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Farmers' Perspective on the Implementation of the Affordable Inputs Programme

Insights from nationally representative household and community surveys

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Summary

This note provides an assessment of the first year of implementation of the Affordable Inputs Programme (AIP) from the perspective of rural households and communities in Malawi. The data come from a nationally representative panel survey of 2,449 rural households in 299 communities. At the household level, users of inorganic fertilizer, the amount applied per farmer, and productivity and production all increased in the 2020/21 cropping season compared to the 2015/16 and 2017/18 seasons. Almost all sampled communities reported more positive experiences with AIP than with the previous Farm Input Subsidy Programme (FISP), mainly because of the expanded coverage and greater number of beneficiaries. However, farmers reported major challenges in the computerized system (or network) for verifying beneficiaries, limited number of selling points, and limited and late supply of inputs, causing congestion and different forms of corruption and harassment in the selling points. The network, number of selling depots, procurement processes, input-provider selection processes, and governance must improve for more farming households to realize benefits from AIP. Further, AIP must be accompanied in the long term by better soil management practices.

Affordable Inputs Programme

From 2005 to 2020, FISP was the flagship public program for agriculture, with a total yearly budget that ranged from 4.5 billion Malawian Kwacha (MK) in 2005–2006 to MK 35.5 billion in 2019–2020 (Kulinji news report, 9 September 2019). FISP mainly supported maize production, by administering vouchers or coupons that enabled eligible households to purchase fertilizer, hybrid seed, and pesticides at reduced prices. The program targeted smallholder farmers who owned land and were legitimate residents of their villages. Although the program set out to benefit vulnerable community members, evidence showed that households headed by young females were less likely to receive a complete input subsidy

packet and that poor households were less likely than rich households to receive any voucher (Chibwana and Fisher, 2011). After repeated questions raised about the extent of FISP's impact, FISP was replaced in 2020 by AIP, which implements similar measures and aims to benefit all farming households through improved food security and reduced poverty. In the 2020/21 cropping season, AIP targeted all smallholder farmers under the National Registration Bureau farming household database—about 4,279,100 farmers (ACB 2021). The package per farmer was as follows:

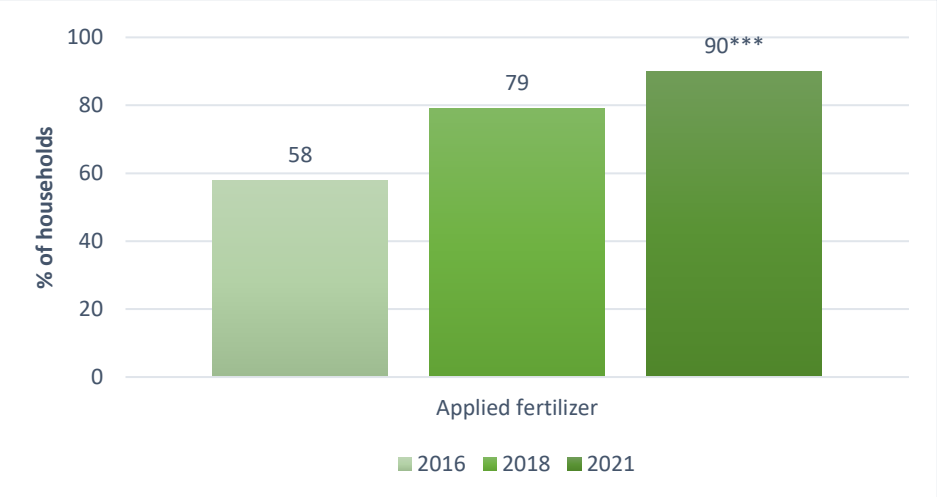
- A 50 kg bag of urea
- A 50 kg bag of NPK23:10:5+6S+1.0Zn
- Either 5 kg of hybrid seed or 7 kg of open-pollinated variety (OPV) maize seed, or 7 kg of rice seed, or 7 kg of sorghum seed (ACB 2021).

In the 2020/21 cropping season, a farmer paid MK 4,495 on average for each bag of NPK or urea and MK 2,000 per pack of cereal seed with the AIP subsidy, compared to MK 15,500 per bag of NPK or urea and MK 6,000 per seed pack during the final years of FISP (ACB 2021). This note provides an assessment of the early implementation of AIP from the perspective of farmers and community leaders. The data used in this note are from a nationally representative panel survey (2016, 2018, and 2021) led by the International Food Policy Research Institute (IFPRI), implemented by Wadonda Consult, and funded by the Government of Flanders. The sample consisted of 2,449 rural households in 299 communities; for more details on the sampling design, see Ragasa and Niu (2017).

