Gender Impact Study: Cross-cutting Final Report

Report completed by Busara and Dalberg on behalf of Mercy Corps AgriFin

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Arifu · Farm to Market Alliance · zanaco · DigiFarm Powered by Safaricom

Bill & Melinda Gates foundation · Mercy Corps AgriFin · Dalberg · Busara

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Study Objectives

About Mercy Corps AgriFin

We work with over 9 million farmers and 150 partners across Africa

Mercy Corps' AgriFin Digital Farmer (ADF) Program is funded by the Bill and Melinda Gates Foundation to help organizations design, test and scale digitally-enabled services for Africa's smallholder farmers.

- Objective is to develop services that increase **farmer income, productivity and resilience**, with 50% outreach to women.
- Work with **private & public sector scale partners** such as banks, mobile network operators, agribusinesses, technology innovators and governments.
- We help our partners develop bundles of digitally-enabled services, including **smart farming, financial services, market access and logistics** supporting data-driven partnerships.

The AgriFin Digital Farmer (ADF) program is championing the development and deployment of a range of full-service digital ecosystems to support end-to-end farming activity across East Africa.

Arifu | FARM TO MARKET ALLIANCE | zanaco | DigiFarm | BILL & MELINDA GATES foundation | MERCY CORPS AGRIFIN | Dalberg | Busara

Context

Women account for nearly half of the world's smallholder farmers and greatly contribute to agricultural activity yet are disproportionately affected by systemic challenges in the agricultural sector such as access to markets, credit, inputs, knowledge, and land. Digital solutions have potential to revolutionize the livelihoods of farmers, however, **challenges that constrain meaningful use of digital services by female users limit sustainable impact for women smallholder farmers.**

The agriculture sector in Africa has been facing systemic challenges over the past decades including issues around markets, credit, quality inputs as well as knowledge and networks. These **challenges disproportionately affect female smallholder farmers** who contribute greatly to agricultural labor and productivity.

Digital solutions have potential to revolutionize the livelihoods of farmers, however, consistent challenges that constrain meaningful use of digital services by female users limit sustainable impact for female smallholder farmers.

The Bill and Melinda Gates Foundation has engaged AgriFin to understand **the impact of digital services on women smallholder farmers,** and the factors driving and inhibiting their adoption and usage of the services.

This study consisted of 3 phases of research and this report highlights the key learning from each phase.

Source: World Economic Forum, "Women grow 70% of Africa's food. But have few rights over the land they tend", 2018

Objectives

This assessment was conducted to map the impact of digital product and services on women farmers, and factors driving its adoption and use by farmers, particularly women.

This report presents the results of a gender impact assessment of the impact of 4 partners (Arifu, FtMA, AgriPay and DigiFarm) digital services and products on smallholder farmers, particularly women. The main objectives of the study were centered around understanding knowledge/attitudes towards digital solutions, usage by gender, factors that drive adoption and use, particularly by women as well as impact on women smallholder farmers' livelihoods and learnings for delivering digital solutions for women.

This report is structured to convey the following cross cutting insights in line with the objectives outlined above:

- User engagement statistics of a selected sample of men and women users
- Factors influencing adoption and usage from qualitative interviews with farmers and key informants
- Elicitation of women segments and mental models that inform women's decision making around uptake and usage of partner products and services
- Overall impact of partner products and services on women's livelihoods
- Recommendations for improving adoption, utilisation, and impact of partner products and services, particularly for women.

Executive Summary

Executive Summary – Overview

Our Impact assessment covered 4 partners DigiFarm, AgriPay, Farm to Market Alliance (FtMA) and Arifu. Our gender assessment involved a combination of data analytics to observe current usage and engagement patterns and qualitative interviews with farmers and key stakeholder informats to paint a richer picture of farmer user journey and the enablers and barriers to uptake and adoption particularly among women. From the insights gained from our qualitative insight we were able to create segments of women users and elicit the mental models that drive decision making to engage with digital solutions for farming productivity and resilience.

User Demographics : Most the users covered in this study are based in Kenya with the exception of AgriPay which was designed for farmers in Zambia. Based on the limited demographic data on users under each partner platform we observed most farmers are middle aged with most usage of partner services and products dominated by men with the exception for AgriPay (which had a trend of slightly more female engagement). Most women were within the 30-50 age range, married and engaged in farming as their primary source of income. We observed a few of the older women (50+) and more educated women had transition out of other occupations into farming or were juggling farming with another trade or job such as teaching. Land ownership among women was mostly shared with a spouse, family patriarch or inherited with a few renting land for farming.

Existing Trends in Usage:

- **AgriPay:** Over 50% of both men and women who use AgriPay are dormant (as defined as 6 months of inactivity) with slightly more dormant women than men. Men perform approximately 3x as many transactions as women with transact amounts being approximately 6x larger than that for women. This is driven by a number of factors, including: (1) women's reduced ability to visit AgriPay's Xpress agents who are mostly in urban areas, given their household responsibilities and (2) the time it would take to travel to town. Lack of follow-up support provided after registration and the delayed launch of the save, borrow and learn features of AgriPay were also important factors that discouraged the usage of AgriPay for women. Further, women sometimes require permission from husbands to register on AgriPay, which can be denied in some instances. When we assessed the expenditures that users use the account for both men and women used the account primarily for cash send or transfers to third party accounts. Women received more inflows into their account and transacted less.

Source: Agrifin Gender Impact Study

Executive Summary – Overview

- **Arifu:** Interactions with learning programs under Arifu (number of times learning content is pulled via SMS)are subdued for most users with over 70% interacting within the 1-50 interaction band. But a few users demonstrated remarkable usage, engaging 100+ times and some even 400+ times with learning content. Women tend to engage less frequently but median interaction reveal more women actual interact than men for the potato value chain and a some modules under the poultry and maize value chain (particularly in the saving module). Completion rates are overall greater among men but women demonstrated the highest completion rates under the poultry value chain. Knowledge scores achieved (based on quiz scored for each learning program module) were fairly robust across value chains with most users scoring 70% above for most learning programs indicating content learnt was well understood. The scores of women were fairly at par with men for most learning programs with women outperforming men in a few poultry and pre-planting and planting modules such as seed selection.

- **DigiFarm**: Average Revenue Per User (ARPU) was between 0-100 KES. 32% of users had engaged with the access to markets module to sell of their harvests to off takers. 81% of users had engaged with the module at least once over a period of a year. Slightly more women than men (6%) engaged with the access to market module. 40% of users had used the learning module offered through Arifu. Most users engaged with the poultry learning content. Overall engagement with learning was slightly higher among men. Access to credit was fairly even across gender but the total loan amount was 7% higher for men.

- **FtMA:** Participation in Good Agricultural Practices Training (GAP) and Post Harvest Handling Training (PHH) was 24% while participation in Crop Protection (CP) trade fair attendance was much lower at 5%. Women participated more than men in PHH training and significantly less in CP trade fairs. Loan access was fairly equitable between genders, although disparities did exist between short rains and long rains seasons, with women accessing more loans during the short rains. Overall men had more farm acreage and were more likely to sell of more bags of harvest than women.

Source: Agrifin Gender Impact Study

Executive Summary – Drivers of Adoption

Factors driving women farmers' adoption of digital agricultural platforms:

Trust is a key driver of adoption for all farmers, but more so for women farmers. Women farmers, more than men farmers, were most receptive to channels of information about the platforms that they trust to adopt. This manifested in multiple ways across the platforms, such as:

- **Working with farmer associations** as recruitment partners drove uptake for DigiFarm, FtMA and AgriPay, because the farmer associations are already known by women farmers, which builds women's trust of the platforms and drives them to register.
- **Use of farmer and savings groups to recruit** was also an effective channel through which to recruit women farmers on FtMA, AgriPay and Digifarm, as women farmers comprise the majority membership in these groups compared to male farmers. Seeing peers register increases women's trust of the platform and drives women farmers to also sign up.
- **On-the-ground agents** were important in creating awareness for DigiFarm, FtMA and AgriPay, because the agents are from the local community and women farmers know and trust them. Agents also provide support farmers in the registration process which encourages women farmers' registration, as they have a trusted source of information for guidance, as well as support for (digital) literacy challenges.
- **Association with strong brands** of Safaricom and Zanaco helped drive buy-in by women farmers on DigiFarm and AgriPay, as they are familiar with Safaricom and Zanaco brands and therefore trust the platforms.
- **Use of a personalized message** by Arifu also drove women farmers to register, as the personalized message signified that the SMS was not a scam, increasing trust and willingness to engage.

Consequently, familiarity, e.g. through known brands, use of farmer associations and groups, use of local agents and use of personalized messages helps overcome trust barriers among women farmers and drive adoption.

