Improve Rural Livelihood

1) Skill development programs

Agrivaluechain Services

implement Skill development programs to Agri entrepreneurs, Students and rural youth for employability. Our modules are designed to meet industrial requirement including export pack houses, cold chain service providers, food processing industries and super markets.

Courses:

i) Post-harvest management:

Course tittle: Post-harvest management of horticulture produce	**Modules:** 1.Introduction on Post-Harvest Management 2. Importance of Post-Harvest Science 3. Pack house operations and 4. Post-Harvest Management Protocols 5. packing and bar coding standards for traceability
Duration: 5 days (40 hours)	**Who can benefits:** Graduates in science and agriculture Agri entrepreneurs Exporters and importers Cold chain services providers Farmers group

ii) Cold chain Operations

Couse name: Cold chain Operations	**Modules:** 1. Introduction to Refrigeration 2. Refrigeration System and Components 3. Role of Refrigeration and Applications 4. Refrigeration In Agri Logistics 5. Advancement in Refrigeration
Duration: 5 days (40 hours)	**Who can benefit:** Agri entrepreneurs Diploma/graduates in engineering Exporters and importers Cold chain services providers

	Farmers groups

iii) Cold chain support schemes and initiatives as per NCCD guidelines 2025

Couse name: Cold chain support schemes and incentives provided to encourage investments	**Modules:** 1.Basics of cold chain 2.Refrigeration equipment operations 3.Maintenance of refrigeration plant and insulated doors 4.Troubleshooting and servicing of refrigeration equipments
Duration: 2 days	**Who can benefit:** Agri entrepreneurs Exporters and importers Cold chain services providers Farmers Producers groups SHM officers

iv) Agri logistics and retail distribution

Couse name: Agri logistics and retail distributions	**Modules:**

Duration:	**Who can benefit:**
3 days	Agri entrepreneurs Exporters and importers Cold chain services providers Food processors Farmers Producers groups SHM officers

2) Industry academic collaboration for training, research and development

Agri value chain has signed a Memorandum of Understanding with Tamil Nadu Agricultural University, Coimbatore, to strengthen training and development programs.

Objectives

- Promote collaborate on scientific studies improving scientific storage systems adopted in value chains system.
- Research and development of establishing optimum controlled environment conditions to extend the post-harvest life of tropical horticultural produce.
- Training and development of capacity building programs
- Developing innovative quality measurement systems to study and improve the shelf life of produce.

Agrivaluechain signed MoU with Tamil Nadu Agricultural University, Coimbatore

3) Small Scale Post-harvest management & Food Processing

Technical support and capacity development in post-harvest management processes, infrastructure planning. We focus on farm level value chain development through implementation of small post-harvest management processes, infrastructure planning and adopting technologies. Our team works closely with farmers, groups, exporters, and supermarkets to ensure market linkages.

a) Supporting small scale post-harvest management to FPO's
   We provide comprehensive support for establishing small-scale post-harvest management for food processing facilities.
b) Support for small agro food industries development to MSMEs
   Guide the private investments to setup the projects on small scale food processing
   Partnering with institutions for the development of MSMEs in agro food processing

Our scope of deliverables:

Planning & Development

- Techno-economic feasibility report preparation
- Guidance on government schemes for encouraging investments in agro processing
- Infrastructure planning and design
- Sustainable cooling solutions integration

Implementation Support

- Technical guidance for facility setup
- Training for operations and maintenance
- Quality control system implementation
- Market linkage facilitation

Connecting Vegetables farmers group to Markets

Post-Harvest Management Projects:

1. Lemon value chain

Study Objective

The objective of the study is to extend the shelf life of lime/lemons and maintain their vibrant colour for establishing commercial value chain. This study is conducted to find the maximum shelf life of lime/lemon by keeping in a controlled environmental condition (Temperature, RH, ethylene and MAP).

