African Rural University

Factors influencing the adoption of organic manures in production of beans in Mbagane Lc1 Kicuna sub county Kabarole District

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A research report submitted to the faculty of technology for rural transformation in partial fulfillment of the requirements for the award of a bachelor's degree of science in sustainable agriculture at African Rural University

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DECLARATION

I ATUHAIRWE Keviina do affirm that the information provided in this report has been a result of diligent attendance and a result of my work and has never been submitted in full or partial to any institution.

Signature

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ATUHAIRWE Keviina

21/ARU/BSSA/003

Date 12 NOV 2025

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APPROVAL

This is to certify that ATUHAIRWE Keviina conducted a research project in Mbagane village Kicuna sub county Kabarole District.

Faculty Mentor

Mr. Mwanika Byamukama

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Signature

12/11/2025.

Date

DEDICATION

I dedicate this report to my parents Mr. Busiinge Gabriel Akiiki and Mrs. Busiinge Evas Kaahwa Abooki who have always prayed for my success and their love, affection and efforts have been an inspiration to me. I also devote the work of this report to the honorable and respectable lecturers and teachers who have taught and supported me in developing my personality and professional competence. May the almighty keep blessing your works and may you live longer to testify my success.

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First and foremost, I thank God who is the holder of my breaths and without His order nothing is possible.

I would like to express my sincere gratitude to my faculty supervisor and mentor Mr. Mwanika Byamukama who gave in his valuable time to raise chances for me to learn.

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More so, I have a set light and ever burning flame of gratitude to my loving parents that is Mr. Busiinge Gabriel Akiiki and Mrs. Busiinge Evas Kaahwa Abooki for the love, care and support towards my academic elevation and success. I thank you so much.

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List of acronyms and abbreviations

AOM	African Organic Manure
FYM	Farm Yard Manure
SAPs	Sustainable Agriculture Practices
UNEP	United Nations Environment Program
UNCTAD	United Nations Conference on Trade and Development
ZARDI	Zonal Agricultural Research Development Institute
LC1	Local council one
STC	Structural Tension Chart
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behavior

ABSTRACT.

This Participatory Action Research study investigated the factors influencing the adoption of organic manures in bean production in Mbagane village, Kicuna sub county Kabarole District Midwestern Uganda. The study involved mixed-methods research design that involved integration of qualitative and quantitative data to provide a comprehensive understanding of the factors influencing the adoption of organic manures in the production of beans. Questionnaire administration and in-depth interview methods were used to collect the data which was analyzed using Microsoft excel (version 2013). The organic soil management practices used by famers weregreen manure at 37% farm yard manure at 27% and compost manure at 20% to manage the soil fertility levels and 16% used other practices that included mulching, agro forestry. Limited access to materials and high labor requirements are the main barriers to adopting organic manures where50% spotted that limited access to materials is a key hindrance, 30% said that the high labor requirements needed in the application of organic manures is another significant hindrance and 20%highlighted that lack of knowledge is also another hindrance. Training and access to organic materials are the top priorities for farmers for them to adopt organic manures. These needs should be targeted in interventions, through farmer training programs and improving the supply chain for organic inputs. Cost effectiveness is a key factor that can drive farmers to adopt organic manures. The cost of organic manures is highly important to farmers. Ensuring that organic manure is affordable is a key factor in encouraging more widespread adoption.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This Chapter presents the introduction, back ground of the study, vision statement, purpose and significance of the study, objectives, research questions and scope of the study.

1.1 Introduction to the study

The study was conducted in Mbagane village, Kicuna sub county, Kabarole District to find out the factors influencing the adoption of organic manures in the production of beans. This was done through the community based participatory action research following the community action planning that was conducted with the community members of Mbagane where they prioritized producing health food and focused on beans for this study.

Organic manures are natural fertilizers derived from animal, plant, or microbial byproducts that improve soil fertility and promote sustainable agriculture. Studies show that organic manures are crucial for improving soil structure, enhancing microbial activity and boosting crop yields without harming the environment and human health(Thakur, 2017). However, their adoption, particularly among smallholder farmers, depends on a variety of socio-economic, cultural, and ecological factors(Läpple & Rensburg, 2011).

1.2Background

This section presents the historical and contextual background of the study.

1.2.1Historical background

The global organic farming movement emerged in the early 20th century as a response to the adverse effects of industrial agriculture, including soil degradation, loss of biodiversity, and chemical pollution more so, a threat to human life(Lorenz & Lal, 2016). Today, organic farming is recognized for its potential to produce healthy food, preserve the environment, and provide economic benefits to farmers (Ume et al., 2023)

The Ugandan government has taken several important steps in transforming conventional agricultural production into an organic farming system which prohibits the use of synthetic inputs, such as drugs, fertilizers and pesticides. It was to promote sustainable agricultural growth. In 2004, Uganda adopted the Uganda Organic Standard. In 2007, Uganda adopted the regional standard, the East African Organic Products Standards developed by a UNEP-UNCTAD initiative. In July 2009, the government released a Draft Uganda Organic Agriculture Policy. Organic exports are an important part of Uganda's economy. Sustainable agriculture is seen as a means of improving

people's livelihoods as it could provide significant benefits for its economy, society and the environment(Institute, 2012).

1.2.2 Contextual background

The technological approaches to the use of organic manures and bio fertilizers in farming have proved to be effective means of upgrading soil structure, increasing water-holding capacity, enhancing soil fertility, and increasing crop yields. On the whole it can be deduced from the present studies that by integrating correct combinations of organic production technologies, production levels comparable to conventional practices can be achieved in crops with improved soil-nutrient status and productivity(Lorenz & Lal, 2016).

In the recent years, there has been advocacy and campaign for organic farming and this has also gone up to farmers in Mbagane village. The farmers therefore opt to adopt organic manures in their production due to the various benefits.However, there are still various socioeconomic obstacles towards the adoption (Teklewold & Shiferaw, 2013). This study therefore intended to investigate the factors that influence the adoption of organic manures in the production of beans in Mbagane village Kicuna Sub County Kabarole District Midwestern Uganda.

