

**EFFECTS OF SOCIAL MEDIA PLATFORMS' USE ON YOUTH PARTICIPATION IN  
AGRICULTURE IN NJORO SUB-COUNTY, KENYA**

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**A Thesis Submitted to the Graduate School in Partial Fulfillment of the Requirements for  
the Master of Science Degree in Agricultural Extension of Egerton University**

**EGERTON UNIVERSITY**

**NOVEMBER, 2021**

## DECLARATION AND RECOMMENDATION

### Declaration

This thesis is my original work and has not been presented in this university or any other for the award of a degree.

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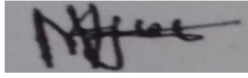
### Recommendation

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## **DEDICATION**

This thesis is dedicated to My Lord and Saviour Jesus Christ, my lovely mother Motlagomang Victoria Sebotsa, my spiritual parents, my siblings, all my friends, and the CESAAM team for their everyday prayers and support.

## ACKNOWLEDGMENTS

My heartfelt gratitude goes to the Almighty God for keeping me safe throughout my study. I wish to send my sincere gratitude to the Centre of Excellence in Sustainable Agriculture and Agribusiness Management (CESAAM) for granting me the opportunity and financial support to enroll for the Master of Science in Agricultural Extension at Egerton University. Special thank you to CESAAM administrators and core team members who have offered unwavering support from the first day I reached Egerton University. I cannot leave but mention the CESAAM centre director Prof. George Owuor who has been a great support as a father and mentor in this academic journey. I am very grateful to Egerton Management for a pleasant stay and conducive environment to study and fulfill the requirements of my degree. I really appreciate the Department of Agricultural Education and Extension for the support they granted me during my study. Special Thank you goes to my supervisors who were there for me throughout my research work. Thank you to Dr. Agnes Nkurumwa and Dr. Miriam Kyule for your support, patience, and direction you have granted me to produce this quality thesis work.

I am very grateful to my dear mother, Motlagomang Victoria Sebotsa, siblings Keabetswe Mangena, Kealeboga Sebotsa, Thulani Vumazonke for their ceaseless prayers, encouragement. I am also grateful to Prophet KT Molefinyane and Pastor Tsholofelo Joy Molefinyane for their endless prayers and my lovely friends Mr. and Mrs. Tjipumba for their emotional and moral support. My special gratitude to Mrs. Tebogo Mokumako for always being a source of encouragement throughout this journey. I am very thankful to all the respondents who participated to make this research possible. Sincere thanks also go to my supportive colleagues, friends, relatives, and all who in one way or another have supported me throughout my studies.

## ABSTRACT

Agriculture is an important sector in the economy of most developing countries. Most people's livelihoods, particularly in Sub-Saharan Africa, are hinged on agriculture. In Kenya, rural households rely on agriculture for most of their income and are mainly smallholder farmers. However, youth participation in agriculture is reported to be low hence the sector is dominated by the aging and elderly people negatively affecting the performance of the sector as there will be a challenge of future human resource to continue with the production. Social media has been used to disseminate agricultural information. Therefore, this study focused on the effect of social media platforms on youth participation in agriculture in Njoro Sub-county, Kenya. A descriptive survey research design was used. The study targeted 3,925 youth who are involved in agriculture in Njoro Sub-county. The accessible population was 1,597 youth involved in agriculture in Njoro, Kihingo, and Lare wards. The list of the youth involved in agriculture obtained from the Sub-county authorities formed the sampling frame. A simple random sampling technique was used to select 150 respondents. A researcher administered closed-ended questionnaire was used to collect the data. The researcher, peers, and experts in Agricultural Extension from the Department of Agricultural Education and Extension at Egerton University validated the instrument used for data collection. Pilot testing was carried out with 30 respondents from Molo Sub-county to test for reliability. Cronbach alpha coefficient obtained was 0.750 hence accepted as reliable. Statistical Package for Social Sciences (SPSS) version 22 and Statistics and Data (STATA) version 12 was used to analyze data using One-Way ANOVA, Independent sample T-test, linear regression and ordered logistic regression model. Percentages, frequencies and mean squares were used to present the data. The results showed that the majority of the respondents used Facebook, WhatsApp, Google Search engine, and YouTube to obtain agricultural information to improve their participation in agriculture. Findings also indicated that the simpler the respondents perceived the agricultural information on social media platforms, the more they participated in agriculture. Moreover, results indicated that the level of utilization of WhatsApp had a positive effect on youth participation in agriculture. The study concluded that type of social media platforms used, quality of agricultural information and the level of utilization of social media platforms in obtaining agricultural information affected youth participation in agriculture. The study recommends that the Government should train, create awareness and establish resource centers for youth farmers to access the internet and computers to use social media to improve their participation in agriculture.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

|                |   |
|----------------|---|
| <b>AGED</b>    | Department of Agricultural Education and Extension          |
| <b>ANOVA</b>   | Analysis of Variance  |
| <b>DOI</b>     | Diffusion of Innovation                                     |
| <b>EAC</b>     | East African Community                                      |
| <b>GDP</b>     | Gross Domestic Product                                      |
| <b>ICTs</b>    | Information Communication Technologies                      |
| <b>KYAS</b>    | Kenya Youth Agribusiness Strategy                           |
| <b>NACOSTI</b> | National Commission for Science, Technology, and Innovation |
| <b>NCIDP</b>   | Nakuru County Integrated Development Plan                   |
| <b>NGOs</b>    | Non-Government Organizations                                |
| <b>SDGs</b>    | Sustainable Development Goals                               |
| <b>SMPs</b>    | Social Media Platforms                                      |
| <b>SPSS</b>    | Statistical Package for Social Sciences                     |
| <b>STATA</b>   | Statistics and Data   |
| <b>UN</b>      | United Nations  |
| <b>UNDP</b>    | United Nations Development Programme                        |

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background information**

Agriculture is an important sector in the economies of most developing countries in the world. In Sub-Saharan Africa, it accounts for 25 % to 40 % of total Gross Domestic Product (GDP) (Kimaro & Towo, 2015). Most people's livelihoods in developing countries, particularly in Sub-Saharan Africa, are hinged on agricultural production. In Kenya, rural households rely on agriculture for most of their income and are mainly smallholder farmers. This reliance on agricultural activities to improve the livelihoods of people in Kenya is also reflected in Nakuru County, particularly, Njoro Sub-county. Farming is one of the main economic activities taking place in the County. However, the County's agricultural labour force is dominated by the elderly and aging farmers with low youth involvement. The engagement of these youth in agricultural activities has not been up to the expectations for many countries. There is evidence revealing that there is a concentration of older agricultural holders in Sub Saharan Africa, with 27% of agricultural holders being over the age of 55 years (Heide-Ottosen, 2014). This has been of great concern to the development of the agricultural sector across the region. However, this generation is expected to rise in the coming years for food production and food security (Lachapelle, 2011). These are the youth who offer a dynamic labour force that enhances continued production in agriculture.

According to the United Nations (UN) youths are people between the ages of 15 and 24 years and they represent approximately 18 % of the global population, nearly 1.2 billion people with Africa being the world's youngest continent with the proportion of youth being higher than in any other continent ( United Nations Development Programme [UNDP], 2010). The global focus on achieving Sustainable Development Goals (SDGs) of reducing child mortality has led to the global population age-structure dominated by young people under the age of 25 years. This youth population represents a high potential in increasing the agricultural labor force across the globe. The participation of the youth in agricultural activities can also improve the effectiveness and efficiency in carrying out the activities and practices. The population demographics of the East African Community (EAC), particularly those of Kenya, Rwanda, Tanzania, and Uganda depict that there are around 127 million people in the four countries. Around 20 % of these populations

are between the ages of 15 and 24 years and can be labeled as “youth” according to the United Nations definition (EAC, 2018).

In Kenya, youth are defined as people in the age bracket of 18-35 years that account for about 35.4 % of Kenya’s population. According to the Nakuru County Integrated Development Plan (NCIDP) of 2018 to 2022, the County has an estimated 33 % of the population aged between 18 and 35 years (County Government of Nakuru, 2018). This large number of youth in the County is faced with high unemployment rate. The County government through its development plans encourages the youth to engage in income-generating agricultural activities. The integration of youth in agricultural activities is important for the development of the agricultural sector. These youth offer a dynamic workforce that is innovative and has a high uptake of technological expertise. There are many strategies that the Kenyan Government has adopted to try and engage the youth in agricultural activities, to solve the problem of unemployment and improve their livelihoods. This is because youths are energetic, innovative, open to new ideas and practices than adult farmers which offer a huge potential to overcome major challenges faced by the agricultural sector (Daudu et al., 2009). The Agriculture sector, therefore, presents a huge opportunity for the creation of employment to absorb the youth and ensure the achievement of food security for future generations ( Ministry of Agriculture Livestock and Fisheries, 2017).

As most people get involved in agriculture, the agriculture sector in developing countries is increasingly becoming knowledge-intensive. Researchers at the global, regional and national levels continue to generate new information to improve agricultural productivity. As agricultural production becomes more technologically advanced, access to reliable, timely, and relevant information sources is critical to the farmer to be able to produce effectively and efficiently (Babu et al., 2012). Social media is one of the means of communication widely recognized through which farmers access useful information to support their farming activities by learning about new farming processes (Starasts, 2015). It is a platform that allows users to create and exchange user-generated content (Akash & Pushpa, 2014). Examples of Social media includes Facebook, LinkedIn, Twitter, Instagram, WhatsApp, and YouTube and many others.

Most agricultural organizations are making use of social media platforms to engage with the stakeholders in the agriculture sector and prompt them to participate in various activities. The stakeholders are given an opportunity through social media platforms to express their views, opinions, and to make comments on agricultural services. The introduction of social media

applications has opened up a platform that agricultural extension officers, farmers, agricultural institutions, and Non-Governmental institutions utilize to disseminate and exchange agricultural information (Kipkurgat et al., 2016). Past studies indicate that social networks can improve the socio-economic well-being of communities (Lachapelle, 2011). This is because the number of people who use the internet or own a smartphone continues to expand in the developing world and remains high in developed nations (Poushter, 2016).

Regionally, Sub-Saharan Africa is one of the least internet-connected part of the globe despite the global increase in internet use, with young people using the internet more than older generations (Poushter et al., 2018). Social media has since evolved from a mere source of entertainment to a serious and effective marketing and communication tool in the hands of competent and knowledgeable communication professionals (Kichanova, 2012). It has a powerful effect to influence the users positively or negatively towards real-life issues. The social media platforms that the youth use includes Facebook, LinkedIn, Twitter, WhatsApp, Instagram, Snapchat, YouTube, Google+ among others. Facebook, WhatsApp, and Twitter platforms have been the most predominantly used by the youth in Sub-Saharan Africa. Social media platforms such as Facebook tend to boost individual self-esteem indicated in the number of likes a person receives that shows they are accepted (Burrow & Rainone, 2017).

A study done by Cline (2011), indicated that the majority of youthful farmers own modern phones and spend most of their time on the internet, reading about the animals they keep or the crops they grow, following market and farming trends. These youth in agribusinesses use social media to seek farming information, advertise their products and services, and share experiences with their fellow farmers across the region and beyond. In Kenya, users of social media have access to platforms such as Mkulima Young, Young Farmers Market, Digital Farmers Kenya, and Mkulima Hub Kenya among others. Farmers and those interested in farming obtain information from these social media platforms (Kipkurgat et al., 2016). In Nakuru County, the users have access to Facebook, Twitter, and WhatsApp social media platforms through the Nakuru Farmers Call Centre. The platforms are widely used by the call centre to communicate with the farming community. Social media platforms educate and inform farmers on agricultural issues as well as facilitating the buying and selling of agricultural produce. This sharing of information facilitates the marketing of the farmer's produce and the formation of networks. Farmers can engage with

one another to seek help and be able to solve their problems through these platforms with various stakeholders in the sector.

The wide use of social media in agriculture in Kenya across various counties, particularly Nakuru County, has increased efforts to attract young people into the agricultural sector. Continuous use of social media initiatives to support youth in agricultural enterprises and widen the opportunities to highlight their success to attract more young people is very important. Engagement of the youth in the agricultural sector is expected to improve food security and reduce youth unemployment rates. Youth engagement in agricultural activities through social media is also meant to prepare future human resources who will keep the sector as the highest Gross Domestic Product (GDP) earner in the country. According to Adekunle et al. (2009), the future of agriculture in most developing countries seems to be unprogressive. This is because production efforts have been left to the elderly smallholder farmers who constitute the major farming population. Therefore, preparing future human resources is critical in the agricultural sector.

Nakuru County has a highly productive agricultural land hence the need to engage more youth in the agricultural activities to utilize the land. The farmers are engaged in various agricultural activities such as cash crop farming, livestock farming, and value addition factories. However, the youth, who spend most of their time on social media, tend to move away from agricultural activities as they perceived them to be labor-intensive and unattractive (Mwendwa, 2016). The youth perceive agriculture as unattractive due to the heavy time and input investment and that it often yield low returns (Irungu et al., 2015). Most governments are still making efforts to reduce unemployment by involving the youth in agriculture, however, there are still some young people who are not attracted to agriculture and remain unemployed. The farming community in Nakuru County, Njoro Sub-county mainly comprises of the aging and elderly population above 50 years who are regarded as less productive due to their low technology uptake (Njeru et al., 2015). However, Njoro Sub-county has young people who tend to shy away from agriculture. Therefore, the study sought to determine the effect of social media platforms on youth participation in agriculture in Njoro Sub-county.

## **1.2 Statement of the problem**

The use of social media in the agriculture sector has been on the rise in Kenya. The National and County Governments have played a great role in promoting the use of social media platforms in efforts to attract youth to engage in agriculture. This is also the case in Njoro Sub-county of Nakuru County. Despite the Government's efforts, youth participation in the agriculture sector continues to be low. The agriculture sector is dominated by the aging and elderly people bringing challenges of decline in the human resource to run the sector. Low youth participation in agriculture poses the problem of continuity in production. As the elderly retire from the sector, there will be reduction of human resource to continue with the agricultural production value chain hence affect the national food security and contribution to the economy. Although the youth in Njoro Sub-county are active on social media, it was not clear if the use of social media platforms had an effect on their participation in agriculture. Therefore, this study sought to determine the effect of social media use on youth participation in agriculture in Njoro Sub-county.

## **1.3 Objectives**

### **1.3.1 General objective**

To determine the effect of social media platforms' use on youth participation in agriculture in Njoro Sub-county, Kenya.

### **1.3.2 Specific objectives of the study**

The objectives of the study were to:

- i. Determine the effect of type of social media platforms used on youth participation in agriculture in Njoro Sub-county.
- ii. Determine the effect of the quality of agricultural information obtained through social media platforms' use on youth participation in agriculture in Njoro Sub-county.
- iii. Determine the effect of the level of utilization of social media platforms in agriculture on youth participation in agriculture in Njoro Sub-county.

#### **1.4 Hypotheses of the study**

The study tested the following hypotheses:

- H0<sub>1</sub>:** There is no statistically significant effect of the type of social media platforms' used on youth participation in agriculture in Njoro Sub-county
- H0<sub>2</sub>:** There is no statistically significant effect of the quality of agricultural information obtained through social media platforms' use on youth participation in agriculture in Njoro Sub-county
- H0<sub>3</sub>:** There is no statistically significant effect of level of utilization of social media platforms on youth participation in agriculture in Njoro Sub-county

#### **1.5 Justification of the study**

Firstly, the findings of this study may lead to a better understanding of how social media can be used to promote youth participation in agriculture by the Sub-county Agricultural Extension officers in Njoro Sub-County. Secondly, the findings may have been of importance to the youth as they sensitized and created awareness on the availability of social media platforms that can be used to access agricultural information helping them participate more meaningfully in agriculture. If the youth have awareness on accessing agricultural information on social media platforms may help reduce the costs of travel to the agricultural extension office hence they may use the saved costs to invest in their farms and participate more in agriculture.

Lastly, the findings may also be of importance to research organizations and agricultural extension offices in Nakuru County and across the region that are facing poor youth participation in agriculture to understand how social media can be used to promote their participation. The organizations may be able to come up with relevant and targeted interventions to promote the participation of the youth, using social media. The new knowledge on which social media platforms can be effectively and efficiently used to promote youth participation in agriculture may help the Government to direct resources in promoting the use of such social media platform to enhance youth participation in agriculture.

## **1.6 Scope of the study**

The study targeted only the youth who are involved in agriculture in Njoro Sub-county. The study focused on the effect of social media platforms' use on youth participation in agriculture in the Njoro Sub-county. The study focused on the social media platforms that are available for use among the youth in the Sub-county. The participation activities were those related to the production process, management, harvesting, value addition, marketing of crops, and livestock. The socio-economic characteristics of the respondents that were under observation in the study were gender, education level, employment status, age, and income level. The quality of agricultural information was described in terms of accessibility, relevance, simplicity, ease of application, usefulness and adequacy of agricultural information on social media platforms. Likewise, the level of utilization focused on the frequency of use of social media platforms in obtaining agricultural information.

## **1.7 Assumptions of the study**

The study assumed that:

- i. The respondents had access to smartphones, can afford data bundles, and do not have problems with networks in their respective areas.
- ii. The respondents had access to social media platforms in all the study areas at all times.
- iii. The respondent gave honest opinions that were a true reflection of the situation on the ground during the period of collecting data.
- iv. There would be no disturbances in Njoro Sub-county at the time the study was carried out.

## **1.8 Limitations of the study**

The following were the limitations of the study:

- i. The language was a challenge during data collection as the researcher was not conversant with the language used in the area. Therefore, a translator was employed to overcome the challenge of language difference.
- ii. The youth may also have not given full information for fear that their privacy being invaded. However, the researcher had assured the respondent that the results were confidential and their privacy was respected.

## 1.9 Definition of terms

**Agricultural activities:** According to Njenga (2018), agricultural activities refer to crop production and livestock rearing either individually or collectively. Therefore, in this study, agricultural activities referred to, buying agricultural produce, selling agricultural produce, buying agricultural inputs, providing paid labor in a farm, livestock production, crop production, value addition and linking up with other farmers in agriculture.

**Agricultural information:** According to Adio et al. (2016) agricultural information refers to agriculture-related data, which is transformed into meaningful and useful contexts or forms for effective decision making in agriculture or farming-related activities. Therefore, in this study, agricultural information referred to market, agricultural inputs, crop husbandry practices, livestock husbandry practices, and value-added information.

**Effect:** According to the Merriam Webster Learners Dictionary (2017), effect refers to a change that results when something happens. In this study, the effect referred to the change that happens on youth participation in agriculture through the use of social media platforms in obtaining agricultural information.

**Level of utilization of social media platforms:** According to Cline (2011), the level of utilization of social media platforms refers to the large portion of time the respondents to social media sites for agricultural purposes. Therefore, in this study, the level of utilization of social media platforms referred to how frequently the respondents access social media for agricultural purposes measured on a scale of 1 to 4, is not at all, sometimes (once in a month), often (three times in a week) and very often (every day of the week) respectively.

**Participation in agricultural activities:** According to Merriam Webster Dictionary (2017), participation is the action or state of taking part in something. Njenga (2018), referred to agricultural activities as crop production and livestock rearing either individually or collectively. Therefore, this study referred to participation in agricultural activities as the state of taking part in buying agricultural produce, selling agricultural produce, buying agricultural inputs, providing paid labor in a farm, livestock production, crop production, value addition and linking up with other farmers in agriculture.

