Training Needs of Agricultural Extension Personnel in Meghalaya

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ABSTRACT

The changing scenario in agriculture, economy and communication has also increased the need for improving the skills of extension personnel. The first step in improving the skills of extension personnel would be to assess their training needs. The study was conducted in the year 2011-12. The present study was conducted in the Department of Agriculture and the three districts of Meghalaya viz., Ri Bhoi, Jaintia Hills and West Garo Hills were purposively selected for the study. The respondents were the Agricultural Demonstrators and the Horticultural Demonstrators and the sample size was 70. The important training need areas identified in order of importance are Soil Science, Entomology, Agronomy, Plant Pathology, Nematology and Horticulture. Correlation analysis has shown that age, service length, job performance and training exposure had a negative and significant correlation with training needs. Thus, variables like age, service length, job performance and training exposure could be considered while conducting training as these variables had significant correlation with the training needs of the respondents. As the training needs of extension personnel changed over time, training needs assessment should also be done on a regular basis and the important areas in which the extension personnel needs training should be considered while planning training for the extension personnel. Thus, appropriate measures should be taken by the department and other training institutions in addressing their grievances.

Keywords: Training need, Extension personnel, Transfer of technology, Training important score

INTRODUCTION

Agriculture is an important sector in the economy of India, as it contributes to 14.5 percent of national Gross Domestic Product (Ministry of External Affairs, GoI 2011). With the increase in population, the pressure on agriculture production is also increasing day by day. This calls for a greater co-ordination between research and extension. Hence, the need for strengthening the extension personnel through effective training programmes has become an integral part of the agricultural development strategy. In absence of training need assessment, the training conducted has not been able to meet the expectations of extension personnel. The training needs of extension personnel also changes from time to time due to rapid changes in technology and information delivery systems. Thus, this call for training needs assessment of extension personnel before conducting a training programme.

Training needs for extension personnel can be defined in terms of gap between job requirement and job performance (Mishra 1990). The training needs of agricultural school masters can be worked out with the help of Training Need Quotient developed by Sidhu (1973).

The Department of Agriculture, Meghalaya was created in the year 1882 under the Government of Assam. It was set up with the objective of implementing the various schemes given by the state and central government for the development of the farmers of the state. Extension and Training is one of the twelve developmental activities of the Department of Agriculture, Meghalaya. Thus, the department needs skilled and well trained extension personnel to implement the various agricultural programmes. In this background the present study was undertaken with the following objectives:

1. To identify the perceived training needs of selected extension personnel

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2. To analyze the relationship of personal and organizational variables with training needs

MATERIALS AND METHODS

The study was conducted in Meghalaya in the year 2011 - 2012. There are seven districts *viz*., East Khasi Hills, West Khasi Hills, Jaintia Hills, Ri Bhoi, East Garo Hills, West Garo Hills and South Garo Hills in the state. The District Agriculture and Horticulture Office of the three districts of Ri Bhoi, Jaintia Hills and West Garo Hills were purposively selected for the study as they have the highest number of Agricultural Demonstrators. The respondents selected for the study were the agricultural and horticultural demonstrators who are working under the District Agricultural/ Horticultural offices of the three districts. Out of a total of 72 respondents, 70 responses were received. Hence, the total number of respondents for the study was 70. Data collection was done by an interview schedule. The training needs of agricultural/ horticultural demonstrators were worked out with the help of Training Need Quotient (TNQ) developed by Sidhu (1973). The formula for calculating TNQ is as follow:

$$TNQ = \frac{OTig}{MTS}$$

Where,

OTig = Sum of observed training scores of the items of the ith respondent

MTS = Sum of the maximum training scores attributed to the items rated by i^{th} respondents

TNQ = Training Need Quotient

The training importance score (TIS) of each item was calculated with the following formula:

$$TIS = \frac{Cumulative\ training\ importance\ score\ over\ all\ the\ respondents}{Number\ of\ respondent}$$

Further the training importance score of an area (ATIS) was computed out with the following formula:

$$ATIS = \frac{Sum\ of\ training\ importance\ score\ of\ all\ items\ in\ an\ area}{Number\ of\ items\ included\ in\ the\ training\ area}$$

To find out the relationship between the dependent and independent variables, Spearman's Rank co-efficient of correlation was used.

$$r = 1 - \frac{6\sum d^2}{n\,(n^2 - 1)}$$

Where,

r = coefficient of correlation

d = differences of ranks between paired samples

n = no. of pairs of observations

'The perceived training needs of agricultural/ horticultural demonstrators' was the dependent variable of the study. There were ten independent variables selected for the study. The variables and their measurement is given in Table 1.

