



HOW CAN THE ZAMBIAN GOVERNMENT IMPROVE THE TARGETING OF THE FARMER INPUT SUPPORT PROGRAM?

Rhoda Mofya-Mukuka, Stephen Kabwe, Auckland Kuteya, and Nicole M. Mason

Key Points:

1. The Farmer Input Support Program (FISP, formerly the Fertilizer Support Program) has expanded the scale of its fertilizer distribution from 48,000 metric tons (MT) in 2002/03, when the program started, to nearly 183,000 MT in the 2012/2013 farming season. Yet, after more than a decade of input subsidies, rural poverty rates have remained persistently high at around 80%. Poor targeting of FISP inputs may partially explain the lack of progress on addressing persistently high rural poverty levels over the last decade.
2. Approximately 73% of smallholder farm households in Zambia cultivate 2 hectares of land or less. These tend to be the poorest households. However, these households account for only 56% of the total number of smallholder households receiving FISP fertilizer. In contrast, households cultivating more land are more likely to receive FISP. Moreover, among FISP beneficiaries, households cultivating less land tend to receive significantly less FISP fertilizer than households cultivating more land.
3. Because of the strong correlation between land size and income status, focusing FISP targeting on households cultivating between 0.5 to 2 hectares will improve FISP's impact on rural poverty.
4. As a way of increasing transparency in the selection procedure, the current camp agricultural committee (CAC), which identifies and selects beneficiaries, should be expanded to include representation from different stakeholders in the camp. Lists of selected beneficiaries should be published to ensure transparency.
5. A well implemented e-voucher system of FISP should improve the monitoring of the program as individual beneficiaries are linked electronically through NRC numbers.

INTRODUCTION: After more than a decade of relatively minimal involvement in agricultural subsidies, the government of Zambia reintroduced input subsidies in 2002/03 through the creation of the Fertilizer Support Program (FSP). The main focus of the FSP, and its successor, the Farmer Input Support Program (FISP), which began in 2009/10, has been to increase maize production through the provision of fertilizer and improved maize seed, while at the same time creating an environment for private sector input supply chains to develop.

Improving household food security and incomes are also stated objectives of FISP (MAL various years), and FSP/FISP is one of the Zambian government's main agricultural sector Poverty Reduction Programs (PRPs). However, research evidence shows that although aggregate maize production has significantly increased in the last decade, in part as a result of these input subsidies but also thanks to favorable weather, rural poverty has remained consistently high at around 80% (CSO 2010; Burke, Jayne, and Chapoto 2010; Mason et al. 2011).

The failure of FSP/FISP to move the dial on rural poverty could be attributed to several factors, including: 1) failure to successfully target poor farmers, with subsidized inputs going disproportionately to wealthier farmers; 2) delays in input distribution; 3) poor fertilizer use efficiency among beneficiary farmers; 3) poor monitoring of program effects; 4) leakages, whereby inputs intended for the subsidy program are diverted and resold on the commercial market; 5) lack of an exit strategy for weaning off beneficiaries; and 6) crowding out of private sector fertilizer purchases and suppliers (Xu et al. 2009; Burke, Jayne, and Sitko 2012; Burke, Jayne, and Black 2012; Mason and Jayne 2012).

Another great concern is the high levels of spending on the input subsidies, which raises questions about the financial sustainability of the program. For example, from 2009 to 2013, FISP garnered an average of 30% of the total budget allocation to the Ministry of Agriculture and Livestock (MAL). Actual spending on FISP has been even higher, averaging 34% of total government spending on agriculture from 2009 to 2011. FISP has also received a large share of agricultural sector PRP resources. From 2009 to 2013, the budget allocation to FISP averaged 69% of the total PRP budget, while actual spending on FISP averaged 45% of PRP expenditures from 2009 to 2011.