**Quality of agricultural information:** Quality information refers to information that meets the attributes of timeliness, appropriateness, relevance, accuracy, and completeness (<http://ecomputernotes.com/mis/what-is-mis/quality-of-information>). Therefore, in this

study, quality agricultural information refers to agricultural information that is accessed through social media platforms referred to agricultural information that is timely, relevant, easy to use, useful, simple to understand, accurate, clear, and complete.

**Social media:** According to Merriam Webster Dictionary (2017), social media is a form of electronic communication such as websites for social networking and microblogging through which users create online communities to share information, ideas, personal messages, and other content such as videos. Therefore, the same definition was adopted in this study.

**Social media platforms:** A social are web-based technologies that provide the ability to create social media websites and services with complete social media network functionality (<https://www.techopedia.com/definition/23759/social-platform>). Therefore, in this study, social media platforms were defined as web-based technologies in which the youth use to access agricultural information.

**Social media platforms use:** According to Delerue and Vuori (2012), social media use refers to employing social media for internal communication, knowledge transfer, and marketing of company brands, engaging customers in dialogue, building communities, and groups with various stakeholders. Therefore, in this study, social media platforms use referred to employing social media for agricultural production by the youth. The use of the platforms closely looked into the type of social media platform, the quality of agricultural information, and the level of utilization of the social media platform for participating in agriculture by the youth.

**Type of social media platforms:** According to Greenwood et al. (2016), type of social media platforms includes Facebook, Twitter, Pinterest, Instagram, and LinkedIn which users use daily for social networking. In this study, the type of social media platforms as Twitter, Facebook, WhatsApp, Instagram, Youtube, Google+, and LinkedIn which the youth may use to obtain agricultural information for their agricultural activities.

**Youth:** According to Ameyaw (2015), youth is any person who is between the age of 15 and 35 years. Therefore, in this study, a youth was any person between the age of 18 and 35.

**Youth participation in agriculture:** Kising'u (2016) defines youth participation in agriculture as the active involvement of young people aged between 18 and 35 years in production processing and marketing in the agricultural sector. Therefore, in this study, youth

participation referred to the state of being involved in buying agricultural produce, selling agricultural produce, buying agricultural inputs, providing paid labor in a farm, livestock production, crop production, value addition and linking up with other farmers in agriculture.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The chapter gives insight into the development of social media, the types and use of social media in promoting agriculture, youth participation in agriculture, and the influence of social media in agriculture in Kenya. The agricultural activities carried out in Nakuru County are also outlined. The chapter also gives a discussion on the theories supporting the study and how the study was conceptualized.

#### **2.2 Information communication technology in agriculture**

The use of Information Communication Technologies (ICTs) in the field of agriculture has increased over the years. According to Mahant et al. (2012), ICTs can be utilized to provide accurate, timely, relevant information and services to the farmers. Information and Communication Technologies (ICTs) play a very important role in disseminating agricultural information to the farmers for greater access and use as revealed in the study finding by Kante et al. (2016). Study findings by Das et al. (2016) revealed that ICTs are important in agriculture as they provide the farmers with information, and knowledge to empower themselves with modern agricultural technologies on their farms. The use of ICTs enhances an increase in productivity, access to markets, and adaptability to weather conditions in agriculture as revealed by Ali et al. (2016). Evidence by Oladele (2015) revealed that ICTs could be used to enable, strengthen, or replace existing information systems and networks in the agricultural sector.

Additionally, Das et al. (2016) stated that ICTs such as computers, internet, geographical information systems, mobile phones, radio, and television have been used in agriculture to enhance participation and productivity. Evidence by Fu and Akter (2012) revealed that the use of mobile phones in agriculture has grown rapidly in remote rural areas. In Kenya, a study by Warwimbo (2017) revealed that some farmers, especially the youth have embraced the use of ICTs in their agricultural production with various mobile applications to enhance the outreach of their products to their customers. Evidence by the Nakuru County Integrated Development Plan (NCIDP, 2013-2017) suggested that approximately 75 % of the households own mobile phone while mobile network coverage is at 91 %, which increases the potential for mobile data services.

### **2.3 Social media platforms in agriculture**

Different social media platforms are used in agriculture to share and receive agricultural information. According to Thakur and Chander (2018), social media tools include Facebook, WhatsApp, We Chat, Tumblr, Twitter, Pinterest, Blogs, YouTube, Instagram, Wikis, Facebook messenger, Snap Chat among others that are used in agriculture. However, the most popular ones in India includes Facebook, WhatsApp, and YouTube. Moreover, in the United States of America, the AgChat Foundation which is a social media platform that assists farmers and ranchers learn the skills necessary to participate in communication through social media channels (AgChat Foundation, 2014). Additionally, there are social media platforms such as Access Agriculture, which is an international Non-Government Organization (NGO) that produces agricultural training videos in different local languages across the world. Farmers can access the website and watch or download the videos to assist them in carrying out agricultural practices.

In Kenya, there are social media platforms, which include the Mkulima Young Champions that aim to draw more young people into farming. It gives the youth a platform that allows them to learn from each other, trade, and overcome the challenges of agriculture together. According to Irungu et al. (2015) the Mkulima Young's Facebook page has become a platform where young people interact with other young people who are passionate about agriculture. Additionally, Irungu et al. (2015) stated that most of the youth get their information from the internet hence it would be one of the best platforms to market and promote agriculture to reach the youth. Moreover, Wangu (2014) stated that in Kenya users of social media platforms have access to Farmers Market Kenya, Digital Farmers Kenya, and Mkulima Hub Kenya. These platforms educate and inform on agricultural matters as well as facilitating the buying and selling of agricultural produce and related products. Mkulima Young is an online platform that enables farmers to sell and buy farm produce. Joseph Macharia (2013), an agricultural expert who wanted to inspire the youth to engage in farming as an enterprise, founded the platform.

### **2.4 Social media use in agriculture**

Social media is an area of development that has since seen its growth in usage across the globe. Social media is a way to transmit or distribute information to a broad audience where users have an opportunity to create and distribute content. According to Barau and Afrad (2017), social media is defined as a contemporary channel of digital communication that is composed of various

evolving tools for discussion, interaction, and sharing of information among people. It is a platform used by millions of people in the world to share and receive information ((Balkrishna & Deshmukh, 2017). Social media platforms provide users in agriculture with an opportunity to share, exchange information, and discuss issues in agriculture based on their knowledge and experience and come up with effective solutions (Paudel & Baral, 2018). Additionally, Balkrishna and Deshmukh (2017) state that farmers are using social media because it enables them to connect with other farmers when they are distance apart. The platform is used as a means of communication between organizations and their audience. The evolution of social media has connected the world to make it one and enabled ease of transfer of technologies reducing the gap between the richer and poorer countries. As revealed by Alabi et al. (2013), In Africa, social media usage has spread at a higher speed, especially among the youth. Lachapelle (2011) stated that social media involves the use of various technological tools and methods for sharing and discussing information.

Social media platforms such as Facebook, Twitter, and WhatsApp have become more popular in sharing agricultural information. According to Vishnu et al. (2018), these platforms play a crucial role in spreading agricultural technologies to farmers. Social media usage has grown at a higher rate in the agricultural sector to disseminate agricultural information and facilitate the transfer of technologies. Shreds of evidence obtained by (Barau & Afrad, 2017) showed that many social media platforms are being used in agricultural extension service delivery worldwide with Facebook having the highest popularity by 64.7%. Social media is becoming a very important platform in farming because it can connect farmers and agribusiness people from around the world over large geographical distances as revealed by (Kipkurgat et al., 2016).

In support, Lathiya et al. (2015) state that social media is now a mainstream form of communication around the world and continues to grow in popularity with the increase in the number of smartphones but it has however not been widely accepted in agriculture in India. Social media plays a very important role in enhancing interactions and information flows among different actors involved in agricultural innovation and enhance the capacities of agricultural extension and advisory service providers. Findings by Wangu (2014) revealed that farmers source agricultural information from a variety of sources with social media being key among them. Balkrishna and Deshmukh (2017) in their study showed that social media is a very useful platform in agricultural marketing and it saves time and cost of the farmers for getting information. However, the potential of such platforms to disseminate agricultural information has not been fully exploited by extension

officers. These extension officers will need to undergo a form of training to be able to fully utilize the potential that social media offers.

According to the findings by Alabi (2013), the main social media used by agricultural researchers in Nigeria is Facebook and the respondents revealed that the major reason for using social media is to establish connections with their professional colleagues. The agricultural researchers on social media get exposure to the latest skills and knowledge related to their profession. Thakur and Chander (2018) stated that Facebook and WhatsApp are one of the social media platforms that have been used to share diverse farming based information across different parts of India. In a study carried out in Kiambu County in Kenya, Wangu (2014) revealed that farmers approach the use of social media to seek agricultural information and pointed out that social media is largely beneficial and convenient as a source of agricultural information. According to Cline (2011), respondents allocate a large portion of their time to social media platforms for agricultural purposes.

## **2.5 Agricultural content and services in the use of social media platforms**

There are different types of agricultural content and services that can be accessed on social media platforms to promote youth participation in agriculture. According to Animal Agriculture Alliance (2020), farmers can access three successful SMPs in agriculture such as “Farming and I Grow it” which is a YouTube video that displays a sacksful farm life by the younger generation. Secondly, the farmer can access the Agriculture Proud Farm Blog which is a good example of how the utilization of social media, can have a large impact on the perception of the youth towards agricultural practices. Lastly, there is the “Keeping It Real: Through the Lens of a Farm Girl” which is a Facebook page that displays the values on the farm through pictures and words.

A study by Balkrishna and Deshmukh (2017) revealed that social media platforms are useful in agricultural marketing as they save time and are cost-effective. Farmers share their success and failure stories with others on social media. Additionally, they also share updates concerning crop harvesting, post-harvesting, promoting agricultural produce, market information, and assist other farmers to solve problems related to their known areas. Farmers obtain knowledge and ideas and get an opportunity to establish key partnerships with social media platforms. They also buy and sell agricultural produce and inputs and use pictures, links, and videos to facilitate this. Kipkurgat et al. (2016) also found that SMPs facilitate the sharing of market information and

the formation of farmer's networks. Additionally, farmers use social media platforms to share links, news articles, information, feedback, and queries concerning agriculture.

## **2.6 Quality of agricultural information**

Agricultural information is considered of quality when the agricultural information is relevant, timely, understandable and reliable however the level of education of the farmers can have an effect on how they perceive the quality of agricultural information provided (Mokotjo & Kalusopa, 2010). Mur et al. (2016) also stated that quality agricultural information is agricultural information that addresses the needs of the farmer, applicable, affordable, clear, consistent, accurate, locally validated and tailored to the agricultural context of a farmer. Evidence by Lwoga et al. (2010) revealed that knowledge and information needs of farmers are location specific due to slight variations in development, agricultural activities and agro-ecological conditions in Tanzania where the study was carried out. According to Banmeke and Ajayi (2008), quality agricultural information is very important in the agricultural development process hence providing adequate, relevant, up-to-date agricultural information is crucial to the farmer for improved agricultural production in many developing countries. Obtaining quality agricultural information can reduce the potentially costly waiting period and the risk of making the wrong decision and leading to loss (Mittal & Mehar, 2013).

Study findings by Lambert (2018) stated that there is need for timely and high quality agricultural information by the farmers to be able to make important agricultural information with regard to production systems and inputs. According to Shinohara (2001) farmers need to have access to abundant and neutral information covering both technical and broader issues relevant to their agricultural context. Lack of reliable quality information about agricultural inputs is a major challenge to adoption of new agricultural technologies in Sub-Saharan Africa hence there is need to improve quality agricultural information on appropriate use of agricultural inputs (Jack & Tobias, 2017). Farmers get access to agricultural information through the agricultural extension officers, however, study finding by Lwoga et al. (2010) revealed that farmers were not satisfied with the less frequent interactions they had with the agricultural extension officers. Therefore, there are still gaps in terms of provision of quality agricultural information that needs to be filled hence there is importance to look into social media platforms that are advantageous in terms of reaching out to a larger audience at a go.

## **2.7 Level of utilization and challenges experienced in the use of social media platforms in agriculture**

Study findings by Balkrishna and Deshmukh (2017) revealed that most farmers visited social media platforms on daily basis in a study carried out in India. Evidence by Banmeke and Ajayi (2008) in a study carried out in Nigeria revealed that the internet use was not yet popular among the respondents because of the persistent breakdown of computers in the resource centre and low education level which made it difficult for the respondents to access agricultural information on their own as they mostly depend on the resident agricultural extension officer. Kante et al. (2017) stated that the quality of agricultural information has an effect on the level of utilization of ICTs.

There is also low adoption of social media as a tool of marketing, less trust concerning e-buying, e-selling on social media, costly internet data and poor network coverage leading to limited access (Balkrishna & Deshmukh, 2017). The study by Babu et al. (2012) revealed that unavailability, unreliability, and inadequate awareness of agricultural information sources available and untimely provision of agricultural information on such platforms. Evidence by Mahant et al. (2012) suggested that the challenges experienced in the adoption of ICT in a rural area may be attributed to ICT illiteracy, unavailability of relevant, and localized contents.

## **2.8 Youth participation in agriculture in Kenya**

Evidence by Afande et al. (2015) indicated that youth engagement in agriculture is declining which increases youth unemployment in Kenya. Most of the youth in Kenya are interested in getting white-collar jobs. According to the findings by Muathe (2016), economic factors such as inadequate land and lack of funds limit youth participation in agriculture value chain activities. In contrast, Njeru et al. (2015) revealed that inadequate youth participation in agricultural activities is positively related to their perception of agricultural activities as a “dirty job”. As stated in the Ministry of Agriculture, Livestock and Fisheries Strategy (2017), most youths in Kenya remain un-attracted to agriculture which leads to their inadequate youth participation in agricultural activities. According to Muthee (2010), the youth are not largely involved in agriculture due to misperceptions and lack of information awareness.

Additionally, Nakuru County has highly productive land for agriculture. The farmers are involved in livestock, fisheries, and crop production. According to Tonui (2017), dairy farming

and horticultural farming are some of the most important agribusiness activities taking place in the county. The horticultural activities include flowers, fruits, and vegetable farming for local consumption and export. According to the County Government of Nakuru (2018), the county government encourages the youth to participate in income-generating agricultural activities in the county to reduce the high rate of unemployment. The strategies include the revival of pyrethrum, increased commercialization of livestock and livestock products, and other agricultural sector projects involving the youth. The Agricultural sector also aims at increasing value addition, farm mechanization, and increasing productivity. Therefore, this revealed that the level of youth participation in agriculture is not yet up to satisfactory standards. However, social media can play a vital role in promoting youth participation in agriculture as the youth are attracted to its use.

## **2.9 Social media and the youth in agriculture**

A large number of young people across the globe have engaged in the use of social media. These youth mostly use these social media platforms to communicate with their families, peers, colleagues, and friends. Juszczuk (2015) supports that social media sites offer the youth a platform for entertainment and communication, and have grown exponentially in recent years. According to Muktar et al. (2015), social media offers a great potential to attract the youth in agriculture. Study findings by Bhattacharjee and Raj (2016) revealed that social media has made communication easier with the use of platforms such as Facebook, Twitter, and WhatsApp that enhances high interaction among users. According to Carr and Hayes (2015), social media allows the respondents to have direct interaction with their audience, which enhances the marketing of their products leading to increased profits. Social media allows the youth to create networks amongst themselves and other farmers in the agricultural sector as revealed by Stanley (2013).

According to the finding by Ali et al. (2016), social media influences the youth to engage in learning and seek job opportunities. In learning through social media, the youth tends to be influenced by others and forget about their cultures and values which may include focusing on other economic activities rather than engaging in agricultural activities. Njoroge (2013) stated that social media has an effect on behavioral change among the youth in the society towards engagement in agriculture. This behavioral change can have both positive and negative impacts. On the contrary, Juma (2017) revealed that social media is not the only platform that has an effect

on the youth in agriculture but parents and older siblings also affect the engagement of the youth in agriculture.

## **2.10 Theoretical framework**

The theoretical framework gives insight into the models or theories that are established and supports the researcher's study. It gives a brief explanation of the phenomena under study and the reason for its existence. Therefore, this study adopted three theories which are the Cultivation theory by Gerbner (1977), the honeycomb theory by Kietzmann et al. (2011) and the Diffusion of Innovation Theory by Rodgers (1962). The Honeycomb theory gives an insight into why users engage in social media in terms of sharing of agricultural information and networking while the Cultivation theory argues that media shapes people's sense of reality. Additionally, the Diffusion of Innovation Theory by Rodgers (1962) which is a communication theory in agricultural extension was used to guide the study. The theory looked at the way an innovation spreads in the target population. The theories were important in the study as they touched on the areas of the use of social media in terms of sharing of information and networking amongst farmers, how social media influences youth participation in agriculture and how the agricultural information spreads amongst the youth in agriculture hence the theories complement each other in providing insight on how the use of social media platforms affected the youth in agriculture.

### **2.10.1 Cultivation theory**

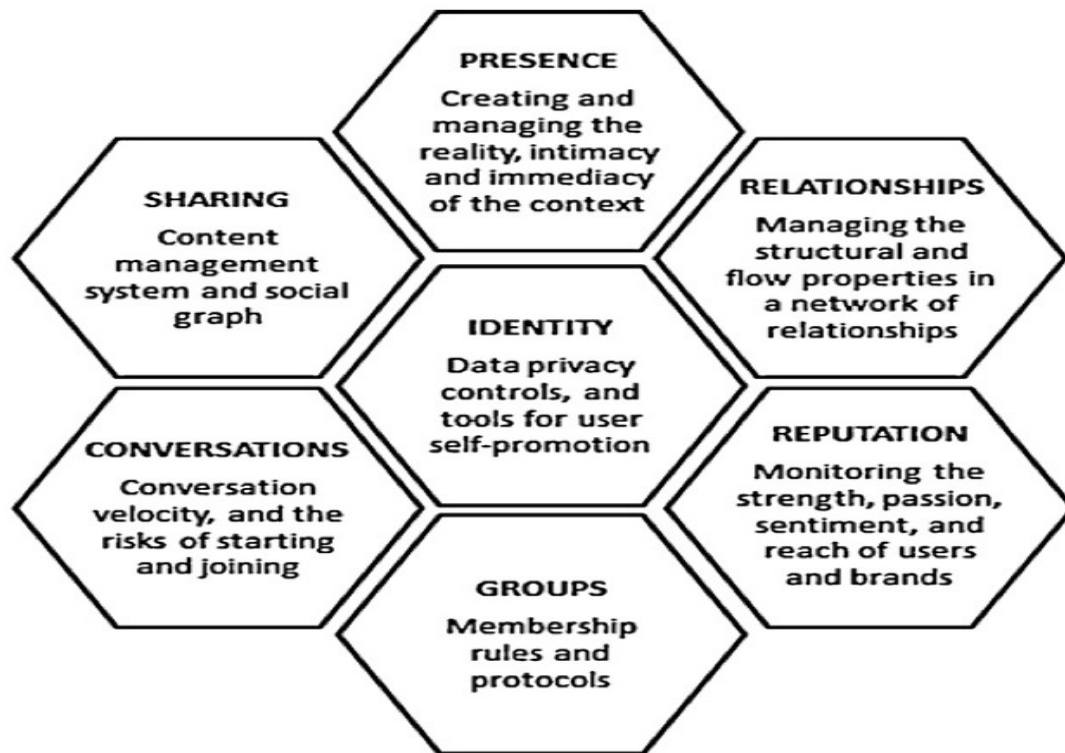
The study employed the Cultivation Theory by Gerbner (1977) as cited by (Griffin, 2006) which argues that media shapes people's sense of reality. Many people acquire information through mediated sources rather than direct experience, their world view becomes affected by these sources (Griffin, 2006). The theory states that the people who spend most of their time watching mass media such as television are likely to be influenced by it. Therefore, the context of the Cultivation Theory was used in studies related to the effect of social media, as it is one of the mass media platforms of communication. The theory was relevant to the study since social media had also shown its influential authority on how people behaved and patterned their perceptions and opinions about real-life issues. The theory helped in determining the effect that social media have on promoting youth participation in agriculture. Through this theory, the researcher was able to know

how social media shaped the views and opinions of the youth towards agriculture. This social media opinions and views led to social media having an effect in their participation in agriculture.

