

## **SEMESTER-7**

### **AGRICULTURAL EXPERIENTIAL PROGRAMME - FINAL YEAR**

#### **Title : NURSERY MANAGEMENT AELP UNIT REPORT**

**Batch :1**

**Staff in-charge: Dr.D.Saritha**

**OBJECTIVE:** To promote professional skills and knowledge through meaning full hands on experience.

**REPORT:** Students have been trained on Preparation of potting mixture for growing plants. Propagated plants by Cuttings such as hardwood cutting, one year old should be selected for propagation (ex: Rose, Acalypha). In semi-hardwood cutting the age of the plantwood should four to nine months old for propagation (ex: Hibiscus, Croton , Dracena , Nerium,). In softwood cuttings two to three months old plant wood is selected (ex:jasmine), and in herbaceous cutting stems are very succulent and tender in nature ,so age of the plant is one to two months old (ex:coleus blumei ,coleus, *Tradescantia pallida*). For fast root growth rooting hormone powder is used.

Propagated plants by Layering in guava and simple layering in jasmine.

Propagated plants by Grafting, Veneer grafting process was done in Mango, Rose, and Table rose. We also performed grafting in Center of Excellence (COE) for vegetable seedlings such as tomato(scion) and Brinjal (rootstock).

Propagated plants by Seed: We have sown seeds in grow trays for seedling production, seeds like Tomato (sweaker-448), Chilli (sowmya-412), brinjal, ridge guard, bottle guard (sarita), bitter guard (VNR-22).

Some propagation methods are done through leaf cutting (ex: bryophyllum, snake plant), root suckers (ex: chrysanthemum, aloe vera, *Tradescantia spathea*) etc.

We worked on an experiment on the growth of snake plant leaf cuttings placed in different media such as sand, vermicompost, soil, sand+ vermicompost, soil+ vermicompost. In 15 days the fastest root growth was observed in sand+ vermicompost media followed by sand media. The leaf bits placed in soil media showed very slow and little growth.

Hydroponics is the technique of growing plants using a water-based nutrient solution rather than soil, and can include an aggregate substrate, or growing media, such as vermiculite, coconut coir, or perlite. We have set up hydroponic system and placed five seeds of palak and five of lettuce. In order to have comparative studies, we have also placed seeds in greenhouse and nursery.

Soil testing is to determine the analysis of nutrient content, composition, and other characteristics such as the acidity and PH etc., To learn soil testing practically we have collected soil sampling from college field, and then visited to COE (center of excellence) and learned practically. Soil testing parameters followed by pH(6.78), organic carbon(0.32) , nitrogen(79), electric conductivity(0.29), phosphorus (10.3) and potassium(66).

Individually work was done to reach the target of 500 plants count, and used different methods of propagation for multiplication of plants . We have used soilas growing media for healthy growth of plants.We have used our artistic and creativity in order make permanent structures and innovative works for beautification.

We have sold plants and made a profit of Rupees 6,280.

**Review:** Students have built confidence and acquired enterprise management capabilities.



**Sale of Nursery plants**



**Propagation by cuttings**



**Preparation of potting Mixture**



**Nursery -Plug trays**

## RAISING COMMERCIAL NURSERY Batch:II

**Staff in-charge: Ms. Santhoshini**

### **Vegetative propagation through cuttings, air layering:**

A cutting is a vegetative plant part which is severed from the parent plant in order to regenerate itself thereby forming a whole new plant. It is a technique where a root, stem, leaf is removed from mother plant in optimum conditions and allow that plant part to regenerate.

### **Cuttings types:**

- Hardwood cuttings Ex – Rose, Berries
- Semi hardwood cuttings Ex- Jasmine, hibiscus
- Softwood cuttings Ex – Petunia, Bidens
- Herbaceous cuttings Ex- coleus, dahlia



**Cuttings of various plants**

**Air Layering:** It is a method of propagating new trees and shrubs from stems still attached to the mother plant. The stem is wrapped with damp soil mixture to encourage root.



**Tying the polythene wrap**



**Cutting ring bark**

- **Preparation of potting mixture:**

Potting mixture is a blend of materials like sphagnum moss, bark, Perlite, Vermiculite, compost or coir which is needed for growing plants in container. We used vermicompost, cocopeat, sand, soil and prepared the Potting mixture.



**Mixing of Cocopeat**



**Mixing of Soil**

### **CULTIVATION OF LEAFY VEGETABLES:**

1. Leafy vegetables are grown best in rich, loamy soils that contain plenty of organic matter. The soil should be loose, fertile and moist. the best  $P^H$  is 6 to 6.5.

2. We have cultivated Mesta (Altissima), Spinach (Arka Anupama) and Coriander (CO-1).



**SOWING OF SEEDS**



**SEED GERMINATION**



**Irrigation to our plots**



**observing germination**

## SALE OF PROPAGATED NURSERY PLANTS, LEAFY VEGETABLES



**BEST OUT OF WASTE:** Preparation of various potting containers. It means making something innovative and attractive from the material we do not use anymore.



## **AELP (Agricultural experiential learning program): Food processing**

**In-charge – Dr.G. Sai Priya (BATCH 1&II)**

### **SEMESTER-1**

Food preservation is a process involved in food processing employed to prevent the growth of fungi, bacteria, and many other microorganisms. It involves the process of slowing down the oxidation of fats that would lead to rancidity. There are several food preservation methods that are designed specifically to preserve food. The students have prepared various food items using different raw materials and semi processed materials and also used natural preservatives.





## **AELP (Agricultural experiential learning program)**

### **Organic Farming**

**Staff In-charge: Ms. Vinutha and Ms. Priyanka**

The students of Organic Farming unit learn the techniques of raising crops without the use of chemical fertilizers and pesticides. Students learn to prepare organic formulations like Jeevamrutam which helps in rejuvenating the soils, Beejamrutam which is used for seed treatment, Agnastram and Nemastram which is used as insecticide and pesticide and also various organic products based on plant and animal origin. The students raise crops and compare the results applying various formulations.

