ICT FARMERS

POLICY BRIEF

2022

UCC - RCDF PROJECT

Enhancing ICT adaptation, service delivery, content and digital skills for smallholder farmers

COMPONENT

Establishing an innovative integrated digital platform (web portal, mobile app, e-agriculture academy and call centre)

UNFFE

UCC UGANDA COMMUNICATIONS COMMISSION

Eight Tech Consults

Executive Summary

There is increasing need amongst all service sectors to tap into the opportunities brought by Information Communication Technology (ICT) to improve service delivery. Uganda Communications Commission (UCC) through the Rural Communications Development Fund (RCDF) in collaboration with Uganda National Farmers Federation (UNFFE) and Eight Tech Consuls Ltd(8Tech) undertook a project to develop a digital environment that could be used by farmers. This project revealed it crystal clear that, indeed agriculture employs over 70% of Uganda's population, of which majority are youth and women. The report further noted that over 70% of the farmers are smallholder farmers based in rural areas, whose operations are greatly affected by; climate change, weak digital skills, limited access to productivity knowledge along value chains, limited access to quality farm inputs, weak logistics systems, limited access to quality extension services, weak business intelligence, limited access to quality markets among others.

To address the problems cited above the project team noted that the 4th industrial revolution powered by artificial intelligence, 5G and data science does provide possibilities of addressing some of these challenges. Uganda has witnessed a rapid development of ICT4Agric Innovation, but the uptake of these innovations is constrained by a number of factors including; limited awareness of these innovations, low internet and smart phone penetration especially in rural areas, lack of appropriate digital skills, inappropriate programmes implementation models which are project and donor driven, limited articulation of value add to various stakeholders among others.

1. The Context

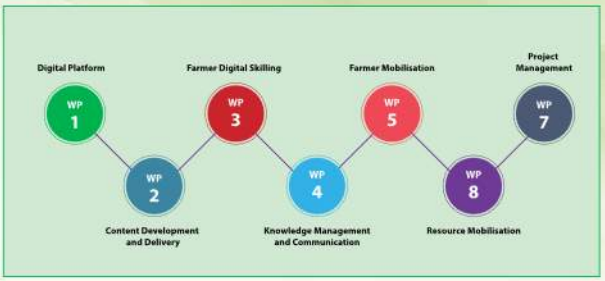
This project focused on addressing several challenges faced by smallholder farmers in rural areas of Uganda which included; uncoordinated Agriculture content development and distribution to farmers, Multi-formatted existing content which is mostly text based and in English thus being hard for farmers to understand, lack of knowledge and skills to harness the power of ICTs, especially their application of ICTs in monitoring and evaluation on quality of service in the extension system and farm level processes, lack of awareness and accessibility of Agriculture ICT innovations by farmers, limited access to quality extension services among others.

2. Purpose of the Project

The overall objective of the project was to contribute to accelerated uptake of ICT4Agric innovations by various actors especially smallholder farmers in a number of value chains covering crops, animals and fisheries. The specific objectives included: Documenting the impact of the digital skilling initiative on farmer; productivity, information seeking behaviour, consumption of ICT services among others.

- Establishing a sustainable integrated decision enhanced service platform for various actors including; farmers, policy makers, extension workers, logistics providers, academia, processors among others.
- Establishing a mechanism of content development, validation, certification and distribution.
- Promoting the uptake of ICT Innovation and services by various actors through skilling and awareness creation.

The project followed a work package methodology in relation to activity implementation. There were seven work packages considered and each participating organization was allocated specific work packages to lead. The figure depicts the work packages.



