

**INFLUENCE OF GROUP RULES AND MARKET OUTLET CHOICES ON SMALL
SCALE FARMERS' PARTICIPATION IN COLLECTIVE MARKETING OF POTATO
IN MOLO SUB COUNTY, NAKURU, KENYA**

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**A Thesis Submitted to the Graduate School in Partial Fulfilment of the Requirements for
the Master of Science Degree in Community Studies and Extension of Egerton University**

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DECLARATION AND RECOMMENDATION

Declaration

This thesis is my original work and it has not been presented for the conferment of a degree, in this or any other institution.

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Recommendation

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DEDICATION

I dedicate this work to my beloved parents, Stanley Nyasulu and Dolisa Mtawali, who did not go far with education but they understood its importance and they sacrificed a lot to educate their six children.

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ABSTRACT

Engaging in high value potato markets is one important strategy which can assist small scale farmers to increase food security and move out of poverty. Collective marketing has been identified as one of the best strategies to improve the participation of small-scale farmers in better markets. Despite its importance, only a few farmers practice collective marketing. The study was carried out to determine the influence of group rules and markets on small scale farmers' participation in collective marketing of potato in Molo Sub County, the leading Sub County in potato production in Nakuru County. The study was guided by Collective Action Theory and a concurrent triangulation mixed research design was used. The target population was 18,039 small scale potato farmers in all the four Wards of Molo Sub County namely; Elburgon, Mariashoni, Molo and Turi while the accessible population was 247 small scale farmers in active potato farmer groups. The sample size was 118 respondents who were distributed proportionately in the wards. Simple random sampling using bucket method was used to identify the names of respondents. Cronbach's Alpha reliability test yielded a coefficient of $\alpha = 0.74$. Descriptive statistics namely, frequencies, percentages, mean and standard deviations and inferential statistics namely Chi Square were used for data analysis using Statistical Social Package for Scientists (SPSS). Only 7.6 percent of small-scale farmers were involved in collective marketing. Percentages of women, youth and farmers who attained a level of education were high amongst members who participated in collective marketing. Thematic analysis revealed that lack of farmers' access to better markets, storage facilities, training on collective marketing, and exploitation by buyers reduced participation in collective marketing. Chi Square results showed that rule awareness and rule enforcement mechanism significantly influenced participation in collective marketing. Similarly, market outlet choices such as brokers, urban markets and export markets had a significant influence. Spearman's correlation revealed that there was positive relation between urban markets $r(116)=23.332$, $p<0.05$ and export markets in relation to participation in collective marketing. However, the relationship was negative and insignificant on selling through brokers $r(116) = -0.108$, $p>0.05$. The study recommends increased awareness on the importance of collective marketing, purposefully targeting young people and educated farmers who have high possibility of participation. Group leaders have to ensure rules on participation in collective marketing are included and group members should be reminded of the group rules regularly. Additionally, farmers should get linked to urban and export markets to avoid selling to brokers who buy from farmers at low prices.

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LIST OF ACRONYMS AND ABBREVIATIONS

ASDS	Agriculture Sector Development Strategy
FAO	Food and Agriculture Organisation of the United Nations
FARMUP	Farm Attachment Program
GDP	Gross Domestic Product
GoK	Government of Kenya
IFPRI	International Food Policy Research Institute
KEPHIS	Kenya Plant Health Inspectorate Service
KES	Kenyan Shillings
KIPPRA	Kenya Institute for Public Policy Research and Analysis
NACOSTI	National Commission for Science, Technology and Innovation
NGOs	Non-Governmental Organisation
TIA	Tansmania Institute of Agriculture

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Small scale farmers play a critical role in fighting poverty and contributing towards rural livelihoods and global economy (International Food Policy Research Institute [IFPRI], 2016). About 75% of the world's poor are believed to work and live in rural areas, and it was estimated that, by the year 2020, 60% of the poor will still be rural people (Olwande & Mathenge, 2010). According to Omiti *et al.* (2009), agriculture supports the livelihoods of about 80% of the rural population in Kenya of whom 85% of them are small scale farmers. The contribution of small scale farmers would be enhanced if they go beyond subsistence set up and become more entrepreneurial and market oriented (Mukundia, 2014; Sinyolo & Mudhara, 2018). High transaction costs is one of the key reasons for small scale farmers' failure to participate in high value markets (Muthini, 2015). Additionally, small scale farmers lack marketing knowledge and skills, and information on prevailing market prices and have weak institutions (Gyau, Mbugua & Oduol, 2016). Small scale farmers are further disadvantaged by their lack of assets and limited access to credit (Abebaw & Haile, 2013). These challenges lead them to sell their produce to middlemen at farm gate price which is usually low.

Collective action is one of the initiatives that may enhance small scale farmer's participation in high value markets (FAO, 2016; Fischer & Qaim, 2014). When acting collectively, farmers may be in a better position to secure access to new technologies, increase market efficiencies, and obtain the necessary market information (Transmania Institute of Agriculture [TIA], 2014). Farmers may also be able to secure access to credit facilities, increase economies of scale and improve bargaining power in the value chains (Lapar *et al.*, 2010; Taiy *et al.*, 2016). There are several activities which farmers who are involved in collective actions engage in. Some of them include; farming, table banking, merry go round, welfare support and collective marketing (Kibe, Mwangi, Nkurumwa & Mulu-Mutuku, 2017). However, collective marketing has been one of the developments believed to improve the income of the small scale farmers (Nyikahadzoi, Siziba, Nokoe, Njuki & Adekunle, 2010).

Collective marketing has several benefits including: enabling farmers to sell their produce together and reduce transaction costs and utilize high-value markets. Evidence from many countries shows that collective marketing reduces the cost of getting the product to the markets, improves the bargaining power of farmers and enables small scale famers to access services that private sector or government could not provide (Chau, Lebailly & Trung, 2017). Against the background of potential benefits of collective marketing, the support of farmer groups is high on the policy agenda of African countries (Bernard & Spielman, 2009). The Government of Kenya, for example, initiated the formation of farmer groups to promote the active participation of small scale farmers in markets (Shiferaw, Obare, Muricho & Silim, 2009). Success stories of collective marketing in Kenya are documented in several studies, for example banana farmer organizations in Muranga, Nyeri, Embu and Meru counties (Fischer & Qaim, 2012), collective marketing of chicken in Kakamega County (Gicheha, Ngigi, & Hillary, 2015) and Mango group farmers in Makueni County (Muthini, 2015).

Despite the success stories, very few small scale potato farmers in Nakuru County, one of the leading potato producing counties in Kenya, participate in collective marketing (Taiy *et al.*, 2016). A study conducted in Nakuru and Baringo counties by Farm Attachment Program (FARMUP) (2015) indicated that out of 39.1 percent farmers involved in collective actions, only 1.7 percent participated in collective marketing despite being exploited by middlemen (Taiy *et al.*, 2016). Similarly, a baseline study conducted among potato farmers in Nakuru County in the year 2017 indicated that farmers who are involved in collective action, only 4.7 percent of farmers are involved in collective marketing of potato (Kibe *et al.*, 2017).

Potato is one of the major crops of economic significance in Kenya. It is the second most important staple food crop after maize (Jassens *et al.*, 2013). The role of maize in feeding the population is greatly challenged as famine is constantly experienced in many regions of the country (Wang'ombe & van Dijk, 2015). Potato provides a reliable source of income, employment and food (Food and Agriculture Organisation [FAO], 2014). It is estimated that the crop is grown by approximately 600,000 to 800,000 small scale farmers. Their total production is approximately 1 to 1.4 million tonnes worth KES30 to KES40 billion per year (as cited in Kibe *et al.*, 2018).

However, small scale farmers' benefits from the potato value chain are minimal, over 90 percent of potatoes is marketed through middlemen (Jassens *et al.*, 2013; Wang'ombe & van Dijk, 2015).

Brokers dominate a large part of the potato value chain, they access market information and exploit farmers in the process (Jassens *et al.*, 2013). Brokers take advantage of information that is not available at either end of the value chain. They sometimes form cartels that distort market information by creating parallel information leading to exploitation of farmers. Sometimes brokers meet to set prices that are not informed by market dynamics of demand and supply hence advertising the commodity at the expense of the consumer and trader (Mutunga, 2014). Hence, if farmers can participate in collective marketing, they can be empowered to explore better markets and overcome the exploitation by brokers.

Studies have shown that rules are important for regulating activities in collective actions (North 1990; Ostrom, 1990). When group rules are well defined, opportunism decreases and trust increases, hence reducing transaction costs (Arias & Caballero, 2006). However, with knowledge of the existence of the rules alone, there is no assurance that they are followed by the members in collective actions. Therefore, it is equally important to consider the monitoring and enforcement mechanisms present in the groups. In a study by Koku & Gustafsson, (2003), mechanism of rule enforcement was identified to be the most important factor influencing participation in collective actions. Bastakoti and Shivakot (2012) also in their study found that better rule enforcement created favorable conditions for collective action among the irrigation farmers and ensured better performance of the irrigation management in Nepal. Chakraborty (2001) also found that rules and penalties brought awareness to members on what is allowed and not allowed in the group, therefore guiding behaviour (Tajima, 2007).

Studies also have shown that participation in collective actions depend on types of products marketed and choice of markets targeted (Shiferaw *et al.*, 2009). Market outlet choice for small scale potato farmer is mandatory, since potato is a perishable horticultural crop. Participants at every level of the potato value chain have their preferred markets outlet choices and reasons for the preference. The potatoes in Kenya are marketed through different outlets including at farm gates, local markets, urban markets, brokers and export markets. Of these, local markets are the

easiest to reach because transportation, quality standards and weighing issues are less of a concern and also there is less competition from larger domestic and international producers. There is domination of brokers and traders along the marketing channel, over 90 percent of farmers sell their potatoes through middlemen. Potato imports and exports are negligible since nearly all potato production in Kenya is locally consumed. Generally, longer marketing channels present greater disadvantages to small scale farmers. Therefore, the variables of interest in this study include; members’ awareness of group rules, rule enforcement mechanisms and market outlet choices.

The study will be carried out in Molo Sub County of Nakuru County in Kenya. The County is among the major producers of potato in Kenya, and, Molo Sub County is the leading potato producer in Nakuru County as shown in **Table 1**.

Table 1: Average production between the years 2013 and 2017 in Nakuru County

Sub County	Average Potato Production Per Acre (Tons)
Molo	9.6
Kuresoi North	8.3
Subukia	6.6
Njoro	4.4
Gilgil	3.6
Bahati	3.4
Kuresoi South	3.2
Naivasha	2.1

Source: Draft Nakuru County Potato Strategy 2018-2022

The potato production statistics in the year 2016 indicated that Molo Sub County had the highest potato production of 143,712 tonnes followed by Kuresoi North which had 103,785 tonnes (Draft Nakuru County Potato Strategy [DNCPS], 2018). Despite being a leading potato producer, out of 18,039 small scale farmers, only 247 are involved in collective action activities such as table banking, merry go round and collective marketing of potatoes (Molo District Fact File, 2018).

1.2 Statement of the Problem

The potato marketing chain in Kenya faces a myriad of challenges which include high transport costs, poor marketing, lack of proper storage facilities and exploitation by middlemen. These factors force farmers to sell their potatoes even when prices are low. Collective marketing has been identified as one of the best strategies to improve the participation of small scale farmers in better markets. Collective marketing reduces transaction costs, increases bargaining power and overcomes market challenges. Despite its importance, very few potato farmers participate in collective marketing. There are many factors that influence participation in groups, the major ones being the group rules and market outlet choices. However, there is inadequate understanding on the influence of group rules and market outlet choices on farmers' participation in collective marketing initiatives, especially for potato farmers. It is against this background that this study aimed to determine the influence of group rules and market outlet choices on small scale farmers' participation in the collective marketing of potato in Molo Sub County, Nakuru County, Kenya.

1.3 Purpose of the Study

The purpose of the study was to determine the influence of group rules and market outlet choices on small scale farmers' participation in collective marketing of potato in Molo Sub County, Nakuru County, Kenya.

1.4 Objectives of the Study

The following were the objectives of the study:

- (i) To determine the extent of collective marketing of in Molo Sub County, Nakuru County, Kenya.
- (ii) To determine the influence of awareness of group rules on small scale farmers' participation in collective marketing of potato in Molo Sub-County, Nakuru County, Kenya
- (iii) To determine the influence of rule enforcement mechanisms on small scale farmers' participation in collective marketing of potato in Molo Sub-county, Nakuru County, Kenya.
- (iv) To determine the influence of market outlet choices on small scale farmers' participation in collective marketing of potato in Molo Sub-County, Nakuru County, Kenya.

1.5 Research Question and Hypotheses of the Study

The following are the research question and hypotheses of the study:

1.5.1 Research Question

- What is the extent of collective marketing of potato in Molo Sub County, Nakuru County, Kenya?

1.5.2 Hypotheses

- H0₁. There is no statistically significant influence of awareness of group rules on small scale farmers' participation in collective marketing of potato in Molo Sub-County, Nakuru County, Kenya.
- H0₂ There is no statistically significant influence of rule enforcement mechanisms on small scale farmers' participation in collective marketing of potato in Molo sub county, Nakuru County, Kenya.
- H0₃: There is no statistically significant influence of market outlet choices on small scale farmers' participation in collective marketing of potato in Molo Sub-County, Nakuru County, Kenya.

1.6 Significance of the Study

This study was conducted to determine the group rules and market types influencing small scale potato farmers' participation in collective marketing in Molo Sub County, Nakuru County. The study may contribute to the body of scientific knowledge on group characteristics influencing small scale farmers' participation in collective marketing of potato in Nakuru County, Kenya. The findings from this research may also inform agricultural extension workers on factors that influence participation in collective actions. The knowledge might help the extension workers to apply the information and devise extension approaches which would likely advocate for the increased participation in collective marketing. Policy makers might be assisted with information relevant in formulating appropriate policies and trainings that may encourage farmers to participate in collective actions which is expected to improve their networks, increase access to high value markets which in the long run is likely to improve their incomes. Researchers interested in related topics may also benefit from the findings of the study.

1.7 Scope of the Study

The study focus was on small scale farmers of Irish potato, the second important crop in curbing food insecurity. Most importantly, the study was restricted to analysis and documentation of the influence of group rules and market outlet choices on small scale farmers' participation in collective marketing. The variables for study included: awareness of group rules, rule enforcement mechanisms and market outlet choices. The study specifically was carried out in Molo Sub County, which ranks high in potato production in Nakuru County. All the four wards in Molo Sub County were selected as they grow potatoes. Further, 10 active potato groups were purposively selected, from where the respondents were identified.

1.8 Assumptions of the Study

The study was guided by the following assumptions:

- (i) Respondents were aware of collective marketing of potato.
- (ii) Respondents were able to recall their experiences and provide honest responses.

1.9 Limitation of the Study

The main limitation of the study was language barrier. The researcher is more conversant with English language rather than the common national language which is Swahili. Some farmers do not speak English. Careful selection of a translator who had good understanding of English and local language, and thorough briefing about the instrument minimized misunderstanding of the items.

1.10 Definition of Terms

Collective action is defined as voluntary action taken by a group of individuals, who invest time and energy to pursue common shared interests and goals (Markelova *et al.*, 2009). In this study, collective action means when potato farmers work and do things as a group.

Collective marketing is where a number of growers come together to sell their combined produce (Tasmania Institute of Agriculture, 2014). Collective marketing in the study refers to when potato farmers combine their potatoes and sell them together as a group.

Influence is the capacity to have an effect on the character, development, or behaviour of someone or something, or the effect itself (Farlex, 2003). In this study, influence referred to the strength and relationship between dependent and independent variables. The dependent variable was participation in collective marketing while independent variables included; rule awareness, enforcement mechanism and market outlet choices.

Market is a set up where two or more parties engage in exchange of goods, services and information. In the study it refers to a channel where small scale farmers sell their produce such as to brokers, local markets, urban markets and export markets.

Market outlets choice refer to the decision by producers to use direct alternative routes of product flow to supply their produce rather than considering the possible path of product flow in the commodity chain (Lundy *et al.*, 2004). Market outlet choice in the study refers to the decision made by potato farmers to directly supply their potatoes in the potato chain using the chosen outlet which in this study include; farm gate, brokers, local markets and urban markets

Middlemen means any intermediary between manufacturer or producer and end user markets. For this study, they include those buying from potato farmers.

Participation in collective marketing refers to the involvement of the group members in gathering potatoes together and selling as a group. In this study, participation in collective marketing was perceived to take place basing on whether the farmer sold their potatoes through the group as compared to individual selling in the past 12 months.

Reciprocity is a social norm of responding to a positive action with another positive action (Ostrom, 1998). In this study, reciprocity means exchanging kind actions within the potato group members.

Rule enforcement mechanisms means ways of encouraging compliance with an agreement by providing rewards or punishments (Smith, 2011). In this study it refers to ways of making sure that small scale farmers in potato groups follow the rules.

Rules refer to guidelines commonly known and used by a set of participants to order repetitive and interdependent relationships such as in groups (Ostrom, 1999). In this study, it refers to guidelines that govern group behaviour

Small-scale farmers: These are the farmers who have a farm land holding size of less than five acres (Lowder, Skoet & Raney, 2016). In this study, the term is used to describe the potato farmers producing potatoes on less than five acres of arable farm land.

Social capital is defined as resources contained in social relations which facilitate collective action (Bourdieu, 1986). Social capital refers to networks, trust and reciprocity that facilitate collective marketing.

Social network is defined as social ties and interactions which are essential in collective actions (Novkovic, 2013). In this study, networks are defined as the close ties that a farmer has.

Trust means that a person voluntarily depends on another person with a feeling of relative security, even though negative consequences are possible (Lewis & Weigert, 1985). In this study trust means that the belief that group members are honest and reliable.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section presents a review of literature relating to the objectives and hypotheses of the study. Particularly, it gives detailed information about the importance of agriculture in Kenya. The section also explains the production of potato in Kenya and its marketing situation. Highlights on the practice of collective action in Kenya are also given. As this study focuses on group rules and market types influencing participation in collective actions, a review follows on rules, rule enforcement and markets in collective actions. Finally, Collective Action theory is presented and examined then the conceptual framework follows.

2.2 Agricultural Contribution to the Kenyan Economy

The agriculture sector contributes 30% of the GDP and 65% of export earnings in Kenya. Small scale farmers grow corn and also produce potatoes, bananas, beans and peas (Kenya National Bureau of Statistics [KNBS], 2013). In order to support the agriculture sector, Kenyan Government has developed and implemented various policies. Key strategies like Kenya Vision 2030 and Agricultural Sector Development Strategy (ASDS) (2009-2020) have been put in place to guide agriculture sector development. The Strategy and Vision, which augment the Agriculture Policy (2006), aim at improving the standard of living of Kenyans by substantially reducing the number of people affected by hunger, famine and starvation and improving food security (Machangi *et al.*, 2016). In the year 2018, the government under the presidential initiative, developed the “Big Four” agenda aimed at improving food and nutrition security among others including affordable and decent housing, affordable healthcare, and employment creation through manufacturing (Kenya Institute for Public Policy Research and Analysis [KIPRA], 2018). Potato is among the three crops being prioritised under the “Big Four” agenda including maize and cereals.

