

RESIST-ALERT

AI-Driven Early Warning & Decision Support System for Pesticide Resistance

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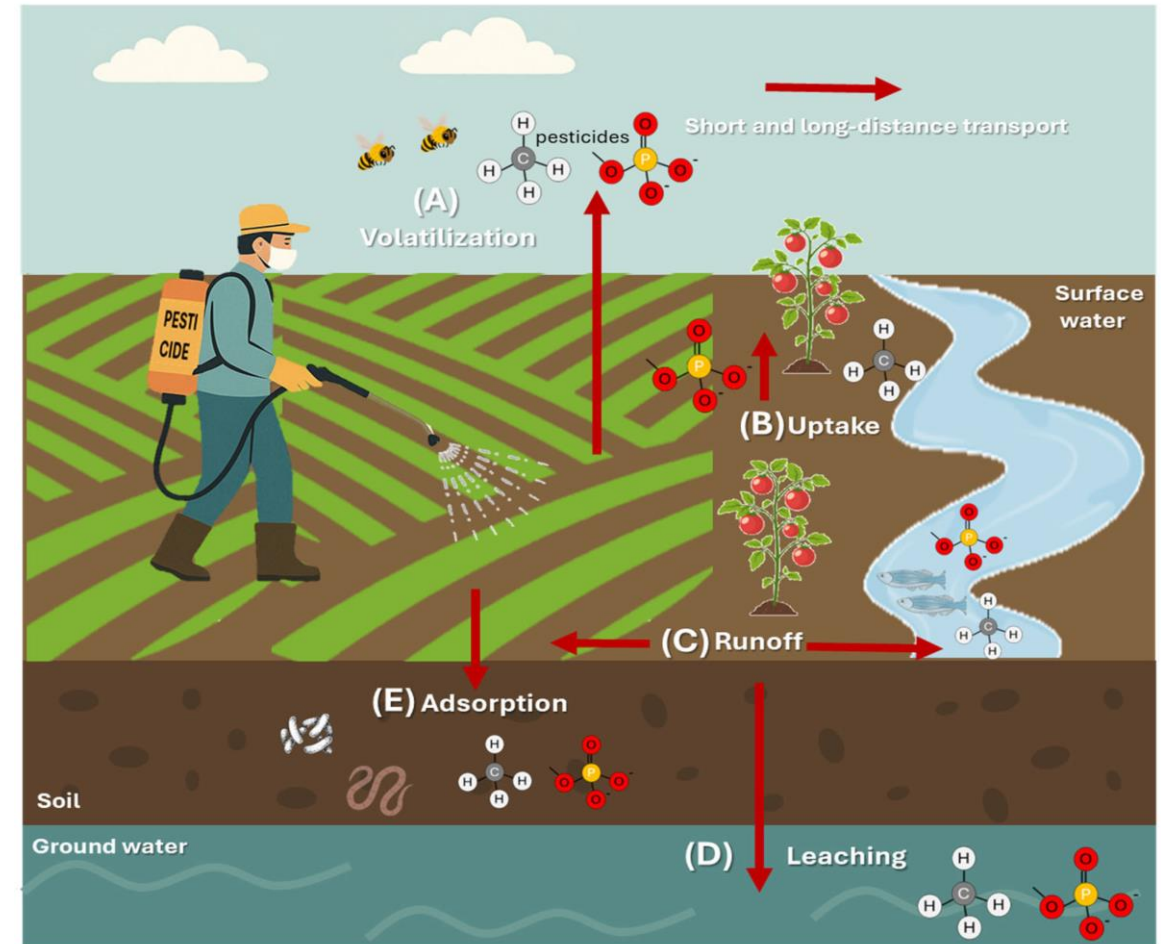
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CALL : HORIZON-CL6-2026-02-FARM2FORK-02

Tackling pesticide resistance: early detection, management strategies, and foresight

What is the Problem? The rapid development of pesticide resistance in agriculture poses a significant threat to global food security and environmental sustainability. Traditional monitoring methods are often slow and reactive, meaning resistance is usually detected only after widespread crop damage occurs. This delay leads to:

- Excessive Chemical Use:** Farmers increase pesticide doses to combat resistant pests, escalating costs and environmental toxicity.
- Yield Loss:** Uncontrolled resistance causes significant reductions in crop quality and quantity.
- Knowledge Gap:** A lack of real-time, data-driven early warning systems prevents proactive management and precise decision-making in the field.



