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# Impact Assessment of Training on Entrepreneurship Development through Scientific Mushroom Cultivation under Arya Project in Krishi Vigyan Kendra of Lakhimpur District of Assam, India

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## ABSTRACT

Mushroom is a highly nutritive food which consumption imparted numerous health benefits; hence now a days demand for mushrooms has been increasing among people which opens the path for business for farmers especially for the rural youths. To take mushroom cultivation as a successful enterprise and to earn higher profit training plays an important role and one must have handful knowledge and skills on it. The present study was conducted to assess the status of knowledge gain and skill development through pre and post training evaluation of mushroom cultivation training on the basis of a structured questionnaire. The feedback of the trainees were also taken to bring improvement in the near future. In the present study 162 nos. of trainees were selected from ARYA (Attracting and retaining youth in agriculture) villages of Lakhimpur districts of Assam and also the farmers who are associated with the KVK, Lakhimpur and showed interests in participation on such trainings. Apart from knowledge and skill developments, the farmers especially rural youths were motivated to develop entrepreneurship by showing the future prospects and profitability of the mushroom enterprise.

*Key words:* Training, Mushroom, Entrepreneurship, Spawn, ARYA, Impact Assessment

## Introduction

Mushroom is considered as one of the important food items since primeval time and consumption of mushroom is being increased over the period for its significant role in human health, nutrition, nutrition and diseases (Uddin *et al.*, 2011). Basically mushrooms are saprophytic fungi growing on dead organic matters of vegetative origin and can utilize almost all forest and agricultural residues as substrates (Adejoye *et al.*, 2006). It contains large amount of nutrients, proteins, vitamins, minerals, fibre *etc.* hence it can be considered as pool of nutri-

ents (Pokhrel *et al.*, 2006). One of the most efficient way to recycle of agricultural residues is cultivation of mushroom by utilizing agricultural residues (Sharma *et al.*, 2013). In present days, demand of mushroom has been increasing due to increasing population, market expansions and changing of consumer behaviour (Celik and Pekker, 2009). Along with compensate nutritional requirements (protein deficiency), now mushroom cultivation can be a big source of income through rural development program for farmers, if they are made aware its cultivation process and its importance (Pokhrel *et al.*, 2016). To obtain profit, improve skills and develop entre-

preneurship through agricultural enterprises training plays a key role. Training of Human Resources (THR), KM (Knowledge management) and OP (organizational performances) are believed to be the essential of success in business. Training of human resources is effective on achieving the objectives of knowledge management, organizational performance and improve productivity in organizations (Khaskar *et al.*, 2011). Also an evaluation study of knowledge gain from entrepreneurial training programmes would help to give idea about the possibility of improving the training programme in future (Dalmia *et al.*, 2018). To know the impact of training programmes on knowledge upgradation of the trainees, the present study was conducted.

## Materials and Method

**Selection of Participants:** In the present study, a total of 162 nos. of trainees were imparted training on entrepreneurship development through scientific mushroom cultivation organized by KVK, Lakhimpur under ICAR-ARYA project (*Attracting and retaining youth in Agriculture*) to evaluate the skills and access the knowledge gain on attending the training. Out of which male and were women. The training was focused on rural youth, farmers and farm women below 35 years.

**Collection of Data:** Various data were collected from 162 respondents. A structured questionnaire was prepared consisted of 17 questions on different aspects viz. nutritional value, cultivation practices of different type and varieties of mushrooms, growing season, suitable substrate, knowledge on sterilization technique and importance, diseases and pests management, preparation of spawn, impact of temperature and relative humidity (Rh) on mushroom production, harvesting technology, value addition, marketing linkages and branding of products etc. Pre and post training evaluation of the trainees were done by taking same set of questionnaire containing total 17 no of questions to assess the knowledge gained before and after the training. Deviations or improvement in knowledge after the training were calculated from difference obtained in pre and post knowledge test of the trainee.

$$\text{Knowledge \%} = \frac{\text{Score obtained}}{\text{Possible obtainable score}} \times 100$$

$$\text{Knowledge Gain \%} = \frac{\text{Score obtained on PTE} - \text{Score obtained on PoTE}}{\text{Total possible obtainable score}} \times 100$$

## Results and Discussion

Variations among the participants in terms of education, caste, occupation, previous knowledge on mushroom cultivation has been seen (Table 1). The results showed that among 162 nos of participants 53.70% were male and 46.29% were female 41.97% participants fell within the age group of 18-25 years whereas maximum participants (60.19%) fell within the category of 25-35 years. Information related to education revealed that 46.29% participants studied upto senior secondary level followed by graduation (24.69). Information related to castes revealed that 58.64% participants fall under other backward classes (OBC) followed by general caste-19.75%. Information in related to occupation revealed that occupation of majority of participants is farming, i.e. 53.08%, 27.16% are housewife. Among the participants only 16.04 % participants has medium level knowledge on mushroom cultivation whereas maxi-

