



Visit Experienced by 2019 Batch Students of Adhiparasakthi Horticultural College through Rural Horticultural Work Experience (RHWE) Programme 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., Fertilizer shop, Uzhavar sandhai, Cooperative milk society, Assistant Horticultural Office, Nursery, Regulated market, Farmers Producers Organization, and Cooperative Bank as a part of course AEX 411 – Rural Horticultural Work Experience (RHWE) Program.

Keywords: Rural Horticultural Work Experience (RHWE), Demonstration, Farmer's field, Kaveripakkam.

Visit to Fertilizer shop

We visited B.K.Dhasaradhan Fertilizer shop at Gudiyatham, Vellore (dt). He listed out the available fertilizers, pesticides, insecticides, fungicides, plant growth regulators, bio-fertilizers, seeds, etc., in his shop and also explained about selling prices and government subsidies. Details of the fertilizers are furnished below

Major Fertilizers	Brand Name	Quantity	Price (Rs /-)
Urea	MFL,MCF,RCF,CIL	45Kg	266.50
Super phosphate	CIL,SPIC	50Kg	575.00
Potash	IPL	50Kg	1700.00
ALL 16	IPL	50Kg	1470.00
ALL17	SRIVIJAY	50kg	1100.00
Potassium nitrate	GROMOR spray	1kg	270.00
Ammonium sulphate	MFL	50kg	1100.00
DAP	GFL	50kg	1350.00
20:20:0:13	FACT,MCF	50kg	1390.00
15:15:15:9	MCF	50kg	1450.00

Major bioproducts: Rhizobium, Azospirillum, Phosphobacteria, *Trichoderma viridae*, *Bacillus subtilis*, *Verticillium lecanii*, *Metarhizium anisophilae*, HISS-organic fertilizer.

PGRs like: Ethrel, Ethephon – ethylene, Planofix – NAA, SCYTOZ-L - Gibberellic acid , FLOWER-H9-15 days before flowering (1ml/l water)

Biostimulants like: Safin – SP – extracted from seaweed contains alginic acid – 10% makes the plant resistant to different stress, Stanes-Stanohume-humic enriched liquid -used through drip irrigation (1-1.5l/ac), and Green miracle- stress alleviator

Micronutrient fertilizers: Chelated microplus -contains most of the micronutrients, Nutrifast -water-soluble mixture fertilizer, and Agromin max-multi micronutrient fertilizer for foliar spray(1-2l/ac) 500ml -Rs.250

Available horticultural seeds:

Crop	Brand Name	Varieties/ Hybrid	Price
Bhendi	Namdhari seeds	NS7774	1470/250g
Radish	Solar - SUN-800	Pusachatkhi	250/500g
Coriander	ISP	ISP171	220/500g
Drum stick	Golden seeds	PKM1	350/100g
Watermelon	Namdhari seeds	NS295	675/100g
Cluster bean	Namdhari seeds	NS662	350/500g

Some other seeds are also an available:-PALEEF1-Bittergourd hybrid, Aroosa-Bottlegourd, MAHY1-Snakegourd, pumpkin, Hybrid chilli-Mahyco.

Available fungicides: Limon-G-Broad spectrum fungicide contains citronella oil used to treat fusarium wilt in pomegranate, dieback in chili, root rot in tomato(10-15kg/acre), Cosavet-DF-contact fungicide-use for powdery mildew in potatoes (200/kg), Avtar-systemic and contact fungicide, contains Hexaconazole 4%+Zineb 68%wp, Contaf plus-Hexaconazole 5%SC -Mango, Grapes Powdery mildew, Antracol-Contact Fungicide.

Available insecticides: Monocrotophos 36%SL-systemic and contact insecticide-tomato and potato, I-MIDA-80, Imidacloprid 17.8%SL-Systemic insecticide for controlling sucking pest, TATA -Rilon-Emamectin Benzoate 5%SG-Bhendi fruit and shoot borer, diamond black moth of cabbage, Cythion-Malathion 50%EC, Bio insecticide-Nimbecidine-Azadirachtin 0.03%-(Rs.380/500ml)

Available Nematicides: Bio nematom-*Paecilomyces lilacinus*-1.15%WP-used to control root-knot nematode in brinjal,burrowing nematode of banana.

Available Herbicides and Weedicide:Tagpendi-Pendimethalin 30%EC -against broad-leaved weeds of chili and onion, Dhanuzine-15% WP-(Rs.350/500g).