Executive Summary – Drivers of Adoption and Use

Besides trusted channels and sources**, the types of products offered on the platforms also drives adoption, particularly access to inputs, input credit, markets and trainings.**

- **Access to inputs**: The value proposition to access high-quality inputs was a key reason women farmers join FtMA and DigiFarm. Women farmers are more involved in the planting and cultivation stages of farming compared to men farmers and are therefore more likely to appreciate access to high-quality inputs.
- **Input credit**: Women farmers indicate input credit as one of the reasons they joined DigiFarm and FtMA, as they can receive inputs as credit, leaving them with more disposable income for other uses.
- **Market Access**: A guaranteed market was a key draw for women farmers to join DigiFarm and FtMA as it offers women farmers a guaranteed income for their families, underpinning women's roles as caretakers in the households.
- **Trainings** were a key value proposition for women farmers to join FtMA. Women farmers are attracted to the trainings as they offer knowledge on how to improve cultivation on the farm, which is an activity primarily undertaken by women on the farm. Women farmers also value the interactive nature of in-person trainings – being able to ask questions and receive answers and meet other farmers. On DigiFarm and Arifu, women farmers requested in-person trainings as an additional offering they would like to receive.

Factors driving active use of digital agricultural platforms by women farmers:

1. **Digital literacy - while digital literacy is not a barrier to women farmers' engagement with simpler channels e.g. SMS and IVR calls, it is a barrier to use of more complex platform components e.g. USSD-based services and applications.** Women farmers did not cite digital literacy challenges in navigating simpler platforms e.g. SMS and IVR, however, women farmers faced challenges with using USSD platforms and applications on DigiFarm and FtMA. For example:

- On DigiFarm, there was limited self-exploration of learning modules among less digitally-savvy women farmers
- On FtMA, while both men and women FSC leads indicated having challenges with operating tablets to access Kuza content, women FSC leads were more likely to experience challenges and more likely to reach out to mentors and family for assistance.

This results in women farmers' requiring more handholding and guidance to navigate more complex digital platforms. Lack of such support can be a barrier to women's use of the platforms as observed on AgriPay, where limited support provided post-registration was a key constraint to women's use of the platform.

Executive Summary - Drivers and Barriers to Use

2. **Women farmers face greater time poverty and mobility constraints, leading to less ability to use some services e.g. learning, accessing inputs and taking produce to market.** Social norms result in additional responsibilities of women farmers in the household e.g. childcare, leaving women more time-constrained and with less ability to travel than men farmers. This was observed in various ways on the platforms such as:
   - Women farmers cited limited time to engage with content on DigiFarm and Arifu as a constraint to use; women often had to learn while multitasking with other responsibilities such as cooking.
   - On FtMA, women FSC leads completed learning modules on KUZA after a longer time than men FSC leads.
   - Women performed 3x less transactions than men on AgriPay, partly because they had limited time to travel to agents, who are located in urban areas, to deposit and withdraw money.
   - On DigiFarm and FtMA, women farmers sometimes had challenges accessing inputs if agrovet and input stores are located in town areas. This resulted in women farmers sometimes asking their husbands to purchase or collect inputs on their behalf, contributing to the lower rates of inputs purchased by women.
   - Similarly, women farmers were sometimes unable to travel to aggregation points to sell their produce to the same extent as men, resulting in men farmers selling more produce than women farmers.

   Improving timing to deliver learning content during times when women are less likely to be busy, e.g. evenings, and more integration of IVR can help overcome time constraints to learning. Enhancing last-mile logistics support can help overcome mobility barriers, which are felt more by women farmers than men farmers.

3. **Women farmers have limited agency using products with higher perceived risk such as credit, resulting in a need for spousal engagement and more time for decision making.** The level of risk is mainly driven by whether services involve assets e.g. land. For instance:
   - On both DigiFarm and FtMA, women farmers cited requiring permission from spouses before taking input credit.
   - Land details are also required while registering on DigiFarm, requiring women farmers to consult with spouses before registering on DigiFarm.
   - On Arifu, women farmers indicated they did not need to seek permission from spouses to register or use the platform as learning is perceived as a low-risk product.

   This results in a longer decision-making process for women farmers than men farmers, to decide if to take up the products or platforms. Consistently following up with women farmers during the process, and engaging spouses, sometime multiple times, e.g. through household visits by agents, mitigates these challenges.

Executive Summary - Drivers and Barriers to Use

4. **Women farmers have less access and ownership of resources than men farmers, which limits their use of some services, e.g. inputs, input credit and learning.**
   - Women farmers are likely to farm on less acreage than men, as observed on DigiFarm and FtMA, resulting in women farmers taking less input credit and purchasing less inputs than men.
   - Women farmers also have less ownership of land and property, resulting in higher aversion to taking credit than men farmers. Despite land and property not being required as collateral on the platforms, women farmers still feared that they would lose land and property if they defaulted, and fear that this will be detrimental to their relationships, as the property is fully or jointly owned by the spouse.
   - Women farmers are less likely to own smartphones and more likely to own feature phones, which have storage limitations. Messages have to be deleted often to receive additional messages, which limits ability to revisit messages to refresh knowledge.

   Adapting products to meet resource limitations e.g. allowing women farmers to register on DigiFarm based on access to, rather than ownership of land, use of alternative collateral on DigiFarm and FtMA, and sharing SMS reminders consistently on Arifu helped overcome challenges.

5. **Gendered roles in agriculture limit usage of some services,** such as learning modules on value chains or activities in which women farmers have limited participation**.** For example:
   - On DigiFarm and Arifu, women farmers were most likely to use learning modules that relate to their roles in agriculture, e.g. poultry modules, land preparation and planting, and less likely to use learning modules such as land management as they do not own the land.
   - On FtMA, women farmers attended some trainings e.g. Good Agricultural Practices (GAP) more than men, but attended other trainings e.g. on Crop Protection less than men, as this was viewed as more of a man's role.

   Ensuring products and services provided are aligned with the activities and value chains women farmers are engaged in, increases value for women farmers and drives engagement.

Executive Summary – Impact on Women Farmers

Overall, we find that the digital agricultural platforms have positively impacted the livelihoods of women farmers. Women have increased yields on their farms due to knowledge gained on the platforms on better agricultural practices, and enhanced access to high-quality and certified inputs, as observed on DigiFarm, Arifu and FtMA. The increased yields have resulted in higher incomes for women farmers when they sell the produce. Women have also been able to boost their incomes by shifting from subsistence to commercial farming as learned on the platforms, and taking advantage of the guaranteed market for produce provided on DigiFarm and FtMA. In addition, women farmers who have advanced to become agents on DigiFarm and FtMA have been able to increase their incomes. On both platforms, agents earn commission for farmers they bring onboard, and other services they provide to farmers e.g. selling inputs. On AgriPay, women farmers also report having higher financial discipline after using AgriPay, due to reduction in spontaneous spending compared to when they store money at home. The safe storage of money and ability to track expenses on the platform also results in better financial planning and budgeting.

Digital agricultural platforms have also had a positive impact on women farmers' lifestyles. Women farmers have experienced time savings through using DigiFarm, Arifu and FtMA, decreasing time poverty. DigiFarm and FtMA have saved women farmers' time by linking them to off-takers directly, so they do not need to spend time searching for markets, and agents also save women farmer's time by visiting farms to respond to challenges. On DigiFarm, agents also help to off-take produce from women's farms, helping them save time. With increased income, women farmers can also afford to hire extra help at the farm and increase their time available for other activities. Digital trainings provided by Arifu, FtMA and DigiFarm have also helped women farmers learn without requiring to travel for in-person trainings, saving time. However, AgriPay has had a mixed effect on women farmers' time, with some women saving time due to the ability to make payments to third parties without requiring to travel, while some women have added time constraints due to the requirement to visit XpressAgents in town areas to make deposits and withdrawals.

On DigiFarm, FtMA and Arifu, women farmers have also increased their decision-making agency on the farm and in the household. On all platforms, women farmers cited that their spouses have trusted them more with decisions upon seeing the knowledge they have garnered from the platforms or increased yields and incomes after using the platforms. Women farmers on Arifu, DigiFarm and FtMA also reported feeling greater control over, and confidence in, their own learning journeys, due to being able to access learning content at any time and to decide how and when to learn. Women's knowledge, success in agriculture, and increased incomes have also boosted their self-esteem and confidence, and women farmers have noticed improvements in their social standing - the observable success of women's farms has resulted in respect from their peers who often inquire how they gained their success. However, due to the short time AgriPay has been in the market and infrequent use, the platform has had limited impact on women's lifestyles.

Executive Summary – Women Segments and Mental Models

Segments of women users and their mental models

Through our qualitative insights we were able to identify distinct segments of women users and the factors that influence the cognitive dimensions that drive their decision making around uptake and usage of digital farming solutions or services. we identified 3 categories of users

Across the 4 different partners we observe 3 key segments of super users, average users and low users.

