



25/04/2024



# Research & Innovation Brokerage - A case study in Uganda



# AGENDA

1. Research and Innovation Brokerage activities at COLEAD
2. Pilot project: farmer profiling and on-field soil quality scanning for the avocado sector in Uganda
  1. Avocado Association Uganda (AAU)
  2. Challenges and opportunities for the avocado sector in Uganda
  3. Objectives, goals, and organization
  4. eProd Solutions & Agrocares - implementation of technologies
  5. Conclusions & learnings from the pilot

25 min





# 01



## Research and Innovation Brokerage at COLEAD

# BROKERING INNOVATION: FROM RESEARCH TO ACTION AND IMPACT

COLEAD's research and innovation brokerage department acts as a *research broker*, bringing together a variety of resources to adapt and disseminate technologies and solutions that contribute to safe and sustainable food.

## Research linkages

Identify needs and promising solutions

## Delivery mechanism

Upscaling knowledge, systems, solutions; building skills to adopt them

## Localise and adapt

Foster partnerships and enabling environment for innovation





# Role of Broker



**Engage with stakeholders** (Growers, importers, authorities etc)



**Link with research (EU-Africa): needs, solutions**



**Stimulate local innovation: information, partnerships, funds**



**Link with international standards & regulators** : EC, CODEX, FVO, OECD, food industry, ...



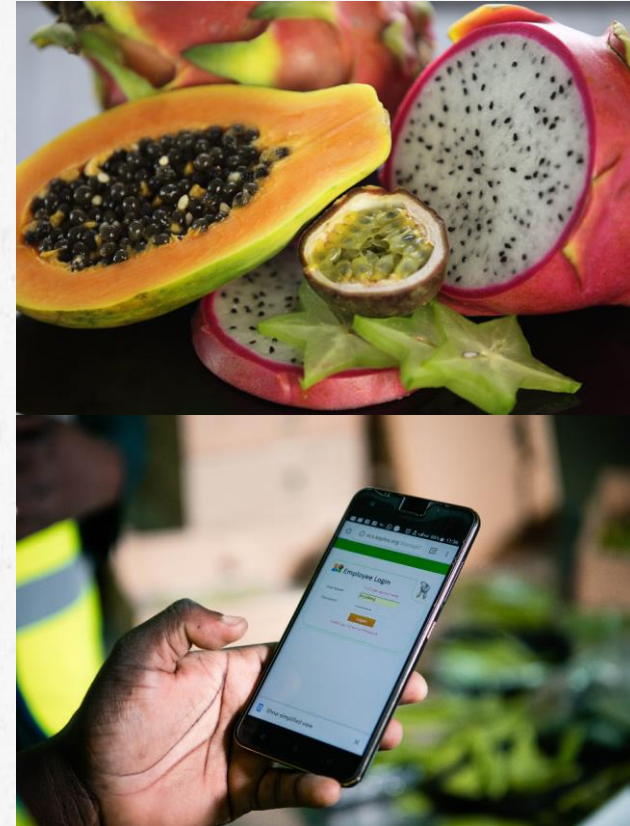
**Promote policy dialogue: public, private, donor**



**Facilitate public-private engagement:** *producers, manufacturers, researchers, regulatory authorities*

**Leveraging  
blended finance  
mechanism**

In practice, it translates into using development funds (public money) to invest in the first dissemination steps (technology demonstration) thereby de-risking further investments and creating incentive for the private sector to engage.



**1 UNDERSTAND CONTEXT AND NEEDS**

**NEED ASSESSMENT**

- Stakeholder demand & engagement
- Sectoral assessment
- Partner-beneficiary relationships
- Market information

**REGULATIONS & POLICY LANDSCAPE**

- Monitoring & Evaluation of regulations
  - e.g. approvals of active substances
- Monitoring & Evaluation of compliances
  - e.g. EU Rasff & Traces
- Registered products



**COLEAD TOOLBOX**



APPLICATION FOR SUPPORT



REGULATIONS/ AGRINFO



SYSTEM OF SELF ASSESSMENT



MARKET ANALYTICS



RASFF & TRACES



E-GAP

**2 FINDING RELEVANT SOLUTIONS**

**INNOVATIVE SOLUTIONS**

- Mapping existing technologies
- Identification of potential solutions

**RESEARCH PRIORITISATION**

- Dialogues and studies
- Surveys and assessments



**CREATE LINKAGES IN COMPLEX ENVIRONMENT OF DIVERSE STAKEHOLDERS TO CLOSE:**

- COGNITIVE gaps:** institutional backgrounds, norms, values hindering communication
- INFORMATION gaps:** on potential cooperation partners, complementarities, and opportunities
- MANAGERIAL gaps:** inability to acquire & successfully implement new knowledge and technology

**3 TESTING AND ADAPTING SOLUTIONS**

**CONTEXTUALISATION**

- Stakeholder engagement
- Global research linkages
- Public-Private engagements

**TECHNOLOGY TESTING AND ADAPTATION**

- Proof of concepts
- Pilots & on farm validations

**SCIENTIFIC DATA PRODUCTION**

- Research trials



**COLEAD TOOLBOX**



E-LEARNING



E-LIBRARY

**4 DISSEMINATE & ADVOCATE**

**INNOVATION DISSEMINATION & UPSCALING**

- Technology registrations
- Policy dialogue and advocacy
- Network
- Vulgarisation

