THE NAIO PULSE

About the NAIO Pulse

Welcome to the NAIO Pulse, a living stream of insights from Malaysia's National AI Office (NAIO). Each release captures the heartbeat of artificial-intelligence policy and innovation. Whether you're a policymaker, industry leader, researcher, or simply curious, the NAIO Pulse is your adaptable guide to navigating—and shaping—the next frontier of trustworthy, transformative AI.

INSIGHTS
NATIONAL AI TREND - AGRICULTURE

From precision farming and real-time crop monitoring to autonomous machinery and advanced forecasting, AI and data-driven technologies are helping farmers improve yields, reduce waste, and adapt to climate risks.

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CONCLAVE ON TRUSTED AND RESPONSIBLE AI: INDIA–MALAYSIA PERSPECTIVES

The Malaysia–India Conclave on Trusted and Responsible Artificial Intelligence brought together key stakeholders ahead of the AI Impact Summit in New Delhi. As Strategic Partner, the National AI Office (NAIO) views the engagement as advancing Malaysia's AI Nation 2030 agenda and bilateral cooperation on trusted, human-centric AI.

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NATIONAL AI TREND - AGRICULTURE

GLOBAL TRENDS

The global agrofood sector is undergoing a major digital transformation driven by AI and data-based technologies. Precision agriculture, which integrates IoT sensors, drones, satellite imaging and machine learning, is helping farmers optimise planting cycles, irrigation and fertiliser use, significantly reducing waste while boosting yields. Soil, moisture, temperature and imaging sensors now monitor crop and livestock health in real time, enabling early detection of disease and pests for timely intervention. For example, VARIwise in Australia reported 10% water savings and 5% yield gains in the cotton industry.

In countries such as the United States (AI App: John Deere) and Australia (AI App: Swarm Farm Robotics), AI-powered autonomous machinery and drones are transforming agricultural operations, from self-driving tractors and harvesters to drones that spray, fertiliser and monitor fields with minimal human input. AI-based weather analytics support environment-driven field planning, helping farmers and fishermen optimise their decision-making.

AI-driven yield forecasting models combine data on climate, soil and crop health to predict harvests more accurately, improving planning, storage and distribution. Similarly, AI engines for supply–demand forecasting analyse historical and real-time market, sales, consumer and weather data to help producers adjust output and respond to changing market conditions.

Collectively, these innovations are driving a shift towards sustainable, climate-smart and resilient food systems, enhancing productivity, profitability and environmental stewardship across the global agrofood sector.

MALAYSIA'S CURRENT LANDSCAPE

The Paddy Rice Fields of Kedah and Perlis

Agriculture remains a strategic pillar of Malaysia's economy, particularly in key sub-sectors such as paddy, aquaculture, livestock, fruits and vegetables. AI adoption in agriculture is steadily emerging, with early deployments in paddy fields using AI and IoT for water quality monitoring, pest detection and yield forecasting, including pilot systems for early disease identification.

In aquaculture, farms are increasingly implementing AI-based feed optimisation, water monitoring and fish health management systems to reduce stock loss and boost productivity. Meanwhile, horticulture players are experimenting with smart irrigation, greenhouse automation and crop analytics to lower input costs while improving yields.

Although most producers are smallholders, targeted investments in financing, digital infrastructure and digital capacity-building can unlock wider and more inclusive adoption of AI across Malaysia's agrofood sector.

FUTURE DIRECTION

Kundasang, Sabah

Under the AI Nation 2030 (National AI Action Plan 2026-2030), the agrofood sector is identified as a key impact engine for strengthening national food security. Strategic priorities include developing national agro-datasets that integrate soil, weather, pest and yield information to spur local algorithm innovation, as well as establishing sectoral data hubs to promote open data sharing, AI co-creation and collaboration across the food value chain.

Public–private pilot projects will be launched in areas such as smart irrigation, AI-based disease detection and supply chain analytics to expand inclusion for SMEs and cooperatives. In parallel, AI sandboxes and low-risk testing zones will enable smallholders to experiment with affordable digital solutions.

Collectively, these initiatives aim to position Malaysia as a regional leader in climate-smart agriculture, enhancing food security, reducing environmental impact and advancing "Made by Malaysia" AI solutions tailored to local crops and conditions.

