

Research Article

## Impact of model training course on value addition and post-harvest management of horticultural crops

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**SUMMARY :** Model training courses are organized with the objective to update knowledge and skills of extension personnel working in the field all over the country. Directorate of Extension Education, Maharana Pratap University of Agriculture and Technology, Udaipur had organized two Model Training Courses (MTCs) on “value addition and post-harvest management of horticulture produce for extension functionaries of agriculture/horticulture department of different states of India. Data were collected on different aspects of the training programme using structured interview schedule and a questionnaire before and after conducting the training programmes. Learning Index was used to measure the gain in knowledge of participant trainees. Results of the study revealed that training was very useful in its objective as it had significant impact on enhancing the knowledge level of participants. Average enhancement in knowledge and learning index was estimated to be 25.01 and 53.7 per cent with standard deviation of 5.58. Aspect wise gain in knowledge was studied and the maximum gain in knowledge was observed in the area of basic knowledge about value addition and post harvest management of horticulture crops (33.40%), followed by value addition and processing (30.67%), physiology of crops and post harvest management 23.53 and 23.33 per cent, respectively. Majority of the respondents were satisfied with the course contents and training delivery methods.

**KEY WORDS :**

Impact, Model training course, Learning index

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### **BACKGROUND AND OBJECTIVES**

Fruits and vegetables are the fastest growing sectors within horticulture. India produces around 111.77 million tons of vegetables and 57.73 million tones fruits (NHB), respectively, which accounts for nearly 11.90 and 10.90 per cent country’s share in the world production .India is the second largest producer of fruits and vegetables in the world after China. Since the 1980s, the international trade has expanded rapidly. There is an overall increase in the demand for fruits and vegetables for consumption of both in the fresh and processed form. In spite of being the largest producers of fruits and vegetables in the world, the export the export competitiveness among Indian producers remains low. But the magnitude of the loss in food grain is expected to the tune of 10 per cent whereas fruits and vegetable losses are estimated at 35-40 per cent

due to improper post harvest management (XI Planning Commission). It amounts to a loss of 40000 crores per year. India wastes fruits and vegetables every year equivalent to the annual consumption of the United Kingdom. But with new marketing initiatives, the post-harvest losses and the wastage due to poor infrastructure facilities, such a transportation and storage, have been reduced to a considerable extent. Appropriate PHT reduces the post-harvest and storage losses, adds value to the product, generates employment in the village and industries

Training, being an important component for human resource development, plays a vital role in rapid transfer of technology through skill up gradation of agricultural extension functionaries, farmers, farm women etc. Refresher training keeps the specialists, administrators, subject-matter officers, extension supervisors, and

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frontline workers updated and enables them to add to the knowledge and skills they have already. Maintenance or refresher training usually deals with new information and new methods, as well as review of older materials. This type of training is needed both to keep employees at the peak of their possible production and to prevent them from getting into a rut .

Need for enhancing knowledge and skills of extension professionals has increased in recent years due to changing technology and economics scenario. “Model training courses” (MTCs) scheme has been implemented since 1996 by Directorate of Extension Ministry of Agriculture, Government of India. Its major emphasis is demand driven capacity building of extension managers, marketing managers and extension functioning of State Development department. These training programmes are organized on priority area of agriculture, horticulture and allied subjects. This eight day training courses are organized by State Agriculture Universities (SAUs), ICAR institutes and other central institute and sponsored by Directorate of Extension

Keeping in this view, during 2010-11 and 2011-12 two model training course on “value addition and post-harvest management of horticulture produce” were organized by the Directorate of Extension Education, Maharana Pratap University of Agriculture and Technology, Udaipur .

## RESOURCES AND METHODS

The present study was undertaken at Directorate of Extension Education, Maharana Pratap University of Agriculture and Technology, Udaipur. Two model training courses on “value addition and post-harvest management of horticulture crops” were organized during the year 2010-11 and 2011-12 Duration of these courses was eight days each and 30 master trainers/extension officers of the agriculture/ horticulture departments from different states attended these trainings. These trainees were taken as respondents for this

study. In this study impact of training programme refersto the manner and extent to which training has influenced the job performance of extension officers in respect to their activities in the organizations. To measure this impact, different activities and manner in which training was imparted, were selected as indicators. Impact of training was measured in term of percentage gain in knowledge, level of satisfaction of trainees, usefulness of the topics covered and overall grading of training (Singh and Pandey, 2012). Gain in knowledge was measured by use of a well-structured questionnaire containing multiple choice questions on value addition, post-harvest management, processing, packaging and marketing of horticultural crops. This questionnaire was administered to respondent before and after the conduct of training. Based on difference in marks obtained before and after training, percentage gain in knowledge was calculated. The degree of learning acquired through training was also calculated by use of learning index with the help of following formula:

$$\text{Learning index} = \frac{\text{Post training score (\%)} - \text{pre - training score (\%)}}{100 - \text{pre - training score (\%)}} \times 100$$

Opinion from trainees on degree availability of resources and facilities during training was also studied along with their suggestions to improve the training delivery mechanism. Data were tabulated and analyzed using SPSS software. Descriptive statistics were used to arrive at conclusion.

