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CASE STUDY · MARLUC SYNOPSIS

India National Pest Surveillance System

IMPLEMENTED 2024 ONWARDS · AGRICULTURE AND FOOD · INDIA · BAND E · CLAIMED ONLY

VERSION 1.0 · PUBLISHED 16 NOVEMBER 2026 · UPDATED 16 NOVEMBER 2026 · FACTS CHECKED 16 NOVEMBER 2026

India's national AI pest identification and advisory platform reached 31 states and union territories within two years, but the ministry told Parliament it has not assessed the impact of its AI tools on farming.

ABOUT THIS SYNOPSIS

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Facts and figures are as reported by the sources listed below, which may be incomplete, self-reported or out of date. Check the original source before relying on any figure.

The impact band, proof marker and SEAM view are MarLuc's opinion. The organisation is not a MarLuc client and has not reviewed or endorsed this synopsis. Names and trademarks belong to their owners.

NOTICE WORDING LAST UPDATED 16 NOVEMBER 2026

AT A GLANCE

No measurable effect: no results reported.

AI used: AI image recognition for pest and disease identification, with automated advisories.

Implemented: 2024 onwards. Grade: band E, No measurable effect, Claimed only.

Headline result, as reported: Nearly 2.5 lakh users and more than 36,000 pest advisories, per ICAR; no formal assessment of the effect on pesticide use, crop losses or yields

1 · The case

The facts, as reported by the 4 sources listed at the end. Where a source is silent, the field says "Not reported".

Organisation

Ministry of Agriculture and Farmers Welfare, India, with ICAR-National Research Institute for Integrated Pest Management. National government programme of India's Department of Agriculture and Farmers' Welfare. ICAR-NRIIPM built the app; the Directorate of Plant Protection, Quarantine and Storage supplies technical advisories. Canvas block: 8. Governance and risk. Also 3. Customers and proposition, 6. Data and technology.

Business challenge

The challenge. The system traces back to a 2008 to 2009 pest outbreak in Maharashtra that damaged about 14.56 lakh hectares of soybean, at an estimated loss of 1,392 crore rupees, per ICAR. At launch, the minister said it could reduce farmers' reliance on pesticide retailers.

Who implemented it

In-house (In-house): ICAR-National Research Institute for Integrated Pest Management: built the mobile app and pest prediction component.
PEAT Inc (Plantix) (Software vendor): Supplies the AI image identification capability.
Wadhwani AI (University or research lab): Built a model for counting trap-caught pests, particularly in cotton.

Technology (SEAM pillar E)

SEAM types: T8 Predictive / ML models. Deployment: Not reported. Vendors and products: PEAT Inc (Plantix), Wadhwani AI, National Pest Surveillance System app and portal, Plantix image identification, CropAce.

Where it was built in: Mobile app and web portal built by ICAR-NRIIPM, with Plantix image identification, a Wadhwani AI pest-counting model and BHASHINI translation; linked to Krishi Sarthi, the Digital Crop Survey and BharatVistaar.

What changed

Before: CROPSAP, an earlier pest surveillance system that grew out of the Maharashtra outbreak, and advice from pesticide retailers. After: a national AI-supported surveillance and advisory platform used by extension workers and some farmers. Whether farmers act on the advice, and with what effect, is not tracked. [1] [2] [3] [4]

What it cost

Not reported for the system. The government allocated 502.40 crore rupees for digital agriculture initiatives, including AI projects, in 2026-27, per IndiAgri.

What it saved

Not reported. ICAR says a formal quantitative assessment of the impact on pesticide use, crop losses or yields has not been established. [1] [2] [3] [4]

Governance and control

The ministry told the Rajya Sabha in July 2026 that no specific assessment has been undertaken of the impact of AI technologies in agriculture. ICAR's own study found adherence to advisories fell sharply as pest severity rose. The image model is a third-party capability; the roadmap includes building an in-house model.

S2 · Accountable owner · Claimed
The system is a Department of Agriculture and Farmers' Welfare initiative; ICAR-NRIIPM built the app and the Directorate of Plant Protection supplies advisories. [2] [4]

A1 · Safe use · Not reported
Not reported.

A2 · Human in the loop · Claimed
The platform is presented as connecting farmers with scientists and experts by phone; the Directorate supplies the technical advisories. [1] [4]

A3 · Monitoring and assurance · Missing (independent source shows it was absent)
ICAR says no formal quantitative assessment of impact has been established, and the ministry told Parliament no specific assessment of AI impact has been undertaken. [3] [4]

A4 · Vendor AI · Not reported
Image identification is a Plantix capability from PEAT Inc integrated into the app; how it is assured is not reported, and an in-house model is planned. [4]

A5 · Agent controls · Not reported
No agents described.

