Training Needs of Scientists of Agricultural University

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ABSTRACT

Agricultural education is of utmost importance to a developing nation like India. At present each state is having State Agriculture University (SAU) which caters to the needs of agriculture education and produce professionally skilled manpower. Training is an indispensable instrument for human resource development at any level and cannot be ignored. Therefore, the present study was planned and undertaken with the objectives to study the personal and professional characteristics of agricultural scientists and their extent of training and to obtain their suggestions in planning training programme. The study was conducted in Post Graduate Institute, MPKV Rahuri. In all 120 respondents from 12 departments was the sample of the study. The study revealed that majority (51.66%) of the agricultural scientists expressed high level of training needs, while, 33.34 per cent expressed medium level of training needs. The findings indicate that out of five broad training areas viz., Teaching, Research, Extension and training, Administration and Human relations, Frontier areas of agriculture science the training content with highest training need index were Experiential learning methods (62.40%), Research project management techniques, monitoring and evaluation (52.60%), Impact assessment of training programme (60.00%), Performance based appraisal (42.90%) and Climate change (53.30%) respectively. It was observed that the variables like scientific orientation, contribution in publication, job involvement, and achievement motivation were having significant and positive correlation with the training needs.

Key words: Training needs; Agriculture education; Experiential learning;

Imagine the development of world without a good network system of training. Why training is so important? Training is an important process of capacity building of individuals so as to improve his performance in his endeavour. Training need assessment is vital to the training process. Need assessment helps to identify present problems and future challenges to be met through training and development. It is required to find out the needs of individual training on which they should build their professional competencies to carry out the assigned job in their organization.

Concept of training needs: Training need refers to difference between what is and what should be. Training need means difference between the current level of performance and desirable standards expected out of the personnel. If the knowledge, skills and values of a person are lower than desired level there is a definite need for training. Training need vary from people with different background. Hence, needs are ascertained with respect to different groups. Training needs should be expressed in terms of gaps in attitude, knowledge and skills. This is the foundation on which entire training rests.

Training is an indispensable instrument for human resource development at any level and cannot be ignored. The first and foremost activity for planning a good training programme is to assess the training needs. The scientists of agricultural university play a significant role in inventing new varieties of agricultural as well as horticultural crops and also develop the improved agricultural technologies. The problems in boosting the production of crops are not merely due to lack of new technology and physical resources but largely attributed to the lack of proper human resource development, management and skilled manpower.

Importance of training need analysis: Competency has become a buzzword in today's organizations. Every organization is hunting for a competent workforce that will drive it towards a better future so that it can attain better strategic goals. But the crux of the matter lies in the fact that with the passage of time this workforce

competency deteriorates and their skills become obsolete with the advent of technology. So, what's the solution to this malaise in organizations? The obvious choice is to train the scientists of agricultural university. In order to make training more meaningful and effective, the training needs of scientists have to be established prior to the training programme so that the subject matter areas of training could be determined on the basis of perceived needs of the scientists in agricultural university. Keeping this in view, the present study was undertaken with following objectives:

i. To assess the training needs of agril. scientists.
ii. To study the relationship of different characteristics of agricultural scientists and training needs.

METHODOLOGY

The present study was conducted in Post Graduate Institute, Mahatma Phule Krishi Vidyapeeth, Rahuri. Out of 15 departments of Post Graduate Institute 12 departments were selected randomly. Further from each department 10 respondents were selected on random basis. Hence, in all 120 respondents were considered for study purpose.

For this study different cadre of respondents *viz.,* Head of Department, Professor, Associate Professor, Assistant Professor, Senior Research Assistant, Junior Research Assistant were taken. Thus, total sample size was 120. The interview schedule was prepared in simple language in order to get appropriate and accurate information. The data was collected by interviewing respondents by the researcher. The information collected through interview was transferred to the primary tables and then to the secondary tables. Wherever necessary, the information of qualitative nature was converted into quantitative form. In this way the collected information was analyzed and tabulated. The *Karl Pearson's* coefficient of correlation (r) was used for computing the relationship between the selected independent and dependent variables.

The data on the training needs were collected by assigning on a three point scale as per Likeret technique i.e. most needed, somewhat needed and not needed. Scores of 3, 2, and 1 were allotted to them, respectively. Finally the Training Need Index (TNI) was calculated with help of following formula.

$$TNI = \frac{Total\ score\ obtain}{Maximum\ score\ obtainable} \times 100$$

RESULTS AND DISCUSSION

Training needs: The present study deals with the training needs of scientists. An attempt has been made to study the training needs of these scientists in various broad areas *viz.,* teaching, research, extension and training, administration and human relations and frontier areas of agricultural sciences. This data was collected and analyzed in the form of Training Need Index (TNI) and accordingly ranks were allotted.

Training needs of scientists in the area of teaching: The data on training needs of respondent scientists in the area of teaching are presented in Table 1.

