HEIFER INTERNATIONAL · SAYE · BUSOGA

Field Evaluation of AI Advice Tools for Low-Resource Users

A pre-deployment safety proposal for Heifer.

Proposal designed for SAYE and Heifer Labs · Sarah Nakintu · 15 October 2026





THE SAFETY PROBLEM

AI tools are reaching low-resource users without anyone checking them

The users

Smallholder farmers, including people with low literacy and speakers of local languages.

The risks

Wrong or harmful advice. Language and dialect failures. Over-trust. No way to raise a problem. Data and privacy issues.

The proposed setting is SAYE, a Heifer International program, with a foundation partner. It targets 250,000+ young people aged 16 to 35 in Busoga, 2023–2029, across 11 districts in poultry, horticulture, oilseed, dairy and beef value chains. 70% young women; 3% young persons with disabilities. SAYE commits to 'embracing tech solutions'. Many young people still see farming as low-income manual labor.

This is a proposed field evaluation, not a program already in the field.

THE USE CASE

The evaluation would take place on real farm visits in Busoga

Agriculture is the setting. A paid young agent would use the tool on a visit, so we can see where the advice is unsafe before any wider deployment.

01 Visit the farm, or the farmer calls.

02 Photograph and record symptoms in Luganda or Lusoga.

03 The tool returns approved step-by-step advice.

04 Serious cases go to an agro-vet.

05 The farmer pays by mobile money, or the cooperative covers it.

Built on roles SAYE already uses: Community Agro-Entrepreneurs, community facilitators, and agro-vets as digital extension agents. Unfilled roles are recruited from active youth Self Help Groups.



Proven open tools, checked in the field before anyone relies on them

The tool would do the first check on every visit; vets and agro-vets would make the decisions.

Crops

PlantVillage Nuru (free, Penn State) diagnoses cassava diseases offline from a phone photo, extended to fall armyworm with FAO. Local photos for oilseed and horticulture.

Poultry

Open model from Tanzania's NM-AIST reads chicken droppings photos to flag coccidiosis, salmonella and Newcastle disease: about **98% accurate** in published tests, to be validated on Busoga farms.

Dairy and beef

Guided symptom checklist and field tests such as the mastitis paddle test.

One app from proven open tools. Priorities chosen with Heifer's vets and agronomists.

No new AI is invented. Published accuracy is evidence for the model, not a promise of field performance.

If the language fails, the advice fails

Language

Luganda first, then Lusoga with a Ugandan language partner such as a language-technology partner. Text first; voice tested.

Connectivity

Works offline and syncs when connected. SMS fallback where data is weak.

Devices and support

Low-cost Android phones, with a regional tech hub for setup, support and repairs.

Only proven open tools are combined, with no new AI invented.

The tool would never act alone

01

Green

Clear match

Clear match on the priority list: the agent gives approved advice.

02

Amber

Confirm by phone

Low confidence or not on the list: the agent confirms with the supervising agro-vet by phone before advising.

03

Red

Visit and report

Severe or spreading symptoms, or suspected notifiable disease: an agro-vet or district veterinary officer visits, and the case is reported through official channels.

Approved advice follows MAAIF guidance, signed off by Heifer vets.

No prescriptions from the tool. A vet reviews a sample of cases to measure agreement.

Four income streams, so the agent role can pay

Advisory visits

5,000 to 10,000 UGX each, paid by the farmer or a cooperative subsidy.

Input commissions

Commissions on seed, feed and vet supplies, paid by the agro-dealer.

Vaccination rounds

Paid by farmers or the cooperative.

Cooperative services

Deliveries, records and payments, paid by the cooperative.

Proposed income target

Enough to cover phone and data costs plus a meaningful monthly income. The exact target is set with Heifer and tracked monthly.



GENDER AND INCLUSION

At least 70% young women, agents rooted in their own communities

Young women

At least 70%: 35 of 50 agents.

Young persons with disabilities

At least 3% of agents.

Community-based work

Agents serve their home communities, work in pairs and set their own hours.

Six months, 50 agents, 3 cooperatives, one clear decision

Month 1

Co-design with Heifer's vets and agronomists, and a shared list of harms to watch for: priority list, treatment rules, escalation paths, and how the tool will be stress-tested. Pick 3 cooperatives and supervising agro-vets.

Months 2–3

Set up the tool with a language partner and tech hub. Test image models on local photos: Luganda first, then Lusoga.

Month 3

Recruit and train 50 youth agents (at least 35 young women) from Self Help Groups, plus agro-vet supervisors.

Months 4–5

Field evaluation across 3 cooperatives: vet case reviews, monthly income tracking, and feedback from farmers and agents when advice is wrong or unclear.

Month 6

Review against the evaluation metrics and decide whether the tool is safe to consider for wider use across SAYE.

EVALUATION METRICS

How we would know if the tool is safe enough

Agent income

By stream, against target.

Diagnosis accuracy

How often the tool's diagnosis matches a vet's review.

Escalation speed

Time from farmer query to resolution.

Farmer outcomes

Livestock losses and crop damage vs before.

Repeat use

Farmers returning within 60 days.