Organic Farming also conducts field trials using products of Sowbhagya Industries as part of MoU.



## **AELP (Agricultural experiential learning program)**

### **Vermi-composting**

**Staff In-charge: Mrs. N. Sailaja and Mr. Noel Sebastian**

The unit aims at imparting the knowledge of preparing compost using various biodegradable wastes with the help of earthworms. Earthworms feed on decaying organic waste and convert them into fertile compost which is rich in nutrients. The vermi-compost thus obtained is sold by the students and is also used in various experimental plots. Students conduct research using various biodegradable wastes like leaf litter collected from the college, vegetable wastes and also other wastes.





**SALE OF VERMICOMPOST**



**VERMICOMPOST SEVEING**



## SEMESTER - II

### AELP (Agricultural experiential learning program)

### ORGANIC FARMING PRODUCTION TECHNOLOGY

### TITLE - STUDY ON THE INFLUENCE OF DIFFERENT NUTRIENT MANAGEMENT TECHNIQUES IN OKRA

**Unit incharge: Dr.M.Vinutha, Asst. Prof. in Agronomy**

#### Objective:

The intricacies of nutrient management in okra farming underscores how different treatment methods significantly influence both the yield and quality of the crop. Examination of diverse nutrient strategies reveals varying results, emphasizing the importance of customized approaches in enhancing agricultural productivity and sustainability within the okra cultivation industry.

**REPORT:** We have sown Radhika variety for organic cultivation of okra for which we have chosen RBD in which the land has been divided into 3 replications and 7 treatments making the plot size 3\*2m.

#### TREATMENTS:

T<sub>1</sub> – Control

T<sub>2</sub> – Panchagavya – 3% spray

T<sub>3</sub> – Jeevamrith - 3% spray

T<sub>4</sub> – Fish Amino Acid - 3% spray

T<sub>5</sub> – Vermi wash

T<sub>6</sub> – Cow urine

T<sub>7</sub>- Urea

#### OBSERVATIONS: 1<sup>st</sup> observation: Mean value at 45 DAS

Treatments	Plant height	No. of branches plant <sup>-1</sup>	Leaf length	Leaf width (cm)	No. of flowers plant <sup>-1</sup>	No. of fruits plant <sup>-1</sup>
T <sub>1</sub>	30cm	05	9cm	11	02	05
T <sub>2</sub>	27cm	06	8.5cm	06	01	05
T <sub>3</sub>	31cm	07	12cm	09	02	08
T <sub>4</sub>	25cm	05	8cm	4.5	04	03
T <sub>5</sub>	33cm	04	10cm	08	03	05
T <sub>6</sub>	32cm	06	09cm	08	03	06
T <sub>7</sub>	28cm	04	11cm	08	03	07

**REVIEW OF THE PROJECT:** According to the observations recorded, the results shown by various bio stimulants are given below:

Observations	Best values observed in	Lowest values observed in
Plant height	T <sub>5</sub> (Vermiwash)	T <sub>4</sub> (Fish amino acid)
No. of branches	T <sub>3</sub> (Jeevamrith)	T <sub>7</sub> (Urea)
Leaf length	T <sub>3</sub> (Jeevamrith)	T <sub>4</sub> (Fish amino acid)
Leaf width	T <sub>1</sub> (Control)	T <sub>4</sub> (Fish amino acid)
No. of flowers	T <sub>4</sub> (Fish amino acid)	T <sub>2</sub> (Panchagavya)
No. of fruits	T <sub>3</sub> (Jeevamrith)	T <sub>4</sub> (Fish amino acid)

### Work done:

#### Preparation of treatments



**Jeevamruth**



**Panchagavya**



**Fish amino acid**



**Vermicompost application**



**Seed treatment**



**Sowing of okra seeds**



**Sorghum as border crop**



**Treatments application**



**Setting up sticky traps**



**Harvesting**

## **AELP: MUSHROOM CULTIVATION**

**INCHARGE :- DR. CH. LYDIA, ASSISTANT PROFESSOR IN PLANT PATHOLOGY**

### **STUDENTS:**

**111720012004- A. Ramya**

**111720012009- B. Varsha**

**111720012012- CH. Shruthi**

**111720012019- CH. Jawali**

**111720012028 – G. Sai Lalitha**

**111720012034 -B. Amruth sagar**

**111720012042- K. Raviteja**

**111720012045 – K. Kiran**

**111720012046 – K. Madhan**

**OBJECTIVES:** - The students of fourth year Agriculture have been taken the AELP MODULE ON MUSHROOM CULTIVATION as part of their curriculum, to know about the various techniques to cultivate the mushroom in a natural way and also to determine the contamination on yield of white oyster mushroom.

**REPORT:**We have cultivated the white oyster mushroom in a natural way. Mushroom cultivation has become a profitable business with the produce fetching good returns in the market.

A mushroom is the reproductive structure produced by some fungi. It is somewhat like the fruit of a plant, except that the "seeds" it produces are in fact millions of microscopic spores that form in the gills or pores underneath the mushroom's cap. Mushroom cultivation requires 80-90% relative humidity and temperature range of 16°C - 23°C.

## Cultivation of white oyster mushroom (*Calocybe indica*)

1. Procurement of required materials
2. Sterilisation of paddy straw
3. Shade drying
4. Bagging
5. Spawning (milky white mushroom)
6. Harvesting

### PRODUCTION TECHNOLOGY: -

1. Chop the paddy straw into 2-3cm.
2. Clean and wash the straw with water and soak it in a drum by adding formalin for 10-12hrs.
3. Dry the paddy straw in shade for 30minutes by spraying Bavistin/carbendazim.
4. Spawning @3% per kg of substrate
5. Make bundles in 35\*50cm size polythene bag.
6. Fill each polythene bag with handful of spawn to form 3 layers alternatively, repeat it with paddy straw & spawn and make holes with peg to allow aeration.
7. Incubate in a dark cropping room for 15-20 days at 20-24c temp & humidity should be maintained between 80-95%, till mycelium colonise the straw and spray the water regularly.
8. After mycelium growth, remove polythene cover to the half portion and keep bundles separately.
9. Mushroom pin head appears in 6-8 days.
10. Oyster mushroom matures within 2-3 days after primordial initiation.
11. After completion of maturation, uproot oyster mushroom by twisting from the base and pack it in a packaging material.

