

# Use of Social Media to Strengthen Service Delivery for Urban Agriculture in Uganda

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**Abstract:** The steadfast growth of cities in developing countries is accompanied by high levels of poverty and hunger which in turn forces urban dwellers to engage in farming activities to satisfy their food levels and sell the surplus. However these farmers lack acquisition of adequate knowledge and information to improve their farming practices. There is no forum that brings farmers together for lesson and message sharing. Social media as a form of ICT has caught a tremendous role of facilitating dissemination of agricultural information providing a platform for interaction between farmers. The study aimed at investigating the use of Social Media to strengthen service delivery for urban agriculture in Uganda using a survey. The results indicate that the use of social media for urban agriculture should consider the dimensions of: Perceived Value, Training, Social Influence and Social Awareness as factors for the successful use of Social Media to Strengthen Service Delivery for Urban Agriculture.

**Keywords:** Use, Social Media, Service Delivery, Urban Agriculture

## 1. Introduction

According to [1] agriculture is the most dominant form of economic activity in developing countries providing livelihood to so many people and contributing over 40% of the Gross Domestic Product (GDP). The steadfast growth of cities, the high levels of poverty and hunger force urban dwellers to farm for food and income [2]. Urban Agriculture entails growing, processing, and distribution of food products through cultivation and raising livestock in and around cities [3]. Urban Agriculture includes small to large areas in cities: vacant lots, community garden, balconies, rooftop farms, indoor farms and greenhouses [4]. [5] indicated that Urban Agriculture has gained popularity due to concerns about climate change and sustaining food security in urban areas. However, developing countries have the largest concentration of poverty and food insecurity caused by low incomes from agriculture [6]. [7] assert that the small holder farmers who dominate the landscape of the developing world lack acquisition of adequate information to improve their farming practices. According to [8], the poor culture of shared learning, communication, reading and limited use of ICT for agricultural extension renders this system ineffective. There is no forum that brings all actors together for lesson sharing and harmonizing messages. Farmers need information on availability of agricultural inputs, market prices, agricultural commodities among others [9].

[10] defines agricultural extension as a service or system that assists farmers through educational procedures to improve farming methods, increase production to realize higher incomes and better standards of living. Extension considers useful information to people and assists in acquiring the knowledge, skills and attitudes to effectively utilize ICT [11]. Furthermore, extension services facilitate farmer interaction with market actors such as

partners in research, education and agribusiness [12]. Most small holder farmers in the developing world cannot afford private extension services and have to rely on public extension support services [13]. The traditional public sector extension services are beyond the reach of the poor marginalized farmers [7]. Matters are aggravated by the top down approach and ineffective technology transfer mechanism between researchers, farmers and extension staff [14]. Most of the extension workers in Uganda have low competence and working knowledge, low remuneration, lack facilitation, and are plagued by high ratio of farmers which renders extension weak through limited interaction [8]. [15] found that the diffusion of agricultural knowledge could lead to improved productivity, high prices for their produce and thereby increased incomes for farmers. Despite the considerable years of extension reform efforts in Africa, there is still lack of knowledge on how to provide cost-effective agricultural extension services that respond to smallholder needs [16].

Urban agriculture is largely practiced across urban areas of the country within a stipulated legal framework [17]. The legal support arose out of the fact that farming is key to Ugandan capital [17]. The arising benefits from urban agriculture are noted by a number of authors for example [18] specifically explains that children of low-income farming families in Kampala area were found to be as healthy as children of wealthy families and healthier than children of non-farming low-income families. Additionally, [19] highlights that stakeholders in urban agriculture of Uganda like Makerere Department of Agricultural Extension, Kampala City Council Authority, National Agricultural Research Organization (NARO), Foodnet, Vision Group have appreciated the role of urban agriculture to the economic and social lives of city residents. These have emerged to support the growth of urban agriculture by developing initiatives to encourage supportable urban farming. These initiative include gazette agricultural areas in the city, introducing new technologies, organizing and conducting agricultural and income generating discussion forums for example “*Yiya Sente*” and “*Omulimi Asiinga*” by Vision Group. Such initiatives have created initial awareness to several rural, urban and would be farmers. Sustained farmer involvement and knowledge sharing remains constrained as such initiatives are organized once a year. Using information and communication technologies (ICTs) such as online farmer communities to encourage continued knowledge sharing are virtually unnoticed. Identifying the important factors to encourage the use of ICTs lays ground for increased usage and flow of information among groups as well as increasing the demand for the products and services [20].