**TECHNICAL ADVISORY**

- Tailor made Trainings
- Standard e-learning
- Demo trials
- Producer recommendation & Extension

**TECHNICAL SUPPORT MATERIAL**

- Development of technical guides
- Support material

CONTINUOUS FEEDBACK LOOP



# 02

## Pilot project

Farmer profiling and on-field soil quality scanning for the avocado sector in Uganda

# Avocado Association Uganda (AAU)



- Not-for-profit inter-professional association created in 2018
- Initially started with 30 members (small growers and first timers willing to grow Hass)
- Currently 115 paid up members
- Leading association supporting Ugandan avocado farmers
- **Objective:** enable members to access international and domestic horticultural markets by complying with Good Agricultural Practices, SPS and market requirements

## Mission

Facilitate the development and growth of the avocado industry in Uganda:

- ✓ Promoting Hass avocado production
- ✓ Equipping members with knowledge, business & financial management, and entrepreneurial skills
- ✓ Supporting and encouraging value addition of Hass avocado and other varieties
- ✓ Engaging in any other developmental activities that promote the objectives of its members

## Benefits of AAU membership

Knowledge & Skills, Market Access, Value Addition, Partnerships





# Challenges and Opportunities for the Avocado sector in Uganda



- Avocado industry is growing tremendously in East Africa
- Limited insights in variability and local nuances of diverse variable producers
  - Likely a sustainable supply for Europe
  - Improved identification, characterization and structurization of producers and their farming environment needed
- Challenges to organise, structure, and support the sector
- Grower specific information is needed to:
  - support *marketing, market access, and access to finance, and traceability* of produce.
  - correctly address producers, make strategic investments, provide *farm specific recommendations and support*, and *timely communicate* on upcoming challenges or opportunities in the sector.





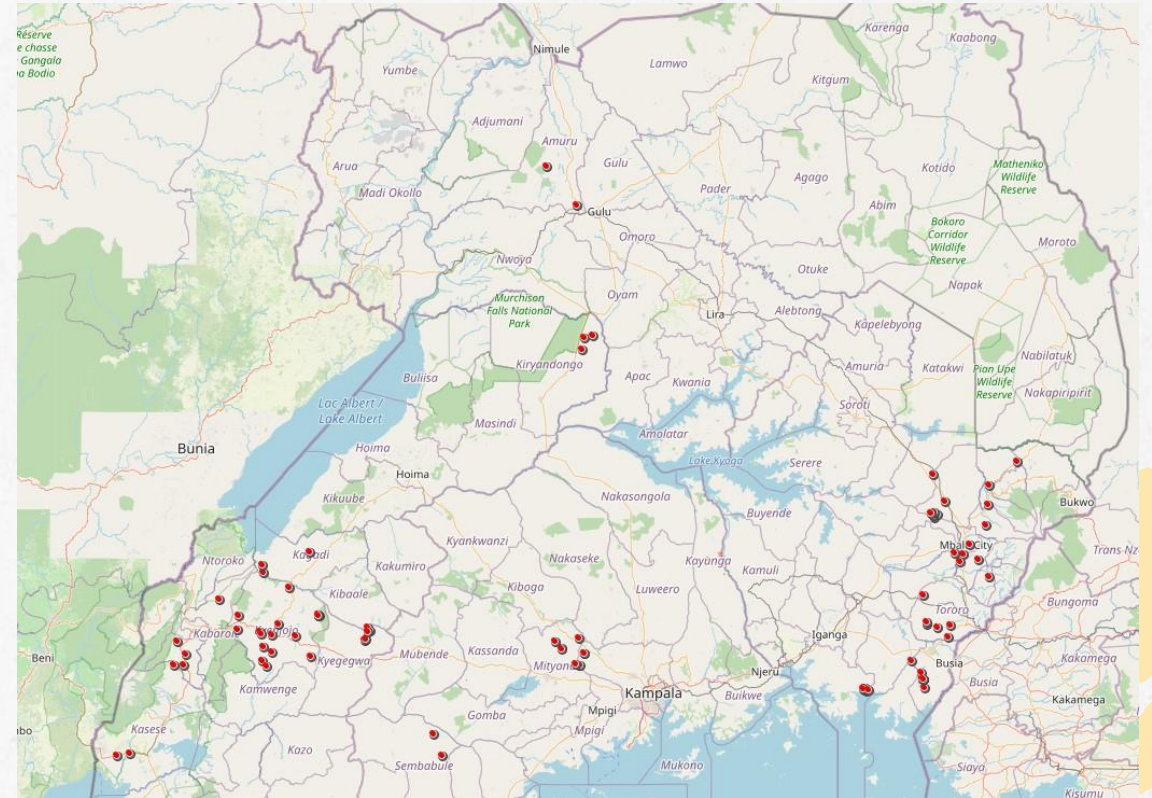
# Objectives and organization of the pilot

