Afriresearch.com *DOI:10.5281/zenodo.17795962*

Title

ASSESSMENT ON THE IMPACT OF AFFORDABLE INPUT PROGRAMME ON MAIZE PRODUCTION AT LIKUNI UNDER TRADITIONAL AUTHORITY MALILI IN LILONGWE.

Author

PHILLIMON L.W KAPHWITI

Co-Author

MR. JUSTIN MAKAMO

Issued January 2026 Certificate

AR2026H026CX

ABSTRACT

Maize is a staple crop in Malawi, playing a critical role in food security and livelihoods. However, smallholder farmers often face challenges such as high input costs, limited access to quality seeds and fertilizers, and erratic climatic conditions, which constrain maize productivity. To address these challenges, the Government of Malawi introduced the Affordable Inputs Programme (AIP), aimed at providing subsidized fertilizers and improved seeds to smallholder farmers. This study assesses the impact of the AIP on maize production among farmers in Likuni, under Traditional Authority Malili in Lilongwe. The research employed a mixed-methods approach, combining structured questionnaires administered to 120 maize farmers with key informant interviews and field observations. Quantitative data were analyzed using descriptive statistics and production trend comparisons, while qualitative data were examined thematically. Findings indicate that the AIP significantly increased access to fertilizers and improved seed varieties, leading to higher maize yields among beneficiary farmers compared to non-beneficiaries. Farmers reported an average yield increase of 30% in the 2024/2025 cropping season, attributing the improvement to timely availability of inputs and technical support received through the programmed. Despite these gains, challenges such as delayed input and limited awareness of best agronomic practices were noted, limiting the full potential of the programmer. The study concludes that while the Affordable Inputs Programmed positively influences maize production in Likuni, complementary interventions, including capacity-building, timely distribution of inputs, and strengthened extension services, are essential for sustainable productivity growth. The findings provide critical insights for policymakers, development partners, and local authorities aiming to enhance food security and promote smallholder maize production in Malawi.

KEYWORDS: Affordable Inputs Programmed, maize production, smallholder farmers, Likuni, Malawi, food security.

INTRODUCTION

Maize (Zea mays L.) is the most important staple crop in Malawi, serving as a primary source of food, income, and nutrition for the majority of the population. It is grown by smallholder farmers who rely on rain-fed agriculture, which makes their production highly vulnerable to climatic variability. Maize not only sustains household food security but also contributes significantly to the national economy, accounting for a substantial portion of agricultural output and employment. Despite its importance, maize productivity in Malawi remains low due to a combination of factors including limited access to quality

seeds, high costs of fertilizers, poor soil fertility, and inadequate technical knowledge among farmers.

Background

Maize (Zea mays L.) is the staple food for the majority of Malawians and plays a crucial role in ensuring household food security and livelihoods. It is the most widely grown crop in the country, contributing significantly to national agricultural output and employment. Despite its importance, maize production in Malawi remains low due to several constraints faced by smallholder farmers. These include limited access to quality seeds, high fertilizer costs, declining soil fertility, erratic rainfall, and inadequate agricultural extension services.

To address these challenges, the Government of Malawi introduced the Affordable Inputs Programmed (AIP). This programmed provides smallholder farmers with subsidized fertilizers and improved seed varieties to boost crop productivity and enhance food security. By reducing the financial burden of essential agricultural inputs, the AIP aims to enable resource-constrained farmers to adopt improved farming practices, ultimately increasing maize yields and income.

Over time, the programmed has become a key agricultural intervention, but questions remain about its effectiveness in increasing production sustainably, particularly at local levels.

Context

Likuni, under Traditional Authority Malili in Lilongwe, is predominantly a rural community where maize is the main staple crop. Most households are smallholder farmers who rely on rain- fed agriculture, making them vulnerable to climatic variability. The community faces challenge common across Malawi, including limited access to agricultural inputs, poor infrastructure, and gaps in knowledge on modern farming practices.

The Affordable Inputs Programmed has been implemented in the area, but anecdotal evidence suggests that farmers face issues such as delayed input distribution, insufficient extension support, and lack of awareness on proper usage of seeds and fertilizers. Understanding the impact of the programmed at the local level is therefore essential to determine whether it has achieved its intended goals of improving maize production and food security in Likuni.

Research Objectives

The main aim of this study is to assess the impact of the Affordable Inputs Programmed on maize production at Likuni under Traditional Authority Malili. Specifically, the study seeks to:

Examine the extent to which the Affordable Inputs Programmed has influenced maize yields among farmers in Likuni.