### **2.10.2 Honeycomb theory of social media**

Figure 1 shows the HoneyComb Theory proposed by Kietzmann et al. (2011) that reviews social media effectiveness, looking at reasons why users engage with social media. The model has seven key building blocks. The theory shows seven things that people may choose to engage in or not to engage in on social media. The seven functional building blocks are identity, conversations, sharing, presence, relationships, reputation, and groups, which people can engage on using social media. The identity functional block represents the extent to which users reveal their identities in social media and the conversations block represents the extent to which users communicate with other users in social media. Moreover, sharing represents the extent to which users exchange, distribute, and receive content and the presence represents the extent to which users can know if other users are accessible. Additionally, the relationship block represents the extent to which users can be related to other users and the reputation is the extent to which users can identify the standing of others, including themselves, in a social media setting. Lastly, the groups' functional block represents the extent to which users can form communities and sub-communities.

Different individuals engage on social media for different reasons hence one may choose to utilize all the seven building blocks or choose the ones they want to be involved in from among the seven. This theory was very helpful in the sense that, the researcher was able to get more insight into how the youth use social media for agricultural purposes and how much are they involved in the media looking at the number of the building blocks of the theory they engage in concerning agriculture. Therefore, the use of social media in promoting youth participation in agriculture can easily be determined by the number of blocks they are engaged in. The model was relevant to study as it helped depicts the reason why the youth engaged in social media and hence determined its effects on their participation in agriculture.



**Figure 1: Honeycomb theory of social media**

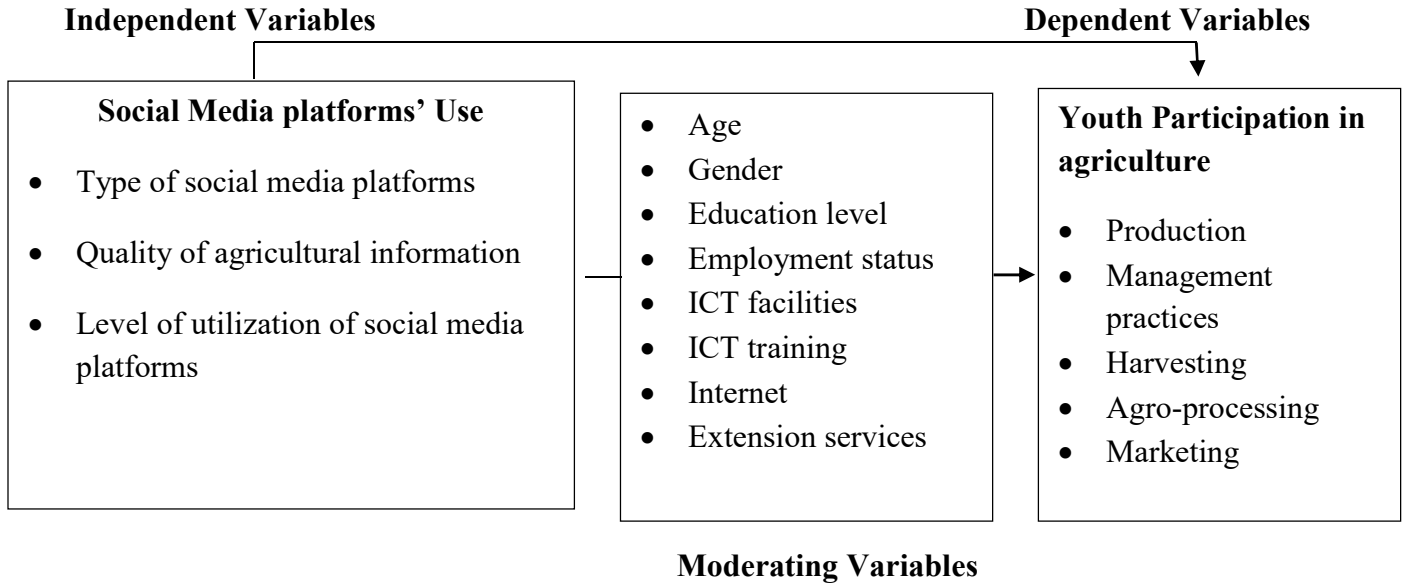
Source: Kietzmann et al. (2011)

### 2.10.3 Diffusion of innovation theory

Rogers (1962) developed the diffusion of Innovation Theory. The theory explains how innovation spreads through a specific population. The theory continues to state that the results of this diffusion are for people to adopt new ideas or behavior. Additionally, the theory stated that people adopt new ideas or behavior at different rates. Some people adopt earlier and there are those who adopt later. This theory was important to the study, as it helped determine how the use of social media by the youth in agriculture had spread. It also helped categorize the youth according to the level of their utilization of social media in agriculture.

## 2.11 Conceptual framework

A conceptual framework explains the phenomenon under study in a structural context. It clearly shows the independent and dependent variables and the relationships that exist among them. Figure 2 presents a diagrammatic conceptualization of the independent and dependent variables.



**Figure 2: Conceptual framework showing the interaction between the use of social media platforms' use and youth participation in agriculture**

As indicated in Figure 2, the independent variables, social media platforms' use was conceptualized as having an effect on the dependent variable, youth participation in agriculture. The independent variable, social media platforms' use was measured by assigning an index score which was a cumulative score of the type of SMPs used in obtaining agricultural information, quality of agricultural information obtained through social media platforms, and the level of utilization of social media platforms. Additionally, a scale measure was used to measure youth participation in agriculture where an individual scale score was assigned to the number of agricultural activities the respondent undertook. Gender, age, educational level, access to ICT training, ICT facilities, network connectivity, internet, and extension services, were considered as possible moderating variables. Therefore, the moderator variables were built into the study and studied.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Research methodology refers to the specific procedures or techniques used to identify, select, process, and analyze information about research phenomena. The chapter gives a clear insight into how the study was conducted indicating the research design, target population, sampling strategy, data collection instruments, process, and analysis of the data.

#### **3.2 Research design**

The study employed a descriptive survey research design. A descriptive survey research design aims at describing a phenomenon in a population and thereby establishing the facts. This enabled the researcher to gather more facts about the problem at hand and be able to prompt respondents to give more information (De Vaus & de Vaus, 2001). The design allows data collection from the respondents through the use of questionnaire to get more insights on the phenomenon under study. The data collected can be both qualitative and quantitative hence there is no limitation in terms of the type of data that can be collected from the respondents. Measures of central tendency such as means, mode, median, linear regression and multiple analysis of variables can be carried out under the descriptive survey research design. The design helped in getting more information towards making accurate conclusions on the effect of social media on youth participation in agriculture.

#### **3.3 Location of the study**

The location of the study is a specific geographical place where the study was carried out hence the study was carried out in Nakuru county specifically Njoro sub-county. The county covers an area of approximately 7,498.8 Km<sup>2</sup> and is located between Longitudes 35.41 ° East and 36.6 ° East and Latitude 0.23 ° North and 1.16 ° South. Nakuru is an agriculturally-rich county that borders seven counties namely Laikipia to the North East, Kericho to the West, Narok to the South West, Kajiado to the South, Baringo to the North, Nyandarua to the East and Bomet to the West. The County has 11 sub-counties namely Naivasha, Nakuru Town West, Nakuru Town East, Kuresoi South, Kuresoi North, Molo, Rongai, Subukia, Njoro, Gilgil and Bahati with fifty-five wards in the County. Njoro Sub-county has six wards in total namely Mau Narok, Kihingo,

Mauche, Nessuit, Lare, Njoro. The Njoro Sub County has several agricultural activities that the youth undertakes, which include vegetable and milk processing, large-scale wheat, and barley farming contributing to the economy of the sub-county. The average annual rainfall ranges between 700mm and 1000mm which is suitable for crop production. Most of the livelihoods of the people depend on agriculture for employment and food as agriculture is a major economic activity-taking place in the county.

Njoro Sub-county was chosen for the study because it has a town which may have less problems with issues of network connectivity and access to ICT facilities for the youth to use in obtaining agricultural information on social media platforms. There may also be more young people involved in agriculture as most people travel to the nearby town to seek for employment and sell their agricultural produce. Njoro Sub-county is also a home of Egerton University, where young people are enrolled in agriculture and agriculture related programmes, having access to ICT facilities with internet connectivity hence these young people may be involved in the use of social media in agriculture which is an important factor to consider in this study.

### **3.4 Target population**

The target population refers to the specific group relevant to a particular study that has the same form of characteristics. The study targeted 3,925 youth who participated in agriculture in Njoro Sub-county (Ministry of Agriculture, Livestock and Fisheries, 2018). These youth are people who are between the age of 18 and 35 years and are most likely to have finished their primary, secondary education level and also gone through to institutions of higher learning for their certificates, diploma, bachelors and masters degrees. The Accessible population was 1,597 youth who are in Njoro, Lare and Kihingo Ward. The sample of the study was selected from the accessible population to carry out the study hence the conclusions of the study were drawn from the accessible population which is a subset of the target population.

### **3.5 Sampling procedure and sample size**

Multistage Sampling was used. In the first stage, Nakuru County was purposively selected out of the 47 Counties in Kenya because it is the only County that has embraced the use of social media in agriculture through the establishment of the Nakuru Farmers Call Centre supported by the County Government. In the second stage, Njoro Sub-county was purposively selected out 11

Sub-counties, as it is one of the Sub-counties that have a large number of the youth participating in agriculture, have a town where the youth have access to ICT facilities to use social media in agriculture and also have a major university of agriculture that gives young people access to ICT technologies which is important to consider in the use of social media in agriculture. On the third stage, simple random sampling was used to select the three wards, Njoro Lare and Kihingo in Njoro Sub-county out of six wards in Njoro Sub-county. Simple random sampling was used to select the respondents from Njoro, Lare and Kihingo wards. To determine the sample size needed to carry out the study, Yamane formula for sample determination was used to determine the sample size from a target population of 3,925 which is the population of youth in agriculture in Njoro Sub-county.

The population of the youth who were involved in agricultural activities was known, therefore to determine the sample size the formula by (Yamane, 1967) was used as follows;

$$n = \frac{N}{1 + N(e^2)}$$

Where;

- n = the sample size
- N = Population Size (3,925)
- e = Allowable error (0.08)

$$n = \frac{3925}{1 + 3925 (0.08^2)} = 150$$

Therefore, with the known population size, the sample of the study was 150 youth, randomly selected from the sampling frame in each ward. According to Kotrlik and Higgins (2001), the 0.08 allowable error is used to account for both the qualitative and quantitative error acceptable, which is 0.03 for quantitative and 0.05 for qualitative data to be obtained. The allowable errors added together summed to 0.08 and accounted for both continuous and categorical data that was collected in the study. Proportionate sampling was used to determine the number of respondents to be selected from each ward from the accessible population of 1,597 to constitute 150 responders needed to carry out the study. The results are shown in Table 1.

**Table 1: Distribution of study sample**

| <b>Ward</b>  | <b>Population</b> | <b>Sample Size</b> |
|--------------|-------------------|--------------------|
| Njoro        | 692               | 65                 |
| Lare         | 586               | 55                 |
| Kihingo      | 319               | 30                 |
| <b>Total</b> | <b>1,597</b>      | <b>150</b>         |

### **3.6 Instrumentation**

A researcher-constructed questionnaire comprising of both closed and open-ended questions was used to collect data from the sampled youth. Quantitative data was collected through the use of a questionnaire. The questionnaire comprised of seven different sections. Section A collected data on the demographic characteristics of the population. The respondents indicated their gender, age, education level and employment level for demographic characteristics. Section B collected data on the use of social media platforms for agricultural information where a list of social media platforms was provided and the respondents answered yes (2) or no (1) to the use of each social media platform. The types of social media platforms were WhatsApp, Facebook, Twitter, Google search engine, YouTube, Instagram, LinkedIn and Wikipedia amongst others.

Section B collected data on the reasons why some respondents did not have access to social media platforms. The options for the reasons were; costly internet data, poor network connection, unavailability of relevant information, social media information was unreliable, less trust with regard to e-buying and e-selling on social media and lack of awareness on the use of social media in agriculture. A 5-point scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) was used for the respondents to indicate the level in which they agree or disagree with the reasons why they do not use social media in agriculture. Also in section B, data on the quality of agricultural information was collected. Focus on the quality of agricultural information was on accessibility, relevance, simplicity, ease of application, usefulness and adequacy. A 3-point scale was created where respondents rated the quality of agricultural information with regard to the indicators of quality of agricultural information.

In addition, Section C collected data on the type of agricultural activities the youth are engaged in agriculture. The agricultural activities were buying and selling of agricultural produce, linking up with other farmers, providing paid labour in a farm, poultry, dairy, beef, vegetable, goat,

sheep, field crop and pig production. Other agricultural activities were sorting produce for packaging, grading produce for selling and processing agricultural produce were respondents were to answer yes (2) or no (1) indicating the agricultural activity they undertook or did not undertake. Additionally, Section D collected data on the level of utilization of social media platforms in agriculture, and Section E collected data on the socio-economic characteristics of the respondents. A modified 5-point rating scale (1 = not at all, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often) was be employed to obtain responses for the level of utilization. Yes and No options were also employed to some closed items to obtain responses from the respondents. Open spaces were included and the respondents recorded their answers.

Lastly, Section E collected data on the socio-economic characteristics of the respondents which were access to agricultural extension officer, distance in kilometers to the agricultural extension office and use of social media platforms by the agricultural extension officer and the farmer. The respondents indicated yes (2) or no (1) to whether they had an agricultural extension officer advising them, the type of agricultural extension they receive information from, the distance in kilometers to the agricultural extension office and the use of social media platforms between the respondents and the agricultural extension officer. Still in Section E, data on access to smartphone, computer, cyber, internet and training on the use of social media was collected. The respondents indicated on a modified 5-point scale (1 = Not at all, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often) how frequent they had access to them.

### **3.6.1 Validity**

Validity measures the extent to which the instrument measures what is supposed to measure (Drost, 2011). According to (O.M. Mugenda & A.G. Mugenda, 2003), instrument validity should be ensured to achieve accurate and consistent results. The instrument should be both face and content validated. Face validity is the extent to which the respondents view the appearance of the instrument and its items as relevant to the context in which the test is being administered (Holden, 2010). Content validity checks whether the instrument adequately covers all the content concerning the variables under observation (Heale & Twycross, 2015). Therefore, the researcher ensured the instrument is valid by checking all the items and ensured they are measuring all the variables under observation. The researcher also ensured that the appearance of the questionnaire is appealing to the respondents and did not contain any unnecessary graphics and items that were

not part of the study. Moreover, the questionnaire was submitted to the experts at the Department of Agricultural Education and Extension (AGED) to be face and content validated. The researcher also submitted the instrument to the experts in the research methodology and peers to help validate.

### **3.6.2 Reliability**

Reliability refers to the consistency of the instrument in measuring the construct (Drost, 2011). To estimate reliability, a pilot study was carried out in which the questionnaire was administered to a different population from that of the study before it was administered to the actual target population of the study. The questionnaire was piloted in Molo Sub-county, which has similar agro-ecological conditions with those in Njoro Sub-county. A sample of 30 respondents was used, which is more than 10 % of the total sample hence sufficient to carry out the reliability test. According to (Connelly, 2008), 10 % of the total sample is sufficient to test for the reliability of the instrument. The Cronbach alpha coefficient obtained after testing for reliability was 0.75 which is above the required threshold of 0.7 hence the instrument was found to be reliable.

### **3.7 Data collection procedure**

The researcher first sought clearance from the Board of Postgraduate Studies and then applied for a permit at the National Commission for Science, Technology, and Innovation (NACOSTI). Upon being granted the permit, the researcher sought clearance from the Nakuru County and Njoro Sub-county authorities. Upon being permitted by the County authorities to collect data, the researcher liaised with agricultural extension officers in the wards to call a meeting of the youth where the questionnaire was then be administered. The researcher requested separate meetings with the respondents in their respective wards. The respondents were requested to gather in one location in their respective wards where the researcher met them. The questionnaire was researcher administered hence achieved a high return rate. This allowed the respondents to be able to express themselves and allowed the researcher to gain more insight into the facts. The researcher administered the questionnaire and recorded the answers given by the respondents for those respondents who were not able to answer by themselves to improve accuracy.

### 3.8 Data analysis

The data collected was organized and cleaned before being analyzed. It was organized into various categories, which were distinct from each other through coding, the data was then be analyzed using SPSS version 22 and STATA version 12. The data was analyzed using percentages, frequencies, and mean squares, linear regression, One Way ANOVA, Independent T-test, and Ordered logistic regression.

**Table 2: Summary of data analysis**

| Hypotheses   | Variables                                      |                     | Statistical Test                                |
|--|--|---------------------|---|
|  | Independent                                    | Dependent           | Analysis  |
| <b>H0<sub>1</sub>:</b> There is no statistically significant effect of the type of social media platforms on youth participation in agriculture in Njoro Sub-county  | Type of Social Media Platform                  | Youth Participation | Independent Sample T-test and Linear regression |
| <b>H0<sub>2</sub>:</b> There is no statistically significant effect of the quality of agricultural information obtained through social media platforms on youth participation in agriculture in Njoro Sub-county | Quality of Agricultural Information            | Youth Participation | Linear Regression and One Way ANOVA             |
| <b>H0<sub>3</sub>:</b> There is no statistically significant effect of level of utilization of social media platforms on youth participation in agriculture in Njoro Sub-county                                  | Level of Utilization of Social Media Platforms | Youth Participation | Ordered Logistic Regression                     |

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.1 Introduction**

This chapter presents the results and discussions of the findings on the effect of social media platforms' use on youth participation in agriculture, Njoro Sub-county. The social media platforms considered were Facebook, WhatsApp, Twitter, Google, YouTube, Wikipedia, Instagram, LinkedIn, Mkulima Young, among others that the youth use in agriculture. The results of the effect of the type of platforms used, the quality of the agricultural information obtained and the level of utilization of the social media platforms on youth participation in agriculture are also presented in this chapter.