Inorganic fertilizer application

Most farmers in rural Malawi applied inorganic fertilizer but applied less than the recommended dosage. Ninety percent of households applied fertilizer in their plots in 2020/21, up from 58 percent in 2015/16 and 79 percent in 2017/18 (Figure 1). Most applied two types of fertilizer: NPK23:10:5+6S+1.0Zn and urea.

Figure 1. Proportion of rural households applying inorganic fertilizer, 2015/6, 2017/8, and 2020/1

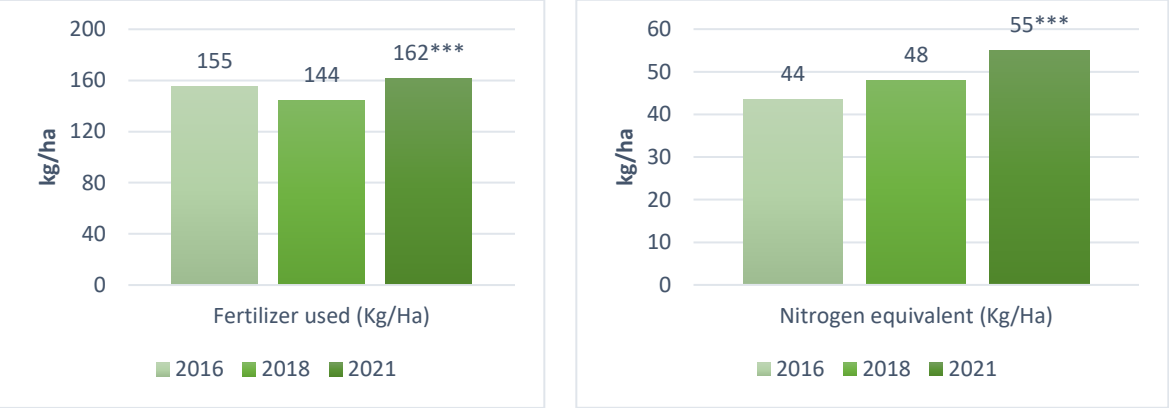


Source: IFPRI/Wadonda rural household surveys (2016, 2018, and 2021).
Note: *** show the statistical difference between the average of 2015/16 and 2017/18 (under FISP) and 2020/21 (under AIP) at 1–percent level of significance.

Amount of inorganic fertilizer applied

In 2020/21, farmers applied, on average, 18 kg/ha more inorganic fertilizer or 7 kg/ha more nitrogen in their plots than in the previous season. The application rate per hectare among users was 162 kg of inorganic fertilizer on average or 55 kg of nitrogen (Figure 2). This is much lower than the government-recommended dosage of 200 kg of NPK and 100 kg of urea per hectare. The number of inorganic fertilizer users and the amount applied both increased substantially in the Central and Southern regions. The number of inorganic fertilizer users increased significantly in the Northern region, but the average amount of inorganic fertilizer applied decreased.

Figure 2. Average amount of inorganic fertilizer applied per household, 2015/16, 2017/18, and 2020/21.



Source: IFPRI rural household surveys (2016, 2018 and 2021).
Note: kg=kilogram; ha=hectare. In 2018, there were greater proportion of households using urea in 2018 that is why we see increased average Nitrogen and decreased average fertilizer quantity from 2016 to 2018.

Farmers' perspectives on the first year of AIP

Information was also collected from 752 farmer organizations' representatives and community leaders through the community surveys. Respondents in almost all (89 percent) of these communities said more farmers have accessed and used inorganic fertilizer during the first year of AIP implementation than during the final years of FISP. Almost all appreciate and recognize that AIP is better than FISP in terms of the expanded number of beneficiaries who can access inputs. "*FISP beneficiary number was very low while AIP beneficiaries is for almost every household as long as you have a national ID*," said one farmer. "*GVH [group-village head] and village heads were corrupted when distributing coupons during FISP; now they don't have a chance since this thing has been computerized*," said another farmer. However, most respondents also identified many issues in AIP's implementation during the first year:

- Almost all respondents mentioned computer or network problems that caused issues in beneficiary verification. "*There were a good number of people who could not buy the inputs after being told there were no inputs in their IDs, even when they had not bought the inputs*," said one community leader.
- There is lack of distribution points. Almost all respondents said that selling points were overcrowded and they found it difficult to buy inputs. They also mentioned many farmers spending days in line. "*Some farmers spent five days waiting and sleeping in the sales depot and had to*

spend more on accommodation and travel in addition to paying for the fertilizer," said another farmer.

