ENTREPRENEUR DEVELOPED BY KRISHI VIGYAN KENDRA, TINDIVANAM

I. 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,
Melmavilangai village
Keelmavilangail Post
Olakkur Block
Villupuram District
Mobile: 9003583828
e-Mail: ezhilmushroom@gmail.com

3. Interventions of KVK with quantitative data support:

1. 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.

2. 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
02 - 09.07.2011	Cultivation of Milky mushroom	Vocational training
14 - 15.09.2011	Mushroom cultivation Technologies	Vocational training
06 - 09.11.2012	Mushroom cultivation Technologies	Vocational training

3. 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 - 21.08.2009	Milky mushroom substrate and casing material preparation	Vocational training
15.02.2010	Milky mushroom production	Off campus
30.04.2010	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

4. 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.

5. 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, mushrooms 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

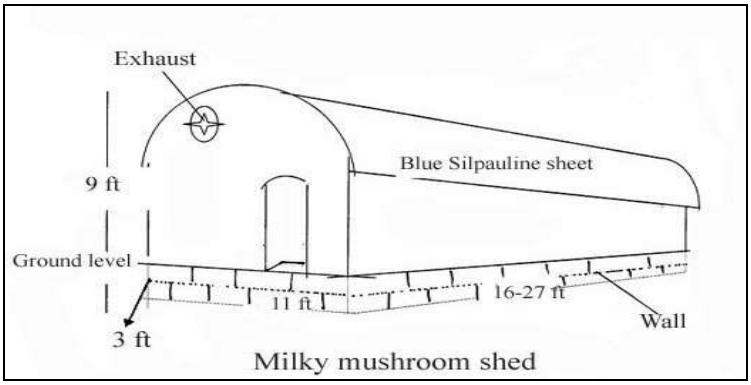
Milky mushroom is being cultivated on cellulosic substrates namely, paddy straw.

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±2°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 (25-35°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 30-35°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.



Milky mushroom shed

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

5. 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

6. 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.

7. 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) has 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.

8. 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.

9. 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.

10. 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

II. AKBAR FORGES AHEAD IN MUSHROOM VALUE ADDITION

1. Name of the enterprise: Mushroom cultivation and value addition

2. Name and completer address of entrepreneur:

Mr. B.Akbar
S/o R.S. Basheer
12/3 Bhutan Sahib Street,
Tindivanam 604 001
Villupuram Dist., TN
Mobile : 9360333235

3. Interventions of KVK with quantitative data support:

a. Pre and post interventions survey:

i. Pre intervention survey:

Mr. Akbar, belonging to a lower middle class family was an auto rickshaw driver by profession. He owned a vehicle that was valued at Rs. 1.25 lakhs in 2005. His education stopped at higher secondary school level itself and the family of the rural youth were not educated. They were very conservative. His income per day was meager, Rs. 250/- only through this profession. He owned a piece of land of 5 cents around his house with borewell facility in Tindivanam of Villupuram District. The total asset value of Mr. Akbar was Rs. 3.5 lakhs only. His economic status before 2005 was very poor. He faced debt and other social problems in bringing up his family as he was the only bread winner.

ii. Post interventions survey:

Mr. Akbar had the inquisitiveness to learn and practice newer methods for gainful self employment. At the age of 38, Mr. Akbar decided to change the profession in view of the difficulties he was facing due to low returns with his profession. A platform was created by the Tamil Nadu Agricultural University for better livelihood. Mr. Akbar began production of Oyster mushroom, *Pleurotus* spp in his farm which has been promoted by the Krishi Vigyan Kendra, Tamil Nadu Agricultural University, Villupuram District. He saw better prospects in this venture and committed himself as a part-time cultivator of oyster mushroom in the early part of 2006. He used to get a net profit of Rs. 10,000/- from the oyster mushroom production unit. The mode of income generation was by direct selling of the produce to retailers, other vendors, regular customers at a fixed margin in 2006. This type of self employment continued upto 2009. In this period he accumulated wealth and experience. During 2008-10 he leased in 10 cents of additional land near his residential production unit to establish a full- fledged business. At the time of establishment of the mushroom unit he faced numerous hurdles. All have been overcome by him due to the constant support of the family. In this period, Mr. Akbar was attracted towards milky mushroom cultivation. The technology 'know how' was provided by the Krishi Vigyan Kendra, Villupuram through several capacity building programmes. The cultivator was encouraged to produce mother and bedspawn. A Rural