#### **4.2 Questionnaire return rate**

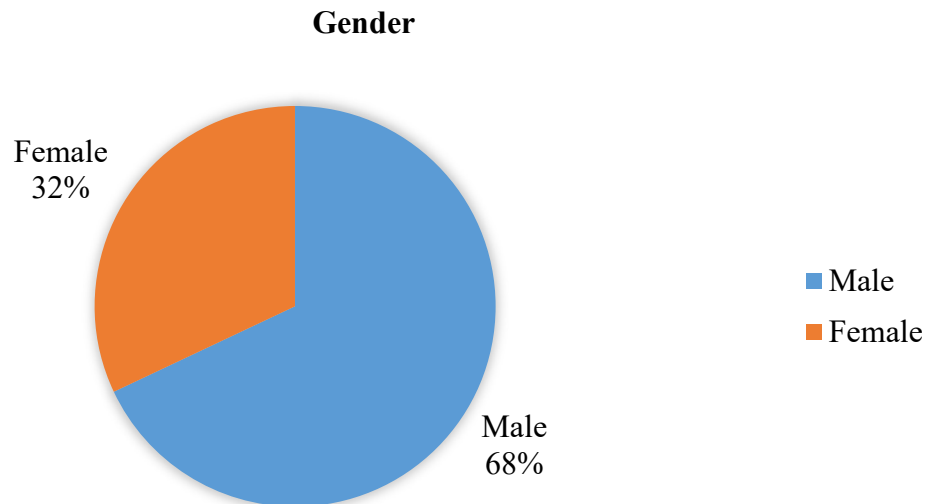
The researcher administered a total of 150 questionnaires to the respondents in Lare, Kihingo, and Njoro wards in Njoro Sub-county. This gave a 100% return rate of the questionnaires administered to the respondents. Creswell (2002) stated that a return rate of 75% and above is considered a representation of the respondents hence reduces biases. However, out of the 150 questionnaire returned, 100 respondents who participated in agriculture used social media in agriculture while 50 others did not use social media in agriculture but indicate the reasons as to why they did not use social media in agriculture. In analysis, the 150 were used when carrying out T-tests which compares groups of those who are using and not using social media platforms in agriculture in terms of the number of agricultural activities they undertook. However, 100 respondents were used when analysis of the quality of agricultural information on social media platforms since they were the only respondents who used social media in agriculture and hence in a better position to rate the quality of agricultural information they obtained.

#### **4.3 Demographic characteristics of the respondents**

The respondent's characteristics were described in terms of gender, age, education level and employment status.

### 4.3.1 Gender of the respondents

The results in Figure 3 show the gender distribution. Out of the 150 respondents, females accounted for 32 % of the total sample while the male respondents accounted for 68% of the total sample.

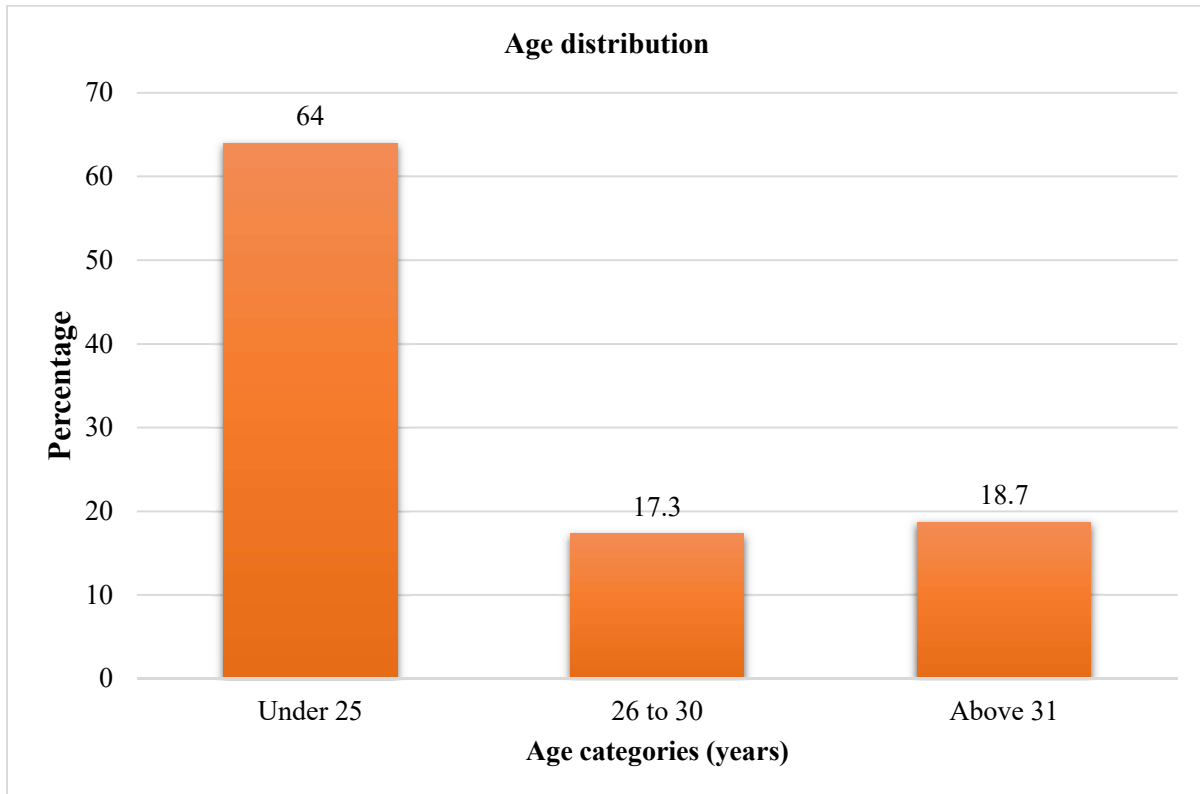


**Figure 3: Gender distribution of the respondents**

Therefore, there were more male youths engaged in agricultural activities than females. The work carried out in agriculture can at times be tedious hence males are most likely to engage in the agricultural work than females. Elias et al. (2018) conforms to these results by revealing that although young men did not aspire to engage in traditional farming and labor-intensive farming activities just as young women, the young men did not completely shy away from engaging in agriculture. According to Muhammad-Lawal et al. (2009), the gender of an individual can influence the type and quality of work they carry out. The low female youth engagement in agriculture might be attributed to that female youths do not have the desire and motivation to be engaged in agriculture. Male respondents are still interested in participating in agriculture using modern methods than female respondents which possibly explains the higher number of male respondents than female respondents.

### 4.3.2 Age of the respondents

The results in Figure 4 indicate that out of the 150 respondents, 64 % were under the age of 25 while 17.3 % were 26 to 30 years of age and lastly, those who are above the age of 30 made up 18.7 % of the total sample.

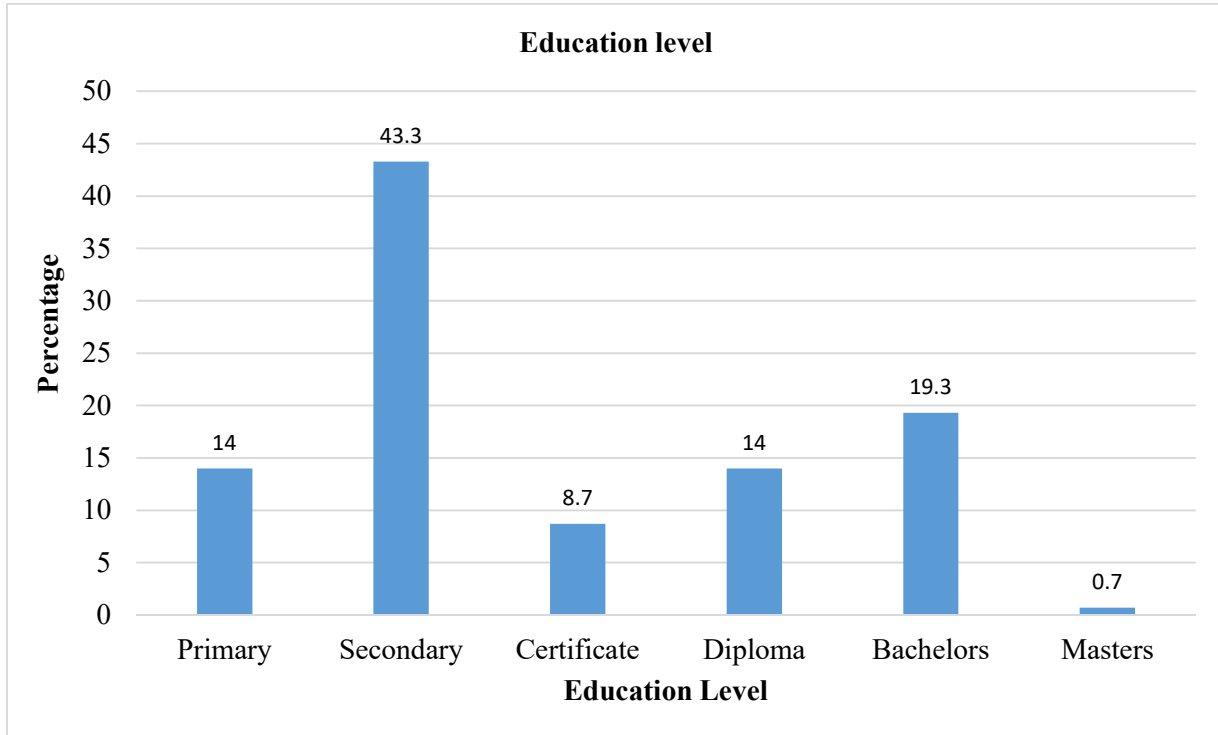


**Figure 4: Age distribution of the respondents**

The number of respondents under the age of 25 years was higher, most likely because they are young farmers who have been working with their parents in carrying out agricultural activities and still find interest in continuing with farming. The results conform to the findings of a study carried out by Pelzom and Katel (2018) on the respondents who are between the ages of 13 and 24 revealing that respondent's hail from rural areas with a farming background and those that have farming parents are likely to engage in agriculture as a source of income. Engagement of the parents in agriculture can motivate the children to also follow the same passion to continue with farming at a young age.

### 4.3.3 Education level of the respondents

The findings on education level of the respondents are indicated in Figure 5. They reveal that 14 % have a primary school education, 43.3 % have Secondary (form 4), 8.7 % have certificate level and 14 % have a diploma level whereas 19.3 % and 0.7 % have bachelors and masters degrees respectively.



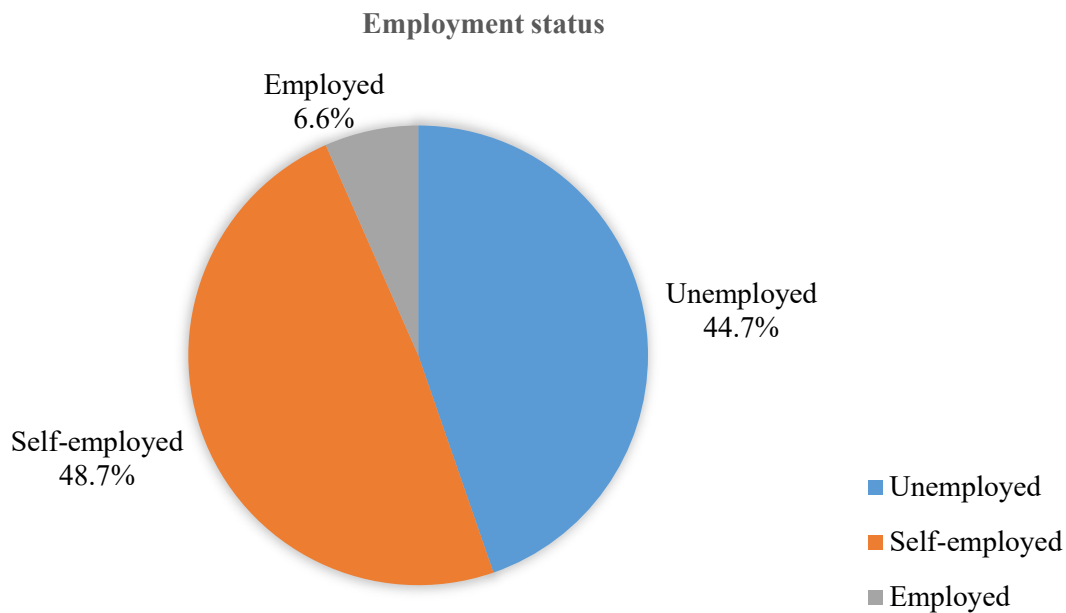
**Figure 5: Education level of the respondents**

There were 43.3% of the youth who had attained secondary education as shown by the results because the study focused on the youth who are people between the age of 18 and 35 years. These are people who have passed the age of primary education level and are more likely to be or having passed through secondary education level. These results imply that respondents who get more access to formal education are most likely to engage in agricultural activities. High participation of youths with secondary education could be associated with the awareness of more modern technologies and have more information about innovative farming that they might have attained as they get access to more formal education. Adesina and Favour (2016) support the results by stating that formal education enhances the adoption of modern agricultural technologies by the youth and youth participation in agriculture. However, higher levels of formal education can also

reduce participation in agriculture as revealed by the results that only 0.7 % had masters' degrees. This may be because they tend to choose formal white color jobs than engage in agricultural activities which are blue color jobs. According to Bezu and Holden (2014), access to higher education has the likelihood of making an individual choose off-farm salaried employment.

#### 4.3.4 Employment status of the respondents

Figure 6 shows the results with regard to employment status of the respondents. They reveal that 44.7 % of the respondents were unemployed whereas 48.7 % were self-employed and only 6.6 % of the respondents were employed.



**Figure 6: Employment status of the respondents**

The results show a higher proportion of the respondents being self-employed. This is because farming is a business and most of the respondents engaged in farming as a full-time job. Therefore, with 48.7 % of respondents self-employed and 6.6 % of respondents employed, the results reveal that most respondents have some form of income. The income is most likely to enable them to access social media platforms to use in agriculture. Okello (2017) confirms the results by indicating that income plays an important role in accessing agricultural information on ICT platforms because the higher the income of the farmer, the more likely, they seek different sources of agricultural information.

#### 4.4 Youth participation in agriculture

Youth participated in agriculture by engaging in different agricultural activities along the agricultural value chains. The activities included; field crop production, beef production, poultry production, vegetable production, and, operating a processing plant among others.

**Table 3: Agricultural activities of respondents (n=150)**

| <b>Agricultural activity</b>   | <b>Percentage (%)</b> |
|--------------------------------|-----------------------|
| Buying for sale (broker)       | 25.3                  |
| Selling own produce            | 85.3                  |
| Linking up with other farmers  | 82.0                  |
| Providing paid labor in a farm | 54.7                  |
| Poultry farming                | 74.7                  |
| Cattle farming                 | 28.0                  |
| Small stock production         | 30.0                  |
| Vegetable production           | 68.7                  |
| Field crop production          | 76.0                  |
| Sorting for packaging          | 59.3                  |
| Grading                        | 45.3                  |
| Processing produce             | 9.3                   |
| Others                         | 12.0                  |

The results in Table 3 revealed that majority of the youth engaged in selling their produce (85.3 %), field crop production (76 %), poultry farming (74.7 %), and vegetable (68.7 %). The least agricultural activities that the youth participates in are processing agricultural produce such as the making of yogurt, tomato sauce, peanut butter and buying agricultural produce for sale accounting for 9.3 % and 25.3 % of the total population respectively. The results imply that the respondents are mostly involved in crop production for sale. The respondents mainly focused on maize, wheat, tomatoes, kales, cabbages, green peppers, spinach, carrots and onions. The respondents indicated that their engagement in crop production is due to reliable rainfall in the area which makes crop production a viable business and one of the main agricultural activities carried out in the area.

The respondents indicated that their engagement in crop production was due to reliable rainfall in the area which makes crop production a viable business and one of the main agricultural activities carried out in the area. The high level of engagement in crop production by the respondents conforms to Kinuthia (2019), who reported that crop production is the main agricultural activity in the Njoro Sub-county with tomatoes, maize, beans, kales, wheat, carrots, peas and onions being some of the main crops grown in the area. Njoro Sub-county experiences a high amount of rainfall per annum which makes crop production a lucrative business hence a high level of engagement by the respondents as compared to livestock production.

#### **4.5 Use of social media**

Respondents were asked about the purposes for which they use social media platforms. The two main purposes were; general purposes, and to obtain agricultural information. The results are discussed as follows;

##### **4.5.1 General use of social media platforms**

The respondents indicated that they use social media to obtain information on various subjects such as health, politics, agriculture, education, sports and fashion. The results are presented in Table 4.

**Table 4: Use of social media by respondents (n=150)**

| Type of social media platform | Percentage (%) |
|-------------------------------|----------------|
| WhatsApp                      | 82.0           |
| Facebook                      | 84.0           |
| Twitter                       | 30.7           |
| Google search engine          | 69.3           |
| YouTube                       | 66.0           |
| Instagram                     | 36.7           |
| LinkedIn                      | 8.7            |
| Wikipedia                     | 22.0           |
| Pinterest                     | 6.7            |
| Telegram                      | 5.3            |
| IMO                           | 3.3            |
| Snap Chat                     | 1.3            |

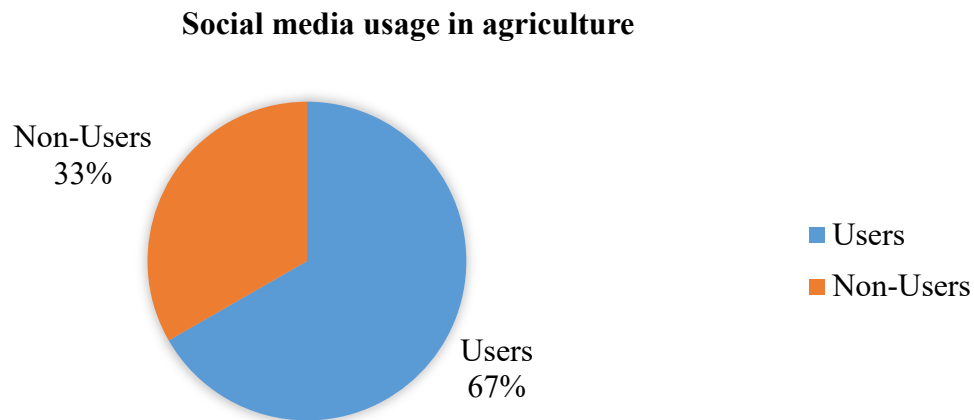
The results in Table 4 reveal that out of the 150 respondents, 138, which is 92 % of the total sample, use social media platforms for general purposes, inclusive of obtaining agricultural information. This implies that the majority of respondents have access to social media platforms. The youth are using social media not only to obtain agricultural information but also to obtain information on various social issues. The social media platforms that the youth use for general purpose includes WhatsApp, Facebook, Twitter, Instagram, Google search engine, YouTube, Telegram, Snap Chat, Wikipedia, LinkedIn, Pinterest, IMO amongst others. This implies that there is the use of social media amongst the youth even if it might not be for agricultural purposes. Kahne and Bowyer (2018), in their study, revealed that the youth use social media platforms for political development and participation. This confirms that the youth in agriculture actively participate in the use of social media for many other purposes.

Also, the results revealed that Facebook and WhatsApp as the highest used social media platforms for general purposes with 84 and 82 % usage respectively. The second highest used social media platform is Google search engine and Twitter with both 69.3 % usage while the third-highest is YouTube with 66 % usage. The lowest used social media platforms by the respondents are Telegram, IMO, and snap chat with 5.3 %, 3.3 %, and 1.3 % usage respectively. This indicates

that Facebook and WhatsApp are the most commonly used social media platforms amongst the respondents. According to Keating and Melis (2017), the youth are growing up with the internet and have become fast in adopting new technologies.

#### 4.5.2 Use of social media platforms in agriculture

The majority of the respondents indicated that they are using social media. However, not all the respondents who are using social media, use it for agricultural purposes. The results on the use of social media in agriculture by the respondents are presented in Figure 7.