REVIEW OF FISP

FISP intended objectives, selection criteria and procedure: As outlined in the FSP and FISP implementation manuals, the aim of FSP/FISP is to increase private sector participation in the supply of agricultural inputs to smallholder farmers and also to contribute to increased household food security and incomes (MAL 2013). The criteria and procedure for selecting beneficiaries has evolved from the time the program started. Under FSP, the beneficiaries were selected by the District Agricultural Committees (DACs). However, in an effort to address widespread issues of targeting and input misappropriation, the Government decentralized the process of beneficiary identification for FISP to the agricultural camp level, through the creation of

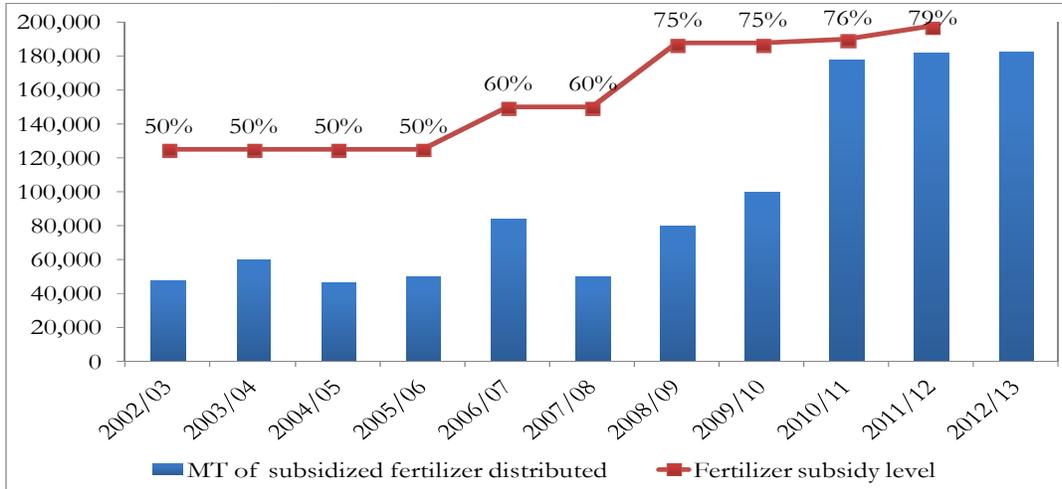
the Camp Agricultural Committees (CACs). The CAC is comprised of representatives from the following institutions: 1) cooperatives or farmer organizations from each zone; 2) a representative of the chief; 3) community-based organizations within the camp; 4) public offices other than MAL; and 5) MAL (with the Camp Extension Officer serving as the secretariat).

The following criteria are used by the CAC to select farmer beneficiaries. The beneficiaries should:

- i) Be members of a cooperative or other farmer organization;
- ii) Be smallholder farmers within the camp coverage area;
- iii) Have up to 5 ha of land and the ability to cultivate at least 1 ha of land;
- iv) Have the capacity to pay the initial payment (i.e., the farmer contribution to FISP);
- v) Not be concurrently benefiting from the Food Security Pack Programme; and
- vi) Not be a defaulter from the Food Reserve Agency (FRA) and/or any other agricultural credit programme.

The current composition of the CAC has some shortcomings. First, the representation is not broad enough to ensure wide participation of key agents at camp level, which raises concerns about the level of transparency in the selection of beneficiaries. Increasing the number of representatives could provide adequate representation and could enhance transparency in the selection of beneficiaries. Second, one representative from the chief is not adequate as there may be many headmen within a camp, each representing a different group of people. Third, being required to belong to a cooperative or farmer group in order to participate in FISP disadvantages farmers who are not able to pay group membership fees (Burke, Jayne, and Sitko 2012). Furthermore, anecdotal evidence suggests that the cooperative/farmer organization requirement under FSP and FISP has resulted in the creation of many “ghost” cooperatives and farmer groups, the sole purpose of which is to get subsidized inputs. A rethinking of the CAC composition and FISP eligibility requirements could address many of these concerns. We propose such changes in Section 5 of the policy brief.

Figure 1. Trends in Quantities of Fertilizer and Subsidy Levels for Beneficiaries