- Super users consisted of women who could be characterised as self starters (Arifu), Community leaders (FtMA) and Savy explorers (DigiFarm). These women are entrepreneurial with relatively higher levels of education and usually have more land ownership and the agency to make decision over their farm lands. They are users of multiple digital platforms and are open to explore new solutions. These women are driven by cognitive models based mostly on evidence and logic and rely less on social norms or social signalling. They are have clear cut farming goals and aspirations that drive their motivations to try a variety of digital enabled farming solutions and services.

- Average users are characterised as curious optimists or followers (Arifu and AgriPay), certainty seekers (FtMA) and comfortable observers (DigiFarm). They are curious about new digital technologies, but are still hesitant due to gendered roles and low decision making power. This segment of women tend to have cognitive models based on preference and evidence of product and service offering impact as well as social norms around uptake and usage. They have farming aspirations but are not as explorative in taking a risk on new digitally enabled solutions as much as the super users.

- Low users are characterised as passive or uninterested skeptics (AgriPay Arifu), path followers (FtMA) and passive onlookers (DigiFarm). These women are persistent and resilient despite the mirad of barriers they have to improving their livelihoods such as poor literacy and limited decision making power. However when it comes to digital solutions these women are more complacent than other segments. These women adhere more to traditional practices and beliefs. Their decision making process relies heavily on default belief systems informed by tradition and culture . They are the most averse to credit and require more spousal approval to engage with new services or products. Social norms play a part in shaping their preferences and this is best targeted through their engagements with local farming groups and associations.

Source: Agrifin Gender Impact Study

Executive Summary - Recommendations

Based on the factors driving adoption and use, **the following opportunity areas emerge for digital agricultural platforms to become more gender inclusive and amplify impact for women smallholder farmers** across their user journey:

Awareness and onboarding to encourage adoption

- **Use a combination of above the line marketing and below the line marketing to create awareness among women farmers** about the platforms. Above the line marketing e.g. mass media is effective in creating broader awareness among women farmers about the platforms, but is insufficient; below the line marketing e.g. SMS and use of agents is needed to enhance trust and convert women farmers to register for the platforms.
- **Target farmer and savings groups to recruit women farmers**. Use of these groups has been effective in recruiting women farmers for FtMA, AgriPay and DigiFarm, as it enhances trust among women farmers and is efficient for agents to register farmers.
- **Encourage agents to follow up more frequently with women farmers** to encourage their registration **and to engage husbands** e.g. through household/farm visits, to garner permission, if required, to register onto platforms.
- **Use agents to support women farmers to register and onboard onto platforms**, to overcome digital literacy and trust challenges.
- **Provide additional support to women farmers to gather registration requirements** to mitigate time and mobility constraints. For example, inviting SIM card providers to registration meetings where required and communicating registration requirements in advance of registration meetings has helped women farmers to register on AgriPay.

Product design and roll-out to encourage active use

Inputs

- **Enhance last-mile delivery of inputs between agrovet stores and farmers' homes or farms** as last-mile delivery challenges are felt more by women farmers due to time and mobility challenges. Platforms' agents can support farmers by offering input delivery to their homes or farms as additional support – farmers will potentially pay for such support given the time and transport cost-savings they would gain from the support.

Input credit / Savings

- **Provide more education to farmers, particularly women, on the alternative collateral requirements for loans** on platforms, to mitigate misunderstanding of the loan products. This will reduce misconceptions and perceived risk that land / property will be seized in case of default.
- **Offer a combination of group and individual loans to farmers** to meet the needs of both farmers who cannot qualify without group guarantees, but also women farmers who prefer individual loans and can qualify for them.
- **Consider bundling input credit with savings** to serve women farmers who prefer to use savings rather than input credit to purchase inputs
- **Increase support to build digital identity for women farmers** (individually and in groups) to be able to more effectively support women farmers to access digital credit

Executive Summary - Recommendations

Insurance

- **Work with insurance partners to clearly set out guidelines on when farmers are compensated e.g. having smart contracts for payouts, to ensure farmers are rightly compensated in case of crop losses, and to shift negative perceptions of insurance.** These guidelines should be proactively shared with farmers as well, through agents and channels such as SMS, and feedback loops created between farmers and platforms, to mitigate challenges of misaligned expectations and trust between farmers and insurers.

Access to markets

- **Incentivize and enable agents e.g. FSC leads and DVAs to collect produce from women from their farms** as additional support to address women's time and mobility constraints from accessing markets. This can be accomplished through multiple ways such as:
  - Offering a bonus or additional commission to agents for produce they collect from women e.g. additional produce collected beyond a set standard. Providing transport allowances to agents to go and collect produce from women's farms or bundling with input sales
  - Implementing quotas on a certain minimum ratio that agents should collect from women farmers relative to men farmers, while ensuring the quotas do not create distortions or unintended effects
- **Use data analytics** and value chain targets to effectively link women farmers to buyers**.**
- **Support irrigation and post-harvest loss** strategies to maximize farmers' sales potential

Learning

- **Consider more integration of IVR** as an additional content delivery mode to increase engagement among women who may need to multitask while learning to mitigate time constraints.
- **Ensure timing of content delivered digitally e.g. SMS messages matches times that women farmers are most likely to be available** e.g., lunchtime, evenings and weekends. Due to household responsibilities of women, improved timing of messages can enhance engagement.
- **Proactively provide guidance on usage of more complex digital modules** on platforms such as apps, through use of agents, how-to SMS messages, call-back numbers, etc. This will support less digitally savvy women farmers who may require more hand holding initially to navigate the platforms due to digital literacy challenges, and lower comfort levels with the platforms.
- **Ensure the source of the digital learning content is indicated** e.g. in SMS or IVR calls, to mitigate trust challenges of receiving digital content, particularly given the prevalence of scam messages and calls.
- **Expand learning modules to value chains and farming activities that engage a lot of women farmers** e.g. poultry, to increase value of content for women farmers.
- **Consider adoption of targeted smart advisory services for farmers** as an additional channel to support farmers to enable farmers to improve production, reduce crop loss and ultimately increase productivity

Study Methodology

Study Methodology

To achieve the learning objectives, a mixed approach is applied and executed by Busara and Dalberg over three phases:

Data Analytics: Data analysis of a selected sample of administrative data on farmer usage of partner products and services by gender.

Qualitative Research: Explores farmer experiences and journeys for each partner product with in-depth interviews with a subset of farmers and stakeholders.

Behavioral Mapping: Identifies shared mental model themes (from the farmer interviews) of how farmers perceive the value proposition of the various partner products and the behavioral barriers and levers that may be driving decision making around usage.

- Four partners have participated in this study:
  - Arifu
  - AgriPay (by Zanaco)
  - DigiFarm
  - FtMA (Farm to Market Alliance) Kenya

Study Methodology

We reviewed relevant research, conducted data analytics and 73 HCD inspired interviews to inform our assessment

Research method	Description	Sources
LITERATURE REVIEW	We have reviewed **key documents,** including past AgriFin, Dalberg, BMGF and external research on the four platforms	Key **reports** reviewed include: • **DigiFarm -** DigiFarm playbook – Dalberg • **FtMA -** MercyCorps/Dalberg: FtMA: Digitization and lessons learned • **AriFu -** Arifu pitch deck (AriFu) and Literature Review (AriFu) • **AgriPay** - Mercy Corps ZANACO case study
REVIEW OF PHASE 1 DATA	We have reviewed **Phase 1 quantitative data analysis by Busara** to identify key themes and questions for deeper probing in interviews	Busara data analyzes user' interactions with each platform's services: • **DigiFarm -** Input loans, Access to Markets and Learn Module • **FtMA -** Access to markets, finance, training and inputs • **AriFu -** Maize, potato and poultry learning by DAT, Google & IFDC • **AgriPay –** MyAccount (deposits, withdrawals and third-party payments)
KEY INFORMANT INTERVIEWS	We conducted **key informant interviews with key partners of each platform**	Key partners interviewed include: • **DigiFarm –** KLPA, AIS, iShamba, AriFu, FarmDrive and Pula • **FtMA –** CGA, Remington Africa, Apollo, Hello Tractor and KUZA • **AriFu –** Safaricom and IFDC • **AgriPay-** CAZ, Zambian Breweries, Vitalite and Musika
HCD-INSPIRED FARMER AND AGENT INTERVIEWS	We have conducted **73 HCD-inspired interviews – 43 with farmers, 5 Agents, 16 FSC leads (FtMA) and 9 Non-FSC's (FtMA)**	We conducted the following HCD interviews for each platform: • **DigiFarm:** 14 farmers (8 female & 6 male) and 3 agents(2 male & 1 female) • **FtMA:** 16 FSC (9 female & 7 male) and 9 Non-FSC's (6 female & 3 male) • **AriFu:** 18 Farmers (9 female & 9 male) • **AgriPay:** 11 Farmers (7 female and 4 male) & 2 Agents (1 male & female)

Note: We targeted our recruitment to ensure a diversity of women's experiences would be captured, including using selection criteria around age, education level and marital status. The full breakdown of farmers and agents interviewed is available in the annex.

