



Agri Articles

(e-Magazine for Agricultural Articles)

Volume: 03, Issue: 02 (MAR-APR, 2023)

Available online at <http://www.agriarticles.com>

© Agri Articles, ISSN: 2582-9882

Rural Agricultural Work Experience of Adhiparasakthi Agricultural College Students at Arni Block

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Abstract

We, final year students of Adhiparasakthi Agricultural College hereby sharing our experience and knowledge gained by visiting various institutes in our Rural agriculture work experience program. The various places we have visited are: Soil testing laboratory, Seed testing laboratory, Uzhavar sandhai, Farmer Producer Organization, Intergrated Pest Management unit, Navloc, Krishi Vigyan Kendra, poultry unit, Regulated market, Daily Shandy.

Keywords: RAWE (Rural Agriculture work experience), Agriculture, Farmers, Rural people

Soil Testing Laboratory

We have visited soil testing laboratory located in Kanchipuram. There the Agricultural Officer Ms. Indhumathi explained about the activities and functions carried out in the soil testing laboratory. The soil testing scheme become mandatory after the implementation of Kalaignar All Village Integrated Agricultural Development Programme (KAVIADP). In this lab, both soil as well as water is being tested and the results are given in a week through SMS or mobile phones along with the soil health card with recommendations for that particular soil type. Soil samples are taken from various villages of the block under scheme based by the agriculture officials from both Kanchipuram and Chengalpat districts. Nearly 1000 farmers per annum are giving soil samples of their field on own interest.

First of all, the soil samples received are split into two as Elite samples (received directly from farmers of different districts) and Scheme samples (received on scheme basis within a district). Soil samples are collected through grid sampling method. The grid was made on the village map using software, survey numbers were given for each grid and samples are collected and are tested on the labs. In case of wetland, 1 sample is collected for every 2.5ha. In case of dryland, 1 sample should be collected for every 10ha. The fee charges for a soil sample and water sample is Rs. 20. In case of water testing, 1l of water is collected.

Analysis: The collected soil are powdered into fine soil and are tested for Macronutrient and Micronutrient levels. pH, EC, texture and lime status are also tested. The water



samples are tested for RSC, SAR, salinity, alkalinity, Mg^{2+}/Ca^{2+} ratio. The micronutrient are measured by Atomic Absorption Spectroscopy.

Notice boards are displayed on procedures to collect the soil and water samples, method to treat wastelands and saline soils.

The optimum level of Macronutrient present in the soil,

N – 25-50 mg/kg of soil
P – Olsen – 9.5 - 9 kg/ac
Bray – 10 – 20 kg/ac

The optimum level of Micronutrient needed to be present in soil are,

S – 10 to 15 ppm
B – 0.5 to 1 ppm

Seed Testing Laboratory

We have visited the seed testing laboratory located in Kanchipuram. Explained about the functions and activities carried out in the seed testing laboratory.

The major objective of the seed testing laboratory is to distribute quality seeds to the farmers. About 3 types of seeds are distributed – certified seeds, official seeds and service seeds. The seed samples received as Inspected, tested for various criteria and are certified. The seeds are tested for moisture content, germination percentage, physical purity and other variety seeds. The standard levels for the above criteria are fixed by Indian Minimum Standard for all the crops. On the basis of standard, the quality of the seeds are determined.

Moisture: Around the Kanchipuram majorly, paddy, pulses, groundnut are majorly tested. The moisture content level should be,

Paddy – 13 to 14%

Pulses – 9%

Groundnut – 9%

Germination: For testing the vigour and germinating ability of the seeds, the seeds are grown under controlled condition. The major parameters needed for the growth/germination are humidity and light intensity. RH humidifiers are installed to maintain the relative humidity. Lights of 750 to 1250 lux intensity are installed.

Counting days	Crop
Paddy	14
Groundnut	10
Blackgram	7
Greengram	7

The methods used for testing the germination are Pleated paper technique (for bold seeds) and top of the paper (for small seeds). In top of the paper methods, 100 seeds (10 rows of 10 each) are tested and 4 replications are maintained.

In pleated paper techniques, nearly 50 seeds are tested with 8 seeds per pleat. For bold seeds, sand medium is used.



Physical Purity: The samples are tested for physical purity using blower (winnowing technique). Pure seed, other crop seeds, weed seeds and Inert matter are separated and percentage of component are measured.

ODV: The samples are tested for other distinct varieties and are expressed in %.