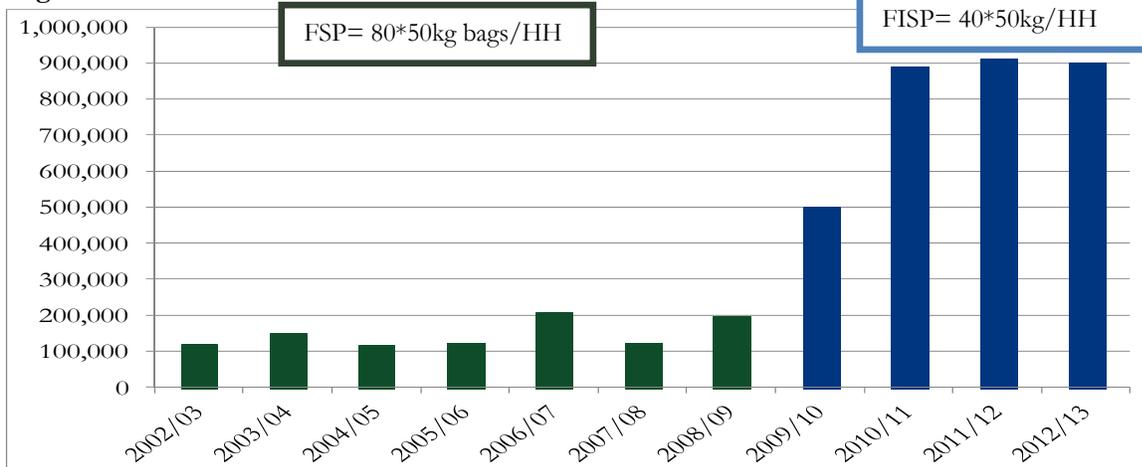
Source: Source: FISP Implementation Manual, various years.

Input subsidy distribution trends: The levels of fertilizer subsidies as well as the quantities distributed under FSP/FISP have increased markedly over the last 10 years. Currently, the subsidy rate for FISP fertilizer is 79% (meaning that beneficiary farmers pay 21% of the market price of the inputs). When the program started in 2002/03, the subsidy rate was 50%. Much of the increase in subsidy level can be attributed to the government's efforts to keep the overall cost to farmers of acquiring subsidized inputs relatively unchanged, despite global price increases of petroleum-based fertilizers. Similarly the quantities distributed have increased from 48,000 metric tons in 2002/03 to nearly 183,000 metric tons in 2012/13. Figure 1 shows the quantities of

fertilizer distributed and the fertilizer subsidy rates under FSP/FISP from 2002/03 through 2012/13.

The number of intended beneficiaries under FSP/FISP has also increased significantly over time. The program, which started with a target of 120,000 beneficiaries in 2002/2003, has increased to 900,000 intended beneficiaries in 2012/13. The reduction in the quantity of fertilizer per household from 8 X 50-kg bags under FSP to 4 X 50-kg bags under FISP, coupled with an increase in the volume of fertilizer distributed from 80,000 MT to 100,000 MT, contributed to the significant increase in the number of intended beneficiaries from 200,000 in 2008/09 to 500,000 in 2009/2010 (Figure 2).

Figure 2. Trends in Number of Intended Beneficiaries



Source: FISP Implementation Manuals - various years.

Table 1. Distribution of Smallholder Households, Poverty Rates, and Receipt of FISP Fertilizer by Crop Area Cultivated Category, 2010/11 Agricultural Year and 2011/12 Crop Marketing Year

Crop area cultivated category	# of HHs	% of total HHs	Poverty rate*	Number of HHs that received FISP fertilizer	% of HHs in category that received FISP fertilizer	% of total smallholder HHs that received FISP fertilizer	Average # of 50-kg bags of FISP fertilizer received per beneficiary HH
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
0-0.49 ha	241,289	17.0	78.4	17,091	7.1%	4.0%	3
0.5-1.99 ha	786,564	55.5	81.7	219,062	27.9%	51.7%	4
2-4.99 ha	333,910	23.5	65.8	157,121	47.1%	37.1%	6
5-9.99 ha	47,076	3.3	37.9	25,637	54.5%	6.1%	9
10-19.99 ha	9,153	0.6	14.8	4,576	50.0%	1.1%	15
All HHs	1,417,992	100.0	75.5	423,487	29.9%	100.0	5

Note: *Poverty rate based on US\$1.25/capita/day poverty line.

Source: RALS (2012).

Who is actually receiving FISP?: Before examining who receives FISP, it is important to note that of the 1,417,992 smallholder farmhouseholds in Zambia as of the 2010/11 agricultural year and 2011/12 crop marketing year, the vast majority (72.5%) cultivates less than 2 hectares (Table 1). Furthermore, an overwhelming majority (81%) of the households in this category is poor (RALS 2012)

