

## Impact Analysis of Training Interventions on Potato Growing Tribal Farmers of Meghalaya

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### ABSTRACT

*Training is the critical input for improving knowledge, skill and attitude of farmers. Need based technological interventions through training is obligatory to augment productivity, profitability and livelihood of farm families. The present study was conducted to assess the impact of training on tribal potato growing farmers of Meghalaya. A total of 200 trainees were randomly selected from the training programmes conducted during the year 2011-12 and 2012-13. The result of the analysis of first year's training programme corroborated that there was 22 per cent addition in the knowledge of the respondents through the training programme. Further, evaluation of the second year's training programme showed that there was perceptible change/gain in the behavioral dimensions (knowledge, attitude and symbolic adoption) of trainees. The changes ranged from 15.70 per cent in case of attitude to 26.25, 40.95 and 52.57 per cent with respect to retention of knowledge, change in symbolic adoption and gain in knowledge respectively.*

**Key word:** Behavioral dimension; Impact; Training; Potato; Farmer; Meghalaya;

In Meghalaya nearly 10 per cent of the total geographical area is under cultivation. The region is characterized by undulating topography having the plains, valleys, foothills and terraced slopes. Agriculture in the state is characterized by limited use of modern techniques and low productivity. Majority of the agrarian population of the region are marginal farmers following subsistence agriculture. As a result, despite the vast majority of the population engaged in agriculture, the contribution of agricultural production to the state's GDP is low and most of the population engaged in Agriculture remains poor (Bujarbarua et al., 2009). Potato is one of the oldest crops which has adapted well in the hills of Meghalaya. It is also being accepted by the people and has contributed immensely both as food and a cash crop. It is flexible crop and can fit in with various types of cropping patterns. The cropping seasons in the state is of an advantage as they are off -season for the potato producing areas of the plains. The commercial potato cultivation in the state is confined to the East and West Khasi hills district at an altitudes ranging from 1500-

1900 MSL where cultivation is taken up in the hill slopes and rice fields. Due to long association of potato with the people of the Khasi hills, it has become so ingrained in culture that the farmer goes with its cultivation with or without institutional support. However, the per unit potato production is abysmally low (10.9 t/ha) and there exists a yield gap to the extent of 52% compared to the national average 22.7 t/ha. (Yadav et al., 2014). This declining trend in production and productivity may hammer a death nail to the aspiration of hundreds of potato growing farmers of Meghalaya. Thus need based technological interventions through training is necessary to augment productivity, profitability and livelihood of farm families. This calls for updating the knowledge and skills of the farm families through farmer-friendly means to provide them firsthand information on potential of new and need based interventions in improving the efficient and cost effectiveness over existing technology. Over the years CPRS, Shillong is conducting "on farm and station" training programme to upgrade the skills of farmers for effective adoption of technological module.

Further, evaluation is an integral part of a training programme. It not only serves the purpose of grading the trainees but also helps the trainers for continuous updating his training materials. Thus training programme needs to be evaluated in order to study its impact on the trainees with respect to the change in their level of knowledge, attitude, symbolic adoption and retention of knowledge. With this regard a study was conducted with an objective to assess and evaluate the impact of training interventions on behavioral dimensions (knowledge, attitude and symbolic adoption) of tribal potato growing farmers of Meghalaya.

## METHODOLOGY

The study was conducted in East Khasi Hills district of Meghalaya during the year 2011-12 and 2012-13 under Mini Mission-I. A total of 200 trainees were randomly selected from the training programmes conducted at CPRS, Shillong. In the first year of training, an objective evaluation test was applied on 100 trainees. Trainees were thus evaluated initially with the help of bench mark survey test and then finally an evaluation test was administered. In the second year of training, keeping the same sample size, data interrelated to research variables namely; knowledge level, symbolic adoption and attitude related to improved potato production and protection technology were collected through well-structured pre-tested interview schedule. Knowledge possessed about recommended practices by the respondents were ascertained by using scale developed by Jha and Singh 1970. Symbolic adoption was measured by devising the interview schedule on five-point continuum of "Most likely to adopt to Not likely to adopt" (Rogers and Shoemakers, 1971) for the package of practices recommended by CPRS, Shillong. Attitude was measured by using summing rating scale -Likert's scale on five-point response categories of agreement-disagreement (Likert, 1932). Gain in knowledge was calculated by subtracting the pre-training knowledge score from post training knowledge score. Retention of knowledge variable was studied by assessing the knowledge retained by the trainees after 60 days of training. The variable was measured by administering the same knowledge test after 60 days of conclusion of training and subtracting the pre-training knowledge score from the delayed test score. A post training survey was conducted on the research variables

to establish the changes in the scores. The collected data were tabulated and subjected for the descriptive statistics as frequency, percentage mean and range to draw meaningful conclusions. Training programmes were conducted on different components of improved potato production technology viz; land preparation, nutrient management, seed management, selection of varieties, planting method, insect pest management, disease management and post-harvest handling. Training sessions involved theoretical lectures, discussions as well as practical hands on experiments. Slides were used as teaching aids.

## RESULTS AND DISCUSSION

*Evaluation of first year's training programme :* The result of the analysis of first year's training programme (2011-12) corroborated that the trainees entered this training programme with wide range of knowledge about recommended potato production practices. The candidates secured on an average 43 per cent marks in the bench mark test. The trainees who secured the higher marks on the bench mark test also secured the higher marks in the final test. The trainees on an average secured 65 per cent marks in the final test which showed 22 per cent addition in their knowledge through this training. correspondingly, knowledge gained as a result of attending the training programme was 20 per cent as reported by (Babu and Singh, 1986).

