

# Service Desk for Agriculture

AN INTELLIGENT AGRICULTURAL CALL  
CENTER WITH MULTIPLE AGENTS AND  
SECURE AUTOMATION



## Large agribusinesses, cooperatives, and corporate farms receive hundreds of repetitive calls every day, with several exceeding the mark of 3,000 employees or members.

"My planter has a faulty sensor, what now?"

"I need an urgent agronomic report."

"My fertilizer stock is low."

"I want to know what pest is attacking my corn."

## Problem

Organization	Sector	No. of Employees	No. of Members/Associates	Note
<b>Coamo</b>	Grains (soy, corn, wheat)	+9,000	+30,000	Largest agro-industrial cooperative in Latin America
<b>Aurora Coop</b>	Meat and dairy	+35,000	+100,000	One of the largest in Brazil
<b>Copersucar</b>	Sugarcane, ethanol	Thousands (exact figures not public)	+1,000 producer associates	Largest sugar and ethanol cooperative in the world
<b>Cocamar</b>	Diversified (soy, corn, coffee)	+3,000	+16,000	Strong presence in Paraná
<b>Sugarcane sector (mills)</b>	Sugarcane, sugar, ethanol	~690,000 direct jobs	—	Average per mill: between 3,000 and 10,000 employees

# Agro Solution



Introducing the **AgroHelpdesk** for Agribusiness and Agriculture, an intelligent service center built on a multi-agent architecture and focused on secure automation, full transparency, and proper scalability.

The platform allows producers, technicians, and collaborators to request any type of support via chat, web, WhatsApp, Teams, or even voice, by sending messages, photos, or audio.



# How Its Works

01

**FieldSense Agent** → Identifies the intent of the request (e.g., pest diagnosis, machine failure, input request, technical report).