As presented in Table 1, out of the 1,417,992 smallholder households countrywide, 423,487 (29.9%) received FISP fertilizer during the 2010/11 agricultural year (RALS 2012). This is despite the fact that the FISP budget for that year intended to reach 900,000 beneficiaries. Households cultivating more than 2 hectares of land are more likely to receive FISP fertilizer than those cultivating smaller areas. For example, 27.9% of smallholders in the 0.5-1.99 ha cultivated category received FISP fertilizer, whereas 47.1% of households in the 2-4.99 ha category received it (column E). Column F in Table 1 further emphasizes the fact that smallholders cultivating larger areas are over-represented among FISP beneficiaries. Although households cultivating less than 2 hectares represent 72.5% of all smallholder households, this group accounts for only 55.7% of the smallholder households that received FISP fertilizer. In contrast, households cultivating 2-

4.99 ha represent 23.5% of smallholder households but 37.1% of FISP beneficiaries. The over-representation is even more severe for households cultivating 5 or more hectares.

In addition to being more likely to receive FISP fertilizer in the first place, FISP beneficiaries cultivating larger areas receive significantly more subsidized fertilizer than beneficiaries cultivating smaller areas. For example, FISP beneficiaries cultivating less than 2 hectares receive an average of 3 to 4 X 50-kg bags of FISP fertilizer, whereas beneficiaries cultivating 2-4.99 hectares receive 6 bags on average. Those cultivating over 10 hectares receive a whopping 15 bags on average. Based on program guidelines, FISP recipients are all supposed to receive 4 X 50-kg bags of fertilizer. Households cultivating more than 2 hectares receive much more than this, either because multiple household members are involved in FISP or because the single household FISP participant manages to get more than 4 bags.

IMPACTS OF FISP ON POVERTY REDUCTION AND COMMERCIAL FERTILIZER:

Although we cannot directly link FISP to poverty reduction, rural poverty levels have remained stubbornly high at approximately 80% despite massive expenditures of nearly 3.3 trillion kwacha (unrebased) on FSP/FISP from the program's inception through the 2011 budget year

(MFNP various years). One of the implications of dedicating a large portion of the agricultural budget to FISP is that it severely limits the available funds for other critical MAL programs. For instance, many known drivers of agricultural growth for smallholders are receiving insufficient funds to achieve the competitiveness and diversification targets stipulated in the Sixth National Development Plan (SNDP) of the Republic of Zambia. Examples of the types of investments known to drive pro-poor agricultural growth are rural roads, irrigation, agricultural research and development, and education (Fan, Gulati, and Thorat 2008; Economist Intelligence Unit 2008).

Not only has FISP crowded out spending on other agricultural sector initiatives, but it has also crowded out commercial fertilizer purchases by smallholder households and, consequently, private sector participation in fertilizer retailing. Ideally, FISP fertilizer would be targeted to households that would not be able to afford to buy fertilizer at commercial prices. If it were targeted in this way, then each ton of FISP fertilizer injected into the system by the Zambian government would raise total fertilizer use by at least one ton. However, if the FISP fertilizer is allocated to households that would have otherwise purchased fertilizer from commercial retailers, then the impact of the program on total fertilizer use is reduced. Empirical evidence suggests that poor targeting of FISP and leakage of FISP fertilizer onto the commercial market has resulted in crowding out of commercial fertilizer purchases. As a result, each additional ton of FISP fertilizer injected into the system only raises total fertilizer use in Zambia by 0.53 tones (Mason and Jayne 2012). FISP's effect on total fertilizer use could be increased with stricter monitoring to reduce leakages and better targeting of FISP fertilizer, for example: i) to areas with less private sector participation in input retailing; ii) to poorer households, such as those with less land; and/or iii) to female-, widow-, or child-headed households.

RECOMMENDATIONS: Based on the issues discussed above, the following are the recommendations:

Recommendation #1: Revise the Targeting Criteria

- Given that more than 70% of all smallholder farm households cultivate less than 2 hectares of land, targeting FISP towards this category could substantially improve household food production and food security. The under-two-hectares-cultivated group also has the highest poverty rates (at about 80%), so targeting this category would also be an important strategy for reducing rural poverty. In addition, crowding-out effects of commercial fertilizer are minimized when farmers cultivating less than 2 hectares are targeted. Taking into account the fact that the objective of FISP is to target vulnerable but viable farmers, it is recommended that the program targets households that cultivate 0.5 to 2 hectares. Households cultivating less than 0.5 hectares should be targeted by the Food Security Pack and other social protection programs.
- For households that raise livestock or farm fish but do not qualify for FISP under the 0.5 to 2 hectares cultivated criterion, a livestock/fish farming criteria can be applied.
- To enable wider participation of farmers in the FISP program, membership in a cooperative or other farmer group should *not* be an eligibility requirement. As noted earlier, inability to pay cooperative/farmer group membership fees prevents some farmers from accessing FISP.
- All beneficiaries should be in the farmer register at camp level. This requirement could help to prevent farmers from crossing camps. The register should be updated on an annual basis, and copies should be kept at block and district levels.