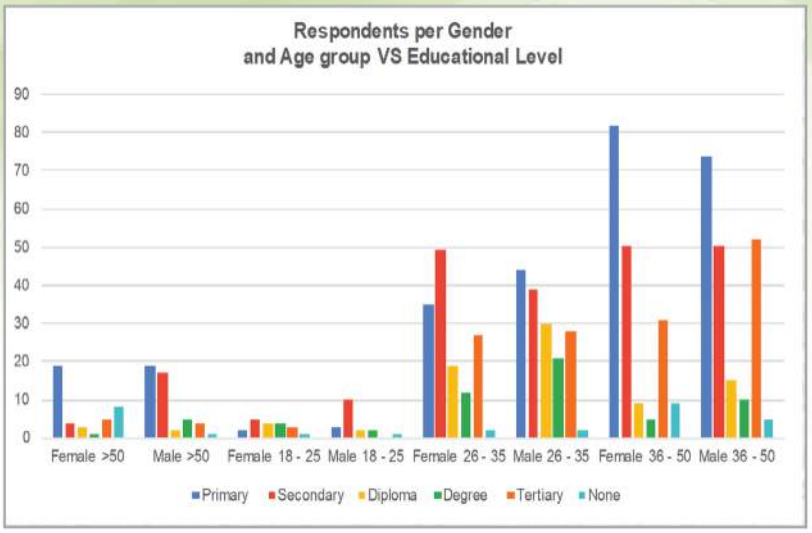
The project involved the principle of knowledge co-creation using community centered approaches where project implementers, practitioners and farmers were engaged in generation and sharing of knowledge, resulting into the development of artefacts (technologies, content, skills and services) which were contextual to their needs.

3. Project Outputs

The project had multiple outputs which were realized during the three phases of the project and these included; baseline indicator generation for the programmes, ICT4Farmers system and Mobile App, ICT4Farmers Call Center, Digital Content, Farmer sensitization and awareness.

a) Baseline Indicator Generation

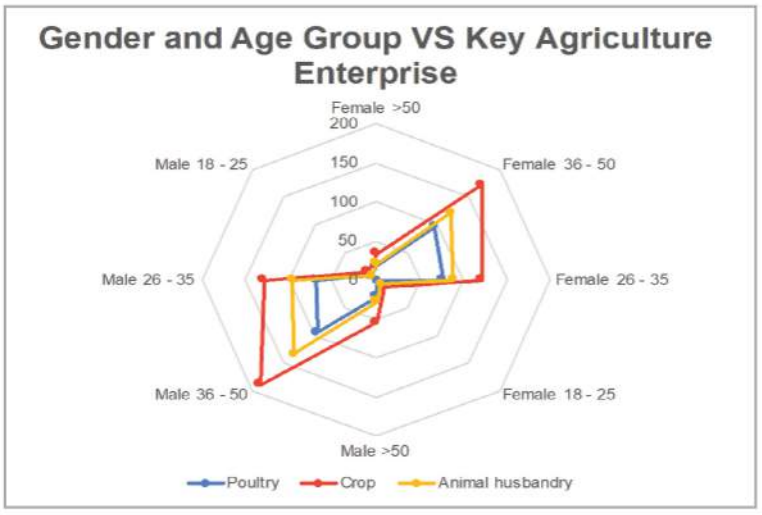
The purpose of this activity was to establish the social-economic status of the programme beneficiary, the current ICT usage and access patterns among the agriculture stakeholders, determining the baseline indicators for the implementation of the ICT4Farmers project and to identify the potential challenges and opportunities for the project implementing team.



Majority of the farmers (60.85%) within the study did not have higher levels of education but secondary or primary levels. Also, there were more farmers between the age group of 36-50 and Majority were females of secondary and primary level education.

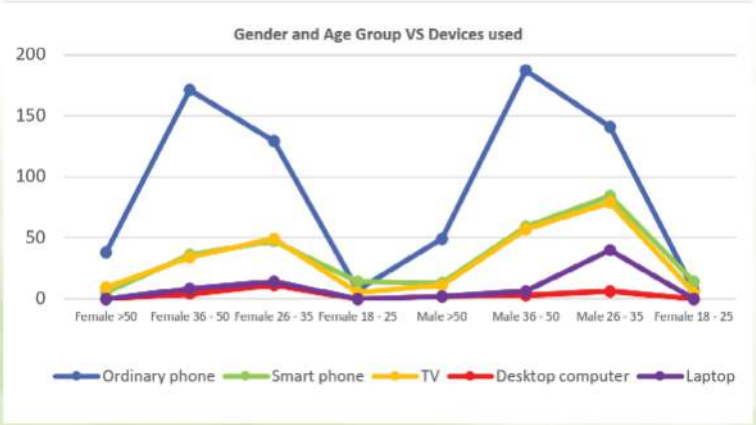
This figure is well aligned to the low usage of ICT in agriculture as deduced from the statistics. Research has shown that people with lower levels of education are less adopters of technology in the different service sectors.