Table 1: Variables and their measurement

Sl. No.	Variable	Measurement
	Dependent variable	Training Need Quotient (Sidhu 1973)
1.	Perceived training needs (Training need is a matter of requiring action to be taken in the areas of knowledge, skill and attitude so as to reduce obsolescence among people and organization) (Fowler 1924).	Scoring Low 50 - 75 Medium 76 - 90 High 91 - 100
	Independent Variable	
1.	Age (It refers to the chronological age of a respondent at the time the interview was conducted, expressed in years rounded off.)	Chronological age in completed years Scoring Low Upto 32 years Medium 33 – 44 years High 45 years above
2.	Gender (It is the biological difference between male and female.)	Scoring Male 1 Female 2
3.	Family size (Family size was operationalized as the total number of members residing together in the family at the time of data collection.)	Scoring Low Upto 3 Medium 4 - 6 High 7 above
4.	Education level (It is operationalized as the highest level of formal education successfully completed by extension personnel at the time of data collection.)	Scoring Class X 1 Class XII 2 B.A/B.Sc. 3

Contd...

Sl. No.	Variable	Measurement
5.	Family background (It refers to the respondent's place of birth and the place where a respondent was brought up before he joins the service.)	Scoring Urban 1 Semi urban 2 Rural 3
6.	Training exposure (It refers to the duration of a professional training undergone by a respondent in the last one year.)	Training Score = (Training Duration x Training Number x Training Location) Scoring Low Upto 1 Medium 1.01 – 7.66 High 7.67 above
7.	Mass media exposure (It can be operationalised as the frequency of using different mass media *viz*., radio, TV, farm literature, newspaper etc. by a respondent to gain or improved knowledge on improved farm practices.)	Frequency of using mass media Scoring Daily 4 Weekly 3 Monthly 2 Occasionally 1 Never 0
8.	Service length (It is the service tenure measured in years rounded off from the date of joining in the department to the date of data collection.)	Scoring in completed years Scoring Low Upto 6 years Medium 7 – 20 years High 21 years above
9.	Job performance (The job performance of extension personnel was operationalized as, "the degree to which an extension personnel accomplishes the tasks assigned to him in terms of quality and quantity" (Reddy 1990).	Interview Schedule Scoring Low Upto 32.54 Medium 32.55– 78.72 High 78.73 above
10.	Organizational climate (Organizational climate refers to the perception of an extension worker about his work place, facilities, co-workers, etc. it was measured by the scale constructed by Kolb et al. (1974).	Scoring Low Upto 6.05 Medium 6.06 – 12.83 High 12.84 above

RESULTS AND DISCUSSION

Table 2: Profile of the respondents

(n = 70)

Sl. No.	Independent variable	Category	Frequency (%)	Mean	SD
1.	Age	Young (upto 32 years)	11.00 (15.71)	30.56	2.19
		Medium (33 - 44 years)	47.00 (67.15)	40.19	2.52
		Old (45 years and above)	12.00 (17.14)	48.25	2.60
	Overall			38.90	5.76
2.	Gender	Male	70.00 (100.00)	-	-
		Female	0.00 0.00	-	-
3.	Family size	Small (upto 3)	7.00 (10.00)	2.83	0.79
		Medium (4 – 6)	43.00 (61.43)	5.42	1.10
		Big (7 and above)	20.00 (28.57)	8.22	0.44
	Overall			5.56	1.60
4.	Educational level	Class X	25.00 (35.71)	-	-
		Class XII	28.00 (40.00)	-	-
		B.A/B.Sc.	17.00 (24.29)	-	-
	Overall			1.88	0.77
5.	Family background	Urban	17.00 (24.29)	-	-
		Semi-urban	25.00 (35.71)	-	-
		Rural	28.00 (40.00)	-	-
	Overall			2.16	0.79