Cold Storage Set-up

Experimental Trials

- We have carried out 2 trails in Avinashi, Tiruppur, to understand the colour changes and shelf life of the produce.
- Trial 1: This trial was conducted using an ethylene absorber while maintaining the temperature between 11–14°C and 75–95% RH. We observed the external appearance and internal quality parameters, and the produce was stored for 45 days in cold storage after undergoing ethylene extraction and the maintenance of appropriate temperature and relative humidity.
- Trial 2: The second trial was conducted using MAP packing, plant sachets, and a disease control solution, and the appearance, shelf life, and interior quality were observed. This batch was stored for 55 days using MAP in cold storage.
- Following the two trials, we conducted extensive discussions with post-harvest experts from TNAU-Coimbatore, Punjab State Agriculture University-Ludhiana, and the Post-Harvest Education Foundation, USA.

Key Observations

- The shelf life of **lime** could be extended up to **40-50 days** by maintaining temperature, RH and providing proper ventilation. The shelf life of **lemon** could be extended from **70-80 days** by maintaining temperature, RH and ventilation.
- We have observed the impact of ethylene absorber and use of MAP will have a negligible impact on extending the shelf life of lemon.

Ethylene Absorber

Modified Atmospheric Packaging (MAP)

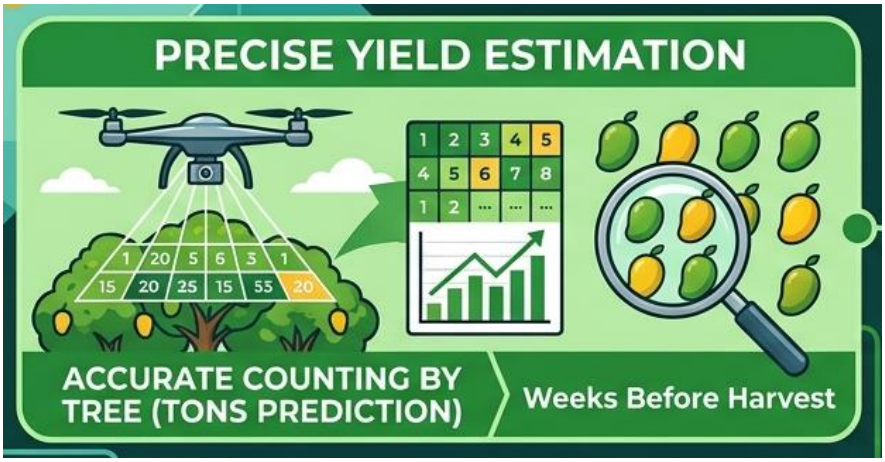
Recommendations

- We recommend establishing a value chain for lemon without any biological infections and physical damages.
- We also suggest categorising the citrus group lime, lemon and sweet lime for establishing a commercial value chain.

2. Assessment of Mango Quality and Quantity Using Drone Technology

Objective of this study:

The objective of the study is to predict the mango quality and quantity by using drones technology before harvest, count the fruits accurately, and check their quality—like ripeness, size, and health. The aim of the study is to support farmers to predict the yield and prepare for marketing.



The study involves,

- Use of Drones to fly over orchards taking detailed photos with special cameras that spot colours, sizes, and even water stress in leaves or fruits.
- Analyse these pictures and it counts mangoes per tree (for total yield prediction), spots the best ones ready to pick based on colour changes or shape (like full shoulders from maturity indices) through analytical tools

Detection and classification of mango fruit using RGB images captured with a drone:

1. Drones equipped with cameras and sensors are used to identify ripe fruit and collect it without causing any damage. This technology has the potential to revolutionize mango harvesting by making it faster, more efficient, and less labour-intensive.

2. RGB colour channels capture maturity indicators like decreasing green (G) values and increasing red (R) or ratios such as R/G, R/B, which correlate with ripening stages.
3. Machine learning models, including YOLOv8 for detection and CNNs like Faster R-CNN for ripeness grading (e.g., unripe vs. ripe), achieve high accuracy up to 99%