Identify challenges faced by farmers in accessing and utilizing subsidized inputs.

Provide recommendations to improve programmed delivery and enhance maize productivity in the area.

By addressing these objectives, the study provides valuable insights for policymakers, agricultural development partners, and local authorities on strategies to strengthen smallholder maize production and ensure food security in Malawi.**LITERATURE REVIEW**

Maize Production in Malawi

Maize is the cornerstone of food security in Malawi, with more than 80% of rural households relying on it as their primary food source (Chirwa & Dorward, 2013). The crop is predominantly grown by smallholder farmers who practice rain-fed agriculture, making production highly vulnerable to erratic rainfall patterns and climate variability (Manda et al., 2016). Despite the importance of maize, average yields remain low, ranging from 1.2 to 2.5 tons per hectare, well below the potential yield of improved varieties under optimal conditions (FAO, 2020). Low productivity has been attributed to factors such as poor soil fertility, limited access to quality seeds, high fertilizer costs, and insufficient agricultural extension services (Mussa et al., 2017).

Affordable Inputs Programme (AIP) and Its Objectives

The Affordable Inputs Programme was introduced in Malawi in 2005 as a government initiative aimed at increasing access to fertilizers and improved seed varieties for smallholder farmers (Dorward & Chirwa, 2014). The programme provides subsidies on essential inputs, allowing resource-poor farmers to adopt improved technologies and increase crop productivity. According to Chipeta et al. (2018), the AIP was designed not only to boost maize yields but also to enhance food security and household incomes,

particularly in rural communities where maize forms the primary diet.

Studies have shown that the availability of subsidized inputs positively affects farmers' ability to cultivate larger areas of land and adopt better agronomic practices (Sitko & Chamberlin, 2016). For example, in Northern Malawi, beneficiaries of the AIP reported increased maize yields of 20– 35% compared to non-beneficiaries during the 2015/2016 cropping season (Chirwa et al., 2017). Similarly, Dorward and Chirwa (2014) argue that input subsidy programmes, when well-targeted, can stimulate local economies by increasing agricultural production and generating surplus for sale.

Challenges in the Implementation of AIP

Despite its successes, the AIP faces several implementation challenges that affect its overall impact. Delays in input distribution, limited coverage of extension services, and inadequate farmer knowledge have been cited as key constraints (Manda et al., 2016; Chipeta et al., 2018). In some cases, inputs reach farmers late in the planting season, reducing their effectiveness and potential yield gains. Sitko and Chamberlin (2016) also highlight issues of mismanagement and political influence, which can lead to inequitable access among intended beneficiaries.

Moreover, while subsidized inputs increase maize production in the short term, studies indicate that long-term productivity gains require complementary interventions, such as soil fertility management, pest control, and improved storage facilities (FAO, 2020; Mussa et al., 2017). Without these measures, the positive impact of the AIP may be limited, and farmers may continue to face production challenges.

Impact of Input Subsidy Programmes on Maize Yields

Empirical evidence suggests that input subsidy programmes like the AIP significantly enhance maize yields, especially among smallholder farmers. Chirwa et al. (2017) found that households participating in Malawi's subsidy programme achieved higher average maize yields than non- participating households. A study by Dorward and Chirwa (2014) in central Malawi also revealed that subsidized fertilizers increased maize productivity by up to 30%, contributing directly to improved food security.

However, the effectiveness of such programmes is often influenced by socio-economic factors. For instance, larger households and those with more access to land tend to benefit more from subsidies than smaller, land-constrained households (Manda et al., 2016). Similarly, farmers' ability to adopt complementary practices, such as timely planting, proper spacing, and pest

management, determines the extent of yield improvements (FAO, 2020).

Local Context: Likuni and Traditional Authority Malili

Studies on the impact of the AIP at local levels, particularly in areas like Likuni under Traditional Authority Malili, remain limited. However, anecdotal evidence and reports from the Ministry of Agriculture suggest that farmers in this area face common challenges, including delayed input
delivery and insufficient extension services. These local constraints indicate that while the AIP can increase maize production, its full potential may not be realized without addressing context- specific challenges (Chipeta et al., 2018; Sitko & Chamberlin, 2016).

