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## 4 Key Findings: Smallholder Farmer Use of Mobile Phones for Agriculture

By Guest Writer on September 16, 2020



[ICTforAg services](#) and solutions disseminated through mobile phones offer the promise to connect millions of smallholder farmers and improve their access to agricultural information. While new [ICT4Ag solutions](#) come online every day, there is an open question of whether farmers access these services equally.

This is an interest across development actors as NGOs, private industry, and governments [invest in agtech](#) and develop mobile-based technologies. Because the landscape is changing as fast as these technologies are coming

online, there is a need for improved measures on collecting baseline information. In 2017, USAID published a [survey toolkit on gender and ICT](#) to standardize metrics for quantifying gendered differences in ICT use to meet this challenge.

We used this toolkit to survey more than 500 smallholder farmers in the semiarid highlands of central [Kenya](#), specifically Laikipia, Meru and Nyeri counties in March 2018.

Our research “[Smallholder farmers’ use of mobile phone services in central Kenya](#)” highlights what apps or services farmers are using for their agricultural and livestock management and what socio-economic factors affect their use. We use the umbrella term “m-services” to cover a wide array of mobile phone-enabled services from agro-meteorological to market information. Here is what we found.

## 1. Farmers are using apps, but adoption is low

The good news is 98% of farmers in our study site own a mobile phone, showing that mobile phone usage is nearly ubiquitous. Adoption rates of m-services by farmers, however, is not as widespread:

- 25% access general information about agriculture or livestock,
- 23% access information about buying or selling their agricultural products
- 18% use their phones receive alerts

Farmers in this region use all sorts of apps to access this information. The most popular ones are WhatsApp, Facebook and iShamba. Here are the top ten reported most to least utilized apps. [Our study](#) has the full list.

1. [WhatsApp](#)
2. [Facebook](#)
3. iShamba
4. Call/Short Message Service ([SMS](#))
5. Web
6. Mkulima Bora
7. Local Farms, e.g. messages from Kisima and Wambugu Farms
8. DigiFarm
9. Caritas
10. Ujuzi Kilimo

## 2. Digital divides exist in wealth, gender and education

Personal smartphone ownership is a major factor in m-services use. Smartphone owners are twice as likely to use m-services for farming. While age is not significantly related to m-services use, higher-levels of education are associated with m-services use.

For example, farmers who completed primary school or at least some secondary school, were 3 to 4 times more likely to use m-services for farming and alerts. The relationship between gender and m-services use was also found to be statistically significant with men being 1.20 and 1.35 times as likely to use m-services related to buying and selling and alerts.

## 3. Women lag (slightly) behind men in smartphone ownership

Because smartphone ownership is so closely tied to m-services use, it is important to consider what kinds of phones farmers are using. We grouped phones into three categories:

- Basic phones (*mulika mwizi* in Kiswahili) cannot download apps or access the internet

- Feature phones cannot download apps but come pre-loaded with applications such as Facebook or a web browser that can access the internet
- Smartphones can access the internet and download apps

56% of women in our study owned a basic phone compared to 48% of men whereas 31% of women own a smartphone compared to 38% of men.

## 4. A way forward: Farmer groups

Farmers may belong to any number of [farmer groups](#) in order to learn and share information and resources. At our study site, farmers may belong to local water resources groups called Community Water Projects (CWPs) which enable access to irrigation resources.

Our survey included a metric for membership in farmer organizations as defined by whether or not a farmer is a member of agricultural cooperatives, Community Water Projects or other farmer groups. We found that membership in these organizations positively influences m-services use with members being twice as likely to use m-services compared to those not in farmer organizations.

To better leverage the m-services that already exist, farmer groups can serve as a key pipeline for improving awareness and use of these services. Moreover, targeted action is needed to reach those who do not participate in these groups and may be missing out on important information.

## Three ICT4Ag Recommendations

- **Continue targeting the unreached:** Efforts to include women, less educated, and those who do not own smartphones, are well warranted. Farmer groups such as agricultural cooperatives, water resources groups, and other farmer organizations can be effective in increasing awareness and adoption of m-services.
- **Use standardized metrics:** The [USAID toolkit on gender and ICT](#) outlines survey protocols and questionnaires for these types of baseline studies.
- **Follow best practices:** Our results show the importance of personal smartphone ownership and point towards the tendencies that these apps are designed for smartphone users and not those with basic phones. M-service designers need to [design with the user](#) and follow industry standard guides such as [FAO's guide on Gender and ICTs in Agriculture](#) and [Principles for Digital Development](#).

We hope our results can inform more targeted measures by governments and other actors to better adopt the myriad of tools that are becoming available to farmers.

*[Natasha Krell](#) is a Ph.D. candidate in the Department of Geography at the University of California, Santa Barbara. She was awarded a Fulbright fellowship to conduct her doctoral research in Kenya in 2018.*



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1. [Rose Muchichu](#) says:  
[September 24, 2020 at 12:16 am](#)

The research resonates very well to what we see and experience in the fields of Subukia, Nakuru where we launched a farmer information kiosk targeting the unreached group. Indeed more needs to be done to meet the needs of this group.

o [Natasha](#) says:  
[September 24, 2020 at 11:40 am](#)

Thank you, Rose! The idea of an information kiosk sounds very interesting. As many individuals often go to Safaricom, etc. kiosks to top up, this makes sense as an outreach mechanism. I agree more can be done.