02

**FarmOps Agent** → Information collection and context enrichment.

03

**AgroBrain** → Consults phytosanitary bulletins, farm history, IoT sensors, and equipment manuals. (RAG)

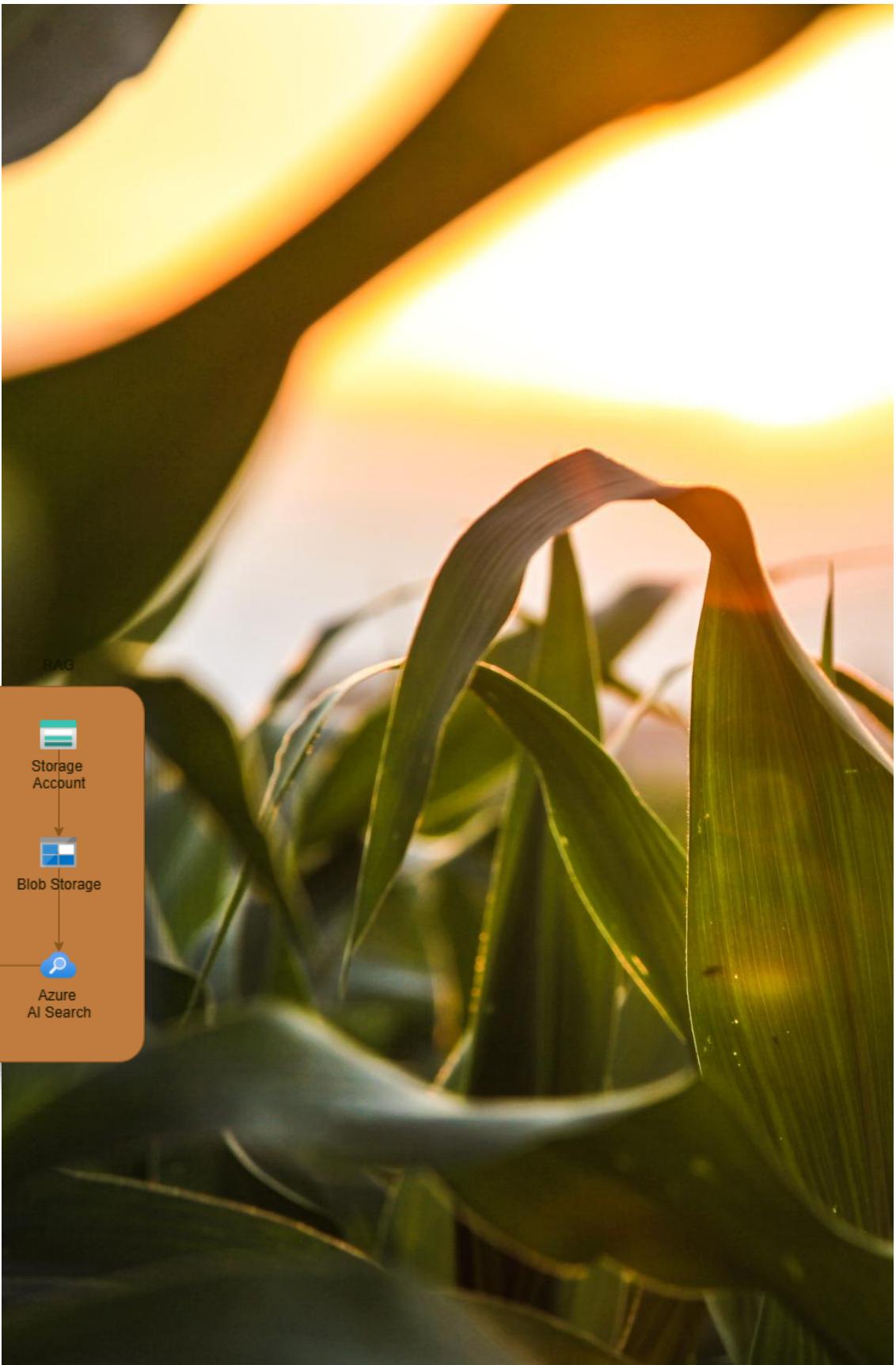
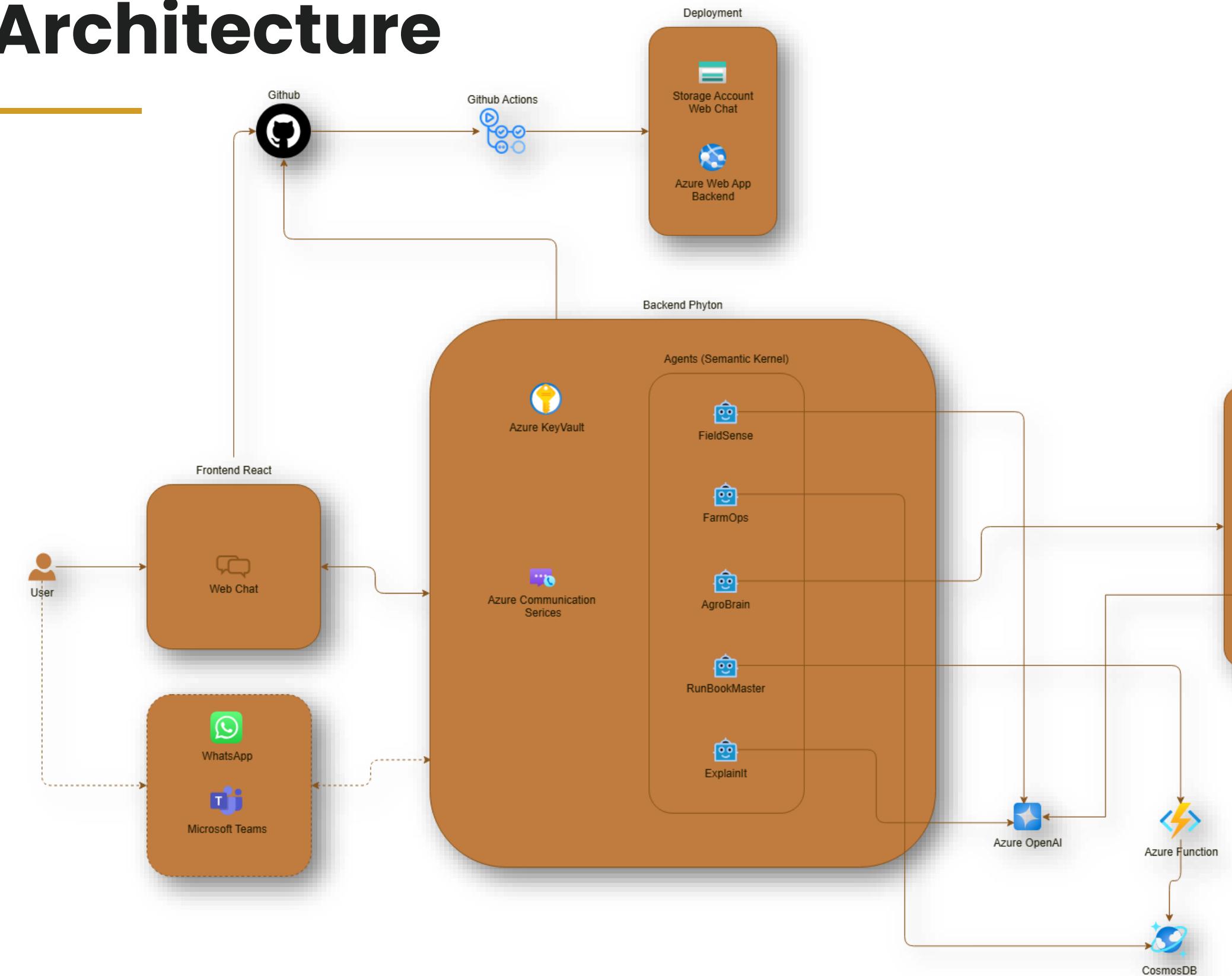
04