The study revealed that there were different categories of Farmers that were reached and these were interested in performing different roles as demonstrated in the figure below.



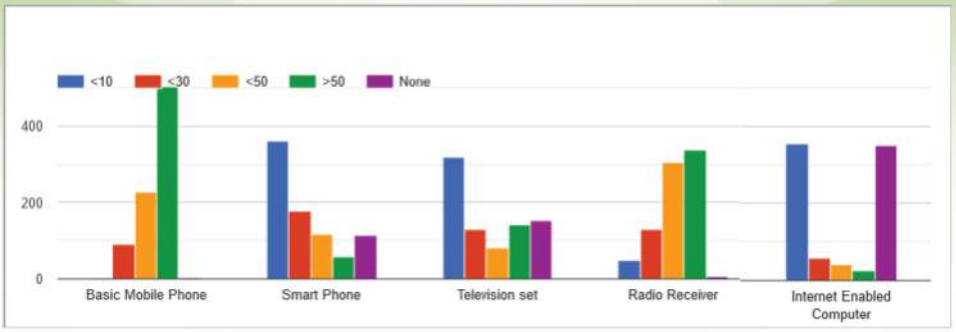
It is clear that majority of the farmers considered during the research are involved in crop farming, followed by animal husbandry and poultry farming.

On the use of the different types of ICT for agriculture, the results are clearly shown in the figure below.



It is clear that majority of the respondents 88.4% use ordinary phones, 31.9% use smart phones, 29.7% have access to televisions, 6.1% use laptops and 3.4% use desktops in that order of preference.

On the community usage of ICT, it was clear that the farmers preferred certain ICTs to others and used them differently at specific times of the day.

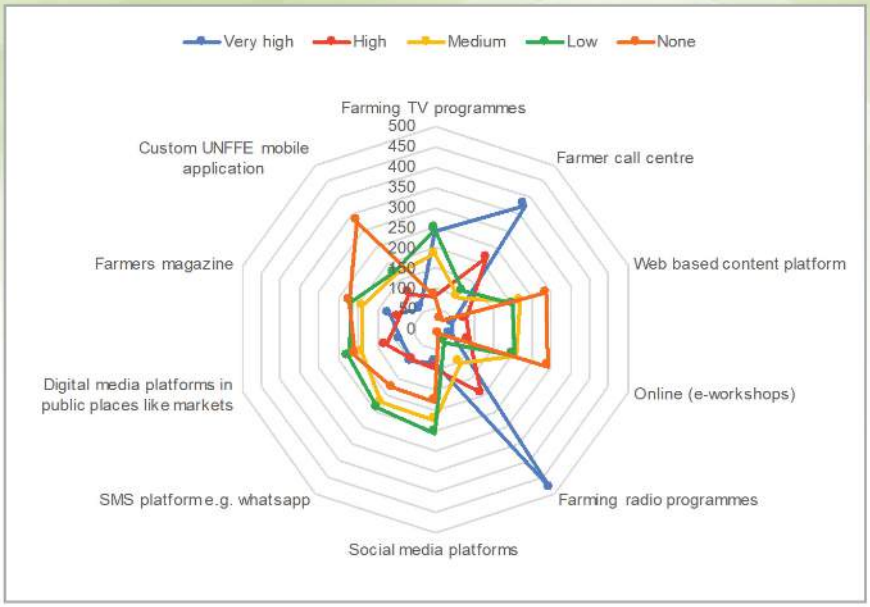


The figure shows that majority of the community members accessed more of the basic mobile phones than any other ICT followed by the radio receivers. Therefore, for any community awareness programmes it is such ICTs that should be tapped into for quick and easy information delivery.

Also, some of the farmers who were considered during the research, were found to be using social medial for different reasons as described in the figure.

