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CASE STUDY · MARLUC SYNOPSIS

ADT Baramati AI sugarcane advisories

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

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A farmers' development trust in Maharashtra gave sugarcane growers daily AI-generated field alerts, checked by its agronomists, and reports higher yields with less water; the state then backed a scale-up to 100,000 farmers.

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Facts and figures are as reported by the sources listed below, which may be incomplete, self-reported or out of date.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.

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NOTICE WORDING LAST UPDATED 16 NOVEMBER 2026

AT A GLANCE

AI used: AI field analytics with generative AI daily advisories, reviewed by agronomists.

Implemented: 2024 onwards. Grade: band C, Process change, Claimed only.

Headline result, as reported: Sugarcane yields up to 40% higher with up to 30% less water and fertiliser, by the trust's account; Maharashtra announced AI support for 100,000 farmers

1 · The case

The facts, as reported by the 5 sources listed at the end. Where a source is silent, the field says "Not reported".

Organisation

Agricultural Development Trust (ADT), Baramati, with its Krishi Vigyan Kendra. Farmers' development trust in Baramati, Pune district, set up in the 1970s, with about 1.6 million local farmer beneficiaries by Microsoft's account. Its Krishi Vigyan Kendra (farm science centre) ran the AI sugarcane trial. Canvas block: 4. Operations and process. Also 6. Data and technology, 3. Customers and proposition.

Business challenge

The challenge. Smallholders in the drought-prone region face unpredictable weather, pests and disease. Sugar mills face cane shortages, with crushing seasons of about a hundred days or fewer, according to Sharad Pawar, president of the Vasantdada Sugar Institute.

How it was addressed. Weather stations and soil sensors on each farm are combined with

Who implemented it

In-house (In-house): Agricultural Development Trust, Baramati (Krishi Vigyan Kendra): ran the trial, recruited farmers and reviewed AI alerts.
Microsoft (Model or cloud provider): Supplied the agriculture data platform, FarmVibes.ai and Azure OpenAI Service.
Click2Cloud (Software vendor): Customised the Agripilot.ai app for ADT.
University of Oxford (University or research lab): Named as a collaborator by ETV Bharat and NewsX.

Technology (SEAM pillar E)

SEAM types: T3 API integrations, T8 Predictive / ML models. Deployment: Cloud APIs. Vendors and products: Microsoft, Click2Cloud, Azure Data Manager for Agriculture, FarmVibes.ai, Azure OpenAI Service, Agripilot.ai.

Where it was built in: Farm weather stations and soil sensors, satellite and drone images feed Microsoft's agriculture data platform; generative AI writes daily alerts in the Agripilot.ai app.

What changed

Before: farmers watered and fertilised whole fields by habit. After: participating farmers act on field-specific daily alerts for water, fertiliser and pest scouting, checked by agronomists. In a 10-month comparison reported by the KVK, AI plots used 1.8 lakh litres of water against 3.5 lakh on non-AI plots. [1] [2] [3] [4] [5]

What it cost

Each farmer in the first cohort paid a one-off 10,000 rupee fee (US$117) and the trust contributed 75,000 rupees (US$882) in hardware and other costs per farmer, per Microsoft. Maharashtra's scale-up offers a subsidy of 25,000 rupees per hectare, and the Maharashtra State Co-operative Bank allocated 500 crore rupees, per the Vasantdada Sugar Institute.

What it saved

By ADT's account: yields up to 40% higher with up to 30% savings in water and fertiliser; about 22% less fertiliser on AI plots; production costs 20 to 40% lower. Not independently verified. [1] [2] [3] [4] [5]

Governance and control

ADT agronomists review AI-generated alerts before they are sent; between 10 and 20% of recommendations were edited for accuracy in the first six months, per Microsoft. A trust scientist expected the system to need minimal human intervention by late 2025. Ownership, data consent and model testing: Not reported.

S2 · Accountable owner · Not reported
Not reported.

A1 · Safe use · Not reported
Not reported.

A2 · Human in the loop · Claimed
Agronomists at ADT Baramati review AI-generated alerts for accuracy before they go out, per Microsoft's account. [1]

A3 · Monitoring and assurance · Claimed
The KVK compared AI and non-AI plots for water and fertiliser use, by its own account. [2]

A4 · Vendor AI · Not reported
Not reported.