A6 · Standards and regulation · Not reported
Not reported.

What worked, what did not, what is unproven

WORKED

– Reach: 31 states and union territories and more than 36,000 advisories, per ICAR.

DID NOT

– No mechanism tracks whether farmers follow advisories or what changes, per Analytics India Magazine.

– Adherence for yellow stem borer fell from nearly 46% at low severity to 10% at high severity, per ICAR's study.

– Direct registered users are far fewer than the reported user base: 26,899 registered against 2,47,988 direct users, per ICAR.

UNPROVEN

– Any effect on pesticide use, crop losses or yields.

– Accuracy of pest identification in Indian field conditions, given variable image quality noted by ICAR.

Timeline

Aug 2024 Agriculture Minister Shivraj Singh Chouhan launches the National Pest Surveillance System [1]

Jul 2026 Minister of State tells the Rajya Sabha that no specific assessment of the impact of AI technologies in agriculture has been undertaken [3]

Aug 2026 Analytics India Magazine reports national reach and that no formal mechanism tracks impact [4]

2 · Grade and SEAM assessment

MarLuc's opinion, made on the evidence above. How cases are graded: marluc.co.uk/case-studies/how-we-rate

Level of change and impact

Claimed: C. Grade: E, No measurable effect. Proof: Claimed only. Level of change: Not graded.

No level assessed: band E, no results reported. A national AI advisory service in use without a measured effect.

Graded E: AI pest identification and advisories are in use at national scale, but no effect on pesticide use, crop losses or yields has been measured, by the ministry's and ICAR's own accounts. The government aims for process change in pest management; that is unproven.

The SEAM view and lessons learnt

The platform was built from several parts: a third-party image model, a nonprofit's counting model, a public language platform and ICAR's app. No owner is reported for the question of whether advice changes what farmers do. For any public body, outcome measurement needs an owner from launch.

1. Name an owner for outcome measurement before national rollout.
2. Track whether users act on AI advice as well as how many receive it.
3. Plan how to replace or assure third-party models in a public service.

Evidence

Score 2 of 4. Mixed: usage figures are the government's and ICAR's own; independent reporting by Analytics India Magazine and the ministry's reply to Parliament confirm no impact assessment.

Evaluation method. Self-reported usage figures, with an ICAR adherence study; no impact evaluation.

Sources disagree. Reach figures differ by measure: nearly 2.5 lakh users including farmers, officials and extension workers; 26,899 registered app users; and more than 10,000 extension workers (ministry). Crop and pest coverage is given as 73 crops and 436 pests (ministry) while the Plantix capability covers 74 crops and 445 pests (Analytics India Magazine).

Status. Ongoing: roadmap adds crops, languages and an in-house AI model, per ICAR.

3 · Original sources

Read these in full. To challenge a fact or a grade, use the contact form at marluc.co.uk or the link on https://marluc.co.uk/case-studies/india-national-pest-surveillance-system

[1] KNN India: Government launches AI-powered National Pest Surveillance System (August 2024)
https://knnindia.co.in/news/newsdetails/sectors/agri-food/government-launches-ai-powered-national-pest-surveillance-system-to-empower-farmers

[2] AgroSpectrum: Union Agriculture Minister inaugurates National Pest Surveillance System (August 2024)
https://agrospectrumindia.com/news/7/30718/union-agriculture-minister-inaugurates-national-pest-surveillance-system.html

[3] IndiAgri: AI reaches over 5.28 crore farmers, but Centre yet to assess impact on agriculture (July 2026)
https://www.indiagri.in/f-a-d/ai-reaches-over-528-crore-farmers-but-centre-yet-to-assess-impact-on-agriculture

[4] Analytics India Magazine: India's pest surveillance AI has reached national scale, but its impact is unproven (August 2026)
https://analyticsindiamag.com/ai-features/indias-pest-surveillance-ai-has-reached-national-scale-but-its-impact-is-unproven/

Version 1.0 · Published 16 November 2026 · Updated 16 November 2026 · Facts checked against sources 16 November 2026 · Downloaded 26 November 2026. This PDF may be out of date: the latest version, and a way to report an error or a better source, is at https://marluc.co.uk/case-studies/india-national-pest-surveillance-system

VERSION HISTORY

v1.0 16 November 2026 First published