- Fertilizer and seeds came late, after the maize had grown. There is a shortage of inputs given the large number of buyers. "*It was hard to stand on the line and next to be told that there is nothing (fertilizer) in your ID or either that the ID has been used to purchase fertilizer somewhere else,*" said another farmer. "*There is only one type of fertilizer in the selling depots*," said another farmer.

The above issues led to congestion and corruption by selling agents, among others. Some selling clerks sold AIP fertilizer to vendors pretending it was commercial fertilizer, and some demanded extra money from farmers in order to sell them inputs. "*Sellers demand extra money if they are to help you*," said another farmer. "*Some could not buy the inputs … there was discrimination between the rich and the poor … the system was giving a chance to clerks to cheat by redeeming the remaining inputs*," said another farmer. "*System was denying some beneficiaries saying they have purchased from somewhere else,*" said another farmer. "*Some companies were asking the village heads to gather the villagers national ID cards and money together to be submitted to them before drop-off of fertilizer here. This did not go well as some IDs and money were missing (I am one of those that lost National ID). It happens that the purchased fertilizer was given to those who had no ID and did not even pay anything*," said one community leader.

- People waiting in line experienced harassment. "*Women who traveled to the selling points were getting harassed,*" said a community leader. "*Some women using their bodies to get inputs*," said another.

Farmers and community leaders made the following suggestions to improve the delivery of the AIP:

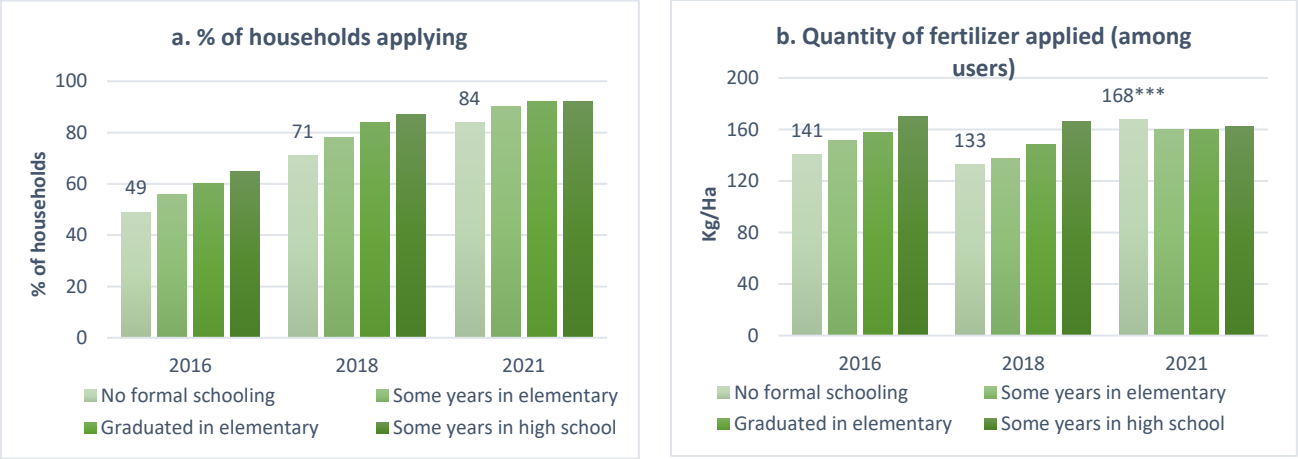
- The network or computerized system of beneficiary verification and input distribution must be improved, as should connectivity in remote areas. There should be a standardized system and training for selling agents on how to handle registration and distribution in case of power outages or network failures.
- The beneficiary database must be cleaned and corrected, and inaccurate records must be removed.
- There should be more selling depots, and they should be set up in areas closer to the farmers, who had to travel long distances to where farm inputs are sold.
- More awareness campaigns are needed so that no one, including sellers, can steal from local farmers. For example, some farmers were told that their names were missing or that they had already purchased from somewhere else when they had not. Awareness campaigns can be done through radio programs and community meetings and should involve farmers, selling agents, supervisors, associations, and committees.
- There should be more fertilizer supply available, with more types of fertilizer available in the selling depots, and the fertilizer should come on time.
- Contracting of input suppliers must be improved both in terms of adequate preparation and implementation time and selection to ensure that suppliers have the capacity and that they monitor and supervise their selling agents.