**Figure 7: Respondent's use of social media in agriculture**

The results in Figure 7 indicate that out of 150 respondents, only 67 % of the respondents use social media for agricultural purposes while 33 % of respondents do not use social media for agricultural purposes. This implies that the majority of the respondents have access to social media platforms for agricultural purposes. The study by Suleiman et al. (2018) on the influence of social media in promoting farmers' participation in agriculture revealed that the majority of the farmers had access to social media platforms. There are various types of social media platforms available for obtaining agricultural information. Therefore, the respondents indicated they use various types of social media platforms in agriculture to obtain agricultural information. The results of the social media platforms that the respondents are using in agriculture are presented in Table 5.

**Table 5: Social media platforms used by respondents in agriculture (n=100)**

| Type of social media platform | Percentage (%) |
|-------------------------------|----------------|
| WhatsApp                      | 41.3           |
| Facebook                      | 47.3           |
| Twitter                       | 7.3            |
| Google search engine          | 46.0           |
| YouTube                       | 31.3           |
| Instagram                     | 6.0            |
| LinkedIn                      | 1.3            |
| Wikipedia                     | 8.0            |
| Mkulima Young                 | 13.3           |
| M-Shamba                      | 13.3           |
| DigiCow                       | 4.0            |
| Others                        | 6.7            |

The results in Table 5 indicate that the youth use WhatsApp, Facebook, Twitter, Instagram, Google search engine, YouTube, Wikipedia, LinkedIn, Mkulima Young, Digifarm, M-farm, M-Shamba, DigiCow amongst others. The results revealed Facebook, Google search engine, and WhatsApp as the top three highly used social media platforms in agriculture with 47.3 %, 46 %, and 41.3 % of usage respectively amongst the youth in agriculture. This implies that Facebook is largely used by respondents to access agricultural information. These results conform to Lathiya et al. (2015) who indicated that livestock production farmers in India represent the large group of active users of the Facebook social media network. Umunakwe et al. (2018) confirm the high usage of Facebook and WhatsApp in agriculture by indicating that the most dominantly used social media platforms in agriculture are Facebook, WhatsApp, and Twitter with Facebook being the most used, followed by WhatsApp and Twitter being the least of the two.

Additionally, results by Sokoya et al. (2012) confirm that Facebook is the most used social media network in agriculture. Paudel and Baral (2018) reveal that Facebook has proved to be a significant tool used by agricultural extension professionals to communicate with farmers. Moreover, Barau and Afrad (2017) revealed that Facebook is the most predominantly used social media platform to obtain agricultural information from agricultural extension professionals.

However, in as much as the youth are predominantly using Facebook in agriculture, there are also other platforms that they use such as YouTube, which has 31 % usage. However, not all the respondents obtained agricultural information from social media networks. The respondents not using social media associated the non-use to lack of smartphones, costly internet bundles, and lack of awareness about the use of social media in agriculture.

Mkulima Young, DigiCow and M-Shamba are among the least used applications by the respondents with 13.3%, 4.0% and 13.3% usage respectively. The applications were developed in Kenya to assist farmers with various agricultural activities. Mkulima Young is an online platform that helps farmers obtain inputs, sell their produce and meet with fellow farmers to help improve their agricultural productivity. DigiCow is an application that is used by dairy farmers to keep records of their milk production, the health of the cow, feeds and sales whereas M-Shamba is a platform that gives farmers information on various agricultural activities they undertake and connects farmers to the market. The low usage of the applications may most likely be because the applications are not commonly known in other parts of the world though they can be of great benefit to the farmers. This means that the youth farmers might be missing out on very important information issued through these platforms that can help improve their agricultural activities.

The popularity of the platforms amongst the farmers explains the observed variation of utilization of the social media platforms. If a platform is popular, there is more interaction taking place and more information accessed and utilized as compared to the less popular platforms. It is very important for awareness on the various social media platforms available to be created so that farmers can be able to utilize information on the platforms that were not common to them. Therefore, sensitization of the youth on the social media platforms that had low usage such as M-Shamba is very important because these platforms may provide information that is beneficial to the youth that can promote their participation in agriculture. Moreover, there is a serious need for the authorities in charge of M-Shamba and DigiCow to make their work more visible and accessible by creating awareness through other SMPs such as Facebook and WhatsApp which are accessible to many youths. When the County Government and other stakeholders invest in digital extension services, the information in those platforms will easily reach the majority of the ultimate users and inspire more youths to participate in agricultural activities and its value chain.

#### 4.6 Type agricultural information obtained on social media platforms

The results revealed that 67 % of the respondents use social media platforms to obtain agricultural information confirming that there is agricultural information available on social media platforms. There are various types of agricultural information available on social media platforms that the respondents can access to improve their agricultural productivity. The respondents were found to obtain information on the availability of market, animal and crop husbandry practices, agricultural inputs, value addition, and financial institutions. The results on the type of agricultural information the respondents' access on social media are presented in Table 6.

**Table 6: Type of agricultural information obtained from social media platforms (n=100)**

| Type of information           | Percentage (%) |
|-------------------------------|----------------|
| Agricultural inputs           | 42             |
| Crop husbandry practices      | 81             |
| Livestock husbandry practices | 41             |
| Market information            | 44             |
| Value addition                | 12             |
| Financial services            | 8.0            |

The results in Table 6 indicate that 81 % of the respondents obtain information on crop husbandry practices as the highest. This implies that most of the respondents use social media to obtain information on crop husbandry practices which includes information on crop diseases, pests management, cropping systems, and type of crops to plant, and suitable for their environment. This is because most of the respondents are involved in crop production activities which is the main agricultural activity in the area. The respondents are mostly involved in growing maize, wheat, tomatoes, kales, cabbages, carrots, onions and green peppers which are the main crops found in the area.

Additionally, results revealed that 44 % of respondents obtain information on markets and use social media to market their produce implying that social media platforms play an important role in agricultural marketing. Cui (2014) confirms that small business's farmers' markets have also taken advantage of Facebook as a marketing channel for their agricultural produce as it is a convenient forum for farmers to come together and market online.

However, only 8 % of the respondents obtained information about financial services on social media platforms. This was because the respondents did not meet the set criteria for accessing credit from the financiers which include the provision of collateral as they just started in the farming business. Njeru et al. (2016) conform to the results by stating that to access credit from banks, the farmer must have an account and provide collateral and also pass through the vigorous vetting processes followed to determine the ability to repay the credit. In addition, the respondents did not produce at high capacity to qualify for credit from commercial banks hence low demand to seek information on financial services. Njogu et al. (2018) conform to the results by stating that the farmer's production capacity has a positive influence on access to credit from commercial banks. Additionally, banks are willing to give credit to organized groups to minimize the risks of non-payment, however, most of the respondents were involved in farming at an individual level which put them at a disadvantage to obtain credit from financial institutions. Sekyi et al. (2017) conform to the results by stating that financial institutions are willing to offer credit to groups because of joint liability which minimizes the risks.

Moreover, in the informal sector, access to credit is given to farmers who have many years of experience in the farming business and gives confidence to the lenders on how the loan will be repaid of which most of the respondents were new to the farming business hence they do not qualify for credit access. According to Saqib et al. (2018), farmers with more experience have a better relationship with money lenders as they take time to establish trust among borrowers and lenders. This had put most of the young upcoming farmers in a disadvantaged position to seek credit hence minimal information sought on financial services by the respondents.

#### **4.7 Hypotheses testing**

The hypotheses were tested to determine whether there is a statistically significant effect of the independent variables (the type of social media platforms, quality of agricultural information, and the level of utilization of social media platforms) on the dependent variable (youth participation in agriculture). The hypotheses were derived from the objectives of the study and were tested as follows;

#### **4.7.1 Test of hypothesis one**

The first hypothesis was stated as:

*There is no statistically significant effect of the type of social media platforms used on youth participation in agriculture in Njoro Sub-county*

There are different types of social media platforms that the respondents used to obtain agricultural information. The independent sample T-test was used to determine the social media platforms which exhibit the difference in means in terms of the number of agricultural activities the respondents undertook and the type of social media platform they used. The test determined the difference in mean between the respondents using a certain type of social media platforms in agriculture and those that are not using the same social media platforms in agriculture. The Independent Samples T-test is used to compare two independent groups' means to determine whether there is a statistically significant difference between the two means. The mean was calculated for each social media platform to compare means between respondents using a certain type of social media platform in agriculture and those that are not using the same social media platform in agriculture. The results in Table 7 show the mean of those who are using different social media platforms and those who are not using that particular social media platforms in agriculture by the number of agricultural activities they undertook.

**Table 7: Mean of type of social media platforms used by youth participation in agriculture**

| Social media platform | Users |           | Non Users |           | Overall (n=150) |           | t-test | p-value |
|-----------------------|-------|-----------|-----------|-----------|-----------------|-----------|--------|---------|
|                       | Mean  | Std. Dev. | Mean      | Std. Dev. | Mean            | Std. Dev. |        |         |
| WhatsApp              | 8.1   | 3.20      | 7.6       | 2.94      | 7.9             | 3.05      | -1.068 | 0.288   |
| Facebook              | 8.0   | 3.18      | 7.6       | 2.94      | 7.9             | 3.05      | -0.836 | 0.404   |
| Google Search         | 8.0   | 2.90      | 7.6       | 3.17      | 7.9             | 3.05      | -0.979 | 0.331   |
| Twitter               | 8.1   | 3.36      | 7.8       | 3.04      | 7.9             | 3.05      | -0.350 | 0.727   |
| YouTube               | 8.3   | 2.72      | 7.6       | 3.18      | 7.9             | 3.05      | -1.350 | 0.179   |
| Instagram             | 9.6   | 2.18      | 7.7       | 3.07      | 7.9             | 3.05      | -1.814 | 0.072   |
| LinkedIn              | 13.5  | 3.54      | 7.7       | 3.00      | 7.9             | 3.05      | -2.725 | 0.007*  |
| Wikipedia             | 10.1  | 2.47      | 7.6       | 3.02      | 7.9             | 3.05      | -2.787 | 0.006*  |
| Mkulima Young         | 9.3   | 2.70      | 7.5       | 3.05      | 7.9             | 3.05      | -2.432 | 0.016*  |
| M-Shamba              | 8.0   | 3.34      | 7.7       | 3.02      | 7.9             | 3.05      | -0.345 | 0.730   |
| DigiCow               | 8.4   | 3.26      | 7.7       | 3.05      | 7.9             | 3.05      | -0.575 | 0.567   |
| Others                | 8.5   | 3.87      | 7.7       | 3.00      | 7.9             | 3.05      | -0.771 | 0.442   |

\*Statistically significant at 5% level

After carrying out the independent T-test, the results revealed that the mean of the respondents using LinkedIn was 13.5, which is higher than the mean of those who do not use LinkedIn in agriculture, which was 7.7. The results indicated that there is a statistically significant difference between those who use LinkedIn and those who do not use LinkedIn in agriculture by the number of agricultural activities they undertook at a 5 % level of significance with a p-value of 0.007. This implies that the respondents who are using LinkedIn in agriculture tend to participate in many agricultural activities than those who do not use LinkedIn in agriculture. This is because the platforms are not used by the majority of the farmers with only those who have a higher number of agricultural activities using the platform. Also, LinkedIn is a platform that has a high level of professionalism in terms of the content that is provided and the users. In support of these results, Lubell and McRoberts (2018) indicated that the low use of LinkedIn by farmers can be attributed to the professionalism of the content that changes slowly than other platforms.

Additionally, the results revealed that the mean of the respondents using Mkulima Young was 9.3 which is higher than 7.5 of the respondents not using the platform. The mean of the respondents using Wikipedia was also higher than those who are not using the platform with a mean of 10.1 and 7.6 respectively. Therefore, using Mkulima Young and Wikipedia was statistically significant at a 5 % level, revealing that there is a statistically significant difference between the respondents who use the two platforms and the number of agricultural activities they undertake with a p-value of 0.06 for Wikipedia and 0.016 for Mkulima Young. Mkulima Young is an online application that helps farmers obtain inputs, sell their products and meet with fellow farmers, hence made marketing of the respondents produce easy which motivates them to engage in more agricultural activities. Therefore, it can be deduced from the results that respondents using Mkulima Young and Wikipedia have a higher number of agricultural activities that they undertook.

However, the results in Table 7 also showed no statistically significant difference between those who use WhatsApp, Facebook, Twitter, and Google search engine among other platforms and the number of agricultural activities they undertake at a 5 % level of significance. Therefore, the results imply that using WhatsApp, Facebook, Twitter, and Google search does not increase the number of agricultural activities that the respondents undertake. This is because the platforms are used by the majority of the respondents regardless of the number of agricultural activities they undertake as compared to Mkulima Young, LinkedIn, and Wikipedia. However, since there are various types of social media platforms, independent sample T-test did not show the effect of the type of social media platforms on youth participation in agriculture, the linear regression model was employed.

To test the null hypothesis that: ‘There is no statistically significant effect of the type of social media platforms used on youth participation in agriculture in Njoro Sub-county’ a linear regression model was used. The linear regression model is a test statistic that is used to determine the relationship between explanatory variables and the dependent variable. The dependent variable, youth participation in agriculture was measured by assigning an index score which was a cumulative score of the number of agricultural activities the respondents undertook as presented in Table 8.

**Table 8: Number of agricultural activities the Respondents undertook**

| <b>Number of respondents</b> | <b>Number of agricultural activities</b> |
|------------------------------|--|
| 4                            | 1  |
| 7                            | 2  |
| 7                            | 3  |
| 6                            | 4  |
| 10                           | 5  |
| 13                           | 6  |
| 12                           | 7  |
| 17                           | 8  |
| 27                           | 9  |
| 23                           | 10                                       |
| 13                           | 11                                       |
| 6                            | 12                                       |
| 3                            | 13                                       |
| 1                            | 14                                       |
| 1                            | 16                                       |

The independent variable, the type of social media platform was measured by assigning an index score which was a cumulative score of the type of SMPs used by each individual respondent in obtaining agricultural information since there were several different platform as presented in Table 9.

**Table 9: Type of social media in agriculture (n=150)**

| <b>Number of Respondents</b> | <b>Number of the type of social media in agriculture</b> |
|------------------------------|--|
| 50                           | 0  |
| 18                           | 1  |
| 23                           | 2  |
| 21                           | 3  |
| 15                           | 4  |
| 8                            | 5  |
| 7                            | 6  |
| 5                            | 7  |
| 2                            | 8  |

To determine the combined effect of the type of social media platforms on youth participation in agriculture, the index score of the independent variable was used to run a linear regression model with the dependent variable youth participation in agriculture which was measured by the number of agricultural activities the respondents undertook. The model equation was presented as follows;

$$y_i^* = \alpha + \beta x_i + \varepsilon_i \tag{1}$$

Where,

$y_i^*$ : Youth participation in agriculture

$\alpha$ : Constant

$\beta$ : Regression coefficients or change in  $y_i^*$  induced by  $x$

$x$ : Type of social media platforms

$\varepsilon$ : Error estimates

The results for the effect of the type of social media platforms are presented in Table 10.

**Table 10: Effect of type of social media platforms on youth participation in agriculture**

| Variable                       | Coef. | Std. Error | T      | Sig.   |
|--------------------------------|-------|------------|--------|--------|
| Constant                       | 7.236 | 0.348      | 20.814 | 0.00   |
| Type of social media platforms | 0.248 | 0.112      | 2.214  | 0.028* |

F (1, 148) = 4.901, Prob> F = 0.028, R2 = 0.32, Adj R2 = 0.26, \* = Significant at 5% level

The results in Table 10 indicate that the coefficient of the type of social media platforms was statistically significant at a 5% level of significance. The F – ratio (1, 148) for the fitted model was 4.901 with a probability value of 0.028. The R2 was 0.32 while the adjusted R2 was 0.26 above the statistical threshold of 20% implying that the type of social media platform has a statistically significant effect on the number of agricultural activities the respondents undertook with a p-value of 0.028 at a 5% level. Therefore, the null hypothesis was rejected and conclusion was made that there was a statistically significant effect of the type of social media platforms on youth participation in agriculture in Njoro Sub-county.

#### **4.7.2 Test of hypothesis two**

The second hypothesis was stated as:

*There is no statistically significant effect of the quality of agricultural information obtained through social media platforms on youth participation in agriculture in Njoro Sub-county*

##### ***4.7.2.1 Quality of agricultural information obtained through social media platforms***

Before testing the null hypothesis, the respondents rated the quality of agricultural information they obtained. The quality of agricultural information was rated in terms of accessibility, relevance, simplicity, ease of application, usefulness, and adequacy to determine the effect of the quality of agricultural information obtained through social media platforms on youth participation in agriculture in Njoro Sub-county. The statistical frequency, measures of central tendency and measures of dispersion were used and the results are shown in Table 11.

**Table 11: Quality of agricultural information obtained from social media platforms (n=100)**

| <b>Variable</b>            | <b>Percentage (%)</b> | <b>Mean</b> | <b>Std. Deviation</b> |
|----------------------------|-----------------------|-------------|-----------------------|
| <b>Accessibility</b>       |                       |             |                       |
| Always                     | 46                    | 2.54        | 0.501                 |
| Sometimes                  | 54                    |             |                       |
| <b>Relevance</b>           |                       |             |                       |
| Not Relevant               | 1.0                   | 3.04        | 0.710                 |
| Moderate                   | 20                    |             |                       |
| Relevant                   | 53                    |             |                       |
| Very Relevant              | 26                    |             |                       |
| <b>Simplicity</b>          |                       |             |                       |
| Not Simple to Understand   | 2.0                   | 3.06        | 0.633                 |
| Moderate                   | 11                    |             |                       |
| Simple to Understand       | 66                    |             |                       |
| Very Simple to Understand  | 21                    |             |                       |
| <b>Ease of application</b> |                       |             |                       |
| Not Easy to apply          | 6.0                   | 2.73        | 0.777                 |
| Moderate                   | 29                    |             |                       |
| Easy to apply              | 51                    |             |                       |
| Very easy to apply         | 14                    |             |                       |
| <b>Usefulness</b>          |                       |             |                       |
| Not useful                 | 1.0                   | 3.23        | 0.694                 |
| Moderate                   | 12                    |             |                       |
| Useful                     | 50                    |             |                       |
| Very useful                | 37                    |             |                       |
| <b>Adequacy</b>            |                       |             |                       |
| Not adequate               | 16                    | 2.54        | 0.904                 |
| Moderate                   | 26                    |             |                       |
| Adequate                   | 46                    |             |                       |
| Very adequate              | 12                    |             |                       |

The results in Table 11 reveal that 46% of the respondents reported that the agricultural information of social media platforms is always accessible. On the other hand, 54 % of the respondents indicated that the agricultural information on social media platforms is accessible sometimes. This implies that the respondents are able to access agricultural information on social media platforms with the majority indicating that they access the agricultural information sometimes because of the expensive data bundles hence they look for the agricultural information when there is a need. Munyambonera et al. (2014) stated that it is important for agricultural information to be accessible to small scale farmers at low cost from different sources to enable the farmers to get the information needed to improve their agricultural production. In contrary, study findings by Mokotjo and Kalusopa (2010) in Lesotho revealed that agricultural information provided to the farmers was of good quality in terms of relevancy, sufficiency and currency and improved agricultural productivity however, it was not easily accessible to most farmers.

Likewise, 56% of the respondents indicated that the agricultural information on social media platforms was relevant whereas 20 % indicated that it was moderately relevant implying that some agricultural information on social media platforms is relevant while some information is not relevant. This implies that not all the information that is provided on social media platforms was relevant to the individual respondent. This is because some of the information is directed to the area of agricultural production which the individual respondent did not undertake. Kiberiti et al. (2020) conform to these results by indicating that farmers use mobile phones to obtain agricultural information that is relevant to them.