1.3 Conceptual Framework

Building upon the theoretical foundation, the conceptual framework of this study integrated biophysical, socio-economic and institutional factors to explain the complex dynamics of organic manure adoption in Mbagane village and enable the researcher to understand the factors affecting the adoption of organic manures in Mbagane village. Below is an illustration of conceptual frame work scheme.

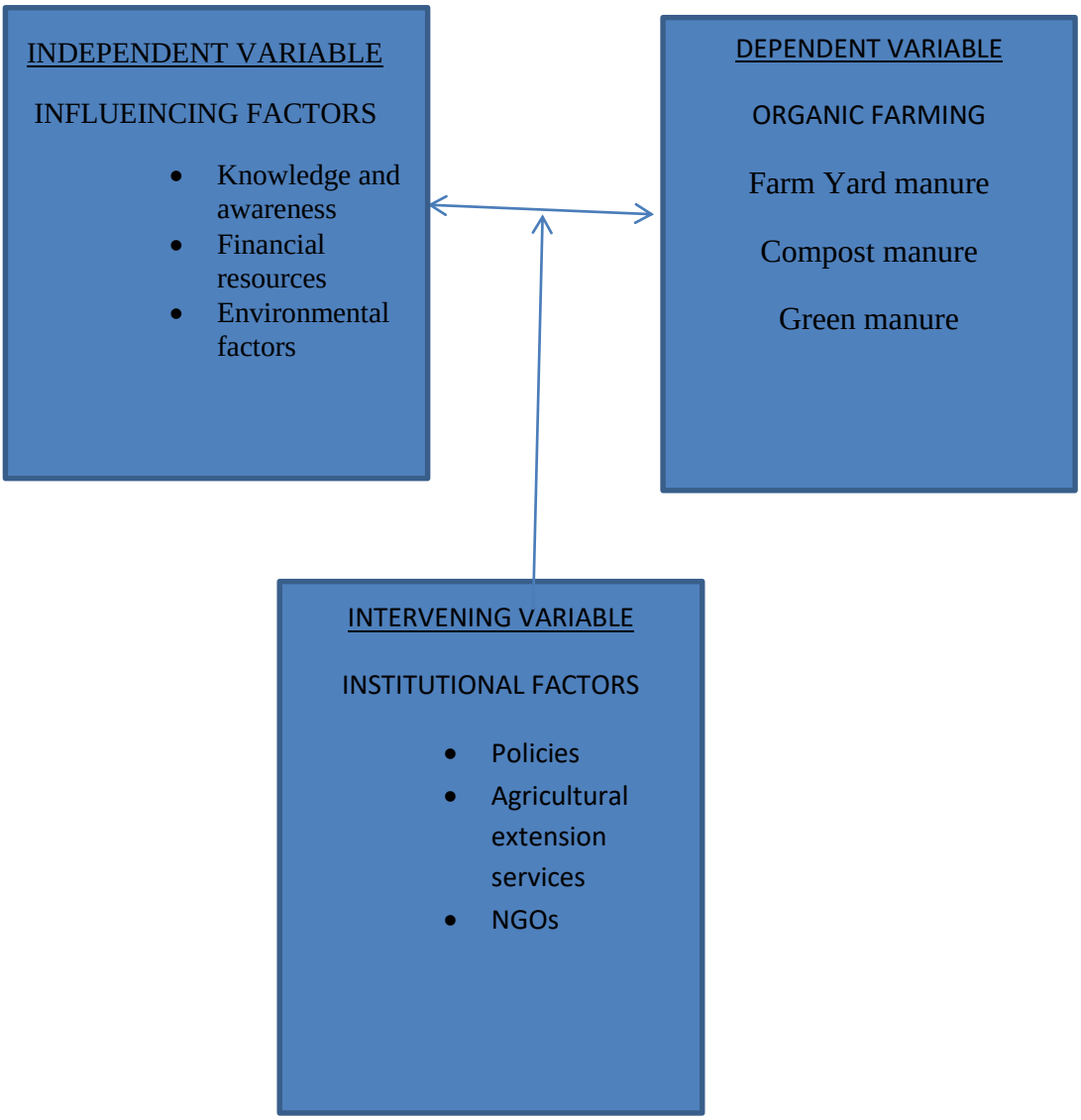

Figure 1shows the conceptual frame work

1.4Theoretical frame work

The theoretical framework of this study draws upon the theory of sustainable agriculture and the theory of planned behavior (TPB) to conceptualize the multifaceted factors influencing the adoption of organic farming practices.

1.4.1 The theory of sustainable agriculture

The concept of sustainable agriculture is approached using the tenets of biological equilibrium theory as illustrated by the process of ecological succession. Modern agricultural systems are recognized as man-made early successional ecosystems, maintained in a state of severe disequilibrium by continuous input of energy and chemicals that cannot continue in perpetuity. An argument is made for the development of agricultural management practices and protocols using greater information content in lieu of increasing energy inputs. The identification and manipulation of domains of local equilibrium in agricultural systems may allow for the development of localized sustainability(Harmsen, 1990).

Sustainability is the core element of government policies, university research projects, and extension organizations worldwide. Yet, the results of several decades of attempt to achieve sustainable agriculture have not been satisfactory. Despite some improvement, still conventional agriculture is the dominant paradigm. Pollution of water, soil, and air, degradation of environmental resources, and loss of biodiversity are still the by-product of agricultural systems. In light of these crises and an attempt to find the way out this paper, based on review of current literature, it is argued that in promoting sustainable agriculture our perception should shift from a technocratic approach to a social negotiation process that reflects the social circumstances and the power conditions. The contributions of sociology of sustainable agriculture are in exploring the relationship between farmers' attitudes and their sustainable farming practices, understanding the gender impact, offering different sustainability paradigms, providing different models of predicting adoption of sustainable practices, and finally informing decision makers regarding the social impacts of their sustainability decisions. Major findings are discussed and appropriate recommendations are provided.(Karami & Keshavarz, 2010).