## Objectives

- Integration of **farmer profiling** (farm & field info) with spectral **soil analyses**
  - Test intelligent solutions for the efficient collection, collation and analysis of data from a variety of farms.
  - Test whether hand-held soil spectrometers can improve decision-making processes when integrated into supply chain management software

## Organisation

- Deployment of digital technologies (eProd) to capture farmer, field, and soil data (AgroCares) from **112 avocado growers in Uganda (AAU)**
  - Farmer visited and data captured with surveys in supply chain management system
  - Composite soil samples collected for hand-held soil analysis
  - Cross validation of soil analyses and recommendations by sending samples to CROPNUTS for wet chemistry





# Technologies and pilot implementation

## Introduction eProd

ERP for **Agricultural Supply Chain Management** to our clients:

- agricultural commodity traders,
- food processors, and
- farmer cooperatives

**Affordable, off the shelf** and **easy to integrate** platform

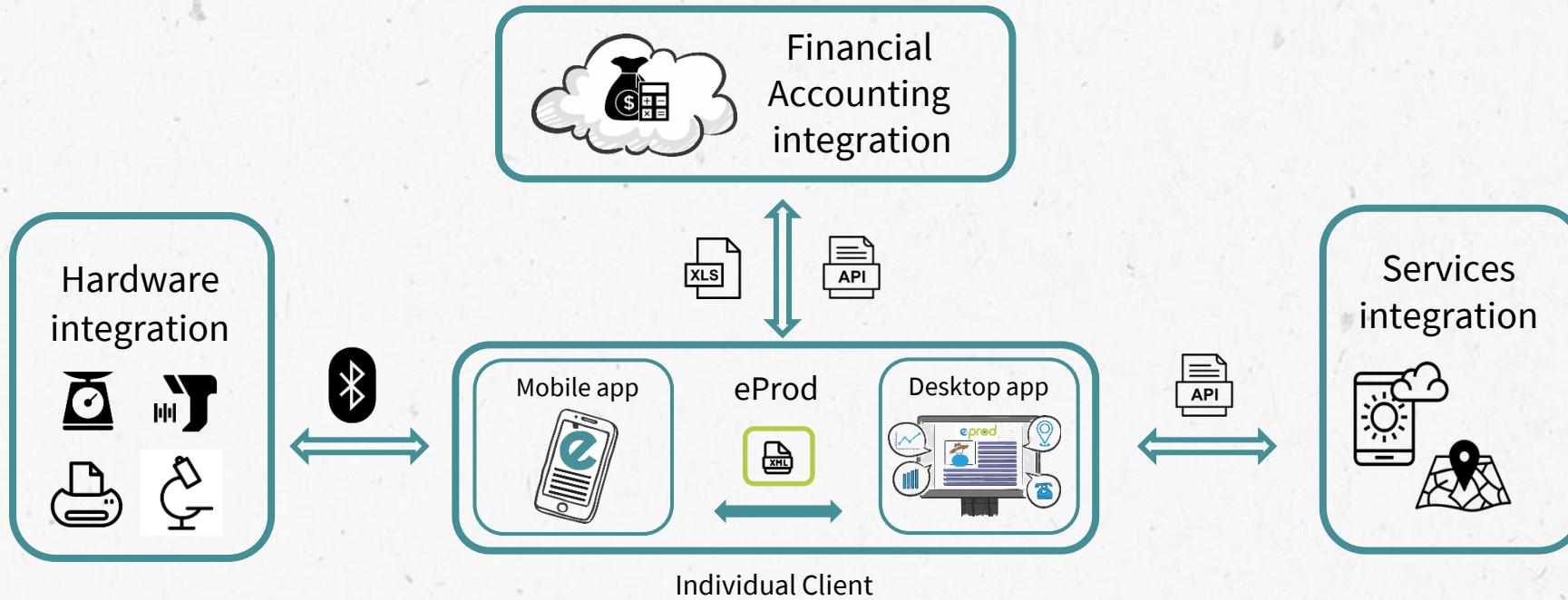
Optimized for **low- bandwidth** environments

A unique **data generator creating** valuable data and **insights** for clients and their sector stakeholders



# Scale up

Offer bundled services



- Supply Chain Management
- Advisory Services
- Financial Access
- Market Linkages



# Field data collection

## Farmer registration and surveys

**Actions**

- Loans
- Fields
- Payments
- Issue
- Surveys**
- Collections

**Farmer**

**Dan Simplice**  
Name

**CF2111007**  
EP-id

**0000000038**  
ID number

**Group**

**Terre Blanche**  
Group

**Details**

**+225707952192**  
Phone

**07/10/1987 (35 years)**  
Birthdate

**Gender** Male

**position not set**  
GPS Location

**Payment method** Bank Transfe

**Dan Simplice**  
Bank account

**Location**

**Côte d'Ivoire**  
Country

**YAMOOUSSOUKRO**  
Location 1

**YABRA**  
Location 2

**TERRE BLANCHE**  
Location 3

**TERRE BLANCHE**  
Location 3

**Abigui**  
Village

**Farmer Status**

**22/11/2021**  
Known since

PK:7, U:7, DT:05/01/2023 09:31:09

544 x14/05/2023 x32

11:42:50

Follow up on 11/22/23 (Planned)