Moreover, 66% of the respondents indicated that the agricultural information on social media platforms was simple to understand, 51% indicated the agricultural information was easy to apply and 50% of the respondents indicated that the agricultural information on social media platforms was useful. This means that the majority of the respondents found the agricultural information on social media platforms simple to understand, easy to apply and useful to their agricultural activities. This is because the information provided on social media platforms is written in a language that the diverse audience can understand and use of various formats which include visuals, audiovisuals and audios to enable the respondents to use the agricultural information to improve their agricultural activities without encountering major challenges. Chandra et al. (2018) conform to these results by indicating that farmers perceived information on ICT tools to be useful. In addition, 46 % of the respondents indicated that agricultural information

on social media platforms was adequate. This means that the respondents were able to utilize the agricultural information obtained from social media platforms without having to consult from other sources.

In order to test the null hypothesis that: ‘There is no statistically significant effect of the quality of agricultural information obtained through social media platforms on youth participation in agriculture in Njoro Sub-county’. The linear regression model was used. Linear regression is used to determine the relationship between one explanatory variable to predict the outcome of the dependent variable. The explanatory variable quality of agricultural information was determined by assigning an index score which a cumulative score of the measure of the quality of agricultural information which is accessibility, simplicity, adequacy, usefulness, ease of use and relevance. To determine the effect of the quality of agricultural information on youth participation in agriculture, the index score quality of agricultural information was used while the dependent variable youth participation in agriculture was measured by the number of agricultural activities the respondents undertook. The linear regression equation was presented as follows;

$$y_i^* = \alpha + \beta x_i + \varepsilon_i \tag{2}$$

Where,

$y_i^*$ : Youth participation in agriculture

$\alpha$ : Constant

$\beta$ : Regression coefficients or change in  $y_i^*$  induced by  $x$

$x$ : Quality of agricultural information

$\varepsilon$ : Error estimates

The results are presented in Table 12.

**Table 12: Effect of quality of agricultural information on youth participation in agriculture**

| Variable                            | Coef. | Std. Error | t     | Sig.   |
|-------------------------------------|-------|------------|-------|--------|
| Constant                            | 3.917 | 1.719      | 2.279 | 0.025  |
| Quality of agricultural information | 1.252 | 0.581      | 2.155 | 0.034* |

F (1, 98) = 4.646, Prob> F = 0.034, R2 = 0.45, Adj R2 = 0.36, \* = Significant at 5% level

The results in Table 12 reveal that the coefficient of the quality of agricultural information on social media platforms was statistically significant at a 5% level of significance with a p-value of 0.034. The model gave the F – ratio (1, 98) which was equal to 4.646 with a p-value of 0.034.

The R<sup>2</sup> was 0.45 while the adjusted R<sup>2</sup> was 0.36 above the statistical threshold of 20% confirming that the quality of agricultural information has a statistically significant effect on the number of agricultural activities the respondents undertook at a 5% level. Therefore, the null hypothesis was rejected and the conclusion made that there was a statistically significant effect of the quality of agricultural information obtained through social media platforms used on youth participation in agriculture in Njoro Sub-county”. However, the model gave the combined effect of the quality of agricultural information and did not indicate exactly where the effect came from since there were several items used to measure the quality of agricultural information which were accessibility, relevance, simplicity, ease of application, usefulness and adequacy.

Therefore, One Way ANOVA was employed to determine where the variation is exhibited since there were several groups of responses. The one-way ANOVA is used to determine whether there was any statistically significant differences between the means of two or more unrelated independent groups. The ANOVA test was conducted to establish whether the mean scores among the different groups was statistically significant in terms of the number of agricultural activities the respondents undertook. The results are presented in Table 13.

**Table 13: Youth participation in agriculture by the quality of agricultural information**

|                            | <b>Sum of Squares</b> | <b>df</b> | <b>Mean Square</b> | <b>F</b> | <b>Sig.</b> |
|----------------------------|-----------------------|-----------|--------------------|----------|-------------|
| <b>Accessibility</b>       |                       |           |                    |          |             |
| Between Groups             | 6.031                 | 1         | 6.031              | 0.588    | 0.445       |
| Within Groups              | 1004.609              | 98        | 10.251             |          |             |
| <b>Relevance</b>           |                       |           |                    |          |             |
| Between Groups             | 44.239                | 3         | 14.746             | 1.465    | 0.229       |
| Within Groups              | 966.401               | 96        | 10.067             |          |             |
| <b>Simplicity</b>          |                       |           |                    |          |             |
| Between Groups             | 86.053                | 3         | 28.684             | 2.978    | 0.035*      |
| Within Groups              | 924.587               | 96        | 9.631              |          |             |
| <b>Ease of application</b> |                       |           |                    |          |             |
| Between Groups             | 50.695                | 3         | 16.898             | 1.69     | 0.174       |
| Within Groups              | 959.945               | 96        | 9.999              |          |             |
| <b>Usefulness</b>          |                       |           |                    |          |             |
| Between Groups             | 63.606                | 3         | 21.202             | 2.149    | 0.099       |
| Within Groups              | 947.034               | 96        | 9.865              |          |             |
| <b>Adequacy</b>            |                       |           |                    |          |             |
| Between Groups             | 11.291                | 3         | 3.764              | 0.362    | 0.781       |
| Within Groups              | 999.349               | 96        | 10.41              |          |             |

The results in Table 13 show that there is a statistically significant difference between the simplicity responses in terms of the number of agricultural activities they undertake at a 5 % level of significance with a p-value of 0.035. Therefore, the simpler the respondents find the agricultural information, the higher the number of agricultural activities they undertake. This is because the respondents can understand the agricultural information and able to replicate the same in their area of production. This implies that the simplicity of agricultural information on social media platforms is a very important factor and has the likelihood of improving youth participation in agriculture in terms of an increase in the number of agricultural activities that the youth might undertake. Kante et al. (2016) indicated that farmer's perception of the simplicity of agricultural

information on ICTs positively affects the use of ICTs for obtaining agricultural information to use in the day to day running of their agricultural activities.

According to Sokoya et al. (2012), there is a need for an agricultural professional to provide current and relevant agricultural information to the farmers. Baena (2015) also reported that due to the free nature of social media, there is a need for a full-time moderator to ensure that the information provided is up to date and reliable. In addition, there was no statistically significant difference between the responses of accessibility, relevance, usefulness, adequacy, and ease of application of agricultural information concerning the number of agricultural activities that they undertook. This implies that there is no statistical difference in the number of agricultural activities undertaken by the respondents in the different groups of accessibility, relevance, usefulness, adequacy, and ease of application regardless of the responses across the groups. This is because the respondents might have several sources of agricultural information including access to the agricultural extension officers which can enable them to carry out their agricultural activities.

#### **4.7.3 Test of hypothesis three**

The third hypothesis was stated as:

*There is no statistically significant effect of the level of utilization of social media platforms on youth participation in agriculture in Njoro Sub-county*

The respondents indicated that they used various social media platforms to obtain agricultural information. However, the level of utilization of these social media platforms varied across platforms and users. Some respondents did not use social media at all, some rarely; others sometimes while some used often and others very often. Therefore, before testing the hypothesis, the level of utilization across the various platforms was determined using percentages. The results on the level of utilization of social media platforms in agriculture by the respondents are presented in Table 14.

**Table 14: Level of the utilization of social media platforms in agriculture (n=150)**

| Variables            | Not At All | Rarely | Sometimes | Often | Very Often |
|----------------------|------------|--------|-----------|-------|------------|
|                      | %          | %      | %         | %     | %          |
| WhatsApp             | 46.7       | 6.0    | 12.7      | 16.0  | 18.7       |
| Facebook             | 38.7       | 6.7    | 14.7      | 18.0  | 22.0       |
| Twitter              | 85.3       | 5.3    | 6.7       | 1.3   | 1.3        |
| Google Search Engine | 41.3       | 9.3    | 16.0      | 14.7  | 18.7       |
| YouTube              | 57.3       | 7.3    | 10.7      | 16.0  | 8.7        |
| Instagram            | 91.3       | 4.0    | 2.0       | 2.0   | 0.7        |
| LinkedIn             | 96.7       | 0.0    | 2.7       | 0.7   | 0.0        |
| Wikipedia            | 91.3       | 2.0    | 3.3       | 0.7   | 2.7        |
| Mkulima Young        | 93.3       | 1.3    | 2.0       | 1.3   | 2.0        |
| M-Shamba             | 91.3       | 2.0    | 1.3       | 2.0   | 3.3        |
| DigiCow              | 98.0       | 0.7    | 0.7       | 0.7   | 0.7        |

The results in Table 14 indicate that Facebook has the highest number of respondents who use it very often which is 22 % of the total sample followed by WhatsApp and Google search engine both with 18.7 % of the users using the platforms very often. This implies that Facebook, WhatsApp, and Google Search Engine are social media platforms that the respondents use very often to access agricultural information as compared to other social media platforms. The Study by Byomire et al. (2016) revealed that the most used social media platforms by agriculturists were WhatsApp and Facebook which conforms to these results. Thakur et al. (2017) indicated that WhatsApp allows information to be delivered in various formats such as audios, texts, pictures and videos which makes it the most preferred by farmers.

The least platforms used very often are Twitter and LinkedIn with 1.3 % and 0.0 % of the users respectively using them very often. The majority of the respondents indicated that they do not use Instagram, LinkedIn, Wikipedia, Mkulima Young, M-Shamba and DigiCow at all in Agriculture with 91.3%, 96.7%, 91.3%, 93.3%, 91.1% and 98.0% respectively. This implies that Instagram, LinkedIn, Wikipedia, Mkulima Young, M-Shamba, and DigiCow are not commonly used by the majority of respondents to access agricultural information. This is because the platforms do not provide a well-rounded user interface than Facebook, WhatsApp and Twitter

which are user friendly to all audiences across all age categories. In a study carried out in Mali by Kante et al. (2017), relative advantage, compatibility and simplicity and the quality of agricultural information delivered on ICTs platforms explained the variance in the level of utilization which conforms to these results that the level of utilization of social media platforms which are ICT platforms vary amongst the respondents. In support, findings by Mittal and Mehar (2013) in a study carried out in India revealed that there wide variance in the level of utilization of ICTs is due to farmers perceptions regarding the usefulness of mobile phones or mobile-based information services such as social media platforms.

To test the null hypothesis that “There is no statistically significant effect of the level of utilization of social media platforms on youth participation in agriculture in Njoro Sub-county”, the linear regression model was used. The model was used to determine the effect of the explanatory variable which is the level of utilization of social media platforms on youth participation in agriculture which is the outcome variable. However, since the level of utilization varies across platforms, an index score was computed to create the variable level of utilization which gave the combined effect of the platforms on youth participation in agriculture measured in terms of the number of agriculture activities the respondents undertook. The linear regression equation used was as follows;

$$y_i^* = \alpha + \beta x_i + \varepsilon_i \tag{3}$$

Where,

$y_i^*$ : Youth participation in agriculture

$\alpha$ : Constant

$\beta$ : Regression coefficients or change in  $y_i^*$  induced by  $x$

$x$ : The level of utilization of social media platforms

$\varepsilon$ : Error estimates

The results are presented in Table 15.

**Table 15: Effect of Level of the utilization of social media platforms on youth participation in agriculture**

| Variable                  | Coef. | Std. Error | t     | Sig.   |
|---------------------------|-------|------------|-------|--------|
| Constant                  | 5.237 | 0.774      | 6.764 | 0.000  |
| Level of utilization SMPs | 1.535 | 0.444      | 3.456 | 0.001* |

F (1, 148) = 11.941, Prob> F = 0.001, R2 = 0.075, Adj R2 = 0.068, \* = Significant at 5% level

The results indicated that the level of utilization was significant at a 5% level with a p-value of 0.001. The F-ratio (1,148) was equal to 11.941 with a statistically significant p-value of 0.001 at a 5% level. This implies that there is a statistically significant effect of the level of utilization of social media platforms on youth participation in agriculture hence the more the respondents utilize social media platforms the higher the number of agricultural activities they undertake. Therefore, the null hypothesis was rejected and the conclusion made that there is a statistically significant effect on the level of utilization of social media platforms on youth participation in agriculture. However, the model did not show exactly which platform affects youth participation in agriculture since there are various platforms with varying levels of utilization used by the respondents to obtain agricultural information. Therefore, the ordered logistic regression model was used and treated the level of utilization of the various social media platforms as individual independent variables.

The ordered logistic regression model was used to predict an ordinal dependent variable given one or more independent variables. The dependent variable youth participation was measured in terms of the number of agricultural activities the respondents undertook had been ordered. The order was created in line with the number of agricultural activities the respondents undertake with those who undertook less than 5 activities was low, between 6 and 10 being medium, and those who undertook more than 10 was a high level of youth participation in agriculture. The hypothesis was tested for all the individual social media platforms as the level of utilization varied. The various social media platforms were treated individually as independent variables.

The model specifications as derived from Mohammadi et al. (2015) was as follows;

$$y_i^* = \beta' x_i + \varepsilon_i; i = 1, \dots, n \quad -\infty < y_i^* < \infty \quad (4)$$

Where

$y_i^*$ : Youth Participation

$\beta'$ : Vector of the parameter that should be estimated

$x_i$ : Observed vector of non-random independent variable which shows the characteristic of the  $i^{\text{th}}$  person

$\varepsilon_i$ : Residual error of the model which is logistically distributed.

If  $y_i$  is observable variable “youth participation” which shows different levels that were low, medium and high. The relation between the latent variable  $y_i^*$  and observable variable  $y_i$  is obtained from the ordered logit model in which  $n$  was the sample size as follows;

$$\begin{aligned}
 y_i = 1 & \quad \text{if} \quad -\infty \leq y_i^* < \mu_1, & i = 1, \dots, n, \\
 y_i = 2 & \quad \text{if} \quad \mu_1 \leq y_i^* < \mu_2, & i = 1, \dots, n, \\
 y_i = 3 & \quad \text{if} \quad \mu_2 \leq y_i^* < \mu_3, & i = 1, \dots, n, \\
 y_i = j & \quad \text{if} \quad \mu_{j-1} \leq y_i^* < +\infty, & i = 1, \dots, n,
 \end{aligned} \tag{5}$$

‘ $\mu$ ’ is the threshold that define observed discrete answers and should be estimated.

The probability of the  $y_i = j$  has been calculated by the following relation;

$$\begin{aligned}
 \Pr(y_{1=j}) &= \Pr(y_1 \geq \mu_{j-1}) = \Pr(\varepsilon_1 \geq \mu_{j-1} - \beta x_1) \\
 &= 1 - F(\beta x_1 - \mu_{j-1})
 \end{aligned}$$

The results of the effect of the level of utilization of social media platforms on youth participation in agriculture are presented in Table 16. The platforms were discussed separately because the level of utilization differed.

**Table 16: Effect of Level of the utilization of social media platforms and youth participation in agriculture**

| <b>Youth participation in agriculture</b> | <b>Coef.</b> | <b>SE</b> | <b>z</b> | <b>p-value</b> |
|---|--------------|-----------|----------|----------------|
| WhatsApp                                  | 0.265        | 0.129     | 2.060    | 0.039*         |
| Facebook                                  | -0.029       | 0.126     | -0.230   | 0.816          |
| Twitter                                   | -0.136       | 0.301     | -0.450   | 0.652          |
| Google Search Engine                      | 0.119        | 0.129     | 0.920    | 0.356          |
| YouTube                                   | 0.175        | 0.144     | 1.210    | 0.226          |
| Instagram                                 | 0.162        | 0.402     | 0.400    | 0.688          |
| LinkedIn                                  | -0.291       | 0.649     | -0.450   | 0.654          |
| Wikipedia                                 | 0.271        | 0.303     | 0.890    | 0.371          |
| Mkulima Young                             | 0.096        | 0.233     | 0.410    | 0.680          |
| M-Shamba                                  | -0.445       | 0.199     | -2.230   | 0.026*         |
| DigiCow                                   | -0.695       | 0.604     | -1.150   | 0.250          |
| Number of observations                    | 150          |           |          |                |
| Wald chi2 (14)                            | 20.720       |           |          |                |
| Prob > chi2                               | 0.036        |           |          |                |
| Log pseudo-likelihood                     | 129.062      |           |          |                |
| Pseudo R2                                 | 0.074        |           |          |                |

\*statistically significant at 5 % level

The p-value of the model was 0.036 which is statistically significant indicating that the model used was fit to analyze the variables. The results of the utilization of WhatsApp in agriculture were statistically significant at a 5 % level of significance which yielded the p-value of 0.039. Therefore, the null hypothesis was rejected hence the alternative was accepted and conclusion made that there was a statistically significant effect on the level of utilization of WhatsApp in agriculture and the number of agricultural activities the respondents undertook. The results indicated that utilizing WhatsApp has a positive effect on youth participation in agriculture increasing youth participation by 26.5 %. This implies that the respondents who are using WhatsApp very often in agriculture have the likelihood of undertaking a higher number of

agricultural activities which are activities more than 10. This was because WhatsApp allows the respondents to engage directly with the professionals through direct messages, video calls, voice calls, share pictures, and videos, and also engage with other farmers and professionals in the groups. This increases the number of sources that the respondents can obtain agricultural information from, hence increase the likelihood of engaging in many agricultural activities. The study by Naruka et al. (2017) revealed that WhatsApp groups are connecting farmers with their customers in the virtual market and they also create a network of resources and support for farmers who need it.

Additionally, using M-Shamba was statistically significant at a 5 % level of significance with a p-value of 0.026. The results revealed that utilizing M-Shamba had a negative effect on youth participation in agriculture hence decreases the number of agricultural activities by 44.5%. Therefore, the null hypothesis was rejected hence the alternative accepted and the conclusion made that there was a statistically significant effect on the level of utilization of M-Shamba in agriculture and the number of agricultural activities the respondents undertook. The results implied that the respondents using M-Shamba in agriculture have the likelihood of participating in a low number of agricultural activities as M-Shamba causes a 44.5% decrease in the number of agricultural activities that the respondents have undertaken. This is mainly because they are a few respondents using the platforms as compared to the others who might be involved in a low number of agricultural activities. Sensitizing the youth on the use of M-Shamba is important so they do not miss the important information portrayed on using the platform that may help improve their participation in agriculture.

Moreover, the level of utilizing Facebook was not statistically significant at a 5 % level of significance with a p-value of 0.816. Therefore, the null hypothesis was accepted and the conclusion made that there was no statistically significant effect on the level of utilization of Facebook in agriculture and the number of agricultural activities the respondents undertake. These results imply that there is no difference in terms of the number of agricultural activities the respondents undertake and their level of utilization of Facebook in Agriculture. This is because Facebook is mostly used for socializing and sharing personal information and most of the information communicated on Facebook is not by professional extension officers which did not motivate the youth farmers to increase their participation in agriculture. It is also a commonly used by the majority of respondents in agriculture regardless of the number of agricultural activities

they undertake. The youth farmers tend to focus more on the social interactions on Facebook rather than seeking agricultural information to help improve their agricultural productivity and motivate themselves to engage more in agriculture. Creating more professional agricultural groups on Facebook can improve the professionalism of the agricultural content shared and professional interactions with agricultural experts that may promote youth participation in agriculture.