#### CHOPPING OF PADDYSTRAW





**Soaking the paddy straw**



**Shade dry for 30 mins**



**SPRAYING BAVISTIN**



**BAGGING USING PADDY STRAW**





**Watering the bags regularly**



**Harvesting the fully matured mushrooms.**



**White Oyster mushroom**

**BUDGET**

<b>Expenditure</b>	<b>Amount</b>	<b>Income</b>	<b>Amount</b>
To spawn (8kgs)	1200/-		
To paddy straw (2kgs)	200/-	Sale in January	1kg=620/-
To Bavistin (1/2kg)	600/-		
To polythene covers	370/-	Sale in February	2kg=1870/-
To plastic sheet	280/-		
To rat mats	200/-	Sale in March	2kg=1480/-
To sanitizer	100/-		
To rubber bands	35/-	Sale in April	60 grams= 40/-
To transport charges	510/-		
	<b>Total: -3500/-</b>		<b>Total: - 4010/-</b>

**REVIEW:** We had gained hands on Experience and practical knowledge in cultivating mushrooms in a natural way.

# **FOOD PROCESSING AND VALUE ADDITION (AELP UNIT)**

**IN-CHARGE:**

**Dr.Sai Priya Patel**

**Asst.Prof. in veterinary science**

Experiential learning provides an excellent opportunity to develop analytical and entrepreneur skills, and knowledge through meaningful hands-on experience, confidence in their ability to design and execute Project work.

## **OBJECTIVES**

- To promote professional skills and knowledge through meaning full hands-on experiment.
- To build confidence and to work in project mood.
- To acquire enterprise management capabilities.

## **REPORT:**

We were guided by Dr.sai Priya Patel Asst.Prof. in veterinary science, about the activities/process to be followed in Food Processing and Value Addition.

## **Food Processing**

Food Processing is the process of transforming/processing raw food material into a form that can be utilized later by increasing its shelf life and economic value. It can cover the processing of raw material into food via different physical and chemical processes. Various activities are covered in this process are cooking, baking, pickling, drying, etc.,

### **Objectives of Food processing**

- It boosts the shelf life of food products.
- Prevent food-contamination.
- Food storage and Transportation.
- Turns raw food materials into attractive, marketable products.
- Provide employment to a large population.

## **Value Addition**

Process of changing or transforming a product from its original state to a more valuable state.

## **Methods of Food Processing**

The different methods of food processing are “freezing, heating, pickling, cooling, drying”.

## **Drying**

It is one of the traditional techniques that are employed to decompose food products. Exposure

of food particles to sunlight to dry them is one such method done naturally. This process would result in the evaporation of moisture content from food, thus preventing microorganisms from invading the food. Moisture from food could also be removed by using hot air.

## **Cooling**

It is a technique of preserving food by slowing down the growth of microorganisms and action of an enzyme that is responsible for the rotting of food. Some of the food products such as meat, dairy products, and fish could be stored in a refrigerator thus increasing the shelf-life of the products.

## **Freezing**

It is one of the regular processes that has been under use domestically and commercially to preserve a wide range of foods. Rapid freezing might have an adverse effect on the texture of food.

## **Heating**

The majority of microorganisms and spores could be destroyed by applying sufficient heat to food items. One of the known examples includes boiling of milk.

## **Pickling**

It is a process of preserving food in an edible and antimicrobial liquid. Pickling could be categorized into two types, namely fermentation and thermal pickling. In fermentation pickling, bacteria present in a liquid produces organic agents which would act as preservation agents. In chemical pickling, the food is preserved in an edible liquid that destroys microorganisms and bacteria.

## **Benefits of Food processing**

The important benefits of food processing include:

- Food processing reduces the number of harmful bacteria in food that can cause diseases. For eg., drying, pickling dehydrates the food product and alters the pH that prevents the growth of harmful microorganisms.
- It also improves the shelf-life of food products.
- It reduces health inequalities and major health concerns.

## **Drawbacks of Food Processing**

The important drawbacks of food processing include:

- Processed food contains artificial ingredients.
- A large number of resources are spent in making the food pleasant to the brain that leads to overconsumption.
- Processed foods are the biggest source of added sugar that is very unhealthy.

**Few of the processed food items prepared were**



**fruit custard**



**Tomato pickle**



**Preparation of lemonade**



**Cutting pineapple to prepare pineapple juice**



**preparation of banana milk shake**



**rava laddu**



**Podi**



**Badam milk**

## **Review**

We have gained hands-on experience and practical knowledge on food processing and value addition.

### **Expenditure and profit to individual products we prepared**

**(IN RUPPES)**

<b>PRODUCT</b>	<b>EXPENDITURE</b>	<b>INCOME</b>	<b>PROFIT</b>
SOYA CHUNKS	178	180	2
CHICKPEA CHAT	120	170	50
PINE APPLE JUICE	240	300	60
RAVA KESAR	190	270	80
CRISPY CORN	217	360	143
SANDWICH	150	160	10
TOMATO PICKLE	450	500	50

# **TITLE: NURSERY MANAGEMENT AELP UNIT REPORT**

**INCHARGE : D. Saritha**

## **STUDENTS:**

111720012001-A.Harshitha

111720012003- A. Pranthi

111720012005- B. Neethi

111720012017- Ch. Sri Laxmi Sahithi

111720012020-H.Sonali

111720012021-D.Nithya Reddy

111720012029- G. Sandhya

Experiential learning provides an excellent opportunity to develop analytical and entrepreneur skills, and knowledge through meaningful hands on experience , confidence in their ability to design and execute project work.

## **OBJECTIVE:**

The students of fourth year Agriculture have been taken the AELP MODULE ON NURSERY MANAGEMENT as part of their curriculum, to know about the various techniques of propagations for both ornamental and floriculture plants.