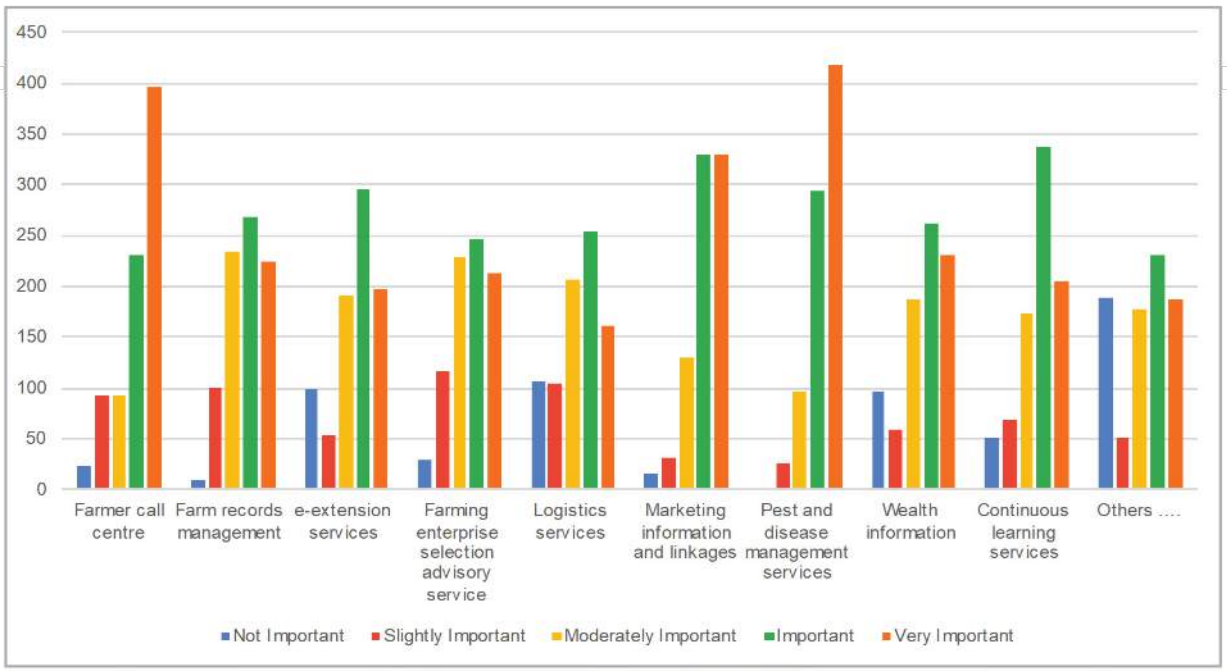
It was noted that Facebook (43.7%), WhatsApp (41.1%), and YouTube (32.6%) in that order were the most used. But other social media applications were in use too such as Twitter (22.3%), Instagram (20.6%), UNFFE website (16.4%) and MAAIF websites (16.2%).

In relation to agriculture knowledge and content sharing, it was clear to the farmers that the ICTs which were popular to them are those that did not require them to spend money.



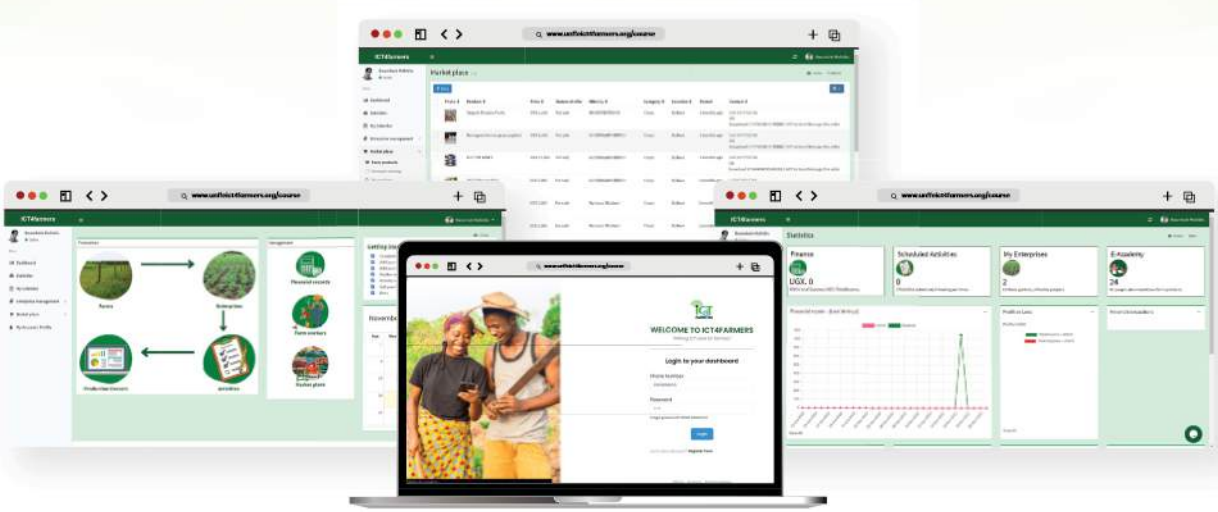
The figure described the farming radio programmes as the most widely used ICT method for knowledge and information sharing amongst the farmers that were reached during the research. However, it is true that some of the farmers also preferred the TV for knowledge and information sharing despite that majority of the TV and radios do not focus on agriculture related content.