**Table 1.** Socio-economic profile of the selected trainees (n=162)

| Sl No. | Considerations                           | Frequency | Percentage |
|--------|--|-----------|------------|
| 1.     | <b>Gender</b>                            |           |            |
|        | Male                                     | 87        | 53.70      |
|        | Female                                   | 75        | 46.29      |
| 2.     | <b>Age</b>                               |           |            |
|        | 18-25 Years                              | 68        | 41.97      |
|        | upto 35 Years                            | 104       | 60.19      |
| 3.     | <b>Education</b>                         |           |            |
|        | Primary                                  | 4         | 2.46       |
|        | Middle level                             | 7         | 4.32       |
|        | Matriculate                              | 36        | 22.22      |
|        | Senior Secondary                         | 75        | 46.29      |
|        | Graduate                                 | 40        | 24.69      |
| 4.     | <b>Caste/ Category</b>                   |           |            |
|        | General                                  | 32        | 19.75      |
|        | Schedule caste (SC)                      | 11        | 6.79       |
|        | Schedule Tribe (ST)                      | 24        | 14.81      |
|        | Other Backward Classes (OBC)             | 95        | 58.64      |
| 5.     | <b>Occupation</b>                        |           |            |
|        | Farming                                  | 86        | 53.08      |
|        | Business                                 | 22        | 13.58      |
|        | House wife                               | 44        | 27.16      |
|        | Student                                  | 10        | 6.17       |
| 6.     | <b>Experience on mushroom production</b> |           |            |
|        | Low                                      | 136       | 83.95      |
|        | Medium                                   | 26        | 16.04      |
|        | High                                     | 0         | 0          |

mum participants i.e. 83.95% has low level or 'no' knowledge on it (Table 1).

Table 2 reveals the factors that influences and motivated the participants to join the training programme and the results showed that majority of the participants, i.e. 50.61% participated to develop entrepreneurship and wants to grow mushroom as an enterprise, 40.12% were joined to know about the scientific mushroom cultivation techniques with proper management to maximise the profit. 26.54% were joined to learn about the spawn production techniques to reduce dependency on mushroom spawn suppliers, 33.33% joined to learn about the

preservation techniques, storage and different value added products of mushroom and 14.19% joined to overcome the common problems faced during the cropping stages specially diseases and pest infestation. Only 4.93 % participated to teach fellow farmers about proper cultivation techniques of mushroom (Table 2). Similar results were reported by Kavitha *et al.*, (2019) and revealed that majority of the participants joined the training programme to grow mushroom cultivation as an enterprise.

Improvement in knowledge and skills pre and post-exposure of trainings with regards to various aspects showed in (Table3). In pre-training evalua-

**Table 2.** Reasons of participating in the training on- Entrepreneurship development through mushroom cultivation (n=162)

| Sl. No | Reason   | Frequency | Percentage |
|--------|--|-----------|------------|
| 1.     | To develop entrepreneurship by adopting mushroom cultivation as an enterprise                              | 82        | 50.61      |
| 2.     | To know about the scientific mushroom cultivation techniques with proper management to maximise the profit | 65        | 40.12      |
| 3.     | To learn about spawn production techniques   | 43        | 26.54      |
| 4.     | To overcome the common problems faced during the cropping stages like diseases & pest infestation          | 23        | 14.19      |
| 5.     | To learn about preservation techniques, storage & different value added products of mushroom               | 54        | 33.33      |
| 6.     | To teach fellow farmers about proper cultivation techniques of mushroom                                    | 8         | 4.93       |

