



# Effect of Management Practices Followed by Trainees on *Dhingri* (*Pleurotus sajorcaju*) Production

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## ABSTRACT

Significant differences in raw yield were obtained with the sprinkling of water once a day (525 g) and twice a day (1008 g) on the full grown mycelium bag when no fresh air was supplied, whereas the values were 755 g and 2560g, respectively when fresh air was supplied. The study revealed that majority of trainees (80%) compressed the spawn inoculated wheat straw slightly, 12 per cent of trainees filled spawn inoculated wheat straw too hard and also did not apply water, which resulted in no yield at all. It was evident from the study that filling up of the material, watering and maintaining an optimum temperature seems to be very important for obtaining good yields.

**Key Words:** Dhingri, Management practices, *Pleurotus sajorcaju*, Production, Temperature, Water.

## INTRODUCTION

Every Krishi Vigyan Kendra in the country is imparting short duration as well as long duration vocational training programmes to the farmers, farm women and youth in order to create self employment in the field of agriculture and allied sectors. It was important to note that till now the introduction of new skills as well as techniques demonstrated through conductance of vocational training programmes, practical classes, delivering lectures and organizing seminars, etc. has met with only partial success as measured by the observed rate of adoption (Sharma *et al*, 2014) although, the knowledge gained among respondents varied between 15 to 53 per cent for different enterprises after acquiring vocational trainings (Lal and Tandon, 2011). It was emphasized by Sharma (2016) that the farmers in the age group of 20-30 yr were found to be more interested in acquiring trainings, demonstrations and exposure visits and acquired high level of knowledge as compared to the elder group of more than 40 yr of age whereas, the adoption of various management practices was found to be higher in elder than the young group.

*Pleurotus* sp. called as Oyster Mushrooms

or *Dhingri* ranks second among the cultivated mushrooms in the world. *Pleurotus sajorcaju* is one the most successful cultivated sp. of these mushrooms and it is considered to be delicious (Zhang *et al*, 2002). It is rich in vitamin C and B complex and the protein content varies between 1.6 to 2.5 per cent and mineral salts required for human body. The folic acid present helps to cure anaemia. It is suitable for people with hyper tension, obesity and diabetes due to its low sodium : potassium ratio, starch, fat and calorific value (Randive, 2012). The importance of edible mushrooms has increased due to the advances in cultivation technology which make use of several residues and thus helping in reducing pollution caused by the presence of these materials in the environment (Pandey *et al*, 2000).

In India, paddy and wheat straw are being used for commercial production of Oyster mushrooms. Large scale cultivation of Dhingri helps people in rural areas to improve their income. It can be grown when the room temperature is between 20°C and 30°C and the humidity is above 70 per cent. Moreover, its method of cultivation is also very simple as compared to button mushroom (*Agaricus bisporus*). Infact, there are numerous management

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lacunae on which the success of this enterprise depends. Hence, it was planned to evaluate the effect of management practices followed by the trainees on the yield of *Dhingri* (*Pleurotus sajorcaju*) production.

## MATERIALS AND METHODS

Twenty five farmers from the different villages were taken for this study and data were collected from the trainees' farm by designing a data entry book, which was kept at the farm of trainee in which detailed information was noted down by the trainee and checked by the KVK scientist periodically. All the trainees were imparted vocational training in the month of October, 2014, which involved theoretical and practical classes. During the practical, 100 kg of wheat straw was steeped in water containing 75 ppm bavistin + 500 ppm formaldehyde for 18 hr to prevent contamination by other fungi. After drainage of excess solution, the substrate was allowed to dry in sunlight to maintain final moisture content of 65-70 per cent. These filled bags were supplied to the trainees and the effect of various management practices followed by the trainees at the farm and its effect of *dhingri* production was recorded in order to draw the inference about the impact of training programme.

## RESULTS AND DISCUSSION

### Spawning and filling of polyethylene bags

Polythene bags of two sizes viz 20"x14" and 16"x12" possessing capacity of about 5 kg and 3 kg of wet straw were used for spawning and filling of wheat straw. The spawn was mixed in the wheat straw @ 100 g/ kg of dry wheat straw. During filling, the mixture was compressed slightly to make the straw compact. The mouth of the bag was kept closed till mycelium seen covering the entire compost inside the bag.