The most highly desired services to be used on the available ICTs were pests and disease management services, farmer call centre services, marketing information and linkages, wealth information, farm records management services, farming enterprise selection advisory services, and continuous learning services as described below.

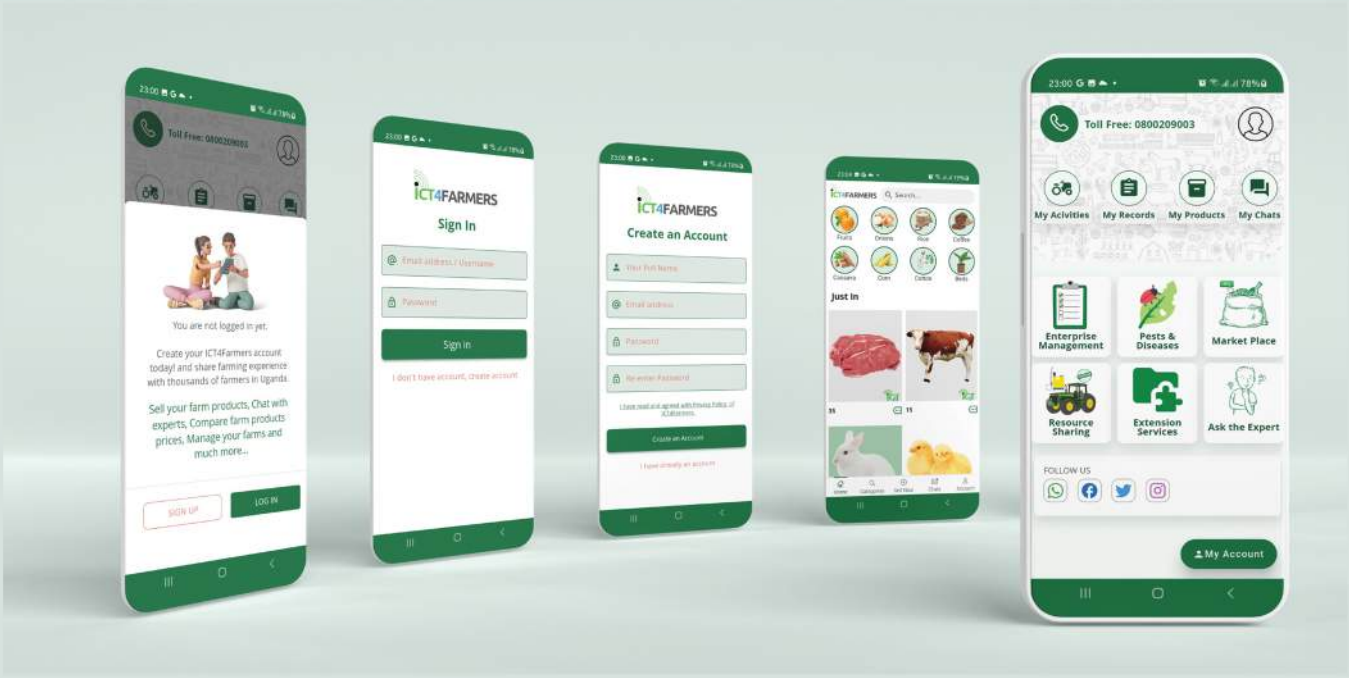


b) ICT4Farmers System and Mobile App

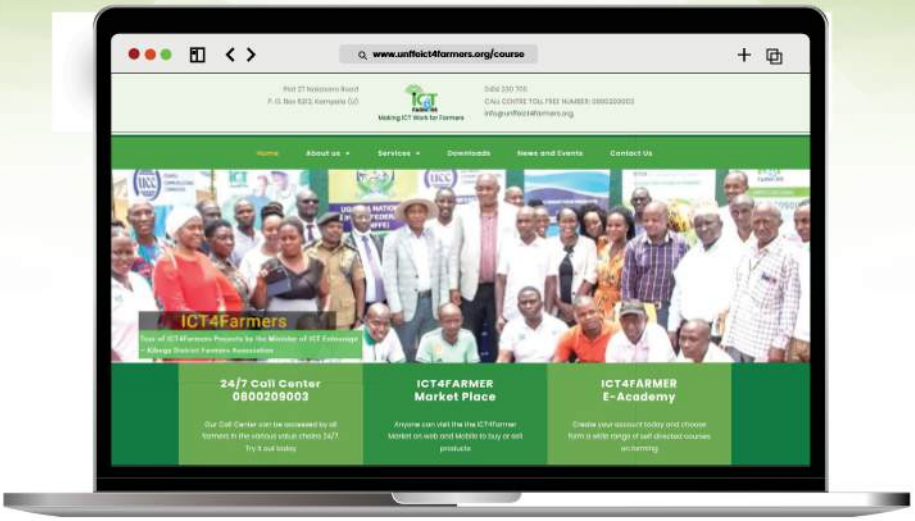
The ICT4Farmers web system was developed to support all agriculture stakeholders in receiving effective and efficient services. The system was developed with multiple modules that support farmer priority areas. These modules included; farmer profiling, garden mapping, farm record management, resource sharing, service providers, market access among others.



The ICT4Farmers web system has a mobile application that is capable of supporting agriculture stakeholders ubiquitously. For access one needs to have an account which they subscribe to by filling in the necessary details. The systems have collaborative, farm management and activity monitoring tools that are capable of supporting easy farming to happen. The application has more than 500 downloads in a very short span hence indicating a great interest amongst stakeholders.



The project also developed a dynamic web system that supports information dissemination from a variety of stakeholders and in a variety of forms. This dynamic web system is the gateway to all ICT4Farmers project services, downloads, news and events.



The web system has been very popular within the past one year as described in the figure below hence indicating its usefulness to the stakeholders. In one year the web system received approximately 66,852 visits which indicates a very huge traffic flow.