Available mechanical device:Entrap-Cucurbits fruitfly -specifically male – (7-10/ac), Samprooti-Knapsack sprayer – 16l Capacity, Aspee Baby sprayer-1l capacity.

Qualification for establishing fertilizer shop: As per the government direction, traders who want to obtain a license to sell pesticides or fertilizers must have a degree in Agriculture, Biochemistry, Biotechnology, Chemistry, Botany, or Zoology.

Visit to Uzhavar Sandhai

We visited uzhavar sandhai in Gudiyattam block which is maintained by Dr. Logapriyan (AO). Employees in this Uzhavar Sandhai are 1(AO), 2(AAO), 3 (watchmen), and 1 (sweeper). Both customers and farmers are benefited from uzhavarsandhai. Gudiyattam uzhavarsandhai was started in 2000.Area-30cent.Working time: 5:00 am – 1:00 pm. Peak time: 6:00am-9:00am. Low selling time: 11:00 am-1:00 pm. DMK (Dravida Munnetra Kazhagam) the chief minister Karunanidhi introduced the Uzhavarsandhai scheme. Evening sales is only implemented in tollgate uzhavarsandhai in Vellore.1stuzhavarsandhai was started at Madurai in 1999. There are 60 shops in the sandhai in which 120 farmers can be accommodated. Shop allocation will be carried out from 5:30 am – 6:00 am. The token system is followed for the allocation. In these 60shops, one for FPO (farmer producer organization)and 2 for TANWA (Tamil Nadu Women in Agriculture) are allocated.Only those women in TANWA are allowed to the retail product which is not cultivated by

them. Vegetables and leafy vegetables mostly come from the following villages: Odugathur, Paradharam, Sayanagunda, Anaicut, KV Kuppam, Mathanur, Pernambur.

ID cards for the farmers are provided. It is permanent and only for small and marginal farmers with their own land. A total of 502 ID cards is provided till now. To apply for an ID card the farmer should submit a copy of pattachitta, aadhar card, ration card, and a recommendation letter from the department of horticulture. After verifying, they will conduct a field visit and an id card is issued. Id card-holding farmers can have access to buses free of cost even for their goods. Price fixation is by reducing 15% of yesterday's retail price and increasing 20% of today's wholesale price and averaging them. They maintain a separate record for price details, farmers' details, and details on quantities of commodity. Major crops sold are leafy vegetables, coconut, brinjal, mango, banana, etc. Farmers from Parvathiyapuram grow a maximum of leafy vegetables. The officials will go on field visits twice a week. Every day is a working day except on election days. They also provide free drinking water, toilet facilities, weighing balance, and storage facilities like storage godown and cold storage for perishable products with a capacity of 1 ton. We also witnessed composting pit in the corner of the uzhavarsandhai for disposing of the waste materials.

Visit to Cooperative milk society

We visited Aavin's Co-operative milk society located in Mukkundram Village-TBD272, Gudiyattam district. Secretary of the Society Mr. A.P. Ramu and former secretary Mr. Purushothaman explained the activities and structural setup of the society in detail. This society was started on 30-07-1976 as a milk purchase station and in 2021 cold storage facilities with 2000 liters capacity were established. Working time:- Morning 6:00 am – 9:00 am & Evening 4:00 pm -6:00 pm. It covers about 10 villages surrounding Mukkundram revenue village mainly covering Suralure, Thattapaarai, Chinnalapalli, Chengundram, and its surrounding minor villages. It also covers 3 societies located at Kamalapuram, Maseegam, and Erthangal.

Working Structure: During both morning and evening times, vendors collect milk from producers and bring it here. After the arrival of milk, the Tester checks the water content with a lactometer(27-28) and the temperature using a thermometer (< 30-degree celsius). Using a weighing balance weight of the cans is taken and using plunger milk in cans is mixed thoroughly. Then take a 10 ml sample, 1 ml acid, and 1 ml alcohol in a sample tester, centrifuge it for 3 mins, and the fat percentage is calculated. An automatic machine-system analyzer is used to determine the fat(4%), SNF(8.1%), temperature, and water content. Weighed cans are poured into the filter container connected to 1000 l capacity cold storage tanks and the temperature is reduced to 4 degrees celsius temperature. 2 Hotwater containers(500 l capacity) are attached to the tanks and are used for cleaning after transferring milk to the lorry tanks. Milk stored in cold storage tanks can be stored in lorry tankers for up to 48 hours. The lorries are identified by tags with numbers. Lorry filling is done thrice a day at 12:00 AM, 10:00 AM, and 01:00 PM. Lorry containers have two compartments with capacity of 4600 liters. Cold stored milk is checked for its quality using a water bath by putting a 10 ml sample along with 1 ml solution for 2 and half hours it turns from blue to white color. Lorries transported milk from the centers to the main center located at Vellore for further processing.