The ODV are calculated by,

$$\text{ODV} = \frac{\text{No. of other variety seeds}}{\text{Submitted samples (g)}} \times \frac{1000 \text{ g wt}}{1000} \times 100$$

After completing all the above tests, the seeds are given certification and are released.



Uzhavar Sandhai

We visited Uzhavar Sandhai in Arani block which is maintained by Ms. Archana (AO). She also maintains other 3 Uzhavar Sandhai in Thiruvannamalai including Cheyyar. This Uzhavar Sandhai was established in 2000. The working hours of this Uzhavar Sandhai is 5.30 a.m., to 12 p.m., . farmers starts coming from 4.00 a.m.,. The distribution of free weighing balance is carried out at 5.30 a.m., photo identity cards are given to farmer by the Department of Horticulture. To apply for an photo ID card, the farmer should provide a copy of patta, chitta, aadhar card, ration card and a photo.

Facilities provided to the farmers: Photo identity cards holders can access to buses free for their luggages (produce). Distribution of free weighing balance to avoid malpractices in marketing. Allotment of free stalls on the basis of “first come first served”. There are 60 shops of these 10% of shops are allotted to Farmer producer organization, Self Help Group, Co-operative society, horticultural shops.

Price fixation: Reducing 15% of retail price & increasing 20% of wholesale price.

Major crops sold are plantain, onion, carrot, lemon, papaya, coconut, tomato, potato, brinjal, cauliflower, beetroot, lab lab. The agricultural produce is categorized as Grade 1,2 and 3. But produce in Grade 3 is not allowed for sales in Uzhavar Sandhai. Coordination meeting is held on every Saturday.

This Uzhavar Sandhai has 5 metric tonne capacity of cold storage unit for the preservation of perishable fruits and vegetables.

Infrastructure facilities such as drinking water, toilet, drainage, canteens for food and tea also plastic boxes to collect rotten fruits and vegetables.



Staffs & their duties: 1. Agricultural Officer:

- 1) Price fixation after collecting wholesale and retail market price
- 2) Supervision of shop allotment & sales.

- 3) Collecting vehicle charges.
 - 4) Administration of Uzhavar Sandhai
- 2. Assistant Agricultural Officer:**
- 1) Issue of free weighing balance to the farmers
 - 2) Allotment of shops after checking farmers identity cards
 - 3) Register maintenance
 - 4) Preparation of reports of daily activities
- 3. Security:**
- 1) Guarding Uzhavar Sandhai at day & night time
 - 2) Regulating vehicle parking
- 4. Sweeper:**
- 1) Maintaining cleanliness around Uzhavar Sandhai
 - 2) Cleaning the toilets



Farmer Producer Organisation

We have visited Arni Collective Farming Farmer Producer Company Limited in Irumbedu village under the Department of Agricultural Marketing & Agribusiness. This FPO acts as Agriculture Produce Value Addition Machinery Centre for farmers. The FPO is renovated under Chief Minister's Dryland Development Mission 2022-2023. We met Mr. Ramu, the leader of this FPO, who is also a small farmer owing 5acre of land. Only marginal & small farmer can be a member of this FPO, with a entry fee of Rs.1000/member. There are nearly 500 members in this FPO. Nearly 500 farmers from 5 villages such as Panaiyur, Mamandur, Sevoor, Morappandhantal and Irumbedu. The investment of



this FPO is equally shared by the State Government i.e., (50%). FPO is running in a leased building of rent 9000\month.

Activities & Facilities provided:

- ✓ This FPO has a Rice milling machine, chilling milling machine, flour milling machine, wooden & iron chekku machine especially for groundnut, Desheller and Dehusker.
- ✓ The FPO provides milling services to its member (Value Added Product)
- ✓ They also sells groundnut oil, groundnuts & groundnut cake in both wholesale & retail
- ✓ The major activity carried is extraction of groundnut oil by chekku machine.
- ✓ The FPO is supervised by 5 Leader & 1 Staff member.

Commodities	Milling cost/kg
Groundnut	10
Chilli	35
Wheat	8

The profits of the FPO, incase of higher returns is equally shared among the shareholders. Incase of lower returns, the profits is distributed as shares to its members.