Laboratory was established in his farm household during 2008 under the aegis of the DBT-GOI funded project on rural youth empowerment in the followup programme. Technical backstopping in his place and the techniques were provided by the experts of the KVK. Through KVK intervention he instituted "Bismi Milky Mushroom Growers Association" under the Societies Act, 1976 in 2009 with 22 members. He has bought two vehicles for his own purpose. The technical skill in the production of Milky and Oyster mushroom has been improved and he is marketing the fresh mushrooms in networking mode through five different groups who are successfully cultivating mushroom (Mr. Sekar from Kadapakkam, Mr. Babu from Nolambur, Mr. Ponnusamy from Nemili, Mr. Jayaraman from Dadapuram and Mr. Babu from Panruti). Presently due to cultivation of Milky and Oyster mushroom, spawn production and value addition of mushroom, his standard of living has raised and he is earning Rs. 30,000-40,000 per month.

b. Trainings:

i. Trainings Undertaken:

The following are the some of the important trainings he undertook at the major centres in the State. These skill development programmes have enabled his group to practice the value chain management in mushroom on scientific basis.

Date	Topic	Training type	Location
5.2.2007	Mushroom Cultivation	One day training	TNAU, Coimbatore
5-7.9.2007	Mushroom spawn production	Vocational training	KVK, Villupuram
26.2.2009 to 1.3.2009	Milky mushroom production	Vocational training	KVK, Villupuram
19.8.2009 to 19.9.2009	Milky mushroom substrate and casing material preparation	Vocational training	KVK, Villupuram
16.2. 2010	Milky mushroom spawn preparation and weed mould management	On campus	KVK, Villupuram
20.2.2012 to 2.3.2012	Oyster mushroom cultivation and value addition	Vocational training	KVK, Villupuram

ii. As Resource person for the trainings organized by the KVK:

From 2011 onwards Mr. Akbar's expertise has been utilized by the KVK, Villupuram. He has been a resource person in the capacity building programme organized by the Kendra. The major vocational trainings in which he acted as facilitator are furnished below.

Date	Topic	Training type
2-9.7.2011	Cultivation of Milky mushroom	Vocational training
14-18.9.2011	Mushroom cultivation Technologies	Vocational training

6-9.11.2012	Mushroom cultivation Technologies	Vocational training

iii. Demonstrations

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

Date	Method demonstration	Training type
5-7.9.2007	Mushroom spawn production	Vocational training
26.2.2009 to 1.3.2009	Milky mushroom production	Vocational training
19.8.2009 to 19.09.2009	Milky mushroom substrate and casing material preparation	Vocational training
16.2. 2010	Milky mushroom spawn preparation and weed mould management	On campus
20.2.2012 to 2.3.2012	Oyster mushroom cultivation and value addition	Vocational training

This group also demonstrated the value of mushroom in several platforms. Notable among them are the demonstrations held during the visit of the Deputy Director General (AE) during 2009, Technology Week 2010, Quinquennial Review Team Visit during 2011, State level Exhibition in Namakkal during 2010 and Salem during 2013.

iv. Exposure visits

Mr. Akbar and his associates have attended many exposure visits organized by the Krishi Vigyan Kendra. Totally he has participated in nine exposure visits within the state and outside the state during 2010-13. It included visits to centres of excellence at Tamil Nadu Agricultural University, Coimbatore, CODDISSIA, Coimbatore, National Research Centre for Banana, Trichy, Indian Agricultural Research Institute, New Delhi, National Research Centre for Mushroom, Solan etc.

v. Field days, group meeting etc

As Mr. Akbar gained professional competence he participated in many group meetings, field days etc. Since 2007, the group under the leadership of Mr. Akbar organized 18 field days and group discussions on mushroom production as a livelihood option in the rural setup.

vi. Publicity and marketing:

a. Publicity

At Village/Town level: The District Administration is organizing a seven day exhibition for the general public as part of the celebrations of *Chitrai* Festival at Tindivanam from April 14- April 20 every year. Since 2009, Mr. Akbar under the Banner 'Bismi Milky Mushroom Growers Association' has been participating in the weeklong event and

exhibiting the products to promote healthy mushrooms and gain publicity for the venture. Packaged and ready to serve products are displayed on commercial dimensions in this annual exhibition. Publicity materials such as leaflets and recipes are distributed to the general public and consumers during the event regularly by the group.