**RunbookMaster Agent** → Decision-making and automation.

04

**ExplainIt Agent** → Full transparency and audit trails.

# Architecture





**AgroHelpdesk** Intelligent Farm

- Dashboard
- Workflow
- Metrics
- Map
- Agents
  - FieldSense Intent Agent
  - FarmOps Info Collector
  - AgroBrain Knowledge Agent
  - RunbookMaster Decision Agent
  - Explaint Transparency Agent
- Runbooks
  - Generate Pest Report ✓ Safe
  - Open Urgent Work Order ▲ Critical
  - Stock Inquiry ✓ Safe
  - Pre-fill ART ▲ Critical
  - Compliance Check ▲ Critical

### INTELLIGENT SEQUENCE

#### Agro AI Orchestration

Coordinated flow between intent, knowledge, decision and response agents.

Agent	Status	Notes
FieldSense	Completed	Identifies the client's intention
FarmOps	Completed	Collects additional information
AgroBrain	In progress	Analyzes agricultural data and knowledge
RunbookMaster	Pending	Executes runbooks and makes decisions
Explaint	Pending	Response generated

CURRENT CALL T-001 · Soybean pest

TOTAL TIME 7.8 seconds

MODEL CONFIDENCE 92% · High

#### Detailed agent status

Agent	Description	Status
FieldSense	Intent Agent	Identifies the client's intention
FarmOps	Info Collector	Collects additional information
AgroBrain	Knowledge Agent	Analyzes agricultural data and knowledge
RunbookMaster	Decision Agent	Executes runbooks and makes decisions
Explaint	Transparency Agent	Response generated

Time Agent Executed action

Time	Agent	Executed action
08:05:12	FieldSense	Image analysis
08:05:45	FarmOps	Context collection
08:06:10	AgroBrain	Knowledge analysis
08:06:45	RunbookMaster	Action execution
08:07:20	Explaint	Response generation

### Real-time activity history

CROP Corn

Agent History

- field-sense Mechanical failure detected 06:02:11
- farm-ops Collected telemetry and last service 06:03:33

Chat with Client

#### Chat Simulation — T-002

Conversation with the client and real-time analysis by agents

I found some caterpillars in plot 22. Can you see what it is? 08:00:00

Sure, can you send me a photo? 08:01:00

[Photo sent] 08:02:00

I analyzed the photo and identified Helicoverpa armigera caterpillar. Since your crop is at V5 stage and the weather allows inspection, I recommend monitoring 3 more points in the plot. Here is the automatic report with current risk and suggested locations to check. I also notified agronomist Maria, who will review the case. 08:05:00