2.3 Potato Production in Kenya

There are many varieties of potatoes grown in Kenya. These include Tigoni, Asante, Shangi, Dutch Robijn, Kenya Baraka and Kenya Mpya. Tigoni, Asante and Kenya Mpya take 3 to 4 months to mature and yield between 14 to 18 tons per acre (Opiyo, 2017). Shangi takes about 3 months to mature and yields 12 to 16 tons per acre. Dutch Robijn takes 3 to 4 months from planting to

harvesting and the yield is about 12 tons per acre. Kenya Baraka takes 3 months from planting to harvesting. The yield is 12 to 16 tons per acre. The skin of Dutch Robijn is red in colour and the flesh pale yellow. Kenya Baraka has white skin and flesh; while Shangi has a cream skin and white flesh. The skin of Tigoni is white while the flesh is pale yellow. Asante has a pink skin and pale yellow flesh. Dutch Robijn, Kenya Baraka, Shangi, Tigoni and Asante all do well in Kiambu, Nyandarua, Meru, Nakuru, Nyeri and Bomet. Kenya Baraka, Shangi and Tigoni also do well in Narok, Nandi and Kericho.

Generally, potato is grown on 161,000 hectares with a production of about 1.5 million tonnes worth about 40 to 50 billion Kenyan Shillings (KES) annually (KEPHIS, 2016). Potatoes provides a reliable source of income, employment and food for many populations in the developing countries like Kenya (FAO, 2014). It directly and indirectly employs approximately 800 000 growers and about 3.3 million people as market agents, transporters, processors, vendors, retailers and exporters (Government of Kenya [ASDS], 2009). This is why potato has been recommended as an alternative crop for diversification programmes in Kenya (FAO, 2013; KIPRA, 2018).

The importance of potato is attributed to its high nutritive value, good productivity and good processing qualities for starch, flour, bread, soap, alcohol, weaning foods and animal feed (KEPHIS, 2016). The most favorable climatic conditions for potato cultivation in Kenya are found in areas at altitudes between 1,500 and 3,000 metres above sea level such as Central, Eastern and Rift Valley regions and on the slopes of Mount Kenya, where the country's main staple food, maize, has no comparative advantage. Specifically, there are 13 counties which are major potato producing areas. These are Nyandarua, Meru, Nyeri, Kiambu, Taita Taveta, Nakuru, Narok, Bomet, Elgeyo Marakwet, Trans Nzoia, Bungoma, Uasin Gishu and West Pokot (MoALF, 2016). With 13 out of 47 counties in Kenya producing potatoes to feed the growing population, there is high demand of potatoes which small scale farmers can exploit and benefit economically if they get organized and do collective marketing. The Kenyan population was 48.3 million in 2017 with a growth rate of 2.6% per annum (KEPHIS, 2017).

Nakuru County has diversified climatic conditions, ranging from semi-arid to upper highland in Njoro, Molo, Kuresoi, Bahati, and parts of Naivasha and Gilgil. The agro-ecological zones range

from tropical alpine, upper and lower highlands. There is wide variation in altitude from 1400 to 2970m. Rainfall is bimodal with an annual average range of 500-1900mm. Temperature range is 9°C to 27°C. There are 11 sub-counties in Nakuru, nine of which are potato growing areas. They include; Njoro, Molo, Kuresoi South, Kuresoi North, Rongai, Naivasha, Gilgil, Bahati and Subukia. Of these, Molo Sub County is the highest potato producer followed by Kuresoi North while Rongai is the least producer (DNCPS, 2018).

2.4 Potato Marketing in Kenya

Potato marketing in Kenya, like other commodities, involves several actors namely; growers, brokers, transporters, wholesalers, processors, and retailers. It is estimated that over 90 percent of locally marketed potatoes go through middlemen who are good at accessing market information and exploit farmers in the process (Jassens *et al.*, 2013; Wang'ombe & van Dijk, 2015). They sometimes form cartels that distort market information by creating parallel information leading to exploitation of farmers. Sometimes middlemen meet to set prices that are not informed by market dynamics of demand and supply hence advertising the commodity at the expense of the consumer and trader (Mutunga, 2014).

Another challenge that is faced with farmers is the packaging of the crop. Due to lack of better markets, potato farmers have witnessed big losses due to the packaging dictated by brokers which in most cases exceed the recommended 110kg bag by the government of Kenya (The Potato Produce and Marketing Bill, 2014). Enforcement, however, has been weak despite the provision of the legal notice No.113 in 2014 empowering the local government to enforce the same. Consequently in most areas, potatoes are still packaged in extended bags weighing between 130-280 Kgs (Kipkirui, 2014). The extended bag is a means of lowering the price for the farmer and it also reduces the fees called market cess, charged by the county governments who charge per bag irrespective of the weight (Machangi *et al.*, 2016). As a result, it is the broker who benefit in the potato value chain as small scale farmers lack access to better markets and are only left with the option of selling to them without power to influence prices of their produce (DNCPS, 2018). Hence there is need for farmers to do collective marketing and be able to take their produce to better markets and sell at better prices.

2.5 The Practice of Collective Action in Kenya

Collective action is defined as voluntary action taken by a group of individuals, who invest time and energy to pursue common shared interests and goals (Markelova *et al.*, 2009). For collective action to be successful and useful there should be a felt need which cannot be undertaken by an individual alone but a group of people who are interconnected and committed to work together (Kruijssen *et al.*, 2009). Collective action helps farmers to overcome most of the challenges. It enables farmers to reduce transaction costs, increase market efficiencies, and obtain the necessary market information. It also helps them to secure access to new technologies and utilize high-value markets, improve access to credit facilities, increase economies of scale and improve bargaining power in the value chain which gives them an advantage when competing with large-scale farmers (Markelova *et al.*, 2009; Lapar *et al.*, 2010; Taiy *et al.*, 2016). Small scale farmers overcome market failures and maintain their position in the market when they market their produce as a group (Markelova *et al.*, 2009; Gyau *et al.*, 2016).

In Kenya, the formation of farmer groups has been one of the initiatives by the government to promote the active participation of small scale farmers in markets. The concept of group formation started in 1960's after Kenya gained independence from the Great Britain. The first movement was “*harambee*” which means “*let's all work together*”. It was an initiative designed to encourage people to contribute resources to supplement and complement the government's development efforts (Kristin & Negash, 2005). During the same period the “*Baraza*” approach (village gatherings) was also introduced to mobilize agricultural communities to work together to maximise agricultural outputs (Kitetu, 2005). However, these “*Barazas*” used a complete top down approach where tribal leaders were the main decision makers. This approach therefore did not meet the expectations set by the Kenyan Authorities. To address the failures of the top down system, the concept of ‘farmer groups’ was introduced. In this approach, farmers were encouraged to interact with each other while sharing knowledge, resources and experience (Jayne & Muyanga, 2006). Participation was completely voluntary and some farmer groups set eligibility requirements for membership so that not all farmers could join the group. The structure of farmer group was made possible for participants to see each other as equals resulting in many self-help groups being formed. In the year 2000 the government launched National Agriculture and Livestock Extension Program (NALEP) to implement demand driven extension service through use of groups rather

than individuals. This is the approach adopted up to date where farmers are able to receive trainings and collectively purchase inputs (Mutisya *et al.*, 2010).

2.5.1 Collective Marketing in Kenya

Collective marketing has played a significant role in marketing of farmers produce throughout the world. In most countries, farmers have increased their income by joining with other farmers to market their goods, purchase their inputs and coordinate their farming techniques. The collaboration has helped farmers to find markets at local, regional and international levels (TIA, 2014). In Kenya, vulnerable groups such as women, ethnic minorities and the underprivileged have benefitted from participating in collective marketing (Mwangi *et al.*, 2013).

Nyandarua Farmer's Cooperative in Nyandarua County, which started in 2016 also has benefitted small scale farmers in improving the incomes through collective marketing. The cooperative has been able to win supply tenders with various food processing companies when they supply potatoes to meet the companies' high demand. In order to win a tender, it requires an individual farmer to own above 30 acres of potato farm, which small scale farmers would not afford if they acted individually (Farmbiz Africa, 2017).

Other success stories of collective marketing in Kenya include banana farmer organizations in Muranga, Nyeri, Embu and Meru counties (Fischer & Qaim, 2012), collective marketing of chicken in Kakamega County (Gicheh *et al.*, 2015) and Mango group farmers in Makueni County (Muthini, 2015).

2.6 Factors Influencing Farmer's Participation in Collective Actions

Participation of farmers in collective action initiatives is influenced by many factors. Several studies have been done and identified factors influencing participation in collective actions. White and Runge (1992) concluded that, economic benefits as well as age of household head, asset endowment and extension training are major factors influencing farmers' participation in collective action.

Mukundi *et al.*, (2013) in a study on sweet potato farmer groups found that age, asset endowments, total land owned, farming experience, sources of information and education had a positive influence on farmers' participation in collective marketing. In another study, Gicheha *et al.*, (2015) on the case of collective marketing of indigenous chicken in Western Kenya, found that education of the household head, credit access, distance to the extension agents and average price per bird significantly influenced farmers' decision to participate in collective marketing. However, gender of the household head, size of the farm, age, household size and distance to the market did not have significant effect on decision to participate in collective marketing of chickens. Wollni and Fischer (2014) reported that large group size and heterogeneity of members' background hindered participation in coffee co-operatives in Kenya. Additionally, close proximity to markets increased opportunistic behaviour in collective marketing.

A study on member participation in group activities among smallholder avocados in Kenya, considered participation in collective actions. The results showed that age significantly and positively influenced participation in collective activities (Gyau *et al.*, 2016). Education also had a positive effect on member participation. Finally, the study indicated that perception of the members on the knowledge and utilization of improved technology influenced the decision to participate in group activities.

Literature reveal that, in most cases, rural small scale farmers have respected the organizations that are attached to their history and cultural lives (Yami *et al.*, 2009). It is therefore important to look at the influence of group rules and market outlet choices on small scale farmers' participation in collective marketing, which is the main focus of this study.

2.7 Importance of Rules in Collective Action

Rules and rule enforcement are the foundations of successful collective actions (Chen, Yao, & Kotha, 2009). Participation in collective action is often voluntary but rules of compliance that govern behavior and sanctions against those deviating from the laid down norms are put in place to regulate the functioning of the group. Their use is effective when the benefits exceed the costs of their cooperation in collective action (Gibson *et al.*, 2005).

There are three types of rules that directly or indirectly affect people's behaviour: operational rules; collective decision-making rules and constitutional rules. Each of these types of rules affects a different type of decision. Operational rules are those that are intended to directly affect individuals' behaviours and the activities they undertake: what are people allowed to do, what are they required to do, and what are they prohibited from doing? These might be considered 'surface level' rules because they are closest to the behaviours that affect the resource base.

At an intermediate level are collective decision-making rules. These determine how the operational rules are established: who gets to make the rules and how are the rules established and changed? Constitutional rules are the most fundamental rules in any political system. They determine who can participate in the political system, what the offices in the system are, how office holders are selected, and what powers and authority they can exercise. They also determine the procedures for establishing new units of governance and what needs to be done in order to make and change collective decision-making rules. This study however focuses on collective decision making rules. Rules crafted by the group members themselves and adopted to the local context have a higher likelihood of being understood and followed, which contribute to the effectiveness and sustainability of collective marketing efforts (Markelova *et al.*, 2009).

Evidence has shown that in absence of rules and enforcement, collective action give way to non-compliance and selfish behaviour (Chen *et al.*, 2009). For example, in their study on determinants of collective marketing performance in Kenya's coffee cooperatives, Vorlaufer, Wollni, and Mithöfer (2012) found out that the definition of clear rules and penalties for non-compliance was an important factor contributing to the success of collective action. However, North (1990) noted that effectiveness of rules can vary in different contexts and for different actors. It is therefore necessary that the study determine the influence of rules and their enforcement mechanism and level of awareness on farmers' participation in collective marketing of potato.

2.8 Market Outlet Choices and Participation in Collective Action

The choice of marketing outlet is one of the main decisions for producers because different channels are characterized by certain levels of profitability and cost. Small scale farmers in developing countries sell their products to several market channels including: local (rural),

emerging urban, regional, and international (Markelova *et al.*, 2009). Of these, local markets are the easiest to reach because transportation, quality standards and weighing issues are less of a concern and also there is less competition from larger domestic and international producers. Generally, longer marketing chains present greater disadvantages to small scale farmers. Local markets are easy to access despite offering relatively low gains to farmers who usually sell individually. However, through collective marketing, small scale farmers can reach larger domestic urban, regional, and international markets. In these cases, acting collectively may enable them to deal with transportation and storage issues, acquire technologies and certificates to comply with required quality standards, and reach the necessary scale to supply the desired quantity of their products.

A study conducted among fish farmers indicated that farmers belonging to a group and who sold their fish collectively had high probability of selling to better markets than selling to neighbours or local markets at low prices (Nyaga *et al.*, 2016). In another study, collective marketing had a significant influence on the choice of farm-gate and urban market. The farmer who belonged to collective marketing group had a higher chance of selling at urban market than at farm gate (Sigei *et al.*, 2014). This is because farmers who collectively market their produce to the distant places like urban markets tend to incur a lower transaction costs. Besides reducing transaction costs, collective marketing empowers farmers to negotiate for better trade terms and prices (Njuki *et al.*, 2009). However, the choice of the output markets depends on the type of products that small-scale farmers grow which fall into three main categories: staples, perishables, and cash crops. Therefore it is important to determine the influence of markets on potato small scale farmer's participation in collective marketing.

2.8.1 Social Capital, Social Networks and Reciprocity in Collective Actions

Scholars have noted the importance of social capital in collective actions with an emphasis on networks, trust and reciprocity (Pretty, 2003). The main concept of social capital is that networks and ties provide access to resources that can be used to explore opportunities (De Carolis & Saporito, 2006).

Not all social networks or relationships are conducive to social capital, but only those characterized by trust and reciprocity among individuals (Lollo, 2012). Trust avoids the need to monitor others in a group and contributes to the development of long-term obligations between people, which help in achieving positive collective outcomes (Pretty, 2003). Collective actions are also strengthened by reciprocity which is critical for the creation of trust (Coleman, 1990; Putnam, 1993). Reciprocity facilitates interaction and cooperation among actors and allows them to save time and money which in turn solidifies bonds among actors (Ostrom, 2004).

Experiencing collaboration in a group is a learning process of acquiring and exchanging information through a social network that contributes to enhance coordination skills in that individuals learn or develop commitment, responsibility, and the importance of task fulfilment (Coleman, 1987). In addition, the development of trust and reciprocity contributes to an enhanced social structure that strengthens relations among individuals, and thus helps to build social capital (Ostrom, 1999). The process of building social capital takes time and energy, and historical events can facilitate or retard this process (Durstun, 1998; White & Runge, 1994). Hence the moderating variables in this study includes; networks, trust and reciprocity.

2.9 Theoretical Framework

This study draws on insights from Collective Action to establish a conceptual and theoretical framework for determining group rules and market outlet choices that influence small scale farmers' participation in collective marketing. Collective Action Theory was first proposed by Mancur Olson in 1965. The theory falls under the New Institutional Economics (NIE) since it entails the role of institutions in the context of information asymmetries and high transaction costs (North, 1990). Collective action often leads to creation of organizations commonly referred to as groups which bring together individuals with common problems and visions, who as individuals cannot achieve certain goals effectively. By pooling their capital, labour and other resources, members are able to access certain resources or carry out profitable activities. This implies that when people come together and form groups they have common objectives and means to achieve them. In the context of potato farming, farmers may decide to pool their potato produce together and sell as a group. This would reduce transaction costs since it would be costly for an individual

farmer to transport potatoes to better markets compared when all group members contribute to transport their produce together.

Group formation and behavior should be viewed under the lens of costs and benefits on an individual level not at group level (Czech, 2016). This is in view that the rational individuals will seek to maximize their self-interest rather than the group common objective. In this case, the individual farmer's decision to participate in collective actions is based on making rational choices. A farmer would participate in groups if the expected benefits of being in group exceed the benefits and costs of selling potatoes as an individual. The costs involved in this case may include opportunity costs of time to attend to group meetings, group trainings and participation in collective marketing days. On the other hand, the benefits of participation in collective marketing would include cost-saving among the group members through sharing of fixed costs of transporting and marketing their potatoes. Also, through collective marketing, the group members fetch better prices due to better quality produce arising as a result of value additions and access to marketing information.

The benefit maximization is subject to individual organization or group factors in place which in this case include awareness of group rules, rule enforcement mechanisms and market outlet choice. Existing collective action literature is important in explaining how certain characteristics determine member's participation in collective actions are particularly useful in the context of this study.

2.10 Conceptual Framework

The conceptual frame work shows the conceptualised influence of member awareness of group rules, rule enforcement and choice of market outlets as the independent variables on participation of farmers in collective marketing, the dependent variable, as well as the moderating effect of social capital factors. This interaction is summarised in Figure 1.