The lower percentage of younger extension personnel in comparison to the older ones is due to the fact that the number of extension personnel recruited in the last five years is only nine. This is in conformity with the finding of Mohan (2000) that majority (51.21%) of the extension personnel were in the age group of 35-50 years while 12.68 percent were above 50 years of age. Cent percent of the respondents were male. This is due to the fact that male candidates are preferred for the post of demonstrator, as their job is not confined to the

office only. Also, there were no women candidates applying for the post as men candidates dominated the department. The finding is in agreement with Thanh and Singh (2007) who reported that most of the Indian extension personnel at district and block level were males; 100 percent for district level and 97 percent for block level.

Most of the demonstrators (88.57%) were already married and also 35.71 percent of them live in joint family. Thus, the number of members in a household is more. Oladele and Mabe (2010) reported that more than half (54%) of the extension officers had between 4 to 6 persons as household size. Most of the people who applied for the job did not have the opportunities to go for further studies. Thus, majority of the respondents were only Class X or Class XII passed. However, all of the respondents attended a two years pre-service training programme before joining the job. Rao (1985) and Patel et al. (1994) reported that majority of the extension personnel possessed Secondary School Leaving Certificate qualification with gram sevak training or studied upto higher secondary level. As people from rural and semi-urban background give more preference for jobs in the agriculture sector, thus majority of the respondents belonged to rural and semi-rural background of family. The finding is in conformity with the study conducted by Belay and Abebaw (2004) that 72.20 percent of the respondents are from rural background and 27.80 percent are from urban background respectively.

Apart from the 2 years pre-service training that the demonstrators underwent at Basic Agricultural Training Centre, Shillong, the in-service training programmes organized by the department are not attended by all the extension personal as most of them need to attend to their family or other personal commitments and also due to lack of interest of the demonstrators. Thus, their training exposure is less. The finding is contradictory to Patel et al. (1994) who reported that majority (93 percent) of Rural Agricultural Extension Officers were professionally untrained. Medium exposure to mass media revealed that majority of the respondents have access to radio, television, newspaper, journals, magazines etc. but due to time constraint and lack of interest they are not utilizing the sources to the fullest extent. Similar finding was reported by Mohan (2000) where majority of the extension personnel had medium level of mass media

exposure. As majority of the respondents were in the medium category of age group, they also belonged to the medium category of service length. The finding is in conformity with the finding of Alibaygi and Zarafshani (2008) that 78.07 percent of the respondents had more than 10 years of work experience.

The high level of job performance is because the older respondents already had more experience than the younger respondents, so their job performance is high. The low level of job performance is due to the unavailability of facilities and infrastructure in remote areas. Thippeswamaiah (1991) found that 60.80 percent of subject matter specialists belonged to medium job performance category followed by 21.60 percent in low and 17.60 percent in the high performance category. Majority of the respondents indicated the presence of a pleasant environment with regard to the rules, procedures, policies and practices, decision making, problem solving, communication, rewarding good work, well defined goals, friendliness and leadership quality among the staff of the Department of Agriculture, Meghalaya. The results are similar to the findings of Halakatti and Sundaraswamy (1997) that majority (68%) of the Agricultural Assistant belonged to medium level of organizational climate perception followed by 22 and 10 percent of them who belonged to low and high categories respectively.

It is observed from the Table 3 that majority of the respondents has low and medium level of training needs. This is due to the fact that all of the respondents already attended a 2 years pre-service training at Basic Agricultural Training Centre, Shillong before joining the post. Also, most of the respondents have already been working for more than 7 years, so they already have some experience in their job, thus they felt that they need less training.

Table 3: Distribution of respondents according to their levels of training need (n=70)

TNQ Categories	Frequency (%)	Mean	SD
Low (50-75)	34.00 (48.57)	69.06	6.43
Medium (76-90)	34.00 (48.57)	81.80	3.97
High (91-100)	2.00 (2.86)	93.17	0.23
Overall		75.94	8.74

Note: Figures in parentheses indicates percentages to total

It is seen from the Table 4 that out of 155 items, the extension personnel rated 45 items (29.03%) as most important, 82 items (52.90%) were rated as important and 28 items (18.07%) were found to be less important. These items were further grouped into their separate areas/discipline to find out the areas which need more training.

