

Success Story of a Mushroom Entrepreneur

THE TRAVELOGUE OF CHANDRASEKAR

1. Name of the enterprise : High Value Mushroom Production

2. Name and complete address of entrepreneur:

Mr. V. Chandrasekaran,
S/o. Mr. T. Venkatesan,
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Villupuram District
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3. Interventions of KVK with quantitative data support:

a. Pre and post interventions survey

i. Pre intervention survey:

Mr. Chandrasekaran was a Travels Operator at Chennai earlier that provided limited comfort for his livelihood and he returned back to farming with expectations in 2008. The adoption of new technologies in agriculture in his farm was low which had cascading effects on income and savings in his family. Income generation for the joint family under the conditions was difficult and exploration for alternate livelihood was discussed at family level and the need arose then.

ii. Post interventions survey:

Mr. Chandrasekaran learnt about the prospects and opportunities in mushroom cultivation through two practicing farmers of Dindigul District in 2008. Discussions followed by technical visits to various mushroom units gave him the confidence of integrating mushroom as an added enterprise in his farm. He started, experimenting with milky mushroom, in his farm which has been promoted by Tamil Nadu Agricultural University. His bedspawn requirement was met by entrepreneurs already in business in the neighbouring district on commercial basis. He started on a successful note of completing two full crops in the establishment phase. The need for scientific mushroom cultivation was felt immensely by him as a cultivator in 2008 and he established contact with the Krishi Vigyan Kendra, Villupuram at Tindivanam based on advice of fellow farmers. Need analysis by the Centre showed inadequacies in application of skill and management considerations in milky mushroom cultivation by the novice entrepreneur. He required technical backstopping in his place and the techniques were provided by the experts of the KVK. The cultivator was encouraged to produce mother and bedspawn through capacity building programme of the KVK. A Rural Laboratory was established in his farm household under the aegis of the DBT-GOI funded project on rural youth empowerment in the followup programme. His active role in tissue culture of mushroom, and from it mother and bedspawn

production enabled year round production of the milky mushroom. A Society under the banner “Ezhil Milky Mushroom Growers Association” was established in the later part of 2009 under the Societies Act, 1976.

b. Trainings

i. Trainings Undertaken

The entrepreneur underwent series of trainings in the district and higher learning at NRCM, Solan. The details are furnished below.

Period	Topic	Training type	Location
2009	Milky mushroom substrate and casing material preparation	Vocational training	KVK, Tindivanam
2010	Milky mushroom production	Off campus	Melamavilangai
	Milky mushroom production	On campus	KVK, Tindivanam
2012	Button mushroom production	On campus	NRC for Mushroom, Solan

ii. As Resource person for the Trainings organized by the KVK

From 2011 onwards Mr. Chandrasekaran has been utilized by the KVK, Villupuram as resource person. The major ones are given below.

Date	Topic	Training type
2-9.7.2011	Cultivation of Milky mushroom	Vocational training
14-15.9.2011	Mushroom cultivation Technologies	Vocational training
6-9.11.2012	Mushroom cultivation Technologies	Vocational training

c. Demonstrations

Demonstrations of cultivation of oyster mushroom, milky mushroom and mother and bed spawn productions were given to his group during the training programme.

Date	Method demonstration	Training type
20-21.8.2009	Milky mushroom substrate and casing material preparation	Vocational training
15.2.10	Milky mushroom production	Off campus
30.4.2010	Milky mushroom production	On campus

Following demonstrations were conducted for milky mushroom cultivation

- Preparation of mother spawn
- Preparation of bed spawn
- Paddy straw sterilization
- Preparation of mushroom beds
- Construction and maintenance of spawn running room and cropping room
- Preparation of casing mixture and casing of mushroom beds

- Harvesting, packing and post harvest techniques
- Preparation of Potato Dextrose Agar medium and PDA slants

c. Field days, group meeting etc

The group has participated in ten field days and group discussions in his Mushroom farm along with the trainees of mushroom.

d. Publicity and marketing

From 2009 onwards he is supplying spawn to the local producers of Tindivanam and nearby areas. He has displayed his products in Farmers Day conducted during every year at TNAU, Coimbatore and CODISSIA at Coimbatore. Similarly, he has participated in the Mushroom Mela hosted by National Research Centre for Mushroom, Solan and TNAU, Coimbatore on 22.03.2013 at Salem. The developing story of mushroom in his farm was telecast in state level programme 'Malarum Boomi' which attracted youth towards him. The KVK facilitated his participation in many inhouse empowerment programmes, the First Youth Conference of the University in 2011 at Coimbatore, the First Global Conference for Women in Agriculture in 2012 at New Delhi.