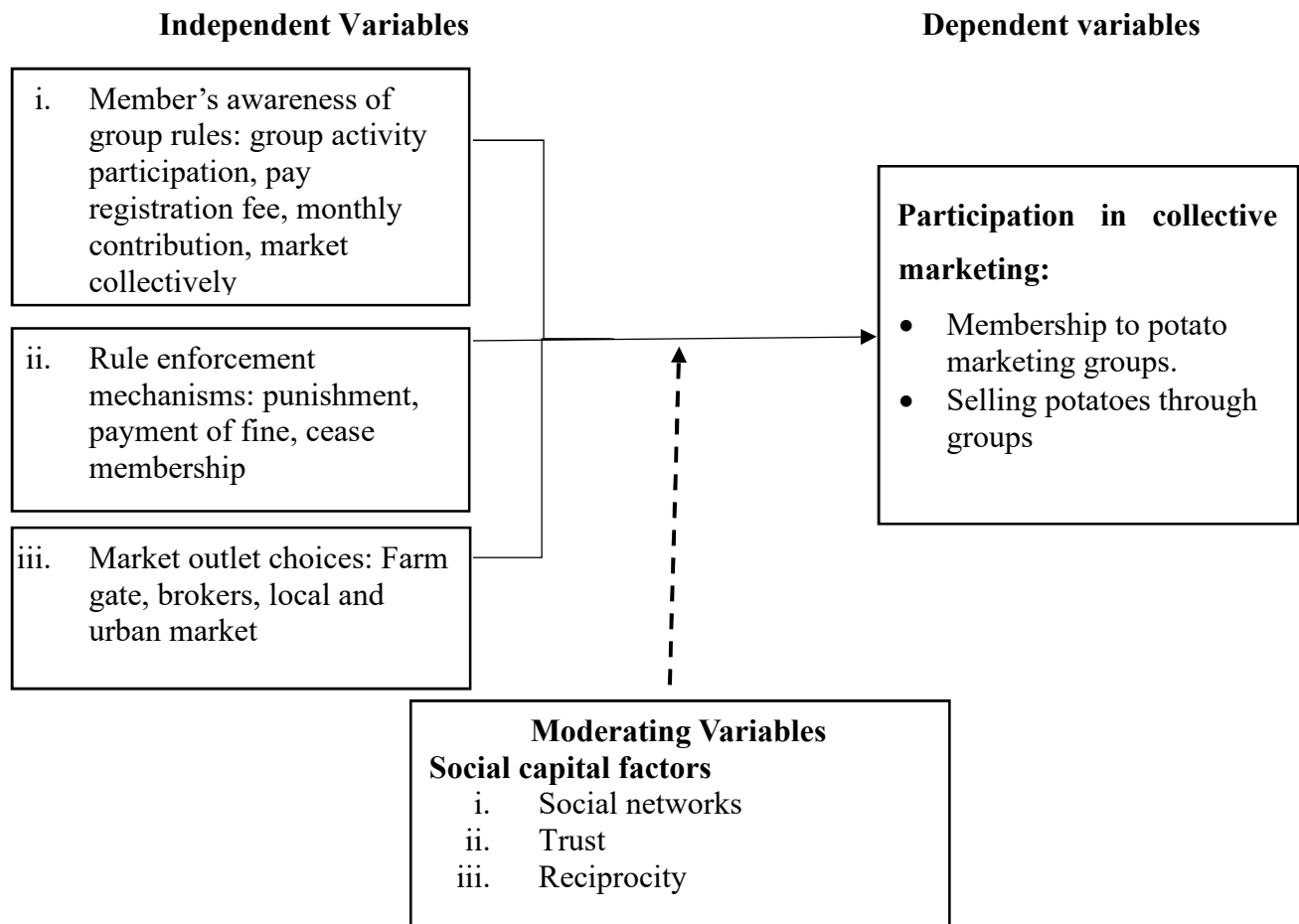


Figure 1: The relationship between independent, moderating and dependent variables

Bearing in mind that a farmer’s decision to participate in collective actions was based on rational choices guided by the expected benefits of being in a group, it is envisaged that anything that would support the success of group activities would influence farmer participation in collective action. Rules are important for the success of organizations because they set boundaries of actions and expectations. Therefore, explicit rules that are known and shared by members are essential for the success of groups and group activities.

However, having clear rules without a system of enforcing them would be futile and of no consequence to the activities of the group. Consequently, it was envisioned that groups with clear rule enforcement mechanisms would encourage farmer participation in collective action because the enforcement of rules would ensure that every member is performing their duty to the benefit of all. Additionally, benefit maximization for potato farmers would so much depend on choice of

market outlets for their commodity. Therefore, the market outlet a farmer group chooses to use is expected to influence participation in collective marketing in one way or another.

The influence of member awareness of group rules, rule enforcement and choice of market outlets on participation of farmers in collective marketing was expected to be moderated by social capital factors, mainly network structure, trust and reciprocity. Networks facilitates group members mobilization processes; members who have ties through geographical location, ethnicity or shared history, they have high likelihood of participation collective action. Trust also avoids the need to monitor others in a group and contributes to the development of long term obligations between people, which help in achieving positive collective outcomes. As trust declines, people are increasingly unwilling to take risks, demand a greater protection against the possibility of betrayal and increasingly insist on costly sanctioning mechanisms to defend their interests. Collective actions are also strengthened by reciprocity which involves a willingness to incur a cost in the expectation that it will be repaid in kind. Reciprocity facilitates interaction and cooperation and saves time and money which in turn solidifies bonds among group members.

These social capital factors were controlled statistically during data analysis and their effect on the association between independent and dependent variables recorded and analysed.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods that were used to achieve the research objectives. It presents research design, location, population, sampling procedures and sample size, instrumentation, data collection procedures, and data analysis models.

3.2 Research Design

The study employed a concurrent triangulation mixed research design in which both quantitative and qualitative types of data were collected during one phase of the research at the same time (Creswell *et al.*, 2003). The purpose of this design is to obtain different but complementary data on the same topic to best understand the research problem (Morse, 1991). This research design in the study was applied to validate quantitative statistical results with qualitative findings in understanding the existing situation relating to participation of Potato small scale farmers' participation in collective marketing of potato in Molo Sub County Nakuru County, Kenya.

3.3 Study Location

The study was conducted in Molo Sub-County in Nakuru County. Molo is one of the eleven administrative sub-counties that make up Nakuru County among others namely; Naivasha, Nakuru East, Nakuru West, Gilgil, Rongai, Nakuru North, Subukia, Njoro, Molo, and Kuresoi North and Kuresoi South (Republic of Kenya: Nakuru County, 2013). Molo sub-county has four wards namely: Mariashoni, Elburgon, Turi and Molo as shown in Appendix B. The sub county covers a total area of 478.79 km² and a population of 140, 584 (Nakuru County Integrated Development Plan, 2013). Molo is located along the Mau Forest which runs on the Mau Escarpment. It is one of the coldest places in the country. Its geographical position makes it a suitable place for growing potatoes among other crops. It is a cosmopolitan sub-county with most of its inhabitants being immigrants from Central and Nyanza regions. The main inhabitants are Kikuyu, Kalenjin and Kisii communities. The main economic activities taking place are crop production, dairy and sheep keeping. The main cash crops are pyrethrum, potatoes, barley and maize (Jaetzold *et al.*, 2006). The Sub County has been chosen for the study because it is ranked the first largest potato

producer in Nakuru County, Kenya (Kenyan National Potato Policy, 2009; Draft Nakuru Potato Strategy, 2018).

3.4 Target Population

The population of small-scale farmers in Molo Sub County was 25,770 in the year 2018 (Molo District Fact File, 2018). According to Molo District Agricultural Officer, approximately 70percent of these farmers grow potatoes. Therefore the target population of the study was 18,039 small scale potato farmers in Molo Sub County. The study involved farmers who were in potato farmer groups. There were 10 active potato farmer groups having 247 members in total. The distribution of potato farmer groups is shown in Table 2.

Table 2: Size of the potato groups in Molo Sub County

Sub County	Name of the group	Group size
Molo	Tekilo	17
Elburgon	Kapsita CBO	42
	Omogumo	23
	Chesa SHG	10
	Green Vision	19
Turi	Turi Wendani Women Group	36
	Jubilee Mulima Mitatu	18
	Turi Green	26
Mariashoni	Kondamet	33
	Langam Women's Group	23
TOTAL		247

3.5 Sampling Procedure and Sample Size

The study used a multi-stage sampling procedure in which Molo Sub-County was purposively selected because it is the highest ranking sub-county in potato production in Nakuru County. All the four wards of Molo which are; Mariashoni, Turi, Molo and Elburgon, were selected due to their importance in potato production. Random sampling procedure was used to obtain respondents from different groups who were distributed proportionately based on potato farmer groups'

membership. The list of small-scale farmers in the groups was obtained from the group chairpersons and the respondents were drawn through simple random sampling using bucket method. In this method, all names of the members belonging to a particular group were written on pieces of paper and put in a bucket, then the required number of pieces of paper were pulled out randomly. This gave every member an equal chance of being selected.

The sample size is determined by using mathematical formula by Nassiuma (2000). The formula is used when the population is known which also applies to this study where the accessible population of the farmers is 247.

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

- N* - The target population in the study location
- n* - The required sample size
- C* - The coefficient of variation
- e* - The standard error value

According to Nassiuma (2000), Coefficient of variation is $\leq 30\%$ while margin of error which is fixed between 2-5%. The study sample will be calculated at 30% coefficient of variation and 2% margin of error to ensure that the sample is wide enough.

$$n = \frac{247 \times (0.3)^2}{0.3^2 + (247-1)(0.02)^2} = 118.24$$

Thus, sample size will be 118 respondents distributed per group as shown in

Table 3: Distribution of sample size

Sub County	Name of the group	Sample size
Molo	Tekilo	8
Elburgon	Kapsita CBO	20
	Omogumo	11
	Chesa SHG	5
	Green Vision	9
Turi	Turi Wendani Women Group	17
	Jubilee Mulima Mitatu	9
	Turi Green	12
Mariashon	Kondamet	16
	Langam Women's Group	11
TOTAL		118

3.6 Instrumentation

Data was collected using two different researcher administered questionnaires. The first questionnaire was for small scale farmers while the second questionnaire was for group leaders. The questionnaire for small scale farmers (Appendix A), contained both closed ended and open-ended questions based on the study objectives. A combination of dichotomous, polytomous, continuous closed-ended and Likert scale items were used. Section A of the questionnaire consisted of background and demographic information of the respondents. Section B collected data on group membership and participation in collective marketing and Section C collect data on group characteristics which included awareness of group rules, rule enforcement mechanisms and markets. While the last section, section D, collected data on moderating variables which is social capital. The Questionnaire for group leaders (Appendix B), collected data about the farming activities and marketing from group leaders. It contained both closed ended and open-ended questions. The questionnaire had one section which collected data on group name, group size, group farming size and volume of potatoes sold through a group.

3.6.1 Validity

The instruments were developed in line with the objectives of the study. Content validity was achieved through the scrutiny of supervisors and other specialists in the Department of Applied

Community Development Studies (ACDS) and Department of Agricultural Education and Extension under the Faculty of Education and Community Studies (FEDCOS).

3.6.2 Reliability

To estimate reliability, the researcher pre-tested the questionnaire on 30 randomly selected small-scale farmers in Kuresoi North Sub County in Nakuru County. Kuresoi North was chosen because it is the second highest potato producer in Nakuru County hence has similar characteristics with the farmers in the study area. The respondents in the pilot study belonged to a potato group. According to Monette, Sullivan and DeJong (2002), the sample was within the recommended range, as a sample between 10 and 30 have many practical advantages including simplicity, easy calculation, and the ability to test hypotheses. Data collected was analysed in Statistical Package for Social Scientists (SPSS) through frequencies, standard deviation and mean. Cronbach's Alpha yielded a reliability coefficient of 0.74 at confidence level 0.05. The acceptable minimum value for Cronbach's alpha coefficient in education and social sciences is 0.7 (McMillan & Schumacher, 2014). Hence the study instrument was found to be reliable.

3.7 Data Collection Procedure

A letter of introduction was obtained from the Egerton University Board of Post Graduate Studies to assist in obtaining a research permit from the National Commission for Science, Technology and Innovation (NACOSTI). The researcher then proceeded to notify the Molo Sub County Agriculture Officer on the intention to collect data. Agricultural Field officers in all the four wards were also informed and involved in identifying the group leaders who assisted in identifying respondents. Actual data collection involved visiting the group leaders who gave contacts and directions to respondents' homes. Their consent to participate in the research was sought verbally where respondents were free to participate or not participate in the study. Respondents were first asked which language between Kiswahili and English would be convenient to them. If they said English, the researcher interviewed them alone. However, if they had chosen Swahili, the researcher relied on the translator to do the translation.

3.8 Data Analysis

Completed questionnaires were serialized, coded, entered in Statistical Package for Social Sciences (SPSS) data management software and analyzed. Descriptive and inferential statistics were used

to analyse data. For objective one, descriptive statistics namely, frequencies, percentages, mean and standard deviations were used to describe respondents profile and extent of collective marketing in Molo Sub County. For objective two, three and four, Chi square was used to examine the associations of influence of group rules awareness, rule enforcement mechanisms and market outlet choices on small scale farmer's participation in collective marketing of potato. To further understand the reasons for low participation in collective marketing and social capital factors as moderating variable, thematic analysis was used to analyse qualitative data. Thematic analysis emphasizes on identifying, analysing and interpreting patterns of meaning or "themes" within qualitative data.

3.9 Ethical Considerations

The participants were informed about the research procedure and they gave their consent to participate in the research before data collection began. The respondents were assured that the information collected would be used for academic purposes only. Participation in the research was voluntary, participants were told to feel free to withdraw from the study if they felt uncomfortable. The participants' opinions were respected and treated with utmost confidentiality during the entire research process.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter provides the findings of the study conducted among potato groups of small scale farmers in Molo Sub County, Nakuru County. The study was carried out to determine the influence of group rules and market outlet choices on small scale farmers' participation in collective marketing of potato in Molo Sub County, Nakuru County, Kenya. The specific objectives of the study, and whose results are presented in this chapter were:

- (i) To determine the extent of collective marketing of potato in Molo Sub County.
- (ii) To determine the influence of awareness of group rules on small scale farmers' participation in collective marketing of potato in Molo Sub-County.
- (iii) To determine the influence of rule enforcement mechanisms on small scale farmers' participation in collective marketing of potato in Molo Sub-county.
- (iv) To determine the influence of market outlet choices on small scale farmers' participation in collective marketing of potato in Molo Sub-County.

The study was conducted in four wards of Molo Sub-County in Nakuru County. The Sub County was purposively selected due to the prevalence of potato farming. The target population for this study were small scale farmers in active potato farmer groups who were from the four Wards of Molo Sub County namely; Molo, Elburgon, Mariashon and Turi. The target population of the study was 18,039 small scale potato farmers. Only farmers in potato farmer groups were involved. There were 10 active potato farmer groups having 247 members in total. A random sampling method was used to select a sample of 118 potato small scale farmers who were proportionately selected from the four wards.

Data was collected through a researcher administered structured questionnaire. The resulting data was subjected to Statistical Package for Social Scientists (SPSS) version 20 and analysed descriptively using frequencies and percentages, and inferential statistics using Chi Square. In addition, information emanating from open ended questions was incorporated. Thematic analyses of the qualitative data were carried out. Results and discussions based on the study objectives, are presented in sections and subsections in this chapter.

4.2 Profile of the Respondents

Data on characteristics of the respondents was collected. The characteristics included gender, age, farm size, and level of education completed. Understanding of respondents' profile was important to understand the kind of farmers involved in potato groups.

4.2.1 Gender of the Respondents

Overall, there was a higher percentage of women respondents than men in the area of the study. Women respondents were 67.8 percent while men were 32.2 percent as shown in

Table 4.

Table 4: Gender of respondents

Gender	Number	Percentage
Female	80	67.8
Male	38	32.2
Total	118	100

The findings in Table 4 show that number of women involved in potato groups was higher compared to men. This can be attributed to the fact that some groups were comprised of women members only while there were no men only members group. However, according to Food and Agricultural Organization (2011) women are more engaged in farming of food crops more than men. Another study also found out that women are greatly involved in the production and handling of crops (Manfre *et al.*, 2013). Therefore, the high percent participation of female small-scale farmers in potato production in Molo Sub County is consistent with findings of other studies on female participation in farm activities.

4.2.2 Age of Respondents

The ages of respondents ranged from 23 to 77 years with a mean age of 48 years and a standard deviation of 12years. Above a third of the respondents (34.7%) were aged between 46 and 55 years old followed by respondents aged between 36 and 45 years (22.9%). Only 7.6 percent of farmers were elderly aged above 66years while the youths aged 35years and below were represented by 16.9 percent and respondents aged between 36 and 45 years were 22.9 percent as shown in **Figure**

2. The age of the majority respondents in this study is therefore similar to the average age of Kenyan farmers which is 55 years (The Young Agropreneur, 2011).

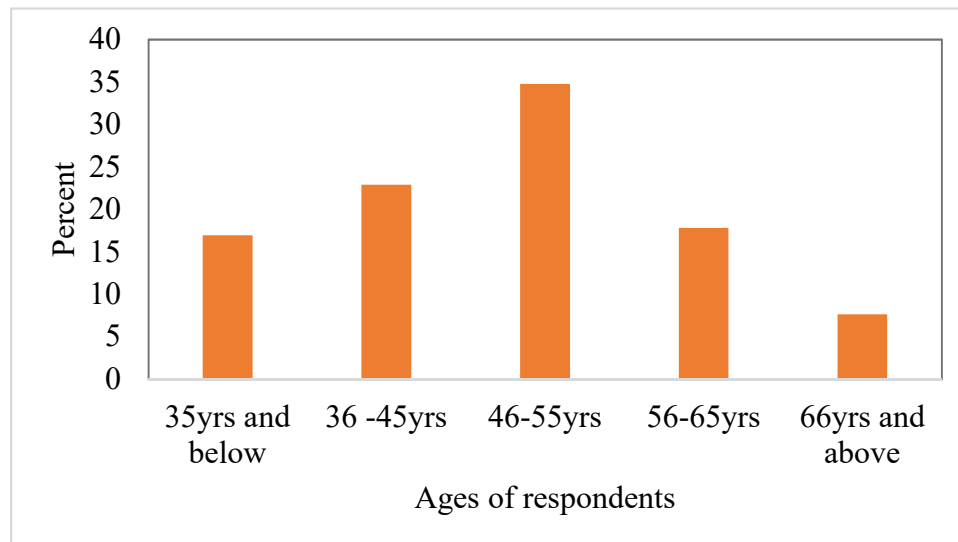


Figure 2: Age distribution of respondents

It can be inferred that demographically, potato farmers in Molo Sub County are in the productive age group which ranges from 18 to 64 years old (NCIPD, 2018). Provision of support such as capacity development and provision of good business environment to this age group is important in reducing poverty levels (NCIPD, 2018). It can also be inferred that farming in Kenya is done by more middle aged farmers as compared to the young people.

4.2.3 Education Levels Attained by Respondents

On the level of education completed, the highest percentage (61%) of the respondents had achieved primary education while 26.3 percent had attained secondary education. A smaller proportion of respondents (5.9%) indicated they had achieved tertiary education while only 6.8 percent indicated they did not have any formal education as shown in **Figure 3**.

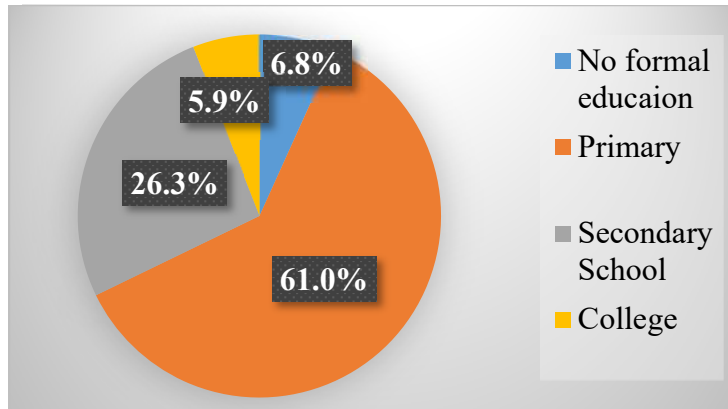


Figure 3: Level of education attained by respondents

The study findings therefore imply that literacy levels in the study area were high with over 90 percent of respondents attaining formal education. According to Nyikahadzoi *et al.*, (2010), education level increases the probability of participating in collective marketing. It opens the mind of farmers to knowledge, provides hands-on training and better methods of farming and keeps the farmer well informed about innovations and allows farmers to share their experiences (Eric *et al.*, 2014; Okpachu *et al.*, 2014).

4.2.4 Size of the Farm in Acres

The respondents were also asked to indicate their total size of the land they grow potato. The results in **Figure 4** showed that majority of the respondents (84.7%) farmed their potatoes on a land ranging between 0.1 to 2 acres while 7 percent of farmers had grown potatoes on a land ranging between 2.1 to 3 acres. The smallest percentage (3%) had indicated that they grew potatoes on a land ranging between 4.1 to 5 acres.