Who was more likely to apply inorganic fertilizer?

Different farmer characteristics (age, gender, assets, literacy, education, household size, land cultivated, location, access to extension services, and reported fertilizer subsidy receipt) were used to describe the distribution and gaps in fertilizer application. No statistical difference in fertilizer application between youth and non-youth and between female- and male-headed households was observed, but difference exists by literacy or education level (Figure 3). Farmers who are not literate (could not read or write in Chewa) and those with no formal schooling were less likely to apply fertilizer than those who are literate and those who at least completed elementary school. Nonetheless, we see a narrowing gap in fertilizer application between these two groups from 2016–2018 (FISP) to 2021 (AIP). Statistical differences in fertilizer application also exist between those in the poorest asset quintile and the richer asset quintiles. The poorest households were less likely to apply fertilizer and applied less inorganic fertilizer than those with more assets (Figure 4), but this difference in fertilizer application between the poorest quintile and richer quintiles narrows from 2016–2018 (FISP) to 2021 (AIP).

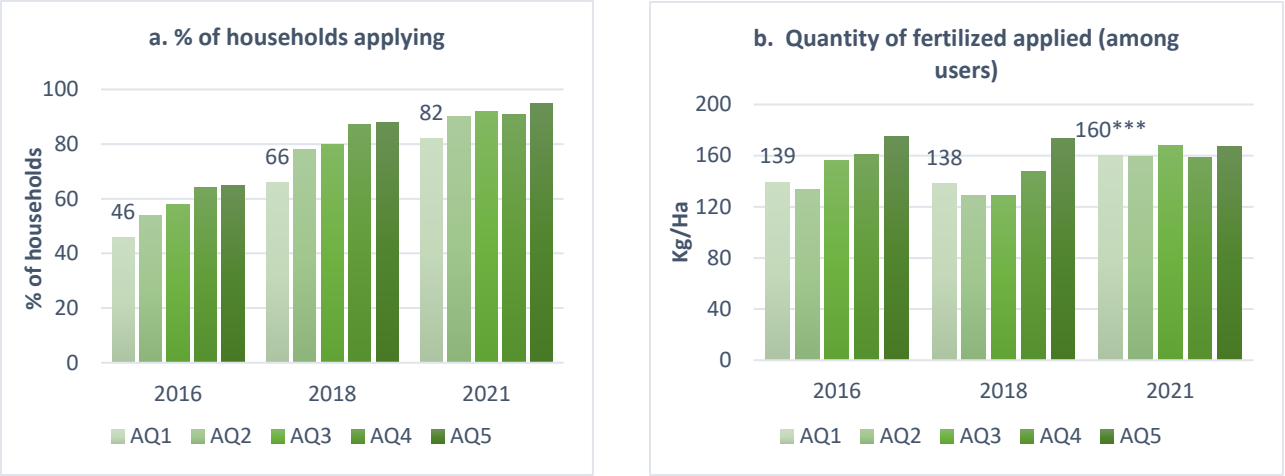
Access to extension and subsidized fertilizer, acreage cultivated, and location are other factors associated with greater fertilizer application (Figure 5). In all survey rounds, farmers who reported having received the subsidy were more likely to apply inorganic fertilizer, and they applied more inorganic fertilizer on average. Those receiving agricultural extension from any source were more likely to apply inorganic fertilizer and applied more inorganic fertilizer. Those farther from primary and secondary roads were less likely to apply, and those farther from major cities were more likely to apply. Those with large landholdings were more likely to apply but applied less by hectarage. Those who planted more maize were more likely to apply and applied more. The gap in fertilizer application by landholding and remoteness, however, was narrowing in 2021. Farmers in the Northern regions were less likely to apply inorganic fertilizer and applied less than those in Central and Southern regions in 2016 and 2018; however, in 2021, more farmers in the Northern region were catching up in terms of fertilizer use but were applying smaller amounts of fertilizer than in other regions.

Figure 3. Fertilizer application by education level



Source: IFPRI/Wadonda household surveys (2016, 2018, and 2021). Note: in a, all figures in 2021 (AIP) are statistically different from 2016 and 2018 (FISP) at 1–percent significance level; in b, only in those with no formal schooling do we see differences between 2016 and 2018 (FISP) and 2021 (AIP) (*** significant statistical difference at 1–percent significance level).

