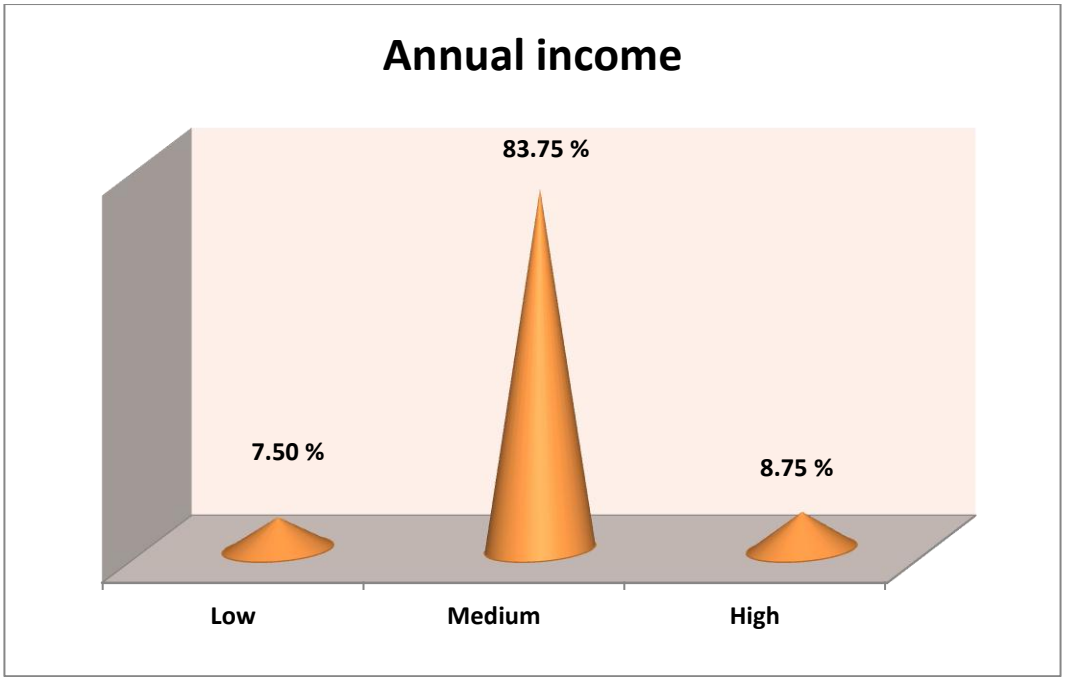

Fig. 9 Distribution of farm scientistsaccording to the training receivedby them

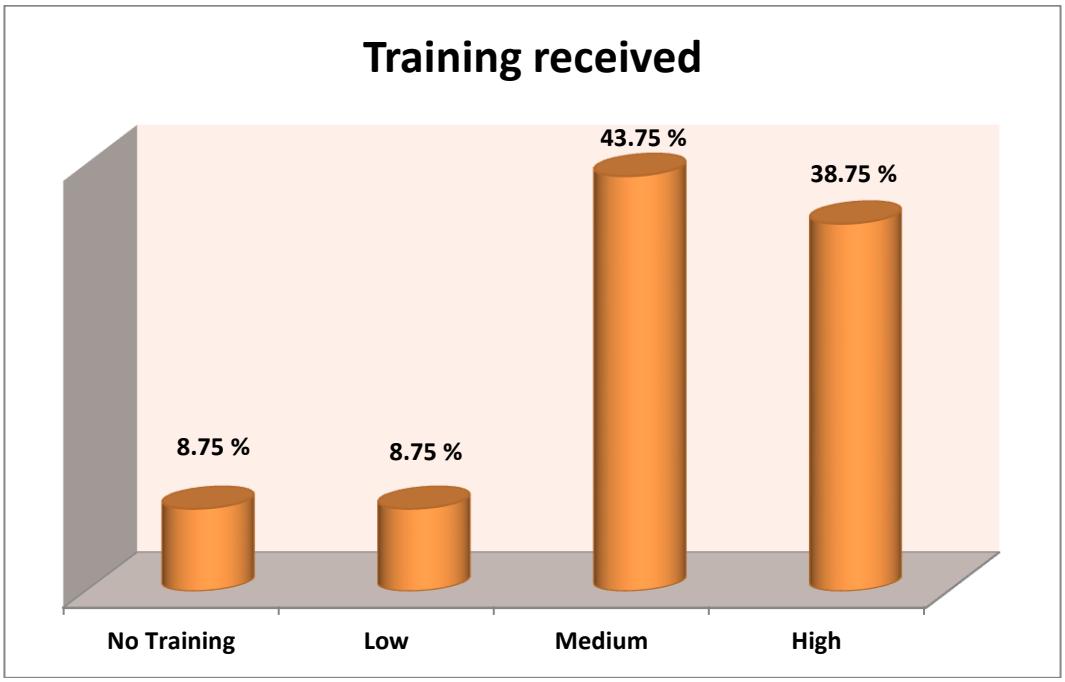

Fig. 10 Distribution of farm scientistsaccording to their organizational climate

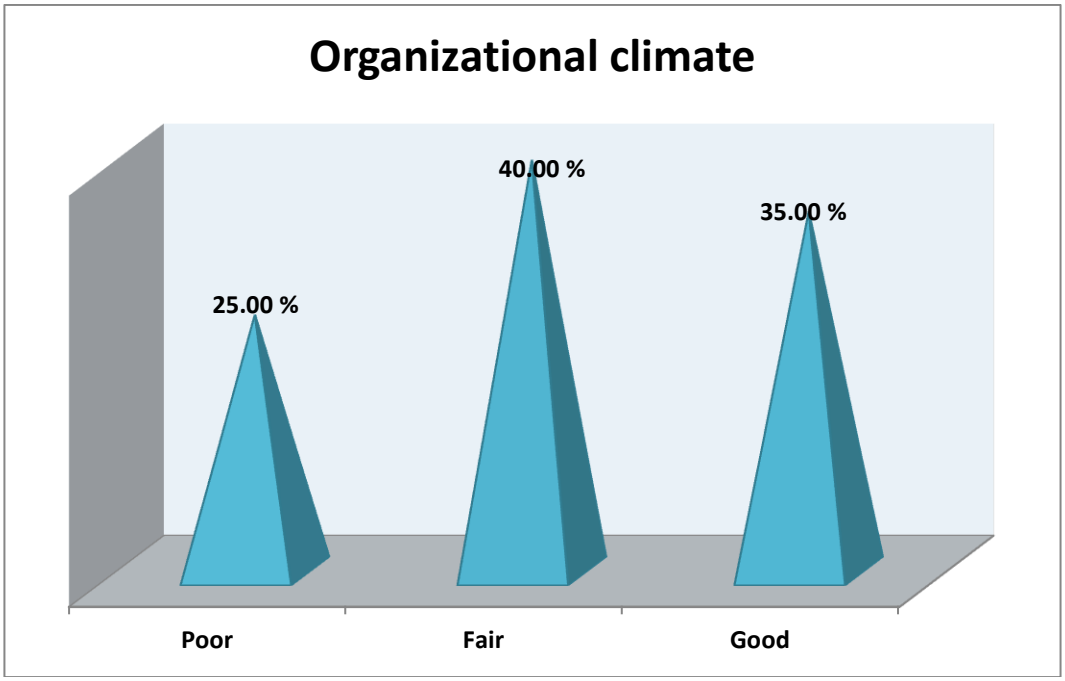

Fig. 11 Distribution of farm scientists according to their mass media exposure

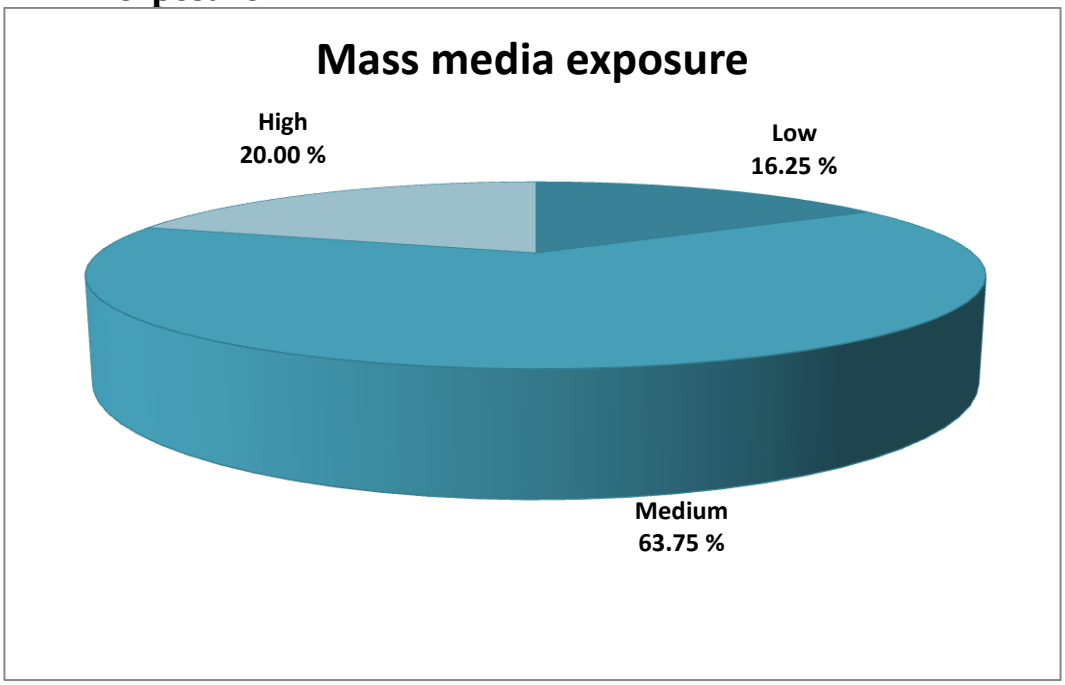

Fig. 12 Distribution of farm scientists according to their job performance

CHAPTER – 1

INTRODUCTION

It is unanimously accepted that success of any extension activity largely depends on the ability and expertise of the extension staff to speedily deliver and direct flow of information to the clientele system at the right time in the most appropriate manner. A large number of highly qualified manpower and huge amount of budgets are diverted to these institutions. In spite of all these efforts, a considerable technological gap still lies between the technology already developed and the technology adopted by the ultimate users (Jiyawan *et al.*, 2012).

In order to close this widening gap, farmers need to be educated about latest scientific and technological innovations before they can adopt them for increased agricultural production and sustainable productivity. Therefore, the establishment of the KVK's by ICAR was a step in the right direction as it has served as a bridge between the technology development and farmers by building their capacities and other in-service candidates at the grass root level through training, increasing access to innovations and several other needs of the rural populace.

Krishi Vigyan Kendra's have also made a significant contribution towards the development of the Agricultural sector and rural development in India. Ever since their establishment, KVKs have played effective role of technology backstopping to extension personnel and in turn to farmers so as to enable them to augment their productivity and profitability.

In is expected that KVKs need to play active role in fine-tuning innovations and capacity building with the support of NARS for further up scaling. Apart from documenting innovations, KVKs have to capacitate farmers to be change agent and facilitators among other farmers in their neighborhood.

In spite of the tremendous role played by Krishi Vigyan Kendras and further expectations needed from them, little studies have focused on Job performance of the farm scientists. Much is been done on impact assessment and evaluation of KVK programmes, ignoring their job performance. It is based on this that this study was conceived, as the investigator believes that a prerequisite to having a remarkable social change, increased adaptation, adoption and increased agricultural production and productivity can only be achieved by increasing first the job performance of the

farm scientist or change agent, and motivating them to be able to effectively and efficiently discharge their duties.

Davis and Verma (1993) and Van de Ban and Hawkins (1996) asserted that studies concerning job performance and evaluation of human capital in extension organization contexts are still limited. Since personnel performance is regarded as an important element of extension organization behaviour. What then is Job performance, is a necessary question to ask.

Performance is generally discussed within the contexts of leader behaviour, motivation, task design, goal setting, and most other primary areas of organizational research. For example, the term performance is widely used in all fields of management using terms such as performance management measurement (Armstrong, 2006) and evaluation or appraisal (Murphy and Cleveland, 1995). One of the pioneer researchers who conceptualized the term “performance” was (Vroom, 1964) who suggested an equation to picture performance and he narrated that it is a product of personal “ability“ and “motivation“ of an individual or *performance* = *ability* × *motivation*. Vroom‟s model explains that an individual who is thought to be highly motivated would not be able to perform a job well if he does not possess relevant skills, knowledge and attitudes. In other words, both ability and motivation are essential ingredients to good employee performance. The formula to determine performance as drawn above can be implemented at various fields such as a management, education, and organizational behaviour.

Problem Statement

In the context of agricultural extension, most international studies generally focus on evaluation of extension systems and methodology rather than personnel. For example, economic evaluation of the performance extension system (Bindlish and Evenson, 1993), economic impact of extension system of agricultural extension (Brikhaeuser, 1991) and measuring performance indicators of paid-extension system (Dinar and Keynan, 1998). There is rarely focus on the aspects of extension workers leadership competencies and their performance. Davis and Verma (1993) asserted that studies concerning job performance evaluation in extension organization contexts are still limited. Since personnel performance is regarded as an important element of extension organization behavior, there is a strong necessity to determine further the relationships between the age, education, marital status, family background,

experience, training received, number of publications, mass media exposure, as well as organizational climate and farm scientist's job performance.

Furthermore, there should be attention to performance of extension workers; mechanisms for improving work conditions; identification of competencies and the reinforcement of commitment towards extension profession and organization. Investigating relationships of these variables with performance is useful in studying the phenomenon from "being person-oriented to being behavior oriented (Welbourne et al., 1997). McCaslin and Mwangi (1994) further emphasized that continuous and accurate staff evaluation is essential in improving agricultural extension workers performance and productivity.

Many studies have been conducted on the impact of training programmes on farmers but little has been done on job performance of farm scientist from Krish Vigyan Kendra. This study mainly focus on job performance of farm scientists from Krishi Vigyan Kendra. This is because the success and development of the communities where the KVK's are to a larger extent depends on the knowledge, ability, skills and experience of the farm scientists inter alia. It is what they have that they can pass on to the farmers.

1.1 Overview of Krishi Vigyan Kendra

The Education Commission(1964-66) recommended the establishment of specialized institutions to provide vocational education in agriculture and allied fields at the pre and post matriculate levels to cater for the training need of a large number of boys and girls coming from rural area. The idea as thoroughly discussed during 1966-72 by the Ministry of Education, Ministry of Agriculture, Planning Commission, Indian Council of Agricultural Research (ICAR) and other allied institutions. Finally, the ICAR welcomed the idea of establishing Krishi Vigyan Kendras (Agricultural Science Centres) as innovative institutions for imparting vocational training to the practicing farmers, school dropouts and field level extension workers.

The ICAR Standing Committee on Agricultural Education, in its meeting held in August, 1973, observed that since the establishment of Krishi Vigyan Kendras (KVKs) was of national importance which would help in accelerating the agricultural production as also in improving the socio-economic conditions of the farming community, the assistance of all related institutions should be taken in implementing this scheme. The ICAR, therefore, constituted a committee in 1973

headed by Dr. Mohan Singh Mehta of Seva Mandir, Udaipur (Rajasthan), for working out a detailed plan for implementing this scheme. The Committee submitted its report in 1974.

The first KVK, on a pilot basis, was established in 1974 at Puducherry (Pondicherry) under the administrative control of the Tamil Nadu Agricultural University, Coimbatore.

1.3.1 Aim of KVK

All KVKs are working towards reducing the time lag between generation of technology at the research institution and its application to the location specific farmer fields for increasing production, productivity and net farm income on a sustained basis. In order to achieve this goal, four mandates have been envisaged in the design of the KVK.

1.3.2 Objectives of the KVK

- To demonstrate the latest agricultural technologies to the farmers as well as extension workers of the state Department of Agriculture.
- To reduce the time lag, between the technology generation and its adoption.
- To test and verify the technologies in the socio-economic conditions of the farmers and
- To identify the production constraints.