Table 4: Distribution of items on Training Importance Score categories (n=155)

TNQ Categories	Frequency (%)	Mean	SD
Less important (upto 0.99)	28.00 (18.07)	0.75	0.18
Important (1-1.49)	82.00 (52.90)	1.33	0.11
Most important (1.50 and above)	45.00 (29.03)	1.61	0.08
Overall		1.31	0.18

Note: Figures in parentheses indicates percentages to total

The different areas when arranged in descending order of their ranks are Soil Science, Entomology, Agronomy, Plant Pathology, Nematology, Horticulture, Plantation Crops, Agricultural Extension, Agricultural Engineering, Agricultural Economics, Other areas, Crop Demonstration, Training planning and evaluation, Plant Breeding and Reporting. The rank of different areas based on Area Training Important Score (ATIS) is given in the Table 5.

Table 5: Area-wise distribution of training needs on the basis of ATIS (n = 70)

Sl. No.	Area	ATIS	RANK
1.	Soil Science	1.52	I
2.	Entomology	1.51	II
3.	Agronomy	1.51	III
4.	Plant Pathology	1.48	IV
5.	Nematology	1.45	V
6.	Horticulture	1.40	VI
7.	Plantation crops	1.38	VII
8.	Agricultural Extension	1.37	VIII
9.	Agricultural Engineering	1.33	IX
10.	Agricultural Economics	1.26	X
11.	Other areas (IPR, Climate change, Social Forestry)	1.21	XI
12.	Training planning and evaluation	1.10	XII
13.	Crop demonstration	0.99	XIII
14.	Plant Breeding	0.90	XIV
15.	Preparation of reports	0.67	XV

Soil Science is ranked as the first most needed area of training. This is due to the fact that the trainings in this area are rarely conducted. Also, with the introduction of Soil Testing Laboratory, many progressive farmers are going for soil testing before planting their crops. Thus, the extension personnel need to improve their knowledge and skills regarding the proper measures to be taken in order to properly manage the soil. The attack of pest and rodents in the past years has made the farmers realize about the importance of proper management process which would help in reducing the losses in agricultural produce. This creates more training needs on the part of the demonstrator in the area of Entomology. In the area of Agronomy, the growing of HYV variety of crops, losses incurred due to weeds has made the farmers realize the importance of proper package of practice. The demonstrators still need the help of higher officials in identifying the symptoms in case of attack from pests, diseases or nematodes. Thus, the demonstrators need training in the areas of Plant Pathology and Nematology as well.

Regarding Horticulture much stress has been given by the state department. The introduction of high value low volume crops like strawberry, flowers like rose, lilium, anthurium, carnation, birds of paradise, and vegetables like broccoli and coloured capsicum increases the need for training. As more and more farmers are becoming interested in the cultivation of plantation crops, there is also a need for training demonstrators in the field of plantation crops. Even though demonstrators have proper knowledge regarding the extension programmes, they still need training in putting the knowledge and information they received into practice. The farming system in the state is not yet fully mechanized but farmers are adopting implements which are manually operated and which they can afford. Thus, the training that the demonstrators need is in the use of small implements and tools. The growth of farmers and farm women has increased the need for training in the post harvest technology and simple storage and packaging which could help in extending the shelf life of crops and help them fetch a better price. The demonstrators also need training in updating themselves about the recent programmes and opportunities that the government is giving to the farmers like crop insurance scheme, kisan credit card, etc.

The demonstrators also need training in aspects related to IPR and Social forestry programmes as well as these areas are very new to them. The demonstrators are already acquainted with crop demonstration. Thus, their training needs are not high in this regard. When it comes to the process of conducting training, demonstrators need to improve their skills in planning and evaluation. Plant Breeding activities are not performed by the demonstrators. Thus, not much training is needed. Demonstrators are well acquainted with 'Reporting' as they are involved in preparation of reports and muster roll bills every quarter.

The findings are in conformity with Kalita (1992) who reported that some of the most important training need areas for village level extension workers are Entomology, Plant Pathology, Soil Science and Horticulture in order of importance.