Table 1. Training needs of scientists in the area of teaching

Training areas	TNI	Rank
Curriculum development	17.6	VII
Online learning/virtual learning	40.9	IV
Designing e-learning modules	44.1	III
Preparation and use of ICT based teaching material	51.4	II
Classroom management	35.5	V
Evaluation of teaching and learning	20.1	VI
Experiential learning methods	62.4	I

The data from Table 1 revealed the training needs of scientists in the area of teaching in the following order of ranking. Experiential learning methods (62.4)-first rank, Preparation and use of ICT based teaching material (51.4)-second rank, Designing e-learning modules (44.1)-third rank, Online learning/virtual learning (40.9)-fourth rank, Classroom management (35.5)-fifth rank, Evaluation of teaching and learning (20.1)-sixth rank and Curriculum development (17.6)-seventh rank.

The reforms that are being implemented in education probably might have lead majority of respondents to opt for training need on experiential learning methods. Further the use of computer in teaching is increasing day by day. Most of the respondents wanted to acquire recent advances in teaching. Hence, agricultural scientists may have preferred training needs on preparation and use of ICT based teaching material and designing e-learning module. This finding is supported with the findings of *Dobbins and Camp (2000).*

Training needs of scientists in the area of research: The data on training needs of respondent scientists in the area of research are presented in Table 2.

Table 2. Training needs of scientists in the area of research

Training areas	TNI	Rank
Research project management techniques	52.6	I
Participatory research methods	20.7	VI
Research project monitoring and evaluation	52.6	I
Commodity market research	11.6	VII
Participatory review techniques	39.1	IV
Critical path methods	25.8	V
Identification, documentation and validating methods of indigenous technical knowledge (ITK)	39.1	IV
Farming system research	25.8	V
Methodological approach for technological assessment and refinement	40.4	III
Multi disciplinary based research	43.4	II

The findings from Table 2 indicated the training needs of scientists in the area of research. The ranking of the same are -research project management techniques (52.6) and research project monitoring evaluation (52.6)-both first rank, Multi disciplinary/ consortium based research (43.4)-second rank, Methodological approach for technological assessment and refinement (40.4)-third rank. Identification, documentation and validating methods of ITK (39.1) and Participatory review technique (39.1)-both fourth rank, Critical path methods (25.8) and Farming system research (25.8)-both fifth rank, Participatory research methods (20.7)-sixth rank and Commodity market research (11.6)- seventh rank.

From the data it is observed that there is not much difference in the Training Need Index scores which implies the importance of training needs in the area of research. The respondents thus seem to acquire training especially in the areas of research project management, monitoring and evaluation. Further, they also seem to acquaint with the other emerging researchable issues. This finding is in line with the findings *of Kotrlik et al. (2000).*

Training needs of scientists in the area of extension and training: Further, an attempt has also been made for identifying training needs of scientists in the area of extension and training, which is presented in Table 3.

The data from Table 3 indicated the training needed by the respondents in the area of extension and training which are Monitoring, evaluation and impact assessment of training programme (60.0)-first rank, Enhancing skills

for preparing quality publications (51.9)-second rank, Personality development (50.2) and Process Documentation and Communication Skills (50.2)-both ranked third, Recent advances in training methodology (35.6)-fourth rank, Agriculture Extension Management (19.2)-fifth rank, Designing ICT based modules for agriculture knowledge management (18.4)-sixth rank, Farm Journalism (16.2)-seventh rank, Convergence of different stakeholders in agriculture extension (14.7)-eighth rank and Geographical Information System (9.8)-ninth rank.

Table 3. Training needs of scientists in the area of extension and training

Training areas	TNI	Rank
Designing ICT based modules for agriculture knowledge management	18.4	VI
Personality development	50.2	III
Agriculture extension management	19.2	V
Convergence of different stakeholders in agricultural extension	14.7	VIII
Process documentation and Communication skills	50.2	III
Farm journalism	16.2	VII
Geographical information system	9.8	IX
Recent advances in training methodology	35.6	IV
Monitoring, evaluation and impact assessment of training programme	60.0	I
Enhancing skills for preparing quality publications	51.9	II

Extension education is one of the important mandates of the university along with education and research. The respondent scientists have the responsibility of extension education. Hence, they may have identified such training needs in the area of extension. Besides this, training is important component of extension education. Majority of scientists are involved in these training programmes. This might be the reason for majority of respondents inclining for training needs particularly on monitoring, evaluation and impact assessment as well as recent advances in training methodology. They have also shown inclination for training on personality development and process documentation and communication skills. This finding is supported by the findings of *Kadam and Nirban (2004).*

Training needs of scientists in the area of administration and human relations: The data on

training needs of scientists in the areas of administration and human relations are presented in Table 4.