At District level: The District Industrial Centre enabled platform for Mr. Akbar to display the fresh mushrooms as part of the Entrepreneurship promotional initiative of the district during 2007-2008.

At State level: He has displayed his products in Farmers Day conducted during every year at the Tamil Nadu Agricultural University, Coimbatore and CODISSIA at Coimbatore. Since 2009 he had attended eight events in total at the State Level Programmes on different concepts. He was part of the exhibitors at the State Level programme on 'Attracting Rural Youth in Agriculture' held at the Tamil Nadu Agricultural University on 30.12.2011. The products displayed received highest commendations of the social activists of the country. The success story of mushroom cultivation in his farm was broadcast in AIR, Pondicherry on 17.9.2012, Makkal TV, Podigai TV, Doodardashan (DD), and published different daily tamil magazines at different periods during 2010-13.

At National level: The success story of mushroom enterprise promoted by the Krishi Vigyan Kendra, Villupuram had been documented earlier by the Indian Council of Agricultural Research, New Delhi in 2010. The success of the entrepreneur had been presented in it. The latest one to showcase fresh and value added mushrooms products was at Salem in the Mushroom Mela hosted by National Research Centre for Mushroom, Solan and the Tamil Nadu Agricultural University, Coimbatore on 22.03.2013. The Bismi Milky Mushroom Growers Association displayed participated in the First Global Conference for Women in Agriculture at New Delhi during 13^{th} -15^{th} March, 2012 exhibited mushroom products in the Forum. This was the first international appearance and received appreciation for participation.

b. Marketing

Bismi Milky Mushroom Growers Association has commercialized the edible mushrooms like milky mushroom, oyster mushroom mass produced. This group also has been a liaison for the button mushroom produced in the Nilgris, Tamil Nadu. The fresh mushroom products are marketed in the name Bismi Food products- BFP heath Healthy Mushrooms adhering to the principles of packaging fresh and value added mushrooms. In all the cases the products are sold with information on nutritional properties printed on the package and supporting information brochures containing recipes. Since, the mushroom have low shelf life the producers group with expertise is marketing processed forms and their products for general consumers. The value added products

are marketed in the brand name BFP Healthy mushroom pickle, BFP Healthy Chilli mushroom powder, BFP Healthy Mot laddu, BFP Healthy dry mushroom, BFP Healthy dry mushroom stem, BFP Healthy Mushroom Idli powder etc. Apart from the above recipes he is taking bulk orders for ready to serve preparations and snacks viz., mushroom soup, mushroom samosa, mushroom biriyani, mushroom gravy, mushroom chilli, mushroom chapatis, mushroom pav Baji, mushroom manchurian for family functions, marriages etc.

vii. Time line of entrepreneurship development of entrepreneur

2005 - Akbar-An Auto Rickshaw Driver
2006 - Trainee on mushroom production
2007 - Mushroom cultivator
2008 - Experienced mushroom grower
2009 - Mushroom spawn producer and entrepreneur
2010 - Expertise in value addition and name holder
2011 - Master Trainer
2012 - Exposure from village to global level
2013 - Compliance to commercial nuances in mushroom

5. Technical components in the enterprise

Cultivation of milky mushroom, oyster mushroom, establishment of rural facility for tissue culture to mother spawn, bed spawn production, maintenance of biotic and abiotic conditions for mushroom production, harvest, grading, packaging transport and of fresh mushroom and preparation of various value added mushroom products.

i. Raw materials

Substrate for production involving paddy straw, casing soil, mushroom spawn, calcium chloride etc for multiplication under controlled conditions in prefabricated mushroom shed of standard size as per the prescription of the Tamil Nadu Agricultural University.

ii. Process (methodology)

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

iii. Man power involvement: 20

iv. Package and handling

The products are packed in the food grade quality poly bags and sealed.

