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A glance at the demonstration of Rural Horticultural Work Experience (RHWE) program

Rural Horticultural Work Experience (RHWE) is a course offered to the undergraduate students to get associated with the farmers community and to understand the agricultural / Horticultural conditions in the rural areas. In this programme students performs some demonstrations related to the farm practices. Here we have performed 10 demonstration viz., Demonstration of zero energy cool chamber, Seed ball technique, Soil sample collection, Coconut mulching, Compost preparation, Air layering technique, Intercultural practices in banana, Kitchen gardening, Organic pesticides making, and Kisan call centre at various places in kaveripakkam village. This supports the farmers to gain a good knowledge about farm practices using low cost investment.

INTRODUCTION

We have visited the block kaveripakkam in Ranipet district and we have got an opportunity to interact with farmers and get to know about the agricultural practices and technologies in the villages. The major crops that are grown in the village are presented in Table 1.

DEMONSTRATION ON ZERO ENERGY COOL CHAMBER

A zero-energy cool chamber is a type of cool chamber that can be used at the field level. It is one of the cheapest and most simple methods. The principle is **direct evaporative cooling,** the cooling can be achieved by evaporation of water. When the evaporation becomes faster than the cooling also becomes faster.

Table 1. List of Horticultural and Agricultural exposed during the visit

SL. No	Crop	Scientific Name	Variety/culture	Specialization
			Horticultural crops	
1	Banana	*Musa paradisiaca*	Karpooravalli	It is a major crop grown in the area and is cultivated only for fruit purposes. Propping and bunching are some of the practices done in the crop to enhance the productivity.
2	Chilli	*Capsicum spp*	Munduchilli	Major vegetable crop grown in the village
3	Coconut	*Cocos nucifera*	chandrakalpa	Major plantation crop grown
4	Crossandra	*Crossandra infundibuliformis*	Local crossandra	Major flower crop grown and is cultivated for flower purpose.
5	Cocks comb	*Celosia argentea var.cristata*	Local cocks comb	It is cultivated for flower purpose.
6	Jasmine	*Jasmine sambac*	Local Jasmine	Major flower crop grown and is cultivated only for flower purposes.
7	Brinjal	*Solanum melongena*	Arkanavneet	Major vegetable crop grown and is cultivated for culinary purpose.
8	Bittergourd	*Momordica charantia*	Vk-1 (priya)	It is cultivated for culinary purpose.
9	Guava	*Psidium guajava*	Lucknow 49	Major fruit crop grown and is cultivated only for fruit purposes . Air layering is one of the practices in guava.
10	Papaya	*Carica papaya*	Red lady	Major fruit crop grown and is cultivated only for fruit purposes.
			Agricultural crops	
11	Paddy	Oryza sativa	Seeraga samba	Major fruit crop grown. The duration of the variety is short duration

MATERIALS REQUIRED

Bricks, sand, bamboo, straw etc.

CONSTRUCTION

1. Initially, an upland site near a water source can be selected and a brick floor should be constructed 165 cm × 115 cm.
2. The double-wall of height is 67.5 cm leaving a gap of 75 cm.
3. Drench the brick chamber with a bamboo frame and straw.
4. A shed can be made over the chamber for protection from air and rain.

ADVANTAGE

1. Preserve the quality of produce.
2. Reduce the loss.
3. No need electricity.

DEMONSTRATION ON SEED BALL

Seed balls are otherwise called as Earth balls. In this method, the seed will become rolled inside the seed ball and additives like compost, humus are used. For making this five-part of soil with one part of the seed. The sizes of the balls are between 10mm and 80mm in diameter. It should be dried for 24 to 48 hours before use.

These can be used for aerial reforestation. Initially seed ball technique was performed in the guerrilla gardening for the purpose of introducing new plants.

DEMONSTRATION ON TAKING A SOIL SAMPLE

The soil sample is taken to determine the nutrient content of the soil.

PROCEDURE

The fields are divided into the zigzag manner and scrape away the surface litter. Dig a hole in "v" shaped using khurpi. Give a cut up to the thickness of 1.5-2.0 cm from top to bottom of both side of V-shaped hole, and mix the soil sample, make a heap and quartering the soil is done. Discard two opposite quarters and mix the other two remaining quarters and again split the same in to four portions and discard two of them.

DEMONSTRATION ON COCONUT MULCHING

Coconut mulching is nothing but covering the soil surface near to the coconut tree to prevent the water loss. For this the coconut husk is used as a material. Here the coconut husks are buried in the soil. It can be done in two ways, either in a linear trench (3m away from the trunk) or circular trench (2m away from the trunk). The trench should be 0.5m width and depth. The coconut husks are arranged in concave surface facing upward. It can be retained in the field for 5 to 7 years. For mulching coconut pith can also be used at the rate of 25 kg/ palm/year. (Figure 1)

DISADVANTAGE

Mulching, the only problem that arises is that an excessive amount of carbon will be produced so to avoid this problem urea can be applied before mulching.

DEMONSTRATION ON COMPOST

Composting is the recycling of organic matter into fertilizer. It improves the soil structure and provides nutrients to the plant.

Compost can be prepared for home gardens purpose using the simple wastes, kitchen scraps. For this small compost bins or barrels can be used. It should be mixed periodically. The C:N ratio will be 30:1. (Figure 2)

BENEFITS OF COMPOSTING

1. Improves soil quality.
2. Add nutrients to the soil.
3. Improve water holding capacity.
4. Balance pH.
5. Improves soil structure.

