



TASAI
THE AFRICAN SEED ACCESS INDEX



Malawi Brief 2017 - The African Seed Access Index

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INTRODUCTION

A competitive seed sector is key to ensuring timely availability of high quality seeds of improved, appropriate varieties at affordable prices for smallholder farmers in Malawi. This country brief summarizes the key findings of The African Seed Access Index (TASAI) study conducted in 2016/17 to appraise the structure and economic performance of Malawi’s seed sector. With a focus on four grain and legume crops important to food security in Malawi – maize, beans, groundnut, and soya bean – the study evaluates the enabling environment for a vibrant formal seed sector. Cultivation of these four crops covers about 66% of the country’s arable land (FAOSTAT, 2017). The study covers 20 indicators divided into the following categories: Research and Development, Industry Competitiveness, Seed Policy and Regulations, Institutional Support, and Service to Smallholder Farmers. [Appendix 1](#) summarizes all 20 indicators and compares Malawi to other TASAI countries. TASAI seeks to encourage public policymakers and development agencies to create and maintain enabling environments that will accelerate the development of competitive formal seed systems serving smallholder farmers.

Overview

Like most other African countries, the seed industry in Malawi consists of two systems: the informal sector and the formal sector. This policy brief focuses almost exclusively on the formal seed sector.

The informal sector broadly refers to the system where farmers produce, obtain, maintain, and distribute seed resources from one growing season to the next (FAO, 1998). Due to limited exposure, low availability of most varieties, inability to purchase seeds, limited access to agro-dealers, or other reasons, most smallholder farmers in Malawi still rely on the informal seed sector. Standards in the informal seed sector are not monitored or controlled by government policies and regulations; rather, they are guided by indigenous knowledge and standards, and by social structures. The colloquial nature of transactions means that there is scant performance data on the informal sector.

The formal sector focuses on breeding and evaluating improved varieties, and producing and selling certified seed. The seed is certified by the Seed Services Unit (SSU) under the Department of Agricultural Research Services (DARS) in the Ministry of Agriculture, Irrigation and Water Development (MOAIWD). On average, the utilization rate for certified seed in Malawi is about 30%, ranging from approximately 49% for hybrid maize to 14% for pigeon pea (AGRA, 2015). As shown in Table 1, Malawi’s formal seed sector comprises numerous institutions, including government and the private sector (mostly local seed companies and agro-dealers). Farmer organizations such as the National Smallholder Farmers’ Association of Malawi (NASFAM) play a key role in seed production, training, and extension services to farmers. Established in 2004, the Seed Trade Association of Malawi (STAM) brings together seed companies and other key players in the industry.

Table 1: Role of key players in Malawi’s formal seed sector

| ROLE | KEY PLAYERS |
|------------------------------------|---|
| Research and breeding | DARS, CGIAR (IITA, CIAT, CIMMYT), MUSECO, LUANAR |
| Variety release and regulation | DARS, SSU |
| Seed production and processing | Seed companies, NASFAM |
| Education, training, and extension | Seed companies, LUANAR, DARS, STAM, SSU, DAES, NASFAM |
| Distribution and sales | Seed companies, agro-dealers, NASFAM |

Key acronyms: AFSTA – African Seed Trade Association; COMESA – Common Market for Eastern and Southern Africa; DAES - Department of Agricultural Extension Services; DARS – Department of Agricultural Research Services; FISP – Farmer Input Subsidy Program; ICRISAT - International Center for Research in the Semi-Arid Tropics; IITA – International Institute of Tropical Agriculture; MOAIWD - Ministry of Agriculture, Irrigation and Water Development; NASFAM – National Smallholders Farmers’ Association of Malawi; OPV – Open Pollinated Variety; SADC – Southern Africa Development Community; SSU – Seed Services Unit; STAM - Seed Trade Association of Malawi.



