



**APPSA 2nd
SCIENTIFIC
CONFERENCE**

*2 - 4 April 2025 | Manthabiseng Convention Centre
Maseru, Kingdom of Lesotho*

DETERMINANTS OF FARMERS' PARTICIPATION IN IRISH POTATO PRODUCTION IN MOKHOTLONG DISTRICT, LESOTHO.

By

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INTRODUCTION

- Potatoes are an essential component of global agriculture, grown in 149 countries, and consumed by over a billion people daily (Wijesinha-Bettoni & Mouillé, 2019).
- Potatoes serve as a primary crop and cultivated for winter use as an early-season potato.
- The significant benefit of early-season potato cultivation is that farmers can generate substantial income during winter when other crops are in short supply.
- The highlands in Lesotho are mostly known for seed potato production.



INTRODUCTION

- However they produce both seed and ware potato.
- Potato production can contribute significantly to Lesotho's rural economy, as it serves as a vital source of income for many rural households.
- Potato production serves two primary purposes: fresh markets and seed potatoes for planting.
- Although potato is not a staple crop it is consumed locally in various forms, boiled, French fries/chips and as crisps.

STATEMENT OF THE PROBLEM

- The cultivation of potatoes provides employment opportunities and generates income for many smallholder farmers, particularly in rural areas where agriculture remains the primary livelihood source for approximately 70% of the population (Bokaako, 2023).
- However, Irish potato production in Lesotho, remains low and the country relies heavily on imports from South Africa.
- This is despite the huge potential the country has due to its favourable climate conditions.

OBJECTIVES

Main Objective:

To analyse the factors influencing farmers' participation in potato production in Mokhotlong district.



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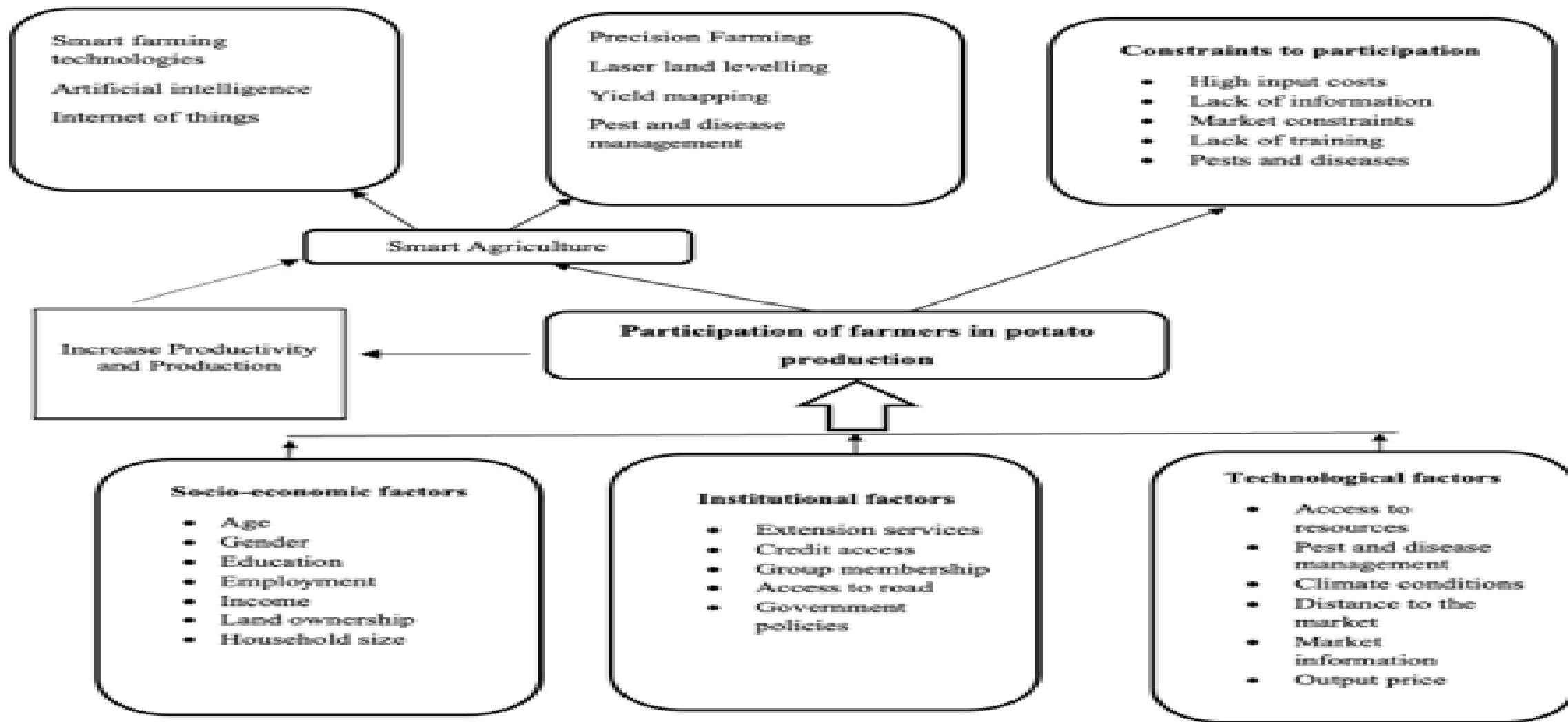
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OBJECTIVES