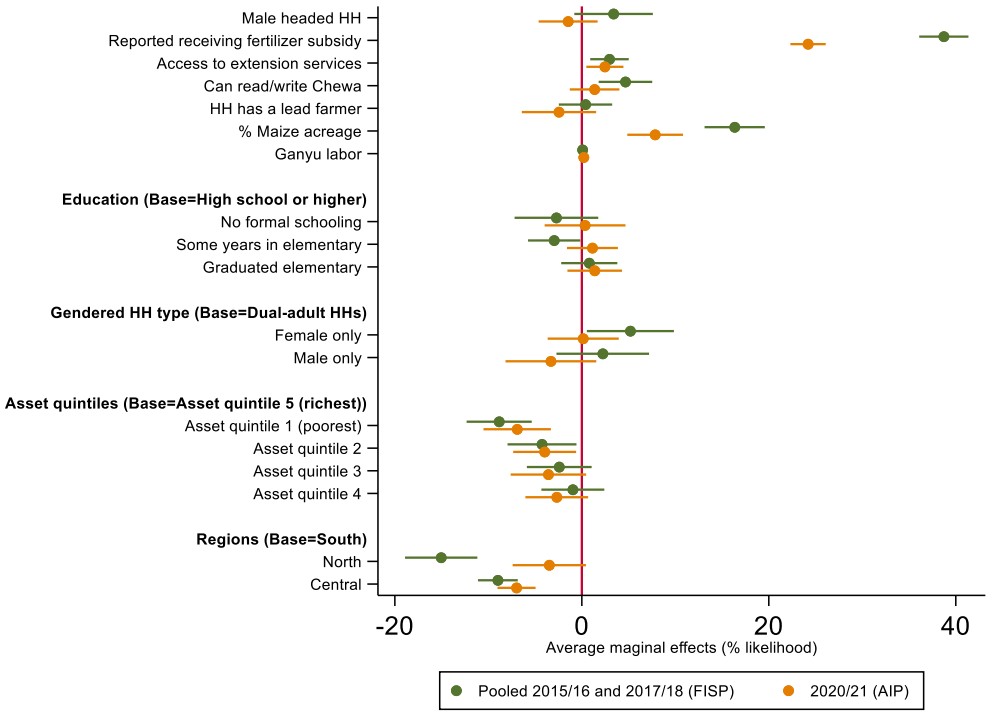
Figure 4. Fertilizer application by asset quintile



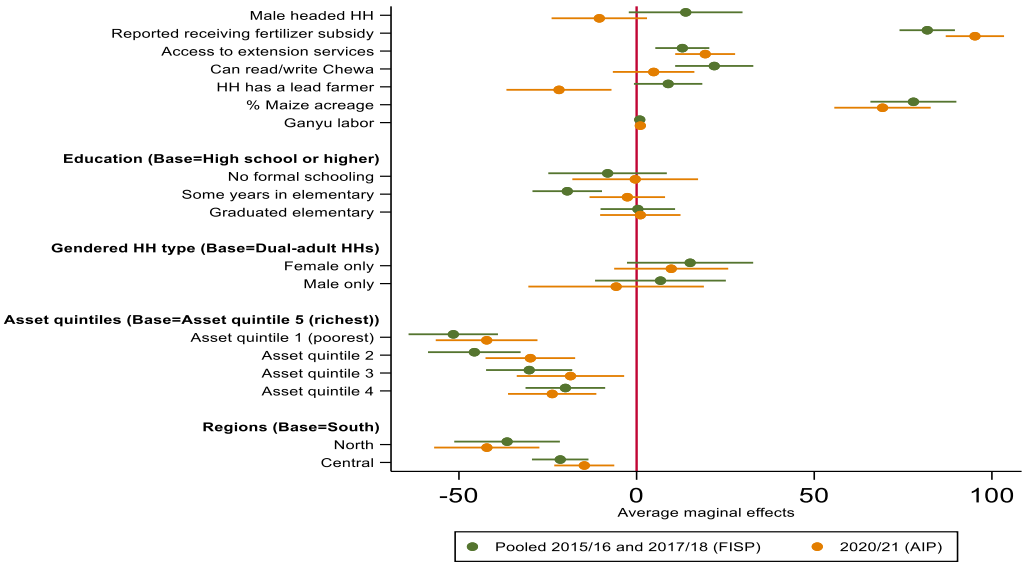
Source: IFPRI/Wadonda household surveys (2016, 2018, and 2021). Note: AQ=asset quintile; AQ1=poorest quintile; in (a), all figures in 2021 (AIP) are statistically different from 2016 and 2018 (FISP) at 1–percent significance level; in (b), only in those in the poorest asset quintile do we see a difference between the average of 2016 and 2018 (FISP) and 2021 (AIP) (*** statistical difference at 1–percent significance level).

