Digital Agri Hub

GRAMEEN FOUNDATION

Summary of the 9th eConversation, 2nd series

Is there a world where digital agriculture advisory services can scale without agents?

Collaborating organisations

Hosted on the Digitalisation for Agriculture or D4Ag dGroup, this eConversation is facilitated by Grameen Foundation in collaboration with the Digital Agri Hub. The Hub operates as an independent entity and is maintained by Wageningen University and Research (WUR).

eConversation framework:

The Challenge: Few digital advisory services (DAS) scale without support from community-based agents (CBAs) to sensitize and support farmers' access to or use of DAS.

Two-thirds of the food consumed globally is produced by 500 million smallholder farmers (SHFs). Yet, these small farms struggle with low productivity and income, vulnerability to climate change, poor access to information on practices that could help enhance their production, securing their livelihoods and protecting their resource base. Gender equality, in particular, could lead to substantial gains in farm outputs through equal access to, and control over productive resources. Meanwhile, public rural advisory services are dwindling, leaving millions of SHFs without adequate support to face these challenges.

In this context, **digital agriculture advisory services (DAS)** hold great promise for improving SHFs' capacity for applying sustainable agriculture practices. DAS can offer farmers access to crucial agricultural knowledge and support them in increasing their resilience, but so far DAS—especially smartphone-based applications--have only reached a small fraction of SHFs. It is estimated that only 10 percent of SHFs in low- and middle-income countries are active users of at least one digital service for agriculture. Women, especially, lack equal access to these solutions. Moreover, the evidence regarding their effectiveness is limited and mixed.

Questions

Q1 How important have CBAs been in scaling DAS?

Q2 What are the business models for covering the costs of CBAs?

Q3 What strategies have providers or CBA networks used to recruit, train, and retain women agents?

Q4 What are your own experiences with the timing and/or inclusion of CBAs in a DAS implementation or scaling effort? In a related question, how are DAS providers accommodating CBAs in their DAS applications?

Starting date	Closing date	Posts	Contributors	New members
June 9. 2025	July 6. 2025	102	37	85

Some stats

Previous evaluations have shown that local agents, known as community or village knowledge workers, rural promoters, community-based advisors or trainers, digital agriculture service agents, production leaders, agrodealers (collectively: **Community-based Agents** (CBAs)), equipped with digital farming applications, are a cost-effective way to provide advisory services, support the translation of technical information into terms and concepts that SHFs can understand, contextualize advisory and validate content, and have been shown to effectively reach large numbers of SHFs and support them in moving from low-risk, low-return to higher-return crops.

Summary of the exchanges

Community-based Agents (CBAs) remain instrumental in scaling digital advisory services.

There was near-universal agreement that CBAs —including extension officers, farmer champions, and rural promoters—are critical for scaling Digital Advisory Services (DAS)-- and likely any digital tool. Barriers like limited smartphone ownership and capabilities, digital illiteracy, poor infrastructure, and lack of contextual content were repeatedly noted as reasons why CBAs are still necessary when introducing and using digital tools.

But one contributor put it, *"CBAs are not just information carriers; they are co-creators, cultural navigators, and amplifiers of impact."* CBAs are simply practical for DAS implementation: they are needed to onboard farmers onto a DAS or any digital platform. They also help establish legitimacy and build trust in the information, play strong roles in helping interpret and validate information accuracy, help translate digital content into local dialects and actionable knowledge and practice and bridge generational and digital gaps. Even AI-based tools need humans to build trust and interpret advice.

Several DAS providers noted that CBAs serve as feedback loops for improving the advisory even as some DAS providers are building farmer feedback mechanisms into their platform, such as allowing farmers to share whether the information provided was helpful or ask questions when recommendations are not clear.

This issue of creating real value for farmers—and ensuring they have a real voice--was consistently raised. As one contributor put it, the stakes are high for smallholders, *"no entrepreneur likes to lose."* Farmers will seek and value information when they need it, whether they are complying with standards desired by commercial contracts or when crisis strikes (COVID, floods, etc.). And that's where DAS can be a tool in the toolbox for providing timely information, whether they are weather alerts or responsive practice recommendations.

CBAs should be included early in a design phase of DAS platform development or in adaptations to new contexts.

CBAs are often community insiders, respected community members, and experienced farmers that make them a natural bridge between innovation and local practice. When they are engaged early, even during design and adaptation, they help resolve inconsistencies, address technical glitches, and improve advisory because *"every second counts."*

The concept of Reinforced Learning through Human Feedback (RLHF) was introduced as a methodology that generates CBA and farmer feedback and supports validation of information to ensure DAS provides real value to farmers and is responsive to the local needs. When CBAs are bypassed during the validation phase and are engaged later in the

process, for example when DAS providers want to scale, this can create a disconnect in expected outcomes and the realities on the ground.

The Business Models for engaging CBAs are not well-defined or are still a work in progress.

A recurring issue was the financial sustainability of CBA-dependent models. Who pays for CBAs—NGOs, governments, or businesses—remains unresolved. Many agreed that funding tech alone is not enough; *"we must also fund the bridge* (i.e. CBAs)."

While contributors seemed to agree that CBAs are required to improve 'stickiness' of any DAS platform, and to drive adoptions of various agricultural practices amongst smallholder farmers, it is also challenging to decipher what a commercially viable DAS business model that takes CBAs into consideration would look entail. Some DAS providers, to support CBA engagement, are building referral or incentive programs to help financially motivate CBA engagement or allow CBAs free access to their platforms for their own use. These are typically providers that have a farmer network in place in tandem with their platform.

