Impact of training on knowledge level of farmers about use of bio-pesticide and its mass multiplication on agriculture wastage

Amar M. Tayade and Umesh R. Chinchmaltpure*
Krishi Vigyan Kendra, PDKV, Ghatkhed, Amravati-415 519, India.
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ABSTRACT
The present study was carried out in ten villages from Chandur Rly and Tiosa blocks of Amravati District of Maharashtra state to know the variation of knowledge with respect to major five topics i.e. importance of bio-pesticides and its benefits, Indigenous mass production technology of Bio-pesticide, Effect of chemical pesticides and fertilizers in human health and soil health, mass multiplication of Trichoderma in Sorghum grains, management of diseases by use of trichoderma have been selected. The results reported on these five topics indicated that the knowledge of the farmers has increased after receiving the training.

Key words: Agriculture wastage, Bio-fertilizer, Bio-pesticide, Impact, Knowledge, Training.

INTRODUCTION
Lynton and Pareek (1990) stated that training consists largely of well-organized opportunities for participants to acquire necessary understanding and skill. Farmers training is directed towards improving their job efficiency in farming.

The sales of crop protection products are increasing world-wide. The reason to this trend is the search for alternatives to traditional chemical pesticides. The search is intensifying, as retailers’ demand for organic food increases and government controls on pesticides become tighter. An important part of this search is the use of Trichoderma based bio-pesticides in plant disease management and its growth. Safe to human and environment and effective to control insect, plant diseases and weeds, the use of bio-pesticides however remain small. In India, there are number of companies producing Trichoderma formulation with 400 bio-pesticide production units with 8-10 major players. In recent years, several small and large entrepreneurs have started commercial production of bio-control agents resulting in entry of several products into Indian market. This is due to utilization of bio-pesticides mainly in vegetable crops, sugarcane and paddy. The Indian bio-pesticide industry is the umbrella of bio-pesticide products available in the country today; however most of it is not up to the standard. Our major effort is for biological control of plant diseases of ornamental and industrial importance using strains of Trichoderma harzianum. Trichoderma species are the fungi that are present in nearly all soils and other diverse habitats. They are most extensively studied fungal bio-control agent for management of fungal pathogens. They seem to play an important role in managing the natural population of the fungal pathogens. However, the use of Trichoderma based pesticides is still a neglected field in major parts of country. This negligence is mainly due to following major reasons:

1) Lack of knowledge among farmers
2) Appearance of several products in market with inferior quality strains and
3) Shelf-life and economic viability of the products.

In the present investigation an effort has been made to know the variation of knowledge prior and after the training with respect to selected training topics.

MATERIALS AND METHODS
The present investigation was carried out in the operational area of Krishi Vigyan Kendra Ghatkhed where the DBT, New Delhi funded project entitled, “Enhancement of rural economy of weaker sections of Amravati District through popularization, training and field demonstration of bio-pesticides production technology” is implemented by KVK. In 2012-13 ten villages from Chandur rly and Tiosa blocks of Amravati District were selected. Simple random sampling method was used to draw a study sample of 100 respondent farmers, who were actively engaged in farming. Personal interview technique by using a pre –tested schedule was used for collection of data. In this study area, major 5 topics i.e. importance of bio-pesticides and its benefits, Indigenous mass production technology of Bio-pesticide, Effect of chemical pesticides and fertilizers in human health and soil health, Mass multiplication of Trichoderma in sorghum grains, Management of diseases by use of Trichoderma were selected.

*Corresponding author’s e-mail: rcumesh@rediffmail.com and address: College of Agriculture, Dr. PDKV, Akola, India.
RESULTS AND DISCUSSION

The findings regarding the level of knowledge and their significance are given in the following tables and discussed as below.

a) Knowledge regarding importance of bio-pesticides and its benefits: The data in Table 1 indicates that majority of the respondents, i.e. 90% were having low knowledge while only few i.e. 10% were having medium knowledge regarding importance of bio-pesticides and its benefits before training but after receiving training more than half of the respondents 60% were having medium knowledge while 10% respondents were having high knowledge.

