# Government of India

DC(MSME), Ministry of Micro, Small & Medium Enterprises

Support for Entrepreneurial and Managerial Development of MSMEs through Incubators

Reference No. :- [To be filled upon submission]

## 1. Details of Idea:

* 1. **Title of Proposed Idea/Innovation:**

AI-Powered Plant Disease Detection and Treatment Suggestion App

**1.2 Intellectual Property:**

This project is based on new intellectual property, currently kept as a trade secret, with potential for future patent application. The innovation lies not in a single component but in the combined use of a proprietary system and method. The main intellectual property includes:

A Novel Lightweight Neural Network Architecture: A custom-built Convolutional Neural Network (CNN) designed for high-accuracy performance on mobile devices with limited processing power and memory. This allows for quick, on-device analysis without needing cloud connectivity.

A Unique Integrated System: The complete system design, which integrates the AI model with an offline-first database, a multilingual voice-enabled user interface, and a dynamic treatment recommendation engine, offers a blend not found in any current field-ready solution.

A Curated, Regional Dataset: The model is trained on a proprietary, continuously expanding dataset of crop disease images, carefully curated and geotagged for Indian agro-climatic zones. This gives it better diagnostic accuracy for local crop varieties and conditions.

**1.3 Briefly Explain Newness/Uniqueness:**

While several academic and lab-based tools exist, this innovation is specifically made for use at the grassroots level. It connects advanced AI with the real-world challenges of farming in rural India. Its key features are:

Field-Ready & Offline-First: Unlike web-based services, our app works reliably in areas with weak or no internet connections. The main analysis happens directly on the user's mobile device, making it a reliable tool for the field.

Hyper-Localized Intelligence: The system surpasses generic disease identification. It supports multiple Indian languages and its AI model is trained on data specific to local crops and diseases, ensuring higher relevance and accuracy.

Actionable, Multi-Modal Guidance: It doesn't just diagnose; it offers immediate, practical advice. Treatment suggestions include chemical, organic, and Integrated Pest Management (IPM) options. Voice-based alerts and easy visual cues make the information accessible to users with different literacy levels.

**1.4 Concept & Objective:**

**Concept:**

The main idea is to create a "Digital Agronomist in a Farmer's Pocket." The user journey is simple and user-friendly:

A farmer sees a possible disease on a crop leaf, stem, or fruit.

They open the mobile app and take a picture using a guided interface that ensures a clear image.

The onboard AI model quickly analyzes the image, identifies the disease, and provides a diagnosis with a confidence score (e.g., "95% probability of Powdery Mildew").

The app then shows a list of clear, step-by-step treatment suggestions based on the crop, disease stage, and local best practices.

**Primary Objectives:**

To cut annual crop losses due to pests and diseases by an estimated 20-30% through early and accurate detection.

To make agricultural expertise accessible, providing scientific diagnosis and advice that is affordable and instantly available to all farmers, regardless of their location.

To encourage a sustainable and careful use of agrochemicals by offering integrated and organic treatment options.

To create a valuable national agronomic dataset on crop health, which can aid in disease outbreak prediction and policy-making.

**1.5 Potential Areas of Application:**

The application is a comprehensive solution with wide-ranging uses across the agricultural value chain.

**Key areas include:**

Individual Farmers

Farmer Producer Organizations (FPOs)

Agri-Clinics and Krishi Vigyan Kendras (KVKs)

Agrochemical and Seed Companies

Public Sector Agricultural Extension Services

Crop Insurance Companies

**1.6 Market Potential:**

India's agricultural sector supports over 58% of the country's population but faces a serious issue: annual crop losses worth billions, with 20-40% caused by pests and diseases. This creates a pressing need for accessible diagnostic tools.

The Indian agritech market is growing rapidly, with projections valuing it at ₹20 lakh crore (about $24 billion USD) by 2025. Our solution is well-positioned to take advantage of this growth by providing a clear return on investment. By preventing even a small portion of potential crop loss, a farmer can recover the app's cost many times over in a single season. The target market includes millions of farmers who use smartphones, making this a highly scalable and commercially viable project.

## Financial Requirements:

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| --- | --- | --- | --- | --- |
| Particular/Item | Total Project Cost (₹ in lakh) | GOI Assistance (₹ in lakh) | Incubatee Share (₹ in lakh) |  |
| 1. Personnel: AI & App Development (AI/Mobile Engineer for model & app creation) | 5.000 | 4.000 | 0.000 |  |
| 2. Data Acquisition & Curation (Field visits, image collection, data labeling) | 1.500 | 1.500 | 0.000 |  |
| 3. Technology: Cloud & Developer Tools (Cloud services for AI model training, hosting) | 1.000 | 0.750 | 0.000 |  |
| 4. Field Testing & Farmer Outreach (Pilot testing with FPOs/KVKs, feedback sessions) | 1.000 | 0.750 | 0.000 |  |
| 5. Administrative & Legal (Company setup, compliance, documentation) | 0.500 | 0.000 | 0.000 |  |
| 6. Contingency Fund (For unforeseen R&D and operational expenses) | 1.000 | 1.000 | 0.000 |  |
| GRAND TOTAL | 10.000 | 8.000 | 0.000 |  |

**Declaration:**I hereby declare that the information given above is true to the best of my knowledge and that I have not availed of any financial assistance for this purpose from any other scheme from any government agency. I agree to abide by the guidelines of the scheme.