



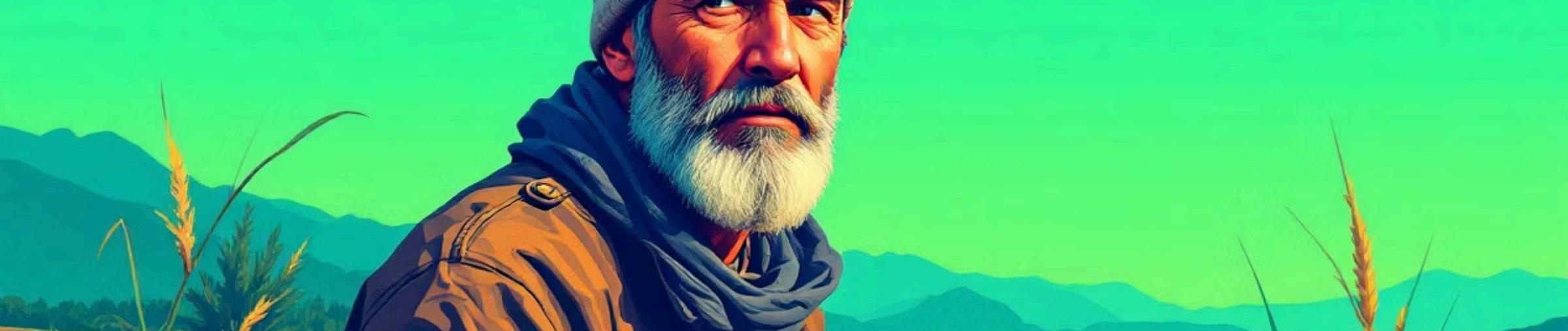
Yonca Smart Farm Assistant

AI-Powered Agricultural Advisory System for Azerbaijan Farmers

Try Live Demo →



Made with GAMMA



The Problem: Traditional Farming's Hurdles

Azerbaijan's agricultural sector faces significant challenges that hinder optimal crop yield and resource management.

Significant Crop Loss

40% of crop yield is lost annually due to suboptimal decision-making, impacting farmer livelihoods and food security.

Lack of Localised AI Tools

There are **zero** AI-driven agricultural tools available in the Azerbaijani language, creating a critical technological gap.

Reliance on Intuition

100% of farmers currently rely on traditional methods and intuition rather than data-driven insights for critical decisions.

Our Solution: Yonca Smart Farm Assistant

Yonca leverages cutting-edge AI to provide Azerbaijani farmers with precise, actionable advice, bridging the gap between tradition and technology.



127 Expert Rules

Scenario-based recommendations for crucial farming aspects: irrigation, fertilisation, pest control, and optimal harvest timing.



AI Chatbot

A 24/7 agricultural assistant, powered by Google Gemini AI, providing real-time answers and insights in Azerbaijani.



Daily Planning

Automated schedule generation tailored to weather conditions, crop growth stages, and specific farm types.



100% Safe Data

No real farm data is required; the system operates entirely on synthetic datasets, ensuring complete privacy and security.

Yonca: By The Numbers

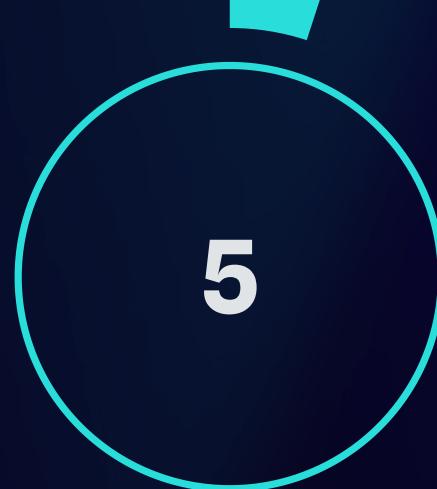
A closer look at the robust foundation and impressive performance metrics of the Yonca Smart Farm Assistant.



127

Expert Rules

Comprehensive logic covering diverse agricultural scenarios.