Intergrated Pest Management Unit

We have visited Biocontrol Agent production centre located at Panchupettai, Kanchipuram. We met Ms. Reihana and she explained about the activities of the unit. They are producing *Trichoderma viride*, *Pseudomonas fluorescens*, *Beauveria bassiana* as carrier based, NPV as liquid form, *Chrysoperla carnea*, *Trichogramma chilonis* as egg cards. They are buying mother culture from TNAU and subculture from it. Then starter culture is prepared from subculture. Subculture is kept at fermentor (Fungal – 7 days, Bacterial culture – 2 days). Then this is mixed with talc at 1:2 ratio, dried, packed & distributed. *Trichoderma viride* is soil borne pathogen used at 10g/kg of seed for seed treatment. *Chrysoperla carnea* is a predator & controls Rugose spiralling whitefly, aphid, mealybug. *Trichoderma chilonis* is used for paddy, vegetables, sugarcane. They are also producing NPV, a species specific virus for *Spodoptera litura* and supplies them to virudhunagar district for cotton cultivating farmers. They are also selling this to farmers through Agricultural Extension Centre.

Navloc: We have visited state oilseed farm at Arcot. We met agricultural officer Mr. Arvind and he explained us about the activities of Navloc. The total area of the farm is 66.16ac. The

cultivable area under farm is 55ac. The cropping intensity 200%. The crops cultivated here are paddy, ragi, blackgram, greengram, cowpea, horsegram, groundnut, sesame and sunhemp. The concept of seed farm is to produce seed from a seed. The records maintained here are daily record sheet, instock register, maintenance register, processing & tagging register, test harvest register, germination register & farm producer register. They uses biocontrol agents for seed treatment. The seeds which are failed in germination should be resampled but the seeds which are failed in ODV should be used as grain.

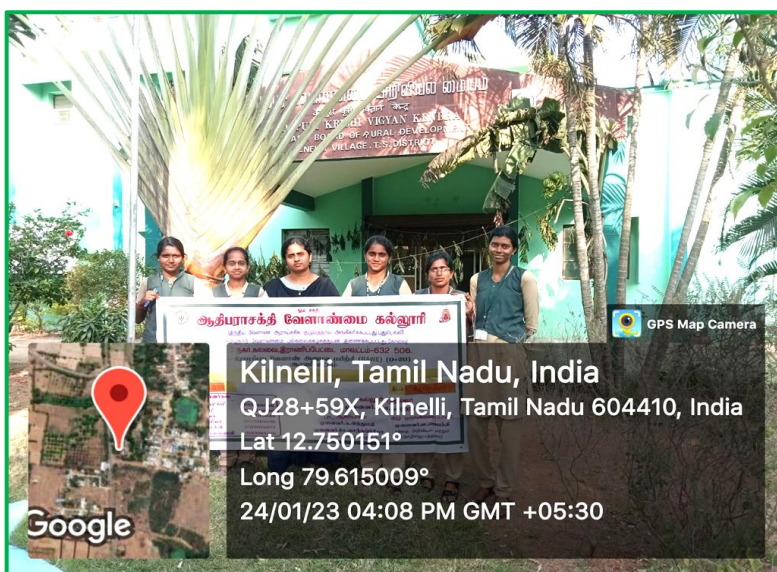
Krishi Vigyan Kendra

Krishi Vigyan Kendra located in Kilnelli, Thiruvannamalai. This KVK started in 1991 by ICAR, New Delhi. It comes under the Agriculture Technology Application Research Institute (ATARI). Zone X of ICAR. This KVK comes under NGO nor Government Organisation headed by the chairman Mr. S. Ramesh, an advocate and eminent person. There are 15 members worked in this KVK, one senior scientist, 6 subject matter specialist i.e., Agronomist, Horticulture, Veterinary, Extension, Plant protection and also home science, lab technician, farm manager, one accountant, computer programmer, stenographer, 2 attender and 2 driver.

In this KVK has 50 ac in that 45 ac split has 4 farms i.e., Godavari farm, Ganga

farm, Yamuna farm and Kaveri farm and also 5acre has building. They majorly carry out OFT (On-Farm trials/On-farm testing) and FLD (Front line demonstration) for farmer. In central government scheme they conducts CFLD (cluster front line demonstration) in Oilseed, pulses. They are also conducting training programme for farmers with free accommodation and food and also give inputs to selected farmers for production purpose.

They give training to youth people under the scheme of STRY (skill training for rural youth) for 6 days. KVK also act as marketing centre when farmer's need seeds, organic fertilizer like vermicompost, panchagavya, etc. & mushroom spawn they could directly contact KVK and buy it.



Poultry Unit

We have visited poultry unit in Kannamangalam maintained by Ms. Rajkumari. Where they are rearing 4 to 5 batches of chicks per annum. The poultry unit has a total area of about 22 × 25 ft. Each chick requires an area of 1.3 sq. Ft. Feed for the chicks are given by the respective companies. 1 day old chicks are given by the companies and are maintained by Brooding technique for 7 to 10 days.