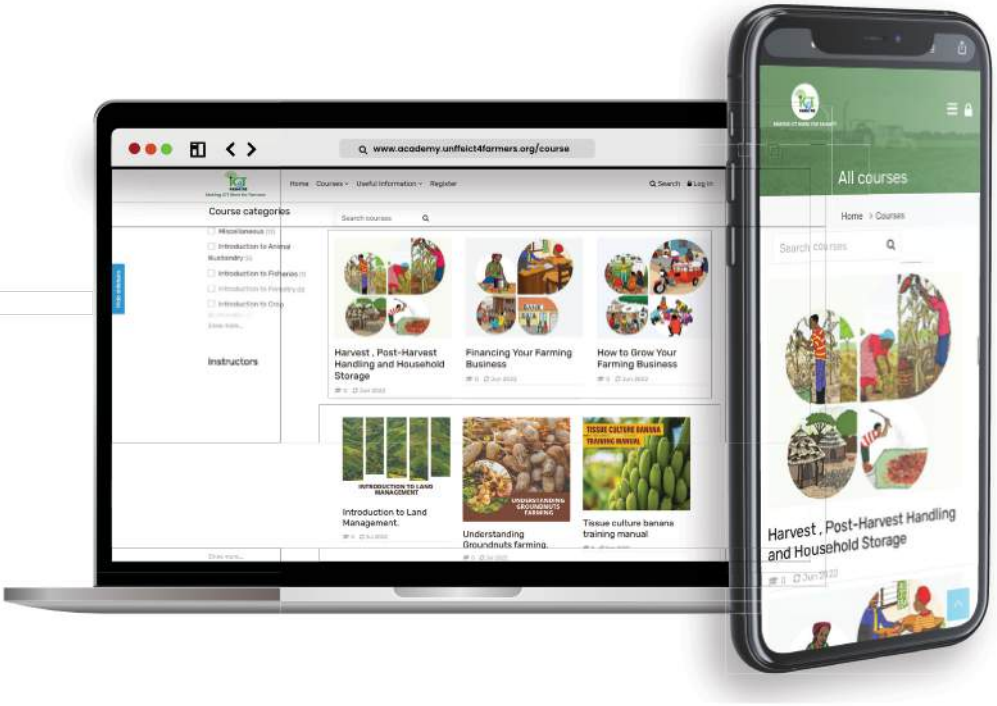
c) IVR Call Center

The project developed an IVR services call centre with a toll-free call Centre number 0800209003 and stationed at UNFFE offices in Nakasero. This virtual call centre supports the 5 major languages which include; English, Luganda, Runyakitara, Swahili and Luo. The IVR call centre system offers Agricultural support for various value chains namely Animal husbandry, crop husbandry, fisheries and forestry. The call center is equipped with nine virtual agents who trained to support the farmers ubiquitously. An example of the calls that were received between June and August 2022 are illustrated in the figure below.

The results indicate that this IVR call centre is very effective and there is need of more virtual agents to be on boarded in order to support the increased number of calls. There is also demand for more call agents in other languages at the call centre. Such languages include Lusoga and Acholi to cater for the farmers in Eastern and Northern Uganda.

d) E-Agriculture Academy

The e-agriculture academy was initiated to deliver content resources in multiple forms and languages to the agriculture stakeholders. This process started with the development of the digital skilling and other value chain agriculture produce curriculum in collaboration with various field experts from MAAIF, COMFARNET, NARO, LDF among others. This curriculum was professionally digitally authored in multiple forms which included PDFs, animations among others for the 22 courses. The figure below describes in the e-agriculture academy and the different form of content that were developed. The e-agriculture academy has to date over 298 subscribers who access for free the well-developed content.

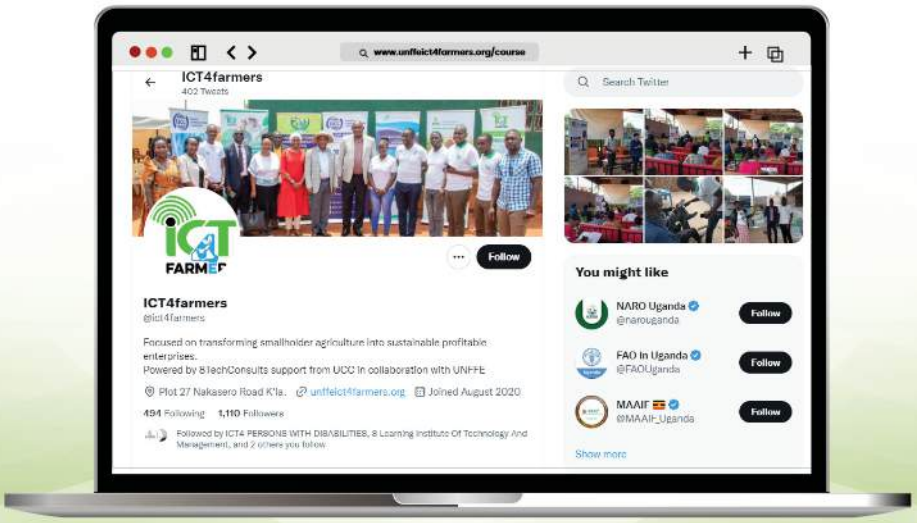


e) Farmer Awareness and Sensitization

In order to create sustainability of the developed ICT4Farmers tools within the project, awareness and sensitisation was planned and undertaken at all levels. At the project level, several means were utilised including the project website, social media workshops, fliers and posters. At the district level, the project developed approximately 30 websites for the District Farmers' Association (DFAs) which were under the unffe.org.ug as subdomains. By doing so the 30 DFA websites increased their visibility and marketability. The listed of selected and developed websites are as follows.