5

Farm Types

Supporting vegetables, fruits, grains, livestock, and mixed farms.



90%+

Accuracy

High precision in recommendations for optimal outcomes.



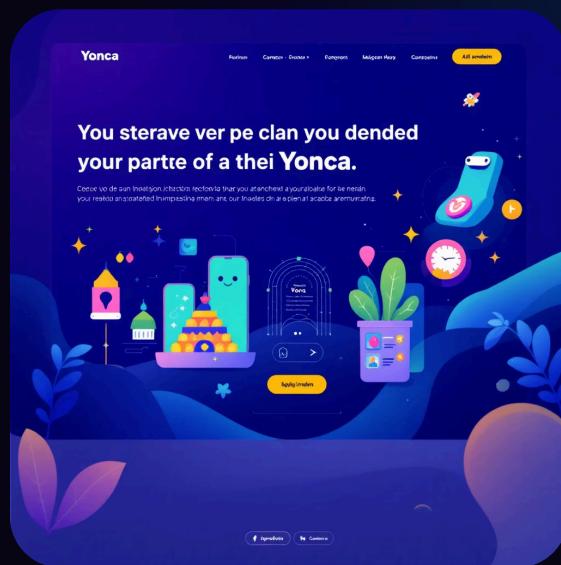
100%

Synthetic Data

Ensuring privacy and security without compromising functionality.

Product Demo: Experience Yonca

See Yonca in action with a glimpse into its intuitive interface and powerful features designed for ease of use.



Clean, Intuitive Interface

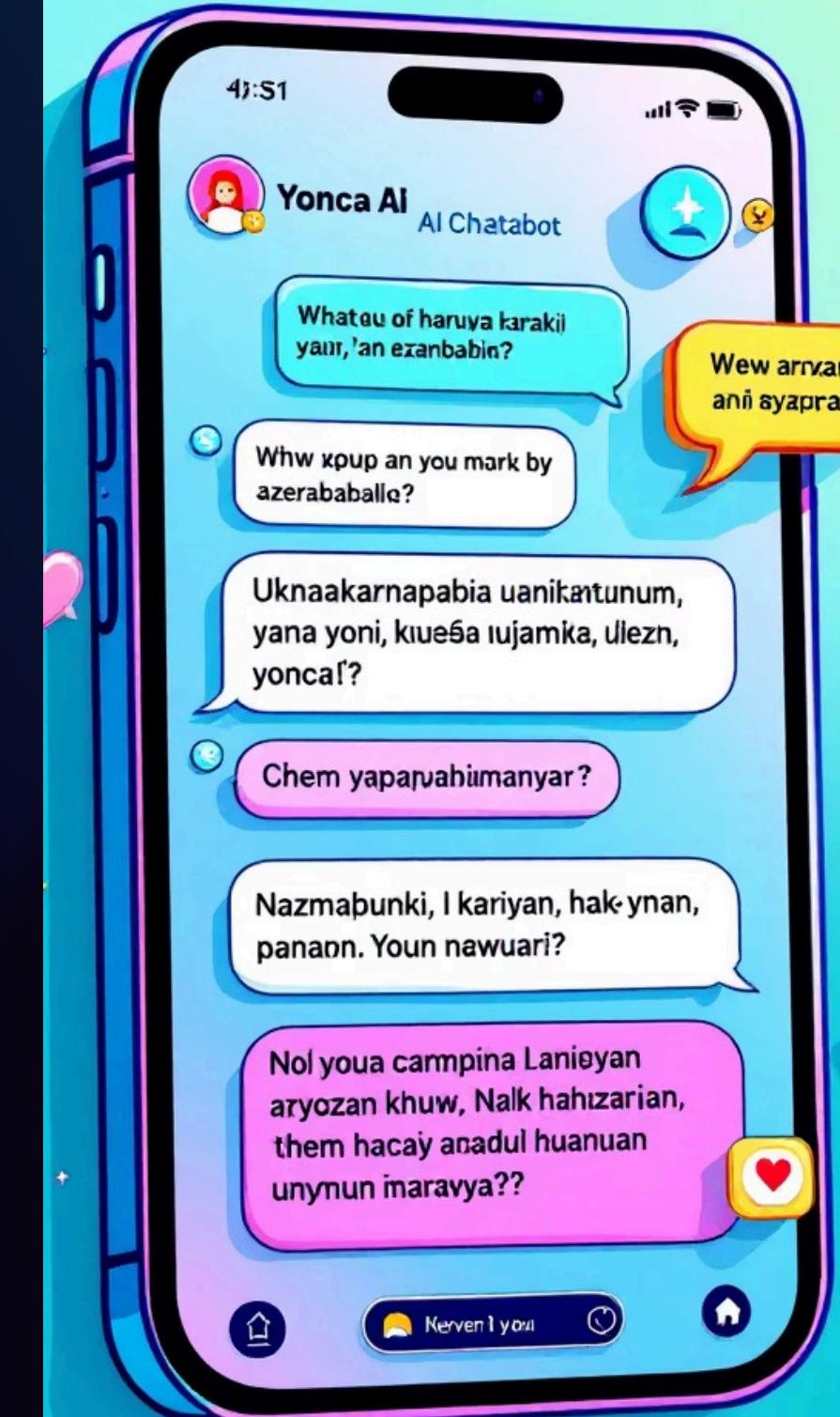
Designed for simplicity and ease of navigation, fully in Azerbaijani.



