



# FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



John O'Bryan/USAID

## Farmer Management Solutions



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The Challenge	The Solution
Due to COVID-19 restrictions prohibiting face-to-face meetings and other information-sharing channels, agriculture market actors have experienced challenges in the quality and flow of information to their various farmer groups and cooperatives. Challenges include sharing timely and accurate updates to help combat misinformation and disinformation, providing advice on reliable sources for assistance, and efficiently organizing members to buy inputs and sell outputs.	Farmer groups are leveraging farmer management solutions to facilitate digital communication between members, dispel misinformation and disinformation, share updates on market and border closures, and more. These solutions have also helped farmers distribute emergency food assistance, access financial services, aggregate demand to purchase inputs, and sell off harvests.

## What are Farmer Management Solutions?

Farmer management solutions are digitally enabled applications operated by a farmer group, cooperative, or related agribusiness (e.g., buyer, seller, service provider). These solutions provide farmer groups with a range of services that vary in complexity, but are typically built upon a database that holds basic information on individual farms or households. These data typically include their identification, location, plot size, contact information, a list of the crops they grow, and sometimes more detailed information such as their yield or loan history and the variety of seeds they use. Depending on the services a farmer group provides to its members, the solution may also collect group-level information such as services used by members, products sold by the group, inputs purchased, loans made, yields across farmers, and information on input providers and buyers.

At the beginning of the pandemic, stay-at-home orders began quickly and with little notice. This left little time for farmer groups and agribusinesses to equip farmers with the information they needed to continue farm production and access services. Farmer management solutions allowed these organizations to quickly contact and organize farmers, while enabling remote access to services.

## How Do Farmer Management Solutions Work?

Farmer management solutions have various capabilities. First, they allow members to sort farmers by different characteristics, such as location or crops grown. This allows the farmers to receive information, such as advisory services, market prices, or weather updates sourced from a third party that are unique to their specific profile. The solutions are also used to manage services provided by the farmer group or agribusiness, such as aggregating input orders or yields, facilitating buyer arrangements, and providing access to mechanization, storage, and transportation. Another key component is that farmer management solutions can be used to facilitate the delivery of financial services such as loans or crop insurance from the farmer group itself or from a financial services provider.

Farmer management solutions vary by who owns and operates the application, how the solution is designed, and whether the group works with field agents. Many farmer management solutions are used directly by field agents who deliver services and are responsible for updating farmers' information in the system. Also, some solutions have modules that allow farmers to directly input their own information and view their farm data through a linked smartphone application.

Farmer management solutions owned and operated by agribusinesses that buy from, sell to, or provide services to farmers are the most common. Some of these solutions are built on core software, such as [Dimagi's](#)

[CommCare](#) or [Taroworks](#), which operates through field agents. Farmer management solutions operated by farmer groups themselves without donor support are relatively rare due to sustainability challenges related to financing, operations and maintenance. However, groups can use a growing number of low-cost digital tools, such as templates for shared spreadsheets, shared digital file capabilities, and mapping applications. Two examples of farmer-owned and operated farmer management solutions, both fostered by USAID Feed the Future projects, are noted in the illustrative examples below.

## Why Should You Consider Farmer Management Solutions?

Smallholder farmers can gain many benefits from having direct or indirect access to a farmer management solution. Depending on the range of modules available, member farmers can efficiently access time-sensitive updates and alerts, receive extension services, find better inputs, and reach existing and new customers. As a group, farmers can efficiently access mechanization and other services, such as post-harvest processing, storage, and transportation, and reduce crop loss. Farmers can even collectively negotiate higher prices for their goods by using the solution to meet buyers' demands for volume purchases, handle transactions faster, and take advantage of group storage or transport. They may also be able to increase their earnings by using the solution to introduce good agricultural practices and identify buyers willing to pay a premium for quality and timeliness. Finally, some farmer management solutions track a farmer's yield history, which can be used as one factor to help determine creditworthiness. This in turn can increase farmers' access to financial services needed to manage a household between crop cycles, withstand unforeseen pandemic-related disruptions, and maintain resilience to shocks.