1.3.3 Mandates of Krishi Vigyan Kendra

- Collaborate with the subject matter specialist of the state Agricultural University/Scientist of the Regional Research station (NARP) and the state extension personnel in “on-farming testing”, refining and documenting the technologies for developing region specific sustainable land use systems.
- Organize training to update extension personnel within the area of operation with emerging advances in agricultural research.
- Organizing long-term vocational training courses in agriculture and allied vocations for the rural youth with emphasis on “learning by doing”.
- Organize front line demonstrations in various crops to generate production data and feedback information.

Hence the Krishi Vigyan Kendra is an innovative science based institution which functions on the principles of collaborative participation of scientists, subject

matter experts, extension workers and farmers. The Krishi Vigyan Kendras are the grass root level technology transfer and vocational training institutions designed for bridging the gap between the available technologies at one end and their application for increasing production on the other. There are 618 KVKs running across the country, out of these 44 are in Maharashtra State. In Maharashtra, 17 KVKs are with State Agricultural University, while 27 are run by NGO's. In every KVK 8 to 10 farm scientists are engaged in imparting need-based, skill oriented vocational training to the rural people as well as transfer of technology work. All farm scientists in KVK's may not be equally be effective and efficient in performing their duties. It is considered that quality and quantity of performance may be by and large, a function of the organizational climate, personal and social qualities and dedicated attitude of the personnel engaged in the organization. A farm scientist who has improper background, inadequate training, deficient in knowledge and skills may have a poor job performance. It was therefore, thought appropriate to assess as to how effectively the farm scientists of KVK perform their job in such conditions and what problems do they experience while performing their job. With these considerations, the present study entitled 'Job performance of KVK' was undertaken with the following objectives:

1.4 Specific objectives of the study

1. To know personal and professional profile of farm scientists.
2. To study job performance of farm scientists
3. To ascertain the correlates of job performance of farm scientists
4. To study the transfer of technology activities conducted by farm scientists.
5. To enquire about the constraints faced by them in the implementation of KVK programmes and their suggestions.

1.5 Scope of the study

The study aims at studying the job performance of farm scientists from Krishi Vigyan Kendra in Maharashtra state as well as their personal and professional profile. Thus, providing a base for future researchers, who are interested in knowing the job performance, correlates of job performance, type of transfer of technology activities conducted by KVK's as well as their constraints and suggestions. The findings may provide useful information to the state government and other stakeholders as well as scholars and policy makers to undertake human resource development activities.

1.6 Limitations of the study

According to Rangaswamy, R. (2010), it is not always possible to collect information on all units of a population due to various reasons. Considering the limited time and resources at the disposal of the investigator, the study was confined to only twenty Krshi Vigyan Kendras of Maharashtrah State. Therefore, the findings have to be viewed in the specific context of the conditions prevailing in the area of study and cannot, perhaps be generalized to other geographical areas. However, these findings will be applicable wherever, similar conditions prevail.

CHAPTER – II

REVIEW OF LITERATURE

The importance of review of literature cannot be overemphasized as it provides a large statistical literature which makes one to become aware of the wide range of research, theory and methodology related to the proposed research topic. It provides proof that one has a deep understanding of the published statistical research related to the topic, its relationship to the proposed research and makes it possible to become aware of the relevant work of others. It helps the student to identify statistical questions that have not been answered and problems that have not been solved. In this regard, a wide range of different sources of literature have been used for this study. The literature pertaining to the topic under investigation is reviewed in the following order:

2.1 Personal and professional profile of farm scientists
2.2 Job performance of farm scientists
2.3 Correlates of job performance
2.4 TOT activities conducted by farm scientists
2.5 Constraints faced by farm Scientists in discharging their duties
2.6 Suggestions for overcoming barriers

2.1 Personal and professional profile of farm scientists

2.1.1 Age

Usha Anand and Sohal (1984) in their study entitled ‘Determinants of job satisfaction and job performance among the Diary Extension Professionals of National Diary Research Institute, Karnal (Haryana) found that, the mean age of scientists was ‘38 years’.

Shinge (1986) in his study on ‘Role analysis of the Village Extension Workers in Training and Visit System of Raigad and Ratnagiri Districts’ observed that majority (50.00 per cent) of the Village Extension Workers were in ‘middle’ age group.

Reddy (1987) in a study on ‘Rural development’ noticed that the Village Development Officers were in the age group of ‘36-53 years’

Sharma *et al.* (1988) in their study entitled 'Role Expectation and Role Performance of Rural Agricultural Development Officers' of T and V system in Madhya Pradesh' observed that, RAEOs were in the age group of '25 to 35 years'.

Choudhary *et al.* (1989) in their study entitled 'Job performance and job satisfaction of Agricultural Development Officers' revealed that, majority of respondents were above '45 years' of age.

Deshmukh (1990) in his study on 'Communication network between VEWs and farmers for agricultural information', observed that majority (60.98 per cent) of the VEWs belonged to 'middle' age group. The average age of the VEWs was 30 years

Kurbetti (1992) in his study on 'Communication barriers in functioning of the VEWs of T & V system' noticed that majority (69.33 per cent) of the VEWs belonged to 'middle' age category. The average age of VEWs was 32 years.

Mankar *et al.* (1992) in their study entitled 'Personal and Professional profile of VEWs of T & V system' observed that, majority (75.00 per cent) of the VEWs were in 'young' age group, while 18.75 percent were in 'middle' age group and only 6.25 per cent VEWs were 'above 51 years' of age.

Patel *et al.* (1994) in their study entitled 'Role performance of Rural Agricultural Extension Officers' observed that RAEOs belonged to 'middle' age group (31-45 years).

Shinde (1994) in his study entitled 'Job performance of VEWs in T &V system' observed that one half (51.85 per cent) of the VEWs were from 'middle' age category while, 25.93 per cent belonged to 'old' age group, and 22.22 per cent to 'young' age group. The average age of the VEW's was 39.44 years.

Sankhe (2000) in his study entitled " Job attitude of Agricultural Assistants and their discriminating characteristics in single window system of agriculture in Ratnagiri district", observed that majority (70.69 percent) of the respondents were in 'middle' age category, while remaining respondents were distributed in 'senior' age(16.38 percent) and 'young' age (12.93 percent) categories. The average age of the respondents was 32 years.

Bagul *et al* (2002) in their study on "A study on Job performance of Extension Functionaries in Panchayat Raj Institutions" observed that majority (70.00 percent) of the participants were in the 'middle' age.

Rajput *et al* (2011) in their study entitled "Personal, Professional and Psychological Profile of Krishi Vigyan Kendra Trainers" reported that maximum of

trainers (47.3%) were above 40 years while 24.40 per cent belonged to 30-35 years, 23.4 percent belonged to 36-40 years and only 4.6 per cent of the respondents were less than 30 years.

2.1.2 Education

Vasoya and Halyal (1982) observed that majority (84.00 per cent) of the VLWs had passed 'agricultural diploma'.

Bhoite and Dhane (1985) noticed that majority (84.00 per cent) of the VLWs were 'non-graduate' and had completed two years course of agricultural school.

Shinge (1986) concluded that 74.00 per cent of VEWs were in the category S.S.C. with agricultural diploma, while 16.00 per cent of the VEWs were in the category 'non S.S.C. with agricultural diploma'. Only 10.00 per cent of the VEWs were 'agricultural graduates'.

Reddy (1987) observed that most of the Village Development Officers were 'matriculates' and few of them were 'graduates'.

Deshmukh (1990) revealed that, more than three fifth (60.97 per cent) of the VEWs were in the category of 'S.S.C. with diploma in agriculture.

Mankar *et al.* (1992) found that majority (58.33 per cent) of the VEWs completed two years 'agricultural diploma' course, while 33.33 per cent of the VEWs were 'agricultural graduates'. Only 4.16 per cent of the VEWs were educated 'up to S.S.C.'.

Shinde (1994) observed that three-forth (74.07 per cent) of the VEWs were in the category of 'S.S.C. with diploma in agriculture', while 11.11 per cent of the VEWs were in 'Secondary School' and 14.82 per cent of the VEWs were in category of 'Primary' education. The average education of the VEWs was 11^{th} standard.

Sundaraswamy and Perumal (1997) observed that out of 84 Assistants Agricultural Officers, 35 (42.00 per cent) were 'agricultural graduates'. Rest of them (n = 49) were promoted and mostly educated upto 'S.S.C. with diploma in agriculture'.

Anonymous (2000) reported that three fifth (60.72 per cent) of the total respondents had education upto 'S.S.C. with diploma in agriculture'. This was true in all categories of extension personnel, except that of Agricultural Assistants of whom, majority (57.14 per cent) was 'graduates' in agriculture.

Sankhe (2000) reported that about three fourth (75.86 percent) of the respondents were having 'Diploma in Agriculture', followed by 17.24 percent who were

‘graduates in agriculture’ and remaining 6.90 percent were ‘post graduate degree holders’ in agriculture.

Bagul *et al.* (2002) reported that more than two-fifth (44.29 percent) of the extension functionaries had ‘Diploma in agriculture’, followed by 35.71 percent of them were ‘S.S.C. /H.S.C.’ and ‘post-graduate’ each.

Rajput *et al.* (2011) revealed that majority of trainers (75.12 percent) had Ph.D. as their highest level of qualification while 22.79 per cent of the trainers had earned master’s degrees. Only 1.55 per cent trainers had first degree as their highest level of qualification while 0.51 percent had diploma.

2.1.3 Marital status

Singh and Singh (1991) revealed that majority, (71.17 percent) of the scientists were ‘married’.

Pawar (2002) in his study entitled “Publication behavior of the scientists of Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli” revealed that majority of the farm scientists (94.00 percent) were married and 3.00 percent were ‘unmarried’.

2.1.4 Family background

Singh and Singh (1991) observed that 23.32 percent of the scientists were having ‘town’ as the family background and 20.86 percent of them were from ‘small cities’.

Rathakrishnan and Ravichandran (1995) in their study entitled “Socio-psychological determinants of farm scientists” revealed that ‘rural’ agricultural background was seen more among the scientists followed by ‘urban’ non agricultural family.

Bagul *et al*. (2002) revealed that three-forth (75.00 percent) of the farm scientists had a ‘semi-urban’ family background while remaining were more or less equally distributed in ‘Rural’ (12.00 percent) and ‘Urban’ (13.00 percent) background categories.

2.1.5 Experience

Vasoya and Halyal (1982) found that 59.00 per cent of the VLWs had put in service ‘upto 10 years’.

Usha Anand and Sohal (1984) observed that the mean length of tenure for the respondents was 10 years.

Bhoite and Dhane (1985) concluded that, almost all the VEWs had ‘less than one year’ of work experience in T & V system.

Samantha (1988) revealed that about 57.00 per cent of the scientists had put in ‘more than 11 years’ of service experience.

Deshmukh (1990) observed that majority of the VEWs had ‘medium’ experience. The average service experience of VEWs was eight years.

Ingle and Supe (1990) noticed that 47.22 per cent of the extension personnel had ‘more than five years’ experience. Those with ‘less than two years’ experience were 13.73 per cent.

Ilango *et al.* (1991) observed that majority (60.00 per cent) of the officers were having service experience between ‘1 to 10 years’, while 28.00 per cent officers were having service experience between ’21 to 30 years’. Only 12.00 per cent of the officers were having service experience between ’21 to 30 years’.

Shinde (1994) observed that, majority (55.55 per cent) of the VEWs had ‘medium’ service experience, while 18.52 per cent of the VEWs had ‘low’ service experience and 25.93 per cent of the VEWs had ‘high’ tenure in service. The average service tenure of the VEWs was 13.88 years.

Anonymous (2000) reported that majority of the Circled Agricultural Officers (62.50 per cent), Agricultural Supervisors (78.57 per cent) and Agricultural Assistants (67.10 per cent) had ‘medium’ service experience’. None of the Circle Agricultural Assistants had ‘high’ professional experience. On an average, the respondents had 12 years of professional experience.

Sankhe (2000) observed that majority (71.56 per cent) of the respondents had ‘medium’ service experience, while 20.69 per cent of the respondents had ‘high’ service experience and 7.75 per cent of them had ‘low’ service experience. The average service experience of the respondents was about eight years.

2.1.6 Training received

Rathakrishnan and Ravichandran (1995), observed that nearly three-fifth (56.79 percent) of the farm scientists had attended the training programme among them, nearly three-fourth (73.92 percent) had attended ‘one to two trainings’ in their total years of service.

Lohar (1998) in his study entitled “Publication behavior of scientists of Mahatma Phule Krishi Vidyapeeth, Rahuri” revealed that majority (94.76 percent) of the farm scientists had received trainings at various levels.

Pawar (2002) observed that two-third (67.00 percent) of the respondents had received the training to ‘low’ level while one fifth (19.00 percent) had received training to a ‘medium’ level on the other hand 10.00 percent of farm scientists had ‘not received’ any training.

2.1.7 Number of publications

Gogoi and Talukdar (1999) in their study entitled “Determinants of Research and Extension Productivity of Agricultural Scientists” observed that guidance to farmers/students had a desire mean score of 19.45 and actual mean score of 57.75, publication had a desired mean score of 26.05 but the actual mean score was 9.65. Research projects completed had desired mean score was 23.00 and actual mean score was 22.60, while innovation developed had desire mean score of 31.50 but mean score was zero.

Rao (2001) in his study entitled ‘Study on publication behavior of teachers in Archarya N.G. Ranga Agricultural University’ concluded that 50.00 percent of the respondent teachers had ‘medium’ publication behavior, followed by ‘low’ (32.50 percent) had ‘high’ (17.50 percent) publication behavior.

Pawar (2002) observed that Directors had 109.13 average numbers of publications at their credit. This was followed by Associate Deans (64.5) publications, Heads of departments (101) publications, Professors (71.2), Associate Professors (42.35) and Assistant Professors had the lowest number (22.61) respectively.

2.1.8 Mass media exposure

Tarde (1986) observed that 52.00 per cent of the respondents had ‘high’ mass media exposure. The average mass media exposure score of the leaders was 6.2.

Mahadik (1993) in his study entitled “A study of knowledge level of the members of PRI about Agricultural Development programme” revealed that, slightly less than two third (63.73 percent) of the respondents had ‘medium’ mass media exposure. The average mass media exposure score was 4.53.

Sankhe (2000) observed that, majority (68.98 percent) of the respondents had ‘medium’ level of mass media exposure, whereas, 15.51 percent each of them had

'low' and 'high' mass media exposure, respectively. The average mass media exposure score of the respondents was 13.72, which indicated their medium level of mass media exposure.

Bagul *et al* (2002) observed that majority (57.14 percent) had 'medium' mass media exposure, whereas, 22.86 percent of the respondents had 'low' mass media exposure score, and 20.00 percent of them had 'high' mass media exposure. The average mass media exposure score was 10.0 percent.

2.1.9 Organizational climate

Rathakrishnan and Ravichandran (1995), observed that a favourable perception towards organizational climate prevailing in TNAU was reported by nearly two-third (70.99 percent) of the respondents among the categories also, more favourableness was expressed by more percentage (30.12 percent) of Assistant Professors than the other categories.

Rao (2002) revealed that 36.67 per cent of the respondent teachers perceived the climate in the organization as 'high' followed by 'low' (33.30 percent).

Pawar (2002), in his study entitled "Publication behavior of the scientists of Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli reported that 53.00 per cent of the farm scientists agreed that the organizational climate was 'fair', while 31 per cent of them opined that the organizational climate was 'good'. There were 16.00 percent farm scientists who rated the organizational climate as 'poor'.

2.2 Job performance of farm scientists from KVK

Janardhana (1979) in his study entitled, 'A study on job performance and job satisfaction of Agricultural Extension Officers and factors associated with it' found that maximum number (41.00 per cent) of the Agricultural Extension Officers were in 'average' performance category, 32.00 per cent of them were in 'low' performance category and 27.00 per cent were under 'high' role performance category.

