

Full Length Research Paper

Extension strategy and awareness programme of cultivation technology of medicinally important mushroom, *Ganoderma lucidum* in rural areas

*Dr. Sona Singh and Dr. N. S. K. Harsh

*Forest Pathology Division, Forest Research Institute, Dehradun, UK-248006, India.
Scientist-G, Forest Pathology Division, Forest Research Institute, Dehradun, UK-248006, India.

Accepted May, 2014

***Ganoderma lucidum* is an important medicinal mushroom being used in clinical, pharmaceutical and nutritional industry for the treatment of various diseases such as migraine, hypertension, asthma, hepatitis and cardiovascular problems. Its therapeutic importance and increasing demand emphasizes to develop and extend its easy cultivation technique. In the present study the main focus was given to small groups and marginal farmers of rural areas specially women and unemployed youth who can make an economic contribution to agricultural and healthcare markets. The results proved the success of the extension approach and methodology which entitles many local villagers and farmers of nearby areas of Dehradun, India to cultivate mushroom and earn a good source of income. This would create new approaches of employment for the rural populations.**

Key words: Awareness, cultivation, economics, extension, medicinal mushroom, women.

INTRODUCTION

Extension is an ongoing process in which useful information is transferred to the people and then they are assisted to acquire the necessary knowledge, skills and approach to utilize effectively the information or technology. The principal objective of an extension practice is to enable people specially women to use the available knowledge, skill, information and technology to promote social, cultural, recreational and intellectual life of the people.

Mushroom growing has been appreciated as a technically feasible and profitable venture and widely accepted by the people as a good project for their income, employment generation and rural development (Kapoor and Behl, 1983; Chauhan and Sood, 1992). This, on one hand, will develop self-reliance among the rural women and save them from tiring manual labor, and on the other hand, will provide them with more opportunities for cultural, societal, and technical education in improving the quality of family and community life by income generation (Hansra and Vijayaragavan, 2003; Karwa and

Rai., 2005, Omokore and Yusuf, 2009). There is an urgent need to impart technical knowledge to women in order to adopt mushroom production as an income generating activity for enhancing additional income of their family (Manju *et al.*, 2012; Singh, 2013).

The objective of this work is mainly focused to coordinate the awareness programme to make people aware about the medicinal values of *Ganoderma lucidum* and promote its cultivation technology to improve their social and economical condition in North India.

MATERIALS AND METHODS

For the extension, one has to select method of approach which is appropriate to a wide range of target communities. The broad categories of extension approaches used are listed:

Providing information and education about *G. lucidum*

To provide information and to educate people about a new technology, there are several steps to follow such as awareness campaigns.

*Corresponding author. E-mail. sona.singh13@gmail.com

Awareness campaigns

Awareness is a method to develop ability of understanding of a subject, issue or situation. To make people aware about new findings a suitable topic is selected which includes basic knowledge and suited to reach many people at the same time. This exercise also helps in rapport building with the stakeholders. Although, an awareness campaign is unlikely to produce any specific measurable change in attitude by the members of a community, but it makes them more receptive to further action, which is likely to bring about a change.

Changing Attitudes

After creating awareness it is necessary to persuade, convince and change the outlook of people. These methods are oriented towards creating a positive outlook, based on the experience that people are more likely to adopt new ways of doing things when they see the real benefits by them.

Administering extension programme management procedure

Method of demonstration

Following the awareness campaigns in areas where sufficient interest has been aroused about cultivation of mushroom and where it is relevant to community life, demonstrations are organized. At this stage, necessary detailed information is conveyed to develop a high degree of skill, but demonstrated in a simple way to small groups of people.

Demonstration trials

Trials and demonstrations are set up to show the technology. Sometimes people are persuaded to conduct a demonstration on a small part of their own land, in a way proving to them that the advice provided is sound. The goal is to convince the community that the demonstration results are better than the conventional results.

Small group meetings

Small group meetings are an excellent means to explain carefully what a cultivation method needs, to indicate the necessary skills required and generally to implement an action plan. People can discuss and decide for themselves in small groups by interactions and information sharing.

Extension administration techniques

The processes described above are aimed to help the people to improve their strategy to execute the programme, it is a cultivation technique.

Work plan and calendars of work

To perform a demonstration trial or a small group meeting, work plan is necessary and it indicates the details about the whole strategy. These details include date, time, objectivity, and responsible people and follow up needed for the extension programme. Advance preparations can be made with an outline plan.

RESULTS AND DISCUSSION

For successful implementation of this extension, the right approach or the methodology was an important step. The above mentioned methodology was followed through out for conducting awareness programme. For the extension of *G. lucidum* cultivation technology (Singh *et al.*, 2014), several workshops and training programmes have been organized. In these trainings local women (Figure 1. a-b), farmers, mushroom growers and NGOs took part. About 250 people were trained in cultivation technology so far.