Inclusion

Young women and persons with disabilities reached.

Satisfaction

Farmer and cooperative satisfaction.

We would also watch for over-trust, language or dialect failures, and whether a farmer has a way to raise a problem and get help. Farmers' data is protected under Uganda's Data Protection and Privacy Act 2019, with consent.

Each main risk has a built-in response

Risk	Mitigation
Wrong or harmful advice	Priority list, approved treatments, three-level escalation and vet review
Language and dialect failures	Start with Luganda and text; add Lusoga once tested
Over-trust, and no way to raise a problem	The tool never acts alone; amber and red cases go to an agro-vet; farmers and agents can flag a case and a vet reviews a sample
Data and privacy issues	Register with the Personal Data Protection Office; collect only what is needed; ask for consent; avoid photographing people
The role may not pay, farmers may not pay, or phones may be lost	Several income streams, cooperative subsidy, monthly tracking, test price points, tech hub support and pay-as-you-earn plans

DATA PRIVACY

Farmers' data stays under their control

Farmer names, phone numbers and photos are personal data under Uganda's Data Protection and Privacy Act 2019.

- The proposed field evaluation would register with the Personal Data Protection Office.
- Collect only the data needed, and ask for consent.
- Avoid photographing people.

Data stays under the control of the cooperative and the farmers.

Shared partners, budget lines costed jointly

Partners

- Heifer Uganda (SAYE): access to 3 cooperatives and Self Help Groups, vet and agronomy staff time, co-funding
- Language partner, e.g. a language-technology partner
- Regional tech hub
- Agro-dealers
- mobile money services for farmer payments

Budget lines, costed jointly

- Phones and data for 50 agents
- Tool setup and language work
- Agent and agro-vet training
- Supervision time
- Vet case reviews
- Field coordination
- Monitoring and evaluation

Companion proposal: accountability before cooperative money moves

Software that checks every payout against the cooperative's own records and flags anything wrong before the money leaves, so the board can stop errors and fraud early. No new hardware; nothing changes for farmers.

1 Reads the records cooperatives already keep

Members list, delivery logs, loans and advances, and the mobile money payout list.

2 Runs checks before each payout

Seven simple checks run against those records before the money leaves (see the list).

3 Learns each farmer's pattern

Sudden changes from a farmer's normal pattern are flagged.

4 Alerts people, not machines

A plain-language text or WhatsApp message goes to the elected cooperative board and the Heifer field agent, who decide to approve or hold the payment. The tool never blocks payments on its own.

THE SEVEN CHECKS BEFORE EACH PAYOUT

- Payment with no delivery logged
- Deliveries too large for the farm's size
- Several farmers' payouts to one phone number
- Duplicate payments
- Members added just before payday
- Loans to unverified names
- Payments above the agreed rate

Start simple, protect trust, pair with the field evaluation

Starting simply

In the proposed field evaluation the treasurer uploads delivery log and payout list as spreadsheets each payment cycle, no special access to mobile money providers needed. Direct connections can follow.

Why it matters

Farmers keep savings and trust. Every flag and decision builds an audit trail that makes cooperatives more attractive to banks and premium buyers. Names and phone numbers are masked during checks.

Together with the farm-visit evaluation: the agent in the field and the safeguard in the back office, proposed for the same 3 cooperatives.

WHO LEADS THE DESIGN

Sarah Nakintu leads design and partnerships, SAYE leads the field

- 13+ years building partnerships across telecom, technology and fintech
- About 70 platform partners at Verizon; designed Verizon's partner evaluation framework
- Led Facebook and WhatsApp community programs at Meta across developing countries
- Women and young entrepreneur programs at Verizon and Unreasonable Group
- Co-founded sourcing and manufacturing partnerships across Uganda and Kenya

EDUCATION

BA, Makerere University

MSc, Columbia University

ENGAGEMENT

Proposed consulting engagement with Sarah Nakintu

Sarah leads design and partnerships as an independent consultant; SAYE leads field delivery.

1 Scoping and design

3–4 weeks; co-design workshop with SAYE's veterinary, agronomy and youth teams; agree the harms to watch for, the priority list and escalation rules; shortlist and outreach to technology, language and agro-dealer partners; costed field-evaluation budget and work plan.

2 Field evaluation

6 months, part-time; partner agreements and coordination with the SAYE team; participatory red-teaming with farmers, agents and vets; agent income model; monthly dashboard against the evaluation metrics, aligned with a foundation partner reporting.

3 Review and next steps

Final month; review of the evaluation, recommendations, and a scale-up plan and budget for the wider SAYE program, including links to SmartCoop Shield.

How the engagement works

Working model

Remote, with Busoga field visits at the start of the proposed field evaluation, a mid-evaluation review, and close.

Commercial terms

Fixed fee for phase 1, then a monthly retainer for phases 2 and 3, under a consulting agreement.

Intellectual property

The Agri-Gig concept, name and materials remain Sarah Nakintu's; Heifer Uganda receives the right to use them for SAYE.

NEXT STEP

Let's start with a co-design workshop

Sarah Nakintu

All images in this presentation are AI generated.