“It is important to avoid the development of “black box” solutions whereby producers are passive users. Instead, systems should be developed that facilitate access to their [the producers’] own data and thus develop their capacity for analysis...”  
**(Data Driven Agriculture, USAID Feed the Future Senegal Nataal Mbay, Cereal Value Chains, 2019, p. 11.)**

A farmer management solution can increase resilience because it can deliver information to help farmers quickly address unanticipated challenges (such as about closed borders or markets) and facilitate actions to solve problems related to accessing inputs, services, customers, or emergency aid. These benefits can lead to reduced costs and increased productivity for individual farmers. For example, aggregating demand for inputs can lower costs and even increase productivity, since input providers have a stronger incentive to make timely deliveries for optimal application of inputs aligned with the crop cycle, improving the precision of agronomic practices that can lead to higher yields. In the context of COVID-19, farmer management solutions were also used to disseminate accurate information about the pandemic and combat misinformation and disinformation. For example, [Farmerline](#) in Ghana leveraged its solution to quickly disseminate COVID-19 facts to farmers, while also disbursing credit to its input suppliers. Further, during the pandemic, the Senegal Farmer Network quickly provided information to members on government financial aid and informed members how to partially shift to growing crops that could feed families when markets were hard to reach.

## When Are Farmer Management Solutions Likely Not the Right Fit?

As in all digital interventions, Missions and implementing partners must carefully determine whether factors such as limited access to and use of mobile phones, poor digital literacy, lack of trust in digital tools, laws or regulations, or other social constraints may negatively affect the impact of these farmer management solutions. If, for example, mobile phone coverage is poor, many member farmers will not be able to reap the anticipated benefits. In this case, a farmer management solution may not be appropriate. However, to address these factors, the solution can adapt to incorporate digitally enabled agents or extension officers, or include offline capabilities that allow farmers to use the solution even when not connected to a network.

## What Are Some of the Potential Risks and Pitfalls of Farmer Management Solutions?

Farmer management solutions come with some potential risks. If governed poorly, the group's management can use the solution for its own gains, benefiting from pricing and market information while members' benefits are diminished or nil. With much of a farmer's data in digital form, data rights and data privacy could be violated, especially if the farmer or service provider does not understand how to protect their data. Finally, if a solution is adopted with donor funding without a viable plan for financial and organizational sustainability beyond a funded project, it may be abandoned, meaning the investment of time and effort in such a system—as well as the data—may be lost.

### Illustrative Examples

- [Senegal Farmer Networks](#): This program supports 150,000 producers through field agents and database managers. It provides a wide range of services, including advice, aggregation of inputs and outputs, mechanization services, and access to finance. A digitally enabled farmer management solution, the program was facilitated by USAID Feed the Future Senegal's (FTF) Nataal Mbay Cereal Value Chains Project. It combines—among other components—simple Microsoft Excel templates, software to map plots, and a third-party weather service. See the reference list for more on this solution.
- [OB Networks of Ghana](#): This network includes 10 outbuyer farmer networks, each with dozens of outbuyers supporting over 27,000 smallholder farmers. The networks provide a wide range of services to outbuyers and smallholder farmers, including input provision, mechanization services, shelling services, and sales assistance. Many of the networks use a digitally enabled farmer management system to manage their operations and service delivery through field agents with a suite of digital tools, simplified at the end of the USAID FTF Agriculture Development and Value Enhancement (ADVANCE) II Project
- [AgriConecta](#): Part of the FTF [ProInnova Project](#) in Guatemala, AgriConecta is managed by Popoyan, a large agribusiness. It supports 2,500 farmers now with plans to expand to 22,500 farmers with a wide range of services. So far, the solution helps farmers purchase inputs from local suppliers and also provides crop advice. The solution plans on providing post-harvest services such as storage, transport, and processing, as well as financing. Popoyan benefits from this solution by having a well-organized group of producers from whom to buy products, using quality inputs and good farming techniques. Simultaneously, farmers may benefit from increased productivity, easy access to inputs and services, and reduced losses because they can sell faster in large quantities.
- [Cooperative Management System](#): Cargill's management system for cocoa farmers is an example of a buyer-owned farmer management solution designed to be “win-win.” Cargill gains by being able to prove to customers that it sells sustainable products where workers are treated well, and farmers gain by receiving access to loans, learning to better manage their cooperatives, and learning sustainable growing practices and ways to [increase productivity](#).
- [MyAgro](#) and [One Acre Fund](#): These service providers illustrate two other examples of farmer management solutions. They use their solutions to deliver services to farmers as well as to collect farmer information. Some may argue these go beyond farmer management solutions to service delivery or responsible sourcing.
- **Messaging Applications:** Beyond the farmer management solutions listed above, messaging and social media applications such as WhatsApp, Facebook, and Signal have emerged as informal approaches for farmers to manage and communicate among themselves and with other market actors during the pandemic. For example, farmer groups such as the [National Smallholder Farmers' Association of Malawi \(NASFAM\)](#) used WhatsApp to maintain communications with member farmers and buyers. Also for the first time, buyers initiated negotiations through WhatsApp by requesting farmers to send photos of their produce to help strike deals.