### Time taken for fungal growth

The growth of mycelium depends upon many external factors like temperature, packaging method, supply of fresh air or light and water

sprinkling intervals, etc. It was observed that time taken from seed inoculation to full fungal growth varied between 22-25 d.

### Effect of temperature on yield

During the fruiting period, the temperature ranged between 4°C to 18°C and this wide range resulted in variable yield of fruiting bodies of *Dhingri*. The correlation coefficient between temperature and fruiting body yield was found to be 0.87 revealing that as the room temperature declined there was a reduction in the yield. Room temperature of more than 12°C was found important to harvest bumper crop. A significant increase in average yield was observed at higher temperature.

**Table 1. Effect of temperature on fresh yield of *Dhingri*.**

Temperature maintained (oC)	Production (Kg)	
	20"x14" size bag	16"x12" size bag
<8	0.07	0.00
8-12	0.825	0.455
>12	1.736	0.995

### Effect of fresh air, light and sprinkling of water on yield

It has been recommended that after the bag is cut and opened *Dhingri* required to be given fresh air (1-2 hr daily) and water (twice in a day) in order to reduce CO<sub>2</sub> concentration and to maintain proper relative humidity. It was observed that sprinkling of water was crucial than supply of fresh air as evident from the data (Table 2). Further, it was noticed that trainees who did not apply water could not get anything as the yield was nil. However, there was significant difference in raw yield obtained with the sprinkling of water once a day (525 g) and twice a day (1008 g) on the full grown mycelium bag when no fresh air was supplied, whereas the values were 755 g and 2,560 g, respectively when fresh air was supplied. Thus, there was an increase in yield of 92 per cent on applying water once a day with no fresh air, which became 239 per cent on water application

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**Table 2. Effect of fresh air and light availability on yield.**

Supply of fresh air and light daily	Sprinkling of water			Per cent increase in yield
	Did not water	Once a day	twice a day	
Not supplied	0.00	0.525	1.08	92
Supplied	0.00	0.755	2.560	239

**Table 3. Effect of packaging techniques along with watering on yield**

Packing of the bag	Sprinkling of water		
	Did not water	Once a day	Twice a day
Compressed slightly	0.00	0.975	2.378
Loosely packed	-	0.200	0.850
Packed too hard	0.00	-	-

twice a day with fresh air. Therefore, it can be said that proper attitude of the trainees regarding recommended techniques was essential to harvest a bumper crop of *dhingri* as evident from Table 2.

### Effect of packaging techniques along with watering on yield

It has been recommended that the inoculated wheat straw need to be compressed slightly at the time of filling up of the polythene bags in order to harvest a good yield, whereas, it should not be either too hard or loosely packed. The study revealed that majority of trainees (80%) compressed the spawn inoculated wheat straw slightly, 12 per cent of trainees filled spawn inoculated wheat straw too hard and also did not apply water, which resulted in no yield at all. Only 8 per cent farmers packed the material loosely and therefore harvested only 200 g and 850 g, respectively with sprinkling of water once and twice a day (Table 3). Further it was found that when straw was filled too hard, there was no effect of water sprinkling on the yield as water could not percolate inside the bag and hence yield of the *dhingri* was affected adversely.

**Table 4. Effect of watering on *Dhingri* yield**

Sprinkle of water	Production (kg)	
	20"X14" size bag	16"X12" size bag
Did not water	0.00	0.00
Once a day	0.58	0.24
Twice a day	1.44	0.83

### Effect of watering on *Dhingri* yield

All the trainees were advocated to sprinkle water on filled spawn bags twice a day (morning and evening) in order to maintain a proper relative humidity of about 95 per cent to harvest maximum yield. The data in table 4 showed that most of them (56%) followed this approach and got fresh yield of 1.44 kg large/bag and 0.83 kg/small bag and those who applied water once a day got yield of 580 g from large bag and 240 g from small bag. It was recorded that 28 per cent farmers did not apply water and hence got no yield. It was evident from the study that filling up of the material, watering and maintaining an optimum temperature seems to be very important for obtaining good yields.

## CONCLUSION

The findings of this study may play an eye opening instance for the extension scientists, who are taking a very keen interest in imparting technical knowledge as well as skill to the participants to the maximum possible extent on the one hand but on the other hand, the trainees or the farmers are not at all interested to put even small efforts like sprinkling of water daily once or twice a day.

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