Figure 5. Factors associated with fertilizer application

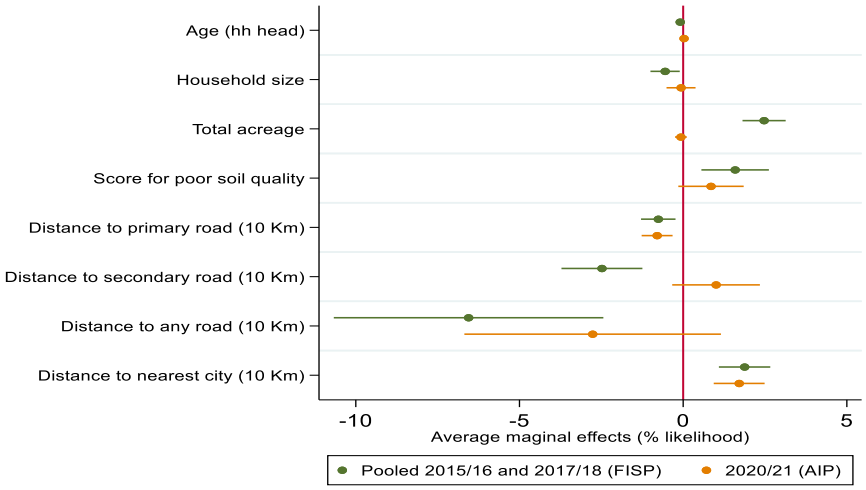
a. Statistical difference in the proportion of households applying fertilizer by farmer characteristics



b. Statistical difference in fertilizer quantity applied by farmer characteristics



c. Other factors associated with the likelihood of fertilizer application



Source: IFPRI/Wadonda rural household surveys (2016, 2018, 2021). Note: In (a), the dots are the differences of the indicator and the base or reference group and expressed as the proportion of households applying fertilizer. This is calculated using probit regression models. In (b), the dots are the marginal effects or the change in the quantity of fertilizer applied from 1 unit change in the indicator estimated using tobit regression models. In (c), the dots are the marginal effects or the change in the likelihood of applying inorganic fertilizer from 1 unit change in the indicator estimated using probit regression models. The line represents the range of marginal effects at 90 percent confidence intervals; and the marginal effect is statistically significant only when the lines do not cross the zero (0) vertical line in the middle.

Overall, we see no clear evidence that distribution and application of inorganic fertilizer in 2020/21 was more equitable under AIP than in previous years under FISP. However, some encouraging trends are worth noting: (1) the gap in fertilizer application between literate and illiterate farmers and those with and without formal schooling narrowed in 2021; (2) the gap in fertilizer application between those in the poorest asset quintile and the richer asset quintiles also narrowed; (3) the gap in fertilizer application by landholding and remoteness also narrowed; and (4) the regional gap in fertilizer application also narrowed in 2021 with greater proportion of users in Northern region, and greater proportion of users and amount applied by farmers in Central region compared to those in Southern region.

Concluding remarks

Survey data show that AIP expanded coverage and led to a greater number of beneficiaries and greater use of inorganic fertilizer. However, farmers reported major challenges in implementation that need to be addressed. These challenges include fixing the network or computerized system of verifying beneficiaries, increasing the number of selling depots, and improving procurement and input provider selection processes. Based on available monitoring reports, these challenges seem to persist in the second year of AIP implementation (2021/22 cropping season).[1] For future research, the maize yield response to inorganic fertilizer needs to be regularly monitored under AIP as studies have shown very low yield response to inorganic fertilizer in recent years (ranging from 0 to 6.5 kg/ha with a mean of 2.1 kg/ha based on data from the Central region collected from 2014 to 2018; see Burke, Snapp, and Jayne 2020). The heterogeneity of the yield response by location, farmers' characteristics, and other factors will need to be examined. Furthermore, additional agronomic and socioeconomic research is needed to identify optimal soil management practices to improve fertilizer efficiency and farmers' productivity and incomes over time.

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