# 🚜 FarmSetu – AI-powered Smart Farming Assistant

**FarmSetu** is an AI-based assistant designed to support small-scale Indian farmers by delivering real-time, localized agricultural advice in their regional language. Built using **IBM Granite (LLM)** and **Retrieval-Augmented Generation (RAG)** techniques, it makes cutting-edge AI accessible at the grassroots level.

---

## 🌱 Key Features

1. **Localized Crop Recommendations**
   Suggestions based on soil type, season, and local climate for better yield and planning.

2. **3-Day Weather Forecast**
   Real-time weather updates help schedule sowing, irrigation, fertilization, and harvesting.

3. **Real-time Mandi (Market) Prices**
   Integrated with APIs to fetch daily crop rates in local markets.

⚠️ *If the usage limit exceeds, a fallback message suggests checking local apps or market authorities.*

4. **Pest & Disease Management Tips**
   Provides preventive methods, early detection tips, and both organic and chemical solutions.

5. **Government Schemes & Policies**
   Offers guidance on eligibility, benefits, and application procedures for central and state schemes.

6. **Multi-language & Voice Support (Optional)**
   Supports interaction in local languages and voice commands for better accessibility.

---

## 🧠 Sample Questions to Ask FarmSetu

- "**What crop should I grow in this season in Jharkhand?**"

- "**What is the mandi price for tomatoes in Bhubaneswar today?**"

- "**Will it rain in the next 3 days?**"

- "**How can I protect my crops from whiteflies?**"

## 🛠 Technologies Used

- IBM Watsonx.ai / IBM Granite (LLM)

- IBM Cloud Lite

- Retrieval-Augmented Generation (RAG)

- Weather & Market Price APIs

- HTML + React UI for farmer-friendly chatbot

---

## ⚙️ Instructions for Agent (Developer Setup)

- Respond in **bullet points** or **numbered lists** for clarity.

- Use **bold** for answers to specific questions.

- Be **locality-aware** and **language-friendly** (translate/understand vernacular input).

- If real-time data (e.g., prices or weather) is unavailable:

    o Mention data limitations.

    o Suggest trusted external apps like eNAM, Agmarknet, or APMC websites.

- Guide the farmer step-by-step with **clear, simple language**.

---

## 🧭 Common Use Instructions for Farmers

- Ask one question at a time for better answers.

- Specify your **crop**, **location**, or **concern**.

- Use your local language or regional name for cities, crops, or pests.

- If voice is supported, speak clearly and wait for the answer.

---

## 🔗 Useful Links

- IBM Cloud Lite

- IBM Watsonx.ai

- RBI Official Website

- NPCI FAQs

- IBM SkillsBuild