Digital Agricultural Advisory Services (DAAS)

Powering data sharing across the food and agriculture system in Ethiopia

The Ethiopian government has made significant investments in extension to serve the country's 17 million smallholder farmers. Despite this, government entities and other private and civil society organizations still have limited capacity to share and use data for the cost-effective delivery of targeted advisories via digital channels. Additionally, farmers do not receive relevant and timely advisories, which limits their ability to increase their yields, incomes, and stay resilient in the face of climate change.

DAAS is a five-year project (2019-2024) which will enable sustained increase of incomes from agriculture for 3.5 million Ethiopian farmers (40% women) in Amhara, Oromia, SNNP and Tigray by:

1. Strengthening Extension System & Developing Use Cases

Strengthening digital extension channels, such as video and interactive voice response, helping the Government better train Development Agents (DAs) and manage their performance; and developing exemplar use cases that use integrated data to deliver customized services

2. Developing Foundational Platform

Developing a digital infrastructure for an agricultural advisory platform called FarmStack for secured data sharing across using peer-to-peer connectors and codified usage policies

3. Catalyzing Ecosystem of Platform Actors

Catalyzing an ecosystem of public, private, and civil society actors to contribute to and use FarmStack, which is facilitated by embedded governance systems and a gender intentional approach

organizations

organizations
government, private sector, civil society, policy makers, research agencies

1 Securely share data on their own terms

2 Access farmer feedback and relevant data from other sources

3 Use data assets to build and offer refined solutions and apps

FarmStack

farmers

1 Access customized services and content via multiple channels

2 Trust that their data remains secure and private

3 Share data/feedback with organizations to inform and enable even more choice

farmers

benefits
Grow business to better serve constituents in a coordinated, cost-effective ecosystem

benefits
Access and adopt better services and practices to increase yields and incomes
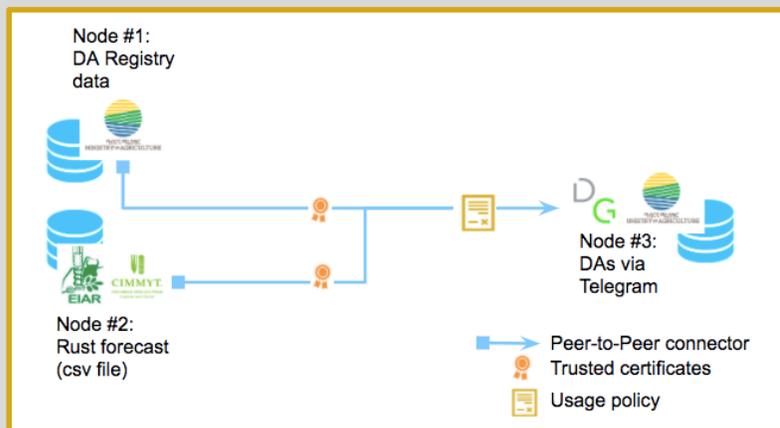
Partners: DAAS is funded by the Bill and Melinda Gates Foundation and the United Kingdom's Foreign, Commonwealth & Development Office and implemented by a consortium led by Digital Green. This consortium includes Precision Agriculture for Development, Ethiopian Agricultural Transformation Agency and Government of Ethiopia's Ministry of Agriculture (MoA), which will be the eventual owners of FarmStack. DAAS will build the capacity of MoA's extension and ICT directorates to support both design and implementation of use cases and to maintain and grow FarmStack. Other private and civil society organizations such as CIMMYT, ILRI, Land O'Lakes, CABI and CARE will serve as content, channel and technical partners and benefit from the enhanced coordination that FarmStack will bring. Since third party applications can be layered onto FarmStack to address a wide range of use cases, other organizations beyond those mentioned can continue to both use and contribute to FarmStack. The Impact of DAAS will be evaluated via a randomized controlled trial by a third party evaluator, American Institute of Research.

Use Cases *(specific situations in which products or services can be used):* DAAS is initially developing use cases within the wheat and dairy value chains which involve integration of one or more datasets and multiple communication channels such as video, IVR, and telegram. Over time, the learnings from these use cases will inform the design of FarmStack and power other solutions across different commodities and geographies.

Illustrative Example:
Wheat Rust Use Case

FarmStack can help match wheat rust advisories generated by Ethiopian Institute of Agricultural Research (EIAR) with MoA's DA registry (with DA location, contact information) so that DAs receive relevant advisories on likely incidence and severity of rust that they can then pass on to farmers. These advisories can be shared in near-real time via channels like IVR and Telegram which can also be used to collect farmer and DA feedback to continuously improve the quality of advisories.

Node #1: DA Registry data

Node #2: Rust forecast (csv file)

Node #3: DAs via Telegram

Peer-to-Peer connector
Trusted certificates
Usage policy

Magartu Balcha is a wheat farmer in the Oromia region

Without FarmStack	EIAR's weather-based wheat rust forecast is not available to DAs.	DAs offer generic rust management advice which is not relevant to Magartu.	DAs don't have easy ways to collect and incorporate farmer feedback.	Magartu experiences low wheat yields.
With FarmStack	DAs access location and time sensitive, custom wheat-rust recommendations.	DAs share this with Magartu via IVR and Telegram alerts.	Magartu adopts mitigation practice and offers feedback on what works and doesn't work in her farm.	Magartu's yield increases.

Where are we now?

- *Adapted to COVID-19.* FarmStack responded to COVID-19 by scaling back in-person approaches for extension and focusing on virtual communication tools, including IVR, interactive radio programming and Telegram for both farmer advisory and DA training.
- *Developed a registry of DAs.* The registries will support use case implementation dependent on sending location-based information by phone, serving as a building block for an MoA performance tracking mechanism and achieve its gender balanced hiring goals.
- *Designed 7 use cases in the wheat and dairy value chains.* These use cases will test a variety of different dissemination modalities, including community video, the messaging app Telegram, and IVR.
- *Conducted data mapping of over 60 organizations.* The map will be used to identify data sources and gaps as well as organizational interests and requirements for data ownership, sharing, security and use.
- *Designed peer-to-peer architecture that codifies data sharing agreements.* This is a key component of FarmStack that, along with development of data sharing legal policies, meets trust and security requirements of potential participants.
- *Established governance structures and technical advisory committees.* These committees will be strengthened by the participation from stakeholders and participants.