Startup Guidelines for AGC-3

Introduction

The Agri Grand Challenges 3 (AGC-3) initiative by the Agri Center of Excellence (Agri CoE) at C-CAMP is the third series of Grand Challenges supporting startups to develop innovative solutions addressing pressing challenges in agriculture. AGC-3 focuses on ten high-priority problem statements identified through stakeholder engagement, including farmers, agricultural experts, and government agencies.

This document provides startups with detailed descriptions of the problem statements, eligibility criteria, and application guidelines. Startups are encouraged to use this guide to understand what is expected and how to align their innovative solutions with AGC-3 goals.
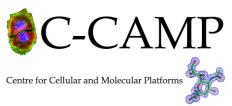
Problem Statements

1. **Biodegradable and Affordable Plastic Mulching Alternatives**

Conventional plastic mulching improves soil moisture retention and controls weeds effectively, but creates significant environmental hazards due to non-biodegradability. Biodegradable alternatives are essential to address these issues without compromising on performance.

Expected Outcomes: Develop affordable, durable biodegradable mulching materials to replace conventional plastic mulch.

Focus Areas: Sustainable materials, polymer science, and circular economy solutions.

Plastic pollution from agriculture is a growing environmental concern. A sustainable solution will enhance environmental safety and improve farmer adoption.

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2. **Yellow Leaf Disease Detection and Control in Arecanut**

Yellow Leaf Disease causes significant yield losses in Arecanut crops due to delayed detection and lack of effective management strategies.

Expected Outcomes: Create diagnostic tools and integrated management practices to enable early detection and control.

Focus Areas: Disease diagnostics, AI-powered tools, and precision agriculture.

Arecanut is an important cash crop, and addressing this disease will enhance farmer income and crop productivity.

3. **Precision Weeding Technology for Small Farms**

Manual weeding is labor-intensive and costly, while current mechanization solutions are often unaffordable or unsuitable for small farms.
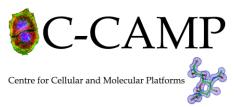
Expected Outcomes: Design affordable and adaptable weeding technologies that reduce labor costs and improve productivity.

Focus Areas: Robotics, automation, and smallholder farm mechanization.

Smallholder farmers struggle to adopt existing mechanization tools. Affordable solutions can significantly ease their workload and enhance farm profitability.

4. **Detection of Contamination and Adulteration in Perishables**

Food safety is compromised due to contamination and adulteration in perishables like milk, fruits, and vegetables, impacting consumer health and farmer livelihoods.

Expected Outcomes: Develop rapid, portable testing solutions for quality assurance across supply chains.

Focus Areas: Food quality, sensor technology, and analytics.

Ensuring food safety will build consumer trust, reduce wastage, and increase market value for farmers.

5. **Real-Time Disease Monitoring and Control in Fish Farming and Poultry**

Disease outbreaks in aquaculture and poultry cause severe economic losses due to the lack of timely detection and management.

Expected Outcomes: Create IoT-enabled systems for real-time disease detection and control, minimizing losses.

Focus Areas: IoT, animal health diagnostics, and aquaculture technology.

Aquaculture and poultry are vital industries, and innovative solutions will ensure sustainability and profitability for stakeholders.

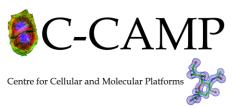6. **Early Warning System for Spike Disease Detection and Control in Sandalwood**

Spike Disease is a significant threat to sandalwood plantations, causing widespread losses due to inadequate early detection systems.

Expected Outcomes: Develop predictive tools and management strategies to mitigate disease impacts.

Focus Areas: Disease modeling, remote sensing, and plant health management.

Sandalwood is a high-value crop, and effective disease control will preserve its economic and ecological benefits.

7. **Drought-Resistant and Disease-Resistant Crop Varieties**

Climate change increases the prevalence of drought and diseases, threatening crop productivity. Resilient varieties are critical to ensure food security.

Expected Outcomes: Breed high-yielding, climate-resilient crop varieties with improved disease resistance.

Focus Areas: Plant genetics, crop biotechnology, and breeding programs.