Recommendation #2: Make the Selection Procedure More Transparent: The CAC, which should select FISP beneficiaries, should be constituted via an electoral college system. The elected CAC should be drawn from a more representative group of local leaders and community groups, namely:

- All headmen within the camp;
- Camp Extension Officer (Secretariat);
- Community-based organizations (CBOs);
- Faith-based organization (FBOs); and
- Heads of public offices other than MAL, e.g., Ministry of Education, Ministry of Health

- The elected CAC (established for a two-year tenure of office) should then be comprised of at least five members and a maximum of twelve members:
 - Up to three (3) headman;
 - Camp Extension Officer (Secretariat);
 - Up to two (2) representative of the CBOs as a group;
 - Up to three (3) representative of the FBOs as a group; and
 - Up to 3 heads of public offices other than MAL, e.g., Ministry of Education, Ministry of Health
- CAC meetings should be open to members of the public.
- A list of all selected beneficiaries should be published at camp level at a central place where all farmers and stakeholders can see who has been selected. The published list of selected beneficiaries should be signed by all CAC members.

Recommendation #3: Improve Monitoring and Evaluation : A well-defined monitoring system is critical for the effective and efficient implementation of FISP. The development of such a system could be carried out by an independent body composed of experts from different institutions, but leveraging existing data collected by the Central Statistical Office and MAL, such as the Crop Forecast Survey (CFS) and the Post-Harvest Survey (PHS). The monitoring and evaluation should be supported by:

- A rigorous audit at the end of the exercise – using data from the CFS or PHS to identify districts where there were serious variations between the number of intended and actual beneficiaries;
- The establishment and enforcement of punitive measures for those involved in any irregularities;
- Publishing results on districts’ performance in terms of targeting;
- Written reports specifically on FISP should be submitted to the block extension officer by the CAC’s secretariat, immediately after the distribution is complete. These reports should clearly stipulate the number of recipients and quantities of inputs distributed in that particular season. The quantities distributed in the camp should tally with the quantities received in the camp and the names of recipients should be attached to the reports. The reports, which

should be signed by CAC members, should provide adequate information for the monitoring and evaluation independent team as well as for the Auditors. The block officer should compile all reports from all the CACs in the block and submit to the DACOs office.

- DACO compiles report for PACOs office

Recommendation #4: Improve Targeting through Use of an E-Voucher: The use of an electronic voucher (e-voucher) system has the potential to improve targeting of beneficiaries. According to Sitko et al. (2012), the e-voucher can improve monitoring of the program because under such a system:

- Individual beneficiaries are linked electronically to an e-voucher through their national registration card (NRC) numbers;
- Beneficiaries personally present their NRC and e-voucher to the agro-dealer where the voucher is being redeemed;
- The agro-dealer enters the NRC number and reference pin into the system.

System can be designed to prevent an individual from redeem a given voucher multiple times. It can also be designed to ensure that the same individual cannot redeem vouchers after three consecutive years, thus aiding in the process of graduation.

CONCLUSION: Over the past decade, input subsidies through the Fertilizer Support Program and its successor, the Farmer Input Support Program, have been at the core of the Zambian government’s agriculture sector development strategy. The scale of the program has increased markedly over time, and has absorbed a total of K3.3 trillion (unrebated) since its inception through the 2011 budget year. Yet despite this massive spending on input subsidies, rural poverty rates remain stuck at approximately 80%. Poor targeting is likely to blame. For example, households that cultivate less than 2 hectares of land constitute 73% of all smallholder households but only 56% of FISP beneficiaries. Over 80% of households in this category fall below the US\$1.25/capita/day poverty line. FISP inputs go disproportionately to relatively wealthy households that cultivate more land. Targeting FISP to households that cultivate 0.5-2 hectares has the potential to greatly increase the poverty-reduction impact of the program.