Actionable Recommendations

Priority-based advice for immediate and effective farming decisions.

Our AI Chatbot provides real-time farming answers, ensuring farmers always have support.





Technology Stack: Powering Yonca

Built with modern, scalable technologies to deliver a reliable and efficient agricultural advisory system.

Backend Architecture

- **Python + FastAPI:** For robust and high-performance API development.
- **Google Gemini AI:** Integrated for intelligent chatbot capabilities.
- **Weather APIs:** Real-time data for accurate daily planning.
- **Rule Engine:** The core of our expert recommendation system.

Frontend Design

- **Next.js 14:** For a fast, responsive, and SEO-friendly user experience.
- **TailwindCSS:** For sleek, utility-first styling.
- **Progressive Web App (PWA):** Ensuring accessibility across devices.
- **Mobile-First Design:** Optimised for seamless use on smartphones and tablets.



Traction: Real-World Readiness

Yonca is not just a concept; it's a deployed, tested, and high-performing system ready for impact.

Live & Tested

Fully deployed and rigorously tested for reliability and performance.



Sub-2 Second Load Time

Optimised for speed, ensuring quick access to critical information.



2,216 Lines of Docs

Comprehensive documentation for developers and users.

The Team Behind Yonca

Meet the dedicated individuals driving the innovation and development of the Yonca Smart Farm Assistant.



Ismət Səmədov

Role: Full-Stack Developer & Project Lead

Experience: 5+ years in Data & AI

Achievement: 🏆 3rd Place, Socar Hackathon

www.ismat.pro

Samir Mehdiyev

Role: Data Scientist & AI Specialist

Education: Master's Degree, Uppsala University

Achievement: 🏆 3rd Place, Socar Hackathon

[LinkedIn Profile](#)



Try Yonca Now

Explore the live demonstration and underlying architecture of the Yonca Smart Farm Assistant.

1

Frontend Demo

Experience the user interface and features directly.

[Access Demo](#)

2

Backend API

Examine the API endpoints and system functionality.

[Access API](#)



Note: Initial requests may incur a 4-5 minute cold start delay.

3

Source Code

Review the complete codebase on GitHub.

[View Code](#)

Thank You

We appreciate your time and consideration for the Yonca Smart Farm Assistant.

Project: Yonca Smart Farm Assistant

Team: İsmət Səmədov & Samir Mehdiyev

Competition: Digital Umbrella MMC - YONCA AI Competition, December 2025

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