5. Cost benefit ratio

S. No	Particulars	Cost benefit ratio
1	Milky mushroom	1:1.5

2	Oyster mushroom	1:1.6
3	Spawn	1:2.0
4	Mushroom pickle	1:1.75
5	Mushroom mot laddu	1:1.5
6	Dry mushroom	1:1.5
7	Dry Mushroom stem	1:1.42
8	Mushroom chilli powder	1:1.66
9	Mushroom idli powder	1:1.5
10	Mushroom briyani	1:1.6
11	mushroom chilli	1:1.71
12	mushroom soup	1:1.87
13	mushroom samosa	1:1.25
14	mushroom chapattis	1:1.66

6. Status of entrepreneur before and after the enterprise

The Entrepreneur had owned an auto rickshaw till 2005 with a land of 5 cents around his house. His economic status before 2005 was very poor and he was earning Rs. 250/- per day from his auto rickshaw. Through spawn and mushroom production venture, his net profit rose up to Rs. 30,000- 40,000 per month in 2013. His standard of living has raised and he has bought two vehicles for his own purpose During 2008-09 he earned an income of Rs. 1,57,000 through mushroom and Rs. 4,60,200 through value addition. Presently his gross annual income in this venture is Rs. 7.20 lakhs.

7. 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)

Due to its poor keeping quality of Oyster mushroom, he along with his wife moved into putting down their culinary skills on to milky, oyster and button mushrooms and soon they were found selling various value added products which included instant snacks (mushroom soup, mushroom samosa, mushroom biriyani, mushroom gravy, mushroom chilli, mushroom chapatis, Mushroom pav Baji, mushroom manchurian , mushroom mot laddu etc.). With value addition he got double the profit than selling as raw mushroom. He is selling the value added products in different rates. Viz. mushroom soup (Rs. 15 each), Mushroom samosa (Rs. 5 each), Mushroom Biriyani (Rs. 80 each), Mushroom Gravy(Rs. 60 each), Mushroom chilli (Rs. 50 each), Mushroom chapathis (Rs. 25/set), Mushroom pav Baji (Rs. 20 each), Mushroom munjurian (Rs. 20 each)and Mushroom mot laddu(Rs. 15 each).

8. Horizontal spread of enterprise

He is giving training on mushroom cultivation to school students *viz*., Philomenas Higher secondary School, Tindivanam, Montfort Higher secondary School, Tindivanam, VKM

Vidayalaya, Molachoor and to interested candidates who has approached him on free of cost basis. Through him the mushroom enterprise has been taken up by four rural youth in the District.

9. License, advertisements etc on product

Formed the “Bismi Milky mushroom producers association” under the Tamil Nadu Societies Registration Act, 1975 during 2009 with 22 members comprising of 18 women and 4 men with license No 8/2009 issued by District Registrar’s office, Villupuram. The success story of his mushroom cultivation was broadcast in AIR, Pondicherry, Makkal TV, Podigai TV, Doodardashan (DD), and in the print media through different daily magazines. Besides, he had participated in the district level, interdistrict level and state and national level exhibitions to showcase the technology and technology backstopping by the Indian National Agricultural Research System.

10. Recognitions/awards received by the entrepreneur

During 2009, his wife Mrs. A. Rahmed Fathima was awarded “Velan Chemmal (Krishi Pandit)” by Tamil Nadu Agricultural University for her effort in mushroom cultivation and its value addition. Several certificates of meritorious participation in the state and national level exhibitions have added strength to his enterprise.

1.	
	Mr. B. Akbar, entrepreneur, Villupuram District
2.	 

	The cultivation of milky mushroom in Akbar's facility
3.	 
	Value added products of mushroom from Akbars Lab
4.	
	Technology showcasing in the First Global Conference of Women in Agriculture
5	
	Participation of Th. Akbar in State level farmers interaction meeting at TNAU, Coimbatore

III. ATTRACTING THE RURAL YOUTH TOWARDS PRODUCTIVE AGRICULTURE

1. Name of the enterprise: Market linked melon production

2. Name and completer address of entrepreneur:

Mr.B.Karthikeyan,
S/o Boobalan.
50, Nedun Streeet,
Alankuppam & Post,
Marakkanam Block,
Villupuram Dist
Mobile No: 9940883829

3. Interventions of KVK with quantitative data support

1. Pre and post interventions survey

i. Pre intervention survey:

Mr. Karthikeyan is a graduate and holds MBA degree from a reputed University of the State. He hails from Alanguppam village and has taken up agriculture as his prime occupation. The youth has been adopting scientific method of cultivation in casuarinas, groundnut and vegetables in his native village, which is noted for vegetable and casuarinas cultivation for a long period of time.

ii. Post interventions survey:

In 2010, Mr.. Karthikeyan approached KVK for crop diversification and water saving method of cultivation which put together gives regular income to his family. The KVK enrolled him under the TN-IAMWARM Nallavur Sub-Basin for precision farming in vegetables after detailed discussions. The concept of micro irrigation in vegetables impacted his agricultural operation. His farmlands came out as his experimental ground. He expanded the micro irrigation infrastructure in three years from a beginning of one hectare to 6 hectares. He empanelled later into a private micro irrigation concern for input supply. Mr. Kartihick gained the needed skill in portray maintenance of melon seedlings, transplanting under mulching, implementation of the right production technology, identification of all the maladies persisting in melon farming and adoption of corrections. During the period he established forward contracts with buyers in Chennai, Puducherry, Salem, Bangalore for the marketing of the farm produce. Having become a master trainer and rural technocrat, Mr. Karthikeyan is advising the fellow farmers on the latest methods in micro irrigation, crop mulching, watermelon and muskmelon production in tune with the market demand in his area.

2. Trainings

1. Trainings Undertaken

Mr. Karthikeyan underwent several oncampus trainings organized by the Kendra in his native place and surrounding villages. Besides, he attended some of the oncampus programme given below.

Date	Topic	Training type	Location
28.9.2011	Precision farming in vegetable crops	On Campus	KVK, Tindivanam
24.2.2012	Improved Production Practices for watermelon	On Campus	KVK, Tindivanam
4.10.2012	Precision farming in Sugarcane	On Campus	KVK, Tindivanam

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

From 2011 onwards Mr. Karthikeyan has been utilized by the KVK, Villupuram as resource person

Date	Topic	Training type
21.12.2011	Precision farming in Horticultural Crops	Exposure visit
24.12.2011	Precision farming in Horticultural Crops	Exposure visit
3.1.2012	Precision farming in Vegetable Crops	Exposure visit
7.2.2012	Precision farming in watermelon	Exposure visit

3. Demonstrations

The technology demonstration exercises were carried out in his field on several occasions during the exposure visits organized by the KVK.

4. Field days, group meeting etc

The rural youth has arttended four field days along with the trainees of precision farming organized by KVK, Tindivanam. Besides, he has participated in the many group discussion during the visit of delegations to his place. The District Collector, World Bank Team, Afghan Delegation are some of the noteworthy groups of visitors to his fields during 2012-13.

Date	Topic	Training type	Location
7.5.2012	Precision farming in watermelon	Field day	Alangkuppam
3.9.2012	Harvesting of Watermelon	Field day	Alangkuppam

	and Muskmelon		
21.2.2013	Harvesting of Watermelon	Field day	Alangkuppam
1.3.2013	Ethrel spray in watermelon	Field day	Alangkuppam

5. Publicity and marketing

He is one among the farmers to adopt drip fertigation and mulching in growing vegetable crops viz. watermelon, muskmelon and brinjal. The profit gained and water saving technology adopted by him has presently motivated other farmers to grow the crops under mulching with drip unit for growing vegetable crops.

4. Time line of entrepreneurship development of entrepreneur

2009 - Mr. Karthikeyan became a farmer

2010 - Project farmer and adoption of micro irrigation technology

2011- Crop mulching and application of plasticulture in horticulture + area expansion

2012- Dynamic market linkage

2013 - Member of the periurban vegetable production cluster

5. Technical components in the enterprise

Cultivation of vegetables (watermelon, muskmelon and brinjal) under drip fertigation with mulching technology, marketing of the produce.

Raw materials

Drip unit, Mulching sheet, vegetables (watermelon, muskmelon and brinjal)

Process (methodology)

The methodologies followed for cultivation of vegetables are as per the horticulture guide developed by Tamil Nadu Agricultural University, Coimbatore.

Man power involvement: Family labours 4 members and hired labourers as per requirement

Package and handling

The products are directly marketed to nearby periurban market Chennai.