## **REPORT:**

### **INTRODUCTION:**

Nursery is a place where the seedlings are grown under intensive care until they are ready for planting. We have learned about different methods of propagation, such as, cutting, layering, grafting and seeds.

### **PPROCEDURE:**

#### **1.SOIL PREPARATION:**

- Soil and general compost waste in 1:1 ratio .A mixture of 70% garden. soil and 30% organic matter creates a good general potting mix for planting up trees, shrubs, perennials and fruit.

## **2.STEM CITTINGS:**

The most commonly used method of vegetative propagation.

1. **Hardwood cutting:** one year old plant should be selected for propagation (ex: Rose).
2. **Semi-hardwood cutting:** The age of the plant wood should four to nine months old for propagation (ex:Hibiscus ,Croton).
3. **Softwood cuttings:** two to three months old plant wood is seleted (ex:jasmine)
4. **Herbaceous cutting:** Stems are very succulent and tender in nature ,so age of the plant is one to two month.s old (coleus, Tradesscantia pallida). For fast root growth rooting hormone powder is used (ex:rootex).
5. **LAYERING:** Layering is a technique of propagation in which a portion of plant is forced to produce adventitious roots while it still attached to mother plant. We performed simple layering in jasmine at inigo hall.

## **4.SEED PROPAGATION:**

Seed propagation is a sexual reproduction technique . We have sown seeds in grow trays for seedling production , seeds like brinjal, guruwinda, Indigo, ashwagandha, jackfruit.

## **5.LEAF CUTTINGS:**

Some propagation methods are done through leaf cutting (ex: bryophyllum, snake plant).We had placed the snake plant leaf bits in polythene bags filled with soil and vermipost and watered them, within 20days the leaves started rooting.

## **6.ROOT SUCKERS:**

Root suckers (ex: chrysanthemum, aleovera, Tradescantia spathea) etc.

## **7.VERTICAL GARDENING:**

We have also done vertical Gardening. Vertical Gardening aims to plant crops in a vertical position or standing position. We had replanted all vertical structures with different ornamental plants like air purifier, tradescantia , table rose etc.

## **8.TIER GARDENING:**

A tiered garden consists of one or more retaining walls which form two or more level areas. We had replanted different ornamental plants in the tiered garden.

## **VISIT TO CSIR:**

- We had visited to CSIR-Central Institute of Medicinal and Aromatic Plants, Research Centre, Hyderabad.
- In this Centre we had learned about the agro-technologies under irrigated and rainfed conditions for aromatic grasses (including *Cymbopogon winterianus*, *C. flexuosus*, *C. citratus* and *C. nardus*), rose-scented geranium (*Pelargonium* sp.), menthol mint (*Mentha arvensis*), lemon-scented gum (*Eucalyptus citriodora*), basils (*Ocimum basilicum*, *O. sanctum*), and medicinal crops like ashwagandha (*Withania somnifera*), periwinkle (*Catharanthus roseus*), king of bitters (*Andrographis paniculate*), ambrette (*Abelmoschus moschatus*) and itching bean (*Mucuna pruriens*). Among these, king of bitters, periwinkle, ashwagandha, palmarosa, lemon-scented gum and lemongrass are amenable for rainfed cultivation.
- We also learned the extraction of oil from lemon grass, citronella, geranium etc from various processing units.

## **TOMATO RESEARCH:**

- We have also involved in tomato research work. We have taken the following biometric observations; plant height , number of fruits per plant, fruit yield.

**SALE:** We have sold plants and made a profit of Rupees 6,705.

## **BUDGET**

Expenditure	Amount	Income	Amount
To soil	1500	By sale of plants	6705/-
To polythene bags	1750		
To water	1200		
To land	6000		
To vermicompost	60		

## NURSERY MANAGEMENT UNIT



## Citronella propagation



## AELP Nursery Sale



## Hibiscus propagation



## Visit To CSIR

### **REVIEW:**

We had gained fruitful knowledge through this Nursery AELP unit. We were able to do all the activities at our homes which were practiced through this programme.

# NURSERY MANAGEMENT AELP UNIT REPORT

**Incharge Name:** Mrs. Sarada Assistant professor (Department of Horticulture)

Experiential learning provides an excellent opportunity to develop analytical and entrepreneur skills, and knowledge through meaningful hands on experience, confidence in their ability to design and execute project work.

## OBJECTIVE:

- To promote professional skills and knowledge through meaning full hands on experiment.
- To grow plants in an open environment, maintain a good quality of plants and protect the plants from pests and diseases .
- To develop good quality of plants for the customers .
- To built confidence and to work in project mood .
- To acquire enterprise management capabilities.

## REPORT:

Nursery is a place were the seedlings are grown under intensive care until they are ready for planting. Commercial nurseries produce and distribute woody and herbaceous plants, including ornamental trees, shrubs, and bulb crops. While most nursery-grown plants are ornamental, the nursery business also includes fruit plants and certain perennial vegetables used in home gardens. We have learned about different methods of propagation, such as, cutting, layering, grafting and seeds.

Stem cutting are the most commonly used method of vegetative propagation. A stem cutting is plant stem including a tip or a portion of a stem without the apex that includes one or more nodes removed from a parent plant and capable of rooting; a stem cutting is used to grow a whole new plant ,which is also known as cloning.

### Asexual propagation methods:

#### ● Cuttings:

Cuttings such as hardwood cutting, one year old plant should be selected for propagation (ex: Rose, Acalypha). In semi-hardwood cutting the age of the plant wood should be four to nine months old for propagation (ex:Hibiscus ,Croton ,Dracena ,Nerium,). In softwood cuttings two to three months old plant wood is selected (ex:jasmine), and in herbaceous cutting stems are very succulent and tender in nature ,so age of the plant is one to two months old (ex:coleus blumei ,coleus, Tradesscantia pallida). For fast root growth rooting hormone powder is used (ex:rootex).