District Farmers Association	The Website URL
Nebbi DFA	http://nebbidfa.unffe.org.ug/
Kayunga DFA	http://kayungadfa.unffe.org.ug/
Koboko DFA	http://kobokodfa.unffee.org.ug/
Iganga DFA	http://igangadfa.unffee.org.ug/
Kamuli DFA	http://kamulidfa.unffee.org.ug/
Kamwenge DFA	http://kamwengedfa.unffee.org.ug/
Oyam DFA	http://oyamdfa.unffee.org.ug/
Agago DFA	http://agagodfa.unffee.org.ug/
Buyende DFA	http://buyendadfa.unffee.org.ug/
Kasese DFA	http://kasesedfa.unffee.org.ug/
Masaka DFA	http://masakadfa.unffee.org.ug/
Lamwo DFA	http://lamwodfa.unffee.org.ug/
Masindi DFA	http://masindidfa.unffee.org.ug/
Bushenyi DFA	http://aruadfa.unffee.org.ug/
Kabale DFA	http://kabaledfa.unffee.org.ug/
Kiruhura DFA	http://kiruhuradfa.unffee.org.ug/
Moyo DFA	http://moyodfa.unffee.org.ug/
Ntugamo DFA	http://ntugamodfa.unffee.org.ug/
Sembabule DFA	http://sembabuledfa.unffee.org.ug/
Namutumba DFA	http://namutambadfa.unffee.org.ug/
Kumi DFA	http://kumidfa.unffee.org.ug/
Mbarara DFA	http://mbararadfa.unffee.org.ug/
Zombo DFA	http://zombodfa.unffee.org.ug/
Kitgum DFA	http://kitgumdfa.unffee.org.ug/
Kaberamaido DFA	http://kaberamaidodfa.unffee.org.ug/
Lira DFA	http://liradfa.unffee.org.ug/
Kabalore DFA	http://kabaloredfa.unffee.org.ug/
Gulu DFA	http://guludfa.unffee.org.ug/
Tororo DFA	http:/tororodfa.unffee.org.ug//
Arua DFA	http://aruadfa.unffee.org.ug/

The social media accounts developed for the project contributed a lot to the awareness of the activities. An example was the twitter account that is described below.



4. Policy Recommendations

- ICT Capacity Building: More capacity building trainings among the farmers on the use and benefits of ICT should be offered.

- ICT Devices: For the lack of ICT devices amongst the farmers, there is need to develop coordination mechanisms with the government and other NGOs to provide ICT devices to enhance the farmers knowledge and use of the devices either cheaply or freely.

- Connectivity: Network connectivity should be availed to the entire country and most especially within the rural areas cheaply. Government and telecom companies should work together to provide the cheap and good connectivity across the country.

- Awareness and Sensitization: Since the traditional ICT media (TV, Radio) means were most preferred and majorly in use by the farmers, capacity building farmer programmes, advertisements and alerts should be aired using those methods.

- Extension Service: the government should establish more IVR digital call centres to address the challenges associated with poor extension service delivery by extension workers. This will allow extension workers to provide feedback and guidance to farmers through the established digital IVR call centres within the regions and local languages that can easily be understood.

- Digital Localised Content: since there are issues related to availability of quality localised digital content within extension service delivery, the Government of Uganda through MAAIF and other bodies should develop more localised content across the agriculture value chain to support extension services. This content can easily be availed via the e-agriculture academy.

- Digital Information Dissemination Boards: To increase accessibility of agriculture content to farmers, Uganda Communication Commission (UCC) should task media houses to support in airing out the agricultural content freely as part of community outreach. Also, the use of digital advertising boards in strategic public spaces like government markets, hospitals among others to deliver the digitised and localised agriculture content can be done.

- ICT Tools and Systems for Farmers: Since there is a large group of farmers that have no access to smart phones, it is important that ICT agriculture application developers should also focus on developing tools that do not need internet connectivity.

Majority of the farmers were found to be in the Rural areas and don't have access to smartphones. The ones with smartphone have little digital skills to operate the phones which requires regular digital skills development program and training so that there is a good uptake of ICT4Farmers system. The Internet coverage in some areas in Uganda is still very poor and hindering quick and easy access to digital content that can improve agriculture productivity. It was important to note that the ICT4Faremers system should be developed with support offline capabilities in bad internet coverage areas. A need to sensitise the farmers so much about the ICT4Farmers system and how it can be used for extension services.

This policy brief is based on a report of the UCC-RCDF Project which aimed at: Enhancing ICT Adaptation, Service Delivery, Content and Digital Skills for Smallholder Farmers. This was a collaborative project between UNFFE and Eight Tech Consults Ltd.

Designed by 8Tech Consults
Tel: 039 3256165 | +256 704 140 818 | +256 782 166 297
Email: info@8technologies.net | Website: www.8technologies.net