RESEARCH AND DEVELOPMENT

Number of active breeders

For the four priority crops in Malawi – maize, beans, groundnut, and soya bean – there are eight active breeders. Seven of the eight breeders are at the public agricultural research station under the Department of Agricultural Research Services (DARS). The remaining breeder works across the four crops for a seed company that produces foundation seed. The number of breeders for each crop are as follows: four for maize, three for beans, and two each for groundnut and soya bean. Private multinational seed companies rely on breeders based at their research stations outside Malawi.

On average, seed companies' satisfaction with the number of active breeders is fair (58%).¹ The satisfaction with the number of maize breeders is rated as good (71%), while satisfaction for the other three crops – beans (46%), groundnut (56%), and soya bean (54%) – is fair. Despite having a small number of breeders, seed companies rate their satisfaction with maize breeders as good because the maize breeding program receives technical and financial support from the International Maize and Wheat Improvement Center (CIMMYT). Nevertheless, there is scope to increase the number of public breeders for all four crops.

Varieties released in the last three years

Between 2014 and 2016, 17 new varieties were released. They were all maize; no bean, groundnut, or soya bean varieties were released during this period. Since 2000, 91 varieties of maize have been released compared to 4 for groundnut, 15 bean, and 3 soya bean over the same period. The most recent release for bean varieties was in 2011, for groundnut in 2005, and for soya bean in 2010. This confirms the limited investment in research and development of new varieties for crops other than maize. Figure 1 shows the 3-year moving average of variety releases since 2002. According to multiple sources, the main reason for the small number of varieties released is a lack of financial resources. Public breeding programs are under-funded by the government, and largely dependent on external (donor) funding.

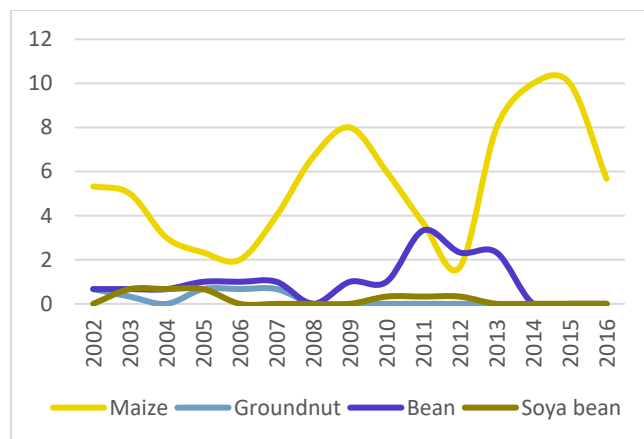


Figure 1: Number of varieties released in Malawi (three-year moving average)

Availability of foundation seed

On average, seed companies rate their satisfaction with the availability of foundation seed for all four crops as fair (56%). The highest satisfaction is for maize (65%), while the lowest satisfaction is for bean (49%). Satisfaction ratings for the availability of foundation seed for groundnut and soya bean are 58% and 52%, respectively. These ratings are highly polarized, with multinational seed companies (most of which maintain their own foundation seed) content with the availability of foundation seed (72% average rating), while smaller seed companies (most of which rely on public institutions) dissatisfied with the current situation (28% average rating).

For local companies, the main sources of foundation seed for the four crops are DARS and CGIAR centres – primarily the International Maize and Wheat Improvement Center (CIMMYT) for maize and the International Institute for Tropical Agriculture (IITA), the International Center for Research in the Semi-Arid Tropics (ICRISAT), and the International Center for Tropical Agriculture (CIAT) for the legume crops. Multinational seed companies use their own foundation seed sourced from their research facilities outside Malawi. One local private seed company is an important source of foundation seed (for all four crops) for at least five other seed companies.

These findings are consistent with a recent study on Early Generation Seed in Malawi (AGRA, 2015), which revealed that a notable shortage in the supply of breeder seed due to the low financial and technical capacity of research institutions and low level of private sector engagement in

¹ All scores reported in this brief are based on industry self-reporting of satisfaction ranging from 0% (completely dissatisfied) to 100% (completely satisfied).



local breeding programs. The study noted that the “lack of early generation seed supply is the critical issue leading farmers to informal markets” (AGRA, 2015, p. 2). This shortage is largely attributed to a lack of financial resources at the public institution (DARS), and a lack of local private sector breeding programs.