Other functions: They also supply a mineral mixture of 1 kg (Rs,50) and cattle feed of 50 kg (Rs.1100). Veterinary doctor Dr. Ramesh from Vellore center visits weekly and does health inspections. Secretaries are trained to perform Artificial Insemination on cattle. Semen from different breeds is collected and stored in liquid nitrogen containers. Presently, there are 60 milk producers from Mukkundram village and they are provided with cards and numbers by paying Rs.11 for membership. They also cover insurance for cattle at the rate of Rs.500 per

1-year age cattle. Presently there are no buffaloes, indigenous breeds are reared there. Officials from Vellore main center have inspected this center occasionally for proper working.

Visit to Assistant Horticultural Office

Schemes

Schemes are provided with a 40% state share and a 60% central government share.

There are 58 revenue villages in Gudiyatham villages

NADP (National Agricultural Development Program): They provide a 50% subsidy for banana suckers, fruits, and vegetables. For covering the banana bunch they provide Rs.12,500/acre. Kal pandal for goat, trellis for tomato, solar trap. For selected farmers, organic inputs are given in liquid form Eg. Ruby gel (15kg per ha) and amirdham (1.25 kg per ha)

NHM (National Horticultural Mission): Mango grafts, sapota, tissue culture banana, hybrid seedlings of tomato, chili, brinjal, jasmine, and tuberose (backend subsidy). They also provide a farm pond, mulching sheet, and weed mat.

KAVIADP (Kalaingnarin All Village Integrated Agriculture Development Programme): They provide an 80% subsidy for selective 12 villages. 16 departments are combined to cover this scheme. The main aim of this scheme is to make the uncultivable land into cultivable land. 5-10 acres is called one cluster, it contains a minimum of 8 farmers – they provide free bore well for water sources -majorly borewells done in unassessed land.

SHDS (State Horticulture Development Scheme): They provide drip irrigation for farmers who are involved in precision farming, liquid biofertilizers, and seeds. They also provide All19- 10kg/ha, seaweed 13kg/ha, and humic acid 5kg/ha. All are liquid or water-soluble fertilizers. Provide a 50% subsidy for mushroom units and sprayers. Crop incentives-organic fertilizers for organic farmers. TNIAMP (TamilnaduIrrigated Agriculture ModernisationProject)

PMKSY (Pradhan MandriKisan SinchayeeYojana): For small farmers and marginal farmers, they provide a 100% subsidy and for large farmers, they provide a 75% subsidy. For SC and ST people they provide 100% subsidy. For purchasing a motor they provide Rs.15,000 subsidy, and for a water tank, they provide a 50% subsidy.

PMFBY (Pradhan MandriFasalBimaYojana):They provide a comprehensive insurance cover against failure of the crop thus helping in stabilizing the income of the farmers. He said mango is a major crop, majorly in the gudiyatham block nearly around 300ha only under mango cultivation.Inarch or approach grafted and softwood grafted mango saplings are commercially used for propagation.Major cultivable varieties alphonsa, banglora, Banganapalli. HDP system is also practiced like mango and guava. Other crops are grown in gudiyatham like coconut,tomato, brinjal, chilli, guava.He also listed villages around gudiyatham, where horticulture crops are mostly cultivated. We know about horticultural schemes to improve vegetable gardens and nutrition garden schemes like terrace garden kits, and vegetable seed kits.

Visit to Nursery

We visited a government horticulture farm located in Agaramcheri, Gudiyatham block It is managed by Mr. Dinesh Kumar H.O (farm manager).

Total Area:85 acres - Only 3 acres are used for the nursery area - Remaining 82 acres comprise hilly regions - 2 nurseries are present on the farm - area of 960 sq.m& 1000 sq.m respectively- 3lakh seedlings are produced - Cost of construction of shade net - 7lakhs - If Expenses are 60 paise, profit is only 40paise - Bed size depend on the crop, for mango – 1m width, convenient length - Bed size is higher for tree crops