4. Time line of entrepreneurship development of entrepreneur

- 2008- Mr. V. CHANDRASEKARAN, a Travels Operator
- 2009- Milky mushroom grower
- 2010- Spawn producer
- 2011- Mushroom spawn producer in large scale
- 2012- Exposure to button mushroom
- 2013- Compost and Button mushroom cultivation in large scale

5. Technical components in the enterprise

Cultivation of Milky Mushroom, and establishment of rural facility for tissue culture to mother spawn, bed spawn, maintenance of biotic and abiotic stress free condition in mushroom production, harvest, grading, packaging, transport.

i. Raw materials

Substrate for the production involving paddy straw, casing soil, mushroom spawn etc in prefabricated mushroom shed of standard size as per the prescription of TNAU, Coimbatore

ii. Process (methodology)

The methodology followed for Milky, oyster and spawn production is as per the standard protocol developed by Tamil Nadu Agricultural University, Coimbatore.

Cultivation techniques

Substrates

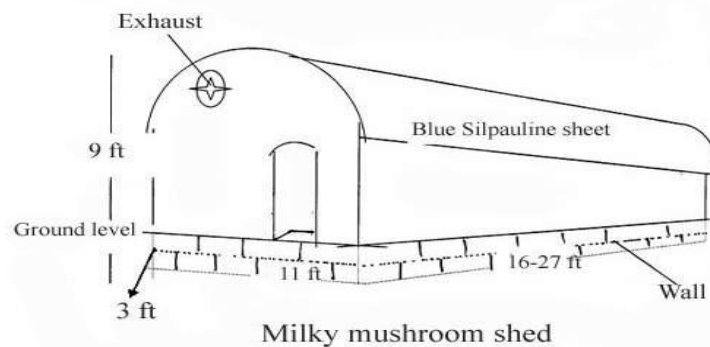
Milky mushroom is being cultivated on cellulosic substrates namely, paddy straw.

Spawn

Half cooked sorghum grains are mixed with 2 per cent calcium carbonate and filled in empty glucose bottles or in polypropylene bags. They are autoclaved at 1.4-kg/cm^2 pressure for 1.5 to 2.0 h. The bottles/bags are aseptically inoculated and incubated at room temperature ($28\pm 2^\circ\text{C}$). The spawn run will be completed in 10-12 days and these bottles/bags serve as mother cultures. From each bottle of mother culture 25-30 additional spawn bottles can be multiplied aseptically and used.

Cultivation Chamber

Beds after preparation may be kept under normal room temperature ($25\text{-}35^\circ\text{C}$) for spawn run. After completion of spawn run and after casing, the beds are to be incubated over racks in a partially sunken chamber lined with blue coloured high-density polythene sheet as roofing material. Inside the chamber the temperature should be around $30\text{-}35^\circ\text{C}$ and the relative humidity more than 85 per cent. Light intensity of about 1600-3200 lux is essential in the cropping room. Proper ventilation for gaseous exchange is also essential.



Mushroom Bed Preparation

Polythene bags of 60 x 30 cm or 75 x 45 cm size are used for mushroom bed preparation. Chaffed paddy straw bits of 3-5 cm in length are soaked in cold water for 4 hours. After draining the excess water, the straw bits are treated in hot water at about 80°C for 60 min. in a separate drum. Aerated Steam treatment of substrate at a temperature of about 80°C for 60 min. may also be followed. The chemical substrate treatment with carbendazim 75 ppm + formalin 500 ppm (soaked for 16 h) is also used for preparation of substrate.

After substrate treatment they are shade dried to remove excess moisture and used for bed preparation. At the time of bed preparation the substrate should contain around 60 per cent moisture (can be tested by squeeze method). Sorghum grain spawn may be used and cylindrical beds are prepared following layer method of spawning as is generally done in case of oyster mushroom. With each bottle of spawn 2-3 cylindrical beds can be prepared. The beds are then incubated for spawn run under semi-dark condition in a clean room. Spawn run will be completed in 10-12 days.

Casing

Milky mushroom production involves an additional process called casing. After the completion of spawn run the cylindrical beds are cut horizontally into two equal halves. Over the each half cut bed casing soil is applied to a height of 1-2 cm. For casing steamed (for 1 h) garden soil (clay loam, pH around 8.0) is useful. Sometimes clay mixed red soil added with calcium carbonate (2 per cent).