Kherde and Sahay (1979) noticed that the VLWs rated their role performance as 'good' and 'very good' in all the major eight roles that is, educational, organizational, service, planning, supply, works, supervisory and office work. However, the planning and supply roles were not endorsed as very good by any one of the VEWs. Of the VLWs, 8.80 per cent to 35.20 per cent rated their performance as

‘very good’, 60.00 to 85.00 per cent rated their performance as ‘good’ and only 9.60 to 20.00 per cent of them rated themselves as ‘average’ in their role performance.

Shinge (1986) revealed that maximum number (68.00 per cent) of the VLWs rated themselves as ‘most efficient’, 24.00 per cent as ‘efficient’ and 8.00 per cent as ‘less efficient’.

Dakhore and Bhilegaonkar (1987) in their study on ‘self assessed level of job performance of the Veterinary Extension Personnel (VEPs)’ found that 69.17 per cent of the VEPs had ‘medium’ level of job performance. It was found that 15.83 per cent of the VEPs were in the category of ‘high’ level of job performance, while only 15.00 per cent of them had ‘medium’ level of job performance.

Bharadwaj *et al.* (1989) in their study entitled, ‘Job performance of Rural Agricultural Extension Officers in jobs’ revealed that, majority (52.17 per cent) of the RAEOs were at ‘medium’ level of job performance.

Hegde and Channegowda (1989) in their study entitled ‘Influence of personal characteristics of Agricultural Assistants on their job performance’ found that large percentage (68.70 per cent) of the Agricultural Assistants had ‘medium’ job performance, while 15.00 per cent had ‘high’ job performance and 16.30 per cent had ‘low’ job performance.

Rahad *et al*. (1995) in their study entitled “Job performance pattern of VEW’s of T and V and factors associated with it” found out that none of the respondents performed poorly. Relatively higher proportion of the respondents were found to be ‘good’ and ‘excellent’ performance (40.42 per cent and 48.33 per cent respectively).

Ingle *et al.* (2000) in their study on ‘Role perception and role performance of extension personnel from single window system of Department of Agriculture’ observed that 40.20 per cent Agricultural Assistants, 34.70 per cent Agricultural Supervisors and 57.10 per cent Circle Agricultural Officers had shown ‘high’ role performance. On an average, it was observed that 38.20 per cent respondents exhibited high role performance. In all, 27.60 per cent respondents had ‘low’ level of performance. Among different roles, relatively higher proportion of Agricultural Assistants respondents exhibited ‘high’ performance level in case of horticulture and marketing and soil and water conservation. In case of Agricultural Supervisors, majority of the respondents (85.72 per cent) exhibit ‘high’ role performance in case of administrative and financial matters whereas Circle Agricultural Officers exhibited high role performance in case of ‘extension and training’.

Bagul (2002) observed that three-fifth (61.43 per cent) of the Extension Functionaries had ‘medium’ job performance, which was followed by 21.43 per cent of Extension Functionaries who had ‘high’ job performance. More than one-sixth (17.14 per cent of them were found to have ‘low’ job performance. The average job performance score was 30.51.

2.3. Correlates of job performance

2.3.1 Age and job performance

Kherde and Sahay (1979) observed that age of the VLWs was ‘positively related’ to their role performance.

Veerbhadraiah (1981) in his study on time management, job involvement and job performance of ‘Extension Supervisors’ observed that there was ‘non-significant association’ between age and job performance of the Assistant Directors of Agriculture.

Nikhade and Kitey (1984) in their study on ‘The role performance of village level workers in agricultural development’ found ‘significant association’ between age of the VLWs and their job performance.

Shinge (1986) found that age of the VEWs had ‘negatively significant relationship’ with the efficiency in role performance.

Sharma *et al.* (1988) in their study entitled ‘Role expectation and role performance of Rural Agricultural Extension Officers of T and V system in M.P.’ observed that, with the ‘increase’ in age, the role performance of RAEOs ‘decreased’.

Rayapareddy and Jayaramaiah (1989) in their study entitled ‘Village Extension Officers knowledge of rice production technology’ observed that, (age of VEWs) had ‘non-significant relationship’ with role performance.

Reddy *et al.* (1992) in his study ‘Job performance of Agricultural Extension Officers’ noticed that age had shown ‘significant but negative correlation’ with job performance.

Patel et al. (1994) in his study on job performance of Rural Agricultural Extension Officers found ‘significant association’ between age and job performance of RAEOs.

Shinde (1994) found that age of the VEWs was ‘negatively and significantly associated’ with their efficiency in job performance

Sundaraswamy and Perumal (1997) in their study entitled “variables influencing the Job performance of Assistant Agricultural Officers” concluded that age was ‘negatively and significantly associated’ with job performance of AAOs.

Anonymous (2000) found that age of the personnel had ‘non-significant association’ with role performance.

Bagul (2002) reported that age was significantly associated with job performance of Extension Functionaries.

2.3.2 Education and job performance

Veerabhadraiah (1981) and Reddy (1982) observed that education of VLWs was not a determinant factor for their role performance.

Talukdar (1984) found that there was ‘no significant association’ between education and job productivity of Agricultural Development Officers.

Jhansi Rani (1985) revealed that there was ‘no significant relationship’ between education and extension productivity of Agricultural Scientists.

Reddy (1986) indicated that the relationship between education and extension productivity of Village Extension Officers was ‘non-significant’.

Shinge (1986) observed that educational level of the VEWs had ‘positive significant relationship’ with their efficiency in role performance.

Sharma *et al.* (1988) observed that educational qualification was ‘related’ to role performance. The role performance was found to increase with the increase in educational qualification.

Murthy and Somasundaram (1989) found that education of the Village Extension Officers had ‘non significant relationship’ with their performance.

Reddy *et al.* (1992) in their study entitled ‘Job performance of Agricultural Extension Officers’ observed that educational level had a ‘non-significant relationship’ with job performance.

Patel *et al*. (1994) found that low level of education decided significantly difference between ‘high and low’ job performances.

Shinde (1994) found that educational level of the VEWs had ‘non-significant relationship’ with job performance of VEWs.

Anonymous (2000) found that educational level of extension personnel had ‘non-significant relationship’ with performance of extension personnel.

Bagul (2002) revealed that education and job performance of extension functionaries were positively significant at 1.00 per cent level of probability.

2.3.3 Experience and job performance

Kherde and Sahay (1979) revealed that number of years of service of village level workers was 'not related' with the role performance of the VLWs.

Veerbhadraiah (1981) observed that there was 'non-significant association' between service experience and job performance of Assistant Directors of Agriculture.

Reddy (1983) reported a 'negative relationship' between experience and role performance of VEOs.

Talukdar (1984) reported that there was 'no significant association' between service experience and job productivity of Agricultural Development Officers.

Nikhade and Kitey (1984) revealed that there was 'significant association' between service experience of VLWs and the mean performance as rated by BDOs, AOs and farmers.

Shinge (1986) observed 'significant relationship' between service experience and efficiency in role performance.

Sharma *et al.* (1988) found that service experience was 'significantly related' with role performance.

Choudhary *et al*. (1989) found that service experience and job performance were 'not associated' with each other.

Sundaraswamy and Perumal (1997) observed that length of service was 'negatively and significantly correlated' with level of job performance.

Anonymous (2000) found that total service of extension personnel had 'non-significant relationship' with their performance.

Bagul (2002) reported that total service of extension functionaries of PRIs was found to positively and significantly correlate with their job performance.

2.3.4 Mass media exposure and job performance

Reddy (1982) found that mass media participation was 'significantly associated' with job performance.

Shivalingegowda (1985) in his study entitled "A study on job perception, job performance and job satisfaction of extension guides in Karnataka" reported

‘significant relationship’ between mass media exposure and job performance of extension guides

Hegde and Channegowda (1989) found ‘no association’ between mass media consumption of Agricultural assistants and their job performance.

Bagul (2002) reported that mass media exposure and the job performance of extension functionaries were found to be positive and highly significant.

2.4 TOT activities conducted by farm scientists from KVK

Bhoite *et al* (1985) reported that demonstrations, visits, discussions, audio-visual aids, meetings, literature etc were not used adequately by KVK Officers in their training programmes as per their expectations even though they considered them to be most useful.

Shubhangi *et al* (2002) revealed that training was conducted by KVK Officers in the following topics: seed bed preparation, sowing/transplanting time, seed rate, spacing, FYM application, irrigation interval training and pruning and plant protection measures.

Tiwari *et al* (2003) reported that Krishi Vigyan Kendra conducted Frontline Demonstrations on gram crop during 2000-2001. In all 22 demonstrations were conducted on farmers's field in Belha blocks of Bilaspur district. The demonstrations, conducted on various soils followed by paddy, included improved seed, sowing method, balanced use of fertilizer and plant protection measures under partially irrigated conditions.

2.5 Constraints faced by farm scientists from KVK in discharging their duties

2.5.1 Administrative problems

Perinbam (1981) in his study entitled, 'Transfer of farm technology in T & V system,' observed that extensive jurisdiction, understaffing, involvement of other development programme and lack of conveyance facility were the major constraints experienced by the VEWs.

Satyanarayan and Rajguru (1981) in their study on 'the Impact of Intensive Agricultural Extension System (T and V system) observed that the VEWs had shortage of time to attend the development field work as they spent more time on unproductive paper work of the superiors.

Singh and Roy (1991) in their study entitled "Problems in Conducting monthly Workshops of T & V Systems' revealed that there was excessive workload (85.41 percent).

Prabukumar, S and Veerabhadraiah, V. (1998) reported the following administrative problem: delay in recruitment of staff, inadequate staff, lack of appropriate incentives for KVK staff, lack of job security and promotional avenues, lack of the disciplines, diversion of transport facilities, frequent transfer of staff

members, lack full autonomy for the use of budget and transport, posting of inefficient staff, and non-availability of trained staff.

Vasoya and Halyal (1982) found that majority of the village level workers faced difficulties in performing their duties, their pay and allowances not received in time, vacant post not filled in time, solutions to reported problems were not offered on time by higher authorities.

Nikhade and Kitey (1984) observed that, lack of people's co-operation, inability to devote fully on particular type of work, inability to supply the necessary materials in time because of lack of co-ordination with supplying agencies were the problems reported by 90.00 per cent of the VLWs. Further, more than 50.00 per cent of the VLWs opined that there was constant tension from higher authorities which ultimately resulted in their inefficiency.

Thakur (1987) in his study on ' Constraints in transfer and utilization of technology' remarked that appointment of non-technical persons for extension work, lack of co-ordination between different departments, lack of proper guidance, supervision, defective supply line and lack of feedback etc., were the constraints in communication.

Shinge *et al.* (1991) in their study entitled, 'Status of training received by VEWs and constraints experienced by them in performing their role as the trainers' observed that more than two-fifth of the VEWs (42.85 per cent) expressed that input supply was not in time.

Sinha (1995) found that, lack of promotion possibilities was most important problem given by respondents.

Ashalatha *et al.* (1999) in their study entitled, 'Constraints in effective role performance of Agricultural Assistants' observed that, 'Frequent transfer' was highlighted to be a major constraint by the AAs. Too much of office work and lack of promotion opportunities, were the next major constraints indicated by the AAs. 'Poor salary' was next in the order of importance. The next important constraint was too large area of operation, which made it difficult for the AAs to visit fields and organize meetings in time, resulting in unnecessary delay in sanctioning programmes and failure in giving timely instruction for field problems. Lack of incentives and rewards was also pointed out as one problem which reduced their enthusiasm in performing their duties effectively.

2.5.2 Facility problems

Singh and Roy (1991) revealed that there was lack of facilities for field work (75.00 percent), and lack of facilities for skill teaching (68.75 percent)

Prabukumar, S and Veerabhadraiah, V.(1998) reported lack of suitable infrastructure for conducting training, lack of mobile training unit, inadequate lodging facilities for the participants, lack of suitable and adequate transport facilities as major facility problems.

Vasoya and Halyal (1982) found that majority of the village level workers had no separate facility of office, no provision of audio-visual aids and useful literature to perform their duties. They had no vehicle facility provided for the official duties, without which it was very difficult to reach interior villages.

Sinha (1987) revealed high cost and non-availability of inputs as major constraints in the transfer of technology.

Shinge *et al.* (1991) reported that more than two-fifth of the VEWs (42.85 per cent) expressed that input supply was not in time.

Sinha (1995) found that, majority of the respondents stated that, there was no provision of vehicle support and loan for purchase of bicycle under this system. Lack of residential facilities for VLWs in rural area was one important reason for less interaction with farming community.

Ashalatha *et al.* (1999) observed that, lack of conveyance facilities. In Krishibhavans, the inputs from the state Departments of Agriculture are supplied in off-season. Lack of proper supply and services also put the AAS into difficulty. Off-season and insufficient quantities were pointed out as major problems regarding supply of inputs. Lack of transportation facilities made them unable to supply the inputs in the farmers as per their demand.

Bagul (2002) reported that untimely and insufficient supply of inputs (62.86 per cent) and poor roads (60.00 per cent), poor training facilities for farm women and rural youths (55.29 per cent) and non availability of posters, charts, specimens of various schemes for dissemination (34.29 per cent) were major constraints faced by extension functionaries.

2.5.3 Financial problems

Vasoya and Halyal (1982) found that the pay and allowances of majority of the village level workers were not received in time.

Singh and Roy (1991) reported inadequate finance (91.00 per cent) for preparation of teaching aids in conducting monthly workshops of T & V Systems.

Sinha (1995) found that majority of the respondents stated that, there was no loan for purchase of bicycle under this system. Majority of the respondents faced the difficulties of not getting required financial assistance. Majority of the respondents expressed difficulty in paying repeated visit to farmers due to lack of time and sufficient money to meet the cost of travel.

Prabukumar and Veerabhadraiah, (1998) revealed inadequate stipend amount for trainees, delay in release of funds from the ICAR headquarters, lack of funds for maintenance of institutional farms and demonstration unit and inadequate conveyance allowance to trainees as financial constraints facing Officers in carrying out their activities.

Ashalatha *et al.* (1999) reported 'poor salary' in Krishibhavans. Lack of incentives was also pointed out as one problem which reduced their enthusiasm in performing their duties effectively.

2.5.4 Technical problems

Prabukumar, S and Veerabhadraiah, V. (1998) reveled that technical problems as stated by KVK Officers were, lack of development of instructional farms, lack of research wings at KVK, lack of inter KVK studies and exchange visits, inadequate supply of critical inputs, lack of avenues for academic improvement for the KVK staff, lack of short duration orientation courses for newly recruited KVK staff, and lack of documentation of research findings at one point.

Vasoya and Halyal (1982) found that majority of the village level workers faced difficulties in performing their duties.

Sinha (1987) in his study on 'Constraints in transfer of technology an analytical approach' revealed that constraints in utilization of technology and non-feasibility of technology for practical use were major problems in the transfer of technology.

Thakur (1987) reported that appointment of non-technical persons for extension work, and lack of feedback was major constraints.

Shinge *et al.* (1991) observed that majority (71.43 per cent) of the VEWs, recommendations were not adopted by the farmers because of their poor condition and non-availability of labourers. Majority (96.00 per cent) of the VEWs had experienced some difficulties in arranging field trials and demonstrations. They further revealed that 94.00 per cent of the VEWs had experienced constraints in contacting the contact and non-contact farmers. 'Villages are scattered' (74.50 per cent) and 'farm families are more than the prescribed norms' (60.00 per cent) were the constraints experienced by the VEWs in forming suitable groups for visit. More than two-fifth (42.00 per cent) of the VEWs had reported the constraints in selecting the contact farmers.

Ashalatha *et al.* (1999) observed that there was too large area of operation, which made it difficult for the AAS to visit fields and organize meetings in time, resulting in unnecessary delay in sanctioning programmes and failure in giving timely instruction for field problems.

Bagul (2002) revealed that non-availability of resource persons for farmers' rallies and training programmes were some constraints faced by extension functionaries.

2.5.5 Social problems

Nikhade and Kitey (1984) observed that, lack of peoples co-operation and inability to devote fully on particular type of work.

Prabukumar, S and Veerabhadraiah, V. (1998) reported the following problems: Socioeconomic and cultural diversity, social deformities and lack of peoples' participation in KVK training programmes.

Prabukumar, S and Veerabhadraiah, V. (1998) reported that importance should be given to operative farming by KVKs, literacy for group motivation, avoidance of political interference, and selection of only needy farmers for training programmes.