Nursery operation: The portrayed media should contain cocopeat, vermicompost, and all 19 in a ratio of 1kg:100g:10. Protray is bought at the rate of rupees 14 per protray, cocopeat from thirupattur and rate of all 19 is rupees 120 per kg. Filling the protray with media then sow the seeds and curing operation is undergone to incubate for better germination (by covering them with polythene to maintain microclimate). Irrigation is given on alternate days. The sown seeds are already treated with thiram in the seed production industry. Irrigation is done by fogger from a bore well 650ft depth. They also produce succulents like jade and tree species like vilvam, Rose wood, pungam, poovarasam golden shower, malaivembumahogany, and jamun etc. The medicinal plant produced under SHDS scheme. Only vegetables and medicinal plants are given under schemes but ornaments, fruits, and other plants are sold to everyone at the rate of 10 rupees per seedling. They also maintain 30 bee hives and sold under TANHODA outlet. They also have a power tiller, excavator etc. Coconut is a horticulture crop but they come under an agriculture scheme. They maintain citrus variety **Balaji** and sold at a rate of 30 rupees per ha, they are cultivated for bund crop. They also maintain Hibiscus, Pseudoeranthemum, Acalypha, Dracaena, Duranta, Pirandai, Alternaria, Tecomastans, Song of India, Money plant, Annona, camel foot tree etc. 25-day-old vegetable seedlings are given to farmers. Mango variety of banganapalli and alphonsa is grown. Guava variety of Arkakiran. Banana and turmeric is grown during aadi, karthigai and thaipattam.

Mother block maintenance: 2 mother block is maintained one for guava at the spacing of 2*2 sq.m and one for mango for scion purpose at the spacing of 2*2 sq.m. Guava is propagated by layering and mango is propagated by approach grafting. Pit size of 45*45*45 cubic. cm. During sowing, the pit is filled with cow dung and vermicompost. They have a plan of extending the nursery to a biodiversity park. He explained the value of red sandalwood as it has a higher export value because the core can withstand thunder hence, they are used for roofing in the English countryside.

Visit to Regulated Market

We visited Gudiyatham regulated market and the supervisor Mr. Yuvaraj explained the activities of the market. There are a total 274 regulated markets in Tamilnadu and e-NAM (electronic National Agriculture Market) concept was recently introduced to the markets by BJP to reduce manual errors during marketing. In the Vellore district, there are 3 regulated markets and Gudiyattam RM is one of them. It was started on 18-10-1958 and the e-NAM concept was introduced in 2020. In this RM, 1 Superintendent, 1 Junior Assistant, and 1 Computer Operator are the working people. In this market, a total of 4 godowns are there, 3 for storage of the products, and 1 is used as a transaction godown. There is a place for drying grains. Farmers can store their produce for up to 180 days without any charges. Farmers can get pledge loans at 5% interest and traders can get loans at a 9% interest rate. The regulated market acts as a platform for the farmers to sell their produce to traders at a profitable price. RMs provide Unified Single License (USL) to traders, which helps them to make a trade in all notified regulated markets of the country but only if the state government approves.

Working structure: Farmers can bring their produce and store it in either a transaction godown or storage godown after weighing using an electronic weighing balance and moisture percentage noted. Their details such as Aadhar, Pan, and bank passbook details are collected and verified and lot numbers are provided. The time duration for this process is 10:00 AM. After this e-NAM app opens for traders and the bidding price for the lots is done up to 10:35 AM. Traders can enroll them by providing their Aadhar, Pan card, Bank passbook, and mainly their solvency certificate which are verified. 75 rupees per year should be paid as a fee for the trader's registration. ID and Password are provided by to traders and to date total, 57 traders are enrolled in this market, and out of 57 traders eleven traders only enrolled in e-

NAM. USL also provided the traders which have a validity period of 3 years. Traders can bid prices according to the quality and quantity of the products needed. Traders who bid the highest price for the lots can buy the product only after farmers get satisfied with their price or else they can stop the bidding. Traders can send money through their virtual account to the RM and the officials of the RM sent money to the farmer's account. A farmer's virtual account is temporary whereas a trader's virtual account is permanent. A 1% tax from the trader's money as a commission fee should be paid to RMs by the traders which is the main revenue to the RMs.

Visit to Farmer Producers Organization

We visited Gudiyattam Evergreen collective farmer producer company limited. **Mr. Vikram**, CEO of Gudiyattam block FPO explained all the details.

