



# AgricultureIndia.com

CSE 111-5L: Fall 2025

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# Main idea

**Purpose:** Manage and analyze agriculture data across India

**Goal:** Support farmers, researchers, and advisors in improving crop production, sustainability, and market planning

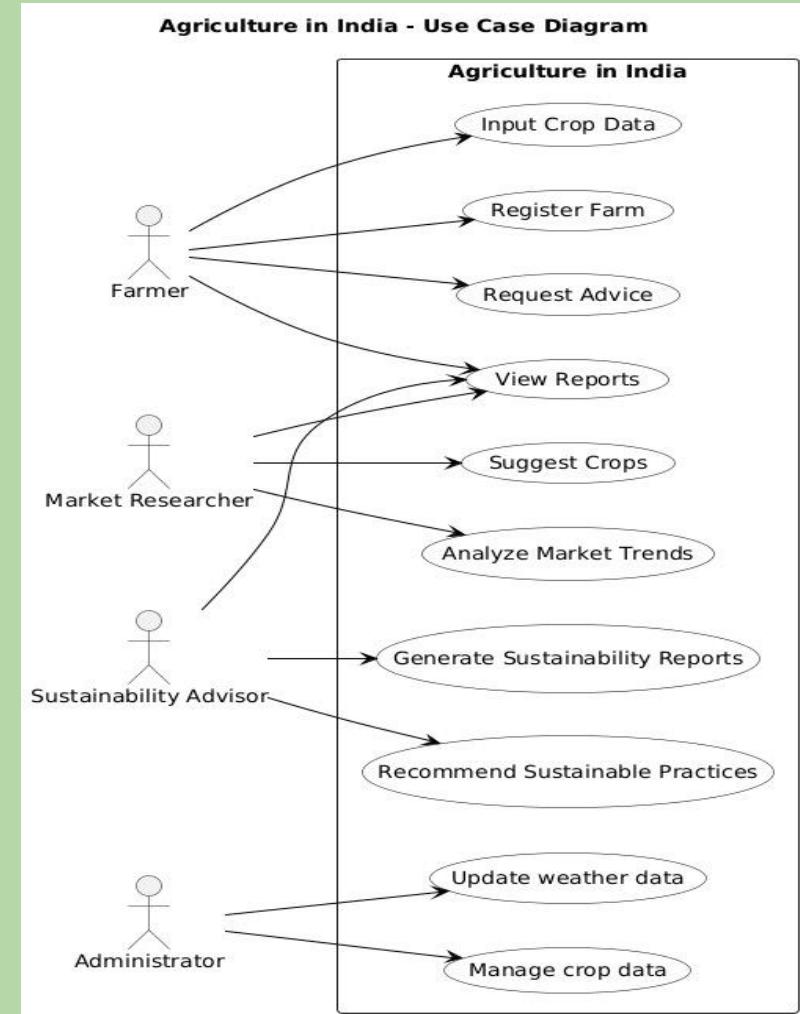
## 🎯 Key Outcomes

- Supports data-driven planning and decision-making
- Promotes sustainable and eco-friendly farming practices
- Helps forecast market trends and resource needs
- Turns agricultural data into useful, actionable insights