All mandatory questions are answered

Close

**COLEAD AAU Field Survey**

**Plot History**

**Mangos**

1. What is the previous crop grown on the avocado field? ✓

**Oranges**

2. What other crops are grown on the farm (intercropped with... ✓

**CAN**

3. Current fertilizer use (type dose per ha per year) ✓

**Galloping**

4. Current soil management practices ✓

5. Major pests diseases challenging the avocado production/s... >

6. Plant Protection Products used (type dose per ha per year) >

**Yes**

7a. Irrigation carried out? ✓

**4. Other**

7b. Type of Irrigation ✓

**To be specified**

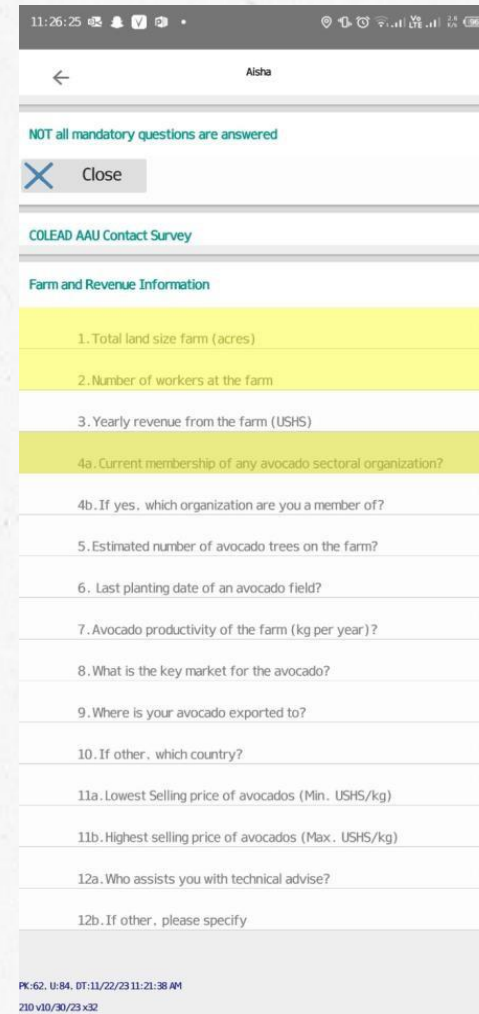
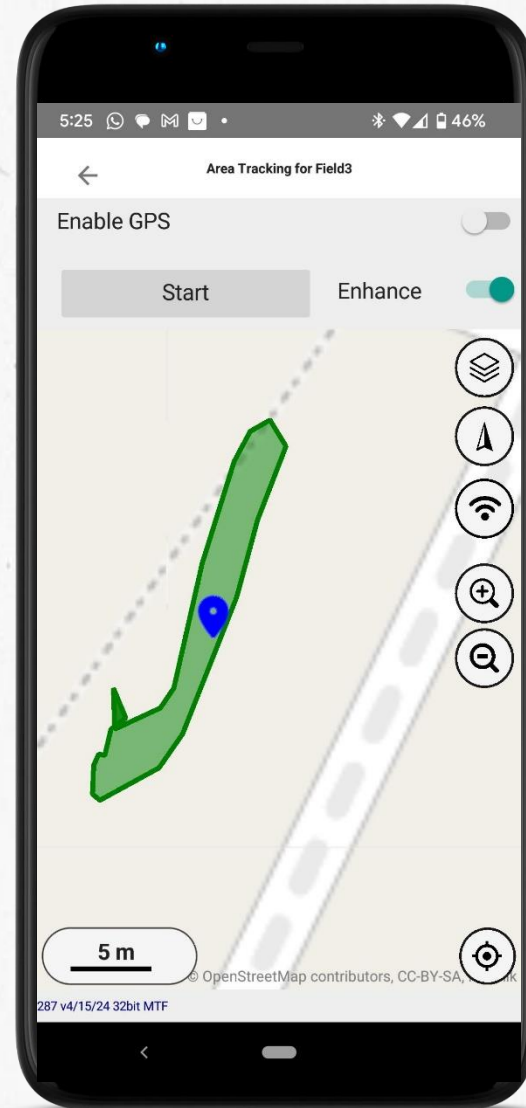
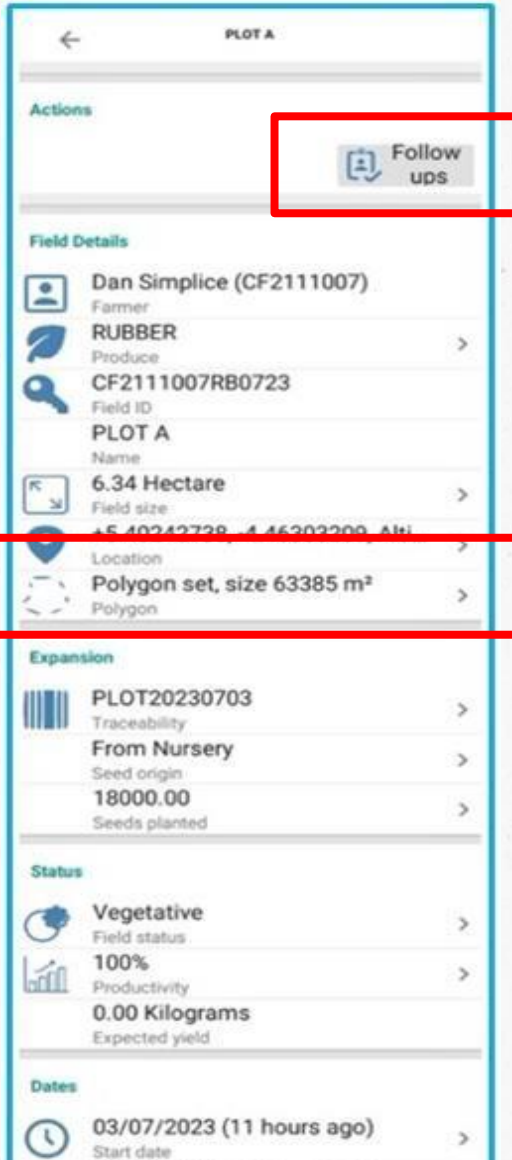
7c. What is the source of the above irrigation? ✓