**Table 3.** Gain in knowledge after training with respect to different parameters (n=162)

| Sl. No. | Parameter   | Pre training% | Post training% | Change in Knowledge |
|---------|---|---------------|----------------|---------------------|
| 1.      | Nutritive Value   | 17            | 100            | 83                  |
| 2.      | Knowledge on prevention and controlled of various diseases by consumption of mushroom   | 7.6           | 100            | 92.4                |
| 3.      | Type and Variety of Mushroom  | 26            | 100            | 74                  |
| 4.      | Varieties in relation to the growing season (Pre monsoon, post monsoon, winter, summer) | 3.5           | 98             | 94.5                |
| 5.      | Knowledge on Identification of mushroom (edible/non edible type)                        | 24.2          | 97.8           | 73.6                |
| 6.      | Selection of suitable substrate for growing   | 40.02         | 100            | 59.8                |
| 7.      | Sterilisation of substrate , techniques and its importance                              | 4.5           | 98.9           | 94.4                |
| 8.      | Common diseases of mushroom and its control (Green mold, Ink cap etc.)                  | 6.7           | 100            | 93.3                |
| 9.      | Pests control (Specially maggots)   | 4.5           | 100            | 95.5                |
| 10.     | Preparation of mushroom spawn   | 13            | 97.6           | 84.6                |
| 11.     | Impact of temperature and relative humidity on mushroom production                      | 28            | 100            | 72                  |
| 12.     | Method of preparation of casing   | 12.4          | 100            | 87.6                |
| 13.     | Storage and harvesting technique of mushroom  | 27.8          | 100            | 72.2                |
| 14.     | Recycling of wastes of mushroom production by making compost and manures                | 7.9           | 100            | 92.1                |
| 15.     | Value addition and preservation techniques of mushroom                                  | 29.8          | 100            | 70.2                |
| 16.     | Marketing channels and linkage  | 23.4          | 92.67          | 69.27               |
| 17.     | Knowledge on creation of own brand  | 3.2           | 90.5           | 87.3                |

tion knowledges of participants ranges from 3.2 % regarding knowledge on creation of own brand to 40.02% regarding selection of suitable substrate. In the post training evaluation data on various parameters ranged from 90.5% knowledge on creation of own brand to 100 % on nutritive value, knowledge on prevention and controlled of various diseases by consumption of mushroom, type and variety of mushroom etc. The results showed lack of knowledge and poor performance of the participants on various aspects on pre-training evaluation scores whereas a huge difference and satisfactory results obtained from the post- training evaluation (Table 3).

Deviation or changes in knowledge was obtained from the differences between pre and post training evaluation (Table 3). The highest deviation was found in case of controlling the pests 95.5% followed by 94.5% Varieties in relation to the growing season (Pre monsoon, post monsoon, winter, summer) and 94.4% regarding the sterilization of substrate, techniques and its importance, whereas the least deviation showed in selection of suitable substrate for growing i.e. 59.8%. Similar results were found by (Kavitha *et al.*, (2019) and Dalmia *et al.*, (2020). The reason behind the satisfactory results of post training evaluation is keen interest, cooperation and educational status of the participants that helps them to understand the subject matter in a better way.

For further improvement of the training for future, suggestions were taken from all the participants (Table 4). The main suggestions offered by the trainees are establishing linkage with mushroom spawn supplier for getting supply of quality spawn on time, i.e. 50.61% followed by establishing linkage with marketing channels i.e. 48.14%. Since majority -53.08 % participants are farmers and 44% are

housewives (Table 1), so they preferred start-up and financial assistance from banks, government and non government organization by establishing linkage with them. 44.44% participants are concerned with establishing linkages with the banks, government and non government organizations. 27.77% needed some study material viz practical manual and bulletins. 20.98 % participants suggests exposure visits to know about the advance and high value mushrooms and 16.04% participants needed practical knowledge on establishing own mushroom spawn production unit with minimum cost involved.

## Conclusion

Mushroom farming is one of the most profitable enterprise with high benefit: cost ratio. It could be regarded as one of the way to develop self employment and entrepreneurship with minimum input requirement. The study showed the need and profit of training by assessing the deviation in knowledge gain before and after participating in the training. Participation of training also boost confidence, awareness and reduces doubts among the participants and helps them to create and establish their own enterprises. It will also create linkages with the experts which will help the participants to solve the queries regarding the enterprises near future.

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**Table 4.** Suggestion of trainees for improving Mushroom enterprises after training (n=162)

| Sl. No. | Suggestion  | Frequency | Percentage | Ranking |
|---------|---|-----------|------------|---------|
| 1.      | Linkage with mushroom spawn supplier for getting supply of quality spawn on time (Government/ NGO/ private) | 82        | 50.61      | I       |
| 2.      | Linkage with marketing channels   | 78        | 48.14      | II      |
| 3.      | Linkages with the banks, government and non government organization for financial assistance or start-up    | 72        | 44.44      | III     |
| 4.      | Practical manual/handbook/ bulletin on mushroom growing to be provided                                      | 45        | 27.77      | IV      |
| 5.      | Exposure visit to successful entrepreneur farm  | 34        | 20.98      | V       |
| 6.      | Knowledge on developing low cost spawn production laboratory with minimum inputs                            | 26        | 16.04      | VI      |

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