6. Cost benefit ratio

S. No	Particulars	Cost benefit ratio
1	Watermelon	1:2.9
2	Muskmelon	1:5.7

7. Status of entrepreneur before and after the enterprise

Mr. Karthikeyan had an ancestral property of 7 acres of land in Alanguppam, Marakanam Block of Villupuram District. The whole family was engaged in cultivation of paddy, groundnut and brinjal in their land. After entering into precision farming technology, he is growing 3 crops of watermelon and muskmelon per year. This has provided him year round agricultural employment. Presently he has taken 15 acres of land on lease and cultivating watermelon and muskmelon on large scale. His status in the society has grown.

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)

Presently through State Horticulture Department he has joined as active member in vegetable growers association for vegetable collection center at Alanguppam village. He is procuring all the vegetables grown in his area and supplying directly to the whole sale market without middle man interference.

9. Horizontal spread of enterprise

The area under drip fertigation and mulching in growing vegetable crops *viz*. watermelon, melon and brinjal has increased to an extent of 5 ha during 2010 to 38 ha during 2013. Presently, the Kendra under village saturation model is bringing in additionally 80 hectares under precision farming.

10. Recognitions/awards received by the entrepreneur

His farm has been identified as a learning ground for precision farming technology and many farmers have visited his farm during their exposure visit in Precision farming.

1.	
	Mr. B. Karthikeyan, Rural Youth
2.	
	View of the muskmelon field of the entrepreneur
3.	
	Demonstration of technology by the entrepreneur

IV. SSI RENDERS GANESAN A SUCCESFUL ENTREPRENEUR

1. Name of the enterprise: Sugarcane Nursery

2. Name and complete address of entrepreneur:

Mr. M. Ganesan
Palliyanthur Post
Kondiankuppam
Kanai Block
Villupuram District
Mobile : 9843758638

3. Interventions of KVK with quantitative data support:

1. Pre and post interventions survey:

i. Pre intervention survey:

Mr. M. Ganesanis an experienced farmer owning four acres of land in his native place, Kanai Block of Villupuram District. He regularly cultivated flower crops such as crossandra, jasmine and commercial crop sugarcane in the holding but in the most traditional way. The non-availability of labour was the most persistent problem in flower cultivation that curtailed the returns to his investment heavily. In sugarcane crop, he was constrained by problems such as difficulties in irrigation due to erratic power supply, low milleable cane weight, poor economic returns.

ii. Post intervention survey:

Under the TN-IAMWARM Scheme operational in the Oilseeds Research Station of the Tamil Nadu Agricultural University, the farmer started adopting the technologies in Sustainable Sugarcane Initiative. In his farmlands he laid out the micro irrigation infrastructure and adopted the principles of SSI that included planting of protray raised sugarcane seedlings. The success of planting sugarcane seedlings kindled the entrepreneurial mind in Mr. M. Ganesan. During the later part of 2010 he commenced the 'Vanitha Nursery' especially for the production of sugarcane chip bud seedlings. The nursery enterprise provided him year round employment and substantial revenue generation.

2. Trainings

1. Trainings Undertaken

The farmer attended several trainings under the scheme in which skill imparting exercises were carried out by the experts of the KrishiVigyan Kendra and Oilseeds Research Station, Tindivanam. These trainings provided him the needed technologies for adoption.

Date	Topic	Training type
4.11.2011	SSI Technology	On campus training
22.2.2012	SSI Technology	On campus training
23.12.2012	SSI Technology	On campus training
23.2.2013	SSI Nursery	On campus training

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

The KrishiVigyan Kendra, Villupuram District undertook capacity building programmes on Sustainable sugarcane Initiative in District during 2011-12 and 2012-13 under the sponsored grant of the Commissionerate of Sugars, Government of Tamil Nadu. In this project the SSI technologies and Nursery production of sugarcane seedlings were taken up. Mr. M. Ganesan was one of the resource persons. Under the farmer-farmer extension programme he shared the experience in SSI and Nursery Technologies to 181farmers in 9 batches belonging to Villupuram District.