- **Layering:**

Layering is a technique of propagation in which a portion of plant is forced to produce adventitious roots while it still attached to mother plant. We performed simple layering in jasmine.

- **Grafting:**

Grafting is a technique of propagation in which scion stick is connected in a manner such that they may unite and subsequently grow and rootstock develop as a successful plant. Veneer grafting process was done in Rose, and table rose.

### **Protray nursery technique:**

We prepared potting mixture by adding soil + general compost in a ratio of 1:1. Potting mixture is used as media for growing plants.

Seed propagation is a sexual reproduction technique. We have sown fenugreek seeds in protrays for seedling production .

Some propagation methods are done through leaf cutting (ex: Bryophyllum, Snake plant), root suckers (ex: Chrysanthemum, Aleovera, *Tradescantia spathea*) etc.

We have propagated air purifier plants such as sanke plant. Root sucker such as Chrysanthrmum, Aleovera , *Tradescantia spathea* etc.

### **Miniature garden:**

We have also done Miniature Garden. It is literally a living garden and the focus is on growing the garden in small scale. Miniature garden are made of slow growing plants, typical ones that are dwarf and miniature.

### **Bottle garden:**

We have also done Bottle Gardening. Bottle Gardens are commonly used as a form of decoration, or as a substitute garden in areas with little space such as Song of India, Table rose, Pillow plant and leaf creepers.

### **Visit- CIMAP (Central Institute of Medicinal and Aromatic Plant)**

We had visited to CSIR-Central Institute of Medicinal and Aromatic Plants, Research Centre, Hyderabad. In this Centre we had learned about the agro-technologies under irrigated and rainfed conditions for aromatic grasses (including *Cymbopogon winterianus*, *C. flexuosus*, *C. citratus* and *C. nardus*), rose- scented geranium (*Pelargonium sp.*), Menthol mint (*Mentha arvensis*),

lemon-scented gum (*Eucalyptus citriodora*), Basils (*Ocimum basilicum*, *O. sanctum*), and medicinal crops like ashwagandha (*Withania somnifera*), periwinkle (*Catharanthus roseus*),

king of bitters (*Andrographis paniculate*), Ambrette (*Abelmoschus moschatus*) and itching bean (*Mucuna pruriens*). Among these, king of bitters, Periwinkle, Ashwagandha, Palmarosa, lemon-scented gum and lemongrass are amenable for rainfed cultivation. We also learned the extraction of oil from lemon grass, citronella, geranium etc from various processing units.

Individually work was done to reach the target of 500 plants count, and used different methods of propagation for multiplication of plants . We have used soil as growing media for healthy growth of plants.

We have used our artistic and creativity in order make permanent structures and innovative works for beautification.

We have taken budget of 950/- from college.

We have sold plants and made a profit of Rupees 3,735/- .

### **REVIEW:**

We had gained fruitful knowledge through this Nursery AELP unit. We were able to do all the activities at our homes which were practiced through this programme.



**NURSERY MANAGEMENT UNIT**



**Filling of polythene bags**



**Planting snake plant**



**Miniature Garden**



**Fenugreek seeds sown in Protrays**



**Marketing**



**Visit to CI-MAP**

## **FOOD PROCESSING AND VALUE ADDITION (AELP UNIT)**

**IN-CHARGE: M. VINUTHA, Asst. Prof. in Agronomy**

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### **OBJECTIVES**

- To promote professional skills and knowledge through meaning full hands-on experiment.
- To build confidence and to work in project mood.
- To acquire enterprise management capabilities.

### **REPORT**

We were guided by M. Vinutha, Asst. Prof in Agronomy, about the activities/process to be followed in Food Processing and Value Addition.

### **Food Processing**

Food Processing is the process of transforming/processing raw food material into a form that can be utilized later by increasing its shelf life and economic value. It can cover the processing of raw material into food via different physical and chemical processes. Various activities are covered in this process are cooking, baking, pickling, drying, etc.,

### **Objectives of Food processing**

- It boosts the shelf life of food products.
- Prevent food-contamination.
- Food storage and Transportation.
- Turns raw food materials into attractive, marketable products.
- Provide employment to a large population.

### **Value Addition**

Process of changing or transforming a product from its original state to a more valuable state.

### **Methods of Food Processing**

The different methods of food processing are “freezing, heating, pickling, cooling, drying”.

## **Drying**

It is one of the traditional techniques that are employed to decompose food products. Exposure of food particles to sunlight to dry them is one such method done naturally. This process would result in the evaporation of moisture content from food, thus preventing microorganisms from invading the food. Moisture from food could also be removed by using hot air.

## **Cooling**

It is a technique of preserving food by slowing down the growth of microorganisms and action of an enzyme that is responsible for the rotting of food. Some of the food products such as meat, dairy products, and fish could be stored in a refrigerator thus increasing the shelf-life of the products.

## **Freezing**

It is one of the regular processes that has been under use domestically and commercially to preserve a wide range of foods. Rapid freezing might have an adverse effect on the texture of food.

## **Heating**

The majority of microorganisms and spores could be destroyed by applying sufficient heat to food items. One of the known examples includes boiling of milk.

## **Pickling**

It is a process of preserving food in an edible and antimicrobial liquid. Pickling could be categorized into two types, namely fermentation and thermal pickling. In fermentation pickling, bacteria present in a liquid produces organic agents which would act as preservation agents. In chemical pickling, the food is preserved in an edible liquid that destroys microorganisms and bacteria.

## **Benefits of Food processing**

The important benefits of food processing include:

- Food processing reduces the number of harmful bacteria in food that can cause diseases. For eg., drying, pickling dehydrates the food product and alters the pH that prevents the growth of harmful microorganisms.
- It also improves the shelf-life of food products.
- It reduces health inequalities and major health concerns.

## **Drawbacks of Food Processing**

The important drawbacks of food processing include:

- Processed food contains artificial ingredients.
- A large number of resources are spent in making the food pleasant to the brain that leads to overconsumption.
- Processed foods are the biggest source of added sugar that is very unhealthy.

