

# 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."

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

## Problem



# Agro Solution

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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

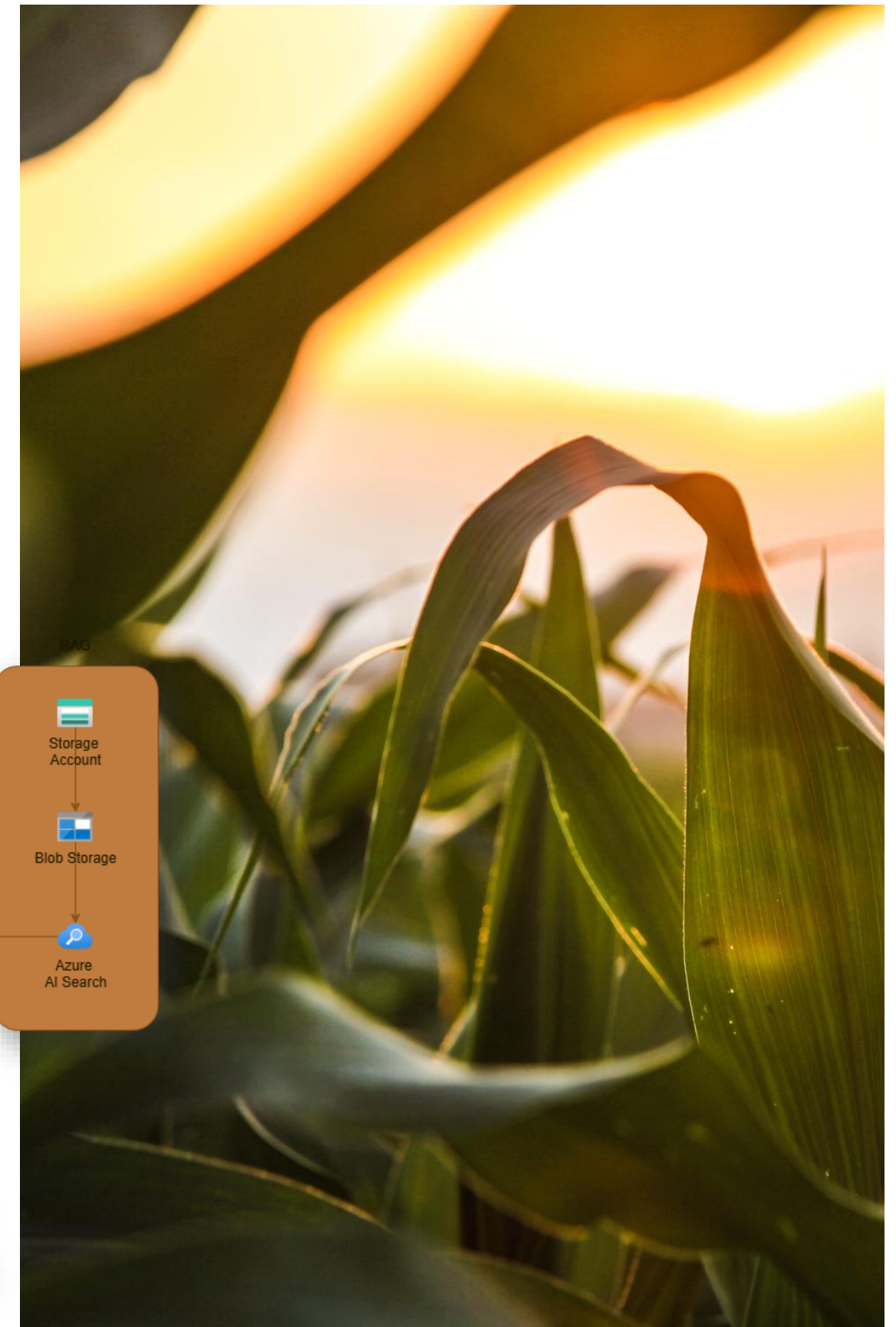
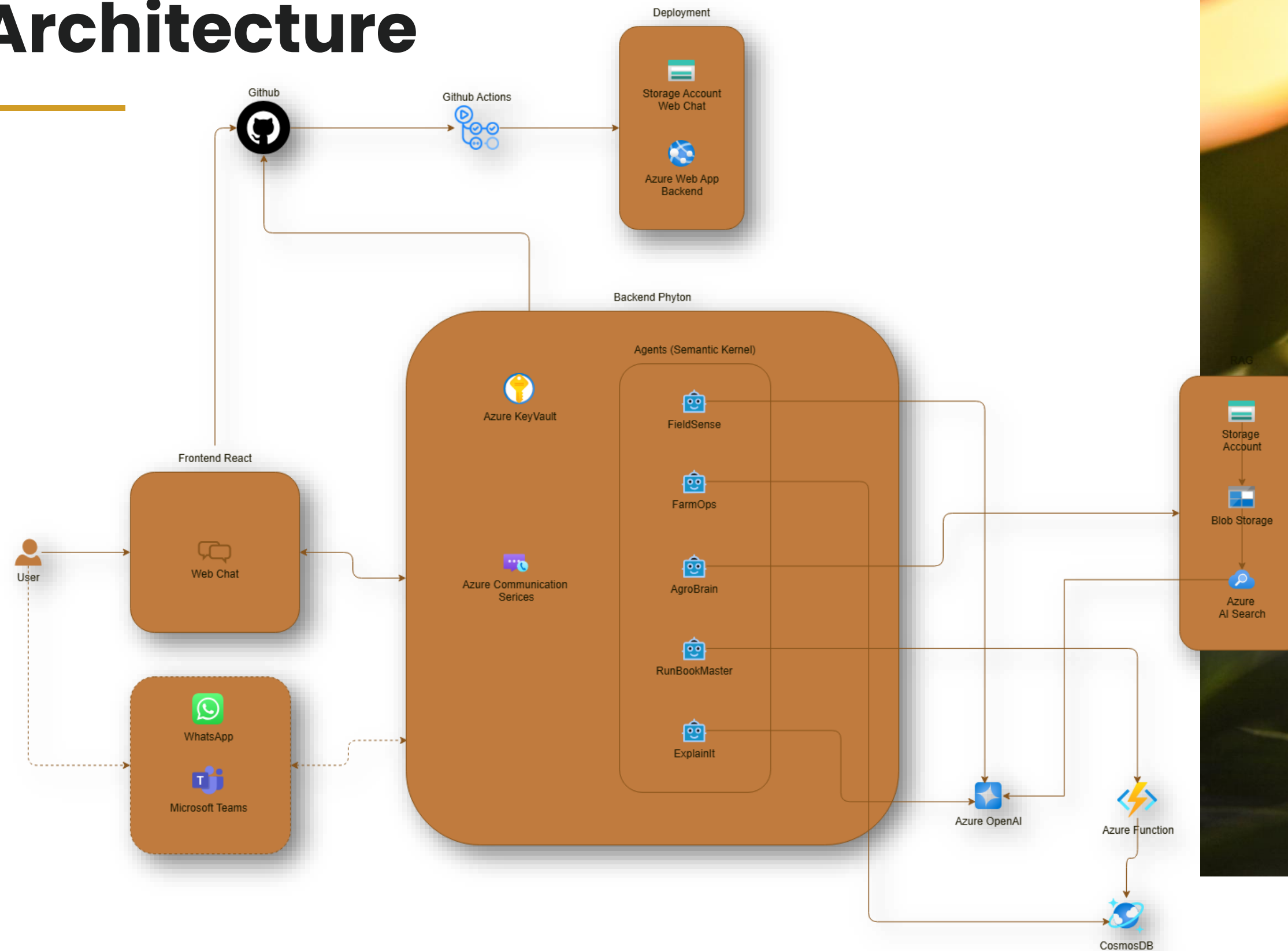
**RunbookMaster Agent** → Decision-making and automation.