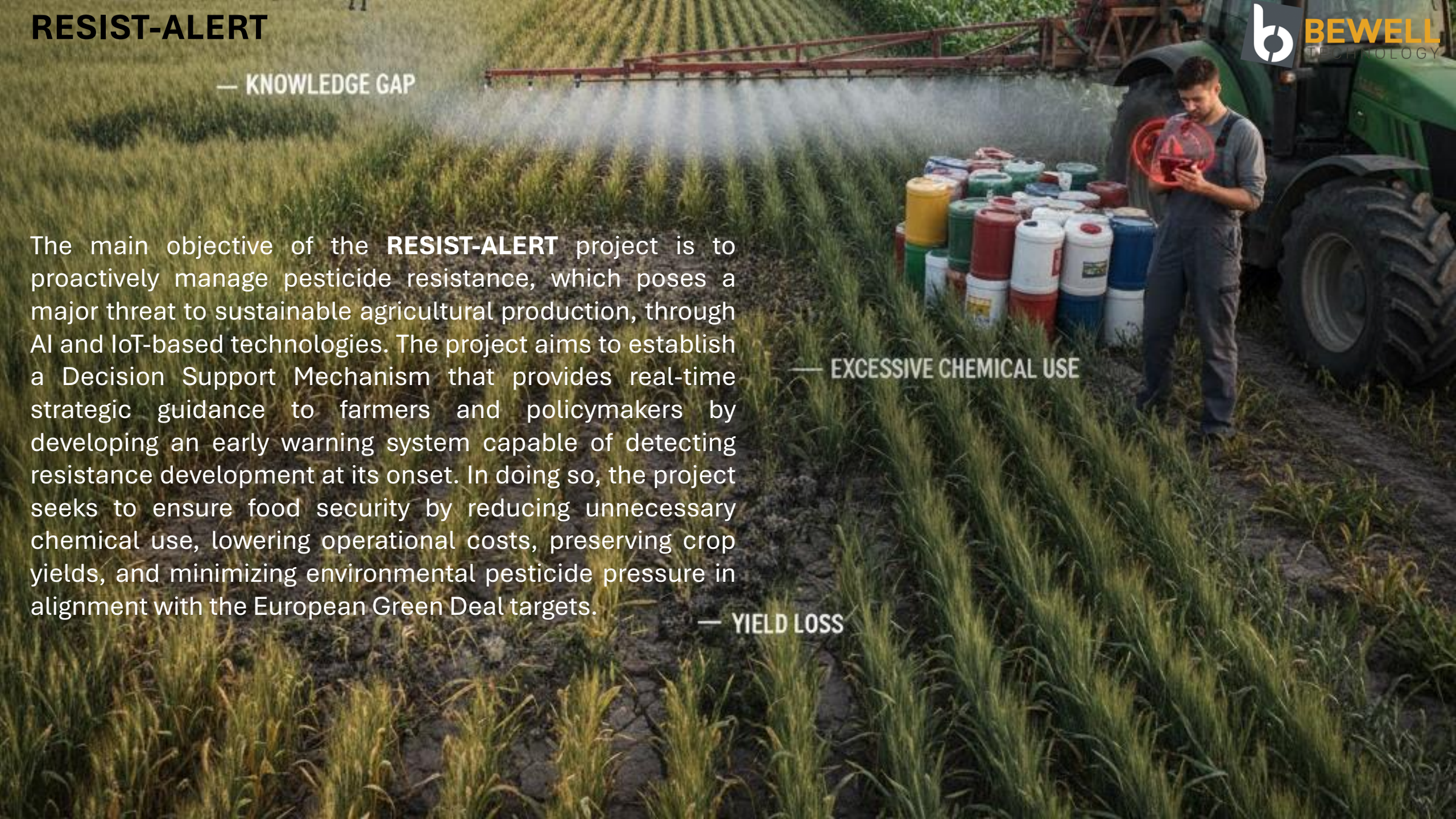
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— KNOWLEDGE GAP

The main objective of the **RESIST-ALERT** project is to proactively manage pesticide resistance, which poses a major threat to sustainable agricultural production, through AI and IoT-based technologies. The project aims to establish a Decision Support Mechanism that provides real-time strategic guidance to farmers and policymakers by developing an early warning system capable of detecting resistance development at its onset. In doing so, the project seeks to ensure food security by reducing unnecessary chemical use, lowering operational costs, preserving crop yields, and minimizing environmental pesticide pressure in alignment with the European Green Deal targets.