### **Few of the processed food items prepared were**

Gulab Jamun, Cupcakes, Watermelon milk sharbath, Banana milk shake, Ragi laddu, Rava laddu, Challa mirchi, tomato pickle.



**Gulab Jamun**



**Cupcakes**



**Tomato pickle**



**Watermelon milk Sharbat**



**Challa mirchi**



**Banana milkshake**



**Ragi Laddu**



**Rava Laddu**

**Review:**

We have gained hands-on experience and practical knowledge on food processing and value addition.

## **PROJECT REPORT ON MUSHROOM CULTIVATION AELP UNIT**

**In-charge name:** Dr. Huma nazneen [Assistant professor in PLANT PATHOLOGY]

### **Submitted By-**

111720012008-Himaja sridevi .M

111720012017- Sahithi.CH

111720012020-Sonali.H

111720012021-Nithya.D

111720012029- Sandhya.G

111720012031-Aavash

111720012036-Srikanth.B

111720012039-Jeevan Prabhu.G

111720012040-Vishwanath.G.

### **OBJECTIVES:**

The students of fourth year Agriculture have been taken the AELP MODULE ON MUSHROOM CULTIVATION as part of their curriculum, to know about the various techniques to cultivate the mushroom in a natural way and also to determine the contamination on yield of white oyster mushroom.

### **REPORT:**

We had cultivated Oyster mushroom (*Pleurotus ostreatus*)

**Introduction:** A mushroom is the reproductive structure produced by fungi. It is somewhat like the fruit of a plant, except that the “seeds” it produces are in fact millions of microscopic spores that form in the gills or pores underneath the mushroom's cap.

Mushroom cultivation requires 80-90% relative humidity and temperature range of 16°C – 23°C. The cultivation of oyster mushroom includes spawning, chopping (paddy straw), soaking, inoculating, incubating, harvesting, storage. Mushroom being fragile and perishable commodity requires processing after harvesting.

### **Procedure:**

**1. Procurement of raw materials-** Paddy straw, spawn, bavistin, formalin, and polythene bags.

**2. Chopping:** Chop the paddy straw into small bits of 3-5cm(using chaff cutter) and soak them in clean water for 12-16hours by adding 30ml of formalin and 30g of bavistin to 100lit water. Drain the excess water after 12-16 hours and shade dry the soaked paddy in iron trays for 2 hours upto 60%moisture.

**3. Bagging-** Divide the mixed spawn two portions into a tray. Take polythene bags and clean them using a spirit to avoid contamination. Fill each polythene bags to about 5cm of paddy straw to form 1st layer. Take handful of spawn, sprinkle over the entire straw layer and cover again with the straw bits to another 5cm.Repeat alternatively filling spawns and Straw bits for 3 time & tie the mouth of polyethylene bags with rubber band and label the bags with date using a marker then place the bags in mushroom room. Before placing the beds into the room clean the trays/benches with spirit.

**4. Incubation-** Incubate the bags for 14-21 days. Check humidity and temperature and sprinkle water to maintain required Temperature (26°C) Humidity (80-95%). After about 15days, remove the polythene cover during pin head formation.

**5. Harvesting-** Harvest 1st flush of mushrooms after 4-6days of pin head formation by cutting fully grown mushrooms at the base of the stem of the mushroom. 2-3 harvests can be done at interval of 7-10 days.

**6. Marketing** –We had sold the harvested mushrooms in Loyola college to staff and students. We had sold 1kg mushrooms for rupees 700 and made a profit of rupees 4000.

### **BUDGET**

<b>Expenditure</b>	<b>Amount</b>	<b>Income</b>	<b>Amount</b>
To Spawn	1350/-		
To Paddy straw	200/-	Sale in January	1.5kgs = 1000/-
To Polythene sheets	380/-		
To Plastic covers	300/-	Sale in February	2.5kgs = 1700/-
To Bavistin	600/-		
To Rat mats	200/-	Sale in March	2kgs = 1300/-
To Miscellaneous [Rubber bands, Plaster, Sanitizer, Blade]	155/-		
To Transport	260/-	Sale in April	30grams = 55/-
<b>Total</b>	<b>3445/-</b>		<b>4055/-</b>

1



**Chopping of paddy straw**

2



**Soaking of paddy straw in water**

4



**Shade drying of paddy straw**

3



**Spraying of bavistin (chemical treatment)**

5



**Filling of polythene bags with paddy straw**

6



**Watering the Bags**

8



**Harvesting of mature mushrooms**

7



**Removal of the polythene bag after pinhead formation**

**REVIEW** –We had gained fruitful knowledge through the Mushroom AELP unit. We are able to practice oyster mushroom cultivation on large scale for commercial purpose.

# PROJECT REPORT ON VERMICOMPOST

**UNIT INCHARGE: MS. PRIYANKA (MSC IN AGRONOMY)**

**SUBMITTED BY:**

**111720012004 - A. Ramya**

**111720012011 - B. Ekshitha**

**111720012014 - CH. Nimisha**

**111720012016 - CH. Gayathri**

**111720012018 - CH.Jahnvi**

**111720012023 - D.Soumya**

**111720012038 - CH.Rajesh**

**111720012043 - K. Venkatramarao**

**111720012044 - K. Siddhardha**

**OBJECTIVE:** We the students of BSC. Agriculture studying fourth year in Loyola Academy Degree and PG College, Old alwal, Secunderabad taken up “VERMICOMPOST PRODUCTION” as an enterprise under “AGRICULTURAL EXPERIMENTAL LEARNING PROGRAMME” during 8<sup>th</sup> semester of 2023-2024.

**REPORT:** We were guided by MS.Priyanka mam about the production and preparation of vermicompost. The vermicompost preparation process began with the careful selection of a suitable site, opting for a cool, moist, and shaded area under the roof while ensuring proper drainage to prevent water stagnation. Three pits, each measuring 2.5m in length, 0.5m in width, and 1m in depth, were prepared. The procedure involved layering organic materials, starting with coconut coir as bedding, followed by dry grass, vegetable waste, dried cow dung, and leaf litter, ensuring even distribution throughout the pit. Earthworms were introduced after two days, and the pits were covered with gunny bags to create a suitable environment for composting. Regular maintenance included sprinkling cow dung slurry to maintain moisture levels and irrigation every 4-5 days. This process was replicated in all three pits to ensure scalability and efficiency in vermicompost production, aiming to yield nutrient-rich compost for promoting healthy plant growth and achieving profitability in organic farming practices.