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

- Farmer uptake: about 20,000 sign-ups for 1,000 places, per Microsoft.
- Water and fertiliser savings on AI plots, by the KVK's comparison.
- Adoption by the state, the Vasantdada Sugar Institute and the national sugar industry body.

DID NOT

- AI recommendations needed correcting: 10 to 20% were edited by agronomists in the first six months, per Microsoft.

UNPROVEN

- Yield and income gains outside the trust's own trial plots.
- Whether advice quality holds as human review is reduced.
- Results of the state-funded scale-up to 100,000 farmers.

Timeline

Jan 2024 ADT unveils its AI 'Farm of the Future' at its annual farmers' festival; about 20,000 farmers sign up and 1,000 are chosen for a sugarcane trial [1]

2024 About 200 farmers plant one-acre test plots, paying a 10,000 rupee fee each [1]

Mar 2025 ADT reports results at Krushak 2025: up to 40% higher income and about 30% water saving [2]

Jun 2025 Vasantdada Sugar Institute signs an agreement with ADT; Maharashtra announces AI support for 100,000 sugarcane farmers [3]

Aug 2025 Indian Sugar and Bio-energy Manufacturers Association launches a national AI network programme with ADT [4]

Nov 2025 ADT signs an agreement to extend AI guidance to farmers in Vidarbha [5]

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: B. Grade: C, Process change. Proof: Claimed only. Level of change: Process change.

Process change (Level 2, band C), claimed as operating model change (band B). Farmers' daily crop management changed; the trust's own results are not yet independently checked.

Graded C, claimed B. Participating farmers changed how they water, fertilise and spray, guided by AI alerts that agronomists check. Yield gains are the trust's own trial figures. The state's decision to fund wider adoption shows confidence, but it is not proof of results.

The SEAM view and lessons learnt

The design kept agronomists between the model and the farmer while the system was immature, which is how the trust caught the 10 to 20% of alerts that needed editing. Public bodies then committed money to scale it. For any organisation, scale-up funding on the strength of one provider's trial plots needs an independent evaluation built in.

1. Keep expert review of AI advice until edit rates fall and stay low.
2. Compare AI and non-AI plots under the same conditions before claiming gains.
3. Build an independent evaluation into any publicly funded scale-up.

Evidence

Score 1 of 4. Self-reported: results are the trust's own trial figures, relayed by Microsoft (a supplier), ETV Bharat and the Vasantdada Sugar Institute bulletin.

Evaluation method. Self-reported trial figures: AI and non-AI plot comparison by the trust; no independent or peer-reviewed study found.

Sources disagree. Reported peak yields differ: up to 154.56 tonnes per acre (Vasantdada Sugar Institute bulletin), up to 150 tonnes (The Hitavada) and a potential 160 tonnes (ETV Bharat). Microsoft reports an initial cohort of about 200 farmers planting in mid-2024; ETV Bharat quotes the KVK saying 1,000 experiments were conducted from March 2024. Microsoft does not mention Oxford University; ETV Bharat and NewsX do.

Status. Ongoing: state-backed scale-up announced in June 2025; extension to Vidarbha agreed in November 2025.

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/adt-baramati-ai-sugarcane-advisories

[1] Microsoft Source Asia: Chasing peak sugar: India's sugar cane farmers use AI (January 2025)
https://news.microsoft.com/source/asia/features/chasing-peak-sugar-indias-sugar-cane-farmers-use-ai-to-predict-weather-fight-pests-and-optimize-harvests/

[2] ETV Bharat: AI-based sugarcane farming increases yield by 40% (March 2025)
https://www.etvbharat.com/en/!state/the-first-experiment-in-the-india-sugarcane-farming-was-done-through-ai-what-are-the-benefits-enn25031502352

[3] Vasantdada Sugar Institute: VSI Bulletin, April to June 2025 (PDF)
https://www.vsisugar.com/vsi_admin/images/vsi_bulletin/VSI%20Bulletin%2025%20(2)%20Apr%20to%20Jun%202025.pdf

[4] NewsX: How ISMA's new AI network could revolutionize sugarcane farming in India (August 2025)
https://www.newsx.com/business/how-ismas-new-ai-network-could-revolutionize-sugarcane-farming-in-india-39091

[5] The Hitavada: Vidarbha farmers to receive AI-based technological guidance (November 2025)
https://www.thehitavada.com/Encyc/2025/11/24/vidarbha-farmers-to-receive-ai-based-technological-guidance.html

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