Cropping

Beds after casing are kept in cultivation chambers and sprayed regularly with water to maintain 50-60 per cent moisture level in the casing medium. Pinheads appear in 8-10 days after casing and the first harvest can be made in 6-8 days after pinhead formation. After obtaining the first harvest the casing medium is gently ruffled, slightly compacted back and sprayed regularly with water. Second and third harvest may be obtained within 45-50 days of bed preparation. Then the beds are removed and fresh beds may be kept for cropping.

iii. Man power involvement: 8 Nos.

iv. Package and handling: The products are packed in the food grade quality poly bags and sealed

6. Cost benefit ratio

S. No	Particulars	Cost benefit ratio
1	Milky mushroom	1:1.5
2	Button mushroom	1:2.2
3	Spawn	1:2.0

7. Status of entrepreneur before and after the enterprise

Mr. Chandrasekaran had an ancestral property of 3.5 acres of land in Melmavilangai, Olakkur Block of Villupuram District. The whole family was engaged in cultivation of paddy, sugarcane, groundnut, different gourds and brinjal in this piece of land besides an area of 2.5 acres leased in by his father. This continues to be their first occupation even today.

After entering into mushroom enterprise, the number of crops stood at an average of 7 per year from the baseline of 2 crops per year following the intervention of KVK. The spawn production at inception was 400 packets/month during 2009. Currently, it has risen to 4000 packets/month with 100% commercial consumption. The enterprise is providing employment to three rural persons besides his family. The mushrooms are sold in local and regional trade methods. The entrepreneur as a resource person in attachment programmes of periods one to two months has offered trainings to graduate students of Loyola College, Chennai during 2010-2013. He turned out to be a good consultant and established mushroom production units in Valajabad (1), Chennai (7), Gudiyatham (5), Villupuram (3), Arani (2), Aruppukottai (2), Sethiathoppu (3), and Bodinaicaknur (3). Totally he laid out 26 custom designed Units with production capacity of 72.8 tonnes of milky mushroom/year.

8. Present working condition of enterprise in terms of raw material, labour availability, consumers preference, marketing the produce etc parameters (i.e economic viability of the enterprise)

The pinnacle in his enterprise is establishment of compost unit in Ootacamund with capacity of 160 tonnes/cycle for the production of edible button mushroom during the later part of 2012. This was possible through his personal efforts and capacity building programme

attended at the National Research Centre for Mushroom, Solan, Himachal Pradesh in 2012. He attributes his decision to venture into this special enterprise due to his successful experience with milky mushroom, personal survey and technological backstopping by KVK and other role players. He has approached this enterprise with the twin motto of inhouse production and self reliance. The production process, personal flow and management in the new enterprise are known to the entrepreneur effectively. The entrepreneur has leased in on longterm basis prime land near Ooty, established infrastructure like living house, production facility, borewell and other machineries for the production of button mushroom by outdoor composting method. The needed manpower for production, supply and delivery (8 Nos) have been inducted in the process. The project value is Rs. 30.00 lakhs. The installed production capacity for the mushroom is 30 tonnes/cycle with expected returns of Rs. 35.00 lakhs/cycle. The supply chain system for the mushroom has been established by the entrepreneur now.

9. Horizontal spread of enterprise

The entrepreneur as a resource person in attachment programmes of periods one to two months has offered trainings to graduate students of Loyola College, Chennai during 2010-2013. He turned out to be a good consultant and established mushroom production units in Valajabad (1), Chennai (7), Gudiyatham (5), Villupuram (3), Arani (2), Aruppukottai (2), Sethiathoppu (3), and Bodinaicaknur (3). Totally he laid out 26 custom designed Units with production capacity of 72.8 tonnes of milky mushroom/year.

10. License, advertisements etc on product

Formed an organization “Ezhil Milky Mushroom Growers Association” under the Tamil Nadu Societies Registration Act, 1975 during 2009 . The success story of mushroom in his farm was telecast in state level programme ‘Malarum Boomi’ which attracted youth towards him.

11. Recognitions/awards received by the entrepreneur

He has obtained several meritorious participation in the state and national level exhibitions.

1.



Mr. V. Chandrasekar preparing the spawn material for his enterprise

2.



Spawn production in Chandrasekar's Lab

3.



View of milky mushroom grown in shed

4.



Button mushroom production unit of Mr. Chandrasekar in Kothagiri, Ooty

5.



Button mushroom production in Ooty

Source:

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