However, and most often DAS providers are technology platform providers (software as a service, SaaS) seeking existing farmer networks who already have CBAs providing some sort of extension support. The farmer network (or commercial farming entity) simply pays a commercial license for the DAS technology platform / SaaS. This assumes CBAs are already financially supported by a local entity, whether it's an NGO with grant funds, cooperatives / cooperative federations, an offtaker, an input supplier, a volunteer network, or government-supported agricultural extension agents.

Key take-aways from the conversation around the business model question include:

- Farmer trust, agent motivation, and platform value seem central to what DAS providers are testing with their business models.
- Several business models are still evolving, but peer learning and experimentation remain crucial as business models are being developed and validated.
- CBAs are indispensable but sustaining them could require short-term hybrid approaches such as combining grant-funding, embedded incentives, platform monetization, and bundling with key market actor stakeholders.

Recruiting female CBAs–and female farmers—is still a challenge.

The same barriers that limit female CBA and female farmer engagement in any agricultural intervention hold true for scaling DAS solutions to women (or other marginalized populations). Lack of land ownership or other assets, limited mobility, limited digital literacy and mobile phone ownership limit female CBA and female farmer engagement.

However, DAS providers and local farmer networks also leverage spaces where women are active, such as recruiting from trusted community networks, such as women's village savings and loans associations. Providing flexible and safe working conditions (such as local placements of CBAs) and incentives, holding trainings during times of the day or week convenient for women, upskilling women CBAs in technical and soft skills, and giving women CBAs visibility and representation on websites and social media to normalize women's roles in advisory services and attract more candidates are also strategies that providers employ.

Moreover, deeper engagement—such as through community or intrahousehold dialogues--may also be required to address the norms that tend to limit women coming forward for CBA positions and to build household support for women's involvement.

Recommendations resulting from the exchanges

This dialogue set out to explore whether the hypothesis --or expectation--that DAS could completely replace the need for CBAs (who cannot meet the demand of advisory from farmers to effectively reach all farmers) holds. Will/could technology eventually replace the costly role of people? It seems that, at least for now, there is still agreement that until technology infrastructure improves, digital literacy improves, the costs of smartphones

and data are not prohibitive for smallholders and until DAS provider platforms become trusted sources of information, CBAs are still critical. For the foreseeable future, it's unlikely DAS or any technology can scale without including the function of the CBA to some extent.

However, there are still questions to explore:

1. At what point do CBAs become less critical? If trust and confidence is built for DAS tools, how long does it take until farmers are able to use tools on their own? And what types of DAS tools are most promising for active farmer engagement?
2. What is the evidence that the combination of CBAs and DAS tools together create value for farmers?
3. How can we ensure farmer voice is built into DAS implementations –how can we ensure farmers are able to validate the value of the information or lodge complaints/provide feedback?
4. How will donors, investors, farmer networks, DAS providers ensure the inclusion of women CBAs and farmers? Who bears these costs? Are DAS platforms even designed to include the needs of women CBAs and agents, if their needs differ from men?

Shared Resources

Cited literature:

- Rodríguez Acosta, D., Clavijo Cabrera, O., & Lobo Lujan, D. (2023) Feasibility of the Use of the Landpks Technological Application for The Evaluation of Soils in Situ by Livestock Raisers and Farmers of the Municipality Of La Plata. Revista Nova, 8 (1), 35–46.
- Grameen Foundation (2025) Community Knowledge Worker https://applab.org/ckw_subdomain/section/about-ckw.html
- Tinsley R.L. (2023) Reflections on 50+ Years Assisting Smallholder Farming Communities. Colorado State University. 33 pgs.
- Grameen Foundation (2025) AgriPath, Phase 3: Introduction to Recruiting and Incentivizing Community-based Agents. 14 pgs
- Grameen Foundation (2025) AgriPath, Community-based Agent Training Content Inventory. 13 pgs.
- Grameen Foundation (2025) AgriPath, Household/Community Dialogue Guide to Support Female Community-based Agent Recruitment. 17 pgs.
- Leakey, R.R.B.; Harding, P.E. 'Land Maxing' (2025) Regenerative, Remunerative, Productive and Transformative Agriculture to Harness the Six Capitals of Sustainable Development. Sustainability 2025, 17, 5876. https://doi.org/10.3390/su17135876

Cited websites / webpages:

- GAERS Framework https://gaershub.com/our-framework/
- GAERS Advisory Services https://gaershub.com/advisory-services/
- Land Potential Knowledge System https://landpks.terraso.org/
- AgriPath Toolkit: https://www.agripath.net/das-toolkit
- MUIIS: https://g4aw.spaceoffice.nl/en/g4aw-projects/g4aw-projects/21/muiis.html
- Jaivi Haat: https://jaivikhaat.com
- WOCAT (Global Database on Sustainable Land Management): https://wocat.net/en/global-slm-database/
- Yielder: www.yielder.org

Cited digital solutions:

- Farmer.Chat https://farmerchat.digitalgreen.org/
- AgriPath: https://www.agripath.net
- GrowSMS: https://www.terratrend.org/solutions
- Farmbetter: https://www.farmbetter.io
- DigiCow Africa: https://digicow.co.ke/

Cited multimedia:

- https://youtu.be/utaLTv6XNUc?si=czMSxkXxf_xU5P0V
- https://youtu.be/nqTDeOBVidA