1.4.2 The theory of planned behavior TPB

The TheoryofPlannedBehavior **(**TPB**)** is a well-established psychological theory that explains how individualbehavior is influenced by various factors, specifically attitudes, socialnorms, and perceivedcontrol. It was developed by IcekAjzen in 1985 as an extension of his earlier TheoryofReasonedAction **(**TRA**)**, with the addition of the concept of perceivedbehavioralcontrol to better explain behaviors that are not entirely under the individual's control (e.g., behaviors influenced by external constraints like time, money, resources, etc.

1.5Vision statement:

Sustainable agriculture practices that are cost effective in Mbagane LC1 by 2030

Table 1 showing an STC for Mbagane village by the year 2030

Vision: Cost effective sustainable agriculture practices in Mbagane by 2030

Accountable	Action steps	Due date
Ibrahim Araali	Sustainable farming practices used by farmers	31/12/2028
Chairman	Strategies to promote the adoption of organic farming identified	25/09/2026
Abwooli Zulifah	Factors promoting the adoption of organic farming identified	20/12/2024
Amooti	Factors hindering the adoption of organic farming identified	15/12/2024
Robert	Farming practices used by farmers in Mbagane village identified	20/11/2023

Current Reality

- Farmers are available
- Fertile soils
- Favorable climatic conditions
- Reliance on Conventional Practice
- Limited access to information
- Market constraints

1.6 Objectives of the research

1. To find out how background factors influence farmers' adoption of organic manures.

2. To find out the organicfarming practices used by farmers in Mbagane village inbean production.
3. To find out the factors influencing the adoption of organic manures in production of beans in Mbagane village.
4. To find out strategies that can encourage farmers adopt organic manures in production of beans.

1.7 Research Questions

1. Do background factors affect farmers' adoption of organic manures?
2. What are the organic farming practices used by farmersin bean production in Mbagane village?
3. What are thefactors limiting farmers from adopting organic manures in the production of beans?
4. What strategies can be implemented to increase the adoption of the use of organic manures in the production of beans?

1.8Purpose of the study

The purpose of this study was to find outthe factors influencing the adoption of organic manures in the production of beans in Mbagane village, Kicuna sub county Kabarole district.

By investigating these factors comprehensively, the research provided insights for enhancing the adoption of organic manures in the farming and production of beans by identifying strategiesand these were to be used to boost organic farming levels and fostering sustainable agricultural development in the region.

1.9Scope of the study

This includes the Content, Geographical, Demographic and Time Scope of the Research.

1.9.1 Geographical scope

The research was conducted in Mbagane LC1 Kicuna Sub County, Kabarole District mid-western Uganda. Kabarole District is located in the Midwestern part of Uganda in the Western Highland Agroro-ecological Zone. Kabarole is naturally gifted with rich natural fertile soils and a favorable climate of heavy rains and cool temperatures. The study area is characterized by bimodal rains with two seasons; first season: March to June, second season: August to December with average rainfall of 1,623mm and an average temperature is 20.2 C° with humidity of 77%

(Rwebitaba Metrological Weather Station, 2021. This therefore makes it highly supportive in crop production naturally. Mbagane village is located in Kicuna parish, Rwengajju sub county Kabarole District. Farmers have highly depended on their natural fertile soils and the favorable climate for agriculture. However, some farmers that have commercialized agriculture have highly invested in conventional farming due to the fact that there has been an assured harvest of high yields.

1.9.2Content scope

The research studied the factors that influence the adoption of organic manures in production of beans, identified the causes of the low adoption levels, and identified the strategies to realize an increment in the adoption of organic manures. The research included aspects such as knowledge, knowhow and awareness, farming practices, barriers to the adoption and the strategies to the adoption.

1.9.3Time Scope

The research was done in a one-year time length from September 20223 to September 2024.

1.9.4 Demographical Scope

The demographical scope covered the population of Mbagane village with varying demographics such as males, females in agriculture (bean production). The males composed of 56 in number making 43% and 74 females making a percentage of 57%. The majority of the population relies on agriculture doing both commercial and subsistence farming. Understanding the demographic dynamics of the community was essential for contextualizing factors that affect the adoption of organic manures in the production of beans.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This literature review examined the existing scholarly works, studies, and empirical evidence relevant to organic farming, socio-economic factors that would influence the adoption of organic farming and agricultural practices in similar agro-ecological contexts. This review aimed at establishing a theoretical foundation, identify gaps in current knowledge, and inform the conceptual framework of the study

Manure is an organic material utilized for land fertilization, typically comprising the fecal output and urine of domestic livestock, with or without additional materials like straw, hay, or bedding. Those who rear livestock and poultry have long employed manure for its benefits as a fertilizer, soil amendment, energy source, and even construction material. Manure contains several valuable and recyclable elements, including nutrients, organic matter, solids, energy, and fiber (Bataire, 2023).

2.1 Use of organic manure in bean production

Organic farming has gained significant attention as a sustainable agricultural practice as opposed to conventional farming.Ronald & Adamchak, (2010)revealed that by the year 2050, the number of people on Earth is expected to increase from the current 6.7 to 9.2 billion. Globally, organic farming is growing as consumers seek healthier and more sustainable food options(Golijan Pantović & Dimitrijević, 2018). The application of African organic manure (AOM) positively influenced the yield of beans that's number of pods, number of seeds and seed weight (Aguti, 2023).

In Uganda, the agriculture sector holds great promise, driven by fertile land, favorable climate, and the country's position as a key agricultural player in Africa. However, both globally and locally, challenges related to certification, climate change, and knowledge gaps remain. With increased investment in training, infrastructure, and market access, Uganda could further harness the potential of organic farming. With the increasing demand for organic produce, understanding the role of organic manures in production of beans is crucial.

2.1.1 Use of green manure in bean production

Green manures are crops specifically grown to enhance and sustain soil fertility and structure, although they may serve other purposes as well. Typically, they are reintegrated into the soil either directly or after being removed and composted.Legumes such as vetch, clover, beans, and peas, as well as grasses like annual ryegrass, oats, rapeseed, and buckwheat, are common examples of green manures. Green manures are created by incorporating plant materials into the soil. As they decompose, green manures enrich the soil by adding organic matter and, to a lesser extent, nutrients like nitrogen and potassium(Bataire, 2023).Sousa et al., (2016) found out that hyacinth bean residue increased yield of common bean by 32% and jack bean residue increased the bean yield by 46%, a few weeks after residues incorporation into the soil.