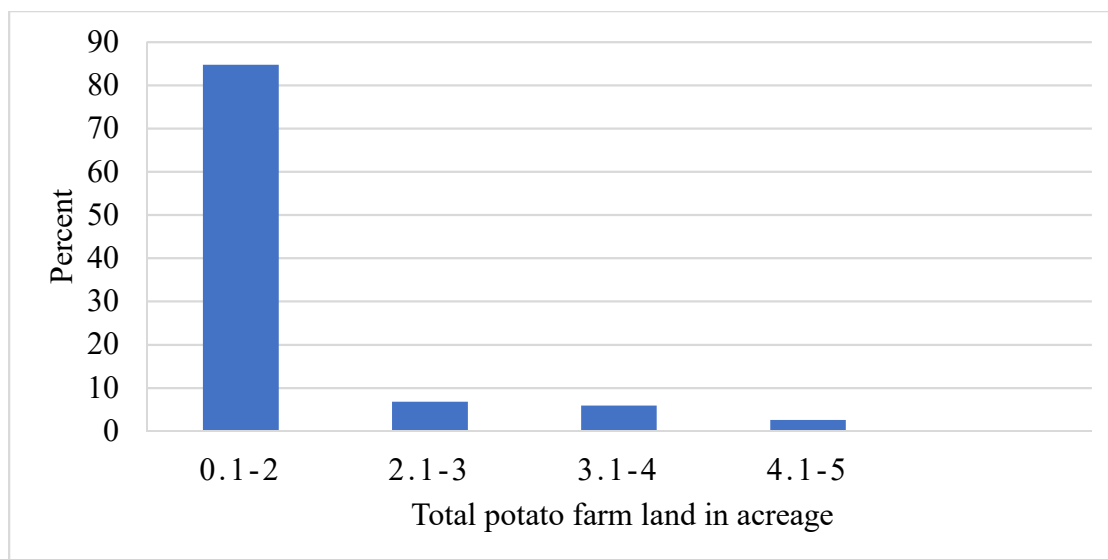


Figure 4: Farm size of the respondents

From the study, most respondents farmed their potatoes on a land less than five acres. The mean farm size was 1.50 acres. This confirms the general observation that most potatoes in Kenya are predominantly grown by small scale farmers whose farm land is less than five acres (Lowder *et al.*, 2016; Muthoni *et al.*, 2013).

4.2.5 Purpose of Growing Potatoes

The study found that potato is grown for food as well as for income generation in Molo Sub-county, majority of the respondents (97.5%) grow potatoes for both selling and home consumption while 0.8 percent grow potatoes only for sale and 1.7 percent grow potatoes only for consumption as indicated in **Table 5**.

Table 5: Purpose for growing potatoes (N=118)

Purpose for growing potato	Percent
Home consumption	1.7
Sale	0.8
Both home consumption and sale	97.5
Total	100.0

The results therefore indicate that potato crop contributes towards farmers' income among the respondents. Similar study conducted in Molo and other counties also indicated that farmers in Kenya grow potatoes for both cash and food consumption (Muthoni, 2013).

4.2.6 Sizes of the Bags used for Packaging and Selling Potatoes

Respondents in the area of the study uses different sizes of bags for packaging and selling potatoes. The results indicated that in the year 2018, majority of the respondents (39%) used 110kg bag to sell their potatoes followed by 29.7 percent of farmers who used over 200kg bag to sell their potatoes. A smaller percentage (2.5%) of farmers used a 90kg bag while only 3.4 percent of farmers used a 50kg bag. The results are shown in **Table 6**.

Table 6: Different sizes of bags used for packaging potatoes

Bag Size	Percentage	Average price (KES)
50 kg	3.4	800-1000
90 kg	2.5	1000-1500
110 kg	39.0	1800-2000
180 kg	17.8	2000-2500
200 kg	7.6	2000-2800
Over 200 kg	29.7	2000-3000
Total	100.0	

The recommended standard bag for selling potatoes which was implemented in the year 2014 according to The Potato Producing and Marketing Bill (GoK, 2014) is 110Kg. This might be the contributing reason towards its high percentage usage compared to the other bags in the study area. However, overall, more than half of framers (55.1%) are using bags which weigh beyond the standard 110kg bag. These are extended bags which are usually dictated by the buyers who benefit at the expense of small-scale farmer. In order to control the marketing, the government in the year 2019 came up with the new laws on potato which are seeking to help farmers from being dictated by buyers at unreasonable prices. The regulations requires that farmers are to be sold in kilograms to protect the consumers as some traders package potatoes craftily in half empty containers (The crops [Potato] Regulation, 2019).

It was reported that farmers pack their potatoes in extended bags as dictated by brokers who buy potatoes on per bag basis and not on weight basis. On the market, however, the traders sell the potatoes in smaller containers such as normal sized bags or buckets. Therefore, an extended bag benefits more the brokers but is exploitive to small scale farmers.

4.3 The Extent of Collective Action in Molo Sub County

The study found out various forms of collective actions being practised in Molo Sub County. Evaluation on the group membership, forms of collective marketing practiced in the area of study, level of participation and characteristics of respondents who were involved in collective marketing was done.

4.3.1 Group Membership

There were 10 active potato groups in Molo Sub County. The two groups were comprised of women only while eight groups were participated by both men and women. The results also showed that the minimum duration the groups were in existence was three years and the maximum duration was 12years while on average, most groups had existed for a period of seven years as shown in **Table 7**.

Table 7: Duration of group existence and group size (n=10)

Group name	Group involved in collective marketing	Duration of existence	Group size
Omogumo	No	3	20
Kapsita CBO	No	4	33
Tekilo	No	4	21
Turi Green	No	5	29
Jubilee Milima Mitatu	Yes	6	10
Kondamet	No	7	21
Green Vision	No	8	16
Chesa	No	9	12
Langam Women Group	No	12	24
Turi Wendani	No	12	40

Group size affects the strategy of collective action even if trust is not a limiting factor. Smaller groups foster higher levels of trust. On one hand, larger groups can exploit economies of scale and, thus, be associated with positive incentives for collective action (Stringfellow *et al.*, 1997). On the other hand, increasing group size also increases transaction costs associated with monitoring the actions of other group members and may, thus, lead to lower levels of commitment (Coulter *et al.*, 1999). The duration of group existence is often used as a proxy for experience-based trust. According to Meinen-Dick *et al.* (1997), individuals in older groups know what to expect from other group members because they have already built collective understanding associated with shared norms and values. However, in this study, conclusions on group size and group duration of existence cannot be made basing on only one group which participated in collective marketing.

4.3.2 Reasons for Joining a Group

Respondents reported that they belonged to various groups which were involved in doing different group activities. There were six group activities in the study area which include; group farming, collective marketing, information sharing, input procurement, table banking and merry go round. The respondents were asked the reasons they joined groups as shown in **Figure 5**. The results showed that majority of farmers expected to gain from information sharing. The percentage of men who joined to benefit from information sharing was high compared to women with 97.4 percent and 88.8 percent respectively. The other group activity which respondents expected to benefit from was table banking followed by merry go round where females participated more in both compared to males. The percentage participation for females in table banking and merry go round were 52.5 and 45 while it was 18.4 and 5.3 for males respectively. In contrast, group farming and collective marketing had high participation of men represented by 36.8 percent and 18.4 percent while women participated by 8.8 percent and 16.3 percent respectively.

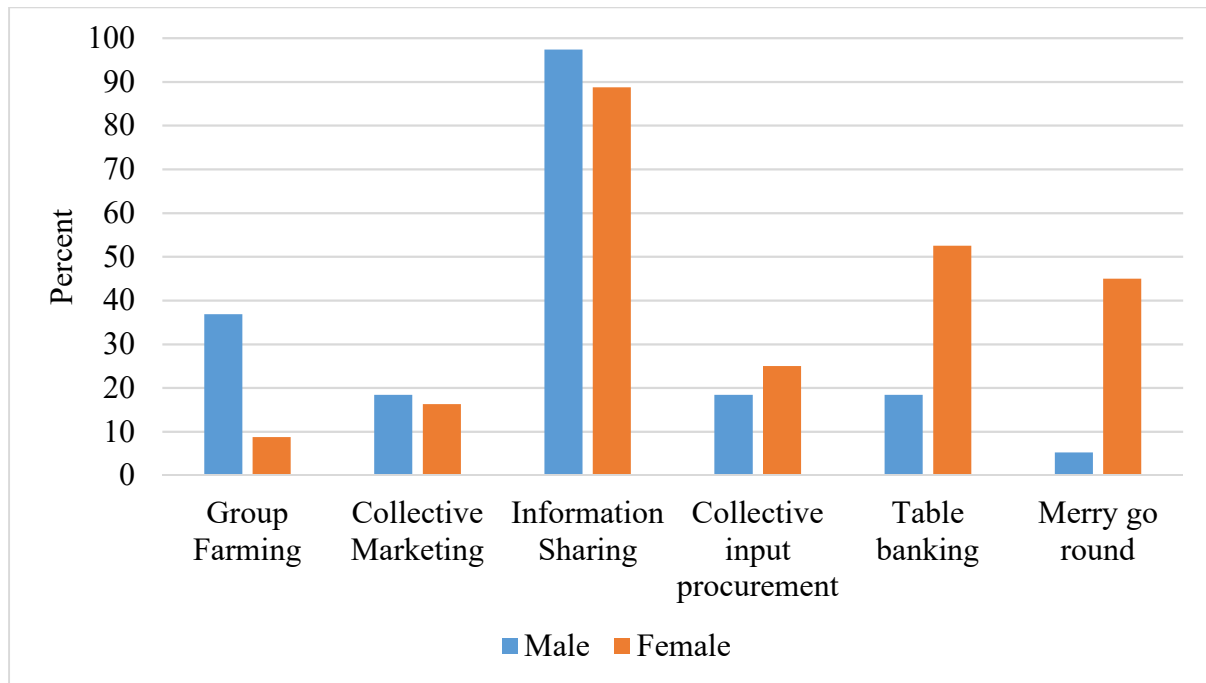


Figure 5: Reasons for group membership

Farmer groups are a strategy used by the current Kenyan Government to maximize the efficiency of its agricultural production by spreading newly developed technologies to farmers as well as setting up common goals and developing new strategies. Farmer groups are used to provide farmers in all parts of Kenya with updated technologies, information and methods (Kim, 2010).

Information sharing among farmers happens when they share experiences and also through trainings from organisations. Groups are avenues of information exchange, farmers majorly rely on other farmers as their source of information (Maindi-Nyambune, 2014). Additionally, Governments and developmental organisations find it easy and prefer to work and conduct trainings with farmers who are already organised in groups compared to individuals (Sinyolo & Mudhara, 2018).

Table banking and merry go rounds both help farmers to access small loans amongst themselves. Merry go rounds are informal groups of people who come together for the purposes of saving together and borrowing from one another in a rotational manner while table banking is also another group funding strategy where members of a particular group meet once every month, place their savings, loan repayments and other contributions on the table then give out immediately either as long term or short term loans to one or a number of interested members (Onyango, 2017).

Further analysis was conducted to determine the association between gender and group activities. The results are illustrated in **Table 8**.

Table 8: Relationship between gender and group activities (n=118)

Scale	Chi Square Value	df	P value
Group farming	13.897	1	0.000
Collective marketing	0.086	1	0.769
Information sharing	2.347	1	0.116
Collective equipment procurement	0.632	1	0.427
Table banking	12.322	1	0.000
Merry go round	18.632	1	0.000

n=118

Chi Square results indicated that the association between gender and group farming, $\chi^2 (1, N=116) = 13.897$, $p < 0.05$, gender and table banking, $\chi^2 (1, N=116) = 12.322$, $p < 0.05$ and, gender and merry go round, $\chi^2 (1, n=116) = 18.632$, $p < 0.05$ were statistically significant at 0.5 level of significance. The results in Figure 5 showed that men participate more in group farming while women's participation was high in table banking and merry go round. The results of this study on men's high participation contradicts with the findings of Mutunga (2014) who found out that in Kenya, women carry out most of the activities at the farm level while men engage in off-farm or other activities like marketing. Men get attracted to activities that usually involves money, in the study area, members got shares of profits after selling while some part of money was kept for group activities. Table banking and merry go round activities are popular in Kenya usually participated by women who often use the money borrowed as capital for their livelihood projects (Onyango, 2017). This could be due to weak financial resource base for women compared to men which make women pool their finances to achieve their goals.

4.3.3 Forms of Collective Marketing

Collective marketing was found to be practised in two forms in the study area which include group selling and individual farmers selling through the group as discussed below:

(a) Group Selling

This form of collective marketing is where farmers in a group have a piece of land whether owned by the group or hired, members grow potatoes together and sell. This farm act as a demonstration plot, farmers learn good agricultural practices and are encouraged to practice the same at their individual farms. Additionally, farmers benefit from the sales made from the group farm, the profits are spread and shared equally among members. The other part of money goes to the group account which is used to facilitate procurement of farm inputs and other group transactions. In the study area, out of 10 active potato groups interviewed, only four of them had a group farm and were involved in group farming and marketing. This therefore, shows that even the level of this collective marketing is low.

(b) Individual Farmers Marketing through a Group

The second form of collective marketing which is also the main focus in this study is where individual farmers belonging to a group, grow potatoes individually and then pool them together and market them through the group. The group leaders are the ones responsible for finding markets and selling farmers’ potatoes on their behalf. In the study area, farmers who were participating in this form of collective marketing were only 7.6 percent. Majority of farmers (92.4%) sold their potatoes as individuals. This is shown in **Figure 6**.

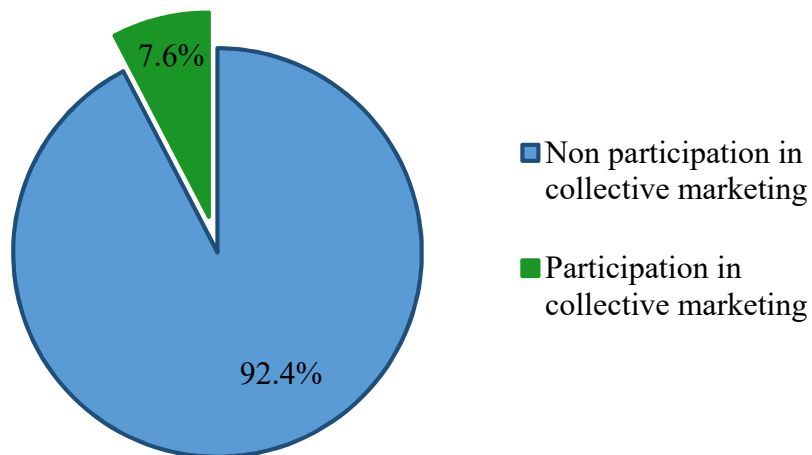


Figure 6: Level of participation in collective marketing

From the results, it can be inferred that few farmers are participating in collective marketing. Respondents who participated in this form of collective marketing, said that their potatoes were

packed in recommended standard bags in Kenya, 110Kg bags. Further analysis also showed that members who were involved in collective marketing were able to sell at a standard price per kilogram compared to those who sold individually at different sizes of bags. This was good to them as they were able to sell at a better price compared to the farmers who sold through brokers. Below is a summary of the characteristics of the 7.6 percent respondents who were involved in collective marketing.

4.3.4 Gender of Respondents Involved in Collective Marketing

The results in **Table 9** indicate that twice number of women (66.7%) compared to 33.3 percent of men were involved in collective marketing. However, the results of Chi Square analysis revealed that the association between gender and participation in collective marketing was not statistically significant at 0.5 level of significance, $\chi^2 (1, n = 118) = 0.940, p > .05$.

Table 9: Gender of respondents involved in collective marketing (N=9)

Gender	Percentage
Male	33.3
Female	66.7
Total	100

According to the study, gender does not play a role in collective marketing. However, the findings by Arlotti-Parish (2014) concluded that marketing groups are predominantly participated by women compared to their male counterparts. However, earlier results in this study, in **Figure 5**, had indicated that 18 percent of men compared to 16 percent women cited collective marketing as the reason for joining groups compared to women. This is also consistent with the findings by Mathenge *et al.*, (2010) who in their study found that men participate more in markets compared to women.

4.3.5 Age of Respondents Involved in Collective Marketing

Age of a farmer is another factor observed to have influenced participation in collective marketing (Gicheha *et al.*, 2015; Omiti, 2009). Analysis by gender in **Figure 7** shows that female respondents who are youths aged 35 years and below were involved more in collective marketing than males represented by 50 percent and 33.3 percent respectively. The highest number of male respondents

engaged in collective marketing were aged between 36 to 45 years old represented by 33.3 percent while their female counterparts were represented by 16.7 percent. All the respondents involved in collective marketing were in the reproductive age as their ages were less than 65years old.

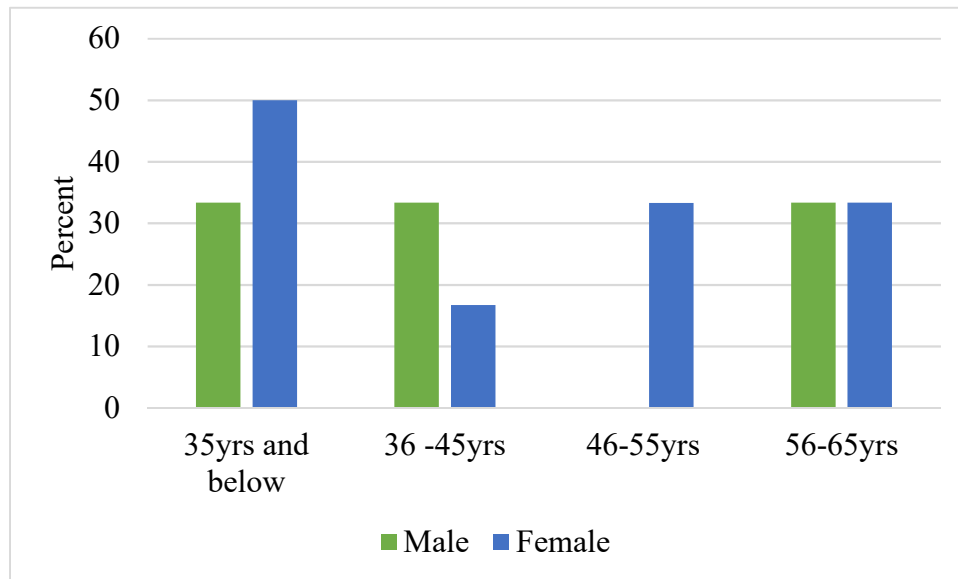


Figure 7: Age of respondents

Overall, higher percentage of respondents participating in collective marketing were youths. The findings of this study contradicts with other studies which have shown that older farmers engages more in collective marketing than youths who find agriculture not to be attractive (Omiti, 2009). The study conducted by Gicheha *et al.*, (2015) also found out that an increase in age of the farmer was a highly significant determinant on farmers’ participation in collective marketing of indigenous chicken.