Partner Data Sample Summary

We conducted data analytics on a subset of users of each partner's product/services. The sample seized for the data analytics were exclusive of the sample used for farmer interviews. Demographic details were not consistent across all partners but overall most farmers were concentrated in Tharaka Nithi,Meru, Makueni and Kericho. Farmers were predominantly middle aged between 30-45 with men on average having more land ownership and acreage than women. Maize and potatoes were the most common value chains across all partner user demographics

Arifu- Total Sample Analysed

The Arifu dataset(after randomisation) comprised of data from the following 3 Arifu partners: DAT (179), Google (233) and IFDC (1046). The data covered 4 main value chains potato, drought tolerant potato, maize and poultry.

FtMA- Total Sample Analysed 45,355

The FtMA dataset assessed comprised of 365 farmer service center leads and 44,990 farmers.

AgriPay- Total Sample Analysed-1,266

The AgriPay dataset assessed comprised of 1,266 farmers.

DigiFarm- Total Sample Analysed-3,140

DigiFarm data analytics was conducted internally by Safaricom and included 3,140 farmers.

Source: Zanaco, Arifu, FtMA, Safaricom and Busara data analytics, 2020

About Partners

About Partners

Platform	Overview	Products/Services offered
Digi Farm BY SAFARICOM	**Provides a marketplace for farmers in Kenya** to access products from various agricultural players, enabling farmers to easily source, learn and grow.	• **Inputs and input credit-** certified inputs on credit • **Learning –** agricultural knowledge via USSD • **Crop Insurance-** agri-insurance through partners • **Market linkages** – market linkages to offtakers
FARM TO MARKET ALLIANCE	**Provides end-to-end market access digital and non-digital services** by building long-term linkages between suppliers (farmers), buyers and key market players in Tanzania, Rwanda, Zambia and Kenya (focus of the study)	• **Access to information** –various products offering digital and non-digital trainings e.g. SMS and in-person trainings • **Access to markets –** Market linkages via forward contracts • **Access to finance –** Input loans bundled with insurance • **Access to agricultural production –** access to inputs and mechanization services
Arifu	**Provides e-learning services in Kenya** through a free, interactive chatbot that provides a familiar, personalized way to learn skills, discover products and earn rewards	**In agriculture, learning modules cover topics such as:** • **Value chains -** Poultry, dairy, rice, maize, livestock, potato, cabbage, tomato, indigenous vegetables • **Activities -** Selecting seed varieties, land preparation, transplanting, crop protection, harvest, storage, etc.
AgriPay zanaco	**Provides a digital banking platform** for small holder farmers in Zambia through a low-cost transactional account	• **My account –** Low-cost transactional account • AgriPay hopes to launch the following services in 2021; – **Learn -** Education and informational content – **Borrow -** micro-credit options for farmers – **Save -** an interest-earning account

Source: Zanaco, Arifu pitch deck, 2020, DigiFarm Pitch Deck, FtMA Kenya Country Brief, AGRIFIN Gender Impact Assessment, Platform Partner Interviews, 2020; Farmer Interviews, 2020

Farmer Engagement Journey

Overview of Usage and User Engagement

In this section, we presented the overview and high-level statistics of who are using these services and how have various services provided by 4 partners have been used.

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User Engagement Statistics by Partner

Platform	Access to Markets Engagement	Access to Credit and Transactional Account Usage
Digi Farm BY SAFARICOM	53% of the sample that used the access to market service were women. Most farmers used this module at least once. Overall, **6% more women used this module compared to men** despite some the logistical challenges in transporting harvest to offtakers that women complained off.	30% of the sample had accessed input loans over a 90 day period. Of this sample 4% more men engaged with this feature than women (48% women and 52% men). **Total Loan amount for men was 7% higher than** women however the average loan amount was fairly equitable between men and women (average loan amount 3,856 KES)
FARM TO MARKET ALLIANCE	**40% of all bags of harvest sold by farmers through FtMA were from women** indicating men benefited more from access markets through based on the quantities sold. However we observed that on average women's yields are lower than men most likely due to smaller average land size. This in turn contributes to relatively	**50% of women accessed credit** a slightly higher proportion than women under DigiFarm. Women received credit more from formal and less digitised lending platforms such as KCB. Although credit from purely digitised lending platforms like Farm Drive and Credit Factory was low, more men received credit through these platforms than women.
AgriPay zanaco	Transactional patterns from AgriPay data show **women engaged in less transactions than men and used their AgriPay account more as a saving account.** We observe higher inflows (66.7% for women). The transaction types that were most common especially among men who transacted the most were cash send and airtime top up.	

Source: Zanaco, Arifu, FtMA, Safaricom and Busara data analytics, 2020

User Engagement Statistics by Partner

Platform	Learning/Training Engagement
Digi Farm BY SAFARICOM	40% of the DigiFarm sample assessed had used the learn module at least one, of this **47% of users were women**. Most users used the Arifu learn module at least 1-5 times within the sample period of 1 year. Men were observed to use the learning platform more frequently than women, with 8% more men using the platform overall and 16% more men using it 50 or more times. **More users engaged with financial education content (39%). However the average number of interactions per module is higher for poultry farming. er farming learning** content were among the least.
FARM TO MARKET ALLIANCE	Participation in good agricultural practices training offered through FtMA was equal across gender. We observed slightly more women participating in **post harvest handling training (52%) a**nd significantly less in **crop protection training that centered on the use of chemical herbicides and pesticides (31%).**
Arifu	Most user interaction was within the low band of 1-50 interactions with a few users engaged multiple time (100-500 times). Average interactions with Arifu learning modules (SMS content pulled) indicates that men engage with most content across all value chains more than women with the exception of savings learning programs and a few farm group related learning programs. However assessments of median interaction reveals women engage more with poultry content and a few drought tolerant and potato learning modules. This indicates that there are a few super users among men who engage heavily with learning content while more women tend to engage at a more steady and consistent pace. Average knowledge scores for women were highest for poultry (80%), followed by potato (77%) and drought tolerant potato (69%).Completion rates were higher for men across most programs but women demonstrated the highest completion rates under the poultry value chain programs.

Source: Zanaco, Arifu, FtMA, Safaricom and Busara data analytics, 2020

Factors that Influence Adoption and Usage

In this section, we analyzed the data and information from farmer interviews and identified factors that influence adoption and usage of various services among smallholder farmers provided by 4 partners.

MERCY CORPS | AGRIFIN

Factors that Drive Adoption and Usage

Key findings: Trusted brands, agent touchpoints and personalised messaging

Women farmers were most receptive to channels that they trust. Women farmers on average have lower trust levels in new digital and financial services more so than men farmers. This was observed through:

- **Working with farmer associations such as KLPA, AIS and CAZ as recruiting partners drove uptake** for DigiFarm, FtMA and AgriPay.
- **Association with strong brands of Safaricom and ZANACO, helped drive buy-in** by women farmers for DigiFarm and AgriPay.
- **On-the-ground agents were important in creating awareness** for DigiFarm, FtMA and AgriPay.
- **The visual evidence of impact on peer's farms increased women's interest and trust of platforms**, increasing awareness and uptake for DigiFarm and FtMA. Observing increases in yields for example, helped build interest in, and trust for platforms among women farmers.
- **Use of a personalized messaged by Arifu drove interest and trust among women farmers.** The personalized message signified that the SMS was not a scam, increasing trust and willingness to engage.

While mass media was effective in creating awareness about platforms at a broader level, it was not enough to convince women to register. This was likely because the message was not personalized or in-person, despite potentially coming from a known brand. As a result, some women farmers did not trust that the platform was for them.

Quotes

"Many people really trust Safaricom, they trust DigiFarm because of the association."

DIGIFARM | MAN | FARMER | 26 | MIGORI

"CAZ is a good organization [to us]. It used to only deal with cotton but now it is doing more crops. It helped me make my decision to register to AgriPay."

AGRIPAY | WOMAN | FARMER | 57 | ZAMBIA

Source: Dalberg analysis, Farmer Interviews, 2020, The Human Account, Busara analysis

Factors that Drive Adoption and Usage

Key findings: Digital literacy, SMS channels and Simplistic communication

Women farmers did not indicate having digital literacy-related challenges with using SMS and IVR calls, but indicated challenges navigating USSD-based platforms and applications

- On DigiFarm, some women farmers mentioned they mostly use phones for calling and texting and are not familiar with other ways of navigating the phone. Consequently, there was limited self-exploration of DigiFarm learning modules among less digitally-savvy women farmers.
- On FtMA, while both men and women FSC leads indicated digital literacy as a barrier to the use and operation of tablets to access Kuza content, women FSC leads were more likely to experience challenges. Women FSCs and farmers were also more likely to reach out to mentors and family for assistance.
- On AgriPay, limited handholding post-registration was a constraint to women's use of the platform.