2.1.2 Use of Farm Yard Manure in bean production

Farmyard manure (FYM) is a decomposed mixture of dung, urine, litter, and residual materials from animal feed such as roughage and fodder. It is produced from animal excreta (dung and urine) as well as decomposed plant remnants like elephant grass, Guatemala grass, and cereal stalks. The bedding material used for the animals is also allowed to remain in the pen, contributing to the production of farmyard manure. (Bataire, 2023)

El-Yazal(2020) found out that mineral fertilizers in combination with organic fertilizers resulted in a great effect on yield and its components of broad bean plant. Mgbeze & Abu(2010) found out that African yam bean (*Sphenostylis stenocarpa*) performed best in soils supplied with 12.5% FYM treated river sand. Ten weeks after sowing, the stem height, number of leaves and leaf area of *S. stenocarpa* were 10.9 ± 1.74 cm, 10.7 ± 1.50 and 17.2 ± 2.40 cm^2, respectively.

2.1.3 Use of compost manure in bean production

Compost manure is organic fertilizer produced from weeds, plant residues, kitchen waste, and leftover food. Its primary purposes include providing organic matter to the soil, enhancing soil structure, and supplying essential nutrients to plants. Additionally, it plays a crucial role in fostering the presence of microorganisms in the soil, which is necessary for the microbial decomposition of plant and animal remains.(Bataire, 2023). Abdel-Mawgoud(2006), revealed that the vegetative growth of green bean plants i.e. plant height, number of leaves; and fresh and dry weights responded positively to individual effects of irrigation levels and compost application rates

2.2 Factors Influencing Adoption of Organic Manures

The adoption of organic manures in bean production is influenced by a complex interplay of socio-economic, cultural, ecological, and institutional factors. Several factors commonly hypothesized to have a major impact on land management and agricultural production including

population pressure, small landholdings, access to roads and irrigation and extension and credit programs are found to have limited direct impact on crop production and income, though most affect the intensity of production.(Pender & Gebremedhin, 2008).

2.2.1 Education and awareness

Farmer education plays a vital role in adopting sustainable farming practices. Farmers with higher levels of education are more likely to understand the benefits of organic manures and adopt their use. (Teklewold, Kassie, Shiferaw, et al., 2013)Training programs and extension services have been shown to increase awareness and skills for effective organic manure application.

2.1.2Income and Farm Size

Income levels and the availability of resources influence the affordability and willingness to invest in organic manure. Smallholder farmers with limited resources may face challenges in acquiring or producing organic manure(Marenya & Barrett, 2009)Larger farms tend to have greater capacity for manure production andstorage, facilitating its use.

2.1.3 Cultural and Social Norms

Cultural practices and traditional farming techniques impact the adoption of organic manures. Farmers who are accustomed to traditional methods may resist change unless supported by community leaders or demonstration projects (Pender & Gebremedhin, 2008)Social networks and peer influence also play critical roles in technology adoption.

2.1.4 Ecological Factors

The local agro-ecological conditions, such as soil type, rainfall patterns, and pest prevalence, influence the perceived effectiveness of organic manures. In regions with poor soil fertility, farmers may be more inclined to adopt organic amendments if they observe tangible benefits, such as increased bean yields (Nziguheba et al., 2010).

2.1.5 Institutional and policy support

Studies of fertilizer use in sub-Saharan Africa have been dominated by analyses of economic and market factors having to do with infrastructure, institutions, and incentives that prevent or foster increased fertilizer demand, largely ignoring how soil fertility status conditions farmer demand for fertilizer.Marenya & Barrett, (2009)found out that access to extension services and government policies promoting organic agriculture are crucial for adoption. Subsidies, grants, or provision of materials like composting kits can encourage the use of organic manures. Studies

in Uganda and other Sub-Saharan countries reveal that support from non-governmental organizations (NGOs) significantly boosts adoption rates (Pender & Gebremedhin, 2008).

2.3 Strategies to increase adoption of organic manure in bean production

Continued research and extension services can further bridge the gap between traditional and sustainable agricultural practices.Makate et al., (2018) revealed thatlandowners with small farm sizes, educated farmers with access to credit, relatively rich male land owners with large farm sizes and low education, youthful, inexperienced and poor male farmers and experienced female farmers with high labor endowments seemed to have different patterns in the adoption of proven innovative practices in bean farming.

CHAPTER THREE:RESEARCH METHODOLOGY

3.0 Introduction

The methodology of the study on factors influencing the of adoption of organic manures in the production of beans in Mbagane village Kicuna sub county Kabarole District Midwestern Uganda involved the following.

3.1 Research Design

The study involved mixed-methods research design that allows integration of quantitative and qualitative data to provide a comprehensive understanding of the factors influencing the adoption of organic manure. The methods of data collection included questionnaire surveys for quantitative data and in-depth interviews for qualitative data. The tools used were questionnaires and interview guides respectively. The interviewer based on the observations made during the interviews and jotted down field notes because the sample size was a small one.

3.2 Target population

A population is defined as a group of individuals of the same species living and interbreeding within a given area. The target population included bean farmers, and an agricultural extension officer of Mbagane village.

3.3 Sample size

Solven's formula

Sample size and sampling technique used

$n= N/(1+Ne^2)$

where n, is sample size

N, total population

e, acceptable error 0.05

$n= 192/(1+192x.0.05^{2)}$

= 130

3.4 Data sources

The primary data was collected directly from the field from the sources like questionnaire surveys and interviews. A questionnaire and semi structured interview guide were made according to the research objectives.

3.5Data collection methods

Severaldata collection methods were used to collect data for all the objectives and they included the following;

3.5.1 Interview method

An interview is qualitative research method of data collection that involves two or more people exchanging a series of questions and answers in order to collect data. This is a method that involves conversation between the researcher and the respondents.Interview method is a conversation for gathering information (Easwaramoorthy & Fataneh, 2006). A research interview involves an interviewer, who coordinates the process of the conversation and asks questions, and an interviewee, who responds to those questions. Interviews can be conducted face-to-face or over the telephone.