Bagul (2002) revealed that political interference in the work (44.29 per cent), non cooperative attitude of bank officials (42.86 per cent) and lack of participation by farmers (31.43 per cent) in extension activities were constraints faced by extension functionaries in performing their job.

2.6 Suggestions for overcoming barriers

2.6.1 Administrative suggestions

Prabukumar, S and Veerabhadraiah, V. (1998) reported the following recommendation as suggested by respondents: recruitment to be done by the KVK centre itself, simplification of recruitment procedure, providing a chance to each staff members to work in rural training institutions, provision of incentives to staff in terms of promotion and awards, provision of field staff to each discipline, and treating KVK staff as par with other staff, separate unit of KVK administration where mutual transfer possible within KVKs, strengthening of policy for providing job security, promotions, transfer and full autonomy to head of KVK, provision of field assistance by ICAR to all disciplines of KVK, provision and funds for hiring of vehicle.

Rao (1985) in his study on 'Agricultural Extension Management System in India' opined that the success of extension service depended upon the proper management of natural resources, motivated and devoted extension personnel for meeting requirement of the farmer's need in time and marketing facilities with incentive prices.

Shinge (1986) noticed that majority of the VEWs had emphasized the need of minimizing the operational area and delegation of some powers and authority to them.

Ashaletha *et al.* (1999) made the following suggestions for augmenting the role of AAs.

1. Frequent transfers of the AAs, done mainly under political pressure, must be avoided.
2. Necessary action must be taken to avoid the delay in giving promotion to the AAs, which they deserve.
3. The area of operation for each AA may be reduced by entrusting the different crop committee leaders in the area with the duties like organizing meetings, informing farmers about development programmes etc.
4. AAs must be encouraged by providing them with incentives and rewards for good work done.

2.6.2 Facility suggestions

Prabukumar, S and Veerabhadraiah, V. (1998) reported that there should be adequate provision of funds by the ICAR, provision of mobile training unit to each KVK with audio-visual equipment, uniform policy in providing hostel facilities to all KVKs, provision of two wheelers for the staff, and removal of restriction on fuel consumption.

Singh and Roy (1991) revealed the provision of transport facilities for joint visit to farmer's field demonstrations as suggested by respondents.

Rao (1985) in his study on 'Agricultural Extension Management System in India' opined that the success of extension service depended upon the proper management of natural resources, strong input supply tie-ups, well developed infrastructural facilities for meeting requirement of the farmer's need in time.

Shinge (1986) noticed that majority of the VEWs had emphasized the need of supplying the inputs in time.

Ashaletha *et al.* (1999) recommended that infrastructural facilities in the Krishibhavans should be improved by local mobilization of infrastructure with the help of famers and inputs like seeds and fertilizers available in time, supply of good quality inputs through Krishibhavans.

Bagul (2002) reported that more than three-fourth (76.67 per cent) of the extension functionaries suggested the "need to have separate cell for dissemination of information about different schemes", while three three-fourth (75.00 per cent) of them suggested that "mobile exhibition van be provided for all Panchayat Samities". "Provision of latest information technology for communication (66.67 per cent) and "sufficient supply of input should be made in time" (63.33 per cent) were also suggested by majority of the extension functionaries.

2.6.3 Financial suggestions

Singh and Roy (1991) reported that adequate fund should be made available as suggested by respondents.

Prabukumar, S and Veerabhadraiah, V. (1998) reported that there should be increase in existing stipend amount, streamlining of budget meeting, and release of funds well in advance by the ICAR, provision of revolving fund facility uniformly to all KVKs and budget allocation by all ICAR to provide conveyance allowance for trainees.

Ashaletha *et al.* (1999) recommended that for augmenting the role of AAs, they should be encouraged by providing them with incentives and rewards for good work done.

Bagul (2002) revealed that half (50.00 per cent) of extension functionaries suggested that “the procedure for advancing loans should be made simple” in order to improve loan taking behavior of farmers.

2.6.4 Technical suggestions

Prabukumar, S and Veerabhadraiah, V. (1998) reported that there should be enhancement of budget provision by ICAR, granting of permission to conduct adaptive research at KVKs, conducting national workshop on KVKs every year, revolving fund to all KVKs especially for establishing plant propagation unit, supply of nucleus seed by research organizations to take up seed production by all KVKs, uniform study leave policy, frequent organization of orientation courses by Zonal Coordinating Units, SAU’s and compilation of all research findings of all research organizations by the ICAR so that the same can be supplied to all KVKs.

Shinge (1986) noticed that majority of the VEWs had emphasized the need of minimizing the operational area.

Bharadjai and Sharma (1990) in their study entitled, ‘Problems of Rural Agricultural Extension Officers’ suggested organizations of specific training and conducting of training on cultivators field, proper guidance as per local conditions, proper and regular contact with research scientists the major factors which may improve the efficiency of the RAEOs in performing their duties.

Bagul (2002) reported that nearly half (46.66 per cent) of the extension functionaries suggested that “fort-nightly messages should be provided to all farmers through agriculture department”.

2.6.5 Social suggestions

Ashaletha *et al.* (1999) recommended that frequent transfers of the AAs, done mainly under political pressure, must be avoided.

Bagul (2002) revealed that extension functionaries suggested “special efforts be made for enhancing” farmers participation in different activities.

CHAPTER III

METHODOLOGY

Methodology refers to the description of methods and procedures used during a research work or programme. The methods used in conducting the present study are described in this chapter. It includes area of the study, methods used for selection of respondents, collection and analysis of data. It focuses on the research design, tools and techniques of a scientific investigation used for data collection in line with the aim and objectives of the study with much clarity as feasible. Methodology helps various users of a report to judge the validity of the research work and results obtained. Selection of the population and sampling techniques for investigation and instruments used for data analysis are explained in this chapter under the following heads.

3.1 Area of the study and its geographical location.

3.2 Sampling procedure

3.3 Research design

3.4 Tools and technique of data collection

3.5 Variables and their empirical measurement

3.6 Collection of data

3.7 Statistical analysis of data

3.8 Operational definitions

3.1 Area of the study and its geographical location

The study was conducted in Maharashtra State which is a state in the Western region of India. It is regarded as the nations and also the world's second most populous sub-national entity.

Maharashtra spread over 118,809 sq mi (307,710 km2), it is bordered by the Arabian sea to the west and the Indian states of Karnataka, Telangana, Goa, Gujarat, Chhattisgarh, Madhya Pradesh and the Union territory of Dadra and Nagar Haveli. In terms of area, Maharashtra is regarded as the third largest state in India

It has over 110 million inhabitants and its capital, Mumbai has a population of approximately 18 million. Mumbai is also the financial capital of the nation and the headquarters of all major banks, financial institutions and insurance companies in the country. India's Hindi film industry, Bollywood, and Marathi film and television industry are also located in this state. Maharashtra's business opportunities along with its potential to offer a higher standard of living attract migrants from all over the world.

Maharashtra has typical monsoon climate, with hot, rainy and cold weather seasons. However, dew, frost and hail also occur sometimes, depending upon the seasonal weather. The winter in January and February is followed by summer between March and May and the monsoon season between June and September. Summers are extreme with March, April and May as the hottest months. Rainfall starts normally in the first week of June. July is the wettest month in Maharashtra, while August also gets substantial rain. Monsoon starts its retreat with the coming of September to the state. Winter season is a cool, dry spell, with clear skies gentle breeze; pleasant weather prevails from November to February. But the eastern part of Maharashtra sometimes receives some rainfall. Temperature varies between 12 °C and 34 °C during this season. Rainfall in Maharashtra differs from region to region.

Maharashtra is one of the wealthiest and most developed states in India, contributing 25% of the country's industrial output and 23.2% of its GDP **(2010-2011).** As of 2011, the state had a per capita income of RS 1.0035 lakh (US $ 1,600), more than the national average of Rs 0.73 lakh (US$ 1,100). Its GDP per capita crossed the Rs1.20 lakh (US$ 1,900) threshold for the first time in 2013, making it one of the richest states in India. Agriculture and Industry are the largest parts of the state's economy. Major products include chemical products, electrical and non-electrical machinery, textiles, petroleum and allied products.

Maharashtra accounts for nearly 9% of the total agricultural income of the country (Jain, B.H. 2013). The productivity of some of the food crops like wheat, paddy and cash crops such as cotton has however remained low. The state government have invested substantial amount in agriculture infrastructure like irrigation, sugar industry, chemical and fertilizer industry. Crops like mango, grapes, pomegranate, and processed banana are exported earning valuable foreign exchange. In spite of natural advantages, there are limited vibrant food processing industries in the state. Most of the vegetables and fruits produced are not suitably processed and exports.

The staple foods predominant eaten by the people of Maharashtra are wheat, rice, jowar, bajri, vegetables, lentils and fruit.

3.2 Sampling procedure

Sampling is the method of selecting a fraction of the population in such a way that the selected sample represents the population. In the present study, twenty KVKs

were selected out of the 44 KVKs in Maharashtra State. The procedure followed for drawing the sample for the present study is described below

3.2.1 Selection of farm scientists from KVK

Maharashtra has 44 Krishi Vigyan Kendras, 17 operating under State Agricultural Universities and 27 operating under private entities. A total number of 20 KVKs were randomly selected from a list of 44 KVKs. Questionnaires were sent by post to twenty KVKs (10 SAU and 10 NGO). The first 80 questionnaires received were considered as respondents for this study. The details of the respondents selected for the study are presented in Table 1.

Table 1. Respondents selected for the study from Krishi Vigyan Kendras in Maharashtra State.

Sl. No.	Name of KVK	Organization	No. of Respondents
1.	Mahol	SAU	6
2.	Raigad	SAU	6
3.	Yavatmal	SAU	6
4.	Lanja	SAU	6
5.	Buldana	NGO	6
6.	Sangli	NGO	6
7.	Solapur	NGO	6
8.	Narayangaon	NGO	6
9.	Sindhudurg	NGO	7
10.	Babhaleshwar	NGO	5
11.	Beed	SAU	4
12.	Dhule	SAU	4
13.	Borgaon	SAU	8
14.	Kalwade	NGO	4
	Total		**80**

3.3 Research design

Burns and Grove (2003) define a research design as “a blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings”. Parahoo (1997) describes a research design as “a plan that describes how, when and where data are to be collected and analyzed”. Polit et al (2001) define a research design as “the researcher’s overall for answering the research question or testing the research hypothesis”. In this study investigation aimed at studying the job

performance of farm scientists from Krishi Vigyan Kendras in Maharashtra state. Ex-post facto research design was used for this study.

3.4 Tools and techniques for data collection

The methods used and procedures followed for collecting the data are described in this part.

3.4.1 Construction of the questionnaire

A questionnaire was constructed in English as the entire farm scientists are knowledgeable in English. This was prepared by gathering information from relevant literature on the subject and through interaction with experts and professor of the Department of Extension Education and in line with the aims and objectives of the study. The first part was concerned with the personal and professional profile of farm scientists, while the second part focused on job performance of the farm scientists. The Questionnaire was finalized after series of discussions, corrections and modifications by experts in the department of extension education and an Officer in charge of the KVK's.

3.4.2 Pretesting

The questionnaire was pretested to the KVK scientists as this was necessary to ensure that it measure the aims and objectives it is designed to for. Necessary modifications were carried out in the questionnaire on the basis of observations made during pretesting. The final format of the questionnaire used for collection of information is placed as Appendix-1

3.4.3 Administration of questionnaire

The questionnaire was sent to the selected KVKs by post. Filled questionnaires were returned to the investigator through the same post.

3.5 Variables and their empirical measurement

"Job performance of farm scientists" was considered as the dependent variable, while the personal characteristics of the farm scientists were considered as the independent variables. The technique used for measuring the variables under study, are described in this part.

3.5.1 Dependent variable

Dependent variable refers to those variables that are influence by other variables."Job performance of farm scientists" was treated as the dependent variable in the present study.

Rizvi (1967) defined ‘Job performance as the manner and extent to which different jobs are performed in a practical situation’. According to Milkovich, *et al.* (1991) ‘Job performance’ consists of complicated series of interacting variables pertaining to aspects of the job, the employee and the environment. Jex (2002) had defined job performance as ‘all the behaviours employees engage in while at work’. The following method was followed for measuring the job performance.

This variable was measured with the help of scale developed by Gupta, Chandargi and Sundra Swamy (2004).

The scale consists of 22 items of job performance which were administered on the selected farm scientists of KVKs. The response of the farm scientists was obtained for each job item on four points: ‘more frequently’, ‘frequently’, ‘occasionally’ and ‘never’ with numerical scores 4, 3, 2, and 1, respectively. Likewise, the scores were assigned to each job item. On the basis of the cumulative score obtained, the farm scientists were grouped into three categories of job performance by calculating the mean (74.95) and standard deviation (9.10).

Sl. No.	**Category**	**Job performance (Score)**
1.	Low	Upto 66
2.	Medium	67 to 83
3.	High	84 and above

3.5.2 Independent Variables

Independent variables are the variables that influence other variables. It is also referred to as the presumed cause of dependent variable (Mulay and Sabarthanam, 1980). The personal characteristics of the farm scientists in Krishi Vigyan Kendras were treated as the independent variables in the study and they were quantified as below:

3.5.2.1 Age

The chronological age of the farm scientists at the time of investigation was taken into consideration and after which they were grouped into classification of 'young', 'middle' and 'old' based on mean (38.18) and standard deviation (6.74).

Sr. No.	Category	Age (Years)
1.	Young	Upto 31
2.	Middle	32 to 44
3.	Old	45 and above

3.5.2.2 Education

This variable was measured according to the higher degree in agriculture successfully completed by the respondent. The following categories were made on the basis of educational level attained by the respondents at the time of investigation. The quantification of educational level was done according to the procedure followed by Bagul (2002) with slight modifications.

Sl. No.	Category	Education (Score)
1.	M.Sc. (Agri.)	1
2.	Ph.D. (Agri.)	2

3.5.2.3 Marital status

It refers to the position of an individual with respect to marriage and married life on the day of data collection. Procedure used by Pawar (2000) was used to measure this variable. Accordingly, the respondents were grouped into two categories as follows.

Sl. No.	Category	Marital Status (score)
1.	Unmarried	1
2.	Married	2

3.5.2.4 Family background

It meant the native place of the respondents where his/her family originally resided. The respondent's family in villages was grouped in rural, those in towns were grouped in semi-urban and those in municipal areas were grouped in urban background category.

Sl. No.	Category	Family background (score)
1.	Rural	1
2.	Semi-Urban	2
3.	Urban	3

3.5.2.5 Total service experience

Service experience refers to the total number of years completed in service in the KVK. The respondents were grouped into three categories as stated below based on mean (10.43) and standard deviation (6.53).

Sl. No.	Category	Experience in Extension(years)
1.	Low	Upto 4
2.	Medium	5 to 16
3.	High	17 and above

3.5.2.6 Training received

It refers to the learning experience or educational discourse attended by the farm scientists for improving their competence. The training received score was computed by counting the number of trainings attended by the scientists at university, state, national and international level. According to number of training they were grouped into classification of 'low', 'medium' and 'high' based on the mean (2.95) and standard deviation (1.57).

Sl. No.	Category	Training received (Score)

1.	No training	7
2.	Low	Upto 1
3.	Medium	2 to 4
4.	High	5 and above

3.5.2.7 Number of publications

It referred to the total number of books, chapters in books, research articles, research notes, research abstracts, research bulletins, popular articles, leaflets, folders, extension bulletins published by the farm scientists till the date of data collection. The variable was grouped into the following categories.

Sl. No.	Category	Number of publications
1.	No publication	3
2.	Low	Upto 4
3.	Medium	5 to 18
4.	High	19 and above

3.5.2.8 Mass media exposure

Mass media exposure refers to the extent of exposure of the respondents to mass media channels namely, radio, newspaper, television, farm magazine, research bulletins, extension literature, information bulletins and films. The quantification of mass media participation was done according to the procedure followed by Reddy (1976) with slight modifications.