Specific objectives:

- To identify the factors influencing potato production in Mokhotlong district of Lesotho.
- To examine the constraints associated with potato farming in Mokhotlong district of Lesotho.

CONCEPTUAL FRAMEWORK



METHODOLOGY

Description of the study area

- The quality of soil and weather conditions in Mokhotlong district are suitable particularly for potato cultivation. Research has shown that Mokhotlong is one of the districts in Lesotho that has the potential to produce quality potatoes (LENA, 2024).
- The district is characterized by a cool, temperate climate, with cold winters and mild summers, making it an ideal location for growing potatoes (Nteletsana, 2007).
- During the potato-growing season, which typically runs from October to April, temperatures in Mokhotlong district range from about 10°C to 25°C, providing the perfect conditions for robust plant growth and development and, as a result, excellent potato yields.

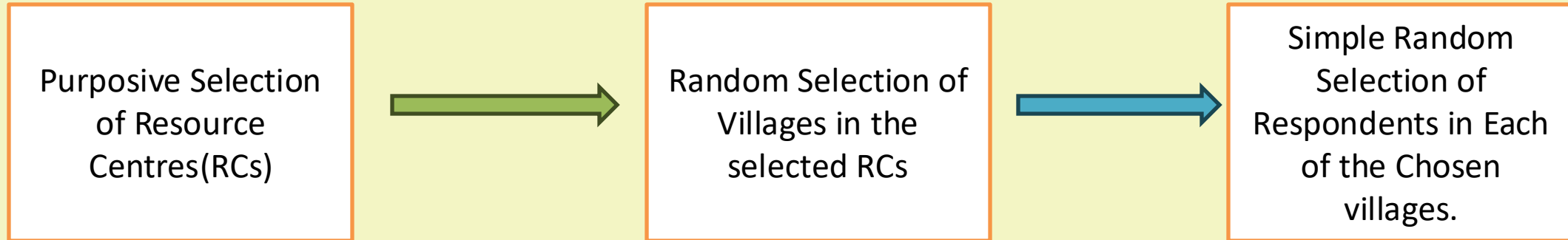
METHODOLOGY

Research Design

- This study employed a cross-sectional approach, gathering quantitative data from farmers through a survey.
- A cross-sectional study design involves collecting data on multiple variables at a single point in time to assess relationships between the variables (Bell, 2022).
- The study aimed to analyse these variables by generating numerical data that could be analyzed statistically, as highlighted by Gondwe, (2020), emphasizing the quantitative design's ability to quantify issues effectively.

METHODOLOGY

Sampling and sample size determination



- To ensure accuracy and representativeness, a multistage sampling technique was adopted using both probability and non-probability sampling approaches for the selection of potato farmers in Mokhotlong District.

METHODOLOGY

Data Analysis

1. Descriptive Statistics

- The study utilized descriptive statistics to identify and characterize the socioeconomic features of households, as well as examine the limitations associated with farmers' involvement in potato farming (Almeida et al., 2017).
- Descriptive statistics used in this study involved the calculation of means, standard deviations, frequency counts, and percentages. The Statistical Package for Social Sciences (SPSS), version 20 was used for data analysis.

METHODOLOGY

Data Analysis

2. Binary Logistic Regression Model

- To determine the variables that influence farmers' participation in potato production, a binary logistic regression model was utilized.
- The use of the binary logistic regression model in the study was based on the assumption that households must choose between participating or not participating in potato production.
- Logistic regression is considered to be relatively flexible, easy to use, and yields results that are easy to interpret, as it has no assumptions of linearity or heteroscedasticity (Liu et al., 2014).