3.5.2 Questionnaire survey method

This is aresearch method featuring a series of questions used to collect useful information from the respondents. It is a list of mimeographed or printed questions that is completed by or for a respondent to give his or her opinion(Roopa & Rani, 2012). In this method, questionnaires were designed together with the community and issued to the participants. They consisted of a series of questions and each question providing a number of alternative answers from which respondents chose in relation to the research questions as well as specifying their ideas in case it/ they were not mentioned anywhere on the options on the questionnaire.

3.6 Data collection instruments/ tools

The following are the instruments that we used to collect data for all the objectives;

3.6.1 Questionnaire

A questionnaire research tool is the one featuring a series of questions used to collect useful information from the respondents to answer the various research questions. This tool of data collection was used to generate and collect immense information from respondents. The tool included closed open-ended sets of questions that were distributed to all respondents and this gave respondents convenient time to answer the questions by making choice of their own.

3.6.2 Interview Guide

According to (Howlet, 2024)Interview guides are the roadmap to ensure every interview conducted for a particular position is consistent and focused. It goes beyond outlining the interview questions, it should cover rules and policies, evaluation, and much more. Interview guides also document the process and give interviewers something to stay accountable to. We used unstructured interview as the tool for data collection, because it provides participants with the opportunity to fully describe their experiences. This method of data collection was chosen to allow

the participants to share their own stories in their own words, rather than being forced by pre-established lines of thinking developed by the research team.

3.7 Procedure for data collection

The study commenced with formulating a topic derived from field attachment one experience using Participatory Action Research and followed by writing a research proposal that was submitted for approval to the supervisor. Questionnaires and interview guides were prepared. An introductory letter was obtained from Rwebitaba Zonal Agricultural Research Development Institute (RWEB ZARDI) organization on to which I was attached for field attachment two to introduce me (the researcher) to Mbagane village upon which the researcher was permitted to gather data from respondents. The data collected was then sorted, edited, interpreted and analyzed to derive meaning.

3.8 Data Analysis, interpretation and presentation

3.8.1 Data processing

Once the data was gathered, the researcher used a computer to enter data and arrange it to come up with information.

3.8.2 Data analysis

Data analysis refers to a process of collecting, transforming, cleaning and modeling data with the goal of discovering the required information. The data collected was presented in tables and pie charts. The data was analyzed using Microsoft excel (2013).

3.8.2.1 Quantitative Analysis

Analyzing survey data using descriptive statistics, such as frequencies, percentages quantified the prevalence and distribution of the factors affecting the adoption of organic manures in the production of beans in Mbagane village.

3.8.2.2 Qualitative Analysis

Employing thematic analysis to analyze interview transcripts and field notes were used to identify recurring themes, patterns, and insights related to institutional factors, policy implications, and community perspectives on organic farming. Coding and categorizing qualitative data facilitated the interpretation of qualitative findings and the generation of rich descriptions.

3.8.3 Data presentation

The data was presented using quantitative approach that presented quantitative data using tables and pie charts. This method enabled us to summarize the results on the factors that influence the adoption of organic manures in the production of beans in Mbagane village.

3.9Ethical considerations in research

Ethics refers to the quality of research procedures, with regard to their adherence to professional, legal and social obligations to the research participants. As this research involved human participants, it was therefore necessary to observe the social ethical principles and that the following ethical principles were adhered to;

3.9.1 Informed Consent

Prior to data collection, obtaining informed consent from participants ensured voluntary participation and respect for their sovereignty.

3.9.2 Confidentiality

Ensuring the confidentiality of participants' responses and anonymizing data during analysis protected their privacy and maintained ethical standards. The purpose of the research was for academic interests and was helpful in explaining the importance of the study to the respondents.

3.10Dissemination of findings

3.10.1 Research Report

Compiling the study findings into a comprehensive research report documented the methodology, results, and implications of the study for stakeholders, policymakers, and the academic community.

3.10.2 Presentations.

Organizing presentations to disseminate key findings to the faculty team, students and all the relevant stakeholders, was done to facilitate knowledge exchange, promote dialogue, and inform evidence-based decision-making on the factors that influence the adoption of organic manures and sustainable agricultural development in Mbagane village.

CHAPTER FOUR: PRESENTATION AND DISCUSSION OFRESULTS.

4.0 Introduction

This chapter presents presentation,interpretation and discussion of the research findings in relation to the research objectives.

4.1 Background information of the respondents

The following are the findings on the background information of the respondents as captured in the study including gender, age, marital status and level of education.

4.1.1 Gender of the respondents

The study was inclusive whereby it targeted both male and female respondents and their representation is analyzed below.

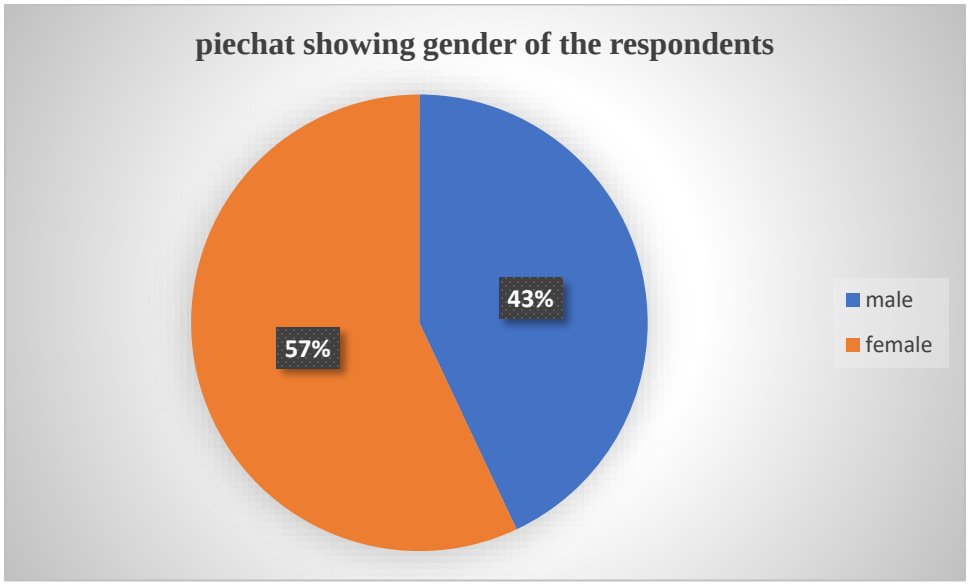

Figure 2 Distribution of respondents by gender

The females significantly participated in the research with a percentage of 57%andmales with a percentage of 43%. Women have always highly engaged themselves in agriculture practices such as planting, weeding, manure application, harvesting, however have limited access to resources such as land and less privilege to decision making. Aduwo et al., (2019) found out that males dominate in agricultural technology adoption despite the high proportion of women involvement in agriculture.