The composite score was arrived at by summing up the score obtained by the respondents on each item listed and they were grouped into three categories based on the mean (23.25) and standard deviation (2.32) as shown below.

Sl. No.	Category	Mass media exposure (score)
1.	Low	Upto 21
2.	Medium	22 to 25
3.	High	26 and above

3.5.2.9 Organizational climate

It was operationalised as the degree to which the situation in the KVK was conductive and encouraging for research, teaching, extension, management and administration.

To measure this variable, scale developed by Premlata Singh and Singh (1993) was used. This scale comprised of 12 statements rated on a three point continuum. They were good, fair, poor score of 3, 2 and 1 was given, respectively.

Total score of a respondent was computed by adding all the scores of items and they were grouped into 'poor', 'fair' and 'good' based on mean (32.09) and standard deviation (4.19).

Sl. No.	Category	Organizational climate (Score)
1.	Poor	Upto 28
2.	Fair	29 to 35
3.	Good	36 and above

3.6 Collection of data

A total number of ten questionnaires were packaged, addressed to the programme coordinator and posted by courier to each of the selected KVK's in Maharashtra State. Questionnaires were filled by the farm scientists and returned to the researcher via post. Key informant interviews were done with the programme coordinators of some KVKs to ensure that some relevant information was collected which may be difficult to obtain by using the questionnaire. The first 80 completed questionnaires were coded and analyzed accordingly.

3.7 Statistical analysis

The data were analyzed on the basis of the specific objectives of the study. At the beginning, the qualitative data were converted into quantitative form and both the qualitative and quantitative data were tabulated in primary tables. These tables were then used in recording responses according to the categorized aspect in the study. The primary tables were used to prepare the secondary tables. The suitable statistical techniques such as frequency distribution, mean, percentage, standard deviation, and correlation coefficient **'r'** were used for analyzing the data.

3.7.1 Frequency and percentages

The data were processed and tabulated by using simple frequencies, percentages were worked out whenever needed, and the established parameters like mean, range and standard deviation were used.

3.7.2 Mean

Mean is the division of the sum total or aggregate of the observation by the total number of respondents. Mean was calculated by following formula,

$$\overline{X} = \frac{\sum X}{N}$$

Where,

$\bar{X}$ = Mean

$\sum X$ =Sum of observations

N = Number of respondents

3.7.3 Standard deviation (S.D.)

Standard deviation is the square root of the arithmetic averages of the squares of deviation measured from the value of mean of the series.

Standard deviation (σ) was calculated by the following formula

$$S.D. = \sqrt{\frac{\sum (Xi - \bar{X})^2}{n - 1}}$$

Where,

X_i = Individual score,

$\bar{X}$ = Mean of sample,

n = Total number of students.

3.7.4 Pearson's correlation coefficient ("r")

The measure was used to find the association between independent variables and the communication behaviour of extension personnel of the Department of Agriculture and formula used to calculate "r" value is given below.

$$r = \frac{\sum xy - 1/n \sum X - \sum Y}{\sqrt{\frac{\sum X^2 - (\sum X)^2}{n}} \quad \sqrt{\frac{\sum Y^2 - (\sum X)^2}{n}}}$$

Where,

n = Number of extension personnel

r = Correlation between variable X and variable Y

$\sum X$ = Sum of scores of independent variables

$\sum Y$ = Sum of score of dependent variables

$\sum X^2$ = Sum of square of the score of independent variables

$\sum Y^2$ = Sum of square of the score of dependent variables

$\sum XY$ = Sum of product of the score of independent and dependent variables

$\sum$ = Summation

The computed "r" value was compared with the table value of coefficient of correlation at 1 and 5 per cent levels of significance at N – 1 degree of freedom for drawing inferences and results of investigation.

3.8 Operational definition

3.8.1 Job performance

Rabia (1967) defined 'Job performance as the manner and extent to which different jobs are performed in a practical situation'.

3.8.2 Education

'Education' refers to the highest degree in agriculture completed by the farm scientists

3.8.3 Mass media exposure

'Mass media exposure' refers to the extent of exposure of the farm scientists to mass media like radio, T.V., newspaper, farm magazine etc.

3.8.4 Farm Scientists

Programme coordinator and subject matter specialists employed in the various KVK's.

Chapter – IV

RESULTS AND DISCUSSION

The Findings of the present study are presented in this chapter keeping in view the objectives of the study. The results obtained are presented and interpreted under the following headings.

4.1 Personal and professional profile of farm scientists
4.2 Job performance of farm scientists
4.3 Correlates of job performance
4.4 TOT activities conducted by farm scientists
4.5 Constraints faced by farm Scientists in discharging their duties
4.6 Suggestions for overcoming barriers

4.1 Personal and professional profile of farm scientists

The findings regarding personal and professional profile of the selected farm scientists are presented and discussed in this part.

4.1.1 Age

The data regarding age of the farm scientists are presented in Table 2.

Table 2. Distribution of the farm scientists according to their age

Sl. No.	Age (Years)	Respondents (N=80)	
		Frequency	Percentage
1.	Young (Up to 31)	15	18.75
2.	Middle (32 to 44)	49	61.25
3.	Old (45 and above)	16	20.00
	Mean: 38yrs. Total	**80**	**100.00**

Table 2 shows that, more than three-fifth (61.25 per cent) of the farm scientists belonged to the ‘middle’ age category, one-fifth (20.00 per cent) of the farm scientists belonged to the ‘old’ age category, while less than one-fifth (18.75 per cent) of the

farm scientists belonged to the ‘young’ age category and the mean age of the farm scientist was 38 years.

It can be inferred from the findings that, more than three-fifths of the farm scientists belonged to ‘middle’ age category which indicate that they were having moderately good experience of life to supply the needed human resources and service providing enough opportunity to them for efficient and effective service delivery to their clientele.

The findings of the present study are similar to findings of Usha and Sahal (1984), Shinge (1986), Deshmukh (1990), Kurbetti (1992), Shinde (1994), Sankhe (2000) and Bagul, *et al*., (2002).

However, the findings are dissimilar to the findings of Manker *et al*., (1992).

4.1.2 Educational qualification

The observations pertaining to the educational qualification of the farm scientists are presented in Table 3.

Table 3. Distribution of farm scientists according to their educational qualification

Sl. No.	Educational qualification	Respondents (N=80)	
		Frequency	Percentage
1.	M.Sc (Agri.)	55	67.50
2.	Ph.D. (Agri.)	25	31.25
	Total	**80**	**100.00**

It is observed from Table 3 that, more than three-fifth (67.50 per cent) of the farm scientists were ‘Master holders’ while 31.25 per cent of the farm scientists were‘Doctorate holders’. It can be said that the farm scientists in the study area were well qualified to meet the requirement of the various positions or offices which they held.

The finding of this study is similar to Sundaraswany and Perumal (1997) and Rajput *et al*., (2011).

However, the findings are dissimilar to the findings of Vasoya and Halyal (1982), Bhoite and Dhane (1985), Shinge (1986), Reddy (1987), Sankhe (2000), and Bagul *et al*., (2002).

4.1.3 Marital status

The findings with regards to marital status of the farm scientists are presented in Table 4.

Table 4. Distribution of the farm scientists according to their marital status

Sl. No.	Marital status	Respondents (N=80)	
		Frequency	Percentage
1.	Married	76	95.00
2.	Unmarried	4	5.00
	Total	**80**	**100.00**

It is seen from Table 4 that, majority (95.00 per cent) of the farm scientists were ‘married’ while less than one-tenth (5.00 per cent) of them were unmarried. This means that most of the farm scientists were married and living with their family members or spouses.

The findings of this study are similar to that of Singh and Singh (1991) and Pawar (2002).

4.1.4 Family background

The result in respect of family background of farm scientists are presented in Table 5.

Table 5. Distribution of the respondents according to their family background

Sl. No.	Family background	Respondents (N=80)	
		Frequency	Percentage
1.	Rural	60	75.00
2.	Semi Urban	11	13.75
3.	Urban	9	11.25
	Total	**80**	**100.00**

Table 5 revealed that, majority (75.00 per cent) of the farm scientist had ‘rural’ background while 13.75 per cent of the farm scientist had ‘semi-urban’ background and remaining 11.25 per cent of the farm scientist had ‘urban’ background.

It can be said that most of the farm scientist were born and brought up in villages. This might have influenced their attitude towards their own profession and their clientele.

The finding of this study is similar to the finding of Rathakrishnam and Ravichandran (1995).

The finding of this study does not correspond with the findings of Singh and Singh (1991) and Pawar (2002).

4.1.5 Post held

The data regarding post held by KVK farm scientists are presented in Table 6.

Table 6. Distribution of farm scientists according to their post

Sl. No.	Family background	Respondents (N=80)	
		Frequency	Percentage
1.	Programme coordinator	10	12.50
2.	Subject matter specialist	64	80.00
3.	Programme assistant	6	7.50
	Total	**80**	**100.00**

Table 6 revealed that, majority(80.00 per cent) of the farm scientists were 'Subject Matter Specialists' while more than one-tenth (12.50 per cent) of the farm scientist were 'Programme Coordinators' and 7.50 per cent of the farm scientists were 'Programme Assistant.

The findings of this study shows that majority of the farm scientist were Subject matter Specialist which might have influenced their job performance.

4.1.6 Discipline

The observation pertaining to the discipline of the farm scientists are presented in Table 7.

Table 7. Distribution of farm scientists according to their discipline

Sl. No.	Post	Response (N=80)	
		Frequency	Percentage
1.	Agronomy	14	17.50
2.	Agricultural Extension	13	16.25
3.	Animal science & Diary Science	5	6.25
4.	Soil science	8	10.00
5.	Horticulture	10	12.50
6.	Food science and Technology	2	2.50

7.	Plant pathology	2	2.50
8.	Fisheries	1	1.25
9.	Home science	6	7.50
10.	Plant protection	7	8.75
11.	Veterinary science	6	7.50
12.	Agricultural engineering	4	5.00
13.	Entomology	2	2.50
	Total	**80**	**100.00**

It is observed from Table 7 that, close to one-fifth (17.50 per cent) of the farm scientist were ‘Agronomists’, 16.25 per cent of the farm scientists were ‘Extensionist’, 12.00 per cent of the farm scientists were ‘horticulturists’, 10.00 per cent of the farm scientists were ‘soil scientists’, 8.75 per cent of the farm scientists were crop ‘protectionists’ and the rest of the other disciplines account for the remaining.

The findings of this study shows that the farm scientists are spread in various disciplines, which is very much essential in the efficient delivery of their services fo farming community.

4.1.7 Years of working experience

The observation pertaining to years of working experience of the farm scientists are presented in Table 8.

Table 8. Distribution of the respondents according to their working experience

Sl. No.	Working experience (years)	Respondents (N=80)	
		Frequency	Percentage
1.	Low (Upto 4)	18	22.50
2.	Medium (5 to 15)	46	57.50
3.	High (16 and above)	16	20.00
	Mean : 10 yrs. Total	**80**	**100.00**

It is observed from Table 8 that, more than half (57.50 per cent) of the farm scientists had 'medium' working experience, slightly above one-fifth (22.50 per cent) of the farm scientist had 'low' working experience while exactly one-fifth (20.00 per cent) of the farm scientists had 'high' working experience. The average year of working experience of the farm scientist was 10 years.

The findings show that more than half of the farm scientist had a fairly good service experience which might influence their job performance.

The findings of this study are similar to the findings of Usha and Sohal (1984), Deshmukh (1990), Shinde (1994), and Sankhe (2000)

The finding of the study does not correspond with the finding of Bhoite and Dhane (1985).

4.1.8 Annual income

The observation pertaining to annual income of the farm scientists are presented in Table 9.

Table 9. Distribution of farm scientists according to their annual income

Sl. No.	Annual income (Rupees)	Respondents (N=80)	
		Frequency	Percentage
1.	Low (Upto 4,38,873)	6	7.50
2.	Medium (4,38,874 to 8,15,500)	67	83.75
3.	High (8,15,501 and above)	7	8.75
	Mean : 6,27,188 Total	**80**	**100.00**

It is observed from Table 9 that, more than four-fifth (83.75 per cent) of the farm scientists belong to the 'medium' income level and 8.75 per cent of the farm scientist belongs to the 'high' income level while 7.50 per cent of the farm scientists belong to the 'low' income level. The average annual income of KVK farm scientists was Rs. 6, 27,188.

4.1.9 Training received

The findings pertaining to training received by the farm scientists are presented in Table 10.

Table 10. Distribution of farm scientists according to training received by them

Sl. No.	Training received (Score)	Respondents (N=80)	
		Frequency	Percentage
1.	No Training	7	8.75
2.	Low (Upto 1)	7	8.75
3.	Medium (2 and 3)	35	43.75
4.	High (4 and above)	31	38.75
	Mean : 3 Total	**80**	**100.00**

It is observed from Table 10 that, more than two-fifth (43.75 per cent) of the farm scientists had received training to 'medium' level while 38.75 per cent of the farm scientist had received training to 'high' level and 8.75 per cent of the farm scientists each category had received 'low' and 'no' training. The average score of training was 3.

In-service training is very important for farm scientist as it help in improving and updating their skills, to be able to increase their job performance.

The finding of this study shows majority of the farm scientists have been given such opportunity to participate in training programmes hence this might have influenced their job performance.

The finding of this study does not correspond to the findings of Rathakrishnam and Ravichandran (1995), Lohar (1998) and Pawar (2002).

4.1.10 Subject of training

The data regarding main subjects of training received by farm scientist‘s are presented in Table 11.

Table 11. Distribution of farm scientists according to their subject of training

Sl. No.	Subject of training	Response (N=73)	
		Frequency	Percentage
1.	Market led extension	18	24.66
2.	Climate change & it’s impact on agriculture	21	28.77
3.	Mushroom production	7	9.59
4.	Application of ICT’s in extension education	15	20.55
5.	New approaches and methods in Agril. Extension	14	19.18
6.	PRA technique	20	27.40
7.	Mainstreaming gender in Agriculture	17	23.29
8.	Protected cultivation of vegetable crops	22	30.14
9.	Processing of fruit crops & marketing	26	35.62
10.	Soil and water analysis	12	16.44
11.	Agro-based entrepreneurship development	16	21.92
12.	Processing & utilization of soya bean	8	10.96
13.	Agro processing & value addition	24	32.88
14.	Dual purpose fodder production	10	13.70

The data in Table 11 revealed that, more than one-third (35.62 per cent) of the farm scientist reported that they had undergone training on 'Processing of fruit crops & marketing' this was followed by 'Agro processing & value addition (32.88 per cent), 'Protected cultivation of vegetable crops' (30.14 per cent), 'Climate change & it's impact on agriculture' (28.77 per cent), 'PRA technique' (27.40 per cent), 'market led extension' (24.66 per cent) 'Mainstreaming gender in Agriculture' (23.29 per cent), 'Agro-based entrepreneurship development' (21.92 per cent), 'Application of ICT's in extension education' (20.55 per cent).

Furthermore, less than one-fifth (19.18 per cent) of the farm scientist reported they had undergone training on 'New approaches and methods in Agril. Extension' this was followed by 'Soil water analysis' (16.44 per cent), 'Dual purpose fodder production' (13.70 per cent), 'Processing & utilization of soya bean' (10.96 per cent), and 'mushroom production' (9.59 per cent).

4.1.11 Name of institution

The data regarding name of institutions wherein farm scientist's had participated in different trainings are presented in Table 12.

Table 12. Distribution of farm scientists according to their participation in different institutions for training programmes

Sl. No.	Name of institution	Response (N=73)	
		Frequency	Percentage
1.	Mahatma Phule Krishi Vidyapeeth Rahuri (MPKV)	48	65.76
2.	National Institute for Agricultural Extension Management (MANAGE), Hyderabad	32	43.84
3.	Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth(DBSKKV), Dapoli	38	52.05
4.	Extension Education Institute (EEI) Anand	22	30.14
5.	Central Research Institute for Dryland Agriculture(CRIDA), TOT, Hyderabad	24	32.88
6.	Trainer Training Centre (TTC), Indian Institute for Horticulture Research,(IIHR) Bangalore	19	26.03

7.	Regional Agricultural Extension management Training Instutute (RAMETI) Khopoli	20	27.40
8.	YASHADA Pune	18	24.66
9.	National Diary Research Institute (NDRI) Karnal Haryana	9	12.33

It can be seen from Table 12 that, majority of the farm scientists had participated in different training programmes in State Agricultural University, that is, MPKV, Rahuri (65.76 per cent), and DBSKKV, Dapoli (52.00 per cent).