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

ExplainIt  
Transparency Agent

Runbooks

Generate Pest Report  
✓ Safe

Open Urgent Work Order  
▲ Critical

Stock Inquiry  
✓ Safe

Pre-fill ART  
▲ Critical

Compliance Check  
▲ Critical

LOCATION  
Hangemot

SUPERVISOR  
Prelates

HP

INTELLIGENT SEQUENCE

Agro AI Orchestration

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

CURRENT CALL  
T-001 · Soybean pest

TOTAL TIME  
7.8 seconds

MODEL CONFIDENCE  
92% · High

FieldSense  
Completed

FarmOps  
Completed

AgroBrain  
In progress

RunbookMaster  
Pending

ExplainIt  
Pending

Detailed agent status

FieldSense  
Intent Agent  
Identifies the client's intention  
2.5s

FarmOps  
Info Collector  
Collects additional information  
3.8s

AgroBrain  
Knowledge Agent  
Analyzes agricultural data and knowledge  
In progress...

RunbookMaster  
Decision Agent  
Executes runbooks and makes decisions  
Waiting in queue

ExplainIt  
Transparency Agent  
Explains the process and provides recommendations

Real-time activity history

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	ExplainIt	Response generation

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

Resolved

Escalate

AgroHelpdesk  
Intelligent Farm

Dashboard

Workflow

ACS Chat

Transparency

Metrics

Map

Agents

FieldSense  
Intent Agent

FarmOps  
Info Collector

AgroBrain  
Knowledge Agent

RunbookMaster  
Decision Agent

ExplainIt  
Transparency Agent

Runbooks

LOCATION  
Hangemot

SUPERVISOR  
Prelates

HP

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	✓ Yes	Creates comprehensive pest analysis report
RB-02	Open Urgent Work Order	Critical	✗ No	Opens high-priority maintenance ticket
RB-03	Inventory Check	Safe	✓ Yes	Verifies stock levels and availability
RB-04	Pre-fill ART Report	Critical	✗ No	Prepares regulatory compliance document
RB-05	Compliance Check	Safe	✓ Yes	Validates licenses and environmental permits

