

## Effectiveness of Model Training Course (MTC) on Advances in Seed Production, Processing and Certification in *Rabi* Field Crops

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*Paper Received on June 18, 2016, Accepted on August 17, 2016 and Published Online on August 21, 2016*

### ABSTRACT

*A study was conducted with 23 extension personnel represented State Departments of Agriculture from six states of the country to find out the gain in knowledge and opinion of the participants about a Model Training Course organized by ICAR-DRMR, Bharatpur on advances on seed production, processing and certification in rabi field crops. Findings show that the highest knowledge Score in pre training test obtained by the respondents was 33 and lowest score was 14.5 with average knowledge score of 22 having co-efficient range of 0.389. In post test, highest knowledge score obtained by the respondents was 37 and lowest scoring was 20.5 with average knowledge score 29 and co efficient of range 0.287. The study shows that initial knowledge of the participants was poor having only 50.21 per cent. After the exposure of training, a significant improvement found in knowledge of the participants as the pre test scores increased from 50.21 to 72.44 per cent in post test along with 44.17 per cent gain in knowledge. Participants were fully satisfied with the physical arrangements inside the class as well as out of it. They were also of the opinion that the trainers made effective use of important teaching methods appropriate for the transfer of technology. The trainees reported that they had major learning about the seed production/processing practices of rabi field crops. They also mentioned that they acquired new skills for the farming system, identification of varieties, hybrid seed production, identification of major pest and diseases of rabi oilseeds, etc. The opinion of participants regarding overall grading of training was found excellent.*

**Key words:** *Opinions and Human Resource Development; Seed processing; Seed certification;*

**A**dvances in seed technology and novel methods of multiplication generate numerous options for improving local seed supply systems, both in terms of quality and quantity. Managing seed quality production is essential for a viable seed industry. There is an urgent need to increase the availability of quality seed of newly released improved varieties to the farmers to increase SRR to improve in crop production and thereby well being of the farmer communities. Recently farmers' participation in seed production has been to be important and several models of seed production are presently being operated. In order to make the farmers aware about use of quality seed in major crops especially *rabi* crops of regional importance and to impart technical knowledge and skill about the seed production,

processing and certification a Model Training Course (MTC) has been designed. The prime aim is to augment the participants' knowledge on technical, organizational, institutional and economic aspects of seed production/processing and certification of *rabi* field crops to have a team of trained extension / development personnel regarding the advances in seed production/ processing and certification of *rabi* field crops and also capable enough to exploit the management practices for their effective transfer to the farmers.

To meet the Nation's food security needs, it is important to make available to farmers a wide range of seeds of superior quality for that purpose, there is a great need to upgrade the knowledge of extension personnel's for seed production/processing and

certification through different training programmes. So they can spread the required information among farmers on timely basis. Hence, the 8 days Model Training Courses organized by ICAR-DRMR on advances in seed production/processing and certification in rabi field crops which would play the key roles for sustainable seed production, in improving nutritional security and safety.

However, a merely organizing a training programme will not be useful until it is effective in terms of gain in knowledge and skills of the participants. The effectiveness of the training programme can also be measured in terms of participants' opinion about the different aspects of training contents and learning situations exposed. Keeping this in view, an impact study was done to evaluate the effectiveness of organized Model Training Courses.

## METHODOLOGY

The study was conducted with 23 state extension officers represented from 6 states namely Madhya Pradesh, Maharashtra, Tamil Nadu, Haryana, Jharkhand and Rajasthan who participated in a eight days Model Training Course (MTC) organized by ICAR-DRMR on "Advances in seed production/processing and certification in rabi field crops" during December 02-09, 2015.

For the purpose to find the effectiveness of MTC and opinion of the participants regarding training, two questionnaires were prepared for the present investigations. The knowledge test was developed with multiple choice questions on different aspects of seed production/processing and certification of rabi field crops. For the second questionnaire on different statements of measuring opinion of participants regarding training aspects the three point continuum scale was developed ranging from 'fully satisfied, to a limited extent and not at all'. The study was conducted in three phases: Phase-I Construction of tool and Pre-test, Phase-II Conduction of training and Phase-III Post-test after exposure of training. The questionnaire was administered to the trainees before and after conduct the training. The gain in knowledge by the participants and their opinion were measured after training. The data was tabulated and analyzed with the help of suitable statistical measures such as, standard deviation, mean, mean percent score, t-test etc. Descriptive statistics were used to arrive at conclusion.