**Filling of Leaf Litter**



**Layering of Coconut Coir**



**Releasing of Earthworms into the Vermicompost pit**



**watering**

**Application of Slurry**



**Selling of Vermicompost**



**Sieving of Vermicompost**

### **BUDGET**

<b>EXPENDITURE</b>	<b>AMOUNT</b>	<b>INCOME</b>	<b>AMOUNT</b>
Cowdung	800/-		
Earthworms	5000/-	1 <sup>st</sup> Pit	3900/-
Gunny bags	500/-		
Polythene covers	100/-	2 <sup>nd</sup> Pit	3600/-
Other materials	390/-		
Transportation charges	1700/-	3 <sup>rd</sup> Pit	3000/-
<b>TOTAL</b>	<b>8490/-</b>		<b>10,500/-</b>

**REVIEW:** We have gained valuable insights into various aspects in preparation and production technology of vermicompost. Overall the procedure well executed poised to yield and high quality vermicompost, thus facilitating healthy plant growth and potentially leading to profitable outcomes in production of vermicompost.

## **PROJECT REPORT ON ORGANIC FARMING**

**TITLE:** EFFECTS OF ORGANIC MANURES & VARIETIES ON GROWTH AND YIELD OF BRINJAL [*SOLANUM MELONGENA*]

**UNIT INCHARGE:** MS. PRIYANKA (ASSISTANT PROFESSOR IN AGRONOMY)

**111720012004 - A. Ramya**

**111720012011 - B. Ekshitha**

**111720012014 - CH. Nimisha**

**111720012016 - CH. Gayathri**

**111720012018 - CH. Jahnvi**

**111720012023 - D. Soumya**

**111720012038 - CH. Rajesh**

**111720012043 - K. Venkatramarao**

**111720012044 - K. Siddhardha**

**OBJECTIVE:** We the students of (BSC Agriculture) studying Fourth year in Loyola Academy Degree and PG College, Oldalwal, Secunderabad, taken up ORGANIC FARMING as an enterprise under “AGRICULTURAL EXPERIMENTAL LEARNING PROGRAMME” during 8<sup>th</sup> semester of 2023-2024.

**REPORT:** Brinjal, also known as eggplant or aubergine, is a widely cultivated vegetable crop belonging to the Solanaceae family. It is scientifically named *Solanum melongena*. Brinjal is native to the Indian subcontinent and is one of the most commonly grown vegetables globally, valued for its culinary versatility and nutritional benefits. We were guided by MS. Priyanka mam about the activities (cultivation practices) of organic farming in the brinjal crop. The brinjal cultivation research conducted on three varieties, namely UTKARSHA, MANJUSHRI, and ANKUR NANO, followed a Randomized Block Design (RBD) with three replications and ten treatments: FYM, Poultry Manure, and Vermicompost. The experimental plot layout covered 30 plots with a total cultivable area of 212.5 square meters, each plot sized at 2.5m x 3m and spaced at 60cm x 60cm. Following thorough soil sampling and land preparation, including ploughing and leveling, manure application was carried out with respective quantities of FYM, Vermicompost, and Poultry Manure. Brinjal saplings were

transplanted on December 22, 2023, with proper labeling for identification. Throughout the cultivation period, appropriate irrigation practices were implemented alongside plant protection measures, such as the use of traps and organic insecticides like neem oil. Additionally, Agnyasthra, a traditional organic preparation was prepared by us to increase the vegetative growth of the crop and applied to the plots.

Biometric observations were recorded to track plant growth and development, while yields were documented from multiple harvests. Overall, this research aims to assess the effects of different treatments on brinjal growth and yield (total yield obtained from all the harvestings are 13,416kg's) providing insights into optimal cultivation practices for enhanced productivity. From all over the treatments we have obtained highest yields in poultry manure applied plots.

**OBSERVATIONS:** 1<sup>st</sup> observation was recorded at 45 days

<b>Treatments</b>	<b>Plant height</b>	<b>No of branches</b>	<b>No of flowers</b>	<b>No of fruits</b>	<b>No of leaves</b>
T1	24cm	07	09	06	41
T2	32 cm	11	10	05	51
T3	04 cm	03	14	08	26
Control	06cm	04	09	02	36

### **REVIEW OF THE PROJECT:**

<b>Observations</b>	<b>Best values observed</b>	<b>Lowest values observed</b>
<b>Plant height</b>	<b>T2V2 ( Poultry/ Manjusree)</b>	<b>T0 (Control)</b>
<b>No of branches</b>	<b>T2V2 ( Poultry/ Manjusree)</b>	<b>T0 (Control)</b>
<b>No of flowers</b>	<b>T2V2 ( Poultry/ Manjusree)</b>	<b>T0 (Control)</b>
<b>No of fruits</b>	<b>T2V2 (Poultry/ Manjusree)</b>	<b>T0 (Control)</b>
<b>No of leaves</b>	<b>T2V2 ( Poultry/ Manjusree)</b>	<b>T0 (Control)</b>



Soil sampling



Ploughing of the land

Preparation of Bunds



Application of manures



Transplanting of brinjal seedlings



Preparation of Agnyastra



Biometric observation



Selling of Brinjal



## **BUDGET**

<b>EXPENDITURE</b>	<b>AMOUNT</b>	<b>INCOME</b>	<b>AMOUNT</b>
To manures	1200/-	Sale in January	227 Grms=15/-
To seedlings	800/-		
Pheromone traps	150/-	Sale in February	27.841kg's=1,715/-
To neem oil	500/-		
To Agnyastra	800/-	Sale in March	212.585kg's=11,236/-
To perfect(manure	360/-		
To polyethene covers	300/-	Sale in April	10.300kg's=450/-
Transport charges	600/-		
<b>TOTAL</b>	<b>4,710/-</b>	<b>TOTAL</b>	<b>13,416/-</b>

**REVIEW:** We have gained valuable insights into various aspects of agricultural research and practices. we have learned fundamentals of crop management. And also. The inclusion of traditional organic methods like Agnyasthra alongside modern practices demonstrates a holistic approach to agriculture, encouraging us to explore diverse techniques for sustainable farming. Overall, this research project not only enhanced us ' understanding of brinjal cultivation but also fostered critical thinking skills essential for addressing agricultural challenges and devising effective marketing strategies for promoting brinjal produce in the market.