AI IN AGRICULTURE:
SELECTED USE CASES FROM RECENT GLOBAL DEPLOYMENTS

Artificial Intelligence (AI) is beginning to transform the way we grow food. Moving beyond research and experimentation, AI solutions are now being used on farms and across the agro-food sector to deliver real, measurable benefits. From precision farming that helps farmers use resources more efficiently, to smart machines that support daily operations, and localised weather forecasting that strengthens climate resilience, AI is helping to build a more productive, sustainable, and future-ready food system.

This section presents a curated set of recent AI use cases in agriculture, drawn from global industry, research, and public sector deployments.

1. AI FOR WEATHER PREDICTION AND CLIMATE ADAPTATION

These examples show how AI is improving weather forecasting by providing more local, timely, and practical insights than traditional models, helping farmers adapt to a changing climate.

- **Google Research & University of Chicago (India)**

In 2025, Google's NeuralGCM AI weather model was used to deliver highly accurate monsoon forecasts to around 38 million farmers in India. The system successfully identified an unusual pause in the monsoon season that conventional forecasts failed to detect, enabling farmers to adjust planting schedules and reduce the risk of crop losses.

- **ClimateAi**

Founded by climate and agricultural experts, ClimateAi applies biophysics-based AI to predict weather and climate risks months in advance, rather than weeks. In Maharashtra, India, its model forecast a 30 per cent reduction in tomato yields due to extreme heat and drought. This early warning allowed a seed company to introduce drought-tolerant varieties ahead of the growing season.

- **NOAA – Artificial Intelligence Global Ensemble Forecast System (AIGEFS)**

In late 2025, the US National Oceanic and Atmospheric Administration (NOAA) deployed AIGEFS, an AI-driven forecasting system that outperformed traditional approaches. The system extended reliable forecast windows by an additional 18 to 24 hours, supporting better planning and risk management.

AI IN AGRICULTURE:
SELECTED USE CASES FROM RECENT GLOBAL DEPLOYMENTS

2. AI IN PRECISION AGRICULTURE (IMPROVING YIELDS AND REDUCING INPUTS)

These examples show how AI is helping farmers produce more food using fewer resources, lowering costs while supporting environmental sustainability.

- **Bayer & EY – Xarvio**

Bayer's Xarvio digital farming platform uses AI to analyse satellite imagery alongside field-level data to support targeted disease and pest management. In practice, farmers using Xarvio have reduced fungicide and pesticide use by between 15 and 25 per cent, while maintaining or improving crop yields.

- **Cropin (India)**

Through its Intelligent Agriculture Cloud platform, Cropin supports the management of large and complex farming operations. By enabling early detection of risks and more precise decision-making, the platform has delivered yield increases of up to 25 per cent in selected projects.

- **Solinftec – Solix Ag Robotics**

Solinftec has introduced autonomous, solar-powered robots that operate directly in the field. Using AI, these robots monitor plant health, detect pests, and identify weeds in real time, allowing for more precise interventions and reduced reliance on blanket chemical applications.

AI IN AGRICULTURE:
SELECTED USE CASES FROM RECENT GLOBAL DEPLOYMENTS

3. AI FOR PEST, DISEASE AND QUALITY MONITORING

AI-powered computer vision is transforming how farmers monitor crops, enabling faster detection of pests, diseases, and quality issues directly in the field.

- **Plantix (PEAT GmbH)**

Plantix is a widely used mobile application that allows farmers to photograph crops using a smartphone. Through computer vision, the app can instantly identify plant diseases, pests, and nutrient deficiencies, and provide practical treatment guidance to support timely intervention.

- **Taranis**

A global leader in AI-driven crop intelligence, Taranis uses high-resolution aerial imagery combined with artificial intelligence to monitor crops at leaf level. This enables early detection of disease outbreaks, pest pressure, and nutrient stress across large farming areas.

- **Niqo Robotics (formerly TartanSense)**

Niqo Robotics applies AI-powered "spot spraying" technology to identify weeds and target agrochemical application precisely where needed. This approach has delivered chemical savings of up to 60 per cent, reducing costs and limiting environmental impact.