## RESULTS AND DISCUSSION

*1. Effectiveness of Model Training Course (MTC):* The effectiveness of MTC was assessed in terms of gain in knowledge. In this section, the attempt has been made to find out the effectiveness of model training course in terms of knowledge of the participants. The pre and post training level of knowledge of participants was assessed with structured questionnaire. The results have been presented under the following heads:

*1.1: Overall knowledge level of the respondents in pre-test:* This section describes the existing preliminary level of knowledge of the participants regarding selected aspects of contents of training programme before exposure of training. A questionnaire was used to test the pre knowledge of the participants.

**Table 1.1: Score range of knowledge and standard deviation in pre-test (N = 23)**

Range of knowledge	14.5-33(18.5)
Co-efficient of range	0.389
Average score	22
SD of knowledge test	5
Co-efficient of variation (%)	26.086

The results are given in the Table 1.1 indicates that in pre test, highest knowledge score obtained by the respondents was 33 and lowest scoring was 14.5 with ranged of 18.5 and co efficient of range 0.389, Standard deviation of knowledge test in pre test was 5 and coefficient of variation was found 26.086.

**Table 1.2: Distribution of respondents by overall knowledge and MPS of each category in pre test (N= 23)**

Knowledge range	No.	%	MPS
Low>17	6	26.01	35.20
Medium 17-27	12	52.17	59.06
High<27	5	21.73	71.5

*1.2: Distribution of respondents by overall knowledge and mean percent score of each category in pre test:* On the basis of equal distribution of maximum scores knowledge test were categorized into high, medium and low. Table 1.2 reveals that in pre test majority of the respondents (52.17%) had medium knowledge with mean per cent score 59.06; whereas respondents having low level of knowledge were 26.01 per cent with mean per cent score 35.20 and only 21.73 per cent respondents were having high level of knowledge with mean per cent score of more than 71. This shows that most of the respondents had the medium level of knowledge in pre test.

The findings are in agreement with the findings of *Dudi and Singh (2008)*, who found that the respondents had medium level of knowledge.

*1.3: Overall knowledge level of the respondents in post-test:* This section describes the knowledge level of respondents after the exposure of training package to the participants. Same knowledge test was used to test the knowledge after the exposure of training and their responses were recorded.

Data show in the Table 1.3 indicate that in post test, highest knowledge score obtained by the respondents was 37 and lowest scoring was 20.5 with ranged of 16.5 and co efficient of range 0.287, Standard deviation of knowledge test in post test was 4 and coefficient of variation was found 13.793.

**Table 1.3: Score range of knowledge and standard deviation in post-test (N = 23)**

Range of knowledge	20.5-37(16.5)
Co-efficient of range	0.287
Average score	29
SD of knowledge test	4
Co-efficient of variation (%)	13.793

*1.4: Distribution of respondents by overall knowledge and mean percent score of each category in post-test:* On the basis of equal distribution of maximum scores knowledge test was categorized into high, medium and low.

Data presented in the Table 1.4 reveal that in post test majority of the participants (65.22%) had medium knowledge with mean per cent score 91.5 followed by high level of knowledge 26.09 per cent with mean per cent score 80.13. Only 8.69 per cent participants were found in low level of knowledge with mean per cent score 69.

**Table 1.4: Distribution of respondents by overall knowledge and MPS of each category in post-test (N = 23)**

Knowledge range	No.	%	MPS
Low>25	2	8.69	69
Medium 25-33	15	65.22	91.5
High<33	6	26.09	80.13

Findings are supported by *Kaur and Rathore (2013)* indicated that the respondents in pre-test had medium level of knowledge.

*1.5: Knowledge gained by trainees:* This section describes the differential knowledge gain by the respondents and average score gained along with the

coefficient of variation after exposure of training.