Part of the reason for the under-representation of smaller-scale farmers in FISP is that they lack a strong voice on Camp Agricultural Committees, which select FISP beneficiaries. A second reason is their inability to afford cooperative/farmer group membership fees. Lack of transparency in the selection of beneficiaries has also plagued FISP. Expanding the CAC to better represent smaller-scale farmers, eliminating the requirement that FISP beneficiaries be members of a cooperative or farmer group, and requiring that lists of selected beneficiaries be publicly displayed at camp level could alleviate these problems. A strong monitoring and evaluation system as well as implementing FISP through an e-voucher could further enhance the effectiveness and efficiency of the program.

REFERENCES

- Burke, W.J., T.S. Jayne, and N.J. Sitko. 2012. *Can the FISP More Effectively Achieve Food Production and Poverty Reduction Goals?* Food Security Research Project Policy Synthesis No. 51. Lusaka, Zambia: FSRP. http://www.aec.msu.edu/fs2/zambia/ps_51.pdf
- Burke, W.J., T.S. Jayne, and J.R. Black. 2012. *Getting More 'Bang for the Buck': Diversifying Subsidies Beyond Fertilizer and Policy Beyond Subsidies.* Food Security Research Project Policy Synthesis No. 52. Lusaka, Zambia: FSRP. http://www.aec.msu.edu/fs2/zambia/ps_52.pdf
- Burke, W.J., T.S. Jayne, and A. Chapoto. 2010. *Factors Contributing to Zambia's 2010 Maize Bumper Harvest.* Food Security Research Project Working Paper No. 48. Lusaka, Zambia: FSRP. <http://www.aec.msu.edu/fs2/zambia/wp48.pdf>
- Central Statistical Office (CSO). 2010. *Poverty Trends Report, 1996-2006.* Lusaka: CSO.
- Economist Intelligence Unit. 2008. *Lifting African and Asian Farmers out of Poverty: Assessing the Investment Needs.* New York: The Economist Intelligence Unit.
- Fan, S., A. Gulati, and S. Thorat. 2008. *Investment, Subsidies, and Pro-Poor Growth in Rural India.* *Agricultural Economics* 39: 163-70.
- MAL. *Farmer Input Support Programme Implementation Manual.* Various years. Lusaka, Zambia: MAL.
- Ministry of Finance and National Planning (MFNP). Various years. *Estimates of Revenue and Expenditure: Activity Based Budget.* Lusaka: Zambia: Government Printer.
- Mason, M.N. and T.S. Jayne. 2012. *Fertilizer Subsidies and Smallholder Commercial Fertilizer Purchases: Crowding out, Leakage, and Policy Implications for Zambia.* Indaba Agricultural Policy Research Institute Policy Brief No. 58. Lusaka, Zambia: IAPRI. http://www.aec.msu.edu/fs2/zambia/ps_58.pdf
- Mason, N.M., W.J. Burke, A. Shipekesa, and T.S. Jayne. 2011. *The 2011 Surplus in Smallholder Maize Production in Zambia: Drivers, Beneficiaries, and Implications for Agricultural and Poverty Reduction Policies.* Food Security Research Project Working Paper No. 58. Lusaka, Zambia: FSRP. <http://www.aec.msu.edu/fs2/zambia/wp58.pdf>
- RALS. 2012. *Agricultural Livelihoods Survey.* Lusaka, Zambia: Government of Zambia.
- Sitko, N.J., R. Bwalya, J. Kamwanga, and M. Wamulume. 2012. *Assessing the Feasibility of Implementing the Farmer Input Support 5 Programme (FISP) Through an Electronic Voucher System in Zambia.* IAPRI Policy Brief No. 53. Lusaka, Zambia: IAPRI.
- Xu, Z., W.J. Burke, T.S. Jayne, and J. Govereh. 2009. *Do Input Subsidy Programs "Crowd in" or "Crowd out" Commercial Market Development? Modeling Fertilizer Demand in a Two-channel Marketing System.* *Agricultural Economics* 40: 79-94.

ACKNOWLEDGEMENTS: The Indaba Agricultural Policy Research Institute (IAPRI) is a non-profit company limited by guarantee and collaboratively works with public and private stakeholders. IAPRI exists to carry out agricultural policy research and outreach, serving the agricultural sector in Zambia so as to contribute to sustainable pro-poor agricultural development.

The authors wish to acknowledge financial support from the United States Agency for International Development (USAID) and the Swedish International Development Agency (SIDA) in Lusaka.