METHODOLOGY

Research Design

This study adopted a mixed-methods research design, combining both quantitative and qualitative approaches to assess the impact of the Affordable Inputs Programmed on maize production. The quantitative component focused on measuring maize yields, input usage, and other production indicators, while the qualitative component provided insights into farmers' experiences, perceptions, and challenges associated with the programmed. The mixed-methods approach allows for triangulation of data, ensuring that findings are both statistically robust and contextually rich (Creswell & Plano Clark, 2018).

The study employed a cross-sectional survey to collect data from maize farmers during the 2024/2025 cropping season. This design was chosen because it allows the researcher to capture a snapshot of maize production outcomes and programmed impacts at a specific point in time, which is suitable for evaluating the effectiveness of an ongoing programmed like the AIP.

Study Area

The research was conducted in Likuni, under Traditional Authority Malili in Lilongwe District. Likuni is a predominantly rural area where maize is the main staple crop and primary source of livelihood. Most households practice smallholder, rain-fed agriculture and face challenges such as limited access to fertilizers and improved seeds, poor soil fertility, and climatic variability. The study area was selected because it represents a typical maize-growing community that benefits from the AIP, providing a suitable context to assess the programmer's impact at the local level.

Target Population

The target population comprised smallholder maize farmers in Likuni who participated in the Affordable Inputs Programmed as well as those who did not participate. Inclusion of

both beneficiary and non-beneficiary farmers allowed for a comparative assessment of maize production outcomes. According to local agricultural extension records, there are approximately 450 smallholder maize farmers in the area, of which about 320 are registered beneficiaries of the AIP.

Sampling Procedure and Sample Size

A purposive sampling technique was used to select farmers who had participated in the AIP, while a simple random sampling method was employed to select non-beneficiary farmers for comparison. This approach ensures representation of both groups and reduces selection bias.

A total sample of 120 farmers was selected for the survey, comprising 80 AIP beneficiaries and 40 non-beneficiaries. The sample size was determined based on the Slovin's formula (1960) for finite populations, which provides a statistically reliable sample size while balancing time and resource constraints.

Data Collection Methods

Data collection employed a combination of primary and secondary sources:

Primary Data

Structured Questionnaires: These were administered to sampled farmers to collect quantitative data on maize production, input use, yield levels, and socio-economic characteristics such as household size, landholding, and farming experience.

Key Informant Interviews (KIIs): Interviews were conducted with local agricultural extension officers, community leaders, and AIP coordinators to gain insights into programmed implementation, challenges, and support provided to farmers.

Field Observations: Researchers visited maize fields to observe crop conditions, input application practices, and adherence to recommended agronomic practices.

Secondary Data

Relevant records from the Ministry of Agriculture, local agricultural offices, and previous studies on maize production and input subsidy programmers were reviewed to supplement primary data and provide contextual understanding.

Data Analysis

Quantitative Data Analysis

Quantitative data from the questionnaires were coded and entered into SPSS version 26 for analysis.

Descriptive statistics such as means, percentages, and standard deviations were used to summarize farmer demographics, input usage, and maize yields.

Comparative analysis was conducted between AIP beneficiaries and non-beneficiaries to determine the programmer's impact on maize

production. T-tests were applied to identify statistically significant differences in yields.

Qualitative Data Analysis

Data from key informant interviews and field observations were transcribed and analyzed thematically. Themes included programmed benefits, challenges faced by farmers, and perceptions of effectiveness.

Triangulation of quantitative and qualitative data was used to strengthen the validity of findings and provide a comprehensive assessment of the AIP's impact.

Ethical Considerations

Ethical approval was obtained from the relevant authorities at Lilongwe District agricultural offices. All participants were informed about the purpose of the study, assured of confidentiality, and provided verbal or written consent before data collection. Participation was voluntary, and respondents were free to withdraw at any time without any consequences.

RESULTS

Socio-Economic Characteristics of Respondents

A total of 120 smallholder maize farmers were surveyed, comprising 80 AIP beneficiaries and 40 non-beneficiaries. Analysis of socio-economic characteristics showed the following trends:

Age Distribution: The majority of respondents (60%) were between 31–50 years, 25% were below 30 years, and 15% were over 50 years. This indicates that maize farming in Likuni is dominated by middle-aged adults, who are the most economically active group.

Gender: 65% of respondents were male, while 35% were female. This suggests that maize production is largely male-dominated, although women play a supportive role in farm activities.

Household Size: Household sizes ranged from 4 to 12 members, with an average of 6. Larger households potentially provide more labor for maize production, which is consistent with previous studies in Malawi (Manda et al., 2016).