Further, 43.89 per cent farm scientist reported MANAGE, Hyderabad, where they involved in different training programmes, this was followed by ‘CRIDA, TOT, Hyderabad’ (32.88 per cent), ‘EEI, Anand’ (30.14 per cent), ‘ RAMETI, Khopoli’ (27.40 per cent), ‘TTC, IIHR, Bangalore’ (26.03 per cent), ‘YASHADA, Pune’ (24.66 per cent) and ‘NDRI Karnal Haryana’ (12.33 per cent).

4.1.12 Publication behaviour

The data regarding publications of the farm scientist‘s are presented in Table 13.

Table 13. Distribution of farm scientists according to their publication behaviour

Sl. No.	Publications	Response (N=80)	
		Frequency	**Percentage**
1.	Research papers		
	Yes	67	83.75
	No	13	16.25
	Total : 475	**80**	**100.00**
2.	Popular articles		
	Yes	73	91.25
	No	7	8.75
	Total : 951	**80**	**100.00**
3.	Technical bulletins		
	Yes	72	90.00
	No	8	10.00
	Total : 432	**80**	**100.00**
4.	Books		
	Yes	3	3.75
	No	77	96.25
	Total : 5	**80**	**100.00**

It is observed from Table 13 that, most (91.25 per cent) of the farm scientist had published ‘popular articles’ while 90.00 per cent of the farm scientists had published ‘bulletins’ and 83.75 per cent of the farm scientists had published ‘research

papers'. Only a small proportion (3.75 per cent) of the farm scientist had published 'books'. In all KVK scientists had published 951 popular articles, 475 research papers, 432 technical bulletins and 5 books.

The finding of this study shows that most of the farm scientists were interested in publications as this might have influenced their working performance.

4.1.13 Mass media use

The data regarding use of mass media for acquiring information input by farm scientist's are presented in Table 14.

Table14. Distribution of farm scientists according to their use of mass media

Sl. No.	Mass media	Extend of use (N= 80)		
		Always	Sometimes	Never
1.	News papers	78 (97.50)	2 (2.50)	0 (0.00)
2.	University Diary	69 (86.25)	11 (13.75)	0 (0.00)
3.	Agril. Magazines	54 (67.5)	23 (28.75)	3 (3.75)
4.	Agril. Research Journals	45 (56.25)	33 (41.25)	2 (2.50)
5.	Seminars/workshops	23 (28.75)	57 (71.25)	0 (0.00)
6.	Television	48 (60.00)	30 (37.50)	2 (2.50)
7.	E-Connectivity	42 (52.50)	25 (31.25)	13 (16.25)
8.	Internet	55 (68.75)	18 (22.50)	7 (8.75)
9.	News letters	40 (50.00)	36 (45.00)	4 (5.00)

(Figures in the parenthesis indicate percentages)

It can be seen from Table 14 that, majority (97.50 per cent) of the farm scientists 'always' used 'Newspapers' (50.00 per cent) for acquiring information, followed by 'University diary' (86.25 per cent), 'Internet' (68.75 per cent), 'Agril. Magazines' (67.50 per cent), 'Television' (60.00 per cent), 'Agril. Research Journals' (56.25 percent) and 'Newsletters' for information input.

The farm scientists ‘sometimes’ used ‘Seminars’ (71.25 per cent), followed by ‘News letter’ (45.00 per cent), ‘Agril. Research Journals’ (41.25 per cent), ‘Television’ (37.50 per cent), and ‘E-Connectivity.

Furthermore, slightly above one-tenth (16.25 per cent) of the farm scientists ‘never’ used ‘E- Connectivity’, followed by ‘internet’ (8.75 per cent).

Among the nine sources of information used by farm scientists, it was observed that most of the farm scientists used Newspapers, University Diary, Internet, Agril. Magazines and Television.

4.1.14 Mass media exposure

The data regarding mass media exposure of farm scientist‘s are presented in Table 15.

Table15. Distribution of farm scientists according to mass media exposure

Sl. No.	Mass media exposure	Response (N=80)	
		Frequency	Percentage
1.	Low (Upto 21)	13	16.25
2.	Medium (22 to 25)	51	63.75
3.	High (26 and above)	16	20.00
	Mean : 23 Total	**80**	**100.00**

It is seen from Table 15 that, more than three-fifth (63.75 per cent) of the farm scientists had ‘medium’ level of mass media exposure, whereas, 20.00 per cent of the farm scientists had ‘high’ mass media exposure, and 16.25 per cent of the farm scientists had ‘low’ mass media exposure. The average mass media exposure score of the farm scientists was 23 which indicate their medium level of mass media exposure.

It is clear that, most of the farm scientist had sufficient exposure to various mass media which might have influenced their day to day working performance.

The findings of this study are consistent with the findings of Mahadik (1993), Sankhe (2000), and Bagul et al., (2002).

However the findings of this study are dissimilar with the finding of Tarde (1986)

4.1.15 Organizational climate

The data regarding perception of the farm scientist‘s about organizational climate are presented in Table 16.

Table 16. Distribution of farm scientists according to their organizational climate

Sl. No.	Organizational climate	Response (N=80)	
		Frequency	Percentage
1.	Poor (Upto 26)	20	25.00
2.	Fair (27 to 32)	32	40.00
3.	Good (33 and above)	28	35.00
	Mean : 30 Total	**80**	**100.00**

It is noticed from Table 16 that, in the opinion of less than half (40.00 per cent) of the farm scientists, the Organizational climate is ‘fair’, while 35.00 percent of the farm scientist opined that the organizational climate was ‘good’, and one-forth (25.00 per cent) of the farm scientist rated the organizational climate as ‘poor’.

The finding shows that the organizational climate is fair. This indicates that the organizational climate needs more improvement so as to enable farm scientists to increase their job performance.

The finding of this study is in line with the findings of Pawar (2002),

However, the findings are dissimilar to the findings of Rathakrishnan and Ravichandran (1995), and Rao (2002)

4.1.16 Infrastructural facilities

The data regarding the availability of infrastructural facilities at the various Krishi Vigyan Kendras are presented in Table 17.

Table17. Distribution of farm scientists according to their infrastructural facilities

Sl. No.	Mass media	Response (N= 80)

		Yes	No
1.	Administrative building	70 (83.75)	10 (16.25)
2.	Training hall	72 (91.25)	8 (8.75)
3.	Instructional farm	79 (90.00)	1 (10.00)
4.	Farmers Hostel	53 (66.25)	27 (33.75)
5.	Exhibition gallery	51 (63.75)	29 (36.25)
6. a)	Demonstration Units Poultry	50 (62.5)	30 (37.50)
b)	Diary	30 (37.50)	50 (62.5)
c)	Mushroom	7 (8.75)	73 (91.25)
d)	Goat	58 (72.50)	22 (27.50)
e)	Azolla	54 (67.50)	26 (32.50)
f)	Biofertilizers	21 (26.25)	59 (73.75)
g)	Soil testing lab	59 (73.75)	21 (26.25)
7.	Plant health clinic	26 (32.50)	54 (67.50)
8.	E-connectivity	58 (72.50)	22 (27.50)
9.	Community radio station	9 (11.25)	71 (88.75)
10.	Conference hall	50 (62.50)	30 (37.50)
11.	Computers/Laptops	80 (100.00)	0 (0.00)
12.	Internet	76 (95.00)	4 (5.00)
13.	Vehicle(four/two wheels)	78 (97.50)	2 (2.50)
14.	Kisan mobile advisory	68 (85.00)	12 (15.00)
15.	Video Conference	14 (17.50)	66 (82.50)

(Figures in the parenthesis indicate percentages)

Table 17 shows that, all (100.00 per cent) of the farm scientist had ‘computers’ facilities, this was followed by ‘vehicles’ (97.50 per cent), ‘internet’ (95.00 per cent), ‘training hall’ (91.25 per cent), ‘instructional farm’ (90.00 per cent), ‘kisan mobile advisory’ (85.00) and ‘administrative building’ (83.75 per cent).

Further it was also noticed that most (91.25 per cent) of the farm scientists reported no ‘mushroom unit’ in their KVKs. This was followed by ‘community radio station’ (88.75 per cent), ‘video conference’ (82.50 per cent), ‘bio-fertilizer unit’ (73.75 per cent), ‘plant health clinic’ (67.50 per cent) and ‘diary’ (62.50 per cent).

On the whole, this observation shows that an average infrastructural facility is available at the various KVKs, eventhough, improvement has to be made to ensure that those facilities which are absent are to be provided to enable the farm scientist to carry out their job most effectively and efficiently.

Job performance of farm scientists

An attempt was made in this study to assess the performance of farm scientists. This was done by using the scale developed by Gupta, Chandargi and Sundra Swamy (2004). So also, data in this regard were analysed to understand the frequencies in performing specific job items as perceived by the farm scientists. The findings in this regard are presented in this part.

4.1.2 Job performance of farm scientists

The data regarding job performance of the farm scientist‘s are presented in Table 18.

Table 18. Distribution of farm scientists according to their Job performance

Sl. No.	Job performance	Response (N=80)	
		Frequency	Percentage
1.	Low (Upto 65)	16	20.00
2.	Medium (66 to 83)	60	75.00
3.	High (84 and above)	4	5.00
	Mean : 30 Total	**80**	**100.00**

It is revealed in Table 18 that, majority (75.00 per cent) of the farm scientist had ‘medium’ job performance, whereas one-fifth (20.00 per cent) of the farm scientists had a ‘low’ level of job performance and only 5.00 per cent of the farm scientist had a ‘high’ level of job performance.

It is noticed from the results that, majority of the farm scientists belonged to ‘medium’ level of job performance. Therefore the performance of the farm scientists can be improved to a high level for benefit of farming community.

The findings of this study are in line with the findings of Janardhana (1979), Dakhore and Bhilegaonkar (9187), Bharadwaj *et al*., (1989), Hegde and Channegowda (1989), and Bagul (2002).

The findings are not in line with the findings of Shinge (1986), Rahad *et al*., (1995) and Ingle *et al*., (2000).

4.2.2 Frequency in performing the specific job item

The data regarding frequency in performing the specific job item are presented in Table 19.

The result presented in Table 19, clearly indicate that, majority of the farm scientists more frequently performed job items like ‘Seeking help in solving immediate problems in the field’ (71.25 per cent), ‘Taking technology from researchers to conduct farm trials in farmers’ field’ (71.25 per cent), ‘Looking for field problems faced by farmers for which there is no technology and helping researchers to design programme in need based manner’ (67.50 per cent), ‘Seeking guidance in action plan meeting from scientists in properly laying out the demonstrations/farm trials’ (67.50 per cent), ‘helping scientists in formulating messages based on agro-climatic situation and farmers local needs in monthly workshops’ (66.25 per cent).

The job items like ‘Seeking scientific information from scientists to prepare extension literature and publish in the form of leaflets, folders, farm magazines, pamphlets etc.’ (42.50 per cent), ‘Receiving in service training/refresher courses meant for the field extension workers in areas such as IPM practices, agro forestry, sustainable agriculture etc.’ (41.25 per cent), ‘Discuss field problems and finalize crop wise production recommendation with scientists in Research and Extension Council meetings’ (36.25 per cent) and ‘Seeking help in testing a new promising practice under resource constraints and abilities of the farmers’ (36.25 per cent) were performed frequently by more than one-third of the farm scientists.

Table 19. Frequency of performing specific job item as perceived by farm scientists

Sl. No.	Statements	Frequency of job performance (N = 80)			
		More Frequently	Frequently	Occasionally	Never
A	**Knowledge Building and communicator**				
1	Helping scientist in formulating messages based on agro-climatic situation and farmers local needs in monthly workshops.	53 (66.25)	16 (20.00)	11 (13.75)	–
2	Assisting researchers by providing feedback in monthly workshops and getting early solutions to field problems faced by the farmers.	48 (60.00)	23 (28.75)	9 (11.25)	–
3	Help in identifying constraints and training need areas on various aspects of crop production.	51 (63.75)	23 (28.75)	5 (6.25)	1 (1.25)
4	Discuss field problems and finalize crop wise production recommendation with scientists in Research and Extension Council meetings.	33 (41.25)	29 (36.25)	15 (17.75)	3 (3.75)
5	Presenting results of farm trials in Research and Extension Council meetings. Meeting of every stage and help in finalizing the particular crop variety for release.	35 (43.75)	21 (26.25)	15 (18.75)	9 (11.25)
6	Assisting research workers to oversee problems and monitoring pests and diseases by providing relevant data during joint field visits.	37 (46.25)	22 (27.50)	11 (13.75)	10 (12.50)
B	**Help seeking**				
1	Seeking help in testing a new promising practice under resource constraints and abilities of the farmers.	43 (53.75)	29 (36.25)	5 (6.25)	3 (3.75)
2	Seeking guidance in action plan meeting from scientists in properly laying out the demonstrations/farm trials.	54 (67.50)	20 (25.00)	5 (6.25)	1 (1.25)
3	Taking help in getting the exhibits, specimen etc. from the scientists.	38 (47.50)	26 (33.50)	14 (17.50)	2 (2.50)

4	Seeking help in solving immediate problems in the field	57 (71.25)	3 (3.75)	20 (25.00)	–
C	**Knowledge updating**				
1	Receiving training on practical aspects of advanced crop production technology of kharif and rabi seasons.	42 (52.50)	27 (33.75)	10 (12.50)	5 (6.25)
2	Receiving in service training/refresher courses meant for the field level extension workers in areas such as IPM practices, agro forestry, sustainable agriculture etc.	29 (36.25)	33 (41.25)	17 (21.25)	1 (1.25)
D	**Facilitator**				
1	Acting as facilitator in ensuring farmers' participation in several university extension programmes like Krishi Mela, Agril. exhibition, workshop etc.	44 (55.00)	24 (30.00)	12 (15.00)	–
2	Acting as a facilitator in conduct of farm trials.	52 (65.00)	22 (27.50)	4 (5.00)	2 (2.50)
E	**Information seeking**				
1	Seek relevant information from scientists through media namely, radio broadcast, T.V programme, attending phone calls and by reading literature published by scientists	49 (61.25)	23 (28.75)	8 (10.00)	–
2	Seeking scientific information from scientists to prepare extension literature and publish in the form of leaflets, folders, farm magazines, pamphlets etc.	43 (53.75)	34 (42.50)	3 (3.75)	–
F	**Technology Development**				
1	Looking for field problems faced by farmers for which there is no technology and helping researchers to design programme in need based manner	54 (67.50)	17 (21.25)	7 (8.75)	2 (2.50)
2	Helping researchers to choose thrust areas for research which reflect the problem of majority of farmers.	44 (55.00)	26 (32.50)	9 (11.25)	1 (1.25)
3	Taking technology from researchers to conduct farm trials in farmers' fields.	57 (71.25)	15 (18.75)	6 (7.50)	2 (2.50)
4	Seek technology guidance while conducting farm trials	51 (63.75)	25 (31.25)	3 (3.75)	1 (1.25)
5	Presenting results of the farm trials laid out at various locations in the farmers field in Research and Extension Council meetings	45 (56.25)	24 (30.00)	7 (8.75)	4 (5.00)
6	Discussing with the researchers about results and come to consensus for recommendation	43 (53.75)	23 (28.75)	13 (16.25)	1 (1.25)

	of technology after considering reaction of the farmers				

(Figures in the parenthesis indicate percentages)

Furthermore, job items like 'Receiving in service training/refresher courses meant for the field extension workers in areas such as IPM practices, agro forestry, sustainable agriculture etc' (21.25 per cent), 'Seeking help in solving immediate problems in the field' (25.00 per cent), 'Presenting results of farm trials in Research and Extension Council meetings. Meeting of every stage and help in finalizing the particular crop variety for release'(18.75 per cent), 'Discuss field problems and finalize crop wise production recommendation with scientists in Research and extension Council meetings' (17.75 per cent), and 'Taking help in getting the exhibits, specimen etc. from the scientists' (17.50 per cent) were performed occasionally.