PK:64, U:86, DT:11/22/23 11:37:12 AM

210 v10/30/23 x32

# Field data collection

## Field registration, surveys and polygons





# Analysis

## Polygons

PLOT A

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**Actions**

Follow ups

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**Field Details**

**Dan Simplic (CF2111007)**  
Farmer

**RUBBER**  
Produce

**CF2111007RB0723**  
Field ID

**PLOT A**  
Name

**6.34 Hectare**  
Field size

**+5.40242738, -4.46303209, Alti...**  
Location

**Polygon set, size 63385 m<sup>2</sup>**  
Polygon

---

**Expansion**

**PLOT20230703**  
Traceability

**From Nursery**  
Seed origin

**18000.00**  
Seeds planted

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**Status**

**Vegetative**  
Field status

**100%**  
Productivity

**0.00 Kilograms**  
Expected yield

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**Dates**

**03/07/2023 (11 hours ago)**  
Start date

**01/10/2023 (89 days to go)**  
End date

PK:54, U:54, DT:03/07/2023 11:06:02  
544 v14/05/2023 x32

e-pimd - AVOCADO ASSOCIATION OF UGANDA - [All active Fields]

File Contact System Production Processing Reporting Extra Windows Help

Category: Report Filter: 032 0032 | All active Fields

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**Filters**

Organisation = [No Organisation selected] Farmer = [No Farmer selected] From = 01/01/2023 Produce = [No Produce selected]

Group = [No Group selected] UTM = 26/03/2021

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Table Map

**Markers**

- Display options

Filter

- Bushenyi Nyakabii  
-0.54551867, +33.3850017
- Bushenyi Nyakabii  
-0.53365, +30.231005
- Fort portal Kajura  
+0.612171697, +30.6421317
- Fort portal Kajura  
-0.79883833, +30.374055
- Mesaba Busia AAU  
+0.390147182, +33.9646755
- Mesaba Busia AAU  
+0.390096305, +33.9656078
- Mesaba Busia AAU  
+0.390145421, +33.9659602
- Mesaba Busia AAU  
+0.392118907, +33.9613062
- Mesaba Busia AAU  
+0.427195215, +33.9531741
- Armstrong's Farm  
5228.00 m<sup>2</sup>
- Amuru Palena AAU  
+2.60709953, +32.1927372
- Apappai Kumi AAU  
+1.43247539, +34.0116496
- Elacolo's Farm  
615.00 m<sup>2</sup>
- Bofumani AAU  
+1.27891038, +34.2902031
- Bofumani AAU  
+1.27954436, +34.2916883
- Bofumani AAU  
+1.499724, +34.4295421