High engagement of youths in collective marketing may be attributed to many programs which are focusing on empowering young people to engage in agricultural commodity value chains. The study by Yami *et al.*, (2019) found out that recent interventions implemented by governments and development partners across Africa have succeeded in producing several favorable outcomes for the youths. These interventions include rebranding of agribusiness as a competitive career path for the youth, youth attitudinal change toward agribusiness, improved access to productive resources, increased business management skills, increased learning and use of ICT in agribusiness, increased market access, increased business networks, and increased mobilization toward agribusiness,

youth startups in agribusiness, and profitable youth employment in the agricultural value chains. Therefore, there is a possibility for many youths to start engaging in agribusiness as the unemployment rate in Africa keeps on increasing.

4.3.6 Level of Education of Respondents Involved in Collective Marketing

Levels of education among respondents who participated in collective marketing were high, 88.8 percent of the respondents had attained primary, secondary or college level of education. Majority of respondents had attained primary education (44.4%) while secondary education was attained by 33.3 percent and the least attained was tertiary education represented by 11.1 percent. Further analysis was done to shown level of education attained by gender. This is shown in Figure 8.

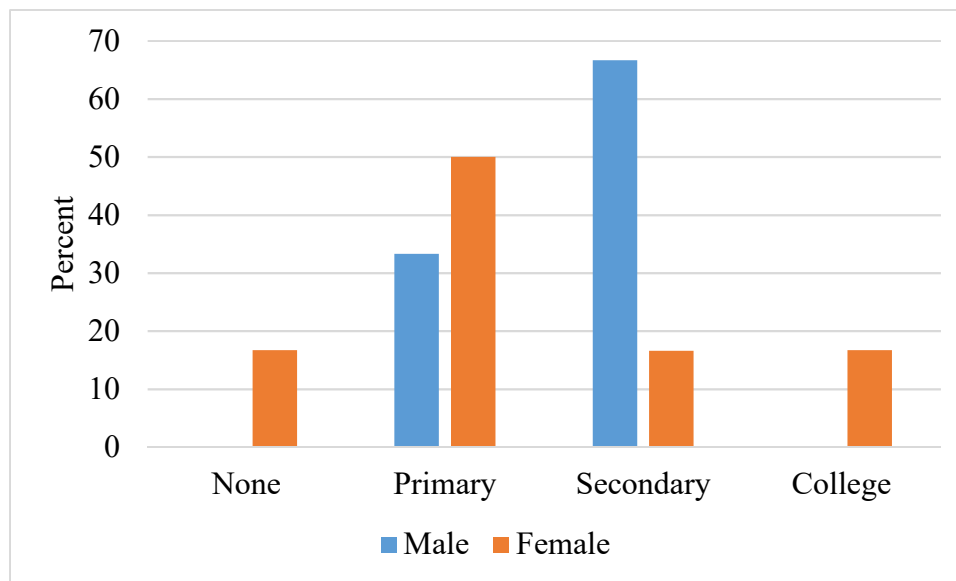


Figure 8: Level of education for respondents involved in collective marketing by gender

Analysis by gender in **Figure 8** shows that men engaging in collective marketing were more educated compared to women with 33.7 percent of them having attained primary education while majority, 66.7 percent, had achieved secondary education. However, results shows that women respondents had attended highest level of education which is tertiary education represented by 16.7 percent while none of their male counterparts had gone up to that level. Education enhances access to knowledge and information, it plays a crucial role in enhancing the understanding of market dynamics and informed group market participation decisions (Martey *et al.*, 2012). It empowers

members to analyse and utilize market information which could lower production and market risks in addition to reducing transaction costs (Maindi-Nyambune, 2014)

In this study, it can be inferred that education plays a role in farmers' decision to participate in collective marketing. The findings of this study are consistent with that of Olwande and Mathenge (2010) who found out that education was an important determinant of market participation. In their study, Mango *et al.*, (2017) also concluded that farmers need at least primary education to effectively commit themselves in collective marketing. Hence, collective marketing participation rates amongst rural households can be improved by educated farmers.

4.3.7 Reasons for not Marketing Potatoes through the Group

Thematic analysis of the respondents' responses to open ended questions revealed a number of reasons for low participation in collective marketing. These reasons are discussed under six themes: lack of access to better markets, exploitation by buyers, lack of good organisation and management amongst farmers, lack of storage facilities, lack of trust and unity, and lack of trainings on collective marketing.

Over 90 percent of potatoes in the study area were marketed through brokers. The other frequent channel for selling potatoes is direct to consumers of which small scale farmers still fetch low prices. Farmers also had reported that it is not even easy for them to sell their potatoes at a better price even when they transport themselves to urban markets such as Nairobi. They usually end up in the hands of brokers who shield them from accessing the buyers. As result, brokers end up buying potatoes at even lower prices compared to when they would have sold at farm gate. This therefore, makes farmers opt to sell their potatoes at farm gate to avoid incurring transport costs and then lose eventually.

Small scale farmers also explained that some organisations in addressing the problem of markets, do not fully address the problem. They come from urban cities and buy potatoes from them at a better price compared to when the potatoes are sold to brokers. However, these organisations only selects bigger sized potatoes and leave the rest of the small sized to the farmers. It's hard for farmers to find markets for the remaining potatoes which even bring big losses to them. On the

contrary, brokers are not selective, they buy unsorted potatoes from small scale farmers, and hence farmers opt to sell to them to avoid wastage of their potatoes.

Respondents also acknowledged that they are not highly organised, which may be a contributing factor for not selling their potatoes together. They plant potatoes at different times and hence there are variations in harvesting interval due to different maturity stages. Most buyers prefer to buy potatoes in bulk, which unless small scale farmers are organised, they cannot afford to supply individually.

Lack of storage facility/cold store is another contributing factors towards the reasons for not participating in collective marketing. Most farmers produce potatoes twice a year due to bimodal rainfall patterns in most potato growing areas (Muthoni *et al.*, 2013). The seasonality in potato production leads to glut and lean times. During glut season, the supply of potatoes is high hence it sold at low price while during lean season potato is sold at a good price. During glut season, every small scale farmer sells their potatoes leading to over flooding in the market hence potatoes are sold at low price. The common potato variety grown in Molo Sub County in Kenya is Shangi which has less dormancy period if not stored properly. Therefore, storage facilities would enable farmers to keep their potatoes longer and sell at a good price when the supply is low. Finally, small scale farmers also said they did not have prior information and experience about collective marketing. Lack of such information contributes to their less participation in collective marketing regardless of affiliating themselves to different groups. Despite results showing that most farmers join groups to benefit from information sharing, they lack technical skills on how they can market their potatoes together.

4.4 Influence of Awareness of Group Rules on Small Scale Farmers' Participation in Collective Marketing

Objective (ii) in section 1.4 sought to determine the influence of awareness of group rules on small scale farmers' participation in collective marketing of potato in Molo Sub-County. The following were investigated in this study; presence of group rules that govern operations, awareness of rules by group members and members' involvement in making group rules.

4.4.1 Awareness of Different Group Rules by Members

The findings of the study showed that all the 10 potato groups were registered by Social Services in Kenya and had group rules. For the group to be registered in Kenya it has to fulfil some eligibility requirements where presentation of written constitution and by-laws is one of the pre-set conditions. In the study area, all the 10 groups interviewed had group rules. Majority of the respondents (98.3%) were totally aware of the group rules while only 1.7 percent of respondents said they were not aware. This is shown in Figure 9.

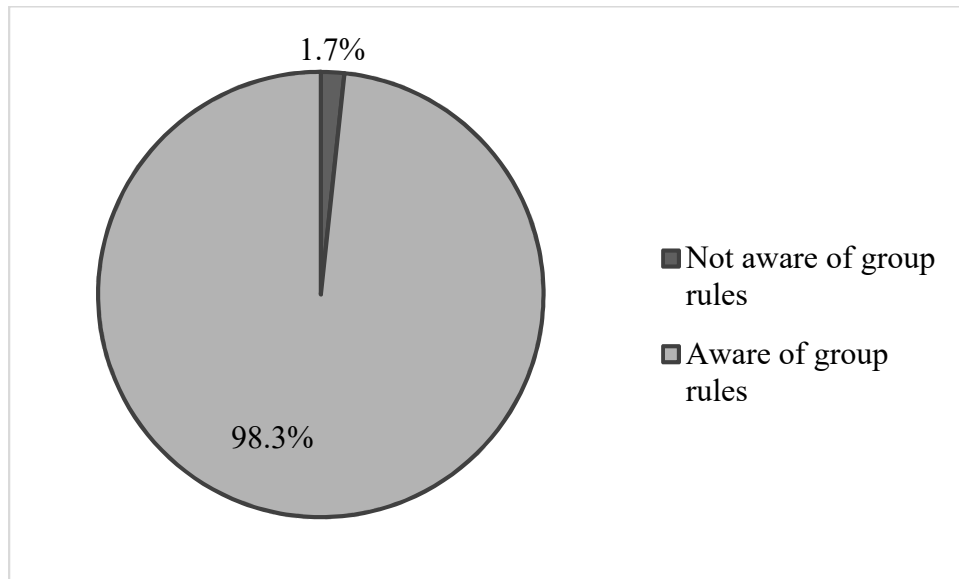


Figure 9: Respondents' awareness of group rules

The study found out that the main rules common in small scale farmers groups revolved around five themes namely, meeting attendance, monthly contributions, participation in group activities, selling through the group and payment of registration fees.

In all the 10 groups, members had indicated that they were aware of the group rules on meeting attendance, payment on registration fees and involvement in group activities. All the groups meet once or twice in a month to coordinate group activities such as table banking and merry go round on top of discussing matters of the group. Participation in group activities involved all activities planned for the group such as digging, planting, weeding for those groups which had group farms and also trainings. Registration fees was paid once in all groups at the beginning of the group. Subsequent members joining the groups were also required to pay the same.

However, only one group, Kapsita CBO, had indicated that members were unaware of payment of monthly contributions. This may be true because the group was solely formed for information sharing through trainings. Rules were not enforced as members believed that information is very important for developmental activities and it is a personal choice to benefit from it or not. Monthly contributions to the respondents in the study area mostly was done in form of table banking and merry go round.

Only one group, Jubilee Milima Mitatu, indicated that they were aware of collective marketing through the group, members brought their potatoes together for the group leadership to market on their behalf. This group had included marketing through the group as one of the rules in their constitution. The rest of the groups did not include it hence, participation in collective marketing was not enforced in the other nine groups.

4.4.2 Respondent Involvement in Making Group Rules

Further results presented in **Table 10**, showed that majority of the respondents (81.4%) reported that they were involved in making group rules while 11 percent said that only committee members were involved in making rules. A smaller percentage represented by 8 percent indicated that the committee members formulated group rules and group members endorsed them.

Table 10: Respondents involvement in rule making

Members involved	Frequency	Percent
All group members devised the rules	96	81.4
Committee members only	13	11
Committee members drafted and group members endorsed	8	6.8
I don't know	1	0.8
Total	118	100

In the area of study therefore it can be inferred that group members know what is expected of them since most respondents were involved in devising the group rules. According to Agrawal (2001), when the local groups craft their own rules, the likelihood that the rules will be understood and

adapted by group members is high. This also agrees with *Markelova, et al., (2009)* that it is important for groups to develop their own rules rather than following imposed rules.

Further analysis on the level of awareness of rules by the respondents was done. The results in **Figure 10: Level of Respondents Awareness on Group Rules** shows that respondents were very much aware on four rules that govern the group as over 90 percent of respondents indicated they were aware on the rules about meeting attendance and payment of registration fees while 87.3 percent and 75.4 percent were aware of rules on participation in group activities and monthly contributions respectively. However, only 9.3 percent of the respondents indicated they were aware of the group rules on selling through the group.

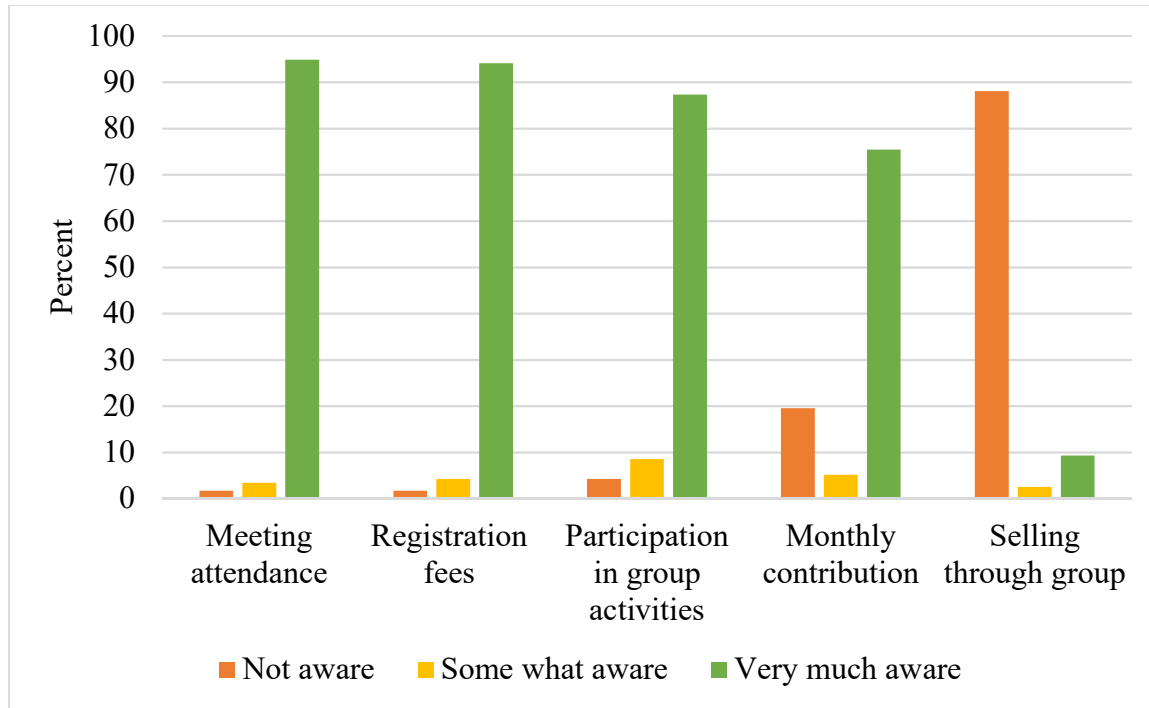


Figure 10: Level of Respondents Awareness on Group Rules

These results therefore show that most groups have not included collective marketing as one of the important activity in their groups.

Test of hypothesis One

The hypothesis stated that there is no statistically significant influence of awareness of group rules on small scale farmers' participation in collective marketing of potato in Molo Sub-County, Nakuru County, Kenya.

Chi square test was used to examine the association between farmers' awareness of group rules and participation in collective marketing. The results in revealed that the relationship between farmers' awareness of group rules and collective marketing is statistically significant at 0.5 level of significance, $\chi^2(2, n=118) = 0.029, p < 0.05$. Further cross tabulation results showed that the relationship between rule awareness and participation in collective marketing was positive. The relation between two variables was significant, $r(116) = 0.227, p < 0.05$. Therefore, the null hypothesis is rejected. Awareness on group rules helps a group member to participate in a collective action.

Table 11: Association between respondents' awareness of rules and collective marketing

Scale	Chi Square Value	Spearman Correlation	df	P-Value
Pearson Chi-Square	7.112 ^a	0.227	2	0.029
Spearman (r)				0.014
n	118			

The results above indicate that if farmer groups would include rules on collective marketing as one of their activity and they become aware of it, farmers would be able to participate in it. Collective marketing has a lot of benefits including elimination of selling through brokers, who also dominated in the study area as buyers and they buy potatoes at a low price. It is estimated that over 90 percent of locally marketed potatoes go through middlemen who are good at exploiting farmers (Jassens *et al.*, 2013; Wang'ombe *et al.*, 2015).

4.5 Influence of Rule Enforcement Mechanisms on Participation in Collective Marketing

The third objective of the study was to determine the influence of rule enforcement mechanisms on small scale farmers' participation in collective marketing of potato in Molo Sub-county. The study also found out the frequency of rule enforcement, adherence to rules and enforcement

mechanism. Further, members were asked to give their opinions whether they think the group was strict in enforcing the group rules.

4.5.1 Rule Awareness Mechanism and Participation in Collective Marketing

In order for members to follow the rules, they had to be aware of them. Different groups had different ways of making members become aware of the group rules. The findings presented in Table 12 shows that 81.4 percent of respondents reported that the secretary reads out the rules regularly in the meetings to make sure that members are reminded of the rules. A smaller percentage (7.6%) said that each member of the group is given a written copy of the rules to keep for reference while 9.3 percent indicated that rules are only read out to the new member joining the group.

Table 12: Mechanism for ensuring rule awareness

Mechanism	Frequency	Percent
Each member is given a written copy of the rules	9	7.6
The secretary reads out the rules regularly	96	81.4
Rules are read out to the new member	11	9.3
I don't know	2	1.7
Total	118	100.0

From the area of the study it can be inferred that the most common way of making members aware of the rule is through the rules being read out loud and made clear to members by the secretary during the meetings. This is consistent with Vorlaufer *et al.*, (2012) who found out that the definition of clear rules was an important factor contributing to the success of collective marketing.

Respondents were also asked to state their opinion on whether the group was strict on enforcing the group rules. The results presented in Figure 11 showed that 89 percent of respondents said the rules were strict while only 11 percent thought the groups were not strict in enforcing the rules.

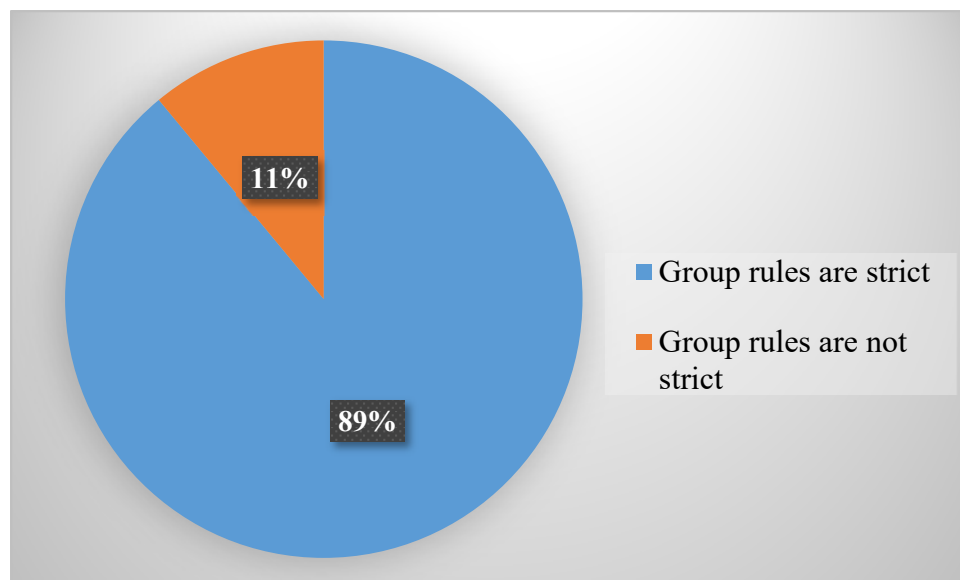


Figure 11: Respondents opinions on the strictness of the group rules

To ensure enforcement of the rules, groups had devised mechanisms for reducing non-compliance. The results in **Table 13** shows that 80.5 percent of respondents reported that their groups imposed fines on members who did not follow the rules while 9.3% said members were punished. A smaller percentage of respondents said that nothing was done to the person who did not comply with group rules.