### *1.1 Social Media for Agricultural Extension Services Delivery*

ICT based agricultural extension can reach a large number of farmers bringing about sharing of knowledge and information [6]. Social networking sites are the latest trend influencing how information is sourced and disseminated [1]. Social media use for the dissemination of agricultural information has the potential to bridge the gap caused as a result of a low farmer to extension staff ratio [21]. [22] define social media as a group of internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content. Also defined as, the media for social interaction with people or social communication [23]. According to [24], many agricultural extension practitioners recognize that an information technology revolution is unfolding, with tremendous and largely unrealized potential for agricultural development. Information and communication technologies (e-mail, internet, phone, radio, TV, blogs, print) are tools that are underutilized in extension strategies. ICT-based solutions are increasingly being advocated by extension practitioners for use in agricultural production and marketing systems, speeding up the effective dissemination of information and also enhancing the interactive functionality provided by traditional and modern ICT

services [25]. Generally, ICTs can overcome the impediments of distance and time in accessing agricultural information, education and research [26].

Social media as a form of ICT has caught a tremendous role of facilitating dissemination of agriculture information providing a platform for interaction between farmers and extension officers [1]. Social Media applications can be effectively used by extension and advisory services [27], however the lack of awareness and skill about its use currently constrain its widespread use. Social media can be a great tool for farmers to share information and build relationships with customers. Farmers use social media to share photos and stories about how their farms are operated, making personal connection with consumers, informing people about agricultural issues that matter to them, using Facebook and Twitter for activism or support of the local and sustainable-food movements and exchanging ideas about crops, pest control, and marketing strategies. Unfortunately, found that the use of social media for agricultural extension and advisory in developing countries is still low [27].

Agriculture is the backbone of Uganda and online communities like Farming Uganda is an example of social media use for urban agriculture in Uganda. These platforms bring together farmers or would be farmers to exchange ideas and knowledge about farming in general and also seek market for their produce. For example, someone shared information on how to grow onions in containers on the roof of a house for those without enough land. The forum enables exchange ideas and knowledge about farming, there are posts on planting, harvesting and marketing of agricultural produce. Social media and ICTs are demonstrating their potential for the co-creation, co-documentation and co-distribution of information and advice on farm practices. This potential is timely given the retrenchment of public agriculture extension services over the last decades and are filling the gap left by the extension officer to exactly and missing the opportunities for innovative reworking of what farmer capacity development could be.

### *1.2 Factors for the Use of ICTs in Agriculture*

Understanding the use of technology requires an assessment of factors such as access to technology, technology training, knowledge and the trust one has in a particular platform [20, 28]. [28] continue to indicate that farmer's perceived value as compared to traditional approaches also matters along with the influence geared by other farmers. Social Influence also embodies the social pressure exerted on the individual by the opinions of others [29]. In addition to the above factors, [30] says that awareness among the users also contributes to their willingness to adopt new technologies.

## **2. Objectives**

The main objective of the study is to investigate the use of Social Media to strengthen service delivery for urban agriculture in Uganda. The specific objectives of this study were as follows:

1. To study the current state of Social Media Use for Urban Agriculture in Uganda
2. To identify the barriers to using Social Media for Urban Agriculture in Uganda
3. To generate factors deemed important for the use Social Media for Urban Agriculture in Uganda