Type your message... Send ➤

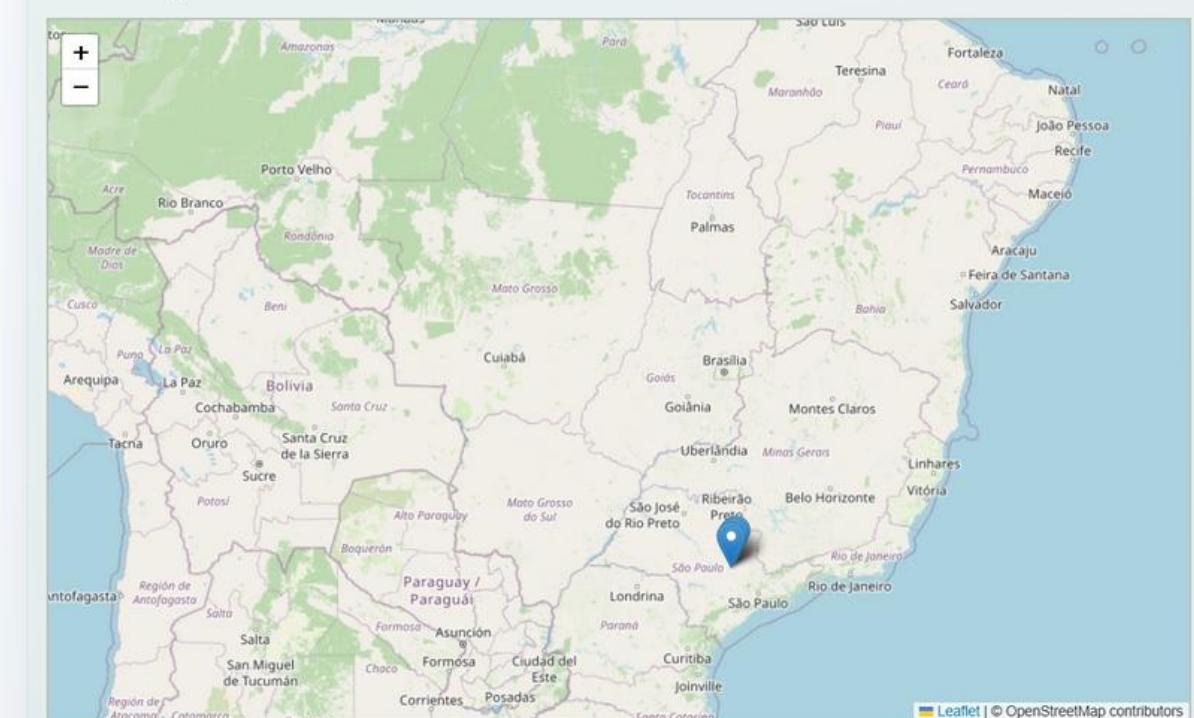
✓ Resolved △ Escalate

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**Plot Map**

Visualize plots and their current status

**Interactive Map with Leaflet****Active Alerts**

T-22	Soybean	Pest Alert
T-12	Corn	Maintenance
T-07	Cotton	Normal

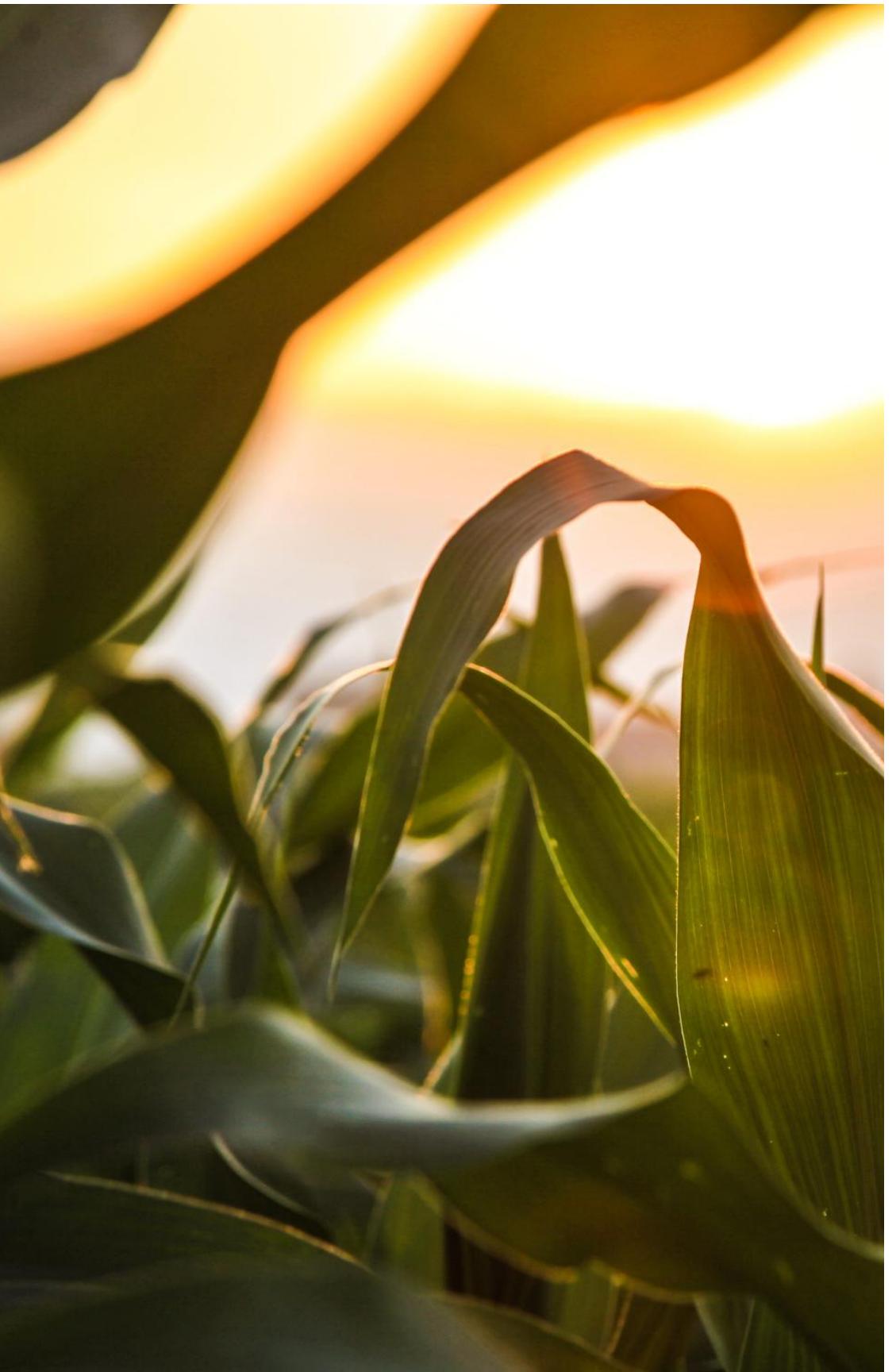
**Runbook Sample**

ID	Name	Safety	Auto-Execute	Description
RB-01	Generate Pest Report	Safe	<input checked="" type="checkbox"/> Yes	Creates comprehensive pest analysis report
RB-02	Open Urgent Work Order	Critical	<input checked="" type="checkbox"/> No	Opens high-priority maintenance ticket
RB-03	Inventory Check	Safe	<input checked="" type="checkbox"/> Yes	Verifies stock levels and availability
RB-04	Pre-fill ART Report	Critical	<input checked="" type="checkbox"/> No	Prepares regulatory compliance document
RB-05	Compliance Check	Safe	<input checked="" type="checkbox"/> Yes	Validates licenses and environmental permits

