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Visit Assisted by RHWE (Rural Horticultural Work Experience) Students of 2019 Batch from Adhiparasakthi Horticultural College at Gudiyatham Block

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Abstract

Rural Horticultural Work Experience (RHWE) is a course offered to undergraduate students to get associated with the farmer's community and to understand the agricultural / Horticultural conditions in rural areas. In this program students have visited different places viz., Organic farmer visit, Farmers field visit, seed testing laboratory, as a part of course AEX 411 – Rural Horticultural Work Experience (RHWE) Program.

Keywords: RHWE, Visit, Farmer's field, Gudiyatham.

Visit to Organic Farmer's Field

We visited Mr Sathish Kumar (M.com.,M.phil), an organic farmer who followed biodynamic farming for more than 5 years. He is a farm advisor for more than 50 farms and 500 farmers. He does organic farming on 5-acre land in Meenambalpuram, Gudiyatham. He crops bananas, coconut, papaya, mango, custard apple, guava, wood apple and tomato in an integrated manner in his field. He uses cow products as a main input for his field. He prepares inputs like panchagavya, kombu Saana uram, kombu silica uram, Saana moologai uram, and cow dung compost.

Panchagavya preparation

- Act as 60% growth regulator and 30-40% as insect and disease repellent.
- He uses 5 products of cow (cow dung, cow urine, curd, ghee and milk), coconut water, banana and toddy (on the 7th day to increase the rate of fermentation)

Neem seed kernel extract

- Only used in the severe situation because overuse causes stunted growth.
- Take 5kg of neem seed+1kg white garlic+100g turmeric powder and grind it well by crushing (a mixer grinder should not be used)
- This formulation is ground and mixed well.
- This mixture is taken in a cotton cloth and tied to the cloth and dip it in 200 liters of water for 15-30 mins twice a day.
- After 7 days of fermentation, this NSKE can be used 10 lit in 100-liter water.
- This can be sprayed at any stage of crop growth except during flowering.

3G karaisal

- Garlic, chili, and ginger are taken in a 1:2:1 ratio.
- They are grounded separately and mixed in 100 lit of water and filtered and sprayed for 1 acre (1kg garlic:2kg chilli:1kg ginger).
- It is used for annual crops and short-duration crops.
- Effective against caterpillars and defoliators.

5 Elai karaisal

- The leaves which exudate milky latex when broken can be used, and highly aromatic and bitter leaves can be used.
- Calotropis, neem, papaya, notchi, thulasi, karpuravalli, *Datura metel* can be used.
- 5 kg of these 5 leaves were taken and chopped & ground.
- Take 200 lit of water +10 lit cow urine +0.25 kg of turmeric+ 5kg of cow dung and mix well.
- Take the grounded leaves in an onion gunny bag and dip them daily in water for about 15 days for fermentation to occur.
- For annuals, use 10 lit of 100 lit of water and for perennials and hard-coated leaves use 30 lit of 100 lit water.
- It acts as a micronutrient enhancer, pest and disease repellent, and also plant growth regulator.

Compost making

- Bed method of composting is followed. Done in a shade, humid, well-aerated place.
- Native-breed cow dung is the prime compost material.
- To enrich potash ash is added, for carbon charcoal is added, and to enrich minerals bore well sand is added.
- Other materials such as rotten fruits & vegetables, animal waste, and oil cakes (except neem and pungam cakes) can be used.
- The compost bed is covered with dry coconut fronds to retain moisture and humidity.

Visit to Farmers Field

We have visited the farmer Mr.Govindharaj on his field at Narayanapuram village of Gudiyatham Block. He is doing farming on about 5 acres land about two and half acres are owned and rest of it leased. Currently,he is cultivating Bittergourd,Crossandra,Jasmine,Banana (Rasthali & Mondhan),Papaya,Bottlegourd and Fodder grass.