*Evaluation of second year's training programme:* The data related to pre training knowledge of the trainees depicted in Table 1 revealed that the respondents possessed 22.5 per cent and 23.5 per cent knowledge regarding preparation of land and planting method, respectively. While 35 per cent respondents knew about seed management, nearly 49.5 per cent respondents were found to have knowledge about selection of variety. These findings were partially supported by (Srivastava et al., 2012). Around 39.9 per cent respondents were found to have knowledge about recommended dose of fertilizers, while considerable number of respondents i.e. half per cent possessed knowledge about recommended dose of Urea, SSP and MOP. While 40 per cent and 35 per cent respondents knew about earthing up and manual weeding, respectively, none of the respondents were aware about chemical weed management practices in potato during the investigation. About 24 per cent respondents were able to identify

**Table 1. Pre training knowledge and symbolic adoption score of the trainees on different areas of potato production technology (N=100)**

Potato production practices	Knowledge score(%)	Symbolic adoption score (%)
<i>Land preparation and planting</i>		
Preparation of land	22.5	59.4
Selection of variety	49.5	68.5
Seed management	35.0	54.5
Planting method	23.5	55.3
<i>Manures and fertilizer application</i>		
Use of recommended dose of FYM	39.9	50.2
Recommended dose of NPK	27.5	52.5
<i>Intercultural operation</i>		
Weeding(manual)	35.0	50.5
Weeding (chemical)	0.0	0.5
Earthing up	40.0	45.5
<i>Plant protection measures</i>		
Identification of major insect pest and diseases	24.7	42.7
Management of late blight	45.5	51.7
Management of brown rot	26.5	42.2
Management of insect pest	39.5	45.2
<i>Harvesting and post-harvest care</i>	42.9	50.0

major diseases and pests. Nearly 45.5 per cent respondents knew about control measures against late blight, which was found to be the major devastating disease of potato in this region, while only 26.5 per cent respondents possessed knowledge about control measures against bacterial wilt, around 39.5 per cent respondents knew about insect pest management. The respondents were found to be conscious for table and ware potato and post-harvest care in order to improve the keeping quality under ambient climatic condition in

**Table 2. Overall pre training knowledge and symbolic adoption score of trainees on major aspects of improved potato production practice (N=100)**

Major Aspects of potato production	Knowledge score(%)	Symbolic adoption score (%)
Potato production	43.5	49.0
Potato protection	40.1	45.0
Harvesting and Post-harvest care	45.2	50.0
Overall	42.9	48.0

storage. Around 42.90 per cent trainees observed to possess good knowledge about harvest and post-harvest handling of potato. Further analysis of data presented in Table 1 showed that pre training symbolic adoption score was highest with respect to selection of variety (68.5%), preparation of land (59.4%), planting method (55.3%) and seed management (54.5%). Least symbolic adoption score (5%) and (42.2%) was observed on the areas of Chemical weeding and management of brown rot respectively.

The data presented in (Table 2) revealed that farmers possessed 42.9 per cent and 48.0 per cent of overall knowledge and symbolic adoption score respectively with regard to improved potato production practices. With a view of finding out the impact of training, comparison of pre-and post-training data on various behavioral dimensions like knowledge, symbolic adoption and attitude of the trainees towards improved potato production and post-harvest handling of potato was undertaken.

The data presented in Table 3 showed that the per cent gain in the knowledge was highest in the field of potato production (64.3%), followed by harvesting- post harvest care (50.4%) and plant protection (42.6%).

**Table3. Impact of training programme on different behavioral dimensions of trainees in major aspects of improved potato production practices.**

Aspects	Av. Knowledge.score			AKS*	Retention of knowledge (%)	Av. Sy. adoption score			Av. Attitude score		
	PT	PoT	Gain (%)			PT	PoT	Change (%)	PT	PoT	Change (%)
Potato production	43.5	71.5	64.3	61.5	41.3	49.0	75.0	53.6	38	45	18
Potato protection	40.1	57.2	42.6	51.5	28.4	45	58	28.8	22	25	13.6
Harvesting and post-harvest care	45.2	68.0	50.4	61	34.9	50	70	40	35	40	14.28
Overall	42.93	65.5	52.4	54.2	26.25	48	67.6	40.64	31.66	36.6	15.29

AKS\*=Average Knowledge.score after 60 days of training(%) PT=Pre-training PoT=Post-training; Av. Sy. adoption score=Av. Symbolic adoption score

Retention of knowledge was highest in potato production (41.3%), followed by post-harvest (34.9%) and plant protection (28.4%) respectively. Symbolic adoption with respect to potato production was highest (53.06%) with respect to potato production and was lowest in relation to potato protection (28.8%). While Change of attitude (Range: 13.6-18.0) occurred relatively to a lesser extent. These findings were partially supported by (Sah et al., 2008). The overall changes ranged from 15.29 per cent in case of attitude to 26.25, 40.64 and 52.4 per cent with respect to retention of knowledge, change in symbolic adoption and gain in knowledge, respectively. A relatively lesser change in the attitude of the respondents could be explained on the basis that the respondents already had the favorable attitude towards improved potato cultivation even without undergoing any training and particular training interventions could not bring much additional changes on trainees' attitude.

## CONCLUSION

The training programme was found to have discernible impact in bringing out overall changes in the behavioural dimensions of potato growing farmers of Meghalaya. While the maximum impact of training was perceived in case of gain in knowledge, the impact witnessed minimum change in case of attitude of the respondents towards scientific method of potato planting. Thus a substantial training effort is needed to help each farmer reach his maximum potential by way of changed attitude, improved behavior, increased knowledge and improved skills. Further, evaluation of training programme provided a platform to measure the advancement, the trainees could make in their knowledge so that at present they are efficient enough to make appropriate use of technical knowhow imparted to them for ensuring their better yield and better livelihood.

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