4.1.2Marital status of the respondents

The study had respondents of different marital status as shown in table 2.

Table 2. Marital status of the respondents

Marital status	Frequency	Percentage
Single	43	33%
Married	73	56%
Divorced	09	07%

Widow/widower	05	04%
Total	130	100%

Source: survey 2024

The majority of the respondents (56%) weremarried, which indicated that farming is often a household activity. Stable households that make strategic decisions adopt and use organic manures sustainably. Young males are not considered reliable and responsible for farming as compared to married men as the single males tend to focus on themselves (pooja & Rekha, 2017).

4.1.3 Number of years spent in growing beans

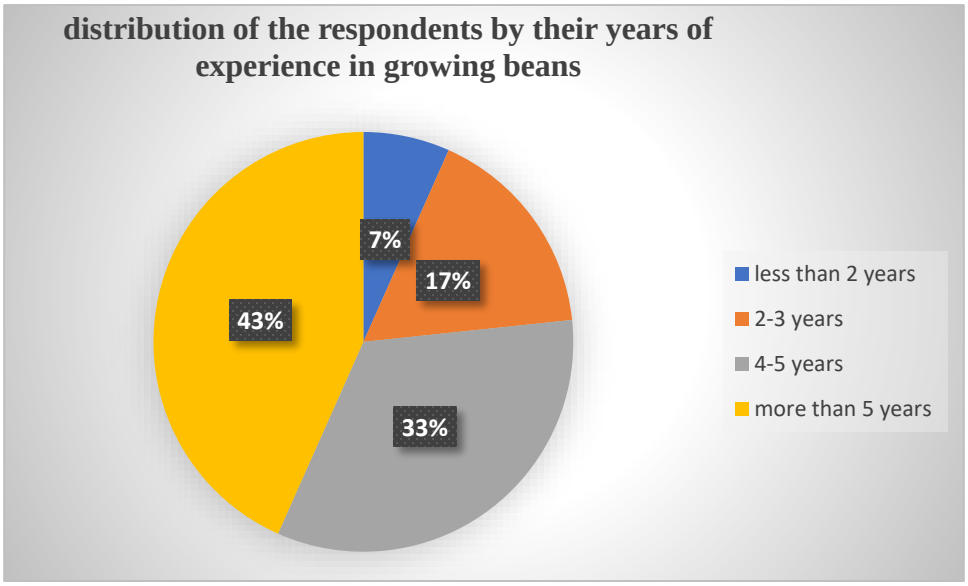

Figure 3. Distribution of respondents by number of years spent in growing beans

Figure 3reveals that, 43%of the respondents had more than 5 years of experience, while 33% had 4-5 years of experience, 17% 2-3 years and the least,(7%) less than 2 years of experience. This indicated that many of the farmers had considerable experience in bean production.

Farmers with longer experience are usually older and less educated, therefore it is difficult to shift them to the relatively new concept of organic farming. Organic producers are usually newer entrants to the industry (Sapbamrer & Thammachai, 2021a)

4.1.4 Land acreages dedicated to bean production

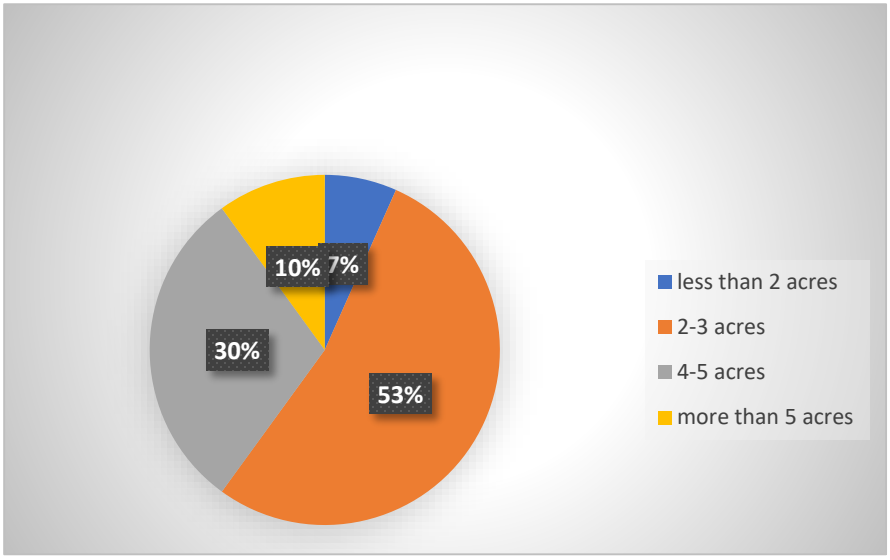

Figure 4 shows the land acreages dedicated by farmers to bean growing and production

The majority of respondents (53%) cultivate 2-3 acres of land for bean production, indicating that smallholder farming is prevalent in Mbagane village. Smaller landholdings limit the ability to invest in larger-scale farming practices but could also promote interest in sustainable and cost-effective practices like organic manure.A small percentage (7%sss) have less than 2 acres or more than 5 acres, farmers cultivating more than 5acres of land do not use organic manures because it is considered difficult to apply and bulk.