These challenges are partially because of low digital literacy levels among some women farmers, but also because of less comfort or confidence using the platforms on their own.

Quotes

"Most of the women farmers need training on usage of the phone as they currently use it only for making and answering calls."

DIGIFARM | WOMAN | DVA | 48 | THARAKA NITHI

"I had no challenges with the SMS. The content was digestible."

ARIFU | WOMAN | FARMER | 36 | KERICHO

Source: Dalberg analysis, Farmer Interviews, 2020

Factors that Drive Adoption and Usage

Key findings: Time and mobility constraints

Social norms result in additional responsibilities of women farmers in the household e.g. childcare, leaving women more time-constrained and with less ability to travel than men farmers. This was observed in various ways on the platforms such as:

- Women farmers cited limited time to engage with content on DigiFarm and Arifu as a constraint to use; women often had to learn while multitasking with other responsibilities such as cooking.
- On FtMA, women FSC leads completed learning modules on KUZA much later than men.
- Women performed 3x less transactions than men on AgriPay, partly because they had limited time to travel to agents
- On DigiFarm and FtMA, women farmers sometimes had challenges accessing inputs if agrovet and input stores are located in town areas.
- Similarly, women farmers were sometimes unable to travel to aggregation points to sell their produce to the same extent as men, resulting in men farmers selling more produce than women farmers.

Improving timing to deliver learning content during times when women are less likely to be busy, e.g. evenings, and more integration of IVR can help overcome time constraints to learning. Enhancing last-mile logistics support can help overcome mobility barriers, which are felt more by women farmers than men farmers.

Quotes

"If they can bring us the AgriPay facilities closer it will be easier for us (women) to use the service and deposit money."

AGRIPAY | WOMAN | FARMER | 45 | ZAMBIA

"On weekdays I had too much work so I would not have a moment to look into the information."

WOMAN | FARMER/ FSC lead | 48 | THARAKA NITHI

Source: Dalberg analysis, Farmer Interviews, 2020

Factors that Drive Adoption and Usage

Key findings: Agency over farming decisions and gendered roles

Women indicated sometimes requiring spousal or parental permission to register onto some platforms, depending on the perceived level of risk of the platforms and the services they offer. The level of perceived risk is driven by whether assets such as land are involved. For example:

- Despite only access to land (rather than ownership) being required to register on DigiFarm, married women farmers often had to consult with their spouses to seek approval to join DigiFarm. This was partially because men are the key decision-makers in the household due to sociocultural norms, but also because men typically own the land, solely or jointly.
- On FtMA, women farmers mentioned seeking permission from spouses when taking input credit, as they perceived land to be required for the process.
- On AgriPay, only few women farmers indicated needing to seek approval from spouses to register, likely because assets like land were not required for registration
- On Arifu, women farmers did not seek spousal permission to register on the platform as learning is perceived as a low-risk product and does not involve any assets or costs.

This results in a longer decision-making process for women farmers to register on the platforms e.g. on DigiFarm, and where permission is not granted, this is an additional barrier women farmers face unlike men farmers.

Consistently following up with women farmers during the process, and engaging spouses, e.g. through household visits by agents, mitigates these challenges

Quotes

"I consulted with my husband and he was okay with it [registering for DigiFarm]. I then registered."
DIGIFARM | WOMAN | FARMER | 26 | MAKUENI

"I have told some women about DigiFarm but sometimes the husband doesn't want them to sign up."
DIGIFARM | WOMAN | FARMER | 38 | MURANG'A

Source: Dalberg analysis, Farmer Interviews, 2020

Factors that Drive Adoption and Usage

Key findings: Agency over farming decisions and gendered roles

Women farmers have less access and ownership than men of some resources e.g. land, property, transport means and smartphones, which limits their ability to access and use some services e.g:

- Women farmers are likely to farm on less acreage than men, as observed on DigiFarm and FtMA, resulting in women farmers taking less input credit and purchasing less inputs than men. This also contributes to women having lower yields on average compared to men farmers, and therefore, less produce to sell.
- Women farmers also have less ownership of land and property, resulting in higher aversion to taking credit than men farmers. Despite land and property not being required as collateral on the platforms, women farmers still feared that they would lose land and property if they defaulted, and fear that this will be detrimental to their relationships, as the property is fully or jointly owned by the spouse.
- Women farmers are less likely to own smartphones and more likely to own feature phones, which have storage limitations. Messages have to be deleted often to receive additional messages, which limits ability to revisit messages to refresh knowledge.
- Women are less likely to own transport means such as bicycles compared to men, limiting their mobility and ability to . Women are therefore more likely to pay for alternative means of transport, increasing their financial burden.

Adapting products to meet resource limitations e.g. allowing women farmers to register on DigiFarm based on access to, rather than ownership of land, use of alternative collateral on DigiFarm and FtMA, and sharing SMS reminders consistently on Arifu helped overcome challenges.

Quotes

"In my region, I have men that mostly bring the produce because they are able to look for transport."
FtMA | MAN | FARMER/FSC lead | OLKARAU

"Smartphones are better because feature phones have a limit in the number of messages it can store. I have to delete messages to receive new ones."
WOMAN | FARMER | 36 | KERICHO

Source: Dalberg analysis, Farmer Interviews, 2020

Factors that Drive Adoption and Usage

Key findings: Gendered roles

Women farmers are more likely to engage with modules that relate to their roles in agriculture. Moreover, **women are not likely to engage with learning they think they will not be able to apply in their day-to-day activities.**

- **On Arifu, some women farmers indicated that they learn about specific modules in the value chain** e.g., chick rearing in poultry or land preparation and planting as they (women) are the ones that primarily undertake these farm activities.
- On DigiFarm, certain learn modules such as land improvement and farm management had low usage by women, because they perceived them as not relevant to them. As these women did not own land, they did not engage with the content as they indicated that their limited decision-making power over land management would prevent them from applying what they have learnt, and the knowledge gained would therefore remain unusable
- On FtMA, fewer women attended the Crop Protection trade fair compared to men, while more women than men attended the Good Agricultural Practices and Post-harvest trainings. This was partly driven by farmers viewing the topic of the fair (application of chemical inputs such as herbicides and pesticides) as a man's role on the farm rather than a woman's.

Ensuring products and services provided are aligned with the activities and value chains women farmers are engaged in, increases value for women farmers and drives engagement.

Quotes

"I do the planting, cultivation, but spray[ing] is done by the boys at home, or I pay someone to spray."
ARIFU | WOMAN | FARMER | 52 | EMBU

"When women get information [on land management], they can't use it, but when men get information, they can use it because they are the owners of land."
ARIFU | WOMAN | FARMER | 40 | BOMET

Source: Dalberg analysis, Farmer Interviews, 2020

Women Farmer Segments and Mental Models

Segments of Women and their Mental Models

Through the analysis of drivers and barriers to adoption/engagement, several segments of women users emerged, and some degree of insight into their psychometric traits was possible.

***We explored these beliefs and attributes further, to deepen our understanding** around drivers/barriers of product use by applying a mental models analytical framework to the emergent segments.*

*Through this framework we were able t**o distill some of the key beliefs, value propositions and cognitive biases that may be affecting decision-making** around adoption/engagement with products.*

Segmentation Methodology

DIGITAL USAGE PATTERNS

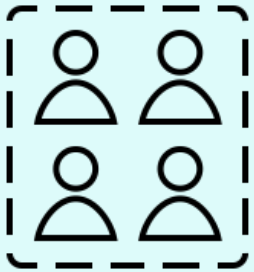
What are the usage patterns across the customer journey *(a*wareness, onboarding, product use and advancement)?

High, average and low usage

DEMOGRAPHICS

What are the socioeconomic characteristics of women users that drive their usage patterns?

Age, location, marital status, education, digital literacy, livelihoods and household context



BEHAVIOR

What is the financial and social behavior of women users that drive their usage patterns?

How likely are women users to have a bank or mobile wallet account, save, borrow, budget, etc.? Which community activities do women users engage in that affect their usage patterns of the platform?

PSYCHOLOGY*

Which are the psychometric traits that could explain women usage patterns?

Women's sense of control, self efficacy, openness, trust, optimism, conscientiousness, and dependability

Note*: The Psychometric traits used are based on The Human Account of Kenya Women Smallholder farmers, created and developed by Dalberg with Rockefeller Philanthropy Advisors and funded by the Bill & Melinda Gates Foundation in 2019. The Human Account (THA) is a three-dimensional research framework aiming to better understand customers in emerging markets based on their contextual, behavioural, and psychological dimensions.

