

AI Predicts Screwworm Spread Before It Hits

How USDA ARS is using machine learning to stop infestations before they start.

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Predictive modeling

Core AI Technique

The USDA Agricultural Research Service uses AI-driven models to forecast where New World screwworm could emerge next.

These models integrate ecological, environmental, and historical data to simulate pest movement across the U.S. landscape. By analyzing habitat suitability, temperature, precipitation, and past outbreaks, the system identifies high-risk zones before infestations occur. This enables proactive deployment of surveillance, sterile insects, and containment strategies.

Source: USDA ARS • Published September 21, 2026

<https://www.ars.usda.gov/news-events/news/research-news/2026/tracking-the-path-of-new-world-screwworm/>



01

AI Is the New First Line of Defense

Unlike traditional reactive pest control, USDA ARS's predictive models shift the paradigm from response to prevention. The system doesn't wait for outbreaks—instead, it simulates potential pathways and vulnerabilities in real time. This transforms pest management from a crisis-driven operation into a precision intelligence function, aligning with AgTech's broader shift toward anticipatory systems. The integration of AI with the Sterile Insect Technique (SIT) now allows for optimal timing and placement of sterile flies, maximizing eradication efficiency.



02

The Real Limitation Isn't Technology

Even the most advanced models cannot account for human behavior—specifically, the illegal transport of infested animals. As highlighted in the USDA ARS report, unpredictable variables like this remain a critical blind spot. This reveals a second-order challenge: no matter how sophisticated the AI, biological security depends on compliance and enforcement. The most powerful algorithm is useless if livestock are moved across state lines without inspection. This underscores the need for AI to be paired with real-time reporting systems and regulatory enforcement protocols.

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