Farmers that use rented land for bean production find it hard to adopt organic manures because they don't want to lose trust from their landlords (Bruce et al., 2022)

4.2. Organic soil fertility management practices used by farmers in Mbagane village

Table 3 shows the organic soil fertility management practices used by farmers of Mbagane village in bean production

soil management practices	frequency	percentage
Green manure	26	20%
Farm Yard Manure	35	27%

Compost	48	37%
Others	21	16%
Total	130	100%

Source: survey

Farm Yard Manure (37%) is the most common soil management practice, followed by compost manures (27%) and green manure the very least used (20%). A small proportion of 21% uses other practices, which include mulching, intercropping, agroforestry, crop rotation among others.

Assessing the efficiency and effectiveness of the current soil management practices enables farmers to understand and choose whether to adopt the entire use of organic manures or not (Dinesh Panday et al., 2024).

4.3 Factors influencing the rate of adoption of organic manures in Mbagane village

4.3.1 Factors promoting the adoption of organic manures

Table 4 shows the factors promoting the adoption of organic manures

Factors promoting the rate of adoption	Frequency	Percentage
Reduced environmental pollution	17	13%
Cost effectiveness	43	33%
Soil health	35	27%
Crop yields	35	27%
Total	130	100%

Source: survey

The most important factors for adoption are cost-effectiveness (33%)followed b**y** soil health (27%)**,** and crop yields (27%)**.** A smaller proportion of respondents (13%) are motivated by environmental concerns that is reduced environmental pollution. Cost-effectiveness is a key driver for many farmers, suggesting that organic manures are seen as a viable alternative if they are affordable. This highlights the importance of ensuring that organic manure is economically accessible. The community members/ farmers emphasized that they would adopt the use of organic manures if their cost effectiveness is reliable that is to say it gives the same or better yields/ outcomes as the inorganic fertilizers. Soil health and crop yields are also important, indicating that farmers are interested in long-term benefits. Farmers may adopt organic manure if it leads to sustained soil fertility and improved yields over time. Farmers are largely economically driven they care about input and output and costs.

According to Dhakal & Escalan20te, (2022) findings reinforce the crucial role of social capital as farm households' adoption decisions are significantly influenced by having adopter neighbors or friends, residing in proximity to the market, and gaining easy access to agricultural extension services.

4.3.2Barriers limiting the adoption of organic manures in Mbagane village

Table 5 shows the barriers limiting the adoption of organic manures in bean production in Mbagane village.

Barriers	Frequency	Percentage
High labor requirements	39	30%
Limited organic inputs	65	50%
Difficulty in application	26	20%
Total	130	100%

Source: survey

Limited access to organic inputs (50%) and high labor requirements (30%)are the two most significant barriers to adopting organic manures. This suggests that farmers face practical challenges in sourcing the necessary organic inputs and that applying these manures is perceived

as labor-intensive. Lack of knowledge (20%)is also a barrier but to a lesser extent, indicating that while education and training are important, the material and labor challenges are the more immediate concerns for many farmers. Adoption is not limited by belief or experience, but by practical constraints that is materials, labor, and knowledge.

Paul et al., (2017) found out that the labor intensity of manual application, the cost of the practice and the lack of information about compost quality were the principal constraints highlighted by no adopter farmers.

4.5 Strategies to increase the adoption of organic manures

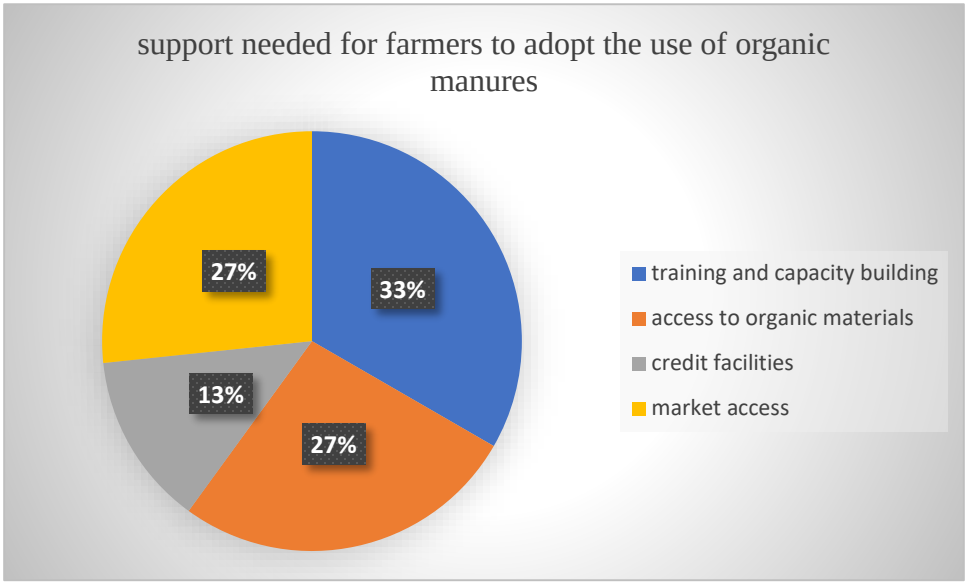

Figure 5 shows the suggested strategies to increase the adoption of organic manures in bean production in Mbagane village

The primary support needed by farmers is training and capacity building (33%)**,** followed by access to organic materials (27%)and market access (27%)**.** A smaller percentage (13%) needs credit facilities**.** The 13% said they need credit facilities to be able to afford the costs of inputs such as containers in making organic manures green manure.

Sapbamrer & Thammachai, (2021) revealed that farm associations also play a vital role in the sharing of experience and in increasing bargaining power. Support by the government in terms of resources, credit, markets, and subsidy is also relevant in motivating organic farming adoption. Therefore, three sectors, extension agents, farm associations, and the government, are key drivers for the sustainable adoption of organic farming.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY FINDINGS

5.0 Introduction

This chapter presents the conclusion and recommendation to the study findings. It also covers the limitations and areas for further study.

5.1 CONCLUSIONS

5.1.1 Demographic factors influencing the adoption of organic manures

Basing on the demographic factors, gender, land acreages owned by farmers, and marital status of the farmers greatly influenced their ability to adopt organic manures on their farms.