Segments of Women across Partners

Three segments of women users emerged (super, average, and low users) across the platforms, except on AgriPay, where there were only average and low users

	Super users	Average users	Low users
Digi Farm BY SAFARICOM	Savvy Explorers	Comfortable Observers	Passive Onlookers
FARM TO MARKET ALLIANCE	Community Leaders	Certainty Seekers	Path Followers
Arifu	Self-Starters	Curious Followers	Uninterested Skeptics
AgriPay	*Not observed*	Curious Optimists	Passive Skeptics

Source: AGRIFIN Gender Impact Assessment, Farmer Interviews, 2020
*A Super User segment was not observed on AgriPay – only average and low users were observed

Key Women Segments: DigiFarm

THE SAVVY EXPLORER (Super-users)

Mostly married women, in peri-urban areas that have the highest education of all segments and are consequently the most active women users of DigiFarm. They have a strong penchant for technology, and leverage multiple online channels to educate themselves further on new digital tools and services. They participate equally in the financial decision-making in the household, usually with someone else. These women have an entrepreneurial spirit and multiple income streams they rely on beyond farming. This enables them to take care of household expenses. They participate in chamas and they are often the leaders of their groups. People in their community look up to this segment for advice and in some cases financial support. They often grow multiple crops and rear livestock that they sell commercially and, frequently hire additional labor to support them during planting and harvesting seasons. Psychometrically, they are optimistic, have a high sense of agency and have high trust in the community around them, which makes them more likely to seek advice from close sources on whether to join DigiFarm. They are most likely to constitute the Educated Planners segment of Kenyan women in The Human Account.

THE COMFORTABLE OBSERVER (Average users)

Most live in peri-urban or rural areas and their highest level of education is high school. They are relatively digital savvy and constitute the average-user segment of DigiFarm. Women of this segment frequently rent land or may use a portion of their husbands land for farming. In some cases, they require permission from their partners especially financial decisions. They often have a bank account that is inactive and use mobile money as the main means to transact and informal groups to borrow money. They depend on crop farming and poultry rearing and farm both for commercial and food security purposes. This segment does most of the farm work themselves but, sometimes hire seasonal labor for support. Some either own a smartphone or previously owned one. Psychometrically, their self-esteem, optimism and trust levels are average compared to other Kenyan female farmers. They are slightly more open than other female farmers, and likely to experiment with new financial and digital services, but their usage is limited by lower incomes than those of Savvy Explorers. They most closely resemble the Careful Strivers segment in The Human Account of Kenyan women farmers.

THE PASSIVE ONLOOKERS (Low users)

Mostly middle-aged and older women in rural areas, with primary education as their highest level of education. They have low levels of digital-savviness, and form the segment that engages with DigiFarm the least. If married, they do not participate equally in the household decision making and often rely on their partners approval in financial and farming decisions. They solely depend on crop farming for their livelihood and are most likely to depend on others (family and community) to support them financially. They have no bank account and save their money through informal groups. They frequently borrow from mobile money applications like Mshwari to make ends meet. Due to their limited income streams, they do not outsource for additional labour and support and are more likely to farm for their household food security. They typically do not own a smartphone and therefore, rely on in person trainings, their informal group and trusted members in the community to stay up to date with current trends. They tend to have lower trust than average of other people, digital and financial services. They also have low self-esteem and a negative view of the future. They are mostly like the Reserved Individualists and Disciplined Pragmatics in The Human Account.

Source: AGRIFIN Gender Impact Assessment, Farmer Interviews, 2020; Dalberg Analysis

Key Women Segments: FtMA

THE COMMUNITY LEADER (High users)

Overview: They are the most active women users of FtMA and are likely to be chosen to be an FSC lead.

Demographics

- Mostly live in peri-urban or rural areas
- Have the highest education levels of all segments.
- Mostly own smartphones
- They have a strong penchant for technology and leverage multiple online channels to educate themselves further on agriculture
- They are more likely to farm commercially and hire labor to support them in farming.
- Besides farming, these women have an entrepreneurial spirit and multiple income streams they rely on, sparking their interest to become an FSC lead, to increase incomes.
- They participate in groups and are often the leaders of their groups.
- In households, they are likely to participate equally in decision-making with spouses.

Psychometrics:

- They value their community and have acquired trust from others in the community, making them most likely to qualify as an FSC lead.
- They are most likely to constitute the Educated Planners segment of Kenyan women in The Human Account.

THE CERTAINTY SEEKER (Average users)

Overview: They are moderately digital savvy and constitute the average-user segment of FtMA.

Demographics:

- Mostly live in peri-urban or rural areas
- Their highest level of education is high school.
- They may be a group leader and may aspire to be an FSC lead in the future.
- Some own a smartphone while others own feature phones. Women of this segment farm both for subsistence and commercially.
- Agriculture is most likely to be their primary source of income. They may rent land or farm on jointly-owned land.
- In some cases, they require some permission from their partners, especially on financial decisions.

Psychometrics:

- They have moderate levels of openness to digital services/tools, optimism and trust levels compared to other Kenyan women farmers
- They most closely resemble the Careful Strivers segment in The Human Account of Kenyan women farmers.

THE PATH FOLLOWER (Low users)

Overview: They form the segment that engages with FtMA the least.

Demographics:

- Mostly live in rural areas
- Have primary school or secondary school as their highest level of education.
- They have low levels of digital-savviness
- Are least likely to own a feature phone.
- If married, they do not participate equally in the household decision making and often rely on their partners approval in financial and farming decisions.
- They are more likely to solely depend on crop farming for their livelihood and are most likely to grow one type of crop in their farm.
- Due to their limited income streams, they do not outsource additional labour and support and are more likely to farm for their household food security before selling to off-takers.

Psychometrics:

- They have lower trust of digital services than other segments and are likely to rely on in person trainings, farming groups and trusted members in the community for agricultural information.
- They are mostly like the Reserved Individualists in The Human Account of Kenyan women farmers.

Source: AGRIFIN Gender Impact Assessment, Farmer Interviews, 2020

Key Women Segments: Arifu

THE SELF-STARTERS (High-users)

Mostly digitally savvy women who leverage multiple online channels to educate themselves further on new digital tools and services. Due to their digital savviness, they are the most likely to hear of Arifu from mass and social media and are also least likely to need guidance during registration. Women in this segment are most likely to be in a farmer or savings group and are often the leaders in their groups; consequently, they are most likely to share their knowledge of Arifu with peers. Self-starters exhibit the highest levels of curiosity and proactiveness of all segments and are therefore most likely to explore content on other value chains once they exhaust the learning modules on the value chains they first engaged with, even without receiving a reminder or re-engagement SMS. They are also the most likely to take the test and score highest of all segments. These women are also most likely to adopt new products/services that they learn about from Arifu e.g., loans and inputs. Psychometrically, they are optimistic, have a high sense of agency and feel positive about the future, they also have high levels of trust in financial services, which makes them more likely to take out loans. They are most likely to constitute the Educated Planners segment of Kenyan women in The Human Account.

THE CURIOUS FOLLOWERS & CURIOUS OPTIMISTS (Average users)

This segment is moderately digitally savvy and constitutes the average-user segment of Arifu. A few are likely to learn of Arifu from mass media, particularly vernacular radio stations, but most learn about Arifu through SMS. They are likely to self-register but may wish for guidance during the registration process. These women farmers are also more likely to be in groups and a few are leaders in their groups, however, they are less likely to share their knowledge of Arifu with their peers, likely because of moderate engagement and enthusiasm. They exhibit moderate levels of curiosity and some may explore content in other value chains/modules, however, most are likely to stick to content on a specific value chain. This segment is likely to try questions but may be less likely to finish answering them than superusers. They also require SMS reminders to engage with content. Psychometrically, they are slightly more open than other female farmers and likely to experiment with new financial and digital services, but their usage may be limited by lower incomes than those of self starters. They most closely resemble the Careful Strivers segment in The Human Account of Kenyan women farmers.

THE UNINTERESTED OR PASSIVE SKEPTICS (Low users)

This segment has low levels of digital-savviness and are the segment that engages the least with Arifu. They typically own a feature phone or share one with spouse/family. Therefore, they often rely on in person trainings, and trusted members in the community to stay up to date with current trends. Due to their low levels of digital savviness, they are least likely to learn of Arifu from other sources and mostly hear of Arifu from SMS. They are most likely to need assistance during registration. This segment is also likely to be in farmer groups but are least likely to be leaders in the groups and are often inactive. They are therefore the least likely to share about Arifu with peers. Psychometrically, they exhibit the lowest levels of curiosity and proactiveness. The segment is likely to have lower trust than average and are most likely to be the suspicious of SMSs from new numbers and see them as scams. They are also likely to have low self-esteem and a negative view of the future, and are resigned to their current circumstances. They closely resemble the Reserved Individualists in The Human Account.