Table 13: Mechanisms of enforcing group rules

Mechanism	Frequency	Percent
Punished	11	9.3
Pays fine	95	80.5
Cease to be a member	6	5.1
None	6	5.1
Total	118	100.0

The common enforcement mechanism among the respondents was payment of fines. Further details showed that in all the groups, members who violated some rules were required to pay certain amount of money as stipulated in the rules. For example, late meeting attendance ranged from 20KES to 50 KES depending on the time someone arrived at the meeting while absenteeism without apology attracted a fine ranging from 50KES to 100KES in all the 10 groups. Monthly contributions were applicable to the groups who also participated in table banking and merry go

round and the amount varied for group to group. However, payment of registration fees was done in all the groups. The membership fee was either 500KES or 1000KES in different groups.

Lastly, not attending group activities attracted a fine of 200KES in the nine groups. If a group member had not a valid reason for absenteeism to group activities such as digging in the farm, they were allowed to send their relatives to represent them. Only one group did not impose fine on absenteeism. This group did not have a group farm, the main reason members came together was for information sharing. The group members said that if a group member decided to abscond the meeting, it was to their own disadvantage since every time of the meeting, members could benefit from the shared information or training.

4.5.2 Frequency of Enforcing Group Rules

Respondents were asked to say how often the group rules are enforced. The results were recorded using a Likert scale ranging from never, rarely, occasionally, often and very often. Results in **Figure 12** shows that over 90 percent reported that rules were never enforced on participation in collective marketing. Over 60 percent of respondents had indicated that rules on participation in group activities, monthly contribution, meeting attendance and payment of registration fees were enforced very often.

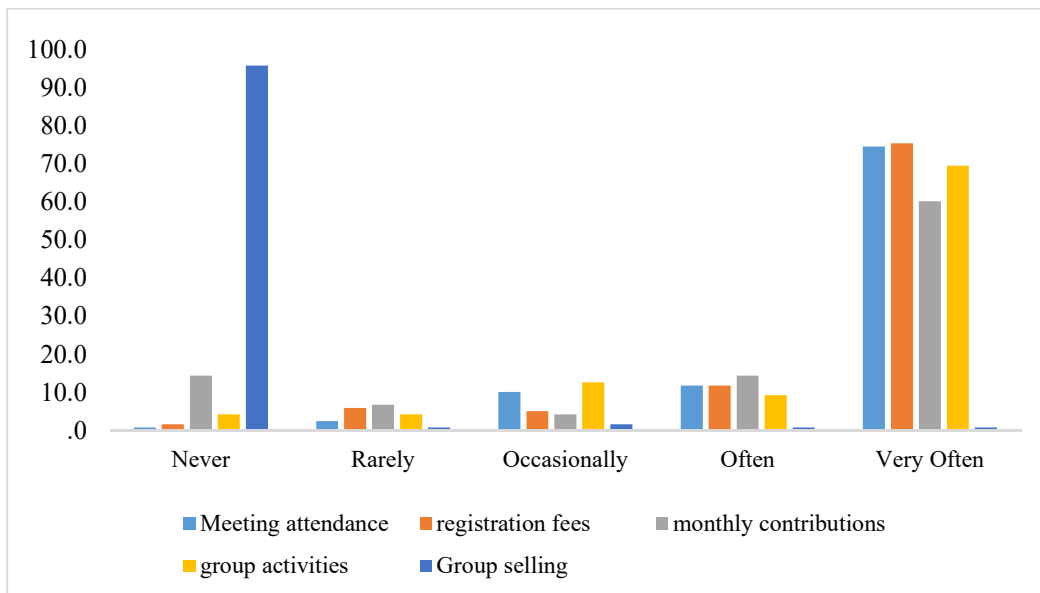


Figure 12: Frequency of rule enforcement

According to the results, most groups did not have group rules on collective marketing as they were not practising it. However, group members had shown interest to do collective marketing as some of them had indicated that they joined the groups to do collective marketing as shown in *Figure 5*.

Test of Hypothesis Two

The following hypothesis was tested:

H0₂: There is no statistically significant influence of rule enforcement mechanisms on small scale farmers’ participation in collective marketing of potato in Molo Sub-County, Nakuru County, Kenya.

Chi square was used to test the association between rule enforcement mechanism and participation in collective marketing as shown in Table 14. The relation between the two variables was statistically significant at 0.5 level of significance, $\chi^2 (4, n=118) = 17.702, p < 0.05$. Further cross tabulation results showed that the relationship between rule enforcement mechanism and participation in collective marketing was positive. The relation between two variables was significant, $r(116) = 0.258, p = 0.05$. Therefore, the null hypothesis is rejected. Sanctions in groups guide behaviour in collective actions.

Table 14: Association between rule enforcement and participation in collective marketing

Scale	Chi Square Value	Spearman Correlation	df	P-Value
Pearson Chi-Square	17.702 ^a	0.258	4	0.001
Spearman (r)				0.05
n	118			

The results in this study are consistent with the findings by Vorlaufer, Wollni, and Mithöfer (2012) who in their study found out that penalties for non-compliance was an important factor contributing to the success of collective action. Gibson *et al.*, (2005) also found out that rule enforcement was important and statistically significant for participation in collective actions.

4.6 Influence of Market Outlet Choices on Participation in Collective Marketing

The fourth objective sought to determine the influence of potato market channels on small scale farmers’ participation in collective marketing of potato in Molo Sub-county. Respondents were

asked to mention where they sold their potatoes in the previous year (2018) and state the frequency of selling through different channels.

4.6.1 Market Outlet Choices made by Molo Potato Farmers in the Year 2018

Farmers were asked to mention where they sold their potatoes in the year 2018. The results showed that majority of farmers (over 91 percent) sold their potatoes through brokers. The smallest percentage (1.6%) of respondents sold their potatoes through the nearest towns and urban markets while 5.1 percent of respondents sold their potatoes to retailers who are direct consumers. The results are presented in **Figure 13**:

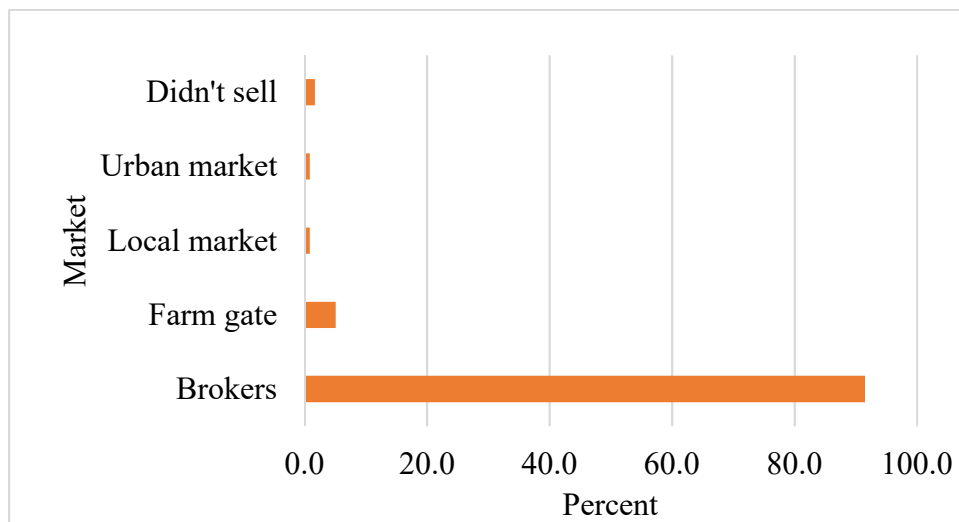


Figure 13: Potato Marketing by Potato Farmers

The findings of the study indicate that about four combinations of market outlets were found to be chosen by respondents; brokers, farm gate, local and urban market. However, most farmers sold their potatoes individually to brokers, who usually buy them at a low price. The fact that most respondents in this area of study are not doing collective marketing, makes it hard for them to take advantage of economies of scale and sell their potatoes to high value markets.

4.6.2 Frequency of Marketing through Chosen Market Outlet

Respondents were further asked to indicate how often they marketed their potatoes through a particular channel. The results shows that 83.1 percent of respondents had indicated that they marketed their potatoes frequently through brokers while only 12.7 percent said they sold their potatoes through retailers who are the direct consumers buying straight from farmers. Over 90

percent had indicated that they never sold potatoes to local markets, urban markets nor export markets.

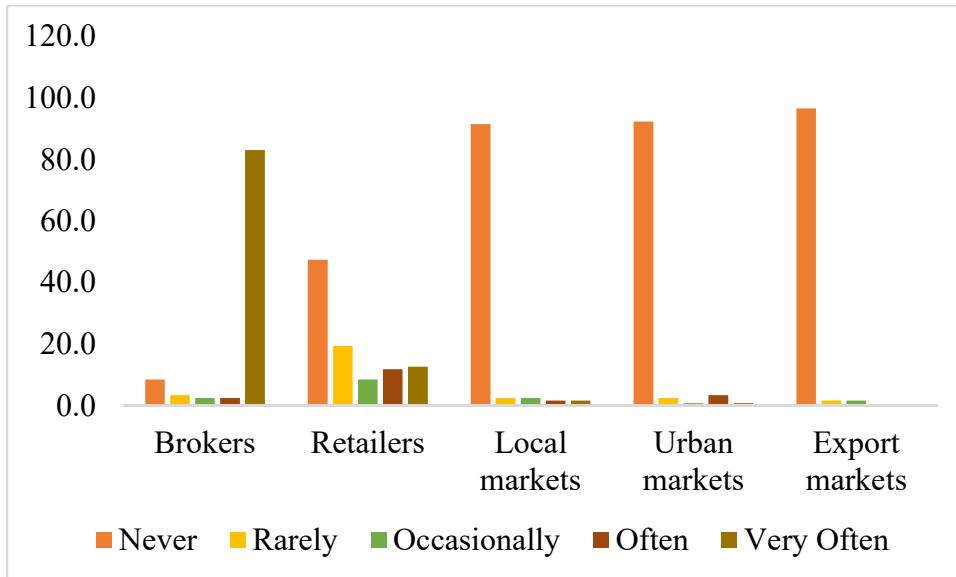


Figure 14: Frequency of selling potatoes through different market outlets

The results are consistent with the studies by Wang’ombe and van Dijk, (2015) who also found that over 90 percent of potatoes in Kenya are marketed through brokers. This can be contributed to the fact that small scale farmers have low access to better high value markets and only end up in the hands of brokers. Small scale farmers lack links and connections to better high value markets. Mostly, brokers who sometimes form cartels, have good connections and are well linked to the processors and other potato buyers, hence they have an upper hand over small scale farmers. Farmers also had reported that it is not even easy for them to sell their potatoes at a better price even when they transport themselves to urban markets such as Nairobi. They usually end up in the hands of brokers who shield them from accessing the buyers. As result, brokers end up buying potatoes at even lower prices compared to when they would have sold at farm gate. This therefore, makes farmers opt to sell their potatoes at farm gate to avoid incurring transport costs and then lose eventually.

Test of Hypothesis Three

The third hypothesis stated that there is no statistically significant influence of market outlet choices on small scale farmers’ participation in collective marketing of potato in Molo Sub-

County. The Chi Square results revealed that the association between selling through brokers, urban markets and export markets are statistically significant at 0.5 level of significance, χ^2 (4, N=118) =15.815, $p<0.05$, χ^2 (4, N=118) =23.332, $p<0.05$, χ^2 (4, N=118) =10.551, $p<0.05$ respectively. Spearman's correlation revealed that there was positive relation between urban markets and export markets and participation in collective marketing. Their relationships were significant at $r(116)=23.332$, $p<0.05$ and $r(116)=10.551$, $p<0.05$ respectively. However, the relationship between selling through brokers and participation in collective marketing was negative and the relationship was statistically insignificant $r(116) =-0.108$, $p>0.05$. Therefore, null hypothesis was rejected.

Table 15: Association between market outlet choices and participation in collective marketing

Scale	Chi Square Value	df	P-Value	Spearman (r)	P-Value
Brokers	15.815	4	0.003	-0.108	2.46
Retailers	6.065	4	0.194	0.129	0.163
Local markets	8.525	4	0.074	0.145	0.118
Urban markets	23.332	4	0.000	0.292	0.001
Exports	10.551	2	0.05	0.229	0.001
n	118				

Local markets are easy to access but offer relatively low gains to farmers when they sell individually (Markelova *et al.*, 2009). However, through collective marketing, small scale farmers can reach larger domestic urban, regional, and international markets and sell at better prices. This study reveals that small scale farmers would participate more in collective marketing if they are able to sell through urban or export markets.

4.7 Trust, Networks and Reciprocity in Potato Farmers Participation in Collective Marketing

The association between independent and dependent variables in the study was regulated by moderating variable which is social capital factors composed of network structure, trust and reciprocity. Respondents were asked if they trust on their fellow members, the networks they have and whether their actions are reciprocated by group members.

4.7.1 Trust and Participation in Collective Marketing of Potato Farmers

Respondents were asked if their fellow group members were trust worthy. Results revealed that majority (85.59%) agreed that they trusted their group members and a smaller percentage (14.41%) disagreed. Chi Square analysis results revealed that the association between rule awareness, rule enforcement, market outlet choice and participation in collective marketing were statistically significant as shown in figure 15.

Table 16: Association between participation in collective marketing and rule awareness, enforcement and market outlet choices with trust as a moderating variable

Variable	Members in the group are trustworthy					
	Agree(N=101)			Disagree(N=17)		
	Chi Square	df	P value	Chi Square	df	P value
Rule awareness	6.321 ^b	2	.042	5.958 ^b	1	.015
Rule enforcement	30.625 ^b	4	.000	-	-	-
Selling through urban markets	27.294 ^b	4	.000	0.657 ^b	3	.197

Results from moderation analysis indicates that trust is a significant moderator of the association between rule enforcement, market outlet choices and farmers participation in collective marketing among those members who agreed that their fellow members are trustworthy. However, trust is insignificant between the association on member's awareness on group rules and participation in collective marketing. This may be true as awareness only focuses on one being informed about what the group perceives as acceptable behaviour, this does not require someone to trust. It is anticipated that where a higher level of trust exists, groups will be more willing to act in collective marketing. Trust avoids the need to monitor others in a group and contributes to the development of long-term obligations between people, which help in achieving positive collective outcomes (Pretty, 2003).

4.7.2 Social Networks and Participation in Collective Marketing of Potato Farmers

Respondents were asked to mention the number of close friends they trust would assist them in case of an emergency. Majority of them (72.9%) had indicated they had less than five people to assist. Chi Square results showed that the association between rule awareness and participation in collective marketing were statistically significant for both groups of respondents who had less than

4 close friends to assist in an emergency and those who had more than five close friends. Chi Square results are shown in Table 17.

Table 17: Association between rule awareness, rule enforcement, market outlet choices and participation in collective marketing with social networks as a moderating variable

Variable	Less than 5 close friends(N=86)			More than 5 close friends (N=32)		
	Chi Square	df	P value	Chi Square	df	P value
Rule awareness	2.710 ^b	2	.258	15.502 ^b	2	.000
Rule enforcement	11.486 ^b	2	.003	15.522 ^b	3	.001
Selling through urban markets	14.392 ^b	3	.002	15.522 ^b	3	.001

The moderation analysis reveals that social network is a significant moderator of the association between rule enforcement and market outlet choices and participation in collective marketing of potato. However, results were insignificant on the association between rule awareness and participation in collective marketing. It is expected that if a group member has a wider social network, the member's willingness to cooperate in collective action will be stronger.

4.7.3 Reciprocity and Participation in Collective Marketing of Potato Farmers

Respondents were asked to give their opinion whether they felt that their actions of kindness to others were done to them in kind. Majority of them (94.5%) agreed that their actions were reciprocated by group members. Chi Square results revealed that the associations between rule enforcement and market outlet choices and participation in collective marketing were statistically significant. The results are shown in Table 18.

Table 18: Association between rule awareness, rule enforcement, market outlet choices and participation in collective marketing with reciprocity as a moderating variable

Members in the group help each other without expecting anything in turn straightaway			
Agree (N= 112)	Chi Square	Df	P value
Rule awareness	.653 ^b	2	.721
Rule enforcement	16.708 ^b	4	.002
Selling through urban markets	26.472 ^b	4	.000

The moderation analysis reveals that reciprocity is a significant moderator of the association between rule enforcement and market outlet choices and participation in collective marketing of potato. Reciprocity therefore plays a crucial role in contributing towards rule enforcement and selling through high value markets such as urban markets. This means that rule enforcement and selling through better markets through collective marketing will be successful where members perceive that their in kind actions are reciprocated in turn by group members.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summarized account of major findings and conclusions in line with the objectives of the study. It also highlights recommendations for policy, practice and further research.

5.2 Summary of the Study

The purpose of the study was to determine the influence of group rules and market outlet choices on small scale farmers' participation in collective marketing of potato in Molo Sub County, Nakuru County, Kenya. Four objectives were used in this study namely, determining the extent of collective marketing and establishing the influence of awareness of group rules, rule enforcement mechanisms and market channel choices on small scale farmers' participation in collective marketing of potato in Molo Sub County, Nakuru County, Kenya. The study had one research question and three hypotheses. The research question was seeking to find out what is the extent of collective marketing of potato in Molo Sub County, Nakuru County, Kenya? The three null hypotheses were stated that there was no statistically significant influence of awareness of group rules, rule enforcement mechanisms and market channel choices on small scale farmers' participation in collective marketing.

The study engaged 118 potato small scale farmers out of whom women were in majority. Their ages ranged between 23 and 77 years old with an average age being 48 years old. There were six activities that people were engaged with in the groups namely; group farming, collective marketing, information sharing, input procurement, table banking and merry go round. Majority of farmers joined groups for information sharing purposes. The other highly group participated activity was table banking followed by merry go round where females participated more in both compared to males.

Objective One sought to determine the extent of collective marketing of potato in the study area. Collective marketing was found to be done in two forms. The first form of collective marketing was group selling where farmers in a group had a piece of land, owned or hired, where they grew

potatoes together and sell. Out of the 10 groups which were interviewed, four groups were engaged in this collective marketing. The second form which was the main focus in this study, was where individual farmers belonging to a group, grew potatoes individually and then pooled their produce together for marketing purposes.

The results showed that participation in collective marketing was very low. The characteristics of the respondents showed that more women compared to men participated in collective marketing. Overall, higher percentage of respondents participating in collective marketing were youths aged 35 years old and below. Majority of respondents had attained primary education followed by secondary level while tertiary education was the least attained. Further analysis showed that men were more educated compared to women with majority of them having attained secondary school education.

