

CALL FOR PROPOSALS

Turnkey Setup of Fully Automated High-Tech Commercial Hydroponics Facility

Authority: K-AgTech Launchpad

Eligibility: Startups registered with Kerala Startup Mission (KSUM) possessing a valid Unique ID.

Framework: Procurement is governed strictly by the guidelines issued under G.O.(P) No.5/2023/SPD for Non-IT Startup products.

Overview: K-AgTech Launchpad invites comprehensive technical and financial proposals for the execution, supply, installation, and commissioning of a commercial hydroponics facility. To facilitate rapid deployment, all execution works are required in advance and have been categorically divided into three mandatory milestones.

Scope of Work & Execution Milestones

The project demands a turnkey implementation covering civil finishing, vertical farming infrastructure, and full environmental automation. Bidders must strictly align their proposals and execution plans with the following three milestones:

Milestone A: Civil Works, Flooring, Perimeter Wall & Depression

This foundational phase encompasses the civil and structural adaptations tuned specifically to the requirements of the high-tech setup.

- **Total Project Footprint:** Preparation of the core 240 sqm operational area.
- **Perimeter Wall:** Construction of a 4-layer high, 6-inch thick brick wall enclosing the entire 240 sqm facility footprint.
- **Interlock Paving:** Laying of a perfectly leveled interlock paving surface using an alternating light-grey and dark-grey checkerboard pattern across the designated zones.
- **Deep Trough/Depression:** Excavation and structural reinforcement of a precise **2-meter deep depression** covering a 20 sqm area within the service zone, dedicated to housing centralized tanks and core plumbing manifolds.

Milestone B: Establishing Vertical Farming Setup

This phase involves the deployment of high-density, commercial-grade hydroponic hardware, structured into isolated growing zones to maximize yield.

- **Total Facility Capacity:** Hardware provisioning to support exactly 10,944 plants.
- **Zone 1 (NFT System):** 7-Tier mobile A-frame racks supporting 8,904 plants, designed for leafy greens and herbs.
- **Zone 2 (DFT Leafy Greens):** 3-Tier mobile flat-bed racks supporting 1,800 plants, optimized for crops like Amaranthus.
- **Zone 3 (Dutch Bucket System):** 2-Tier trellised configurations containing commercial Dutch buckets for 240 fruiting and vining crops.
- *Note: All rack systems must be highly mobile for workflow ergonomics, cleaning access, and optimized polyhouse airflow.*

Milestone C: Full Automation, Climate Control & Lighting

The final execution phase integrates all intelligence, environmental controls, and automated fertigation systems into the facility.

- **Smart Plumbing & Fertigation:** Independent, gravity-fed recirculation systems for each of the three zones. Includes multi-part automated dosing (Nutrients A/B/C, pH Up/Down) and Edge-AI driven real-time monitoring of pH, EC, water levels, and temperature.
- **HVAC & Climate Control:** Installation of a full-length 24m Cellulose Cooling Pad System, **4 turbo exhaust fans**, and strategically distributed internal circulation fans to maintain absolute climate homogeneity inside the polyhouse.
- **Artificial Lighting:** Provision and wiring of 576 full-spectrum artificial grow light tubes (3500K + Deep Red spectrum) integrated with centralized, 3-Phase dimmable drivers for precision PPFD control.

Statutory Terms & Application Process

- **Warranty & Support:** The selected startup must provide comprehensive on-site warranty support for all deployed equipment, sensors, structural work, and automation units for a minimum of 3 years from the date of final commissioning.

- **Deliverables:** Handover must include complete product artifacts, including structural/plumbing blueprints, electrical wiring diagrams, control software source codes, and detailed user manuals.
- **Evaluation:** Proposals will be evaluated by the KSUM Technical Evaluation Committee based on structural integrity, automation innovation, timeline efficiency, and commercial viability.
- **Submission:** Submissions must be routed via the KSUM Marketplace portal or submitted directly to the Launchpad administration.