Note: The Agribusiness Market Ecosystem Alliance (AMEA), consisting of 22 members including several USAID implementing partners and development donors, tracks farm group management solutions. Check out AMEA's annual [Agricultural Technology Guide](#) with many solution profiles and a list of ag-tech companies to know.

## ACTION CHECKLIST

1	<p><b>Conduct a Landscape Assessment:</b> To determine if and how farmer management solutions can help address market disruptions in one's country of operation, a landscape assessment is needed that takes into account the current ecosystem of farmer groups and cooperatives, and their existing use of digital tools. This assessment should also aim to capture what farmer management solutions are already available in the marketplace and may meet the needs of these groups. Research should achieve the following:</p> <ul style="list-style-type: none"> <li>• Determine the current landscape of farmer groups in the target market system, including their size, how they are organized and by whom, the group's structure, number of members, value chains represented, and services rendered to members.</li> <li>• Once farmer groups have been identified, evaluate their challenges and needs in terms of communicating with, coordinating, and delivering services to members.</li> <li>• Evaluate current use of digital tools and farmer management solutions in particular. This evaluation should capture groups' experiences using such solutions. This can include operational information such as who operates the tools (the farmer group or an external enterprise) as well as members' perceptions of the tool.</li> <li>• Beyond the solutions named by farmer groups, identify other farmer management solutions currently available on the marketplace that may serve farmer groups based on needs identified in the assessment, paying special attention to details around data management and ownership.</li> </ul>	
2	<p><b>Organize Stakeholder Meetings to Share Findings and Gather Consensus:</b> Organize a stakeholder meeting that brings together key market actors, such as farmer groups, agribusinesses, buyers, digital service providers, farmer management solution providers, key digital experts, and other donors, to share learnings and gather consensus on the viability of leveraging farmer management solutions. Consider organizing a separate presentation to head farmers or the farmer organization to share findings from the assessment and information about farmer management solutions, how they work, and the potential benefits of using them.</p>	
3	<p><b>Take Action to Leverage Farmer Management Solutions:</b> If based on the stakeholder meetings, farmer management solutions are determined to be a viable solution, you can take action to help farmer groups leverage these tools and support the expansion of solution providers.</p> <ul style="list-style-type: none"> <li>• Consider providing support to help groups estimate the costs, benefits, opportunities, and risks associated with using farmer management platforms, determining which services would be most cost effective and of greatest relevance to identified needs. If following this assessment, they still want to proceed, encourage them to prepare a concrete action plan, including following the <a href="#">Principles of Digital Development</a>, plans for financial and organizational sustainability, data management, and risk mitigation.</li> <li>• Consider partnering with a farmer management solution provider or agribusiness offering similar solutions to build its capacity and sustainability through activities such as expanding its reach to more farmers and market actors, improving the user experience for users, and/or adapting the business model.</li> </ul>	
4	<p><b>Disseminate Knowledge:</b> Monitor the progress of those farmer groups that decide to leverage farmer management solutions, as well as other similar solutions available in your country or region.</p>	

Consider presenting a brown bag seminar on the topic to others at the Mission or to implementing partners, farmer groups, and other donors.

**Key References:**

1. Shakhovskoy, Matt, et al., [Agriculture Platforms in a Digital Era](#), ISF Advisors, March 2021. Some farm management systems could be categorized as agriculture platforms, per this report, if they facilitate a network between users of the digital solution.
2. [Agricultural Technology Guide for Advancing Professional Farmer Organizations](#), AG-Tech Focus Area: Ag-Tech that Enhances Supply Chain Management and Information Communication for Extension, First Edition, AMEA, April 2020. Describes some sophisticated farmer management solutions operated by large agribusinesses or third-party service providers as well as promising smaller firms offering farmer management solutions.
3. [Data-Driven Agriculture](#), USAID Feed the Future Senegal Nataal Mbay, Cereal Value Chains, 2019. Describes the relatively simple digital tools used by Senegal's farmer networks. Here is more information on this farmer group management solution's design and use: a [video](#) and a [case study](#).
4. Paiuc, Elena, "[Three technologies to support farmer organisations during the COVID-19 crisis](#)," August 18, 2020.