Key Women Segments: AgriPay

THE CURIOUS OPTIMIST (Average-user)

This is the segment of women users of AgriPay that is likely to have more active usage, though usage remains at moderate levels. They are moderately digitally savvy, might own a smartphone, and leverage multiple online channels to educate themselves further on new digital tools ,services and farming practices. They have multiple mobile money accounts and frequently use mobile money to store money and perform transactions. If married, they participate equally in the financial decision-making in the household and discuss with their partners prior to attending village savings meetings and registering for AgriPay. They actively participate in village savings group, saving and taking loans frequently, and are often the leaders of their groups. People in their community look up to this segment for advice and in some cases financial support. They are entrepreneurial and are therefore more likely to farm commercially and, have higher produce volumes, and frequently hire additional labor to support them during planting and harvesting seasons. They have moderate proactivity in exploring AgriPay. They are more conscious and concerned about the lack of support provided and are eagerly waiting for the new products to be launched.

THE PASSIVE SKEPTIC (Low-user)

Most live in rural areas and have lower levels of education - mostly primary school. They are not as digitally savvy and constitute the low-use or low-engagement segment of AgriPay clients, barely using AgriPay after registration. They own a feature phone that they use for receiving/making calls and texts , relying on physical sources of information and support such as peers and savings group on agricultural services and when troubleshooting challenges they experience on AgriPay. If married, they are more likely to require permission from their partners prior to attending village savings meetings and registering for AgriPay. They rarely use mobile money platforms for transactions and like to keep their money at home for everyday expenses. They save in village savings groups. They practice farming for subsistence. They are more skeptical about new digital services and less proactive in exploring the platform. After the onboarding training, they are likely to stick to the features that were shown to them during training. To actively engage, understand and advance on AgriPay they require follow up and after sales support from the Zanaco team to start actively engaging with the AgriPay platform . They also need to see proof of success from their peers to engage with AgriPay more.

Source: AGRIFIN Gender Impact Assessment, Farmer Interviews, 2020

Shared Mental Models of Women: Elicitation Methodology

Mental models are the sum of beliefs and attitudes about a product or service, and they heavily influence the extent to which people engage with a product or service and for what purpose.

Based on the women segments identified, we added a behavioral lens to identify beliefs, aspirations and values systems that are most likely underpinning decision making to use digital solutions and current observed trends in uptake and usage for each segment.

Our approach to eliciting the shared mental models across the women segments involved 3 stages:

- Understanding user beliefs and aspirations and linkages to perceived value of partners.
- The actual perceived value and how this differs from the conceptual value proposition.
- Identifying the cognitive dimensions and biases driving decision making around uptake and usage of partners products and services.

User Beliefs, Values And Aspirations

Through content analysis (based on the Means End Chain Theory elicitation method of qualitative interviews we identified user farming and non farming specific goals. This aided us in understanding underlying motivations for usage and advancement in using digital solutions.

User Perceived Value Proposition

We unpacked the user expectations and perceptions of the partner platforms value and how this may link to aspirations. We identify the features that users perceive to be the most valuable through self reported and quantitative data.

Cognitive Dimensions and Cognitive Biases

We categorize user decision making under 4 broad cognitive dimensions that can be defined by 2 systems of thought. System 1, a subconscious system that uses deep seated beliefs and biases to make quick judgements. System 2: a more deliberate and methodical system that seeks new information or evidence for decision making.

Source: Farmer Interviews 2020 & 2021, Busara Mental Model Analysis, Kahneman (2011), Langan-Fox, (2000)

Cognitive Dimensions of Women's Decision Making

Common Cognitive Dimensions

System 1

Faith
Belief Systems

Preference
Personal Desire

System 2

Logic
Rational Thinking

Evidence
Proven or Tested

Preference and Evidence

Most decision making observed across all segments of women is driven mostly by preference, logic and evidence. Preference was informed not only by personal aspirations and goals but also by spousal influence and media (tv and radio program adverts).

Social proof in the form of referrals from other women and farming groups helped inform preference but also provided evidence of perceived efficacy or suitability of digitally enabled farming solutions. for women's decision making.

Few women were driven by default traditional belief systems around farming.

Observed Cognitive Biases

Anchoring and Availability Bias

Decision making can be anchored by the first piece of information received during onboarding or the value proposition that is emphasised the most. This was observed with Arifu users who tend to stick to the learning programs they were first introduced to..

Confirmation Bias

Uninterested skeptics segment and men may seek to confirm previously held traditional belief system around farming practices by disregarding product or service features that may contradict these existing beliefs or only selecting digital solutions that fall in line with existing beliefs.

Social Norms/Social Proof

Evidence of other farmers using and benefiting from digital solutions has helped drive interest and engagement for DigiFarm, FtMA and AgriPay. This is especially the case for women in farming or savings groups .

Representativeness Bias

Engagement is encouraged when farmers are familiar with the brand of the digitised solution provider. This was particularly the case for DigiFarm and AgriPay. Users reported having more instinctual trust for the platform because of its association with Safaricom and the Zambian National Bank.

Source: Farmer Interviews 2020 & 2021, Busara Mental Model Analysis

Mental Model Summary across User Segments

Super/Average Users

Women within this segment of users (super and average users) can be broadly categorized as more strategic and pioneering thinkers. These women include all super users (self starters, savvy explorers and community leaders) and some average users (curious optimist, certainty seekers, comfortable observers and and curious followers). Most of these women have well defined farming and personal goals and value digital services or products on how they maximise their capacity to profit and save costs. Their cognitive reasoning around the uptake and use of digital solutions is based more on logic and evidence rather than faith in traditional farming practices or the risk aversion toward new solutions that usual characterizes social norms of smallholder farmers. Although they are open to new digital products, they are also practical and show preference for more traditional solutions if they help achieve their goals faster.

These women aspire to gain sustainable access to markets at competitive prices to achieve better profitability. Some of these women particularly the community leaders under FtMA have a conscientious outlook on farming with the aim of promoting better food security in their local communities not just through their own farming, but through other local farmers.

Low Users

Women under this segment display more traditional mental models. These women are predominantly characterized as uninterested skeptics, passive onlookers, passive followers and tend to be the most complacent when it comes to the uptake of new digital solutions. These women do not have clearly defined goals for their farming mostly likely because they see agriculture as a form of subsistence farming. In addition to having limited independent farming goals they usually have to gain spousal approval before taking up digital solutions that involve credit or decision making on the type of inputs bought. In some cases gender roles mean these segments of women are restricted form exploring digital solutions related to credit or certain training programs around farm management.

These women despite the myriad of challenges they face such as low digital literacy have aspirations centered on giving their children a better education. However these women are more accustomed to working hard and not smart with some still holding on to traditional framing practices based on culture and superstition. These women usually have limited decision making power and require more prompting to consider beneficial digital solutions. Faith and default preferences in non digital solutions drive most of the decision making under this model.

1. Engagement Impact

Impact on Women's Livelihoods

Women have experienced increased yields, incomes and improved financial discipline

Livelihoods impact

Increased yields and incomes

- Knowledge gained on better agricultural practices, and enhanced access to inputs and credit have led to increased yields across the platforms
- Sale of surplus produce, guaranteed market access and linkage to off-takers who offer higher prices has increased their incomes
- On DigiFarm and FtMA, a guaranteed market that offers higher prices for some produce than those offered by middlemen has led to increased income

Diversification of income streams:

- FtMA has helped women FSC leads diversify income streams. FSC leads gain commission for every farmer they onboard. Additionally, they can more easily venture into agribusiness and other ventures e.g. agrovets, through business coaching provided by FtMA through Kuza.
- On DigiFarm, women farmers have been able to add to the income streams in the household by diversifying the value chains they participate in, enabling them to cover essential expenses e.g. food, as well as other goods e.g. T.Vs.

Improved financial discipline through AgriPay:

- Women farmers report having higher financial discipline after using AgriPay due to reduction in spontaneous spending which is the case when they store money at home.
- Safe storage of money and ability to track expenses results in better financial planning and budgeting. Women indicate they are now able to better plan for future expenses and big purchases such as solar panels and television sets.

Quotes

"When we farm how we are taught by FtMA we get very good harvests. I used to harvest 8 bags now I harvest 30 bags."

FtMA | WOMAN | FARMER | 40 | THARAKA NITHI

"Before I opened the account, I used to spend unnecessarily. Now, I only access the money I need. I can make better and more productive decisions."