## **3. Methodology**

To achieve the objectives reflected in 2.0 above, a quantitative research approach with self-administered questionnaires was used. The study examined the use of social media for agricultural extension delivery across urban agriculturalists in the districts of Kampala, Wakiso, Kayunga, Mityana and Mbale. A total of 150 respondents were selected which is

in line with Roscoe's 1975 rule that a sample size between 30 and 500 is sufficient. 150 questionnaires were issued. 109 correctly filled questionnaires were obtained. The questions related to the use of social media on computing devices for agricultural extension delivery by urban agriculturalists. The study purposively sampled urban agriculturalists due to the fact that most of them have and use computing devices like smart phones, tablets and computers on a daily basis. Questionnaire was designed on a five-point Likert scale (1 indicating an extremely negative rating and 5 an extremely positive rating) to gather responses related to the items. The study applied Krejcie & Morgan's 1970 formula for estimating the sample size in equation 1. The sample size addressed issues of precision and confidence. It was a function of the confidence interval of (+/-5%), a confidence level of 95% and the population size.

$$SS = \frac{Z^2 * X * (1 - X)}{c^2} \quad (1)$$

Where: S = Sample Size; Z = Z Value (e.g. 1.96 for 95% confidence interval); X = Percentage selection of a choice, expressed as decimal (0.5 used for sample size needed); C = Confidence interval, expressed as decimal (0.05) +/- 5 used for sample size needed. The above formula helps to determine sample of any size of the population. The data collected was then categorized, quantified, coded and analysed using statistical package for social sciences (SPSS).

#### 4. Results

Data on the demographic characteristics of the population was collected about gender, marital status, level of education and age. The results on the gender of the respondents indicate that 54.1 % of the respondents were male while 45.9% were female. Data on the marital status indicated that most of the respondents were married at 67.9%, 16.5% were single, 12.8% were divorced and 2.8% were cohabiting. Findings of the highest formal education training attained by respondents indicated that most of the respondents were diploma holders with 35.8%, 31.2% were degree holders, 12.8% were certificate holders, 11.0% had post graduate qualifications and 9.2% had no formal training. The study findings on age showed that most of the respondents were between 40- 49 years of age (46.8%), 29 and below were at 9.2%, 30-39 were at 25.7%, and 15.6% were at 15.6%.

To answer Objective 1, what is the current state of Social Media Use for Urban Agriculture in Uganda, respondents were asked to indicate the devices that they use to access social media. The respondents indicated that they access social media using the desktop PC at 54.1%, laptop at 36.7%, iPad/ tablet at 24.8%, mobile phone at 77.1%, smartphone with internet connection at 78.9% and e-book reader (kindle etc) at 2.8%.

Respondents were then asked about which social network they used in exchanging agricultural information. Many respondents indicated that they used Whatsapp at 89.0% and Facebook 82.6% to exchange agricultural information, 45.9% used agricultural web portals, 11.9% used Skype, 19.3% used YouTube, 10.1% used Twitter, 16.5% used LinkedIn, 0.8% used Google + and 18.3% used Blogs to exchange agricultural information.

When asked more in-depth about the online services that the respondents used to access agricultural information using their social networks, the respondents indicated that they used the online services for chatting at 91.7%, e-mailing at 82.6%, information sharing at 79.8%, video sharing at 36.7%, blogging at 11.0%, online agricultural education at 25.7%, video conferencing at 4.6% and online discussions about agricultural information at 11.9%.

Lastly, respondents were asked about the agricultural services that they accessed through social media. 89.0% and 77.1% of the respondents indicated that they had used social media to sell and buy agricultural produce respectively; social media had been used to market and advertise at 76.1%, access climate information at 49.5%, access advisory on

urban agriculture practices at 37.6%, access information on credit services at 19.3% and accessing information on pricing of agricultural produce at 53.2%.

Objective 2, what are the barriers to using Social Media for Urban Agriculture in Uganda. To address this objective, respondents were asked to rate their level of agreement with the given barriers as reasons for them not to use online social networks to exchange agricultural information. 89% of the respondents indicated lack of awareness, 77% indicated lack of role models using social networks for agriculture, 50.4% indicated that online agricultural systems are too complex to use, 54.1 indicated lack of friends' support, 37.8% indicated limited social communication, 43.1% indicated unattractiveness of online agricultural tools and 45.9% indicated lack of user protective policies as barriers for using online social networks to exchange agricultural information.