Clear

Options

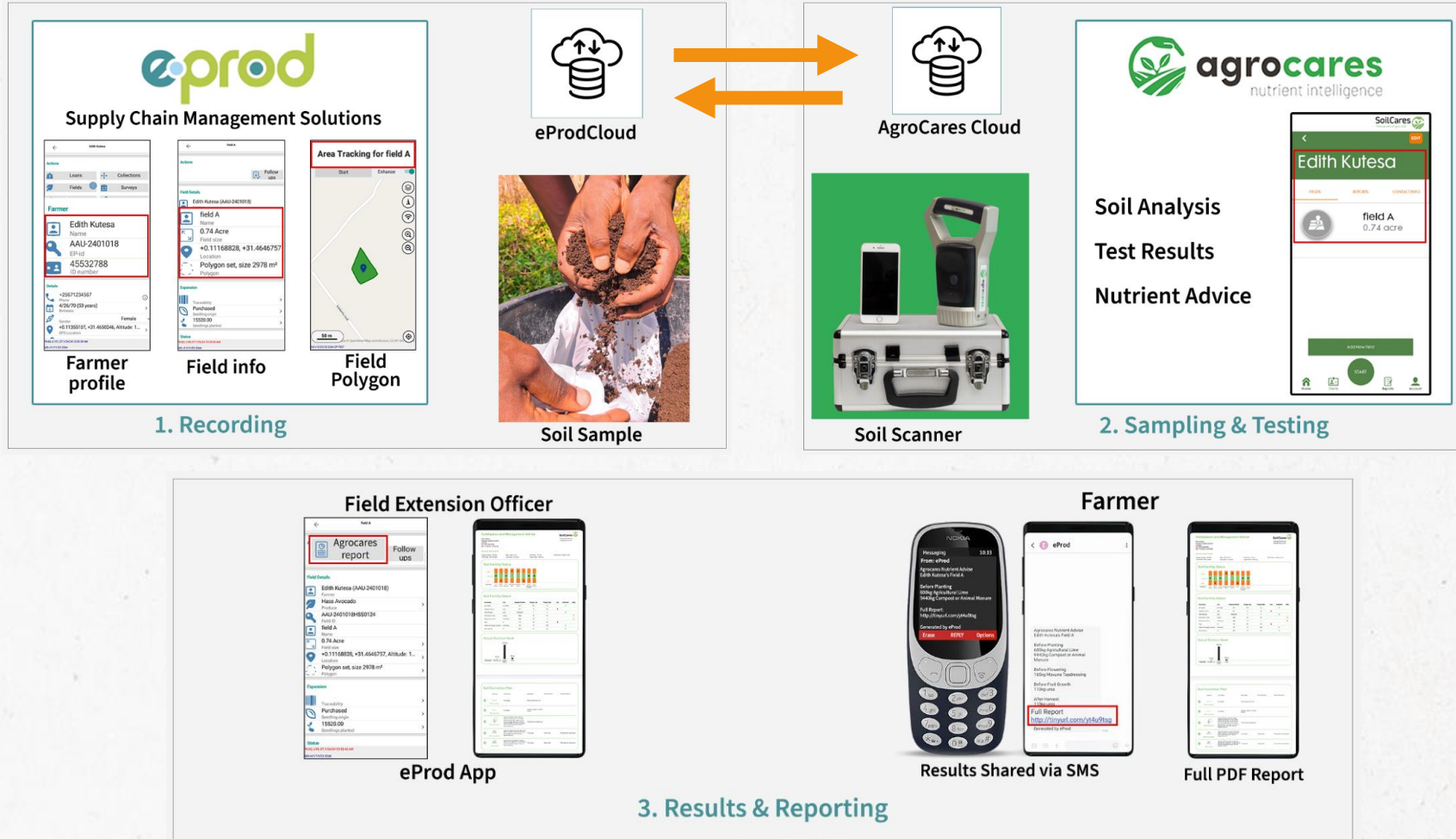
Measure (use doubleclick)

200 m

Etri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AeroGRID, IGN, SDF, swisstopo, and the GIS User Community