Brooding management:

Brooding is a period immediately after the batch when special care & attention is given to chicks to support their health & survival. A recently hatched chick has not yet developed their own mechanism to regulate its own body temperature hence it can't maintain

its body temperature properly for the 1st weeks & it is subjected to chilling in the winter season when extra heat is not provided externally.

Preparation of brooder house:

- ✓ Brooder house should be ready for a day before the chicks arrive
- ✓ Form a circle about 5ft diameter with brooder guard which can hold about 200 to 250 chicks
- ✓ Spread the litter matter & cover it with newspaper, spread ground maize/crumble feed on the newspaper
- ✓ Check for proper temperature (heat source)
- ✓ Remove the old newspaper after 3 days
- ✓ The chicks are maintained in brood chamber for 8 days

At 35 to 40 days, vaccine is given for breast development. The chicks attains 2 to 2.5 kg fresh weight in 35 to 45 days. For day old chicks, antibiotics is given. Salt, boosters and steroids are mixed in feed & are given for healthy growth. Antibiotics Zendamycin is given to maintain chicks in active state. The wastes collected with litter can be used as manure in field after composting.

The electricity cost, labour cost and bedding material are paid by the poultry manager. The doctor for the particular unit visits the poultry unit once in a week. The general issue faced by the poultry owners are heart attack of chicks. The major disease is Ranikhet disease, E. Coli attack from contaminated water, nematode attack due to poor sanitation and acute attack due to poor ventilation. Growing other birds like quail, turkey, duck are not allowed near a poultry farm. The cost of chick is Rs. 6/kg of flesh. Climatic change is the major issue which affects the chicks health to the greater extent.

After each batch, the floor are cleaned and disinfected with bleaching powder and lime. New litter materials are used for each batch.



Regulated Market

We have visited Regulated Market located in Arni. We met Mr. Thangapandi who gave details/information about e-NAM (e-National Agricultural Marketing). Now-a-days traditional system of product sales is not followed in regulated markets e-NAM was introduced in June 2020 in Arani.

In e-NAM, all farmers must login/register their account. In arani



regulated market, approximately 120 traders are using this e-NAM =. Totally 300 members including wholesale, retail and petty traders are trading using e-NAM. The major notified commodities are paddy, groundnut, blackgram, greengram, coconut, sesame etc... apart from this, indirect bidding method is followed. The farmers who are willing sell their commodity in regulated market can bid the price for their commodity. The traders buy the product and make direct payment to the farmers. If a farmer's produce is not sold, he/she can store his produce in storage godown for free upto 15 days. After 15 days, a minimum amount 20paise/bag is charged for each bag.

The traders must pay 1% of their trading cost to the government. The farmer's produce are assayed and are tested for moisture content and physical purity. The benefits of e-NAM are:

- i. 100% bidding assurity
- ii. Assaying is available
- iii. Farmer can trade their produce to other countries
- iv. Direct payment from traders to farmers
- v. Farmers can transport the produce throughout India

In Arni regulated markets, the highest bid variety for paddy is Ponni (Rs. 1691/75kg) and the lowest bid variety of paddy is Co5 (Rs. 957/75 kg).



Daily Shandy

We have visited daily shandy in Irumbedu, Arni. The daily shandy also known as Gandhi market. It was started in the year 1960 running about 63 years. It was running successfully under the society name Arni Vegetable Traders Association. The head/leader of the society Sadhak Basha explains about the activities and prices adopted in the Gandhi market.

The shandy begins at 2.00 a.m., and closes at 8.00 a.m., It is the 3rd largest shandy



after Koyambedu and Vellore. The people from Arcot, Vandavasi, Gingee, Chetpet, Manamadhi comes and purchases vegetables from here. The farmers can directly sell their produce here. The price fixation for the farmers produce is based on Koyambedu market.

Sellers are allotted with shop for rent. For private, rent is Rs. 80,000 per month. For government, rent is Rs. 5,000 per month. Nearly 15 wholesale traders, 40 retail traders and 50 petty traders.

The commodities sell in this shandy are bought directly from farmers or from various states. The vegetables bought from farmers possess 10% commission. Transportation from other states requires prior ordering (3 days before required date of arrival). The cost of commodity and rate of commission varies based on transport.

