India has been self-sufficient in Fruit and Vegetable production since 2014

**Fruits:** Area of Cultivation: 6.3 M hectares producing 90.2 M tonnes of **fruits**

**Vegetables Area of Cultivation:** 10.1 M hectares producing 169.1 M tonnes of vegetables

*Indian National Horticulture Board (2015-16)*

- Average small holder farmer cultivates 1-2 ha of land-
- Produce Transported by truck/cart to local wholesale markets- products are aggregated and sent by small trucks to local markets
- 90% of fruit and vegetables are purchased from local markets
Opportunities in Post-harvest Management
Centre of Excellence (CoE)

Showcasing post-harvest technology across the supply chain:

**Harvest maturity determination**
- Texture (Penetrometer)
- Refractometers (Sugars)
- Skin Colour (Colourimeter)
- Acids (Titrators)
- Ethylene Conc. (GC-FID)

**Storage**
- Research storage facilities.
- Semi-commercial stores - pilot trials
- Controlled Atmosphere systems. (Dynamic & Standard CA) for apple and other fruit and vegetables.
- Flow through systems (CA).
- Refrigerated storage – humidity control.

**Processing**
- Precision Cooling: soft fruit and perishable crops (e.g. Blast chilling/Vacuum Coolers).
- Hydrocooling
- Washing plants: root crops
- Ripening Rooms: mango, banana, pears.
- Peeling/Processing - cold press and hot extrusion technology for purees.
- Drying facilities.

**FOOD SAFETY**
Showcasing post-harvest technology across the supply chain:

**Handling and Packaging**
- Grading and sizing
- Manual handling solutions
- Sustainable packaging (recyclable/compostable/alternatives to plastic).
- Modified atmosphere packaging (bags and liners).

**Quality control and Certifications**
- Setting quality thresholds for retail sector and export markets.
- MRL’s for residues.
- HACCP, Global Gap, BRC standards.
- Disease detection and disease control.

**Nutritional and organoleptic analysis**
- Storage potential dry matter and mineral content.
- Biochemical analysis (HPLC, spectrophotometry).
- NIR technology.
- Volatile analysis (GC-MS).
- Freezers.
- Freeze-dryers.

**FOOD SAFETY**
The Centre of Excellence will include:

**Pilot plant for trials to adapt UK technology to local crops:**
- Onion, potato (seed) tomato.
- Citrus, strawberry, guava, peppers, gourds.
- Potato/Apple (long-term storage)
- Mango, banana, pears (ripening).

**Training centre on:**
- Post-harvest biology and technology.
- Food safety and certifications.
- Storage and packaging solutions.
- Validating the design of packhouses, equipment and processing flows.
Opportunities in Post-harvest Management
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