The data presented in Table 1.5 (a) reveal that the highest score obtained by trainees was 16.5 and lowest was 1 with a range of 15.5 and coefficient of range was 0.885 Standard deviation of knowledge check was found 5 and coefficient of variation was 71.43 per cent. On the basis of equal distribution of maximum scores knowledge gain was categorized into three categories i.e. high, medium and low.

**Table 1.5 (a): Score range of knowledge and standard deviation of gain in knowledge (N = 23)**

Range of knowledge	1-16.5(15.5)
Range of knowledge	20.5-37(16.5)
Co-efficient of range	0.885
Average score	7
SD of knowledge test	5
Co-efficient of variation (%)	71.43

**Table 1.5 (b): Differential knowledge gained by the trainees (between pre and post test)**

Knowledge range	No.	%	MPS
Low>2	4	17.39	2.18
Medium 2-12	13	56.52	10.28
High<12	6	26.09	37.29

Table 1.5 (b) depicts that according to the pre and post test score, majority of the respondents (56.52 %) had medium knowledge with mean per cent score 10.28; whereas respondents having high level of knowledge were 26.09 per cent with mean per cent score 37.29 and only 17.39 per cent respondents were having low level of knowledge with mean per cent score of more than 2.18.

*1.6 Comparison of pre test and post test score for their gain in knowledge :* This section describes the comparison between pre test scores and post-test scores to find out the effectiveness of MTC in terms of gain in knowledge by the participants. Paired 't' test was applied to find out whether there was significant gain in knowledge of the participants.

**Table 1.6: Overall gain in knowledge of the participants**

Items	MPS	Calculated 't' value
Pre test	50.21	44**
Post test	72.44	
Gain (%)	22.23	

\*\* Significant at 0.01 level of significance

The data on overall gain in knowledge presented in Table 1.6 indicate that there was significant difference

in the pre-test scores and post-test scores of the participants as calculated 'value', which was found to be significant at 0.01 level of significance.

The mean percent score given in Table 1.6 shows that the initial knowledge of the participants was poor having only 50.21 per cent. After the exposure of training a significant improvement found in knowledge of the participants as the pre test scores, that increased from 50.21 to 72.44 per cent along with 44.17 per cent gain in knowledge. It is seen from Table 2(vii) that the computed value of 't' (i.e.44) was statistically significant at 0.01 level of significance. This shows that there was significant gain in knowledge level of the participants after the training. Findings are similar with the study of Pandian *et.al.* (2002) and Jain (2005).

**2. Opinion of participants regarding different aspects of MTC:** The data were also collected to study the opinion of participants about facilities, resources, atmosphere and methodology on three point continuum.

**2.1 Opinion of participants regarding facilities and resources:** Data presented in Table 2.1 regarding resources and facilities of MTC predict that 100 per cent participants were fully satisfied with class room and lab facilities followed by lodging arrangement (91.30%), transport facilities, library and recreation facilities (82.60%) and boarding facilities (78.26%). No one found in the category of not at all satisfaction regarding facilities and resources of MTC. Findings are similar with the findings of Nagar (2009).

**Table 2.1: Opinion of participants regarding facilities and resources**

Item	Degree of satisfaction			
	Fully satisfied		Limited extent	
	No.	%	No.	%
Lodging arrangement	21	91.30	2	8.70
Class room and lab. facilities	23	100	-	-
Transport facilities	19	82.61	4	17.39
Boarding facilities	18	78.26	5	21.74
Library facilities	19	82.61	4	17.39
Recreation facilities	19	82.60	4	17.40

**2.2 Opinion of participants regarding training atmosphere and methodology:** The result shown in Table 2.2 regarding training atmosphere and methodology reveals that majority of the participants (91.30%) were satisfied from atmosphere to exchange ideas freely with faculty members, training methods and relevance of contents followed by (86.95%) were satisfied with

medium of instructions, use of A.V. aids, duration of the programmes, adequacy of contents, (78.26%) with timely information of day to day activities, 73.91 % with practical orientation of training and 69.57% reported for the sequencing of contents. Here also no one found in the category of not at all satisfaction. Similar findings supported by Chandawat *et.al* (2004).