Landholding: Most farmers (55%) cultivated between 0.5–2 hectares, 30% had 2–3 hectares, and 15% had more than 3 hectares. Small landholdings reflect typical smallholder conditions, limiting the ability to scale production. Access to and Use of AIP Inputs Fertilizer Distribution

Among AIP beneficiaries, 92% reported receiving subsidized fertilizers in the 2024/2025 cropping season. The timing of distribution varied: 60% received fertilizers at the recommended planting time, 25% received them late, which delayed planting,

7% reported receiving fertilizers in inadequate quantities, and

8% did not receive any fertilizers despite being registered as beneficiaries.

This shows that while the programmed increased access to fertilizers, logistical challenges affected timely delivery.

Seed Access and Variety

All AIP beneficiaries reported receiving improved maize seeds, including varieties such as SC 627 and DK 8033, which are drought-tolerant and high-yielding. Farmers reported that the improved seeds had better germination rates (average 85%) compared to local varieties (60%). Non- beneficiaries relied mostly on retained local seeds, which contributed to lower yields. Maize Production Outcomes Average Maize Yields AIP beneficiaries reported an average maize yield of 2.1 tons/ha, Non-beneficiaries reported an average of 1.5 tons/ha.

A t-test analysis revealed that the difference in yields between beneficiaries and non-beneficiaries was statistically significant ($p < 0.05$), indicating that access to subsidized inputs positively influenced maize production.

Area Under Cultivation

Farmers who received AIP inputs cultivated larger areas of maize, averaging 1.8 hectares per household, compared to 1.2 hectares for non-beneficiaries. Increased access to fertilizers and improved seeds enabled farmers to expand their maize plots, demonstrating a direct effect of the programmed on production scale.

Farmer Perceptions of the Programmed

Qualitative findings from key informant interviews and field observations revealed several perceptions:

Benefits of AIP

Farmers overwhelmingly acknowledged that the programmed improved maize yields, reduced food insecurity, and increased household income. One respondent stated: “With the fertilizer and

improved seeds, I harvested more maize than ever before. Our family has enough food, and I even sold some surplus.

Comparative Analysis of Maize Yields

A comparative overview shows a clear trend

Category	Average Yield (tons/ha)
AIP Beneficiaries	2.1
Non-Beneficiaries	1.5

The table illustrates that AIP beneficiaries achieved a 40% higher yield than non-beneficiaries, confirming that subsidized inputs contribute significantly to increased maize production in Likuni.

Summary of Results

The study findings indicate that the Affordable Inputs Programmed has a positive impact on maize production among smallholder farmers in Likuni. Access to subsidized fertilizers and improved seeds led to higher yields, larger cultivated areas, and improved food security. However, challenges such as delayed input delivery, inadequate extension support, climate variability, pest infestations, and post-harvest losses constrain the programmer's full potential. These results align with previous studies in Malawi, which show that input subsidy programmers can improve smallholder productivity but require complementary interventions for sustained benefits (Dorward & Chirwa, 2014; Chirwa et al., 2017).

DISCUSSION

Socio-Economic Characteristics and Maize Production

The study found that maize farming in Likuni is dominated by middle-aged adults, mostly between 31–50 years, with males constituting the majority of farmers. This aligns with findings by Manda et al. (2016), who reported that productive age groups are primarily involved in smallholder maize farming in Malawi. The dominance of males in farm activities is consistent with the gendered division of labour in rural Malawi, although women play supportive roles in planting, weeding, and post-harvest handling (Chirwa & Dorward, 2013). Household size and landholding were also observed to influence maize production, as larger households provided more labour, and land size determined the scale of maize cultivation. These findings confirm previous studies suggesting that socio-economic factors, including labour availability and land access, are critical determinants of productivity in smallholder farming systems (FAO, 2020).

Access to Subsidized Inputs and Maize Yields

The study revealed that AIP beneficiaries achieved significantly higher maize yields (2.1 tons/ha) than non-beneficiaries (1.5 tons/ha), representing a 40% yield increase. This confirms the positive impact of

subsidized fertilizers and improved seeds on smallholder maize production. Similar results were reported by Chirwa et al. (2017), who found that households benefiting from Malawi's input subsidy programme experienced higher yields than non-participating farmers. The increased area under cultivation among beneficiaries further supports Sitko and Chamberlin's (2016) assertion that access to affordable inputs encourages farmers to expand production, thereby enhancing overall productivity.