CROSSANDRA (2 months Crop)

- Area :- 20 cents
- Planting:- 2500 seedlings (₹1/seedling)
- Spacing :- 2×1ft
- Fertilizer :- FYM basal Application & SSP 100kg after planting
- Bio NPK - 1l in 60 liters of water after 30 DAT
- Irrigation :- Weekly twice
- Pest :- Sucking pests causes crinkling and drying of leaves
- Yield :- Economic yield till not starts
- Rate :- Min ₹500/kg to Max.₹1200/kg.

BANANA (75 DAYS OLD CROP)

- Area :- 30 cents
- Planting :- 300 suckers Pit size (45 cm^3) (₹10/sucker)
- Spacing :- 6×6 ft
- Irrigation:- Weekly twice
- Sucker treatment with Carbendazim and Carbofuran is done
- Manures and Fertilizers:- FYM Basal, SSP or DAP - 15 DAP
- Foliar Spray :- 1l Panchakavya in 60l of water
- Intercrop:- Tomato lost before economic yield due to heavy rain
- ITK Practice:- Harvested pseudostem is half-cut and leave to provide support for growing suckers.
- Yield:- Economic yield not starts
- Rate :- 1 bunch Min.₹120- Max.₹500

PAPAYA (4 MONTHS CROP)

- Area :- 15 cents
- Planting:- Red lady Variety 135 seedlings (₹19/seedling)
- Spacing :- 6×6ft
- Irrigation:- Weekly twice
- Intercrop:- Onion(Small onion- Domestic purpose), Coriander (Seed Purpose), Cumbu as a trap crop for borer-type insects
- Problems :- Virus attack
- Manures & Fertilizer:- FYM as Basal Application, SSP as 15 DAP
- Yield:- Economic yield not starts
- Rate ₹15-₹30/kg

JASMINE (6 months Crop) Under NHM Scheme

- Area :- 10 cents
- Variety :- *J. sambac*
- Planting :- 30 cm^3
- Spacing:- 6 ft
- Irrigation:- Weekly twice
- Intercrop:- Bittergourd (Harvested)
- Manures & Fertilizer :- FYM basal Application & 17:17:17
- Problems:- Budworm
- Control:- Imidachloprid at 2 months after planting
- Rate :- ₹500/kg - ₹1300/kg

BITTERGOUD (65 DAYS OLD CROP)

- Area:- 20 cents
- Variety:- US 475

- Planting:- 1×1m Seeds sown
- Seed treatment:- *Pseudomonaa flourescens*
- Manures & Fertilizer:- FYM as Basal Application and All 19 5g in 1l of water
- Problems :- Sucking pests & Wilt
- Control:- Imidachloprid & Mancozeb
- Yield :- First harvest - 8 kg; Second harvest - 22kg ; Third harvest - 30 kg

BOTTLEGOURD (as Rainfed Crop)

- Area:- 10 cents
- Variety :- Mahy Warad MGH-4
- Planting :- Seed sown at 1×1m
- Seed treatment:- *P. flourescens*
- Irrigation:- Weekly once
- Manures & Fertilizer:- FYM as Basal Application
- Yield:- Weekly harvest (40-50 kg/harvest)

Visit to Seed Testing Laboratory

Seed is the major propagating material. Here they test seeds for their quality, physical purity, germination, and ODV(other distant varieties). Here no genetic test is not assessed, it is assessed only in Coimbatore. There are 31 seed testing laboratories in Tamil Nādu .

Types of Samples

- Certified samples – samples are drawn from the depot by blocks ADH
- Official samples- seeds are drawn by the seed inspector or SCO from the depot or from shops. There are two SI present one in Coimbatore and one in Vellore, physical purity and germination should be tested
- Service samples- samples are drawn by farmers or shop owners,80ruoees paid by them to test for germination

Instruments Present

- A purity board is present which is used to test for physical Purity, for testing the physical purity of paddy 40g seed is required.
- Dehuller to remove the husk of paddy
- A blower is used to remove chaffy seeds
- A hot air oven is used to sterilize soil

- An incubator is used to sterilize glassware
- Soil type divider used to get 40g weighing balance
- A moisture meter is used to detect the moisture of the seed, they need different cup sizes as per the seed size. We assessed the moisture of paddy and black gram the result came as 13.6%and 11.9%.