## **TITLE : A REPORT ON AELP VERMICOMPOSTING**

**COURSE INCHARGE : Mr NOEL**

**OBJECTIVE :** to address weaknesses in the earlier higher agricultural education system and to develop skilled individuals capable of creating their enterprises.

We the students in the fourth year of department of B.Sc. (Hons) Agricultural Science along with faculty Mr. Noel Sebastian have undertaken Vermicompost Production as an enterprise under and Experimental Learning Program during 8th semester of 2023. With the professional background gained in the eight semester, we have organized a space with the aim of establishing a joint venture titled "VERMICOMPOSTING UNIT."The Indian Council of Agricultural Research (ICAR) has recommended a new initiative, the Agricultural Experimental Learning Programme (AELP).

Its primary aim is to address weaknesses in the earlier higher agricultural education system and to develop skilled individuals capable of creating their enterprises. The course design focuses on competence development by providing comprehensive knowledge across all aspects and fostering a complete understanding of field problems, project development, and execution. To instill high-quality entrepreneurship skills, students will establish and run enterprises with the assistance of lecturers. Vermicomposting is the process of organic waste decomposition using earthworms. It represents a natural, odorless, aerobic process vastly different from traditional composting. Earthworms consume waste and excrete nutrient-rich, odorless, dark, and organically rich soil granules known as earthworm casts. These casts make excellent soil conditioners and are a ready-to-use fertilizer that can be applied at higher rates than compost, as nutrients are released at rates preferred by growing plants. Vermicomposting requires no energy input for aeration, reduces waste mass by 30%, produces valuable vermicompost, and even yields worms suitable as fishing bait."

### **VERMICOMPOSTING PROCESS WE ADOPTED:**

For preparation of vermicompost, we used different bedding materials in 3 different beds.

Process we followed to fill beds:

#### **1st bed:**

<sup>2</sup> To prepare vermicompost in the pit we used banner as bottom layer in all 3 beds so that earthworms later can't go out of beds.

<sup>2</sup> On top of banner we added a layer of dry grass, soil and small bulk pieces.

<sup>2</sup> Next layer we added dry leaf litter which we have collected from college campus B. We chopped leaves into small pieces and distributed evenly.

<sup>2</sup> Now we sprinkled cow dung slurry so that decomposition rate Fastens.<sup>2</sup> Next we added with cow dung, goat droppings and cow dung slurry until the bed fills.

<sup>2</sup> For about 15 days we have regular inversions so that they decompose easily.

<sup>2</sup> After 15 days we added earthworms 20kgs per bed. In total we bought 60kgs worth 4500/-

<sup>2</sup> We also sprinkled cow dung slurry on regular basis to maintain moisture content.

<sup>2</sup> After addition of earthworms we gave irrigation to pits to maintain moisture content.

<sup>2</sup> Vermicompost is prepared in about 50 days.

### **2nd bed :**

<sup>2</sup> Here in 2nd bed also we used as common bottom layer

<sup>2</sup> On top of banner we added coconut coir and soil as bedding material.

<sup>2</sup> In the next layer we added vegetable waste which are collected from surrounding market and leaf litter.

<sup>2</sup> Vegetable waste is added after sundried and chopped into pieces for fast decomposition.

<sup>2</sup> Sprinkle cow dung slurry on top of it we added dry cow dung, goat dropping and vegetable waste in layer wise until the pit filled.

<sup>2</sup> We also gave regular inversions and sprinkled cow dung slurry on regular basis to maintain moisture content for 15days.

<sup>2</sup> After 15 days we added 20 kg of earthworms into the pit. Then we gave irrigation with regular intervals,

<sup>2</sup> Vermicompost is prepared within 50 days, worm casting are found in pit which are dark brown- black in colour.

### **3rd bed:**

<sup>2</sup> In the 3rd pit we used banner as a common bottom layer

<sup>2</sup> Next on top of the banner we added dried cow dung, goat droppings, leaf litter until the pit is filled.

<sup>2</sup> Then we sprinkled cow dung slurry and gave regular inversions for 25 days after filling pits so that they can easily decompose.

2 After 15 days we added 20 kg of earthworms in to the pits

2 Vermicompost is prepared in 50 days

2 After adding vermi we covered pits with gunny bags for maintaining proper moisture content inside the bed and also to provide protection from predators.

2 On top of gunny bags we irrigated with regular intervals to maintain optimum moisture in the beds.

2 After formation of worm castings in the bed. We collected the vermicompost and sieved. We sold each kg vermicompost for 15 rupees.

### Conclusion:

In the AELP vermicomposting we have worked for 6 months, we gained practical experience in preparing vermicompost. We thoroughly explored every aspect of the process. We prepared vermicompost with guidance from unit manager. We hope that the practical experience gained here will help us in developing our own business.



COWDUNG DRYING



BASE PREPARATION FOR PIT



← LEAF LITTER LAYER

LAYER OF COWDUNG →





COWDUNG FINAL LAYER



PREPATION OF COWDUNG SLURRY



REALEASING OF EARTHWORMS



APPLICATION OF COWDUNG SLURRY



DRYING AND CUTTING OF VEGETABLES



DRIED VEGETABLE LAYER



SIEVING OF PEREPARED VERMICOMPOST



MARKETING OF VERMICOMPOST