**Table 2.2: Opinion of participants regarding training atmosphere and methodology**

Item	Degree of satisfaction			
	Fully satisfied		Limited extent	
	No.	%	No.	%
Atmosphere to exchange ideas freely with faculty	21	91.30	2	8.70
Medium of instruction	20	86.95	3	13.05
Training methods	21	91.30	2	8.70
Use of A.V. aids	20	86.95	3	13.05
Timely information of day to day activities	18	78.26	5	21.74
Duration of the programmes	19	82.61	4	17.39
Relevance of contents	21	91.30	2	8.70
Adequacy of contents	20	86.95	3	13.05
Sequencing of contents	16	69.57	7	30.43
Practical orientation	17	73.91	6	26.09

**3. Distribution of participants on the basis of level of expectations fulfilled with MTC:** The data in Table 3 predict that the majority of the participants (82.61%) reported their expectations were fulfilled to a great extent followed by the (17.39%) participants to some extent.

**Table 3: Distribution of participants with level of expectations fulfilled**

Expectations Fulfilled	No.	%
To great extent	19	82.61
To some extent	4	17.39
Little extent	-	-

**Table 4: Distribution of participants regarding overall grading of the MTC**

Overall grading	No.	%
Excellent	17	73.91
Very good	4	17.39
Good	2	8.70

**4. Distribution of participants regarding overall grading of the MTC:** In overall grading, Table 4 shows that the majority of participants (73.91%) rated the MTC as excellent followed by very good (17.39%). Only 8.70

percent reported the training as the level of good. Findings are supported by *Singh and Pandey (2012)*.

5. *Major effectiveness of the MTC*: The data were also collected on major learning by the trainees, new skills acquired by them, utility of the course for improving job performance and the action plan suggested by the trainees.

*Major learning by the trainees*: The trainees reported that they had major learning about the agronomic practices of rabi oilseeds, production of high quality seed, management of diseases, insects, varietal options for rabi oilseed, management of problematic soil, PPVFRA, hybrid seed production, efficient resource utilization, seed processing, nutrient management, resource use efficiency, use of ICT, storage and availability of seed, etc.

*New skills acquired by the trainees*: The trainees acquired new skills for the farming system, identification of varieties, seed production, hybrid development, identification of major pest and diseases of rabi oilseeds, integrated nutrient management, farming system approaches, establishment of biogas, bee keeping, PRA techniques, use of biofungicides, organic farming, etc.

*Utility of the course for improving job performance*: The trainees highlighted one or the other technological components of quality seed production, hybrid seed production, nutrient management, resource use efficiency, yield enhancement, use of bio fungicides, cropping system intensification, integrated disease management, integrated pest management, soil management, post harvest management, commodity market for enhanced productivity in various crops etc as useful for improving their job performance.

*Action plan suggested by the trainees*: Getting different techniques of sustainable seed production of

different oilseed crops included in package of practices of their respective states, organizing demonstrations, conducting training programmes, etc on the different aspects of the advances in seed production/ processing and certification of *rabi* field crops were the action plans, the trainees had planned for their area of operation.

## CONCLUSION

It can be concluded from the above findings that there was a significant difference between the pre and post test scores, hence it can be emphatically expressed by the investigation that the model training course was found very effective for imparting knowledge to the agricultural officers regarding advances in seed production/processing and certification in rabi field crops. Participants were fully satisfied with the physical arrangements inside the class as well as out of it, specifically with respect to boarding and lodging. They were also of the opinion that the trainers made effective use of important teaching methods appropriate for the transfer of technology. The trainees reported that they had major learning about the agronomic practices of rabi oilseeds, integrated practices for management of diseases, insects, biogas technology, varietal options for rabi oilseed, management of problematic soil, PPVFRA, hybrid seed production, efficient resource utilization, seed processing/certification, nutrient management, resource use efficiency, use of ICT, availability of seed, etc. They also mentioned that they acquired new skills for the farming system, identification of varieties, seed production, hybrid development, identification of major pest and diseases of *rabi* oilseeds, integrated nutrient management, farming system approaches and organic farming, etc.

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