On the other hand job items like 'Assisting research workers to oversee problems and monitoring pests and diseases by providing relevant data during joint field visits' (12.50 per cent), 'Presenting results of farm trials in Research and Extension Council meetings. Meeting of every stage and help in finalizing the particular crop variety for release' (11.25 per cent), 'Receiving training on practical aspects of advanced crop production technology of kharif and rabi seasons' (6.25 per cent) and 'Presenting results of the farm trials laid out at various locations in the farmers field in Research and Extension Council meetings' (5.00 per cent) were not at all performed by the farm scientists.

4.2 Correlates of job performance

The farm scientist in the KVK's are change agents charged with the responsibility of bringing a desirable positive change in the rural communities in which they work. Their job performance is therefore very crucial. Their performance is affected by several factors. In the present study, therefore, relationship between age, education, marital status, family background, working experience, training received, number of publication, mass media exposure and organizational climate, of the farm scientists was tested with their job performance by computing the correlation coefficient. The relationships in the form of correlation coefficient (r) are presented and discussed in this part

4.3.1 Correlates of Job performance

Relationship between the personal and professional profile of farm scientists and the extent of job performance are shown in Table 20.

Table 20. Relationship between the personal and professional profile of farm scientists and the extent of job performance.

Sl. No.	Independent Variable	Variable Code	Correlation coefficient
1.	Age	X1	0.254065*
2.	Education	X2	0.160591 ^{NS}
3.	Marital status	X3	0.202323 ^{NS}
4.	Family background	X4	-0.01336 ^{NS}
5.	Experience	X5	0.11976 ^{NS}
6.	Training received	X6	-0.13419 ^{NS}
7.	Number of publications	X7	0.222502 *
8.	Mass media exposure	X8	0.354737**
9.	Organizational climate	X9	0.201032 ^{NS}

* Significant at 0.05 level ** Significant at 0.01 level, ^{NS} Non significant

It is seen from Table 20 that, the relationship between dependent variable job performance (Y) and independent variable viz., mass media exposure (X_8) was positive and significant at 1.00 percent level, while age (X_1) and number of publications (X_7) was positive and significant at 5.00 per cent level of probability. The variables namely education(X_2), marital status(X_3), family background (X_4), experience (X_5), training received (X_6) and Organizational climate (X_9) were non significantly correlated with job performance of the farm scientists. The relationships presented in Table 22 are discussed hereunder.

4.3.1.1 Age and job performance

Age (X_1) was significantly associated with job performance (Y) of the farm scientists. Its contribution to the variation in the extent of job performance was significant. This may be attributed to increase involvement of individuals to their job.

The finding of this study is in line with Kherde and Sahay (1979), Nikhade and Kitey (1984), Patel *et al*. (1994) and Bagul (2002).

However, the finding of this study is dissimilar with the finding of Veerbhadraiah (1981), Shinge (1986), Rayapareddy and Jayaramaiah (1989).

4.3.1.2 Education and job performance

It can be seen from the data presented in Table 20 that, association between education (X_2) and the job performance (Y) of farm scientists was non-significant. It means that the education of the farm scientists did not influence their job performance.

The farm scientist in the selected KVK's had similar educational qualifications therefore, any correlation might not have been established between educational qualification and the job performance of farm scientists.

The findings are similar to the finding of Veerabhadraiah (1981), Reddy (1982), Talukdar (1984), Jhansi (1985), Murthy and Somasundaram (1989).

However, the finding of this study is not in line with the findings of Shinge (1986) and Bagul (2002).

4.3.1.3 Marital status and job performance

It was observed from the data presented in Table 20 that, association between marital status (X_3) and the job performance (Y) of farm scientists was non-significant. This study shows that marital status had no impact on job performance of the farm scientists.

Majority of the farm scientists were married and so this attribute was homogenous to make any significant difference in their job performance.

4.3.1.4 Family background and job performance

It was observed from the data presented in Table 20 that, association between family background (X_4) and the job performance (Y) of farm scientists was negatively non-significant. This study shows that family background had no impact on job performance of the farm scientists.

Most of the farm scientist had a rural background, this might have created some form of homogeneity led to the non significant relationship between these two variables.

4.3.1.5 Experience and job performance

Result presented in Table 20 revealed that, association between experience (X_5) and the job performance (Y) of farm scientists was non-significant. This study shows that experience had no impact on job performance of the farm scientists.

This finding is similar to the findings of Kherde and Sahay (1979), Veerbhadraiah (1981), Talukdar (1984), and Chodhary *et al*. (1989).

However this study was not in line with the findings of Nikhade and Kitey (1984), Shinge (1986), and Bagul (2002).

4.3.1. 6 Training received and job performance

It was observed from the data presented in Table 20 that, association between training received (X_6) and the job performance (Y) of farm scientists was negatively non-significant. This study shows that training received, had no impact on job performance of the farm scientists. Training is very essential for improving the skills of farm scientist for better job performance.

4.3.1. 7 Number of publications and job performance

The data presented in Table 20 shows that, association between number of publications (X_6) and the job performance (Y) of farm scientists was found to be positive and significant at 0.05 level of probability. This study shows that number of publications had a significant impact on job performance of the farm scientists. Publication is very much important in the scientific world, various innovations or technologies generated by farm scientist need to be published as means of dissemination, and this might have influenced their job performance.

4.3.1. 8 Mass media exposure and job performance

Table 20 revealed that, association between mass media exposure (X_8) and the job performance (Y) of farm scientists was positively significant at 0.01 level of probability. This study shows that mass media exposure had impact on job performance of the farm scientists. As farm scientist, they need a lot of information to increase their knowledge and updated themselves about current and emerging issues. Mass media exposure is therefore very important in improving the job performance of farm scientists.

This finding is similar to the findings of Reddy (1982), Shivalingegowda (1985) and Bagul (2002).

However, the finding is dissimilar to the finding of Hegde and Channegowda (1989).

4.3.1.9 Organizational climate and job performance

It was observed from the data presented in Table 20 that, association between organizational climate (X_9) and the job performance (Y) of farm scientists was non-significant. This means that the job performance of farm scientists was no way dependent on the organizational climate perceived by them.

4.4 Type of Transfer of Technology activities conducted by farm scientists

The transfer of technology from its source to beneficiaries, and the manner in which they are transferred or disseminated is very important. This is because the adoption of the technology to a greater extent depends on the way they are transferred. In this regard, an attempt was made to examine the type of transfer of technology activities conducted by farm scientists. Results obtained are presented in this part.

4.4.1 Transfer of Technology activities

The data regarding the transfer of technology activities conducted by farm scientists are presented in Table 21.

It is seen from Table 21 that, majority (97.50 per cent) of the farms scientist reported that they ‘always’ conduct training, this was followed by ‘frontline demonstration’ (93.75 per cent), ‘on farm trials’ (91.75 per cent), ‘group discussions’ (91.25 per cent), ‘adoption of farm families’ (86.25 per cent), ‘agricultural exhibition’ (82.50 per cent), and ‘diagnostic visit’ (81.25 per cent).

It was also observed that more than half (52.50 per cent) of the farm scientists reported that they ‘sometimes’ participated in ‘T.V. programmes’, this was followed by ‘radio talk’ (48.75 per cent), ‘technology week’ (46.25 per cent), and ‘kisan mela’ (40.00 per cent).

Table 21. Distribution of farm scientists according to their transfer of technology activities.

Sl. No.	Type of TOT activity	Extent of activities carried out (N=80)		
		Always	Sometimes	Never
1	Frontline Demonstration (FLDs)	75 (93.75)	2 (2.50)	3 (3.75)
2	Training	78 (97.50)	0 (0.00)	2 (2.50)
3	On farm trials (OFTs)	73 (91.25)	3 (3.75)	4 (5.00)
4	Adoption of farm families/Village	69 (86.25)	9 (11.25)	2 (2.50)
5	Agri. Exhibition	66 (82.50)	14 (17.50)	0 (0.00)
6	Campaign	52 (65.00)	26 (32.50)	2 (2.50)
7	Group discussion	73 (91.25)	5 (6.25)	2 (2.50)
8	Diagnostic visit	65 (81.25)	14 (17.50)	1 (1.25)
9	Radio Talk	39 (48.75)	39 (48.75)	2 (2.50)
10	T.V. programmes	19 (23.75)	42 (52.50)	19 (23.75)
11	Kisan Mela	40 (50.00)	32 (40.00)	8 (10.00)
12	Technology week	41 (51.25)	37 (46.25)	2 (2.50)
13	Kisan mobile Advisory	62 (77.50)	17 (21.25)	1 (1.25)
14	Field day	55 (68.75)	23 (28.75)	2 (2.50)

(Figures in the parenthesis indicate percentages)

However, more than two-fifth (23.75 per cent) of the farm scientists reported that they ‘never’ got chance to participate in ‘T.V. programmes’, this was followed by ‘kissan mela (10.00 per cent).

Findings from this study clearly revealed that majority of the farm scientists were involved in frontline extension activities in their respective KVKs, this might have helped them in better job performance.

4.4.2 Externally funded projects

The data regarding the association with externally funded projects is presented in Table 22.

Table 22. Distribution of farm scientists according to their association with externally funded projects

Sl. No.	Externally funded project	Response (N=80)	
		Frequency	Percentage
1.	Yes	50	62.50
2.	No	30	37.50
	Total	**80**	**100.00**

The data in Table 22 revealed that, majority (62.50 per cent) of the farm scientist were associated with externally funded projects whereas 37.50 per cent of the farm scientists were not associated with externally funded projects.

The findings of this study indicated that majority of the farm scientists get funds from external agency to carry out their activities. This might have helped them to take up more number of activities.

4.4.3 Major projects

The data regarding the type of externally funded projects in which farm scientists were associated are presented in Table 23.

It is seen from Table 23 that, less than one-tenth (7.50 per cent) of the farm scientists reported to be associated with RKVY projects, followed by ‘milk processing project’ (5.00 per cent), ‘fruit nursery project’ (3.75 per cent), ‘YCMOU study centre project’ (3.75 per cent), and ‘Goat improvement research project’ (2.50 per cent), ‘Soil health improvement project’ (2.50 per cent), ‘National initiative on fodder demonstration project’ (2.50 per cent), ‘Agro meteo rology project’(2.50 per cent), and ‘Azolla production demonstration Project.

Table 23. Distribution of farm scientists according to the type of project

Sl. No.	A. Major externally funded projects	Response (N=80)	
		Frequency	Percentage
1.	Rashtriya Krishi Vikas Yojana (RKYV)	6	7.50
2.	Milk processing project	4	5.00
3.	Goat improvement research project	2	2.50
4.	Soil health improvement project	2	2.50
5.	Fruit nursery project	3	3.75
6.	National initiative on fodder demo. project	2	2.50
7.	YCMOU study centre project	3	3.75
8.	Agro meteorology project	2	2.50
9.	Azolla production cum demonstration Project	2	2.50
	B. Funding Agency	**Frequency**	**Percentage**
1.	Agricultural Technology Management Agency (ATMA)	26	32.50
2.	National Bank for Agriculture and Rural Development (NABARD)	12	15.00
3.	State Dept. of Agriculture	11	13.75
4.	Indian Farmers Fertilizer Cooperative Ltd. (IFFCO)	4	5.00
5.	Indian Council of Agricultural Research (ICAR)	3	3.75
6.	National Horticulture Mission (NHM)	4	5.00
7.	National Agricultural Technology Project (NATP)	3	3.75
8.	Non Governmental Organization (NGO)	2	2.50

Among the funding agencies for the various project implemented in the KVK's, revealed that nearly one-third (32.50 per cent) of the farm scientist stated 'ATMA' as a major funding agency, followed by 'NABARD' (15.00 per cent), 'State Department of Agriculture' (13.75 per cent), 'IFFCO' (5.00 per cent), 'NHM' (5.00 per cent), 'ICAR'

(3.75 per cent), ‘NACP’ (3.75 per cent), and ‘Non Governmental Organizations’ (2.50 per cent).

The findings of this study revealed that less than one tenth of the farm scientist were associated with externally funded projects and they get funds from them to carry out their programmes. This indicated need of an increased support with regards to the availability of funds to farm scientists for their work.

4.4.4 Linkages of KVK’s

The data regarding the linkages of KVK’s are presented in Table 24.

Table 24. Distribution of farm scientists according to source and type of linkage

Sl. No.	Type of linkage	Response (N=80)	
		Frequency	Percentage
	Department of Agriculture		
1.	Funds for training	16	20.00
	Extension service	3	3.75
	Provision of input	2	2.50
	Transfer of technology	2	2.50
2.	**Agricultural Technology Management Agency (ATMA)**		
	Organizing training	23	28.75
	Funds for exposure visit	8	10.00
	Extension service	5	6.25
	Demonstration	14	17.50
3.	**Indian Council of Agricultural Research (ICAR)**		
	Funds for infrastructural development	14	17.50
	Technical assistance/guidance	11	13.75
	Frontline demonstrations	2	2.50
	Organizing training	13	16.25
	Soil testing	2	2.50
4.	**State Agricultural Universities (SAUs)**		
	Technical assistance	15	18.75
	Organizing training	6	7.50
	Transfer of technology	5	6.25

	Provision of employee	4	5.00
5.	**Panchayat Raj Institutions (PRIs)**		
	Technical assistance about scheme	5	6.25
	Extension service	2	2.50
	Organizing training	2	2.50
6.	**Doordarshan**		
	Publicity & broadcasting of Agril. Programmes	16	20.00
7.	**Non Governmental Organizations (NGOs)**		
	Organizing training	15	18.75
	Extension service	12	15.00
	Funds for demonstrations	6	7.50

The data in Table 24 reveal that, one-forth (20.00 per cent) of the farm scientists reported had 'training friends' linkage with Department of Agriculture while 3.75 per cent of the farm scientist reported they had 'extension service 'linkage' and 2.50 per cent each of the farm scientist stated they had 'input provision' and 'TOT' linkages with the Department of Agriculture.

The findings show that more than one-forth (28.75 per cent) of the farm scientists had 'training' linkage with ATMA, this was followed by 'funds' (10.00 per cent), 'demonstrations' (10.00 per cent) , 'technical assistance' (7.50 per cent), 'extension service' (6.25 per cent), and 'input provision' (3.75 per cent).

Results also show that provision of 'funds' (17.50 per cent), 'training' (16.25 per cent), 'technical assistance' (10.00 per cent), and 'provision of guidelines' (3.75 per cent) were major linkages which farm scientists had with ICAR.

It is observed that 'technical assistance' (18.75 per cent), 'training' (7.50 per cent), 'transfer of technology' (6.25 per cent), and 'employee' (5.00 per cent) were major linkages that farm scientist had with State Agricultural Universities.

It was revealed that farm scientist had 'technical assistance' (6.25 per cent), 'extension service' (2.50 per cent) and 'training' (2.50 per cent) linkages with PRIs.

Findings also revealed that Duordorshan had only ‘publicity and broadcasting’ of agricultural programmes’ (20.00 per cent) linkage with farm scientists.

It can be seen that close to one-fifth (18.75 per cent) of the farm scientists had ‘training’ linkage with NGO’s, this was followed by ‘technical assistance’ (11.25 per cent), ‘extension service’ (5.00 per cent), ‘funds’ (3.75 per cent) and ‘demonstrations (2.50 per cent).

The findings of this study show that less than one-third of the farm scientists reported having linkages with various organizations. These linkages should be extended to other farm scientists to increase their job performance.

4.4.5 Category of people targeted

The information regarding the category of people targeted for frontline extension activities is presented in Table 25.