Table 6 reveals a significant and negative correlation between training need and age, training exposure, service length, and job performance which indicates that with the increase in these variables, the training needs will decrease and vice-versa.

Table 6: Correlation co-efficient of selected independent variables with training needs of extension personnel (n=70)

Sl. No.	Variables	Training needs	
		r-value	p-value
1.	Age	-0.40	0.0005**
2.	Family size	0.07	0.5495
3.	Education	0.22	0.0625
4.	Family background	0.02	0.8102
5.	Training exposure	-0.29	0.0128*
6.	Mass media exposure	-0.16	0.1656
7.	Service length	-0.38	0.0009**
8.	Job performance	-0.43	0.0002**
9.	Organizational climate	-0.03	0.8032

Note: ** Significant at 0.01 level of probability
* Significant at 0.05 level of probability

Thus, the extension personnel who are younger in age, having lesser exposure to training, whose service length is not long, and who have lower job performance levels, have higher needs for training. The younger extension personnel have lesser experience thus they are more enthusiastic about their job unlike the older extension personnel who had been working for many years. Thus, the training needs of younger extension personnel are high. Extension personnel with lower exposure to training are lacking behind in skills and knowledge in comparison to the one who attended trainings regularly. With regards to service length, extension personnel who just started; need to learn many things about their job, thus they have higher training needs. Job performance is also negatively related to training needs, as extension personnel who could not perform their job effectively and efficiently need more training than the one who could perform their job well.

These findings are similar to the findings of the study conducted by Kalita (1992) that training needs of village level workers has a significant correlation with age, and training exposure. Also, Sharma (1995) reported that characteristics namely, age, service experience had significant correlation with the extent of training needs. The finding is also in conformity with the finding of Rajanna et al. (2009) that job performance of Agricultural Assistants had a significant relationship with their training needs. In a research conducted in Manipur, it was found that age and service experience of the respondents are significantly and negatively correlated with the training needs (Singh et al. 2011).

SUMMARY

The study was conducted at the District Agriculture/Horticulture Office in the three districts of Ri Bhoi, Jaintia Hills and West Garo Hills under the Department of Agriculture. The agricultural and horticultural demonstrators were the respondents and they were selected by purposive sampling. A total of 70 demonstrators were selected for the study.

In the present study 'perceived training need' was the dependent variable. There were ten independent variables selected for the study *viz*. age, gender, family size, educational level, family background, training exposure, mass media exposure, service length, job performance and organizational climate. The data were collected through interview schedule. Frequency, percentage, means, standard deviation, Spearman's Rank Correlation was used in analysis and data interpretation.

From the frequency and percentage analysis of the personal and organizational variables of the extension personnel, it was found that all of the respondents were male (100%) in between 33 -44 years of age (67.14%) and Class XII passed (61.43%). They had a family size of 4 -6 (67.43%) and came from a rural background (40%). They had medium exposure to training (54.29%) and mass media (68.57%). Their service length ranged from 7 – 20 years (71.43%), they had medium level of job performance (60%) and they perceived a favourable organizational climate towards their department (61.43%).

An equal percentage of extension personnel had low (48.57%) and medium (48.57%) level of training needs. Items wise, 52.90 percent of the items were rated as important. The important training need areas in order of importance are Soil Science, Entomology, Agronomy, Plant Pathology, Nematology, Horticulture, Plantation Crops, Agricultural Extension, Agricultural Engineering, Agricultural Economics, areas related to IPR, Climate, Crop demonstration, Training planning and evaluation and Plant Breeding.

Spearman's Rank Correlation revealed that the variables age (r = -0.40), training exposure (r = -0.29), service length (r = -0.38) and job performance (r = -0.43) had negative and significant correlation with training needs.