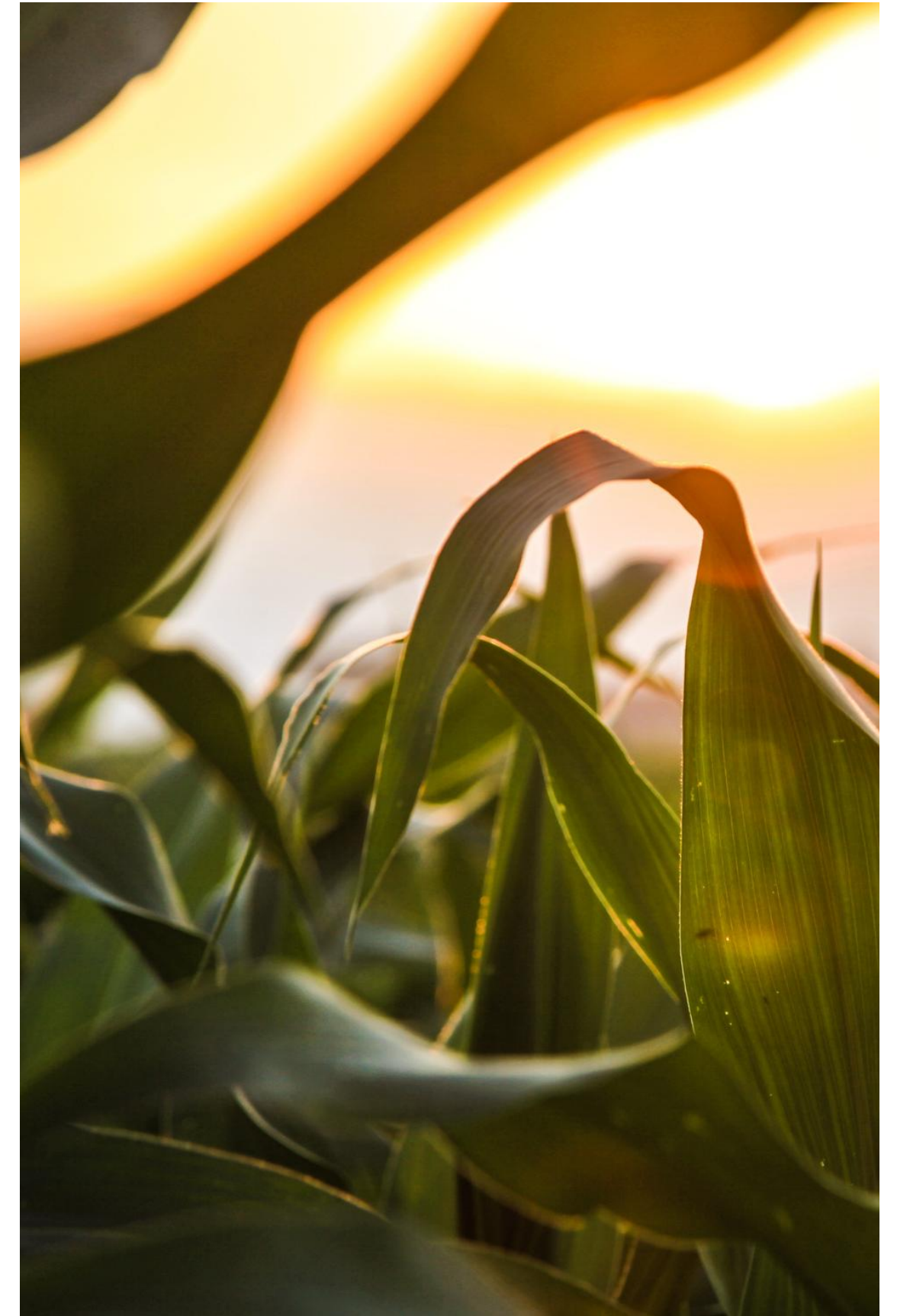




# Azure Services

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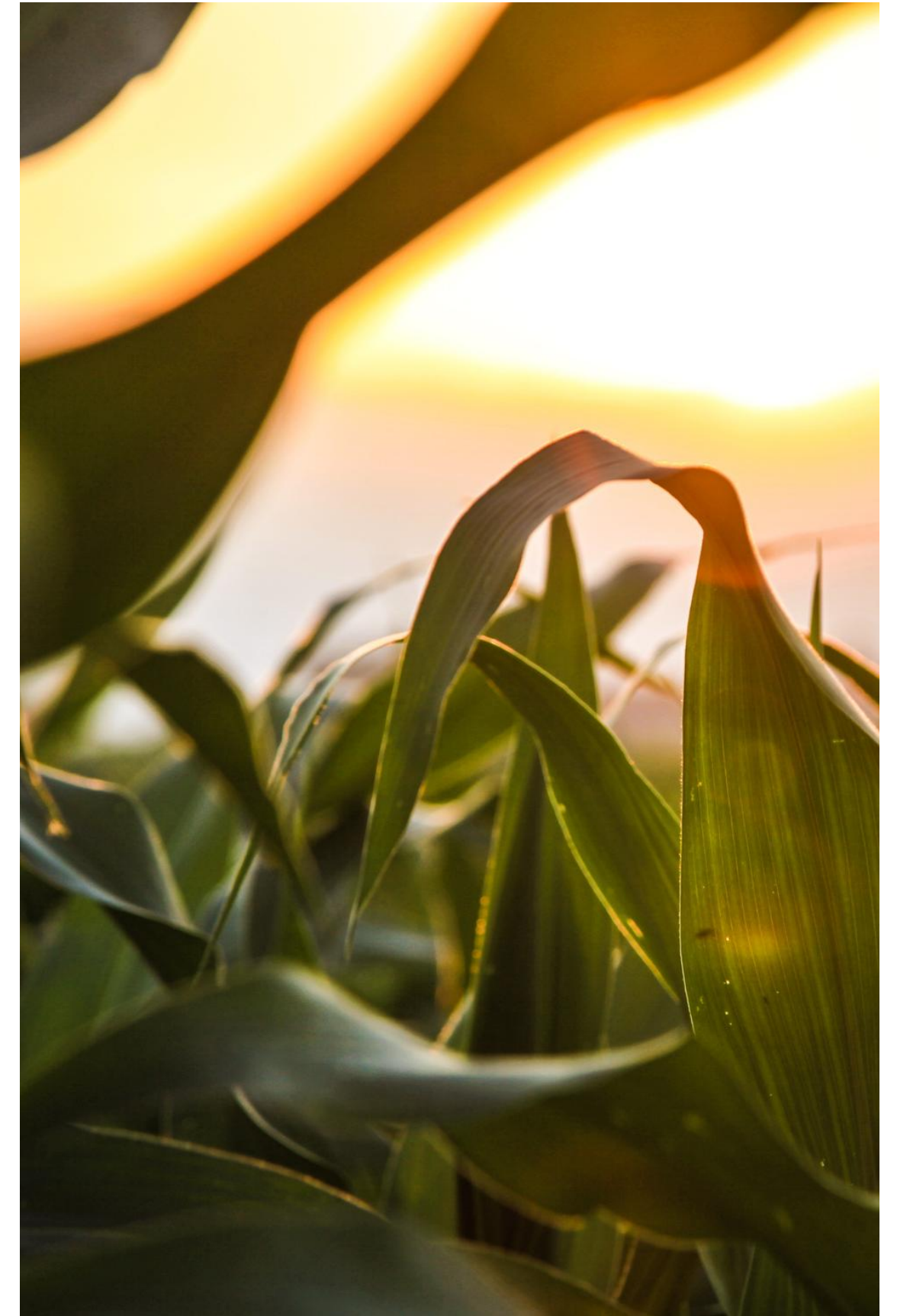
- Azure Communication Services
- Azure Functions
- Azure Key Vault
- Azure OpenAI
- Azure AI Search
- Azure Storage Account
- Blob Storage
- Azure Cosmos DB
- Azure Monitor
- Azure Web App



# 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**





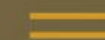


# Impact

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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