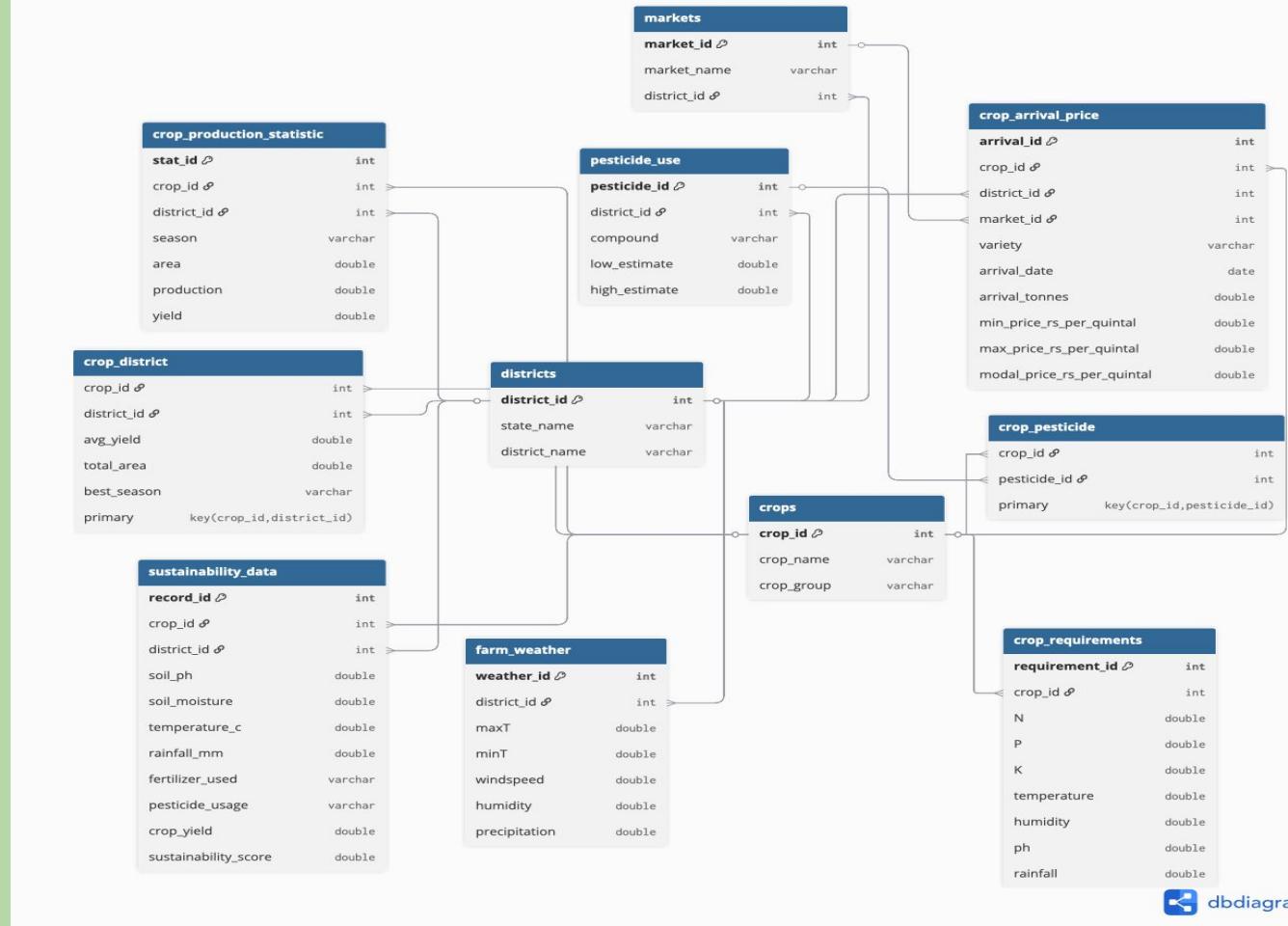


# UML use case diagram

- ❖ **1. Analyze Crop Production Trends:** Study changes in crop yields and production over time.
- ❖ **2. Identify Key Drivers of Productivity:** Find what factors (rainfall, soil, fertilizer, technology) affect agricultural output.
- ❖ **3. Assess Climate and Policy Impacts:** Compare how weather conditions or government policies influence crop yields.
- ❖ **4. Support Evidence-Based Decision Making:** Use data to guide resource allocation, planning, and policy development.
- ❖ **5. Research Sustainable Practices:** Explore eco-friendly farming, crop diversification, and long-term soil health.
- ❖ **6. Monitor Fertilizer and Pesticide Usage:** Track input trends across regions to prevent overuse and protect the environment.
- ❖ **7. Forecast Market Prices and Demand:** Predict future crop demand and price fluctuations using historical data.



# E/R DIAGRAM



# RELATIONAL SCHEMA

Primary key: light blue  
Foreign key: light orange

**DISTRICTS**(district\_id, state\_name, district\_name)

**CROPS**(crop\_id, crop\_name, crop\_group)

**CROP\_REQUIREMENTS**(requirement\_id, crop\_id, N, P, K, temperature, humidity, ph, rainfall)

**CROP\_PRODUCTION\_STATISTIC**(stat\_id, crop\_id, district\_id, season, area, production, yield)

**PESTICIDE\_USE**(pesticide\_id, district\_id, compound, low\_estimate, high\_estimate)

**CROP\_PESTICIDE**(crop\_id, pesticide\_id)

**CROP\_DISTRICT**(crop\_id, district\_id, avg\_yield, total\_area, best\_season)

**FARM\_WEATHER**(weather\_id, district\_id, maxT, minT, windspeed, humidity, precipitation)

**SUSTAINABILITY\_DATA**(record\_id, crop\_id, district\_id, soil\_ph, soil\_moisture, temperature\_c, rainfall\_mm, fertilizer\_used, pesticide\_usage, crop\_yield, sustainability\_score)

**MARKETS**(market\_id, market\_name, district\_id)

**CROP\_ARRIVAL\_PRICE**(arrival\_id, crop\_id, district\_id, market\_id, variety, arrival\_date, arrival\_tonnes, min\_price\_rs\_per\_quintal, max\_price\_rs\_per\_quintal, modal\_price\_rs\_per\_quintal)

# RELATIONSHIP TABLE

TABLE 1	RELATIONSHIP	TABLE 2
Districts	1:M	Crop_production_satistic
Crops	1:M	Crop_production_satistic
Districts	1:M	Pesticide_use
Districts	1:M	Farm_weather
Districts	1:M	Sustainability_data
Crops	1:M	Sustianability_data
Districts	1:M	Markets
Markets	1:M	Crop_arrival_price
Districts	1:M	Crop_arrival_price
Crops	1:M	Crop_arrival_price
Crops	1:1	Crop_requirements
Crops	M:N	Districts
Crops	M:N	Pesticide_use