Credit: Google, respective project

About the source

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AI IN AGRICULTURE:
EMPOWERING FARMERS WITH RAKAN TANI

BY:

GLOBAL AI VILLAGE (GAIV)

Rakan Tani, a strategic partnership between NAIO and GAIV, was launched on 6 February 2025 under NAIO Lab's AI-powered agritech platform to operationalise the nation's AI agenda in the agriculture sector by empowering farmers with AI-based tools and digital services that improve productivity, market access and income security at the grassroots.

AGRICULTURE AND FOOD SECURITY IN MALAYSIA

Agriculture remains a cornerstone of Malaysia's food security, particularly staple crops such as rice. The sector faces persistent challenges, including an ageing farmer population, rising input costs, fragmented land ownership, and climate variability. These issues affect productivity, farmer incomes, and long-term sustainability. Strengthening domestic food production and improving farmer resilience are national priorities, especially amid global supply chain disruptions and climate change.

THE RISE OF AI IN MALAYSIAN AGRICULTURE

Artificial intelligence is emerging as a key enabler for modernising agriculture. Applications include crop monitoring, pest detection, yield optimisation, and supply chain coordination. However, adoption has often been limited by accessibility and digital literacy gaps among farmers. Initiatives like Rakan Tani demonstrate that AI can be delivered through familiar, low-barrier channels such as WhatsApp. This approach brings advanced guidance directly to farmers without the need for specialised equipment or technical expertise.

AI IN AGRICULTURE:
EMPOWERING FARMERS WITH RAKAN TANI

Paddy farmer in Sekinchan, Selangor

HOW RAKAN TANI WAS FOUNDED

Global AI Village (GAIV) was established as an applied AI builder with a focus on translating advanced AI research into real-world, scalable solutions. Its work centres on developing production-ready AI systems in collaboration with governments, enterprises, and research institutions, with an emphasis on practical deployment rather than theoretical experimentation.

Recognising the need to bridge national AI strategy with real sector adoption, GAIV partnered with the National AI Office to form NAIO Lab, an incubation and experimentation arm designed to pilot high-impact AI use cases for key national priorities. NAIO Lab serves as a platform where AI solutions can be rapidly developed, tested, and refined in close collaboration with public sector stakeholders and industry partners.

Rakan Tani is an AI co-pilot for farmers which delivers personalised guidance on crop management, soil health, pest control weather conditions, and operational scheduling through accessible digital channels. It was designed and built as a vital component of the agriculture sector initiative under NAIO Lab. It was developed in collaboration with the Ministry of Agriculture and Food Security and Padiberas Nasional Berhad to ensure strong alignment with policy objectives and on-the-ground agricultural needs.

AI IN AGRICULTURE:
## EMPOWERING FARMERS WITH RAKAN TANI

Photo with participating farmers for the Rakan Tani pilot,
together with Bernas and the GAIV team.

By incubating Rakan Tani within NAIO Lab, the initiative was able to move quickly from concept to pilot, while remaining grounded in real farming conditions. The project reflects a model of public–private collaboration where AI innovation is purpose-built for impact, supporting productivity, reducing risk, and strengthening farmer livelihoods.

PROGRESS OF RAKAN TANI

Global AI Village has successfully completed a pilot involving over 40 farmers. The pilot focused on testing the reliability and accuracy of AI recommendations, technical stability, and overall usefulness. Feedback was overwhelmingly positive, with farmers praising the clarity, relevance, and ease of use. Insights from the pilot are now being incorporated to refine the platform and ensure it consistently delivers value in real-world farming conditions