Awareness campaigns and demonstration trials

To accomplish this objective, the first awareness campaign which included a one day workshop and hands-on training was organized on 11th March, 2011. This programme was attended by 21 women, local farmers and mushroom growers. In this training workshop, people were taught about the medicinal aspects, cultivation and current status of this fungus. A demonstration was also shown to trainees in the Glass House of Forest Pathology Division, Forest Research Institute, Dehradun. The lectures delivered by the senior scientists and other staff included the basic idea of the healing aspects of this mushroom.

Motivated by the awareness cum training programme, a local resident Mr. Ajay Bhatt from Chandrabani, Dehradun came forward for arranging a field trial in his facility. He started cultivation trial of *G. lucidum* in his polyhouse on 5th August, 2011 and successfully cultivated the crop. After the accomplishment of the first field trial, several one-day hands-on trainings had been organized regularly throughout 2011 in which nearly 10-12 people were trained in each training and made aware about the therapeutic uses and cultivation process of *G. lucidum*.

A number of hands-on training was regularly conducted round the year 2012. A small group meeting had been



Figure 1. (a-b) One day awareness and hands-on training.

conducted on cultivation technology of *G. lucidum* on 22nd February, 2012 in which 7 mushroom growers were trained and hands-on training was also given in Glass House of Forest Pathology Division, F.R.I., Dehradun. On 29th February 2012, a training workshop has been organized by Extension Division, F.R.I. In this workshop, about 40 farmers and mushroom growers of Dehradun and nearby areas were trained on cultivation technology of *G. lucidum* and also made aware about the medicinal value of this fungus.

On 29th March 2013, 25 members of a local NGO, Baghban had been trained in cultivation of *G. lucidum* in Kandoli village. On 23rd August 2013, a cultivation trial was laid down at Shyampur, a village adopted by F.R.I. for demonstration of technologies.

Inspired by the awareness programme held in February, 2013, representative of Flex Food Industries, Haridwar Road, Dehradun came forward for cultivation and laid down a trial on 9th May 2013 and *G. lucidum* was successfully cultivated at their facilities.

Impressed with the extension of technology of *G. lucidum* cultivation, Uttarakhand Council of Science and Technology, Dehradun sponsored a training-cum- awareness programme with an NGO, Baghban Gramodyog Smiti, Shyampur which was inaugurated by Smt. Amrita Rawat, the minister of Tourism, Women Empowerment and Child Development, Uttarakhand Government and also was attended by nearly 350 interested people mostly women.

Several small group meetings and hands-on training were organized during 2013 to inform local women of self help group and NGOs. Women should be involved not only in collecting edible mushrooms, but also in cultivating medicinal mushrooms (Apetorgbor et al., 2005). The results proved the success of the extension approach and methodology which entitles many local villagers and farmers of nearby areas of Dehradun to cultivate mushroom and earn a good source of revenue. They can utilize this technique by making small self help groups. Few of them were already in progress with the cultivation in their facilities. It showed the success of the extension scheme followed in this work.

To our knowledge no efforts have so far been made in India for extension of *G. lucidum* cultivation technology to the growers. Hence, this is the first attempt in this field and the response received is encouraging and few persons have already started cultivating *G. lucidum* in and around Dehradun, UK, India. The right approach and balanced implementation of a well organized plan is the key to success for any extension programme.

ACKNOWLEDGEMENT

The authors are thankful to the Director, Forest Research Institute, Dehradun, UK, India for the facilities provided to conduct this work at the Institute.

REFERENCE

- Apetorgbor MM, Apetorgbor AK, Nutakor E (2005). Utilization and cultivation of edible mushrooms for rural livelihood in Southern Ghana. 17TH Commonwealth Forestry Conference, Colombo, Sri Lanka.
- Chauhan SK, Sood RP (1992). Economics of production and marketing of mushroom in Kangra district, Himachal Pradesh. Int. J. Agri. Mar. 6: pp. 44-49.
- Hansra, Vijayaragavan (2003). Agri business and extension management. Concept Publishing Company, New Delhi, p. 390.
- Kapoor P, Behl N (1983). Cultivation of button mushroom – Gram Prod. 3: p. 101.
- Karwa AS, Rai MK (2005). Role of Women in Mushroom Cultivation: Ind. Pers. 7: p. 419.
- Manju, Varma M, Rani S (2012). Impact assessment of mushroom production for Rural women, Rajasthan J. Ex. Edu. 20: pp. 78-80, 2012.
- Omokore DF, Yusuf HE (2009). Women Empowerment And Agricultural Extension Policy: The Changing Role Of Extension Agents. G. App. Ex. Pra.: A J. Agri. Ex. 5(1): pp. 220-223.
- Singh S (2013). Study of diversity and cultivation of *Gan-*

oderma lucidum Ph.D. Thesis, Forest Research Institute (Deemed) University, Dehradun, U.K., India.
Singh S, Harsh NSK, Gupta PK (2014). A novel method of economical cultivation of medicinally important mushroom *Ganoderma lucidum*, I.J.P.S.R. 5: pp.2033-2037