Likewise, the level of utilizing Twitter was not statistically significant at a 5 % level of significance with a p-value of 0.652. The results revealed that utilizing Twitter in agriculture decreases the number of agricultural activities by 13.6%. Therefore, the null hypothesis was accepted and the conclusion made that there was no statistically significant effect on the level of utilization of Twitter in agriculture and the number of agricultural activities the respondents undertook. These results imply that there is no difference in terms of the number of agricultural activities the respondents undertake and their level of utilization of Twitter in Agriculture. This can be because Twitter is used by a few respondents in agriculture regardless of the number of agricultural activities they undertake. Twitter is a social media platform that allows farmers to publish messages of up to 280 characters to market their agricultural produce and interact with consumers (Zipper, 2018).

The 280 character limit of Twitter seems to limit the dissemination of information in which much explanation is needed on certain agricultural concepts. This left the farmers not being able to fully utilize the agricultural information shared via Twitter to improve their productivity and improve their participation in agriculture. According to the Animal Agriculture Alliance (2020), a hashtag on Twitter is used to denote a larger conversation of what people are talking about based on the subjects, words and themes. In support of the results, the study carried by Besancon (2017) in the United States of America revealed that hashtags were being “hijacked” and ended up not disseminating the needed agricultural information citing an example of the hashtag #farm365 which was intended to promote traditional agriculture, was “hijacked” and used to promote veganism and animal rights. This “hijacking” of hashtags made it difficult for the relevant agricultural information to reach the targeted youth farmers, hence they are not able to gather much-needed information to engage in agriculture. Due to the character limit on Twitter, the agricultural information was promoted using hashtags, which also did not promote youth participation in agriculture as the information was still not being fully utilized by the youth farmers.

Furthermore, the level of utilizing Google search engines was not statistically significant at a 5 % level of significance with a p-value of 0.356. The results revealed that utilizing Google search engines in agriculture increases the number of agricultural activities by 11.9%. Therefore, the null hypothesis was accepted and a conclusion made that there was no statistically significant effect on the level of utilization of Google search engines in agriculture and the number of agricultural activities the respondents undertook. This is because Google search engine gives out thousands of results by just typing a keyword, of which some of the results are not relevant to the farmers. A study carried out by Agboola (2017) in Nigeria revealed that using the Google search engine can give about 499,000,000 results. With Google search engine showing this large number of results, it becomes difficult for the youth farmers to filter through the most relevant information sought hence they are not able to use the information sought to help improve their participation in agriculture. If the youth farmed do not get the relevant information they need, they are not able to engage more in agriculture as information brings change. Also, the level of utilizing Instagram was not statistically significant at a 5 % level of significance with a p-value of 0.688. The results revealed that utilizing Instagram in agriculture increases the number of agricultural activities by 17.5 %. Therefore, the null hypothesis was accepted and conclusion made that there was no statistically significant effect on the level of utilization of Instagram in agriculture and the number of agricultural activities the respondents undertook. In addition, the level of utilizing YouTube was not statistically significant at a 5 % level of significance with a p-value of 0.226.

The results revealed that utilizing YouTube in agriculture increases the number of agricultural activities by 16.2 %. Therefore, the null hypothesis was accepted and conclusion made that there was no statistically significant effect on the level of utilization of YouTube in agriculture and the number of agricultural activities the respondents undertook. This implied that using YouTube did not increase youth participation in agriculture. The majority of young farmers and ranchers use YouTube to market their products, raise awareness about specific growing practices, share learning and experiences with their fellow farmers (Nittle, 2020). This makes lots of videos to be availed on the platform which are mostly not made by experts. This gives way to unprofessional and misleading agricultural information that does not help youth farmer to improve their agricultural productivity and hence increase their participation in agriculture. Also, watching YouTube videos is costly in terms of buying internet bundles, which makes the videos not to be accessible to the majority of the youth farmers to utilize the agricultural information to improve

their participation in agriculture. Making YouTube videos on other social media platforms such as WhatsApp will improve their accessibility to the youth farmers and help promote their participation in agriculture

Moreover, the level of utilizing LinkedIn was not statistically significant at a 5 % level of significance with a p-value of 0.654. The results revealed that utilizing LinkedIn in agriculture decreases the number of agricultural activities by 29.1 %. Therefore, the null hypothesis was accepted and conclusion made that there was no statistically significant effect on the level of utilization of LinkedIn in agriculture and the number of agricultural activities the respondents undertook. This implied that using LinkedIn did not increase the number of agricultural activities the respondents undertook. This is because LinkedIn is mostly used by professionals, the interactions are only on a professional level. According to Simonson (2013), LinkedIn is the number one choice for professional communication where the professional, well-informed discussion takes place and does not give room for personal discussions. Young farmers tend to be inspired by personal stories of success that motivates them to engage more in agriculture.

Therefore, not being able to interact at such a level on LinkedIn did not help in promoting youth participation in agriculture as the youth farmers who are not able to interact in a highly professional manner are left out of the opportunity to utilize the agricultural information disseminated through the platform. Youths must first develop trust and passion for them to engage in a certain activity. When a platform lacks interaction, it is difficult for youths to develop trust and have good confidence in the success of the activity. Also, the level of utilizing Wikipedia was not statistically significant at a 5 % level of significance with a p-value of 0.371. However, the results revealed that utilizing Wikipedia in agriculture increases the number of agricultural activities by 27.1 %. Therefore, the null hypothesis was accepted and the conclusion made that there was no statistically significant effect on the level of utilization of Wikipedia in agriculture and the number of agricultural activities the respondents undertake.

Additionally, the level of utilizing Mkulima Young was not statistically significant at a 5 % level of significance with a p-value of 0.680. The results revealed that utilizing Mkulima Young in agriculture increases the number of agricultural activities by 9.6 %. Therefore, the null hypothesis was accepted and the conclusion made that there was no statistically significant effect on the level of utilization of Mkulima Young in agriculture and the number of agricultural activities the respondents undertook. This is mainly because the platform is used mainly as the marketing

center whereby the youth using this platform mainly used it to market their produce hence did not meet some of the needs of the farmers. This platform helps the youth farmers get access to the much-needed market but does not cater for the production needs of the farmers that will help them engage in more productive activities hence improve their participation in agriculture as information the platform encourages them to specialize on few activities. However, the platform can influence and inspire youths to engage in more agricultural activities that are profitable and relevant to their environment which will increase food production, incomes and lower unemployment levels (Lohento & Ajilore, 2015). Also, the level of utilizing DigiCow was not statistically significant at a 5 % level of significance with a p-value of 0.250. However, the results revealed that utilizing DigiCow in agriculture decreases the number of agricultural activities by 69.5 %. Therefore, the null hypothesis was accepted and the conclusion made that there was no statistically significant effect on the level of utilization of DigiCow in agriculture and the number of agricultural activities the respondents undertake.

#### **4.8 Analysis of the influence of the moderator variables**

In order to determine the relationship between the dependent and independent variables while controlling for the influence of the moderator variables, the moderator variables were built in the study and analyzed. The moderator variables were gender age, educational level, access to ICT training, ICT facilities, network connectivity, internet, and extension service. The variables were grouped into three different categories which were the socio-economic, access to ICT and access to agricultural extension services. Partial correlation was carried out to determine the relationship between the dependent and independent variables while controlling the influence of the moderator variables.

##### **4.8.1 Relationship between independent variables and dependent variable controlling the influence of socio-economic characteristics**

The results on the relationship between the independent and dependent variables while controlling the influence of the socio-economic characteristics are presented on Table 17.

**Table 17: Influence of socio-economic characteristics**

| <b>Control Variable</b>                          |                     |                              | <b>Types SMPs</b>       | <b>Level of utilization of SMPs</b> | <b>Quality of Info.</b> | <b>youth participation</b> |        |
|--|---------------------|------------------------------|-------------------------|-------------------------------------|-------------------------|----------------------------|--------|
| Gender, Age, Education Level & Employment Status | Types SMPs          | Correlation                  | 1.000                   | 0.579                               | 0.659                   | 0.145                      |        |
|  |                     | Significance (2-tailed)      | .                       | 0.000                               | 0.000                   | 0.080                      |        |
|  |                     | Level of utilization of SMPs | Correlation             | 0.579                               | 1.000                   | 0.285                      | 0.234  |
|  |                     |                              | Significance (2-tailed) | 0.000                               | .                       | 0.000                      | 0.004  |
|  |                     | Quality of information.      | Correlation             | 0.659                               | 0.285                   | 1.000                      | -0.051 |
|  |                     |                              | Significance (2-tailed) | 0.000                               | 0.000                   | .                          | 0.543  |
|  | youth participation | Correlation                  | 0.145                   | 0.234                               | -0.051                  | 1.000                      |        |
|  |                     | Significance (2-tailed)      | 0.08                    | 0.004                               | 0.543                   | .                          |        |

The results in Table 17 revealed a weak positive correlation between the dependent variable youth participation and the independent variables type of SMPs, Level of utilization with a

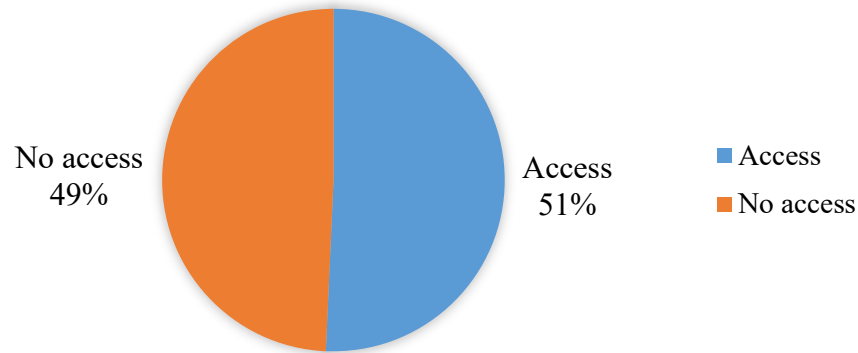
correlation of 0.145 and 0.234. However, the positive relationship was significant at a 5% level. This implies that there was a correlation between the dependent variable and the two independent variables without the influence of the socio-economic characteristics. Socio-economic characteristics controlled were gender, age, education level and employment status. These results on age are contrary to Morris and James (2017), who found out that age is a significant factor in social media adoption with over 71 % of the group under the age of 30 adopting the medium for agricultural purposes.

The results also revealed a weak negative correlation between the dependent variable youth participation and the independent variable quality of agricultural information with a correlation of -0.051. The correlation was not significant at 5% level while controlling for the influence of socio-economic characteristics. The contradiction in terms of the influence brought about by the socio-economic characteristic age is because the sample size was the youth who are in the same age category than Morris and James (2017) who used the sample of different age categories. Moreover, in terms of the level of education, Dash et al. (2017) revealed that the higher the level of education, the higher the use of social media which are in contrary to the results that, even in the absence of socio-economic characteristics a correlation still exists between the dependent and independent variable. This contradiction is because, among the sampled respondents, only 14% had primary education level while the majority had attained education level above the primary level.

#### **4.8.2 Relationship between independent variables and dependent variable controlling the influence of access to agricultural extension services**

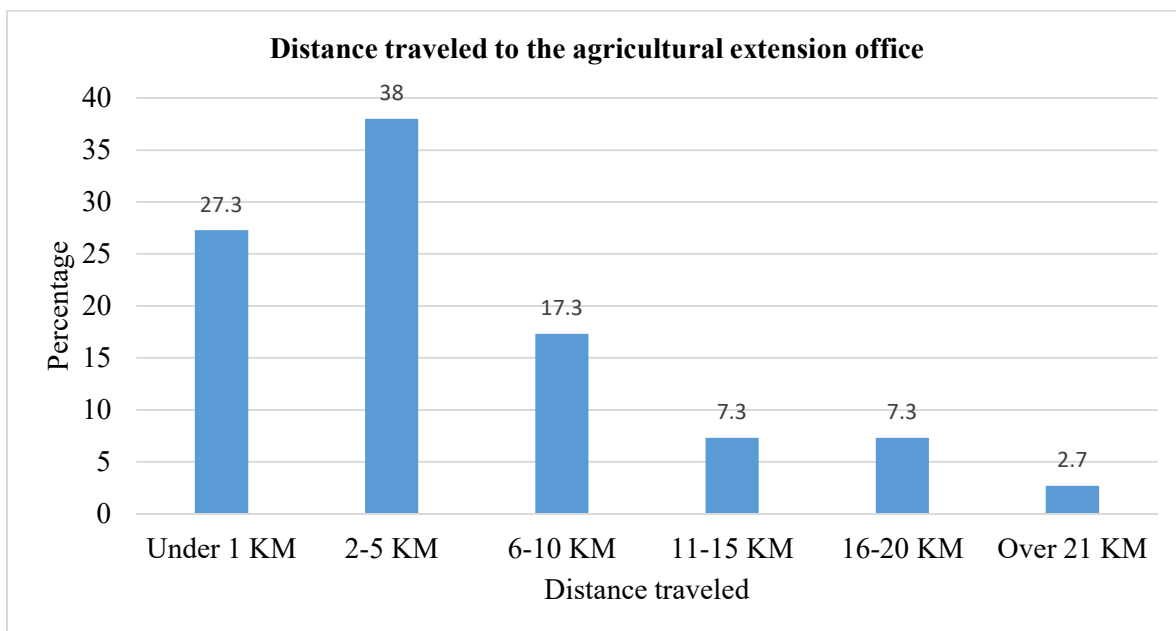
Partial correlation was carried out to determine the relationship between the dependent variable youth participation and the independents' variables type of SMPs, Level of utilization and quality of agricultural information while controlling the influence of access to agricultural extension services. Firstly, descriptive statistics were carried out to determine the respondent's access to agricultural extension services. The results are presented in figure 8.

### Access to agricultural extension services



**Figure 8: Access to agricultural extension services**

Figure 8 indicates that 49.3 % of the respondents do not have access to agricultural extension services while 50.7 % of the respondents have access to agricultural extension services. The respondents have access to government, private, non-government organizations (NGOs), and other extension service providers. The results of access to agricultural extension services by the respondents imply that almost half of the respondents use other alternative sources to access agricultural information other than visiting the agricultural extension officers. Additionally, the respondents indicated the distance traveled to access agricultural extension services. The results are presented in Figure 9.



**Figure 9: Distance traveled by respondents to the nearest agricultural extension office**

Figure 9 shows that all the 150 respondents have awareness about the availability of the agricultural extension service and the distance they travel to reach the office, though there are only 50.7 % of respondents who have access to the agricultural extension office. Furthermore, the results indicate that out of the 150 respondents, 27.3 % travel distance of under 1 km, 38.0 % travel 2 to 5 km, while 17.3 % travel 6 to 10 km. The other 7.3 % of the youth travel 15 to 11 km and 16 to 20 km and 2.7 % travel over 21 km. These findings agree with those of Wanjohi (2015) which indicated that farmers have access to agricultural extension services by traveling some distance to visit that agricultural extension office. The distance can affect the youth farmer's access to agricultural extension services. Respondents who travel long distances may tend to have less access to agricultural extension services than the youth who travel shorter distances.

Moreover, evidence revealed that the respondents have access to agricultural extension services. Therefore, in order to determine the relationship between the dependent variable youth participation and the independents' variables type of SMPs, Level of utilization and quality of agricultural information, the access to agricultural extension services was controlled and partial correlation carried out. The results are presented in Table 18.

**Table 18: Influence of access to agricultural extension services**

| <b>Control Variable</b>         |                     | <b>Types SMPs</b>            | <b>Level of utilization of SMPs</b> | <b>Quality of Info</b> | <b>youth participation</b> |        |
|---------------------------------|---------------------|------------------------------|-------------------------------------|------------------------|----------------------------|--------|
| Agricultural extension services | Types SMPs          | Correlation                  | 1.000                               | 0.703                  | 0.689                      | 0.159  |
|                                 |                     | Significance (2-tailed)      | .                                   | 0.000                  | 0.000                      | 0.053  |
|                                 |                     | Level of utilization of SMPs | Correlation                         | 0.703                  | 1.000                      | 0.392  |
|                                 |                     | Significance (2-tailed)      | 0.000                               | .                      | 0.000                      | 0.008  |
|                                 | Quality of Info.    | Correlation                  | 0.689                               | 0.392                  | 1.000                      | -0.075 |
|                                 |                     | Significance (2-tailed)      | 0.000                               | 0.000                  | .                          | 0.367  |
|                                 | youth participation | Correlation                  | 0.159                               | 0.216                  | -0.075                     | 1.000  |
|                                 |                     | Significance (2-tailed)      | 0.053                               | 0.008                  | 0.367                      | .      |

The results in Table 18 revealed a weak positive correlation between the dependent variable youth participation and the independent variables type of SMPs, Level of utilization with a correlation of 0.159 and 0.216. However, the positive relationship was significant at 5% level. This implies that there was a correlation between the dependent variable and the two independent variables without the influence of access to agricultural extension services. Moreover, the results also revealed a weak negative correlation between the dependent variable youth participation and

the independent variable quality of agricultural information with a correlation of -0.075. The correlation was not significant at 5% level while controlling the influence of access to agricultural extension services.

#### **4.8.3 Relationship between independent variables and dependent variable controlling the influence of access to ICT facilities**

The third category of moderator variables was access to ICT facilities which were a smartphone, computer, cyber and internet. Partial correlation was carried out to determine the relationship between the dependent variable youth participation and the independents' variables type of SMPs, Level of utilization and quality of agricultural information while controlling the influence of the moderator variables access to ICT facilities. Firstly, descriptive statistics were carried out to determine the respondent's access to ICT facilities. The results are presented in Table 19.

**Table 19: Respondents access to ICT Facilities**

| <b>ICT resources</b>                              | <b>Percentage (%)</b> |
|---|-----------------------|
| Smartphone  | 90.0                  |
| Computer  | 52.7                  |
| Cyber   | 45.3                  |
| Internet  | 90.0                  |
| raining on the use of social media in agriculture | 39.3                  |

Results in Table 19 indicate that the youth have access to a smartphone (90 %), computer (52.7 %), cyber (45.3 %), internet (90 %), and 39.3 %, training on the use of social media in agriculture. Revealed by the results, the highest number of respondents with 90 % have access to both smartphones and the internet, which is more likely to enable them to use social media in agriculture. This implies that the majority of respondents have the necessary resources that can enable access to social media platforms to source agricultural information. The study results by Kiberiti et al. (2020) indicated that mobile phones offer affordable solutions for farmers to access the agricultural information they need and require.

However, not all respondents who have access to smartphones are using social media in agriculture. The study results by Thuo (2018) revealed that despite respondents having access to smartphones with mobile applications, some of them were not aware of how they could use them to access agricultural information. Therefore, with the results indicating that the respondents have access to ICT facilities, a partial correlation was carried out to determine the relationship between the dependent variable youth participation and the independents' variables type of SMPs, Level of utilization and quality of agricultural information while controlling for the influence of the moderator variables access to ICT facilities. The results are presented in Table 20.