DEMONSTRATION ON AIR LAYERING

Air layering is one of the propagation practices done in trees and shrubs where the root formation is slower. Here we practiced air layering in guava during April and June i.e. at warm and humid climate with the average temperature between 29.30 – 30.50 degree Celsius and relative humidity between 69 to 80 %.

PROCEDURE

First select one to two years old branch. The selected branch should be straight, healthy, and vigour. After selecting the branch, remove all the leaves up to 30cm. Give a 2.5 cm cut at the leaf axils, apply rooting hormone on the cut portion. A small amount of sphagnum is also packed over the cut portion using the black plastic paper using waterproof tape. The rooting takes place after 30 – 40 days.

DEMONSTRATION ON INTERCULTURAL PRACTICE IN BANANA

Banana is one of the major fruit crops grown. Some intercultural operations that should be followed for attaining proper growth and yield are given below.

Desuckering, propping, mulching, removal of withered styles and perianth, purning of leaves, mattacking, earthing up, branch covering, denavelling, bunch thinning, peduncle wrapping, tagging, and wind break.

DESUCKERING

It is the process of removing the unwanted suckers. It can be removed by cutting the sucker at ground level without detaching the suckers form the mother plant. After cutting kerosene oil is poured over the suckers. In wet or garden land it should be practiced in monthly intervals.

MULCHING

Mulching is one of the practices done to improve the yield by conserving the water and also prevents the weed growth. Indirectly it increases the yield

about 30 – 40 %. Mulching also improves the nutrient content of the soil.

PROPPING

Propping is the method of providing support to the plant at the bunch-bearing stage. The tall varieties

Figure 1. Demonstration on coconut mulching

Figure 2. Demonstration on Compost

Figure 3. Demonstration on kitchen garden

Figure 4. Demonstration of organic pesticides

Figure 5. Demonstration on Kisan call center

will produce heavy bunch that should need a prop. For this purpose Bamboo or Causuarinas poles are used which have effective life period for 3 to 4 years.

BUNCH COVERING

Bunch covering is done to protect the bunch from sunburn,wind, and dust. For this gunny clothes or polythene can be used. For the varieties like dwarf Cavendish and Nendran bunch covering improve color.

DENAVELLING

It is the practices of removing the male flowers after the female flower phase over. It is especially done to avoid the movement of nutrients to the unwanted sink and also promotes fruit formation.

MATTOCKING

After fruit harvest, the pseudostem is cut leaving the stump about 0.6m in height. Here the food materials stored in the stump will be served to the daughter sucker till withers and dries up.

DEMONSTRATION ON KITCHEN GARDEN

The kitchen garden is growing vegetables and herbs for household purposes. It regularly supplies the fresh vegetables for the kitchen use. (Figure 3)

ADVANTAGES

1. It provides healthy and fresh vegetables.
2. The kitchen garden will clean the surrounding air mainly in urban areas.
3. It provides organic vegetables.
4. Maximum utilization of land.
5. It can be considered a healthy hobby.
6. Daily household needs can be satisfied.

DEMONSTRATION OF ORGANIC PESTICIDES

The control of pest and insects are normally done by using inorganic pesticides whereas for healthy and safe farming organic pesticides can be used. There are many organic methods of controlling pests and insects. By using the household products itself the pest can be controlled these methods are mostly recommended for a house garden or kitchen garden (Figure 4).

Homemade natural garden pesticides are made from common household materials such as soap, baking soda, and some spices used in cooking. This kind of pesticide is effective in killing and keeping out common pests and insects in the garden. Some of the organic pesticides used for the garden include neem extract, onion spray etc.,

NEEM EXTRACT

Neem is one of the medicinal tree grown in the tropical region of India. Leaf extract is used for several purposes viz., to reduce the risk of tooth plaque, and to treat lice. Neem kills a wide variety of insects, including aphids, mealy bugs, white flies, Japanese beetles, leaf hoppers, thrips, fungus gnats, and other garden pests like spider mites and nematodes. Neem oil can also kill fungal diseases like powdery mildew, black spot, scab, anthracnose, and leaf spot.

PREPARATION METHOD

Take 20 neem leaf in a half litre of water and boil it until the leaves get soften and discoloured. The water turns in to green color and the same has to be stored in the bottle. It can be used as a insecticide.

ONION SPRAY

Onion peels have a good amount of plant nutrients like nitrogen, phosphorus, potassium, calcium, iron, magnesium and copper.

PREPARATION METHODS

Soak three handfuls of onion peels in one litre of water and leave the solution for 24 hours. After 24 hours, you will see the solution will turn onion pink.

DEMONSTRATION ON KISAN CALL CENTER

To respond to the issues of the farmers the Department of Agriculture & Cooperation (DAC), Ministry of Agriculture, Govt. of India launched Kisan Call Centers on January 21, 2004. Farmers can contact the toll-free number 1551 or 1800-180-1551 the call will be connected to the center and the operator will respond to the problems or queries, if the operator is not able to answer the call will be forwarded to the agriculture specialist. (Figure 5)

CONCLUSION

RHWE program helps the students to get access with the multiple farm practices such as field demonstration, conducting and attending the meeting with the farming community. Also provides hands on experience to the students. Programme utilizes the transfer of technology in agriculture and horticulture aspects.