USE CASE HIGHLIGHTS:
EMPOWERING FARMERS WITH RAKAN TANI
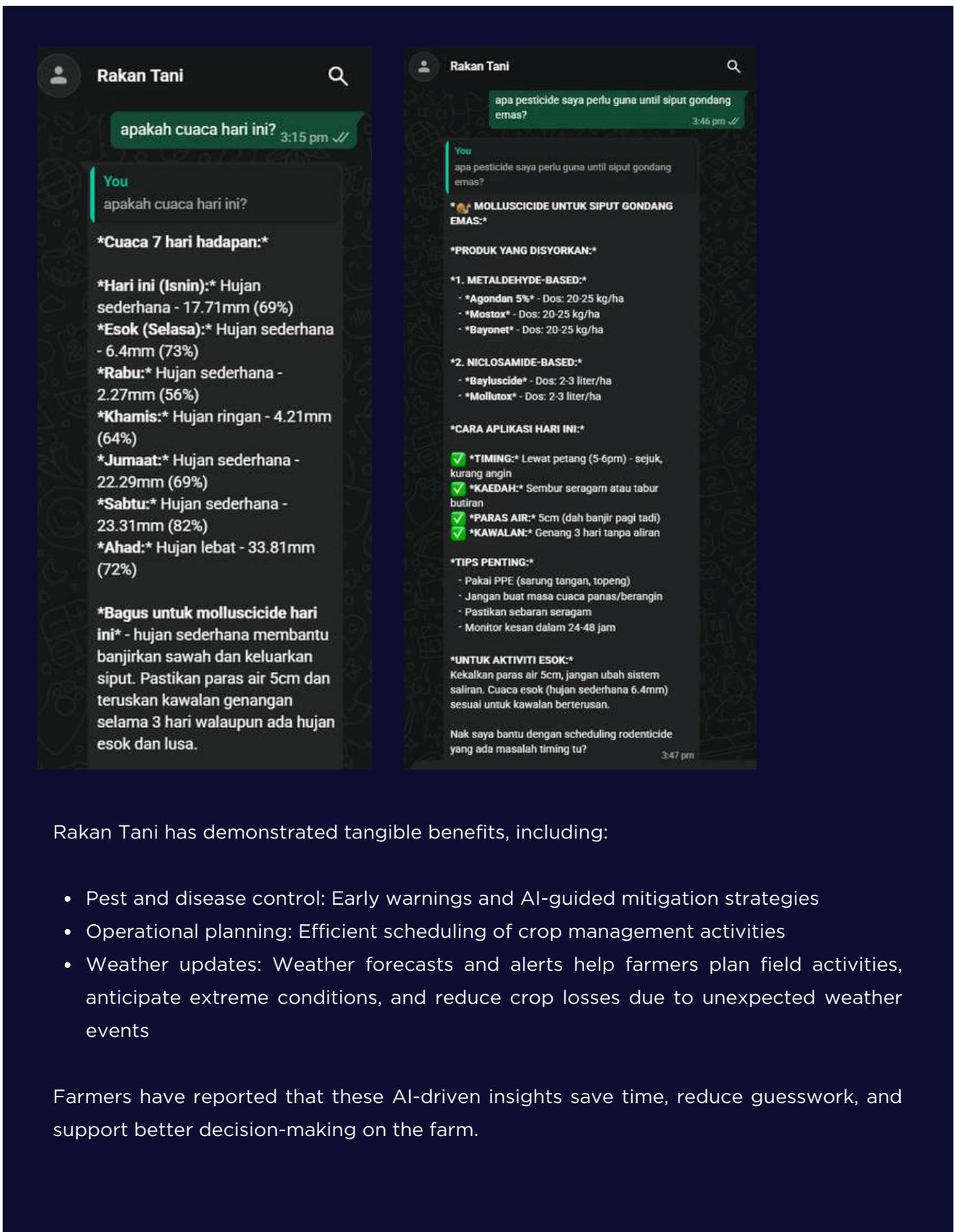
Rakan Tani has demonstrated tangible benefits, including:

- Pest and disease control: Early warnings and AI-guided mitigation strategies
- Operational planning: Efficient scheduling of crop management activities
- Weather updates: Weather forecasts and alerts help farmers plan field activities, anticipate extreme conditions, and reduce crop losses due to unexpected weather events

Farmers have reported that these AI-driven insights save time, reduce guesswork, and support better decision-making on the farm.

AI IN AGRICULTURE:
EMPOWERING FARMERS WITH RAKAN TANI

Sekinchan, Selangor

VISIBILITY AND RECOGNITION

The platform has gained strong traction among paddy farmers and positive media attention. Press coverage includes Astro Awani and official Bernas statements, reinforcing Rakan Tani's credibility as a nationally supported AI solution for agriculture. Word-of-mouth within farming communities has also contributed to growing adoption and awareness.