**Table 20: Influence of access to ICT facilities**

| <b>Control Variables</b>                        |                              | <b>Types of SMPs</b>    | <b>Level of utilization of SMPs</b> | <b>Quality of Info</b> | <b>Youth participation</b> |       |
|---|------------------------------|-------------------------|-------------------------------------|------------------------|----------------------------|-------|
| Smart Phone,<br>Computer,<br>Cyber<br>&Internet | Types of SMPs                | Correlation             | 1.00                                | 0.625                  | 0.66                       | 0.193 |
|   |                              | Significance (2-tailed) | .                                   | 0.000                  | 0.000                      | 0.021 |
|   | Level of utilization of SMPs | Correlation             | 0.625                               | 1.00                   | 0.287                      | 0.29  |
|   |                              | Significance (2-tailed) | 0.000                               | .                      | 0.000                      | 0.000 |
|   | Quality of Info.             | Correlation             | 0.66                                | 0.287                  | 1.000                      | -0.02 |
|   |                              | Significance (2-tailed) | 0.000                               | 0.000                  | .                          | 0.812 |
|   | youth participation          | Correlation             | 0.193                               | 0.290                  | -0.020                     | 1.000 |
|   |                              | Significance (2-tailed) | 0.021                               | 0.00                   | 0.812                      | .     |

Table 20 results indicated a weak positive correlation between the dependent variable youth participation and the independent variables type of SMPs and Level of utilization with a correlation of 0.193 and 0.021. However, the positive relationship was significant at 5% level. This implies that there is a correlation between the dependent variable and the two independent variables without the influence of access to ICT facilities. Krell et al. (2020) found that access to a smartphone that can connect to the internet and can download mobile apps is important and increases the likelihood of using mobile services which is contrary to these results that show that the relationship still exists between the dependent and independent variable even without the influence of access to ICT facilities. This is because the majority of the respondents had access to ICT facilities. In addition, there was a weak negative correlation between the dependent variable youth participation and the independent variable quality of agricultural information with a correlation of -0.020 revealed by the results in Table 19. The correlation was not significant at 5% level while controlling the influence of access to ICT facilities.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents the summary, conclusions, and recommendations of the study that was carried out to determine the effects of social media platforms use on youth participation in agriculture in Njoro Sub-county, Kenya. Suggestions for further research are also provided in this chapter.

#### 5.2 Summary of the study

The purpose of the study was to determine the effect of social media platforms on youth participation in agriculture in Njoro Sub-county, Kenya. The objectives of the study were to determine the effect of type of social media platforms on youth participation in agriculture, to determine the effect of the quality of agricultural information obtained through social media platforms on youth participation in agriculture and to determine the effect of the level of utilization of social media platforms in agriculture on youth participation in Njoro Sub-county.

Results for Objective one on the effect of type of social media platforms on youth participation in agriculture revealed that there is a statistically significant effect of the type of social media platform used to obtain agricultural information on youth participation in agriculture using the linear regression model. Upon carrying out an Independent T-test, the results revealed that there was a statistically significant difference in the mean of the respondents using LinkedIn, Wikipedia and Mkulima Young at a 5% level of significance in terms of the number of agricultural activities the respondents undertake after carrying out an Independent sample T-test. This meant that using LinkedIn, Wikipedia, and Mkulima Young increased the number of agricultural activities the respondents undertook.

Objective two results on the effect of the quality of agricultural information obtained through social media platforms on youth participation in agriculture revealed that the majority of the respondents stated that the agricultural information on social media platforms was accessible, relevant, simple to understand, easy to apply and adequate. Linear regression results indicated that there was a statistically significant effect of the quality of agricultural information and youth participation in agriculture at a 5% level of significance. ANOVA results indicated that the simplicity of agricultural information on social media platforms was statistically significant at a

5% level of significance in terms of the number of agricultural activities that the respondents undertake.

Finally, objective three results on the effect of the level of utilization of social media platforms in agriculture on youth participation revealed that the highest number of respondents used Facebook very often followed by WhatsApp and Google search engine. Linear regression analysis results revealed that there was a statistically significant effect of the level of utilization of social media platforms and youth participation in agriculture at a 5% level of significance using the ordered logistic regression model, the null hypothesis there is no statistically significant effect of the level of utilization of social media platforms on youth participation in agriculture in Njoro Sub-county was tested. The results revealed that the utilization of WhatsApp and M-Shamba in agriculture were statistically significant at a 5 % level of significance. Therefore, the null hypothesis was rejected and the conclusion made that there was a statistically significant effect on the level of utilization of WhatsApp and M-Shamba in agriculture and the number of agricultural activities the respondents undertook.

### **5.3 Conclusions**

The following conclusions were made based on the study findings which were guided by three objectives.

- i. The type of social media platforms used to obtain agricultural information by the youth has a positive effect on youth participation in agriculture in that using WhatsApp increases youth participation in agriculture in Njoro Sub-county.
- ii. The quality of agricultural information obtained through social media platforms has a positive effect on youth participation in agriculture such that the simpler the respondents perceived the agricultural information on social media platforms, the more they engaged in many agricultural activities in Njoro Sub-county.
- iii. The level of utilization of social media platforms to obtain agricultural information by the youth has a positive effect on youth participation in agriculture in Njoro Sub-county.

## **5.4 Recommendations**

The following recommendations are made based on the study findings:

- i. The County Government should train, create awareness and establish resource centers for youth farmers to access the internet and computers to use various social media platforms to obtain agricultural information.
- ii. Agricultural extension service providers should publish agricultural information which is as simple as possible on social media platforms to reach the youth to help improve their participation in agriculture.
- iii. Youth farmers should utilize social media platforms to obtain agricultural information more often to increase their participation in agriculture.

### **5.4.1 Suggestions for further research**

The following are suggested topics for further research:

- i. Factors influencing the choice of social media platforms used in obtaining agricultural information among the youth in agriculture.
- ii. Attitudes, perceptions and preferences of youth towards social media platforms as a source of agricultural information.

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## APPENDICES

### Appendix 1: Questionnaire for youth in Njoro Sub-county

#### Introduction

My name is Khumoetsile Octavia Sebotsa. I am a student at Egerton University pursuing a Master of Science degree in Agricultural Extension. I am currently undertaking a research project aimed at *'Determining the effect of Social Media Platforms' Use on Youth Participation in Agriculture in Njoro Sub-county*. You have been selected as one of the key stakeholders whom I strongly believe can provide valuable information and support towards achieving the objectives of this research project. I, therefore, kindly request your much-needed support to provide your valuable time to be interviewed to complete a survey questionnaire. I hereby commit and promise that all the information you provide will be treated with strict confidentiality. The results will be published as a collective analysis without mention of any single individual or organization. I greatly appreciate your valuable support and willingness to participate in this study.

#### Questionnaire Identification

Questionnaire No \_\_\_\_\_ Ward \_\_\_\_\_

Date (dd/mm/yy) \_\_\_\_\_

Name (optional) \_\_\_\_\_

Telephone Number \_\_\_\_\_

#### Section A: Demographic Information

1. Gender (Tick as appropriate)

Female [ ] Male [ ]

2. Age in Years (Specify) \_\_\_\_\_

3. Education level (Tick as appropriate)

Masters [ ] Bachelors [ ] Diploma [ ] Certificate [ ] Secondary (form 4) [ ] Primary [ ]

Others (specify) \_\_\_\_\_

4. Employment Status (Tick as appropriate)

Employed [ ] Self-employed [ ] Un-employed [ ]

**Section B: Use of Social media Platforms**

5. Tick the social media platform that you are using for general purposes (Tick as appropriate)

| Type of social media platform | Yes | No |
|-------------------------------|-----|----|
| WhatsApp                      |     |    |
| Facebook                      |     |    |
| Twitter                       |     |    |
| Google search engine          |     |    |
| YouTube                       |     |    |
| Instagram                     |     |    |
| LinkedIn                      |     |    |
| Wikipedia                     |     |    |
| Pinterest                     |     |    |

Others (Please specify \_\_\_\_\_)

\_\_\_\_\_

\_\_\_\_\_

6. Tick the social media platform that you are using in agriculture (Tick as appropriate)

| Type of social media platform | Yes | No |
|-------------------------------|-----|----|
| WhatsApp                      |     |    |
| Facebook                      |     |    |
| Twitter                       |     |    |
| Google search engine          |     |    |
| YouTube                       |     |    |
| Instagram                     |     |    |
| LinkedIn                      |     |    |
| Wikipedia                     |     |    |
| Pinterest                     |     |    |
| Mkulima Young                 |     |    |
| M-Shamba                      |     |    |
| DigiCow                       |     |    |
| M-farm                        |     |    |

Others (Please specify) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

7. What type of agricultural information do you get from the social media that you use? (Tick as appropriate)

Market information  Agricultural Inputs  Crop husbandry practices  Livestock husbandry practices  Value Addition  Financial Institutions  None

Others (Please specify) \_\_\_\_\_

8. If not accessing agricultural information on social media, what are the reasons? Answer by placing a tick on the extend at which you agree to the statements ((1 = Strongly disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly agree)

| Reasons  | Score |   |   |   |   |
|--|-------|---|---|---|---|
|  | 1     | 2 | 3 | 4 | 5 |
| Internet data is costly                              |       |   |   |   |   |
| Poor network connection                              |       |   |   |   |   |
| Unavailability of relevant information               |       |   |   |   |   |
| The information on Social Media is unreliable        |       |   |   |   |   |
| less trust with regard to e-buying on social media   |       |   |   |   |   |
| Less trust with regard to e -selling on social media |       |   |   |   |   |
| Not aware of the use of social media in agriculture  |       |   |   |   |   |

Others (Please specify) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

9. What is the quality of agricultural information you obtain from social media? Answer by ticking (✓) as appropriate next to the statements

How accessible is the agricultural information you receive on Social Media Platforms? (0=Never, 1=Sometimes, 2=Always)

Never [ ] Sometimes [ ] Always [ ]

How relevant is the agricultural information you receive on Social Media Platforms? (0=Not relevant, 1=relevant, 2=Very relevant)

Not relevant [ ] Moderate (Some information is relevant and the other is not) Relevant [ ]  
Very relevant [ ]

How simple is it to understand the agricultural information you receive on Social Media Platforms? (0=Not simple to understand, 1=Simple to Understand, 2=Very simple to understand)

Not simple to understand [ ] Moderate (Some information is simple and the other is not) [ ]  
Simple to Understand [ ] Very simple to understand [ ]

How easy is it to apply agricultural information you receive on Social Media Platforms? (0=Not easy to apply, 1=Easy to apply, 2=Very easy to apply)

Not easy to apply [ ] Moderate (Some information is easy to apply and the other is not) [ ] Easy to apply [ ]  
Very easy to apply [ ]

How useful to you is the agricultural information you receive on Social Media Platforms? (0=Not useful, 1=Useful, 2=Very useful)

Not useful [ ] Moderate (Some information is useful and the other is not) [ ] Useful [ ] Very useful [ ]

How adequate is the agricultural information you receive on Social Media Platforms? (0=Not complete, 1=Complete, 2=Very complete)

Not adequate [ ] Moderate (Some information is relevant and the other is not) [ ] adequate [ ]  
Very adequate [ ]

**Section C: Agricultural activities engaged in**

10. Tick (✓) as appropriate the agricultural activities that you engage in.

| Agricultural Activity                                      | Yes | No |
|--|-----|----|
| Buying agricultural produce                                |     |    |
| Selling agricultural produce                               |     |    |
| Buying agricultural inputs                                 |     |    |
| Linking up with other farmers                              |     |    |
| Providing paid labour on a farm                            |     |    |
| Poultry farming  |     |    |
| Dairy farming  |     |    |
| Beef production  |     |    |
| Pig production   |     |    |
| Goat production  |     |    |
| Sheep production   |     |    |
| Vegetable production                                       |     |    |
| Field crop production                                      |     |    |
| Sorting into different categories for packaging            |     |    |
| Grading after packaging for selling                        |     |    |
| Processing agricultural produce into different by-products |     |    |

Others (Please specify \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Section D: Level of Utilization of Social Media**

**11.** How frequently do you use social media platforms? Please indicate the frequency of use of the social media platforms by placing a tick (√) next to the type of social media platform that you use in the column with a score corresponding to your correct response. (1 = Not at all 2 = Rarely 3 = Sometimes 4 = Often 5 = Very Often)

| Type of social media platform | Score |   |   |   |   |
|-------------------------------|-------|---|---|---|---|
|                               | 1     | 2 | 3 | 4 | 5 |
| WhatsApp                      |       |   |   |   |   |
| Facebook                      |       |   |   |   |   |
| Twitter                       |       |   |   |   |   |
| Google search engine          |       |   |   |   |   |
| YouTube                       |       |   |   |   |   |
| Instagram                     |       |   |   |   |   |
| LinkedIn                      |       |   |   |   |   |
| Wikipedia                     |       |   |   |   |   |
| Pinterest                     |       |   |   |   |   |
| Mkulima Young                 |       |   |   |   |   |
| M-Shamba                      |       |   |   |   |   |
| DigiCow                       |       |   |   |   |   |
| M-farm                        |       |   |   |   |   |
| Others                        |       |   |   |   |   |

**Section E: Socio-Economic Characteristics**

11. Please answer the following questions about agricultural extensions services

Do you have agricultural extension officers advising you?

Yes [ ] No [ ]

If Yes, Which Extension Service provider advised you?

Government Extension Officers [ ] Private extension agents [ ] NGOs [ ] Others

What is the distance from your resident to the nearest extension agent?

Distance in Kilometers \_\_\_\_\_

Have you received advice from the Extension Agent about the use of Social Media in Agriculture?

Yes [ ] No [ ]

If Yes, Does the extension agent advising you to use social media to communicate with you and give agricultural information?

Yes [ ] No [ ]

Do you communicate with the extension officers advising you using social media?






Yes [ ] No [ ]

12. Please rate the following statements with regard to the frequency of access to ICT tools and training by placing a tick (√) next to the statement in the column with a score corresponding to your correct response. (1 = Not at all 2 = Rarely 3 = Sometimes 4 = Often 5 = Very Often)

| Statement  | Score |   |   |   |   |
|--|-------|---|---|---|---|
|  | 1     | 2 | 3 | 4 | 5 |
| I have access to a Smartphone                                      |       |   |   |   |   |
| I have access to a computer  |       |   |   |   |   |
| I have access to the cyber   |       |   |   |   |   |
| I have access to the internet                                      |       |   |   |   |   |
| I Have received training on the use of social media in agriculture |       |   |   |   |   |

**THANK YOU FOR YOUR PARTICIPATION!**

**Appendix 2: Research permit**

|   |   |
|---|---|
| <br>REPUBLIC OF KENYA  | <br><b>NATIONAL COMMISSION FOR<br/>SCIENCE, TECHNOLOGY &amp; INNOVATION</b>              |
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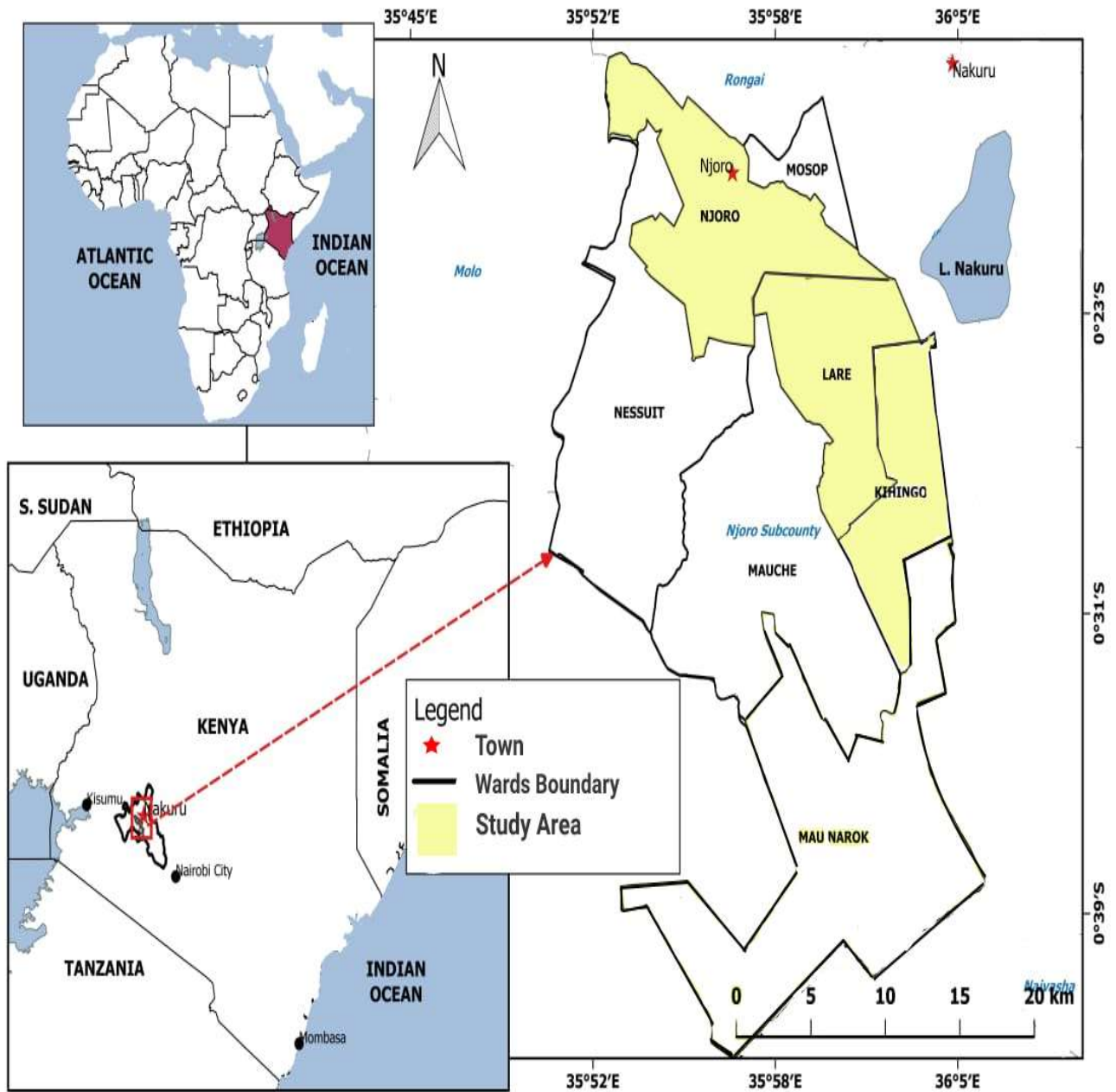
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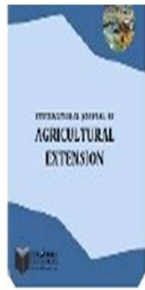
**Appendix 3: Map of Njoro Sub-county**



**Figure 10: Map of Njoro Sub-county**

(Source: Egerton University Department of Geography)

## Appendix 4: List of publications



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# International Journal of Agricultural Extension

ISSN: 2311-6110 (Online), 2311-8547 (Print)

<https://journals.esciencepress.net/IJAE>

## EFFECT OF UTILIZATION OF SOCIAL MEDIA PLATFORMS ON YOUTH PARTICIPATION IN AGRICULTURE IN NJORO SUB-COUNTY, KENYA

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### ARTICLE INFO

#### Article history

Received: August 22, 2020

Revised: December 13, 2020

Accepted: December 28, 2020

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#### Keywords

Social Media

Youth

Effect

Agriculture

Participation

### ABSTRACT

Most of rural people, particularly in Sub-Saharan Africa, depend on agriculture for their livelihoods. In Kenya, rural households who are mainly smallholder farmers rely on agriculture for most of their income. The agriculture sector plays an important role in employment creation. However, the sector is reportedly dominated by the elderly people while youths tend to shy away. These youths are actively involved on social media platforms hence social media have been used to promote their participation in agriculture. However, how utilization of such social media platforms affected their participation in agriculture was not yet known in Njoro Sub-county. This study focused on the effect of utilization of social media platforms on youth participation in agriculture in Njoro Sub-county. A descriptive survey research design was used with a target population of 3,925 and accessible population of 1,597