METHODOLOGY

Data Analysis

2. Binary Logistic Regression Model

$$\ln\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon_i$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon_i$$

Estimated Model:

$$Y = \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Educlevel} + \beta_4 \text{SMedia} + \beta_5 \text{Sincome} + \beta_6 \text{Aseeds} + \beta_7 \text{Dmarket} + \beta_8 \text{Pchange} + \beta_9 \text{Mstatus} + \beta_{10} \text{Fsize} + \beta_{11} \text{Gmemb} + \beta_{12} \text{Fexp} + \beta_{13} \text{Acredit} + \beta_{14} \text{AmrktInfo} + \varepsilon_i$$

RESULTS AND DISCUSSION

Variable	Coefficient	Robust Std. Err (SE)	z	P > z (sig.)
Constant	-12.156	3.899	-3.118	0.002
Price volatility	0.402	0.7570	0.532	0.595
Gender	3.295*	1.079	3.053	0.002
Age	3.689*	0.939	3.927	0.000
Marital status	-0.433	1.868	2.837	0.817
Educational level	1.484**	0.523	2.350	0.005
Use of social media	4.419***	2.350	1.881	0.060
Source of income	-3.175*	0.685	-4.637	0.000
Number of years in farming	0.316	0.489	0.648	0.517
Farm size	0.296	0.475	0.623	0.533
Source of labor	0.119	0.472	0.252	0.801
Access to seeds	3.048**	1.522	2.002	0.045
Group membership	0.459	1.265	0.363	0.717
Access to market information	0.338	1.221	0.277	0.782
Distance to the market	1.200**	0.554	2.167.	0.030
Access to credit	-0.093	0.880	-0.105	0.916

No. of observation= 90 Wald chi2 (15)= 82.62 Prob >chi2=0.000* Pseudo R2= 0.6943 Log pseudo likelihood= -6.675105



RESULTS AND DISCUSSION

- The study results in **gender, age, educational level, use of social media, access to seeds and distance to market** influence farmers' decision to produce potatoes.
- These factors play a significant role in influencing the farmers engagement in potato production.
- Specifically, with regards to **gender** the results suggest that male farmers are more likely to engage in potato production compared to their female counterparts.
- Men have greater interest in cash crops since they are breadwinners in most families.



RESULTS AND DISCUSSION

- The coefficient for **age** (3.689) was positive and statistically significant at 1 %.
- Therefore the study concluded that age influences the farmers' involvement in potato production.
- Specifically, older farmers, particularly those above 40 years, tend to be more involved in potato production compared to their younger counterparts.
- This positive relationship can be attributed to the fact that older farmers often possess more experience in farm management and have accumulated resources such as finance and farm implements, which enhance their involvement in potato production (Ahmed et al., 2018).

RESULTS AND DISCUSSION

- The coefficient for educational level and use of social media was significant and positive.
- This implies that the higher the level of education the better the prospects of successfully engagement in potato production.
- Therefore youth should be encouraged to invest in relevant studies and acquire the requisite knowledge
- Facebook is a popular platform in sharing of information including access to markets and market information.
- Therefore, it is sensible that use of social media is a determinant of engagement in potato production.

RESULTS AND DISCUSSION

- Access to seeds and distance to market are also significant and positive.
- The major source of certified potato seed is South Africa and most farmers struggle to access this seed and end up using uncertified seed.
- Department of Crop Services and Potato Lesotho Association play a huge role in facilitating access to seed.
- Farmers produce to market therefore distance to market is a determinant of engagement in potato production.



CONCLUSION AND RECOMMENDATIONS

- There is need to provide more support to youth and female farmers.
- The study concluded that male farmers are more likely to engage in potato production compared to their female counterparts.
- Males have more resources and time, in most cases control the fields and determine the crops to be planted.
- Targeted support can help increase women and youth involvement in potato production.
- Youth similar to women are resource poor and some youth lack interest in agriculture.
- Maybe a future study with graduates from agriculture can help us understand that last point.



CONCLUSION AND RECOMMENDATIONS

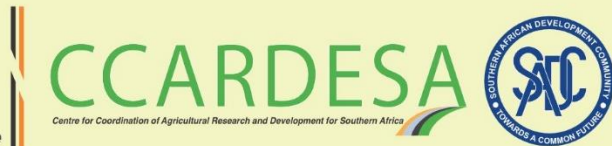
- Agro-dealers need to take advantage of the opportunity that exists in seed potato production.
- Public sector initiatives are welcome but they are temporary and unsustainable.
- Tissue Culture Laboratory work that is an on-going initiative by NUL, DAR, DCS and FAO is welcome but private sector should take the lead.
- Government must provide an enabling environment.

ACKNOWLEDGEMENTS

- APPSA- LESOTHO
- CARDESSA
- WORLDBANK
- DEPARTMENT OF FIELD SERVICES
- DEPARTMENT OF AGRICULTURAL RESEARCH
- NATIONAL UNIVERSITY OF LESOTHO



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