# Azure Services

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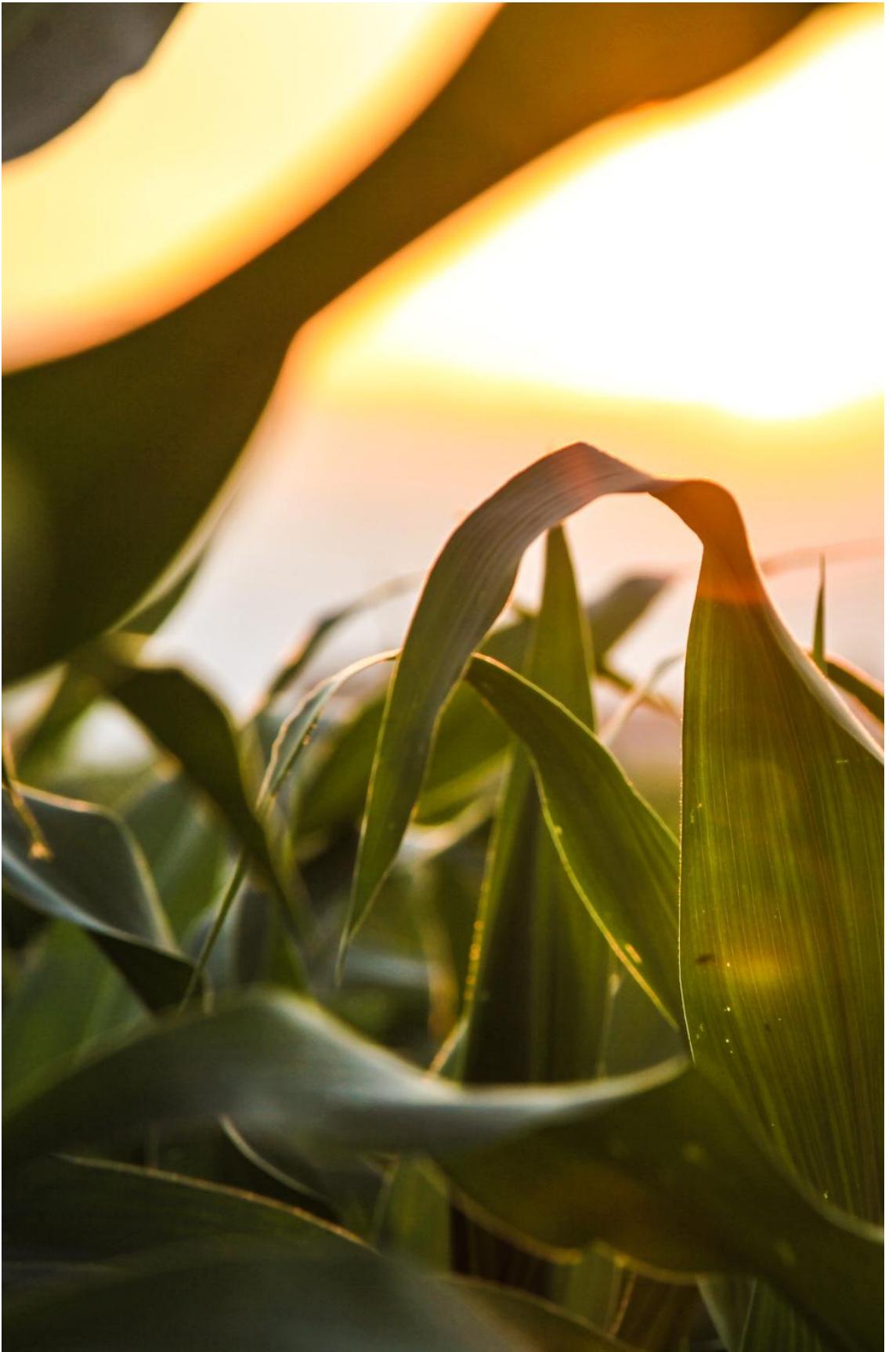
- Azure Communication Services
- Azure Functions
- Azure Key Vault
- Azure OpenAI
- Azure AI Search
- Azure Storage Account
- Blob Storage
- Azure Cosmos DB
- Azure Monitor
- Azure Web App



# Responsible AI

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- **ExplainIt Agent** → justified decisions
- **Responsible AI Dashboard**
- **Azure Content Safety** on inputs and outputs
- **Human-in-the-loop** for critical actions
- **Risk mitigation policies**





# Impact

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- Up to 80% reduction in response time
- Automation of repetitive tasks
- Greater operational safety
- Traceable and auditable actions
- Digital, standardized, and scalable



# Thank You

A G R O H E L P D E S K