Objective 3: What factors are deemed important for the use of Social Media for Urban Agriculture in Uganda? Urban Agriculturalists' view on whether the Perceived Value, Training, Social Influence and Social Awareness contribute to the use of Social Media to strengthen service delivery for urban agriculture in Uganda was investigated. The following table 1 show the percentages of Urban agriculturalists who agreed, disagreed or were not sure that the suggested attributes related to the use of Social Media to strengthen service delivery for urban agriculture in Uganda.

*Table 1: Factors for the use of Social Media to Strengthen Service Delivery for Urban Agriculture in Uganda*

<b>Construct</b>	<b>Factors</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Perceived Value	1. Increasing my income	39.4.0%	55.0%	0%	1.8%	3.7%
	2. Saving costs for marketing and advertising produce	45.0%	45.0%	0%	4.6%	6.4%
	3. Reducing time and effort for accessing agricultural information	54.1%	38.5%	0%	4.6%	2.8%
Training	1. Participate in an online training session to learn how to use social media for agricultural activities	22.9%	66.1%	0%	2.8%	8.3%
	2. Attend a regional training meeting to learn how to use social media for agricultural activities	49.5%	37.6%	0%	9.2%	3.7%
	3. Learn about social media and then share my knowledge with fellow agriculturalists	35.8%	59.6%	0%	2.8%	1.8%
Social Influence	1. I view agricultural content (news, blogs, PDFs & videos) recommended by friends in my social network	9.2%	74.3%	0.9%	0.9%	14.7%
	2. My friends suppose that I use Social Networks for agriculture	29.4%	33.9%	9.2%	17.4%	10.1%
	3. I always follow links recommended by my friends on the network	29.4%	56.9%	0.9%	9.2%	3.7%
Social Awareness	1. I can visit an agricultural link if I see it on my wall profile	27.5%	36.7%	11.0%	22.9%	1.8%
	2. I would find e-agriculture more valuable if a friend in my network tells me about it.	3.6%	78.0%	0%	10.1%	8.3%
	3. If I came across an agricultural agent on my social network site, I would add them as a friend	25.7%	53.2%	11.0%	1.8%	8.3%
	4. If I got a connection request from an agricultural agent, I would accept it	20.2%	62.4%	0%	9.2%	8.3%

5. I always follow agricultural links recommended by my friends on the network	25.7%	0%	57.8%	7.3%	9.2%
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The results in Table 1 above indicate that Perceived Value, Training, Social Influence and Social Awareness are deemed as important factors for the use of Social Media to strengthen service delivery for urban agriculture in Uganda.

## 5. Conclusions

Agriculture provides employment to over 80% of the Ugandan population, modernization of the Ugandan agricultural sector is crucial in poverty eradication. The effectiveness of agricultural extension is vital for uplifting the livelihoods of farmers thereby eradicating poverty. According to [31] an agricultural extension service delivery system is made up of Institutions whose, intra, inter and overall interactions ensure an efficient flow of information. Just like blood flow in the human body, an efficient information flow is the lifeline to an agricultural extension service delivery system. ICTs have demonstrated the potential to improve service delivery in resource constrained environments for agriculture, health and financial services. The interaction of agriculture and social media could create meaning that would alter and become part of a farmer's way of life. Findings from the study indicated that many urban agriculturalists accessed social media using desktop PC, mobile phones and smartphones with internet connection. The social network that the urban agriculturalists used most in exchanging agricultural information is Whatsapp and Facebook. Results showed that most urban agriculturalists use social media to sell and buy agricultural produce respectively and also market and advertise their produce. Social Media can play an important role in enhancing interactions and information flows among different actors involved in agricultural innovation and also enhance capacities of agricultural extension and advisory service providers [25]. ICTs can complement other extension and knowledge services.

The barriers to using Social Media for Urban Agriculture in Uganda include lack of awareness of the use of social media for agriculture, lack of role models using social networks for agriculture, online agricultural systems are too complex to use and lack of friends' support for using online social networks to exchange agricultural information. The research problem is that of the use of Social Media to strengthen service delivery for urban agriculture in Uganda. Perceived Value, Training, Social Influence and Social Awareness are deemed as important factors for the use of Social Media to strengthen service delivery for urban agriculture in Uganda. These factors could be used as measures to overcome the barriers for urban agriculturalists to use social media to exchange agricultural information in Uganda.

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