## OBSERVATIONS AND ANALYSIS

The experimental findings obtained from the present study have been discussed in following heads:

### Background profile of the trainees :

Information depicted in Table 1 depicts background profile of trainees. It can be concluded that a majority (73.26%) of the trainees were male only one fourth (26.64%)

**Table 1: Background profile of trainees**

Sr. No.	Characteristics	Categories	Number	(n=30) %
1.	Gender	Male	22	73.26
		Female	8	26.64
2.	Age	Young (0-30yrs)	16	53.28
		Middle (30-50yrs)	10	33.30
		Old (above 50 yrs)	4	13.32
3.	Education	Graduation	10	33.30
		Post graduation	16	53.28
		PhD	4	13.32
4.	Work experience	<10yrs	19	63.27
		10-20 yrs	7	23.31
		>30yrs	4	13.32

were female. Therefore, there is a need to encourage female participants to participate in the model training courses. Results also revealed that the more than half of the trainees (53.28%) were educated up to post graduate and followed by graduate (33.30%) level, while very few (13.32%) were Ph.D. holders. Further, it was observed that majority of the trainees (53.28%) were from young age group, 33.30 per cent were from middle age group very few (13.32%) were from old age. Regarding work experience, majority (63.27%) were having up to 10 years of work experience, followed by 20 yrs. (23.31%) and very few only 13.32% were having experience of 30 years.

#### Gain in knowledge :

A questionnaire containing 30 multiple choice questions on different aspects of value addition and post-harvest management of horticulture crops was given to trainees

before and after conduct of training and percentage gain in knowledge was calculated alongwith learning Index. The results are given in the Table 2.

Analysis of data in Table 2 revealed that a majority of trainees (60.64%) had reported 25-35 per cent increase in knowledge after training which was high gain in knowledge. Gain in knowledge was medium for 30 per cent of trainees. Average increase in knowledge of trainees before and after training was found to be 13-24 per cent which shows that training was successful in increasing the knowledge of respondent significantly.

#### Learning index :

Learning Index was calculated using pre and post training average score ion percentage and found to be 53.70 which imply that trainees learned a lot about value addition and post harvest management of horticulture crops technologies due

**Table 2 : Distribution of respondents based on percentage gain in knowledge and learning index (n=30)**

Per cent gain in knowledge	No	%Gain in knowledge	Learning index
Low (0-12%)	1	3.33	37.5
Medium ( 13-24%)	9	30.00	45.5
High ( 25-35%)	20	60.64	66.7
Mean: 25.08 and SD: 5.589			

**Table 3 : Distribution of respondents according to their knowledge in different aspects of value addition and post-harvest management of horticulture crops (n=30)**

Different aspects	Pre-test knowledge score average (%)	Post-test knowledge score average (%)	% gain in knowledge
Basic knowledge	49.16	82.56	33.40
Physiology of crops	48.13	71.66	23.53
Post-harvest technology	53.33	76.66	23.33
Value addition and processing	56.66	87.33	30.67
Integrated pest and disease management	42.22	65	22.78

**Table 4 : Distribution of respondent based on their degree of satisfaction on different aspects of training content and delivery mechanism facilities (n=30)**

Sr. No.	Particulars	Satisfied	Partially satisfied	Dis satisfied
1.	Relevance of course content	30 (100)	-	-
2.	Expression of faculty	29(96.66)	1(3.34)	-
3.	Quality of AV aids used	30(100)	-	-
4.	Way of teaching	28(93.33)	2(6.64)	-
5.	Atmosphere to exchange ideas	28(93.33)	2(6.64)	-
6.	Time of training	30 (100)	-	-
7.	Duration of training	30 (100)	-	-
8.	Library facilities	21(70)	5(16.66)	4(13.24)
9.	Medium of teaching	30 (100)	-	-
10.	Training methods	30 (100)	-	-
11.	Timely information about day to day activities	30 (100)	-	-
	Practical orientation	26(86.66)	4(13.34)	-

\*Figure in parenthesis indicate percentage

to participation in model training course.

Training was provided on different aspects like basic knowledge, physiology of crops, post harvest technologies, value addition and processing, integrated pest and disease management of horticulture crops, etc.

Data in Table 3 depicted the distribution of trainees according to their knowledge level in different areas before and after training along with percentage gain in knowledge. The maximum gain in knowledge was observed in the area of basic knowledge about value addition and post harvest management of horticulture crops (33.40%), followed by value addition and processing (30.67%), physiology of crops and post harvest management 23.53 and 23.33 per cent, respectively. It implies that most of the trainees were not having proper knowledge in above mentioned areas of horticulture crops. This gain in knowledge will help extension officials to understand the recent advances in horticulture crops ultimately they will be able to effectively transfer this knowledge to horticulture crop growers in their respective regions. Similar results were also reported by Lal and Tandon (2011).

#### Degree of satisfaction :

It was measured in term of degree of satisfaction of trainees on course content ,methods of training, expression of faculty, other facilities and resources available at the institute and was expressed in 3 point continuum.

Data from Table 4 indicate that the trainees were 100 per cent satisfied with the relevance of course content, quality of AV aids used during the training, time duration of training, medium of instruction, methods used for training and providing timely information of day to day activity by the organizing agency. In contrast only 13.24 were dissatisfied with the library facility and respondents were partially and

dissatisfied with this facility. Nearly 14 per cent reported that there should be more practical classes instead of theory classes.

#### Conclusion :

Present study indicates that knowledge and experience gained during model training courses will improve the job performance of the participants and ultimately help the extension personnel's to inculcate their knowledge to farmers which in turn can improve livelihood through value addition and processing potato growers of the country will get benefitted. It is evident from the knowledge level of trainees had increased significantly in all aspects value addition and post harvest management of horticultural produce (Learning Index=53.70). The encouraging learning index of MTCs necessitates further increase in the number of such training. Further, the impact of such MTC's on actual adoption of technologies learnt and transferred by the extension professionals need to be assessed for their better refinement in field.

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