AGRIPAY | WOMAN | FARMER | 56 | ZAMBIA

Source: Dalberg analysis, Farmer Interviews, 2020,

Impact on Women's Livelihoods

Digital platforms have had a positive impact on women's lifestyles, particularly in alleviating time poverty, except AgriPay, which has had mixed impact

Lifestyles impact

Women have experienced time savings through using the Arifu, DigiFarm, and FtMA platforms; however, women report mixed impact on their time when using AgriPay

- DigiFarm and FtMA have saved women farmers' time by linking them to off-takers directly, so they do not need to spend time searching for markets
- DigiFarm saves women farmer's time by providing DVAs who visit farms to respond to challenges and off-take produce. FtMA does the same through FSCs who provide timely information to women farmers and services near women's farms
- Improved incomes reported due to DigiFarm and FtMA use, have helped women farmers to hire extra help, freeing up their time to pursue other activities
- FtMA's and Arifu's training on efficient farming practices and new farming techniques such as use of herbicides has enabled women farmers to be more efficient in their farming activities, allowing them to spend time on other responsibilities such as housework, childcare, and productive activities
- FtMA's training on time management has helped women FSC leads and farmers learn how to effectively plan their time between farming and personal obligations
- AgriPay has had a mixed effect on women farmers' time, with some women indicating saving time with the direct payments feature while some women have added time constraints due to the inaccessibility of the XpressAgents.

Quotes

"Before we used to go to the market and go round searching for a buyer but now, we aggregate, and the buyer comes directly to us and gives us our payment on the spot."

DIGIFARM | WOMAN | FARMER/DVA | 50 | MERU

"Because of FtMA, I have been able to hire labor when I have an opportunity to go to meetings and when I come back, the work at home is still going well."

FtMA | WOMAN | FARMER/FSC lead| 48 | THARAKA NITHI

Source: AGRIFIN Gender Impact Assessment, Farmer Interviews, 2020

Impact on Women's Livelihoods

Digital platforms have also helped women farmers increase their decision-making power in households

Lifestyles impact	Quotes

Across all the platforms, women increased their decision-making power on the farm and in the household, as well as control of their personal finances

- On both DigiFarm and FtMA, women have pointed to their increased decision-making power in agriculture and the household as a direct result of being on the platforms
  - On FtMA, women's partners trust the knowledge received from the trainings, and therefore allow women to make more contributions to farming decisions (e.g. planting and inputs to use). Some women mentioned their husbands can now consult them on business and financial decisions, especially after observing them diversify their activities and incomes
  - Similarly, on DigiFarm, women farmers' increased income through the platform resulted in greater trust from their partners
- In addition, women have mentioned they have increased control over their finances and can now make independent spending decisions on account of both DigiFarm and FtMA
  - On DigiFarm, this agency is due to increased control of finances for women farmers when income is sent directly to their phones
  - On FtMA, women farmers reduced reliance on their husbands for financial support as they increased their incomes

"Now my husband can also take my input on issues as I have gone to training and have knowledge."
FtMA | WOMAN | FARMER | 32 | NAKURU

"After FtMA training, crop farming became lucrative, and my husband joined farming too."
FtMA | WOMAN | FARMER | 50 | MERU

"My husband now really likes FtMA as we now have additional income."
FtMA | WOMAN | FARMER | 52 | MERU

Source: AGRIFIN Gender Impact Assessment, Farmer Interviews, 2020

Impact on Women's Livelihoods

DigiFarm, FtMA and Arifu have also helped women farmers increase their agency over their learning, confidence, social standing, and improve family nutrition

Lifestyles impact

Women increased their agency in learning, confidence, and community standing across DigiFarm, Arifu and FtMA. Women also improved nutrition for their families thereby improving their lifestyles.

- Women farmers on Arifu, DigiFarm and FtMA reported feeling greater control over, and confidence in, their own learning journeys due to being able to access learning content at any time and to decide how and when to learn.
- Women's knowledge, success in agriculture, and increased incomes have boosted their self-esteem and confidence as farmers for Arifu, DigiFarm, and FtMA
- Women farmers on Arifu and DigiFarm particularly have a noticeable change in their social standing in their villages and groups. The observable success of women's farms has resulted in respect from their peers who often inquire how they gained their success
- Increased yields enable women farmers to retain more food for consumption and increased incomes help them diversify meals, increasing food security and nutrition

However, on AgriPay, due to the short time of the product in the market and infrequent use, most women farmers interviewed indicated no substantial changes on their decision-making, household dynamics, or household dynamics

Quotes

"It [Arifu] gave me confidence and motivated me to actualize my plan to start rearing chicken."

ARIFU | WOMAN | FARMER | 24 | KERICHO

"I cannot point out that I have received any benefits. The time I have been on it has not been long enough."

AGRIPAY | WOMAN | FARMER | 56 | ZAMBIA

Source: AGRIFIN Gender Impact Assessment, Farmer Interviews, 2020

Recommendations

Recommendations

Use of a groups' recruitment approach, above and below the line marketing, and agents can ensure continued recruitment of women farmers onto the platforms

Category	Recommendations
Awareness and Onboarding	• **A combination of above the line marketing and below the line marketing is required to create awareness among women farmers about the platforms.** Above the line marketing is effective in creating broader awareness among women farmers about the platforms, particularly local-language radio and TV shows, and farming shows, as observed on DigiFarm and Arifu. However, it is insufficient and below the line marketing e.g. SMS and use of agents is needed to convert women farmers to register for the platforms. • **Target farmer and savings groups to recruit women farmers.** Use of these groups has been effective in recruiting women farmers for FtMA, AgriPay and DigiFarm. Women are more likely to be members of such groups than men, peer influence drives women's trust in the groups to register, and the groups are also efficient for agents to recruit from. • **Encourage agents to follow up and avoid anchoring user expectation to a limited range of product or service features to encourage scope for advancement.** • **Use agents to support women farmers to register and onboard onto platforms, and support their usage.** Across all platforms, women farmers indicated a preference for agents to support them in navigating the registration process and to guide them when they have questions. As observed, the gender of agents does not matter as much – it is more important that the agent is credible, respected, supportive and accessible. This can also help in boosting false information and traditional beliefs that hinder adoption of resilient technologies. • **Provide additional support to women farmers to gather registration requirements.** For example, inviting SIM card providers to registration meetings where required and communicating registration requirements in advance of registration meetings has helped women farmers to register on AgriPay.

Source: AGRIFIN Gender Impact Assessment, Farmer Interviews, 2020

Recommendations

Platforms can enhance women's product use by mitigating challenges around understanding, time and mobility, and ensuring processes are gender inclusive

Category		Recommendations
Product Use	Inputs	• **Enhance last-mile delivery of inputs between agrovet stores and farmers' homes or farms** as last-mile delivery challenges are felt more by women farmers due to time and mobility challenges. Platforms' agents can support farmers by offering input delivery to their homes or farmers as additional support – farmers will potentially pay for such support given the time and transport cost-savings they would gain from the support.
	Input credit	• **Provide more education to farmers particularly women, e.g. through agents, on the alternative collateral requirements for loans on platforms**, to mitigate misunderstanding of the loan products. This will reduce misconceptions that land and property will be seized in case of default. • **Offer a combination of group and individual loans to farmers on platforms** to meet the needs of both farmers who cannot qualify without group guarantees, but also women farmers who prefer individual loans and can qualify for them.
	Insurance	• **Work with insurance partners to clearly set out guidelines on when farmers are compensated in case of crop losses,** to ensure farmers are rightly compensated and to shift negative perceptions of crop insurance not making payments when needed. These guidelines should be proactively shared with farmers as well through agents and channels such as SMS, to mitigate challenges of misaligned expectations between farmers and insurers.

Source: AGRIFIN Gender Impact Assessment, Farmer Interviews, 2020

Recommendations

Platforms can enhance women farmers' access to markets and learning by mitigating time and mobility challenges

Category		Recommendations

Product use	Access to markets	• **Incentivize and enable agents to collect produce from women from their farms as additional support to help address women's time and mobility constraints from accessing markets.** This can be accomplished through multiple pathways such as:
		  • Offering a bonus or additional commission to agents for produce they collect from women e.g. additional kilograms collected from women farmers beyond a set standard
		  • Provide transport allowances to agents to go and collect produce from women's farms
		  • Implement quotas on a certain minimum ratio that agents should collect from women relative to men farmers, while ensuring the quotas do not create distortions or unintended effects

	Learning	• **Consider more integration of IVR as an additional content delivery mode** to increase engagement among women who may need to multitask while learning • **Ensure timing of content delivered digitally e.g. SMS messages matches times that women farmers are most likely to be available** e.g., lunchtime, evenings and weekends. Due to household responsibilities of women, improved timing of messages can enhance engagement. • **Proactively provide guidance on usage of more complex digital modules** on platforms such as apps, through use of agents, how-to SMS messages, call-back numbers, etc. This will support less digitally savvy women farmers who may require more hand-holding initially to navigate the platforms due to digital literacy challenges, and lower comfort levels with the platforms. • **Ensure the source of the digital learning content is indicated** e.g. in SMS or IVR calls, to mitigate trust challenges of receiving digital content, particularly given the prevalence of scam messages and calls.

Source: AGRIFIN Gender Impact Assessment, Farmer Interviews, 2020

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