# eProd – AgroCares integration

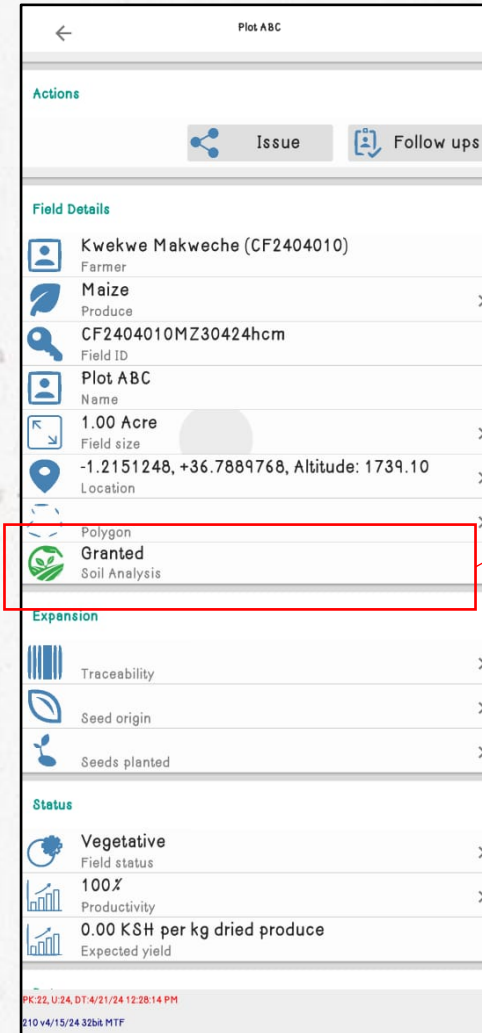
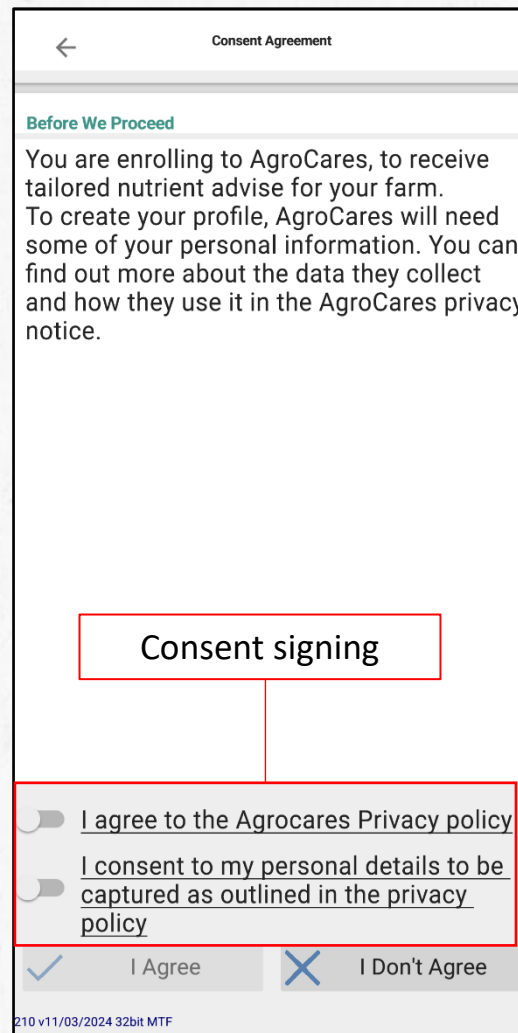
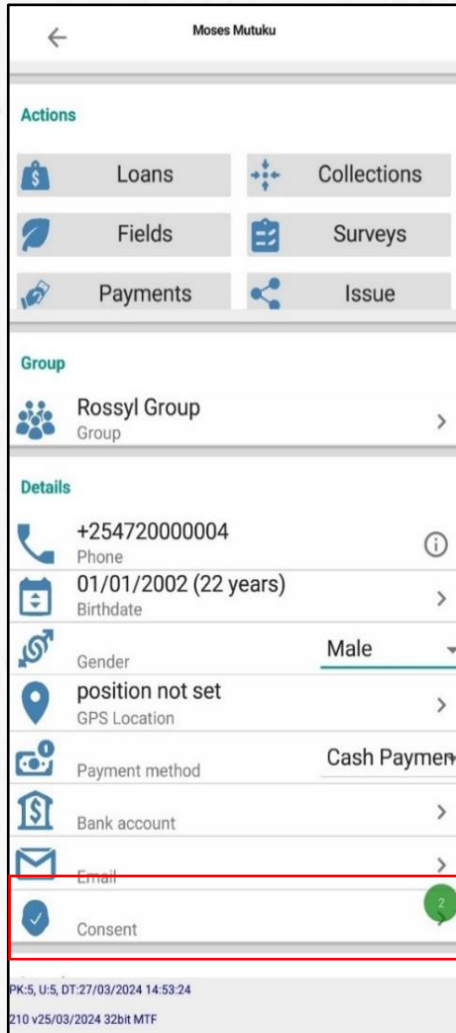
## How does it work?