The target groups that have the greatest potential for the adoption of organic farming are young farmers, females, individuals who have ownership of their farm, those with a high level of education, and farmers with off-farm income(Sapbamrer & Thammachai, 2021)

5.1.2. Soil management practices used by the bean growing farmers in Mbagane village

The current soil management practices used are predominantly farm yard manure (37%)and the compost manure at 27%. 20% were using green manure to manage the soil fertility levels and 5% used other practices. Land size and farming practices suggest that farmers in Mbagane are smallholder farmers.

5.1.3 Factors influencing the adoption of organic manures

5.1.3.1 Factors limiting the adoption of organic manures

Limited access to materials and high labor requirements are the main barriers to adopting organic manures. 50% spotted that limited access to materials is a key hindrance, 30% said that the high labor requirements needed is another significant hindrance to adopting organic manures. This proposes that farmers face practical challenges in sourcing the necessary organic inputs and that applying these manures is labor-intensive. Difficulty in application (20%)is also a barrier but to a lesser extent, indicating that while education and training are important, the material and labor challenges are the more immediate concerns for many farmers.

5.1.3.2 Factors promoting the adoption of organic manures

Cost effectiveness of organic manures is the key driver for farmers to adopt organic manures. Cost effectiveness is a key factor for farmers to adopt organic manures. The cost of organic manures is highly important to farmers therefore, ensuring that organic manure is affordable should be a key factor in encouraging more widespread adoption. Soil health and increased crop yields are also significant factors for farmers to adopt organic manures. The farmers have a positive perception of organic manure, and an interest in economically beneficial practices.

5.1.4 Strategies to increase the rate of adoption of organic manures

Training and access to organic materials are the top priorities for farmers. These needs should be targeted in interventions, possibly through farmer training programs and improving the supply chain for organic inputs.

5.2 RECOMMENDATIONS

Consider community-driven approaches for overcoming material shortages, such as establishing composting programs or community manure collection to increase accessibility to organic inputs and organic manures.

Develop programs or partnerships that provide training, improve market access, and make organic inputs more affordable to address cost concerns and practicality of the farmers.

Look into labor-saving technologies or methods that could reduce the high labor requirements associated with manure application.

Showcase Successful Cases, use model farmers to demonstrate the cost-effectiveness and yield benefits of organic manures to motivate other farmers to also adopt organic manures.

5.3 AREAS FOR FURTHER RESEARCH

Further research could be done to explore other forms and sources of organic manures such as vermin compost, liquid manure and concentrated organic manures including oil seed cakes, bone meal among others and their influence on crop yields.

Strategies to increase the rate of adoption of organic manures. This research explored the possible strategies to increase the adoption of organic manures in production of beans in Mbagane village, further research can be done to find out the general and common factors that can promote and increase the adoption rate of organic manures in crop production generally.

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CHAPTER SEVEN: APPENDICES

Appendix 1` Questionnaire.

7.1QUESTIONNAIRE FOR THE RESPONDENTS

Dear respondent, my name is Atuhairwe Keviina a student at African Rural University conducting a research work on the topic: The factors that influence the adoption of organic manures in the production of beans in Mbagane village as part of the requirement for the award of a Bachelor's Degree of Science in Sustainable Agriculture (BSSA). Kindly assist me fill in the questionnaire by ticking or filling in the spaces provided as necessary. Whatever information you provide shall be used for academic purposes and shall be confidential.

Section A: Demographic Information

Sex

Male **female**

Age category
(a) Below 30
(b) 30-40
(c) 41-50

(d 51 and above

Highest level of education?
(a) No formal education
(b) Primary
(c) Secondary
(d) Tertiary

Marital status

Single

Married

Divorced

Widow/ widower

Years spent in growing beans

Less than 2 years

2-3 years

4-5 years

More than 5 years

Farm size

(a) Less than 1hectare
(b) 1-3 hectares
(c) 4-10 hectares
(d) More than 10 hectares

Section C: Economic Factors

Do you find organic manure to be more affordable than chemical fertilizers?
(a) Yes
(b) No
(c) I don't know

What factors influence your decision to use organic manure?
(Select all that apply)
(a) Cost effectiveness
(b) Availability of manure
(c) Market demand for organic products
(d) Environmental concerns

Section D current farming practices

What type (s) of organic manures are you currently using?

Green manure

Farm yard manure

Compost manure

Other practices

Section E: Barriers and Challenges

What challenges do you face in adopting organic manure?(Select all that apply)
(a) High initial cost
(b) Lack of knowledge or skills

(c) Insufficient availability of organic manure
(d) Limited access to markets for organic crops

Do you face challenges in sourcing organic manure?
(a) Yes
(b) No

Section F Adoption and Practice

Do you currently use organic manure on your farm to produce beans?
(a) Yes, regularly
(b) Occasionally
(c) No, but I plan to in the future
(d) No, and I do not plan to

What support do you need to increase the use of organic manure on your farm?
(a) Training and education
(b) Financial assistance or/ and subsidies
(c) Access to organic manure sources
(d) Information about markets for organic products. For other please specify

Thank you for participating in this survey. Your input is highly appreciated.

Appendix 2 Interview Guide

7.2 INTERVIEW GUIDE FOR PARTICIPATORY ACTION RESEARCH IN MBAGANE VILLAGE

Dear respondent, my name is Atuhairwe Keviina a student at African Rural University conducting a research work on the topic: The factors that influence the adoption of organic manures in the production of beans in Mbagane village as part of the requirement for the award of a Bachelor's Degree of Science in Sustainable Agriculture (BSSA). Kindly assist me fill in the questionnaire by ticking or filling in the spaces provided as necessary. Whatever information you provide shall be used for academic purposes and shall be confidential.

Section A:

Demographic Data of Respondent

Sex

.....

Age

.....

Marital Status

.....

Level of Education

.....

Religion

.....

Occupation

.....

Section B: Current practices

Are you currently using any organic manures in producing beans?

…….....

If yes, what types of organic manures do you use?

……..

……

…….....

For how long have you been engaged in bean production and using the mentioned manures?

.....

4. Have you faced any challenges using that type of manure?

.....

5. If yes, what challenges?

……..

…….....

6. What do you think can be done to boost the adoption of organic manures among other farmers?

……

……

……