Thus, it can be concluded that after the knowledge of respondents has increased after receiving the training.

b) Knowledge regarding Indigenous mass production technology of bio-pesticide: The data from the Table 2 revealed that, out of 100 respondents, all were having low knowledge regarding indigenous mass production technology of Bio-pesticide before training but after receiving training only 40% were having low knowledge while 50% respondents were having medium and 10% were having high knowledge.

Thus it can be concluded that training causes positive impact on knowledge level of respondents.

c) Knowledge regarding effect of chemical pesticides and fertilizers on human health and soil health: Table 3 shows that majority of the respondents, i.e. 70 per cent were having low knowledge before training but after receiving training majority of the respondents 70% had gained medium knowledge and 10 per cent were gained high knowledge level in below mentioned training topics. This implies that most of the participants of the training programme had gained knowledge through training.

d) Knowledge regarding mass multiplication of Trichoderma in Sorghum grains: Table 4 indicates that out of 100 respondents, all were having low knowledge regarding mass multiplication of Trichoderma in sorghum grains before training but after receiving training only 20% were having low knowledge while 70% respondents were having medium and 10% were having high knowledge level after receiving the training.

Thus, it can be concluded that training helps in increasing knowledge of respondents.

e) Knowledge regarding management of diseases by use of Trichoderma: Table 5 revealed that 60% respondents, were having low knowledge while 40 were having medium knowledge regarding Management of diseases by use of...
Table 4: Distribution of respondents according to their knowledge regarding mass multiplication of Trichoderma in sorghum grains

<table>
<thead>
<tr>
<th>Category</th>
<th>Change in Knowledge</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Low level of Knowledge (upto 4)</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Medium level of Knowledge (5-9)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>High level of Knowledge (Above 9)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 5: Distribution of respondents according to their knowledge regarding management of diseases by use of Trichoderma

<table>
<thead>
<tr>
<th>Category</th>
<th>Change in Knowledge</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Low level of Knowledge (upto 4)</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Medium level of Knowledge (5-9)</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>High level of Knowledge (Above 9)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Trichoderma before training but after receiving training majority of them i.e. 70% were having medium knowledge while 20% respondents were having high knowledge and only 10 percent were having low level of knowledge.

Above table clearly indicates that training has positive impact on knowledge level of respondents i.e. training helps in increasing knowledge of respondents. Findings of this study is similar with findings of Das and Sharma (1998) and Lal and Panwar (1994)

f) Overall knowledge of selected training topics: It can be seen from Table 6 that out of 100 respondents, 84 percent were having low knowledge before the training while only 24 percent of respondents were having low knowledge after the training, 16 percent respondents who were having medium knowledge before the training has increased up to 64 percent after the training. None of respondents were found in the category of high knowledge before the training, which has increased to 12 percent after the training.

It could therefore concluded that majority of the respondents were having low knowledge before the training while after the training majority of the respondents were having medium knowledge and few of them were found in the category of high level of knowledge. This clearly indicates that training has significant and positive impact on knowledge level of respondents. This result of the study is in line with the findings of Kumar et al (1994) and Godase et al. (2011).

CONCLUSION

The study concluded clearly indicates that the training helped the respondents developing knowledge and awareness about use of bio-pesticide and its mass multiplication on agriculture wastage, which will result in use of house hold wastes, vegetable waste and other waste for mass multiplication of Trichoderma spp. and aware the farmers about use of enriched culture of Trichoderma Spp. for different crops for management of diseases and increase in the crop yields. Thus, appropriate strategy has to be made to extend the benefit of transfer of technology process to the farmers, which will help in use of bio pesticides.

Table 6: Distribution of respondents on the basis of overall knowledge of selected training topics

<table>
<thead>
<tr>
<th>Category</th>
<th>Change in Knowledge</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Low level of Knowledge (upto 20)</td>
<td>84</td>
<td>84</td>
</tr>
<tr>
<td>Medium level of Knowledge (23-45)</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>High level of Knowledge (Above 45)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

100 | 100 | 100 | 100
REFERENCES


Sharma, J.N. (1981). To study the differences in the knowledge and attitude between untrained and trained farmers of the farmers training centre, Jabalpur with reference to paddy and wheat cultivation, Kundam Block of Jabalpur District (M.P.)