CONCLUSIONS

The findings regarding the training needs of the extension personnel revealed that majority of the extension personnel had low and medium training needs. Thus, necessary steps should be taken to identify the unfelt needs of the demonstrators and strengthen their knowledge, skills and attitudes required for performing their job efficiently. The findings of the study revealed that the six areas with highest ATIS are Soil Science, Entomology, Agronomy, Plant Pathology, Nematology and Horticulture. Thus, the study stresses the need for organizing trainings in these six areas. So, the Department of Agriculture as well as the concerned training organizations needs to organize training programmes covering these areas according to their importance. The variables age, service length, job performance and training exposure should be considered while conducting training as those variables had significant correlation with the training needs of the respondents. Thus, while conducting training, younger age extension personnel should be preferred. Also, preference should be given to extension personnel with lesser service length. Extension personnel with low exposure to training should be given priority and job performance should be properly monitored by the higher officials and those with low performance level should be given priority while conducting training. As the training needs of extension personnel changes over time, training needs assessment should also be done on a regular basis and the important areas in which the extension personnel needs training should be considered while planning training for the extension personnel by the Department and other training institutions for the betterment of the extension personnel and the Department as well.

REFERENCES

Alibaygi A, Zarafshani K (2008).Training needs of Iranian extension agents about sustainability: The use of Borich's need assessment model. African Journal of Agricultural Research 3 (10):681-687 http://www.academicjournals.org/AJAR, Accessed 23 November 2011

Belay K, Abebaw D (2004). Challenges facing agricultural extension agents: A case study from South Western Ethiopia. African Development Bank, Blackwell Publishing Limited Oxford, UK

Halakatti SV, Sundaraswamy B (1998). Achievement motivation of agricultural assistants and associated factors – a critical analysis. Karnataka J. Agril. Sci. 9(4): 6780-

674 http://etd.uasd.edu/ft/th9439.pdf, Accessed 15 November 2011

Kolb DA, Rubin IM, McIntyre JM (1974). Organizational Psychology. 2nd edn. Prentice Hall Inc, New Jersey

Kalita HK (1992). A study on training needs of village level extension workers of Assam. M.Sc. Thesis, Assam Agricultural University, Jorhat, India

Mohan B (2000). A study on job performance and job satisfaction of Assistant Agricultural Officers in Northern districts of Karnataka. M.Sc.(Agri.) Thesis, University of Agricultural Science, Dharwad (India). http://etd.uasd.edu/ft/th9439.pdf, Accessed 10 October 2011

Ministry of External Affairs, Government of India (2011). From http://www.indianbusiness.nic.in/economy/agriculture.htm. Accessed 18 January 2012

Mishra DC (1990). New Directions In Extension Training. Directorate of Extension, Ministry of Agriculture. New Delhi

Oladele OI, Mabe LK (2010). Socio-economic Determinants of Job Satisfaction among Extension Officers in North West Province South Africa. Life Science Journal 7(3): 99-104. http://www.sciencepub.net., Accessed 7 January 2012

Patel MM, Dubey MC, Sharma HO (1994). Performance of Rural Agricultural Extension Officers. Maharashtra Journal of Extension Education 8: 31-33

Rajanna N, Vijayalaxmi KG, Varadaraju GM (2009). Training needs of field extension workers on plant protection and allied activities: a study in Bangalore rural district. Mysore Journal of Agricultural Sciences 43(4): 787-791. http://www.uasbangalore.edu.in/asp/periodicals.asp, Accessed 27 November 2011

Rao R (1985). Task and time management by Assistant Agricultural Officers working under AEP in Karnataka. M.Sc. (Agri.) Thesis, University of Agricultural Sciences, Dharwad, India

Sharma S (1995). A study on training needs of village extension workers of Upper Brahmaputra Valley Zone of Assam on horticultural crops cultivation technology. M.Sc. (Agri.) Thesis, Assam Agricultural University, Jorhat, India

Sidhu BS (1973). Training needs of agricultural masters in high school of Punjab. Summaries of extension research by post graduate students 5. Department of Extension Education, PAU, Ludhiana

Singh MK, Ram D, Kh S, Prasad A (2011). Correlates training needs assessment of assistant agricultural officers of Manipur. Indian Research Journal of Extension Education 11(1): 120-121

Thanh NC, Singh B (2007). Problems faced by extension personnel – some comparisons between Vietnam and India. Omairice 15: 164-173

Thippeswamaiah JM (1991). A study on the job performance and job satisfaction of Subject Matter Specialists working under NAEP, Karnataka. M.Sc. (Agri.) Thesis, University of Agricultural Science, Dharwad, India