Objective Two sought to determine the influence of awareness of group rules on small scale farmers' participation in collective marketing. In the study area, all the 10 groups interviewed had group rules. The study also found out that majority of the respondents were totally aware of what was expected of them as group members. The main rules common in small scale farmers groups revolved around five themes namely, meeting attendance, monthly contributions, collective marketing, payment of registration fees and participation in group activities. The results also showed that respondents were very much aware on four rules that govern the group. However, few respondents indicated they were aware of the group rules on collective marketing. Chi square test was used to examine the association between farmers' awareness of group rules and participation in collective marketing. The results revealed that the relationship was statistically significant at 0.5 level of significance. Therefore, null hypothesis was rejected. This means in the presence of collective marketing, rule awareness is important for farmers to effectively participate in collective marketing.

Objective Three sought to determine the influence of rule enforcement mechanisms on small scale farmers' participation in collective marketing. Different groups had different ways of making members become aware of the group rules. Majority of respondents reported that the secretary reads out the rules regularly in the meetings to make sure that members are reminded of the rules.

Groups had devised mechanisms for reducing non-compliance. The common enforcement mechanism among the respondents was payment of fines. Chi square was used to test the association between frequency of rule enforcement mechanism and participation in collective marketing. The Chi Square results revealed that the association was statistically significant, hence null hypothesis was rejected. This means in the presence of collective marketing, rule enforcement mechanism is important for farmers to effectively participate in collective marketing.

Objective Four sought to determine the influence of market outlet choices on small scale farmers' participation in collective marketing. Farmers were asked to mention where they sold their potatoes in the year 2018. Majority of farmers sold their potatoes through brokers who bought at a lower price. Over 90 percent had indicated that they never sold potatoes to local markets, urban markets nor export markets. Chi square was used to test the association between market outlet choices and participation in collective marketing. The results revealed that the relationship was statistically significant at 0.5 level of significance when selling through brokers, urban and export markets. However, there was a negative relationship of selling through brokers and participation in collective marketing. The relationship was positive and statistically significant for selling through urban and export markets.

5.3 Conclusions

Basing on the findings, the study concludes the following:

- (i) That there is very low participation in collective marketing of potato among small scale farmers in Molo Sub County. Lack of access to better markets, lack of storage facilities and lack of training on collective marketing, are contributing reasons for low participation in collective marketing.
- (ii) Participation in collective marketing is influenced by rule awareness. This means in the presence of collective marketing, rule awareness is important for farmers to effectively participate.
- (iii) Participation in collective marketing is influenced by rule enforcement. It implies that in the presence of collective marketing, rule enforcement mechanism is important for farmers to effectively participate.

- (iv) Participation in collective marketing is influenced by Market channel choices. Higher value markets such as urban and export markets influence farmers to participate in collective marketing.

5.4 Recommendations

Collective marketing can help correct some of the market challenges farmers are facing such as exploitation by brokers. Furthermore, farmers are more able to obtain necessary information and operate on a larger scale when they pool their resources, enabling them to sell to better markets, which are otherwise out of reach for small scale producers. The study therefore makes the following recommendations:

5.4.1 General Recommendations

- (i) There is need to increase awareness on the importance of collective marketing, targeting young people and educated farmers who have high possibility of participation in it.
- (ii) Farmers' awareness on group rules increases effective participation in collective actions, group leaders have to ensure that all group members are reminded of the group rules through reading them regularly during the meetings.
- (iii) Enforcement of group rules helps to govern group behaviour. Every group needs to devise rule enforcement mechanism of which paying fine has proved to be successful.
- (iv) Additionally, farmers should get linked to urban and export markets to avoid selling to brokers who buy from them at low prices.

5.4.2 Recommendations for Policy

- (i) There is need to enhance and promote participation of farmers in collective marketing among Irish potato farmers so that they can benefit from selling collectively. This could be achieved through assisting farmers in building storage facilities. Lack of proper storage at farm level demands that farmers sell their potatoes soon after harvesting to avoid losses as potato is a highly perishable produce, hence selling at lower prices.
- (ii) Enforcing and strengthening the implementation of the new potato regulation launched by Government of Kenya in June, 2019, The Crops [Irish Potato] Regulation (2019). The Regulation stipulates that potatoes will be sold in 5kgs bags and in kilograms through

collection centres registered under County Governments to protect the consumers as some traders' package potatoes craftily in half empty containers.

- (iii) Initiatives by Government and Non-Governmental Organisations (NGOs) in relation to collective marketing should be targeting to include more people who have attained a formal education in order to increase participation in collective marketing.

5.4.3 Recommendations for Extension Agents

- (i) Government extension workers and organisations implementers working with farmers should be including trainings on collective marketing. Farmers would be helped in making informed decisions on selling their potatoes.
- (ii) Farmers should be assisted with access to and better links to markets. These would help in reducing the exploitation that small scale farmers are facing.
- (iii) Linking farmers to potato processors and better markets would enhance small scale farmers' income since they would be able to sell at better prices. This may contribute to poverty reduction.

5.4.4 Suggestions for Further Research

- (i) Since the study only focused on selected group characteristics, further research needs to be conducted on institutional, social economic factors in addition to other potential factors of influencing collective marketing.
- (ii) The study was also limited to the application of Chi Square in the analysis of the influence of group rules and market types on farmers' participation in collective marketing of potato. Hence, further research is required to use other alternative statistical models such as Regression models.

REFERENCES

- Abebaw, D., & Haile, M.G.(2013). The impact of cooperatives on agricultural technology adoption: Empirical evidence from Ethiopia. *Journal of Food Policy*, 38, 82–91.
- Arlotti-Parish, E. (2014). Gender in Agribusiness an analysis of gender dynamics in cash and food crop marketing clubs in Southern Malawi. https://issuu.com/catholicreliefservices/docs/gender_in_agribusiness
- Bastakoti, R.C., & Shivakoti, G.P. (2012). Rules and collective action: An Institutional analysis of the performance of irrigation systems in Nepal. *Journal of Institutional Economics*, 8, 225-246.
- Bernard, T., & Spielman, D. (2009). Reaching the rural poor through rural producer organizations: A study of agricultural marketing cooperatives in Ethiopia. *Journal of Food Policy*, 34(1), 60-69.
- Chakraborty, R. (2001). Stability and outcomes of common property institutions in forestry: Evidence from the Terai region of Nepal. *Ecological Economics*, 36(2), 341-353.
- Chau L. T. M., Lebailly, P. & Trung, T. Q. (2017). Enhancing farmers’ market power and income in the pig value chain; a case study in Bac Giang province, Vietnam. *Livestock Research for Rural Development*, 29(12), 1-13.
- Chen, X., Yao, X., & Kotha, S. (2009). Entrepreneur passion and preparedness in business plan presentations: a persuasion analysis of venture capitalists' funding decisions. *Academy of Management Journal*, 52, 199-214.
- Coleman, J.S. (1990). *Foundations of Social Theory*, The Belknap Press of Harvard University, Cambridge, MA. ISBN 978-0-6743-1226-5
- County Government of Nakuru (2018): Nakuru County Intergrated Development Plan, 2018-2022.
- Creswell, J. W., Plano C., V. L., Gutmann, M. L., & Hanson, W. E. (2003). *Advance mixed methods research designs*. In A.Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 209-240). Thousand Oaks, CA: Sage.
- Czech S. (2016). Mancur Olson’s collective action theory 50 years later: A view from the institutionalist perspective, *Journal of International Studies*, 9(3), 114-123.
- De Carolis, D.M. & Saporito, P. (2006). Social cognition and entrepreneurial opportunities: A theoretical framework. *Entrepreneurship Theory and Practice*, 30, 41–56.

- DNCPS. (2018). The Draft Nakuru County Potato Strategy. Unpublished report.
- FAO. (2013). Food and Agriculture Organisation. Policy makers' guide to crop diversification: The case of the potato in Kenya. Food and Agriculture Organization of the United Nations, Rome, Italy.
- FAO. (2016). The state of food and agriculture: Climate change, agriculture and food security. Food and Agriculture Organization of the United Nations. Rome
- FAO. (2014). The potato sector [Online]. Food and Agriculture Organisation of the United Nations, Rome, Italy. Available at <http://www.potatopro.com/world/potato-statistics> (verified 24 February, 2019).
- FarmbizAfrica. (2017). Collective bargaining helps farmers' cooperative earn 2bn from potato farming. Retrieved from; <http://farmbizafrika.com/farmbizopinions/14-market-trends/276-collective-bargaining-helps-farmers-cooperative-earn-2bn-from-potato-farming>
- FARMUP. (2015). Farm Attachment Program: Baseline survey of agricultural activities in Nakuru and Baringo Counties, Kenya.
Retrieved from farmup.egerton.ac.ke/images/outputs/Survey.pdf
- Fischer, E., & Qaim, M. (2012). Linking smallholders to markets: Determinants and impacts of farmer collective action in Kenya. *World Development*, 40(6), 1255–1268.
- Fischer, E., & Qaim, M. (2014). Smallholder farmers and collective action: What determines the intensity of participation? *Journal of Agricultural Economics*, 65(3), 683–702.
- Gibson, C.C., Williams, J.T. & Ostrom, E. (2005). Local enforcement and better forests. *World Development*. 33 (2), 273–284.
- Gicheha, K.S., Ngigi, M., & Hillary, K.B. (2015). Determinants of farmer participation in collective marketing and intensity of participation in indigenous chicken markets in Western Kenya. *Journal of Agriculture and Veterinary Science*, 8(10), 98-105.
- Government of Kenya (2014). The potato producing and marketing bill. Kenya Gazette Supplement No. 80 (Senate Bills No.22). 337-358.
- Gyau, A., Mbugua, M., & Oduol, J. (2016). Determinants of participation and intensity of participation in collective action: evidence from smallholder avocado farmers in Kenya. *Journal on Chain and Network Science*, 16(2), 147-156.
- International Food Policy Research Institute, (2016). Global Food Policy Report, Washington, DC: International Food Policy Research Institute.

- Jaetzold, R., Schmidt, H., Hornetz, B. & Shisanya, C.A. (2006a). Farm Management Handbook of Kenya. Vol 2: Natural conditions and farm management information. Part A: West Kenya. Subpart A1: Western Province. Ministry of Agriculture and GIZ, Nairobi.
- Jassens, S.R.M., Wiersema, S.G., Goos, H., & Wiersema (2013). The value chain for seed and ware potatoes in Kenya; Opportunities for development. LEI Memorandum 13-080. LEI Wageningen UR, Den Haag, Netherlands.
- Jayne, T., & Muyanga, M. (2006). Agricultural extension in Kenya: Practice and policy lessons. Egerton University, Nairobi, Kenya.
- KEPHIS (2016). Kenya Plant Health Inspectorate Service; Seed Potato Production and Certification Guidelines booklet. Nairobi: Ministry of Agriculture. Kenya
- KEPHIS (2017). Kenya Plant Health Inspectorate services; Seed Potato Production. Nairobi: Ministry of Agriculture. Kenya
- Kibe, M.A., Mwangi, M., Kaguongo, W., & Kaguora E. (2018). Potato project to unlock potential of crop in the Rift. Daily Nation, Nairobi. Retrieved from <https://www.nation.co.ke> › Business › Seeds of Gold.
- Kibe, M.A., Mwangi, M., Mutuku, M.M., & Nkurumwa, A. (2017). Baseline survey report for smallholder potato farmers in Nakuru County, Kenya. Unpublished report
- KIPPRA. (2018). Kenya Institute for Public Policy Research and Analysis poilcy monior; Realizing the “Big Four” Agenda through energy as an enabler. *Kenya Institute for Public Policy Research and Analysis*. Nairobi.
- Kitetu, C. (2005). Farmer groups as a way of mobilising citizen participation in development: An example from Kenya, Paper presented at the 11th general assembly, Maputo.
- KNBS (2013) Kenya National Bureau of Statistics. Economic Survey, Nairobi.
- Koku, E., & Gustafsson, J. (2003). Local institutions and natural resource management in the South of Tongu district of Ghana: A case study. *Sustainable Development*, 11, 17-35.
- Kristin, D. & Negash, M. (2005). Gender, Wealth, and participation in community groups in Meru central district, Kenya. *International Food Policy Research Institute*, CAPRI working paper 65, Washington, D. C.
- Kruijssen, F., Keizer, M., & Gulliani, A. (2009). Collective action for small-scale producers of agricultural biodiversity products. Elsevier. *Food Policy*, 34, 46-52.

- Lapar, A., Binh V., Tuan N., Tiongco M., Jabbar, M., & Staal, S. (2006). The role of collective action in overcoming barriers to market access by smallholder producers: Some empirical evidence from northern Vietnam. Research workshop on collective action and market access for smallholders held on October 2-5th, 2006, Cali, Colombia.
- Lollo, E. (2012). Toward a theory of social capital definition: Its dimensions and resulting social capital types. In Proceedings of the 14th World Congress of Social Economics. Available at: <http://socialeconomics.orgPapersLollo1C.pdf>
- Lundy, M., Gottret, M. V., Cifuentes, W., Ostertag, C. F., Best, R. D., & Ferris, S. (2004). Increasing the competitiveness of market chains with smallholder producers. field manual 3. The territorial approach to rural agroenterprise development. Centro Internacional de Agricultura Tropical, Cali, Colombia
- Machangi, J. M., Gathumbi, M., Onchieku, P., Nga'nga, N., Kagundu A., Kibet, S., Muchoki, J., & Dinah, B. (2016). The National Potato Strategy 2016 – 2020. Nairobi: Ministry of Agriculture, Livestock and Fisheries (MoALF).
- Manfre, C., Rubin, D., Allen, A., and Summerfield, G. (2013). Reducing the gender gap in agricultural Extension and Advisory Services: How to Find the Best Fit for Men and Women Farmers (No. 2). Available on <http://networking.afaas-africa.org/sites/default/files/MEAS>).
- Mango, N., Makate, C., M. Lundy, M, Siziba, S., Nyikahadzoi, K., and Fatunbi, A.O. (2017). Collective market participation for improved income among smallholder farming households: A case of Balaka Innovation Platform in Malawi. *African Crop Science Journal*, 25, 97 – 108.
- Markelova, H., Meinzen-Dick, R., Hellin, J.& Dohrn, S. (2009). Collective action for smallholder market access. *Food Policy*, 34, 1–7.
- Martey E., Al-Hassan R., and Kuwornu, J., (2012). Commercialization of smallholder agriculture in Ghana: A Tobit regression analysis. *African Journal of Agricultural Research*, 7(14), 2131-2141.
- Mathenge, M., Place, F., Olwande, J. & Mitoefer, D. (2010). Participation in Agricultural Markets among the Poor and Marginalized: Analysis of factors influencing participation and impacts on income and poverty in Kenya. Unpublished Study Report Prepared for the FORD Foundation.

- MDFF. (2018) Molo District Fact File. Unpublished report
- Ministry of Agriculture, Livestock and Fisheries (2016). The National Potato Strategy 2016-2020. Nairobi, Kenya.
- Monette, D.R., Sullivan, T.J., & DeJong, C.R. (2002). Applied Social Research. Orlando, FLA: Harcourt Press.
- Mukundi, E. Mathenge & Ngigi, M. (2013). Sweet Potato Marketing among Smallholder Farmers: The Role of Collective Action. Paper presented at the 4th International Conference of the African Association of Agricultural Economists, September 22-25. Hammamet, Tunisia.
- Mukundia, B. M., (2014). Influence of collective action on market access among smallholder Banana farmers in Imenti South District, Kenya. *International Journal of Social Sciences and Project Planning Management*, 1(2), 99-110.
- Muthini, D.N. (2015). An assessment of factors affecting choice of market channels among mango farmers in Makueni, Kenya. MSc Thesis, University of Nairobi, Kenya.
- Muthoni, J., Shimelis, H., & Melis, R. (2013). Potato production in Kenya: Farming systems and production constraints. *Journal of Agricultural Science*, 5 (5), 182-197.
- Mutisya, T., Zejjiao, L. & Juma, N. (2010). Soil and water conservation in Kenya operations, achievements and challenges of the National Agriculture and Livestock Extension Programme (NALEP). *Journal of American Science*, 6 (3), 7-15.
- Mutunga, S. L. (2014). Potato market survey in Kenya: An agricultural product value chain approach. *International Journal of Business and Management Review*, 2(6), 59-87.
- Nakuru County (2013). Nakuru County Integrated Development Plan from 2013-2017.
- Nassiuma, D. K. (2000). Survey sampling: Theory and methods. Nairobi, Kenya: Nairobi University Press.
- Njuki. J., Kaaria, S., Sanginga, P., Kaganzi, E. & Magombo, T. (2009). Community Agro enterprise development, experiences from Uganda and Malawi, in Scoones and Thompson, *Farmers First Revisited*.
- North, D.C. (1990). Institutions, Institutional Change and Economic Performance. Cambridge University Press, Cambridge.
- Nyaga, J., Nyikal, R. N. & Busienei R. N. (2016). Factors influencing the choice of marketing channel by fish farmers in Kirinyaga County. A paper submitted for oral presentation at the fifth Conference of the African Association of Agricultural Economists (5th CAAAE)

- held at the United Nations Conference Centre - Addis Ababa, Ethiopia, September 23-26th, 2016.
- Nyikahadzoi, K., Siziba, S., Nokoe, S., Njuki, J. & Adekunle, A. (2010). Promoting effective collective marketing in the context of integrated agricultural research for development in Sub Saharan Africa. Learning Publics. *Journal of Agriculture and Environmental Studies*, 1 (1), 82- 97.
- Olson, M. (1965). *The logic of collection action: public goods and the theory of groups*. Cambridge, MA, USA: Harvard University Press.
- Olwande, J. and Mathenge, M. (2010). Market Participation among Poor Rural Households in Kenya John. Selected paper prepared for presentation at the International Association of Agricultural Economists (IAAE) Triennial Conference, Foz do Iguauçu, Brazil, 18-24 August, 2012.
- Omiti J., Otieno D., Nyanamba T., McCullough E., (2009). Factors influencing the intensity of market participation by smallholder farmers: A case study of rural and peri-urban areas of Kenya. *African Journal of Agricultural and Resource Economics*, 3(1), 2009, 57-82.
- Opiyo, A., (2017). Choosing a good potato variety to grow. FarmUp Connect
- Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. New York: Cambridge University Press.
- Ostrom, E. (2004). Understanding collective action. In: Meinzen-Dick R, Gregorio M Di (eds) *Collective action and property rights for sustainable development, 2020 vision for food, agriculture and the environment*. Focus 11, IFPRI International Food Policy Research Institute, Washington.
- Pretty, J. (2003). Social capital and the collective management of resources. *Science*, 302, 1912–1914.
- Pretty, L., & Ward, H. (2001). Social capital and the environment. *World Development*, 29 (2), 209-227.
- Putnam, R.D. (1993). The Prosperous community: Social capital and public life. *The American Prospect*, 13 (1), 25-42.
- Republic of Kenya: Nakuru County (2013). *First Nakuru County Integrated Development Plan (2013-2017)*

- Shiferaw, B.A., Obare, G., Muricho, G., & Silim, S. (2009). Leveraging institutions for collective action to improve markets for smallholder producers in less favored areas. *African Journal of Agricultural and Resource Economics*, 3(1), 1-18.
- Sinyolo, S., & Mudhara, M. (2018). Collective action and rural poverty reduction: Empirical evidence from KwaZulu-Natal, South Africa, *Agricultural Economics Research, Policy and Practice in Southern Africa*, 56(1), 78-90.
- Taiy, J.R., Onyango C., Nkurumwa A., Ngetich K., Birech R., & Ooro P., (2016). Potato Value Chain Analysis in Mauche Ward of Njoro Sub-County, Kenya. *International Journal of Humanities and Social Science*, 6(5), 129-138.
- Tajima, K. (2007). The theory of institutions and collective action in Adam Smith's theory of moral sentiments. *Journal of Socio-Economics*, 36(4), 578-594.
- TIA (2014). Tasmania Institute of Agriculture. Collective Marketing selling vegetables profitably. Tasmania Institute of Agriculture. Tasmania.
- The Young Agropreneur, September 2011.
- Vorlaufer, M., Wollni, M., & Mithofer, D. (2012). Determinants of collective marketing performance: Evidence from Kenya's coffee cooperatives. Georg-August University Göttingen.
- Wang'ombe, J. G. & van Dijk M. P. (2015). Sharing gains of the potato in Kenya: A case of thin governance. *International Journal of Agricultural Marketing*, 2(2), 34-45.
- White, T. A. & Runge, C. F. (1992). Common Property and Collective Action: Cooperative Watershed Management in Haiti. Centre for International Food and Agricultural Policy. Department of Agricultural and Applied Economics, University of Minnesota.
- Wollni, M., & Fischer, E. (2014). Member deliveries in collective marketing relationships: evidence from coffee cooperatives in Costa Rica. *European Review of Agricultural Economics*, 42(2), 287-314.
- Yami, M., Feleke, S., Abdoulaye T, Alene, A. D., Bamba Z., & Manyong, V. (2019). African rural youth engagement in agribusiness: Achievements, limitations, and lessons. *Sustainability*, 11, 185; doi:10.3390/su11010185
- Yami, M., Vogl, C., & Hauser, M. (2009). Comparing the effectiveness of informal and formal institutions in sustainable common pool resources management in Sub Saharn Africa. *Conservation and Society*, 7(3), 153-164.