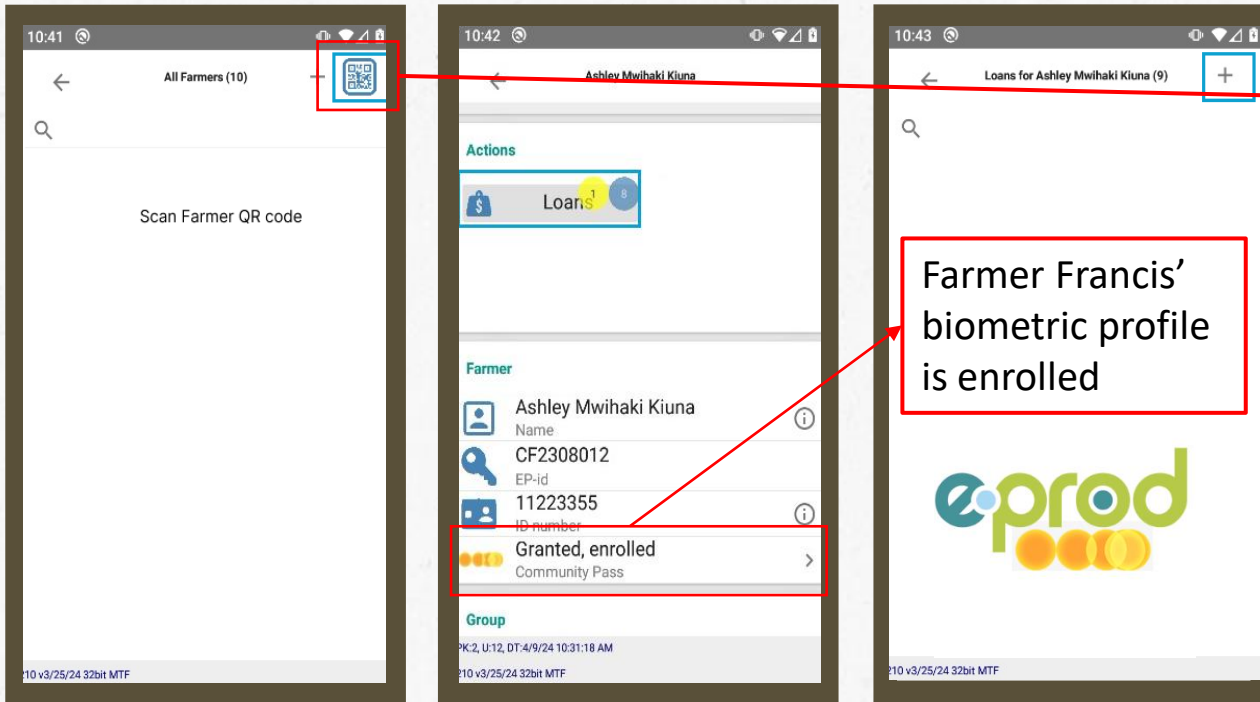
# Data privacy management

## Consent sharing



# Biometric verifications

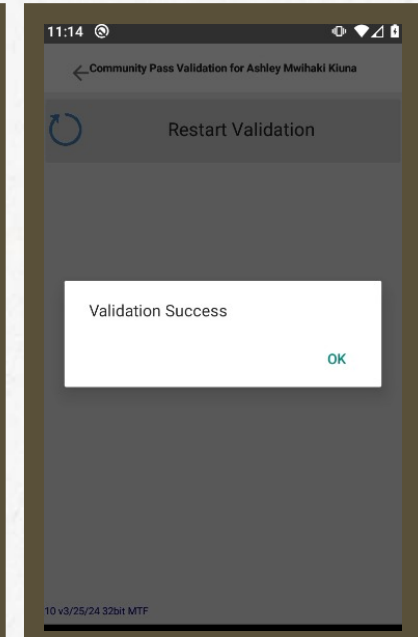
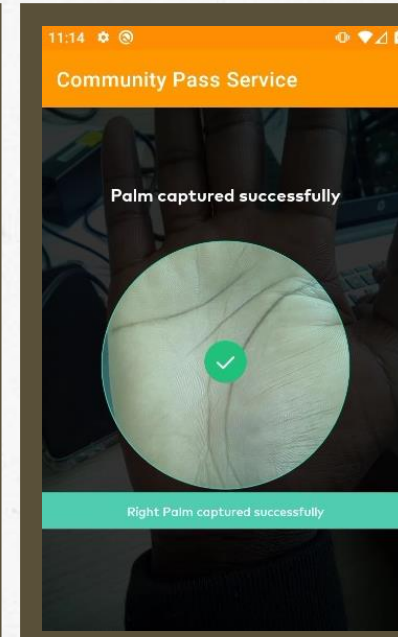
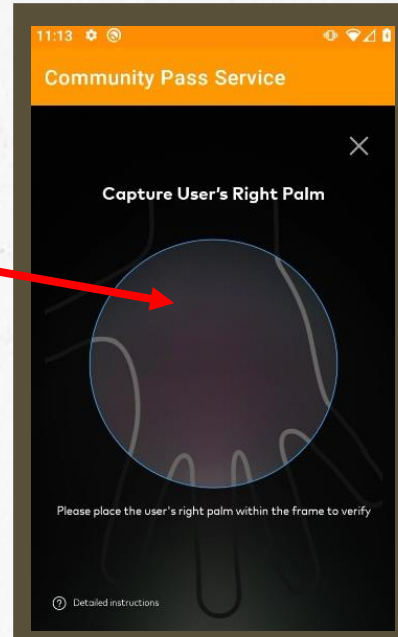
Trusted transactions through Digital Identity





# Biometric verifications

Trusted transactions through Digital Identity



Quality KYC data

# Conclusions & learnings from this pilot

- **Partnerships** (though sometimes challenging) are crucial
- **Sector associations** (like AAU) play a crucial role in *consolidation, ensuring market access, standardization and traceability, data collection* (possibly for certification) and *supporting producers with knowledge and training*
- **Supply chain management systems** (like eProd solutions) offer a suitable solution for *data collection* and *mapping* at farmer and field level
- The **integration of on-field soil scanners** (like Agrocates technology) **into supply chain management systems** (like eProd) offers a *unique combination* of accessible, and affordable specific farm and soil information for improved recommendations
  - Wet chemistry remains the gold standard for soil nutrient analysis, the NIR Spectroscopy offers value for money
  - Level of detail/accuracy from wet chemistry might not be needed, as farmers are mostly interested in management recommendations
- Besides sharing nutrient advice, integrated supply chain management systems (e.g. eProd) can also assist with market linkages, contracts, training, access to finance, sharing localized weather and agronomic advice, data privacy, and much more.



# More information

- <https://news.colead.link/en/using-digital-technology-for-a-pilot-project-of-a-ugandan-professional-association/>
- <https://www.colead.link>
- <https://www.ugandavocadoassociation.org/>
- <https://www.eprod-solutions.com/>
- <https://www.eprod-solutions.com/nutrient-advisory-services-now-fully-integrated-promoting-healthy-soils-with-affordable-nutrient-advice-to-individual-farmers/>
- <https://agrocares.com/>