PLANS FOR THE COMING YEAR

Rakan Tani is preparing for a spin-off into a more independent entity to support scale and sustainability. Key initiatives for the next year include:

- Collaborating with an Australian satellite imagery company to integrate soil moisture and field condition data
- Research with an MIT-affiliated institute to explore and assess the efficacy of AI applications in agriculture
- Wider rollout to additional paddy farmers across Malaysia

These efforts aim to expand access to AI-driven insights, supporting productivity, financial stability, and resilience across farming communities.

AI IN AGRICULTURE:
EMPOWERING FARMERS WITH RAKAN TANI

FUTURE VISION

Rakan Tani contributes to Malaysia's AI Nation 2030 vision by applying AI in a citizen-centric, real-world context. It exemplifies how technology can strengthen food security, improve farmer livelihoods, and create a sustainable, modernised agricultural sector. As Rakan Tani scales, it will serve as a model for how AI can be deployed effectively across other sectors in Malaysia.

NAIO UPDATES

THE CENTRE FOR RESPONSIBLE TECHNOLOGY (CERT)

NAIO was represented at the CERT Launch panel discussion titled "The Need for Responsible Technology and Governance", where En Sam participated as a panelist.

The discussion highlighted the growing need to move beyond the "move fast and break things" approach, and instead adopt governance frameworks that balance innovation with accountability, public interest, and long-term societal impact. Particular emphasis was placed on Malaysia's position as a technology-adopting nation, and the importance of shaping policies that mitigate risks while maximising development opportunities.

ADVANCING TRUSTED AND RESPONSIBLE AI IN FINANCIAL REGULATION

On 22 January 2026, NAIO engaged with the Securities Commission, with the session attended by YBhg. Dato' Mohammad Faiz Azmi, Chairman of the Securities Commission, to exchange views on how AI can be responsibly developed and applied within a secure, safe and trusted regulatory context.

NAIO UPDATES

CONCLAVE ON TRUSTED AND RESPONSIBLE AI: INDIA–MALAYSIA PERSPECTIVES

The Conclave on Trusted and Responsible Artificial Intelligence: India-Malaysia Perspectives, organised by the Indian High Commission in Kuala Lumpur was held as a pre-summit engagement ahead of the eminent AI Impact Summit in New Delhi (19-20 February 2026). The Conclave highlighted key efforts for a deeper Malaysia–India collaboration on trusted and responsible AI. It also reflected a shared commitment to move beyond experimentation towards practical implementation, grounded in human-centric principles, public trust and inclusive growth.

As a Strategic Partner, the National AI Office (NAIO) views this engagement as a strategic step in advancing Malaysia's AI Nation 2030 agenda, setting the foundation for sustained cooperation across policy, talent development and applied AI use cases.

The Conclave brought together policymakers, industry leaders, academia and experts to align perspectives on AI governance, safety and real-world impact.

NAIO UPDATES

AI @ WORK 2026: ADVANCING AI ADOPTION ACROSS THE PUBLIC SECTOR

We officially kicked off AI @ Work 2026 with our AI Champions, the key enablers of AI adoption across the public sector.

As we reflected on the past year, we recognised the strong foundation built in 2025, with high user satisfaction and tangible productivity gains demonstrating the value of generative AI in government.

In 2026, AI @ Work enters its next phase. The focus now shifts beyond basic productivity towards deeper integration, automation, and high-value innovation aligned with Malaysia's AI Nation 2030 ambition. This is about embedding AI into everyday work, reallocating time to higher-value tasks, and building sustainable internal capability.

AI Champions play a critical role in translating national AI ambition into real operational impact within their organisations. NAIO will continue working closely with Jabatan Digital Negara (JDN), Google, and Awantec to provide the support, tools, and enablement needed to scale AI adoption across the public sector.

We thank all AI Champions for your leadership and commitment as we take the next step forward together.

Call for contributors

NAIO is looking for writers to contribute to the conversation on AI through this publication.

Authors who are interested in submitting an article for the NAIO Pulse should send a title and short summary to the "Editorial Office" (contact us@ai.gov.my) outlining the scope of their proposed article and accompanied by a short profile of the writer.

Accepted proposals will be notified *via* email with submission guidelines attached. Topics should be within the scope of the NAIO Pulse's coverage and address current issues.

Thank you for being a valued part of the NAIO Community. If you have any question or feedback, please do not hesitate to reach out to (contactus@ai.gov.my)

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