APPENDICES

Appendix A: Questionnaire for Small Scale Potato Farmers

Introduction

I, *Lucky Nyasulu*, am a student pursuing a Master of Science Degree in Community Studies and Extension in the Faculty of Education and Community Studies at Egerton University, Njoro. I am conducting a project research on *Influence of group rules and market types on small scale farmers' participation in collective marketing of potato in Molo Sub County, Kenya*. You are among the selected households to participate in this study. The responses you will give will be used for research purposes only and will be treated with strict confidentiality and anonymity. It is my sincere request that you provide relevant responses to the items of the questionnaire in a voluntary, objective and honest manner.

Section A: Background and Demographic Information (*please circle the appropriate*)

A.1. Ward 1. Molo 2. Elburgon 3. Mariashon 4. Turi	A.4. Highest level of education completed. 1. None 2. Primary 3. Secondary school 4. Post-Secondary school 5. University 6. Adult education 7. Other (Specify)	A.7. How many acreage of land do you grow ware potato.....? A.8. Reasons for growing ware potato 1. Home consumption 2. Sell 3. Both
A.2 Gender 1. Male 0. Female	A.5. How long have you been growing ware potatoes(yrs)	A.9. Which bags did you use for parking your potatoes? 1. 50 Kg 4. 180kg 2. 90 kg 5. 200kg 3. 110Kg 6. Over 200kg
A.3. How old are you?(yrs)	A.6 Total amount of land farmed in the past 12 months Owned (acres) Hired.....(acres)	A.10. What is the quantity (kgs) of the potato that you harvested in the last one year? Season 1..... Season 2.....

SECTION B: Group Membership and Participation in Collective Marketing

<p>B.1. What is the name of the group you belong to?</p> <p>.....</p>	<p>B.4 Did you sell potatoes through this group in the last one year? If No, go to Q.B5</p> <p>[1]Yes [0] No</p>	<p>B.8 Apart from selling through the group, did you sell your potatoes individually?</p> <p>[1] Yes [0] No</p>
<p>B.2 How long have you been a member of the group?</p> <p>..... (yrs)</p>	<p>B.6 If yes, indicate the quantity of potatoes you sold through the group in the last one year. Proceed to Q. B.7</p> <p>Season 1..... (bags)</p> <p>Season 2.....(bags)</p>	<p>B.9 If yes, indicate the quantity of potatoes sold individually in the last one year</p> <p>Season 1.....?</p> <p>Season 2.....?</p>
<p>B.3. Why did you decide to become a member of the group?</p> <ol style="list-style-type: none"> 1. Group farming 2. Collective Marketing 3. Information sharing 4. Collective input procurement 5. Table banking 6. Merry go round 7. Other (specify)..... <p>.....</p>	<p>B.7 What was the average price of potato you sold through a group per bag</p> <p>Season 1</p> <p>Season 2.....</p>	<p>B10. What was the average price of potatoes you sold individually?</p> <p>Season 1</p> <p>.....(KES)</p> <p>Season</p> <p>2.....(KES)</p>
<p>B.5.What are the reasons for not selling through the group?</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>		

SECTION C: Group characteristics

a. Rule enforcement mechanisms and awareness

21. Do you have rules that govern the group operations?

[1] Yes [2] No [3] I don't know

22. Are you aware of what is contained in the rules?

[1] Yes [0] No

23. How would you rate your level of awareness of the group rules basing on the following options?

	3. Very much aware	2.Somewhat aware	1. Not aware
Meeting attendance			
Registration fees			
Monthly contributions			
Participation in group activities			
Selling through group			
Other.....			

24. How often are these rules enforced?

[1] Never [2] Rarely [3] Occasionally [4] Often [5] Very Often

25. Who was involved in making these rules?

[1] All group members sat and devised the rules

[2] Committee members only

[3] Committee members drafted the rules and group members endorsed

[4] I don't know

26. How does your group ensure that rules are adhered to?

[1] Each member is given a written copy of the rules to keep

[2] The secretary reads out the rules during every meeting

[3] The rules are read out to the new member

[4] Other (specify).....

27. What happens to a person who does not follow group rules?

[1] Punished (specify).....

[4] None

[2] Pays fine (specify).....

[5] Other (specify).....

[3] Cease to be a member

28. In your own opinion, is the group strict on enforcing the rules?

[1] Yes [0] No

b. Markets

29. Where do you sell your potatoes?

- [1] Farm gate (brokers) [4] Urban Market (specify).....
- [2] Farm gate (retailers) [5] Export market (specify).....
- [3] Local market (Specify)..... [6] Other (specify).....

30. How often do you sell your potatoes through the listed market outlets

	5.Very often	4.Often	3.Occasionally	2.Rarely	1. Never
Farm gate (brokers)					
Farm gate (retailers)					
Local market					
Urban Market/Town					
Export market					

SECTION D: Social capital factors

a. Social network

31. About how many close friends do you have from your group?

32. If you suddenly needed a small amount of money, how many people in your group could you turn to who would be willing to provide this money.....?

33. If you suddenly had to go away for a day or two, could you count on any member of your group to take care of your children or household?

[1] Definitely [2] Probably [3] Probably not [4] Definitely not

34. If you suddenly faced a long-term emergency such as harvest failure, how many people in your group could you turn to who would be willing to assist you?

[1] No one [2] One or two people [3] Three or four people [4] Five or more people

35. In the past 12 months, how many people in your group with a personal problem have turned to you for assistance.....?

b. Trust

36. In general, to what extent do you agree or disagree with the following statements where SA= Strongly Agree, A=Agree, N= Neutral, D= Disagree and SD= Strongly Disagree

	SA	A	N	D	SD
Members in this group are more trustworthy than others in my community.					
In this group, one has to be alert or someone is likely to take advantage of you					
In this group, members do not trust each other in matters of lending and borrowing money					

37. On a scale of 1 to 5, how much do you trust the people in that category? 1= Where To a very small extent , 2 = to a small extent, 3= Medium extent, 4=To a great extent, 5= To a very great extent

	1	2	3	4	5
Government official like extension workers					
Potato brokers					
Your group leaders					
Members of your group					
Members of other groups					

C. Social reciprocity

38. Indicate to what extent you agree with the following statements where 1= strongly disagree, 2= Disagree, 3= Neutral, 4=Agree, 5= Strongly Agree

Statement	5	4	3	2	1
Most people in this group are willing to help if you need help					
When others have important affairs to decide, they turn to me for discussion					
If I have a problem there is always someone from the group to help me.					
To help somebody is the best policy to be certain that s/he will help you in the future					
During potato harvesting season, others come to help					
I feel accepted as a member of this group.					
I respect my group leaders and the group leaders respect me					

Thank you for you cooperation

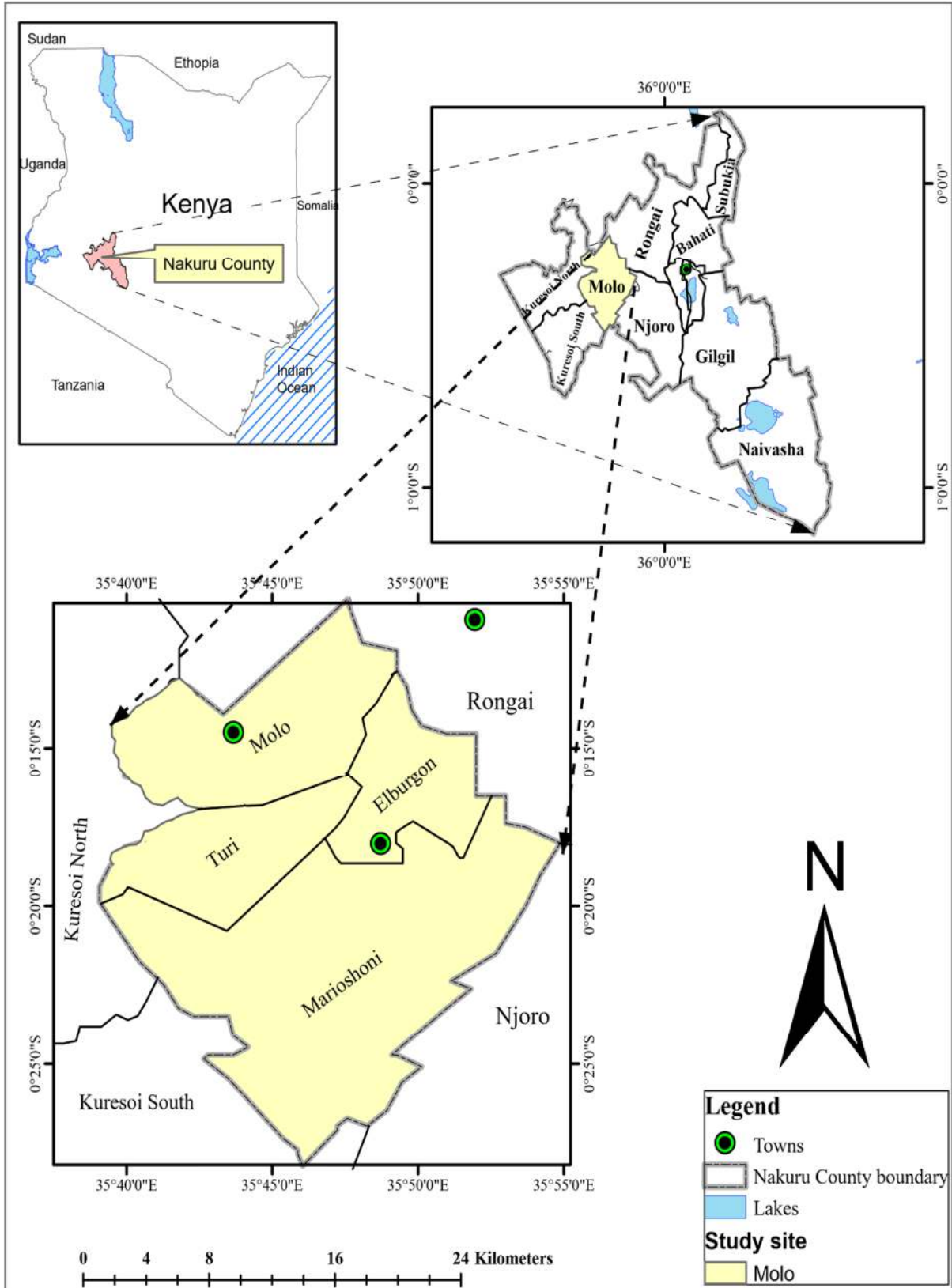
APPENDIX B: QUESTIONNAIRE FOR FARMER GROUP LEADERS

Introduction

I, *Lucky Nyasulu*, am a student pursuing a Master of Science Degree in Community Studies and Extension in the Faculty of Education and Community Studies at Egerton University, Njoro. I am conducting a study on *Influence of group rules and market outlet choices on small scale farmers' participation in collective marketing of potato in Nakuru County, Kenya*. You are among the selected households to participate in this study. The responses you will give will be used for research purposes only and will be treated with strict confidentiality and anonymity. It is my sincere request that you provide relevant responses to the items of the questionnaire in a voluntary, objective and honest manner.

1. What is the name of the group?
2. Is the group registered?
[1] Yes [0] No
3. How long has the group existed? (years)
4. How many members are in the group? Men..... Women.....
5. Does your group has farm land? [1] Yes [2] No
6. What is the amount of land farmed by the group?
Owned..... (Acres)
Hired..... (Acres)
7. Did you sell potatoes through this group in the last one year? [1]Yes [0] No
8. If yes, indicate the quantity of potatoes you sold through the group in the last one year
Season 1 (Bags)
Season 2..... (Bags)
9. What was the average price of potato you sold through a group per bag?
Season 1..... (Bags)
Season 2..... (Bags)

APPENDIX C: MAP OF MOLO SUB COUNTY



APPENDIX D: SUMMARY OF DATA ANALYSIS

Hypothesis	Independent variables	Dependent Variables	Statistical Analysis
There is no statistically significant influence of awareness of group rules on small scale farmers' participation in collective marketing of potato in Molo Sub-County, Nakuru County, Kenya.	Member's awareness of group rules: activity participation, pay registration fee, monthly contribution, market collectively	<ul style="list-style-type: none"> • Membership to potato marketing groups. • Selling potatoes through groups 	Chi-square test
There is no statistically significant influence of rule enforcement mechanisms on small scale farmers' participation in collective marketing of potato in Molo sub county, Nakuru County, Kenya.	Rule enforcement mechanisms: punishment, payment of fine, cease membership	<ul style="list-style-type: none"> • Membership to potato marketing groups. • Selling potatoes through groups 	Chi-square test
There is no statistically significant influence of market outlet choices on small scale farmers' participation in collective marketing of potato in Molo Sub-County, Nakuru County, Kenya.	Market outlet choices: Farm gate, brokers, local and urban market	<ul style="list-style-type: none"> • Membership to potato marketing groups. • Selling potatoes through groups 	Chi-square test

APPENDIX E : RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MISS. LUCKY M NYASULU
of EGERTON UNIVERSITY, Box 115-+265
Zomba, has been permitted to conduct
research in Nakuru County
on the topic: INFLUENCE OF SELECTED
GROUP CHARACTERISTICS ON SMALL
SCALE FARMERS' PARTICIPATION IN
COLLECTIVE MARKETING OF POTATO IN
MOLO SUB COUNTY, NAKURU, KENYA
for the period ending:
25th July, 2020

Permit No : NACOSTI/P/19/17218/31179
Date Of Issue : 26th July, 2019
Fee Received :Ksh 2000



Nyasulu
.....
Applicant's
Signature

Gladys
.....
Director General
National Commission for Science,
Technology & Innovation

APPENDIX F: PUBLICATION

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**SOCIETY OF
EDUCATIONAL
RESEARCH
AND
EVALUATION
IN KENYA**

Participation of Small-Scale Farmers in Collective Marketing of Potato in Molo Sub County, Nakuru County, Kenya

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Abstract

Engaging in high value potato (*Solanum tuberosum*) markets is one important strategy which can assist small scale farmers to increase food security and move out of poverty. Collective marketing has been identified as one of the best strategies to improve the participation of small scale farmers in better markets. However, only a few farmers in Kenya practice collective marketing. This paper therefore, examines the extent of collective marketing amongst small scale potato farmers in Nakuru County. It further discusses reasons for low participation and suggests solutions to increasing participation in collective marketing. The study was conducted in four wards which were purposively selected namely, Molo, Elburgon, Mariashoni and Turi in Molo Sub County, Nakuru County where 118 potato small scale farmers belonging to potato groups were proportionately selected and interviewed. Data was subjected to descriptive statistical analysis using frequencies, percentages and thematic analysis. Only 7.6% of small scale farmers were involved in collective marketing. Women, youth and farmers with high literacy levels were high amongst members who participated in collective marketing. The study also found out that lack of access to better markets, lack of storage facilities and lack of training on collective marketing, were contributing reasons for low participation in collective marketing. Additionally, feeling of being exploited by buyers and lack of trust among group members reduced participation in collective marketing. The study findings may help policy makers, programme implementers and extension workers to advocate for increased participation of small scale farmers in collective marketing through policies and trainings.

Keywords: Collective Marketing, Middlemen, Molo Sub County, Participation, Potato Small Scale farmers

1. Introduction

Small scale farmers play a critical role in fighting poverty and contributing towards rural livelihoods and global economy (International Food Policy Research Institute [IFPRI], 2016) Their contribution would be enhanced if they go beyond subsistence set up and become more entrepreneurial and market oriented (Mukundia, 2014; Sinyolo & Mudhara, 2018). High transaction costs is one of the key reasons for small scale farmers' failure to participate in high value markets (Muthini, 2015). Additionally, small scale farmers lack marketing knowledge and skills, and information on prevailing market prices and have weak institutions (Gyau, Mbugua & Oduol, 2016). Small scale farmers are further disadvantaged by their lack of assets and limited access to credit (Abeba & Haile, 2013). These challenges lead them to sell their produce to middlemen at farm gate price which is usually low.

Collective action is one of the initiatives that may enhance small scale farmer's participation in high value markets (FAO, 2016; Fischer & Qaim, 2014). When acting collectively, farmers may be in a better position to secure access to new technologies, increase market efficiencies, and obtain the necessary market information (Transmania Institute of Agriculture [TIA], 2014). Farmers may also be able to secure access to credit facilities, increase economies of scale and improve bargaining power in the value chains (Lapar *et al.*, 2010; Taiy *et al.*, 2016). There are several activities which farmers who are involved in collective actions engage in. Some of them include; farming, table banking, merry go round, welfare support and collective marketing (Kibe, Mwangi, Nkurumwa & Mulu-Mutuku, 2017). However, collective marketing has been one of the developments believed to improve the income of the small scale farmers (Nyikahadzo, Siziba, Nokoe, Njuki & Adekunle, 2010).