Strengthening crop resilience will safeguard farmer incomes and reduce reliance on external inputs.

8. **Precision Nutrient and Water Management for Dryland Farming and Paddy Cultivation**

Inefficient nutrient and water management in dryland and paddy farming leads to resource wastage and reduced productivity.

Expected Outcomes: Develop IoT and AI-based systems to optimize nutrient and water use for higher efficiency and sustainability.

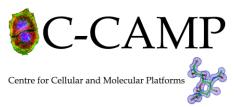**Focus Areas:** Soil health, water management, and agronomy advisory systems.

Efficient resource management is key to enhancing agricultural sustainability and profitability.

9. **Disease Detection, Prevention, and Climate-Resilient Technologies for Red Gram Cultivation**

Red gram cultivation faces challenges from climate variability and disease outbreaks, reducing yields and farmer incomes.

Expected Outcomes: Develop innovative and novel integrated disease management and climate-smart solutions to improve red gram productivity.

Focus Areas: Climate resilience, pest management, and agritech innovations.

Red gram is a staple crop, and innovative solutions will ensure its resilience and economic viability.

10. **Improved Harvesting, Drying, Sorting, and Grading Technologies for Cash Crops**

Post-harvest inefficiencies lead to significant losses in cash crops, reducing profitability for farmers.

Expected Outcomes: Create modular, cost-effective technologies to enhance post-harvest handling and marketability.

Focus Areas: Post-harvest technology, processing, and value addition.

Addressing post-harvest losses will improve farmer incomes and reduce wastage in the supply chain.
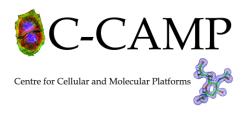
Eligibility Criteria

1. **For Indian Startups:**
   o Start-up must be registered in India and less than 10 years old.
   o At least 51% of the shareholding must be held by Indian promoters.
   o Solutions must align with the defined problem statements and involve novel, innovative deep-tech/deep-science approaches.
   o The startup should develop a Minimum Viable Product (MVP) within 18 months of selection.
2. **For International Startups:**
   o Startups from other countries must collaborate with Indian organizations or present solutions adaptable to the Indian agricultural context.

Scope of Support
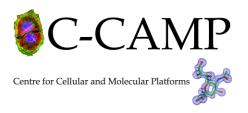
1. **Mentorship:** Tailored guidance from leading Indian and international agricultural experts.
2. **Networking Opportunities:** Connect with key stakeholders, including the Government of Karnataka, agricultural universities, and industry leaders.
3. **Field Trials:** Facilitate real-world testing through partnerships with our deployment partners
4. **Funding Opportunities:**
   - For Karnataka-based startups: Funding support of INR 25-50 Lakhs through Government of Karnataka (GoK) initiatives.
   - For other Indian startups: Investment up to INR 50 Lakhs through C-CAMP programs.
   - For international startups: Facilitated connects with venture capitalists and angel investors.
5. **Infrastructure:** Access to state-of-the-art facilities, laboratories, and testing platforms.

Evaluation Parameters

Startups will be assessed on:

- **Innovation:** Novelty, creativity of the solution and IP potential.
- **Feasibility:** Practicality of implementation in diverse agricultural contexts.
- **Impact:** Potential benefits to farmers, the environment, and the agricultural ecosystem.
- **Scalability:** Ability to expand solutions to other regions or crops.
- **Deployment Readiness:** Progress towards an MVP or pilot deployment. (Startups at ideation or early validation may not be entertained)

Add-on: Strong team (Agri background); Deeptech based; Women founder; Registered in Karnataka

Application Process

1. **Submission:** Apply online via the official AGC-3 application portal: [Apply Here](). Submit a detailed project proposal, including:
   - Executive summary (max 4 pages).
   - Pitch deck (max 10 slides).
   - Supporting documents like proof of concept, pilot results, or team credentials.
2. **Evaluation:** Applications will undergo a multi-stage review by a panel of experts.
3. **Shortlisting:** Selected startups will be invited to pitch their ideas to the jury.

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