Table 4. Training needs of scientists in the area of administration and human relations

Training areas	TNI	Rank
Performance based appraisal	42.9	I
Organizational communication	32.2	IV
Managerial skills for enhancing organizational effectiveness	34.4	III
Enhancing leadership traits	37.0	II
Motivational techniques for employees	17.9	VIII
e-Governance	20.4	VII
Team based work culture	25.6	VI
Group dynamics	10.3	IX
Human Resource Management (HRM)	30.7	V

The data from Table 4 revealed that the training needs of respondents in the area of administration and human relations *viz.*, Performance based appraisal (42.9)-first rank, Enhancing leadership traits (37.0)-second rank, Managerial skills for enhancing organizational effectiveness (34.4)-third rank, Organizational communication (32.2)-fourth rank, Human Resource Management (30.7)-fifth rank, Team based work culture (25.6)-sixth rank, e-governance (20.4)-seventh rank, Motivational techniques for employees (17.9)-eighth rank and Group dynamics (10.3)-ninth rank.The data revealed the importance of administration and human relations in the service profession of respondent scientists. Thus, the training need index score for areas like Performance based appraisal, leadership traits and Managerial skills have been ranked higher by respondents. This finding is in line with the findings of *Pathak (2000).*

Training needs of scientists in frontier areas of agricultural sciences: The results on training needs of scientists in the frontier areas of agricultural science are depicted in Table 5.

The data from Table 5 indicated the training needs of scientists in the frontier areas of agricultural science in the following order - Climate change (53.3)-first rank, Issues related to intellectual property rights (35.2)-second rank, Biotechnology and its application in agriculture science (24.1)-third rank, Strategies for enhancing food and nutritional security (20.8)-fourth rank, Nanotechnology (19.4)-fifth rank, Biomolecules (10.9)-sixth rank, Biosecurity (9.3)-seventh rank,

Bioinformatics (5.9)-eighth rank and Genome research conservation (2.7)-ninth rank.

Table 5. Training needs of scientists in frontier areas of agricultural science

Training areas	TNI	Rank
Issues related to Intellectual Property Rights (IPR)	35.2	II
Climate change	53.3	I
Biotechnology and its application in agricultural science	24.1	III
Nanotechnology	19.4	V
Strategies for enhancing food and nutritional security	20.8	IV
Bioinformatics	5.9	VIII
Biosecurity	9.3	VII
Biomolecules	10.9	VI
Genome research conservation	2.7	IX

The data on training needs of scientists in the frontier areas of agricultural science indicated topics like Climate change, IPR and Biotechnology which need to be focused in the context of global scenario in agriculture. This might be reason for inclination of training needs of majority of respondent scientists towards these topics. This observation is similar to the findings of *Peake et al. (2007).*

Distribution of agricultural scientists by their extent of training needs: The data on distribution of agricultural scientists by their extent of training needs are presented in Table 6.

Table 6. Distribution of agricultural scientists by their extent of training needs (N = 120)

Category	No.	%
Low (up to 79)	18	15.00
Medium (80 to 93)	40	33.34
High (above 94)	62	51.66
Total	120	100.0

Mean = 86.36   S.D. = 7.14

The clubbed data from Table 6 revealed that majority of agricultural scientists (51.66%) require training to high extent, followed by 33.34 per cent in medium category and only 15.00 per cent in low category of training needs. This shows that majority of scientists require training to the high extent to update their knowledge. This finding is in line with the findings of *Kulkarni (2001).*

Relationship between training needs of scientists and their selected independent variables: One of the

major objectives of study was to study the relationship between training needs of respondent scientists and the selected independent variables. The data regarding this relationship is shown in Table 7.

Table 7. Relationship between training needs of scientists and their selected independent variables

Independent variables	(r)
Age	0.059[NS]
Educational qualification	-0.169*
Total service experience	-0.653**
Scientific orientation	0.735**
Inservice training	-0.971**
Participation in seminar	-0.578**
Contribution in publication	0.325**
Job involvement	0.871**
Achievement motivation	0.775**

N.S.=Non significant

*=Significant at 0.05 level of probability

**=Significant at 0.01 level of probability

It is observed from the data in Table 7 that the independent variables *viz.,* educational qualification, total service experience, in-service training and participation in seminar were having a significant and negative correlation with the dependent variable i.e. training needs. Age of respondents was found to have a having non-significant and positive correlation with the training needs. The other variables like scientific orientation, contribution in publication, job involvement, achievement motivation were having significant and positive correlation with the training needs. These findings are in line with the findings of *Joerger (2002)* and *Singh et al. (2011).*

CONCLUSION

The present study has revealed the training needs of scientists in the specific areas for confronting the challenges in agriculture. Hence, in view of the changing syllabus and agricultural scenario, more emphasis need to be given on issues like Climate change, Intellectual property rights and Bio-technology and its application in agricultural science. Thus, the concerned institutes need to reorient their training programme as per the needs of scientists. This will be helpful for the professional development of the faculty. The faculty should be encouraged for participation in international level seminars. Exposure to the faculty at international level will certainly motivate them for performing their responsibility more effectively. The SAUs need to send their faculty abroad to participate in international level workshops and trainings. The findings of the present investigation would be helpful to the academicians, planners, administrators and agricultural institutes in order to develop future strategies for utilizing the potential of their faculty in teaching, research, extension education and administration.

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