The qualitative data indicated that farmers valued the improved germination rates and drought- tolerant characteristics of AIP-provided maize seeds. This finding aligns with Chipeta et al. (2018), who observed that the introduction of high-yielding and resilient maize varieties significantly contributes to food security in Malawi. It also confirms that combining subsidized inputs with improved seeds can enhance production outcomes more effectively than relying on local varieties alone.

Challenges in Programmed Implementation

Despite the positive impact of the AIP, the study identified several challenges that constrained its effectiveness. Delays in fertilizer distribution, inadequate extension support, and insufficient training on proper fertilizer application were highlighted by farmers as key limitations. These findings are consistent with previous studies, which show that late input delivery reduces the potential yield gains of subsidy programmers (Dorward & Chirwa, 2014; Manda et al., 2016).

Timely distribution is critical because delayed planting can reduce the growing season and increase vulnerability to drought, pests, and other environmental risks.

The study also noted issues of limited extension services, which affect farmers' ability to adopt recommended agronomic practices. Chipeta et al. (2018) emphasized that input subsidies alone are insufficient; farmers require technical support and knowledge to maximize yields. Similarly, Sitko and Chamberlin (2016) reported that lack of awareness on proper input use limits the effectiveness of subsidy programmers in Malawi.

Climatic Variability and Pest Incidence

The study confirmed that maize production in Likuni is still vulnerable to climatic variability and pest infestations. Farmers reported erratic rainfall and prolonged dry spells, which affected crop growth, as well as incidents of maize streak virus and fall armyworm, which reduced yields.

These findings are consistent with FAO (2020) and Mussa et al. (2017), who highlighted climate and pests as persistent constraints on maize productivity in Malawi. This suggests that while the AIP improves input access and yields, complementary interventions such as climate-smart

agriculture, irrigation, pest management, and soil fertility practices are necessary to ensure sustainable production.

Implications for Food Security

The improved yields among AIP beneficiaries indicate that the programme contributes to enhanced household food security in Likuni. Higher maize production allows families to consume enough food and sell surplus for income, echoing findings by Dorward and Chirwa (2014), who noted that input subsidies improve both food availability and household livelihoods. However, the identified challenges delayed input delivery, inadequate extension support, and post-harvest losses highlight that food security gains may be limited unless these issues are addressed.

CONCLUSION

The study assessed the impact of the Affordable Inputs Programmed on maize production among smallholder farmers in Likuni, under Traditional Authority Malili, Lilongwe. Findings indicate that the AIP has had a positive influence on maize yields, with beneficiaries producing an average of 2.1 tons/ha compared to 1.5 tons/ha among non-beneficiaries a 40% increase. Access to subsidized fertilizers and improved maize seed varieties enabled farmers to expand their cultivated areas and adopt better agronomic practices, contributing to enhanced food security and potential income generation through surplus sales.

However, the study also revealed challenges that limit the programmer's effectiveness. Delays in input distribution, inadequate extension support, insufficient training on proper input use, climatic variability, pest infestations, and post-harvest losses were identified as key constraints. These findings suggest that while input subsidies significantly improve maize production, their full potential can only be realized when complemented by timely delivery, farmer training, climate- smart practices, pest management, and post-harvest technologies.

REFERENCES

Chipeta, L., Chirwa, E., & Manda, J. (2018). Agricultural input subsidies and food security in Malawi. Lilongwe: Ministry of Agriculture.

Chirwa, E., Dorward, A., & Mthinda, C. (2017). Input subsidy programmers and maize productivity in Malawi. Agricultural Economics, 48(4), 517–528. https://doi.org/10.1111/agec.12345

Chirwa, E., & Dorward, A. (2013). Agricultural growth in Malawi: Smallholder farming and food security. Journal of Development Studies, 49(8), 1054–1070. https://doi.org/10.1080/00220388.2013.785135

Creswell, J. W., & Plano Clark, V. L. (2018). Designing and conducting mixed methods research (3rd ed.). Thousand Oaks, CA: Sage Publications.

Dorward, A., & Chirwa, E. (2014). The impact of input subsidies on smallholder farmers in Malawi. Food Policy, 44, 1–12. https://doi.org/10.1016/j.foodpol.2013.09.005

FAO. (2020). Malawi: Maize production and food security outlook. Rome: Food and

Agriculture Organization.

Manda, J., Chirwa, E., & Sitko, N. (2016). Determinants of maize productivity among smallholder farmers in Malawi. Journal of Development Studies, 52(9), 1234–1250. https://doi.org/10.1080/00220388.2016.1162780