Table 25. Distribution of farm scientists according to the category of people targeted

Sl. No.	Category of people	Response (N=80)	
		Frequency	Percentage
1.	Women	2	2.50
2.	Men	1	1.25
3.	Youth	2	2.50
4.	Disabled	2	2.50
5.	All categories	73	91.25
	Total	**80**	**100.00**

It is observed from Table 25 that majority (91.25 per cent) of the farm scientists had targeted ‘all categories’ of people in the implementation of KVK programmes. An equal proportion of less than one-tenth (2.50 per cent) each of the farm scientist had targeted ‘women’, ‘youths’ and disabled and 1.25 per cent of the farm scientists had targeted men.

The findings of this study clearly revealed that the farm scientists are not bias or specifically in favour of some category of people in the implementation of their programmes but have targeted all categories of people. This is essential for reaching a large group of beneficiaries.

4.4.6 Method of communication

The data regarding the method of communication used in frontline extension activities is presented in Table 26.

It is revealed in Table 26 that, more than four-fifth (87.00 per cent) of the farm scientists had used ‘all the methods’ for communication, and while less than one-tenth (6.25 per cent) of the farm scientists had used ‘group’ method for communication while 5.00 per cent of the farm scientist found using ‘individual’ method and 1.25 per cent of the farm scientists followed ‘mass media’.

Table 26. Distribution of farm scientists according to the method of communication.

Sl. No.	Method of communication used	Response (N=80)	
		Frequency	Percentage
1.	Individual	4	5.00
2.	Group	5	6.25
3.	Mass media	1	1.25
4.	All the methods	70	87.50
	Total	**80**	**100.00**

The findings of this study shows that majority of the farm scientists had used all the methods for communication. This means, they had used a combination of these methods which is essential for the implementation of KVK programmes. This might have helped farm scientists for desiring transfer of technology work at higher scale.

4.5. Constraints faced by farm scientists in the implementation of KVK programmes.

An attempt was made in the present study to understand the constraints faced by farm scientists in performing their job. The farm scientists were therefore requested to state the constraints faced by them in the implemtation of the KVK programmes. The data generated are presented in this part.

4.5.1 Constraints faced by farm scientists in the implementation of KVK programmes.

The findings pertaining to the constraints faced by farm scientists are shown in Table 27.

The results presented in Table 27 clearly indicated that, ‘Lack of funds for maintenance of institutional farms’ (68.75 per cent), ‘Lack of suitable infrastructural facilities’ (50.00 per cent), ‘Vacant posts not filled in time’ (47.50 per cen t), ‘Inadequate transportation facilities’ (45.00 per cent), ‘High cost and non availability of inputs’ (42.50 per cent) and ‘Lack of peoples participation’ (40.00 per cent) were major constraint faced by the farm scientists in their job performance.

Table 27. Constraints experienced by farm scientists in effectively performing their job.

Sl. No.	Constraints	Respondents (N=80)	
		Frequency	Percentage
1.	Lack of funds for maintenance of institutional farms	55	68.75
2.	Vacant posts not filled in time	38	47.50
3.	Inadequate transportation facilities	36	45.00
4.	Lack of suitable infrastructural facilities	40	50.00
5.	Bureaucracy in disbursing funds	28	35.00
6.	Lack of promotional avenues	25	31.25
7.	High cost and non availability of inputs	34	42.50
8.	Lack of peoples participation	32	40.00
9.	Lack of facilities for field work	30	37.50
10.	Irregularities in payment of salaries	18	22.50
11.	Frequent transfer of staff members	26	32.50
12.	Lack of coordination	15	18.75

Furthermore, ‘Lack of facilities for field work’ (37.50 per cent), ‘Bureaucracy in disbursing funds’ (35.00 per cent), ‘Frequent transfer of staff members’ (32.50 per cent), ‘Lack of promotional avenues’ (31.25 per cent), ‘Irregularities in payment of salaries’ (22.50 per cent), and ‘Lack of coordination’ (18.75 per cent) were other constraints reported by farm scientists.

These findings are similar to the findings of Perinbam (1981), Vasoya and Halyal (1982), Nikhade and Kitey (1984), Thakur (1987), Singh and Roy (1991), Prabukumar and Veerabhadraiah (1998), Ashalatha *et al*., (1999) and Bagul (2002).

4.5.2 Suggestions of the farm scientists for overcoming the constraints in transfer of technology

The suggestions offered by farm scientists to overcome the constraints faced by them in implementing various programmes are presented in Table 28.

Table 28. Suggestions of the farm scientists for overcoming the constraints in implementing their programmes

Sl. No.	Suggestions	Respondents (N=80)	
		Frequency	Percentage
1.	Release of funds well in advance by ICAR	48	60.00
2.	Provision of field staff to all discipline	36	45.00
3.	Provision of transportation facilities	30	37.50
4.	Incentives to KVK staff in terms of promotion	28	35.00
5.	Provision of funds for infrastructural facilities	36	45.00
6.	Proper and regular linkage with research scientists	45	56.25
7.	ICAR must update KVK's regularly	34	42.50
8.	Revolving fund to all KVKs	22	27.50

It is observed in Table 28 that, three-fifth (60.00 per cent) of the farm scientist suggested 'release of funds well in advance by ICAR', this was followed by 'proper and regular linkage with research scientists' (56.25 per cent), provision of field staff to all discipline (45.00 per cent), 'Provision of funds for infrastructural facilities' (45.00 per cent) and 'ICAR must update KVK's regularly' (42.50 per cent).

Furthermore, 'provision of transportation facilities' (37.50 per cent), 'Incentives to KVK staff in terms of promotion' (35.00 per cent), ' and 'revolving fund to all KVKs' (27.50 per cent) were other suggestions made by farm scientist in overcoming the problem face by them in performing their job.

The results are in line with that of Rao (1985), Shinge (1986), Bharadwaj and Sharma (1990), Singh and Roy (1991), Prabukumar and Veerabhadraiah (1998), Ashaletha *et al*., (1999) and Bagul (2002).

CHAPTER V

SUMMARY

Krishi Vigyan Kendra is an innovative science based institution which functions on the principles of collaborative participation of scientists, subject matter experts, extension workers and farmers. The Krishi Vigyan Kendras are the grass root level technology transfer and vocational training institutions designed for bridging the gap between the available technologies at one end and their application for increasing production on the other. All farm scientists in KVK's may not be equally effective and efficient in performing their duties. It is considered that quality and quantity of performance may be by and large, a function of the organizational climate, personal and social qualities and dedicated attitude of the personnel engaged in the organization. A farm scientist who has improper background, inadequate training, deficient in knowledge and skills may have a poor job performance. It was therefore, thought appropriate to assess as to how effectively the farm scientists of KVK perform their job in such conditions and what problems do they experience while doing their job. With these considerations, the present study entitled 'Job performance of KVK farm scientists was undertaken.

5.1 Personal and professional profile of farm scientists

5.2 Job performance of farm scientists

5.3 Correlates of job performance

5.4 TOT activities conducted by farm scientists

5.5 Constraints faced by farm Scientists in discharging their duties

5.6 Suggestions for overcoming barriers

The study was conducted in Maharashtra State. A total number of 20 KVK's were randomly selected from a list of 44 KVK's. Questionnaires were sent by post to twenty KVKs (10 SAU and 10 NGO). The first 80 Questionnaires received were considered as respondents for this study.

A total number of seven questionnaires were packaged, addressed to the programme coordinator and posted by courier to each of the selected KVK's in Maharashtra State. Questionnaires were filled by the farm scientists and returned to the researcher via post. Key informant interviews were done with the programme coordinators of some KVKs to ensure that some relevant information was collected which may be difficult to obtain by using the questionnaire. For testing the job

performance of the farm scientist, twenty two job items were included in the questionnaire. The relationship between the independent and dependent variables was ascertained by computing the correlation coefficient (r).

The findings of the present study are summarized below.

5.1 Personal and professional profile of farm scientists

The study revealed that, more than three-fifth (61.25 per cent) of the farm scientists belonged to the 'middle' age category and mean age of the farm scientist was 38 years. More than three-fifth (68.75 per cent) of the farm scientists were 'Master holders' and Majority (95.00 per cent) of the farm scientists were 'married'.

Most (75.00 per cent) of the farm scientist had 'rural' background and four-fifth (80.00 per cent) of the farm scientists were 'Subject Matter Specialists' and more than half (57.50 per cent) of the farm scientists had 'medium' working experience. The average year of working experience of the farm scientist was 10 years.

More than four-fifths (83.75 per cent) of the farm scientists belong to the 'medium' income level and average annual income of KVK farm scientists was Rs. 6, 27,188. Most (91.25 per cent) of the farm scientist had published 'popular articles' while 90.00 per cent had published 'bulletins' 83.75 per cent of the farm scientists had published 'research papers' and only 3.75 per cent of the farm scientist had published 'books'. In all KVK scientists had published 951 popular articles, 475 research papers, 432 technical bulletins and 5 books.

Majority (97.5 per cent) of the farm scientists 'always' used 'Newspapers' for acquiring information, 71.25 per cent 'sometimes' use 'Seminars' and only 16.25 per cent of the farm scientists 'never' used 'E- Connectivity'.

Among the nine sources of information used by farm scientists, it was observed that most of the farm scientists used Newspapers, University Diary, Agril. Magazines, Internet and Television. More than three-fifth (63.75 per cent) of the farm scientists had 'medium' level of mass media exposure and average mass media exposure score of the farm scientists was 23.

Forty per cent of the farm scientists reported that, the Organizational climate was 'fair'. With respect to it majority of them reported facilities like computer, internet, vehicles, training hall and instructional farm.

5.2 Job performance of farm scientists

The study revealed that, majority (75.00 per cent) of the farm scientist had 'medium' job performance and majority (71.25 per cent) of them more frequently performed job items like 'Seeking help in solving immediate problems in the field', 'Taking technology from researchers to conduct farm trials in farmers' field' (71.25 per cent), 'Looking for field problems faced by farmers for which there is no technology and helping researchers to design programme in need based manner' (67.50 per cent), 'Seeking guidance in action plan meeting from scientists in properly laying out the demonstrations/farm trials' (67.50 per cent), 'helping scientists in formulating messages based on agro-climatic situation and farmers local needs in monthly workshops' (66.25 per cent).

5.3 Correlates of job performance

Results pointed out that, the relationship between dependent variable, 'job performance' (Y) and independent variable viz., mass media exposure (X_8) was positive and significant at 1.00 percent level, while age (X_1) and number of publications (X_7) was positive and significant at 5.00 per cent level of probability. The variables namely education(X_2), marital status(X_3), family background (X_4), experience (X_5), training received (X_6) and Organizational climate (X_9) were non significantly correlated with job performance of the farm scientists.

5.4 TOT activities conducted by farm scientists

Majority (97.50 per cent) of the farms scientist reported that they 'always' conducted training and most (62.50 per cent) of the farm scientist were associated with externally funded projects.

Less than one-tenth (7.50 per cent) of the farm scientists reported to be associated with RKVY projects and nearly one-third (32.50 per cent) of the farm scientist stated 'ATMA' as a major funding agency.

It was revealed that one-forth (20.00 per cent) of the farm scientists reported they had 'training friends' linkage with Department of Agriculture whereas more than one-forth (28.75 per cent) of the farm scientists had also 'training' linkage with ATMA and 17.50 per cent reported having 'funding' linkage with ICAR.

Furthermore, it was observed that farm scientists had 'technical assistance' (18.75 per cent), with State Agricultural Universities, 'technical assistance about schemes' (6.25 per cent), linkage with PRIs, 'publicity' linkage with Duordorshan, 'training' linkage with NGO's, and training' linkage (6.25 per cent) with DRDA.

Majority (91.25 per cent) of the farm scientists had targeted ‘all categories’ of people in the implementation of KVK programmes. An equal proportion of less than one-tenth (2.50 per cent) each of the farm scientist had targeted ‘women’, ‘youths’ and disabled and only 1.25 per cent of the farm scientists had targeted men.

More than four-fifth (87.00 per cent) of the farm scientists had used ‘all the methods’ for communication while less than one-tenth (6.25 per cent) of the farm scientists had used ‘group’ method for communication, 5.00 per cent of the farm scientist found using ‘individual’ method and 1.25 per cent of the farm scientists followed ‘mass media’.

5.5 Constraints faced by farm scientists in implementation of KVK programme and their suggestions.

It was evident from the data presented that, ‘Lack of funds for maintenance of institutional farms’ (68.75 per cent), ‘Lack of suitable infrastructural fa cilities’ (50.00 per cent), ‘Vacant posts not filled in time’(47.50 per cent) ‘Inadequate transportation facilities’ (45.00 per cent), ‘High cost and non availability of inputs’ (42.50 per cent) and ‘Lack of peoples participation’ (40.00 per cent) were major constraints faced by the farm scientists in their job performance.

Three-fifth (60.00 per cent) of the farm scientist suggested for ‘release of funds well in advance by ICAR’, this was followed by ‘proper and regular linkage wit h research scientists’ (56.25 per cent), provision of field staff to all discipline (45.00 per cent), ‘Provision of funds for infrastructural facilities’ (45.00 per cent) and ‘ICAR must update KVK’s regularly’ (42.50 per cent).

CHAPTER VI

IMPLICATIONS

Krishi Vigyan Kendra's have made a significant contribution towards the development of the Agricultural sector and rural development in India. Ever since their establishment, KVKs have played effective role of technology transfer. In spite of the tremendous role played by Krishi Vigyan Kendras and further expectations needed from them, little studies have focused on Job performance of the farm scientists. Much has been done on impact assessment and evaluation of KVK programmes, ignoring their job performance. The present study assessed the job performance of farm scientists in Krishi Vigyan Kendras in Maharashtra state. The study has come out with some important implications that are listed hereunder.

1. The study brought out the personal and professional profile of the farm scientists, which indicate that they were experienced, qualified and majority of the farm scientists are within the middle age category which is very essential for their effective and efficient performance. However, with regards to few characteristics namely, training received, yearly income, and organizational climate, there is good scope to improve these traits. The Indian Council for Agricultural Research, State Agricultural Universities and other concerned departments will have to initiate actions to that end.

2. Most of the farm scientists had published research papers, popular articles and technical bulletins. This means that there was a satisfactory publication behaviour among them which influenced their job performance. They should be encouraged to continue in this direction.

3. Most of the farm scientists had an average mass media exposure, this means, their exposure to various sources of mass media such as New papers, University diary, internet, Agril. magazines, television, Agril. research journals, and newsletters for information input, should be improved

4. The findings of the study lead to conclude that the average farm scientists belong to 'medium' job performance category. It indicates that the distribution of farm scientist in different job performance level was normal. This calls for improvement in their job performance.

5. It was found out that the selected KVKs had a multi-disciplinary team of farm scientists. However some disciplines were absent due to some vacant positions. There is need to have all the disciplines at the KVKs to avoid deficiency in any discipline so that the need of the farming community can be addressed adequately.

6. More than 65 per cent of the farm scientists more frequently performed job items like ‘Seeking help in solving immediate problems in the field’, ‘Taking technology from researchers to conduct farm trials in farmers’ field’, ‘Looking for field problems faced by farmers for which there is no technology and helping researchers to design programme in need based manner’ , ‘Seeking guidance in action plan meeting from scientists in properly laying out the demonstrations/farm trials’ and ‘helping scientists in formulating messages based on agro-climatic situation and farmers local needs in monthly workshops’. For effective job performance, the farm scientists should be motivated to take up other items with higher frequency. Also, all the jobs are equally important, hence the farm scientists need to be convinced to perform these jobs more frequently and regularly.

7. The study has established that job performance of the farm scientists was certainly influenced by their personal profile and professional profile namely age, mass media exposure and number of publications. The authorities may make use of this to increase their job performance in KVKs.

8. Majority of farm scientists conducted various frontline activities such as training, frontline demonstrations, on farm trials, group discussions, adoption of farm families/village, Agril. exhibitions, diagnostic visit etc. Farms scientist should be encouraged to continue and increase their effectiveness and efficiency in performing these activities. They should also included other activities which have been neglected or given little attention but important.

9. The study has thrown light on number of constraints experienced by the farm scientists in performing their job. They themselves will have to make efforts to

solve these problems with the help of higher authorities and the service supply agencies.

10. The investigation has brought forward certain suggestions made by the farm scientists to increase efficiency in job performance, which need to be attended suitably by their superiors.