Period	Topic	Training type
2011-12	SSI production and Nursery Technology	Off campus programme in Vanitha Nursery. Totally 366 farmers were trained
2012-13	SSI production and Nursery Technology	Off campus programme in Vanitha Nursery. Totally 355 farmers were trained

3. Demonstrations

The entrepreneur was instrumental in demonstrating the technologies on several occasions. It included the preparation of cocopeat media, chipbud preparations, planting, maintenance etc. To groups of farmers visiting his nursery he has been demonstrating the technology in sugarcane seedling rising. Since 2011-12 he had demonstrated the methodology to more than 700 farmers of the district.

4. Field days, group meeting etc.

The success of the technology was shared in four field days, besides 15 group discussions during the period.

5. Publicity and marketing

Publicity:

The farmer initially confined the sales of the seedlings to the fellow farmers in his own and neighbouring villages. As he began to surface as an entrepreneur, the sugarcane factories in the District offered the platform. The Krishi Vigyan Kendra utilized him fully in the capacity building programmes, group discussions, scientific gatherings etc. in which his venture was discussed during 2011-13. These acted as curtain raiser for the venture by the entrepreneur. During this period, the success story of sugarcane seedling production in commercial began appearing in Tamil Newspapers and the mass media Pudhiyathalaimurai recorded his interview.

Marketing:

The entrepreneur sells 25 day old seedlings directly to the farmers who are shifting from the conventional to SSI. The Sugarcane factories have supported the nursery. The market for Vanitha Nursery once confined to his native village has spread to nearby Districts *viz.,* Thiruvannamalai, Cuddalore and Kanchipuram besides the Union Territory of Pudhucherry.

6. Time line of entrepreneurship development of entrepreneur

2009 - Mr. M.Ganesan, involved in traditional farming
2010 - Project farmer-TN-IAMWARM
2010 - Commercial Nursery started for production of sugarcane seedlings
2011- Production of 30,000 seedlings/batch realized
2012 - Production of 50,000 seedlings/batch realized
2013 - Production of 75,000 seedlings/batch realized

7. Technical components in the enterprise

i. Raw materials

Sugarcane chip buds, Protrays, vermicompost, Cocopeat, plant growth regulator, inorganic fertilizers and shade net facilities

ii. Process (methodology)

The methodology followed for the sugarcane chip bud seedling production is as per the standard protocol developed by Tamil Nadu Agricultural University, Coimbatore.

iii. Man power involvement

Five permanent family members/ day for the maintenance

iv. Package and handling

The portray raised seedlings are handled *en masse* as per the standard procedure of Tamil Nadu Agricultural University, Coimbatore

v. Cost benefit ratio

The installed capacity of shadenet production of the sugarcane seedlings is 5.00 lakhs/annum. The production cost per seedling is calculated at Rs.0.90 and the selling rate is Rs. 1.30/-seedling Thebenefit of Rs. 0.40 /seedling was realized. The cost benefit ratio works out 1:1.44.

8. Status of entrepreneur before and after the enterprise

As a traditional farmer he had been cultivating crops of various kind and income generation was low. Hence, the infrastructure development was low and consequently his standing in the village was poor. After he had metamorphosed into an entrepreneur, he established a 1000 sqm nursery, expanded it by another one of equal dimension and constructed a new house at a cost of 7.5 lakhs in his native village.

9. Horizontal spread of enterprise

He is invited as resource person for the sponsored SSI-Nursery technology training conducted by the KVK regularly. He also master trainer for the erecting shade net and nurseries within the district. The farmer is spreading the cause of the SSI in the district and through his efforts in production of 17,00,000 seedlings since 2012 effectively, an area of 340 ha has been brought under SSI in the region.

10. Recognitions/awards received by the entrepreneur

The farmer has been appreciated for his contribution to agriculture in different platforms and he was recognized by the KVK, Villupuram in the District Level sponsored programme entitled 'Increasing the productivity in sugarcane' held on 18.9.2013.

1.	
	Technology materials for preparation of media and raising seedlings in Vanitha Nursery, Kondiankuppam, Kanai Block
2	
	Mr. K. Ganesan with his successful technology product

3.		
	Capacity building programme for the KVK farmers in Nursery owned by Mr. M. Ganesan under the sponsored programme of Tamil Nadu Agricultural University, Coimbatore in collaboration with the Commissionerate of Sugars, Government of Tamil Nadu	