— EXCESSIVE CHEMICAL USE

— YIELD LOSS



Data Acquisition

IoT Sensors

Drones & Satellites

Mobile Input



Edge Computing



Local Data Processing

AI & Cloud Analytics



Resistance Prediction

Foresight Analysis

Deep Learning & Analytics

Decision Support



• Smart Recommendations

• Precision Application



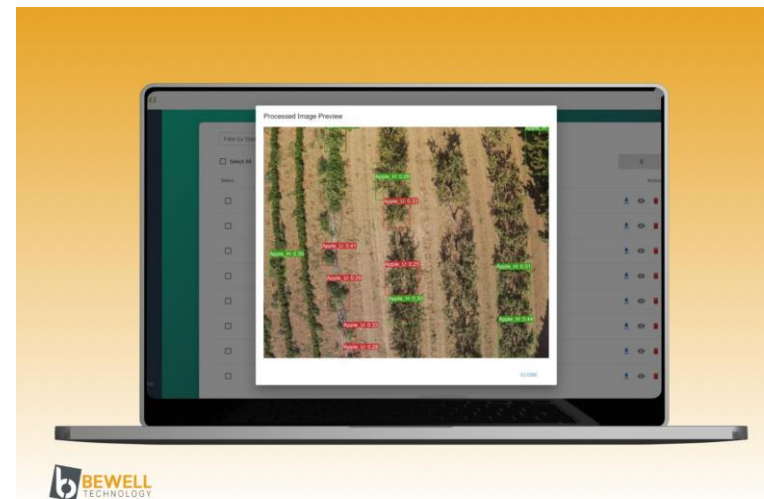
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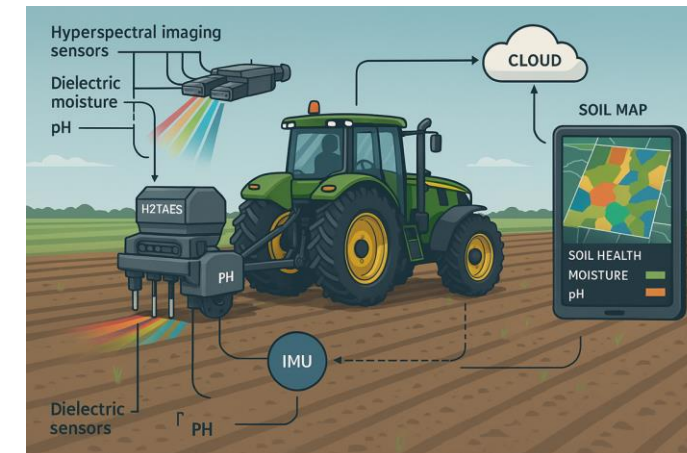
Bewell Technology Competencies: Bewell Technology is a specialized R&D company that designs and manufactures its own proprietary Edge computing devices and develops high-performance Artificial Intelligence (AI) models tailored for these platforms. With extensive experience in AgTech projects, the company possesses deep expertise in multi-sensor data acquisition, on-site real-time processing, and building advanced decision-support systems that transform raw field data into strategic agricultural insights.

Role in the Project: In the RESIST-ALERT project, Bewell will be responsible for the design and production of the intelligent Edge hardware required for on-site pesticide resistance monitoring. By integrating its custom deep learning algorithms into these devices, Bewell will manage the "real-time early warning" engine. Furthermore, the company will act as the Technology Provider and Use-Case Leader (UC Leader) for the Turkish pilot sites, ensuring the field validation and technical integration of the overall system.

DEEP4SAT Early Warning System



H2TAES Project



Our Competencies



Proprietary Edge Hardware Manufacturing



Advanced AI & Deep Learning Expertise (AgTech Focus)

Bewell Technology: Core Competencies & Project Role in RESIST-ALERT



Lead Edge Device Development & AI Integration



UC Leader (Turkey Pilot Sites) & System Validation

Delivering Edge-to-Cloud Intelligence for Sustainable Agriculture.

Time-stamp: Wednesday, January 28, 2026 at 04:17 PM +03



RESIST-ALERT



Partners Sought

1. Academic & Research Partners (RTD) and Coordinator

- Plant Protection & Toxicology Experts:** Universities or research institutes capable of modeling the biological mechanisms of pesticide resistance. They will provide the scientific ground for "which pest develops resistance under which conditions."
- Predictive Analytics & Foresight Labs:** Academic units specializing in long-term forecasting models to add scientific depth to Bewell's AI "Foresight" engine.

2. Technology & Equipment Partners

- Precision Spraying Manufacturers (OEMs):** Companies that produce smart nozzles, autonomous spraying drones, or robotic platforms. They will turn the "AI decision" into "physical action" in the field.
- Cybersecurity Specialists:** Partners to ensure the security of agricultural data and the traceability of pesticide records, which is critical for EU food safety regulations.

3. End-Users & Validation Partners (The Multi-Actor Approach)

- EU-Based Pilot Sites:** To secure the "Cross-border" requirement, you need large-scale farms or cooperatives in different EU climates (e.g., a greenhouse in the Netherlands or a vineyard in France) to validate the system globally.
- Agricultural Associations:** Organizations that represent farmers to ensure the user interface (UI) is practical and the solution reaches the end-user effectively.

4. Impact & Dissemination Partners

- LCA (Life Cycle Assessment) Experts:** Consultants to measure the project's environmental impact (reduction in chemical footprint) and economic ROI.
- Policy & Standards Experts:** Partners who can link project results to EU policies like the **Green Deal** and **Farm to Fork** strategy.