Role: The role of FPO is to act as an aggregator for member farmers including from inputs to output which will enhance the economy of scale and bargaining power of member farmers. In case of unsold Lots, Logistics arrangement is to be made by FPO/FPC. FPOs/ FPCs can act as an aggregator for its member and sell through e-trading as one/ multiple lots depending upon the requirement. Payment will be done directly to the FPO/ FPCs bank account. In turn, FPO/ FPCs can distribute among members. Union budget 2017-18 made provisions to install collection/ sorting/ grading/ packing facilities at their premises. Provision for the personalized dashboard and real-time information on arrival, quality, and price of commodities. Currently, 2050 FPOs have been onboarded on the e-NAM platform. Turnover till now is around **28.5 Lakhs**. Yearly once they provide a balance sheet file and monthly GST file, income tax is also filed. 90 days, 1-year, and 2-year general meeting was conducted and monthly twice board of directors meeting was conducted between 10 directors.

Registration: From 1000 farmers 1000 rupees was collected (10Lakhs) they create two accounts, a business account, and a share account. To make business stock register maintenance and sales register maintenance, cash book maintenance. Amounts are passed through bills, they follow only cheques for payment(RTGS, NFTO) only. Govt Fund – Startup 5Lakhs (No refund). NABARD -4% yearly interest which must be repaid, after 5 years we have to pay 10 lakhs. Government supplies free rent, equipment cost, etc for 2 years. Farmer's market also allows a place for FPO. Storage in the Regulated market for a license of 600 rs. They contain 5 lakhs in their bank account to get licensed. They also give dealerships for other companies.

Visit to Cooperative Bank

we visited the primary agricultural co-operative society at sempalli (C2550). LAL BAHADUR, M.A Economics School, MA(Pd.Sc), M. Phil, DCA- SECRETARY explained about activities of the bank. They are registered to the government of cooperative department on 02-12-1966 and started on 31-12-1966. Each society comprises a group of the village, this society oversees 6 revenue villages like Sempalli, Jittapalli, Agraharam, Rangasamuthiram, Mordhana, Perumbadi, and also 10 amlet villages. This society maintains 10 ration shops. Till now this society oversees 20000 people of which 3438 are members. Members are the only ones who can apply and get a loan. The documents required for becoming members: Farmers should have their own land with chitta proof, Crop details with adangal, Voter I'd proof, PAN proof, Ration card proof, and Aadhar card proof.

The loan is given based on their land size and the scale of finance is determined by a committee formed by the agriculture department, revenue department, and cooperative department. Loans should be repaid before the repayment period if no interest is applied. They provide KCC(Kissan Credit Card), using this they provide crop loan to the farmers now 574.74lakhs of crop loan is provided if the repayment period is crossed 7 percent interest. They also provide farmers' jewel loans and jewel loan. They provide 3800 rupees for 1g of

gold. They reduce 15% of the weight of the gold as it contains impurities and stones to make it shine, hence the loan is provided by reducing the 15% value. Till now farmer jewel loan of 36lakhs is provided and a normal jewel loan of 94 lakhs is provided. Interest for a jewel loan is 12 percent, and the repayment period is 1 year. The maximum loan given is 3lakhs, repayment period depends on the crop for the annual crop it is 1 year. For tree species like mango, they are only economical during 3-4 months in a year hence repayment period is 3-4 months. They also provide loans for cattle with the interest of 13%. Totally 1032 farmers benefitted from this society. The total employees working here are 6 and in ration shops, 7empolyees are working.

Fund Flow: NABARD gets funds from the Reserve bank and gives them to TNSC bank (Tamilnadu state cooperative bank) They transfer the fund to the district Cooperative bank from which it reaches the village cooperative society and to the farmers. Vellore has 3 branches one for Ranipet and Thitupattur is not separated. They also provide loans for the TANWA group which comprises 47 groups with 660 members they have got 1,12,57000 rupees as loan the interest is determined by NRLM as the loan value of below 3lakhs will have an interest rate of 7% and a value exceeding 3lakhs will get an interest rate of 13.75%. The amount of loan given is based on their savings and their duration of membership. If they are a member for 2 years and has a saving of 5 years that group can get a maximum loan of about 20lakhs. Every group contains a chairman and secretary. Minimum 100 rupees I'd paid for the membership. The share should be paid based on the loan amount. Small and marginal farmers should pay about 5%share and big farmers should pay about 10% share. But when the society is getting money from the bank they should pay about 6% of share to the government.They mainly give fertilizer to the farmers. Most of the ration shop is under cooperative society about 80% but some are maintained by self-help group and some are maintained directly by the government.Based on the share and profit dividends should be paid. Farmer's loan of about 8crores is discounted this year. An audit of about 14% interest should be paid.



(A) Fertilizer Shop; (B) – Cooperative Milk Society; (C) – Regulated Market



Nursery



Uzhavar Sandhai