Working Procedure

- They receive the seed samples and sow them the day they got them.
- A receipt is given to farmers
- SS numbering is given
- Germination paper is used to sow replication for small seeded crops, a Petri dish is for green gram, millets, and ragi sowing, Seed hole is made in the sand to grow large-seeded crops like a ground nut for 15-18 replication.
- They are placed in a germination room where the growing condition should be of

Temperature- 25plus or minus 2°C
Relative humidity- 90°
Light- 700lux
If a seedling is a normal shoot and root length should be equal,
If certified and official seeds are failed, they are retested

- The result should be given within 30 days

They will send 5% of every sample to the Varanasi seed testing laboratory and refer samples to Coimbatore. They have a target of 2800 samples to be tested per year.

- After testing they are sealed in a cloth bag, and the different coloured marker is used to identify
- Green for certified samples.
- Red for official samples.
- Blue for service samples.
- They are stored in guard room with controlled atmosphere.

- Certified and official samples are stored for 6 months.
- Service samples are stored for 3 months.
- After that time the seeds are dumped in a pit and burned over.

Visit to Organic Farmer's Field

Mr.Sathish Kumar, a biodynamic farm advisor, and an organic farmer have explained the biodynamic agriculture and method for the preparation of kombu Saana uram, kombu silica uram, and Saana mooligai uram.

Biodynamic agriculture

- Agriculture is followed by our ancestors.
- Key elements are animal husbandry, composting and forces of nature (cosmic force) for crop cultivation.

Preparation of kombu saana uram:

- The horn of a dead cow is taken.
- Fresh cow dung from native breed cows is mixed well by hand to activate the microbes.
- The horn is filled tightly with well-mixed fresh cow dung without any space.
- Then the horn is buried in soil vertically and the tip should face the north
- A pit surrounded by a brick wall to avoid the attraction of roots and earthworms.
- The pit is watered weekly once.
- The horn acts as a cosmic pillar and adds cosmic energy to the soil.
- The time of inoculation is September and October.
- After 6 months the compost will be harvested and ready to use.
- A horn can be used 3-4 times based on quality, later it is degraded.
- In 1g of compost, 36,000 colonies of microbes are present.
- 50-100g of compost is enough for 1-acre land.
- He sells horn meal at Rs.350/100g

Kombu silica uram

- Silica is essential to improve colour, aroma, taste, quality, and shelf life of produce.
- Silica-rich rocks (quartz rocks) are ground well as a fine powder and mixed with water as a paste and filled inside the horn.
- The time of inoculation is march-April.
- The inoculation procedure is the same as in kombu Saana uram.
- After 6 months the compost is harvested.
- 4g is mixed in 16 lit water and stirred well for 45-60 mins and used for 1 acre.
- The spray is carried out on a full moon day because the cosmic energy is high on that day.
- The spray should be done in the atmosphere. First, the border of the field is covered then the field is covered in a plus shape.
- Ca & Si will be recharged in soil by kombu Saana uram and kombu silica uram.
- Sales price-Rs. 20/g

Saana mooligai uram

- A bed of 6 ft in length, 3 ft in breadth, and 1.5 ft in depth is made of bricks and an "A" shaped hut is constructed to maintain shade in it.
- The bed is divided into 3 pits along the length by bricks.
- For each pit 60 kg of cow dung + 30g eggshell powder + 300g bore well sand.
- The cow dung must be mixed thoroughly by hand and sprinkled the dung along the pit. Then eggshell powder and bore well sand are added in the next layer.
- Biodynamic compost boost-502, 503, 504, 505, 506 (solid form), and 507 (liquid form) is added to the compost pit at 6 places by making holes. Added at a rate of 2g/hole (solid form) and 20 ml/hole (liquid form).