Commodity	State/place	Commission
Onion (bellary)	Solapur, Bijapur	5% (for both commission & billing)
Shallots	Palani, Ottanchatram	5%
Drumsticks	Ottanchatram	10%
Garlic	Gujarath, Madhya Pradesh	5%
Tamarind	Andhra Pradesh	10%
Tomato	Venkatogirikotta, Balangir	10%
Garlic	Uttar Pradesh, Madhya Pradesh	5%
Potato	Indore, Agra, Venkatogirikotta	Based on transport

Price:

Commodity	wholesale	Retail
Carrot	Rs. 25 /kg	Rs. 30/kg
Radish	Rs.20 /kg	Rs.25/kg
Bottle gourd	Rs.15/kg	-
Field bean	Rs.60/kg	Rs.80/kg
Pumpkin	Rs.10/kg	Rs.20/kg
Chilli	Rs.30/kg	Rs.60/kg
cabbage	Rs.5 to 10/kg	Rs.20/kg
Tomato	Rs.650/25 kg	-
Drumstick	Rs.120/5 kg	Rs.160/5 kg
Sweet corn	Rs.10/kg	-
Potato	Rs.20 to 27/kg	Rs.30/kg
Brinjal	Rs.30 to 45/kg	Rs.50/kg
Green peas	Rs.30/kg	Rs.40/kg
Lab-lab	Rs.60/kg	Rs.70/kg
Spinach	Rs.20/kg	-
Cauliflower	Rs.250/20 heads	-
Capsicum	Rs.50/kg	Rs.60/kg
Banana	Piece: 5, Bunch – 200Rs	-
Onion	Rs.1050/50 kg	-
Yam	Rs.25/kg	Rs.30/kg
Ginger	Rs.50 /bag	Rs.70/bag
Chow-chow	Rs.10/kg	Rs.20/kg
Double beans	Rs.90/kg	Rs.120/kg



Agri clinic & Fertilizer shop

We have visited Sri Sai Agri clinic in Irumbedu village where we met Mr. Arulkumar, our alumni from Adhiparasakthi Horticultural college (2004-2008). He is running agri clinic successfully in Irumbedu. He is selling inputs (seeds), and chemicals like pesticides, herbicides and fungicides in his shop.

Seed: Certified seeds are sold in his shop. Majorly setting seeds are paddy (RNR, Co51, ADT37, ADT45, Raasi seeds), bhendi (rathika) and brinjal (Mullu kathiri).

Fertilizer: Generally selling one are urea and NPK complex of different ratios (Majorly 20:20:20), organic fertilizers are also selling to some extent. The company from where he is collecting organic fertilizer is Linga and Pathanjali. Biofertilizer is also selling here.

Growth regulator: Major growth regulator being sold is gibberellic acid. It is commonly given along with fertilizers & pesticides.

Micronutrient: Micronutrient mixture are available in granule form. For Zn nutrient, apart from ZnSo₄, EDTA-Zn complex form is recommended by him.

Fungicide: Major disease of paddy observed in this area is leaf spot and blast. For that, he is recommending Carbendazim + Mancozeb mixture.

Organisational pattern: Company (producer) > distributor > retailer > Seller > Farmer
No subsidy is provided for the purchase of production

Profit and institutions: He is selling products from approximately 20-25 companies. The major companies involved are Tata, UPL, Bayer, Syngenta, Krishi, PASF, Indofil, SAAF, Turf and companion.

The average income per month varies according to the season of the crop.

He earns an average of Rs. 40,000 per month during crop season. In non-season time, he earns a profit of Rs. 25,000/month.



Rent for his shop is Rs. 6500/month.

The general norm followed is sell before expiry date. There is no policy of retention of expired products from the firm.

Price details:

Urea	Rs. 266	45 kg
Complex (17:17:17)	Rs. 1380	50kg
Seeds	Rs. 900 – 1000	30kg
DAP	Rs. 1290	50 kg
Potash	Rs. 950	50 kg
SSP	Rs. 430	50 kg
10:26:26 complex	Rs. 1150	50 kg
16:16:16 complex	Rs. 1030	50 kg
Ammonium sulphate (1pckt)	Rs. 670	50 kg
Ammonium chloride (Spig)	Rs. 750	50 kg
Organic manures	Rs. 140	50 kg



Conclusion

Hereby, We conclude our knowledge gained through RAWE Program. We gained lot of experience through this program. We sincerely thank our course teachers Dr. K. Indhumathy, Assistant professor (Dept. Of Agrl. Extension) and Dr. S. Vasanthapriya, Assistant professor (Dept. Of Agrl. Extension) and also our Group facilitator Dr. M. Jayanthi, Assistant professor (Dept. Of Seed science and Technology). We convey our heart full thanks to all who helped us to complete this RAWE program.