Average age of varieties sold

The average age of the varieties currently on the market is as follows: 5.7 years for maize, 11 years for beans, 18 years for groundnut, and 8 years for soya bean. However, the age of the most popular varieties, i.e. the varieties sold by the most companies, is higher than the average age of the varieties. The two most popular maize varieties were 6 and 8 years old, and sold by 7 companies. The ages of the most popular bean, groundnut, and soya bean varieties were 14 years, 26 years, and 13 years, respectively. This implies that farmers are generally reluctant to adopt new varieties, preferring rather to stick with well-known, older varieties.

Varieties with climate-smart features

To be classified as climate-smart, a crop variety must meet at least one of two criteria – early maturity and/or tolerance to extreme weather conditions such as drought, flooding, or frost. Of the 17 maize varieties released between 2014 and 2016, 15 had climate-smart characteristics. Of these, four were early-maturing and 11 were drought-tolerant. Most of the drought-tolerant varieties were bred in collaboration with CIMMYT under the Drought-Tolerant Maize for Africa (DTMA) program. No bean, groundnut, or soya bean varieties with climate-smart features were released in the past three years.

INDUSTRY COMPETITIVENESS

Number of active seed companies

By the end of 2016, there were 24 seed companies registered in Malawi. Of these, 22 are engaged in the production and/or marketing of seed for at least one of the four focus crops. The TASA survey covers 18 of these companies. Of the 22 companies, 21 produce maize, 19 produce beans, 14 produce groundnut, and 18 produce soya bean. One of the local private seed companies only produces

foundation seed. The level of seed company specialization by crop is limited – most of the seed companies are involved in at least three of the four focus crops.

The estimated aggregate sales of the four crops in 2015² was 18,590 metric tons. Maize seed accounted for about 77% (14,350 tons) of 2015 sales. The sales for beans, groundnut, and soya bean were 1,061 tons, 1,561 tons and 1,614 tons, respectively. The volumes of seed sales signify that there is room for growth in all four crops. The Early-Generation Seed study estimated the demand for maize seed to be 20,500 tons, bean seed to be 1,882 tons, and soya bean seed to be 11,076 tons (AGRA, 2015). These estimates are based on the percentage land utilization and seeding rate for each crop.

Market share of top seed companies

Market share is calculated using seed sales reported by seed companies. By crop, the market shares for the top four companies are: 95% for maize, 87% for beans, 80% for groundnut, and 93% for soya bean. Compared to the number of seed companies producing seed for each crop, these shares show that a few companies dominate the market for maize, beans, and soya bean (Fig. 2). The groundnut seed market is more competitive, with the top four companies controlling 80% of the market.

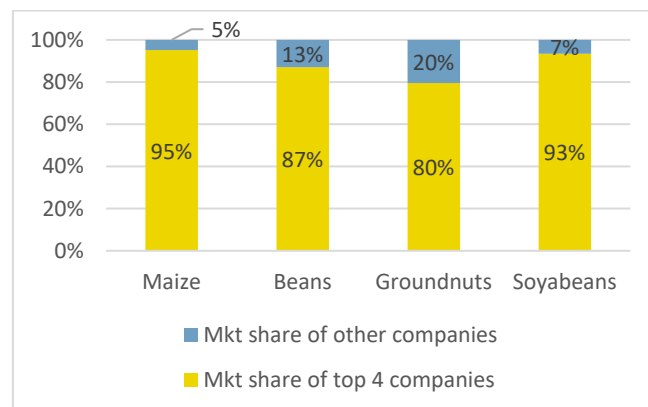


Figure 2: Total market share (%) of top four companies

The Herfindahl-Hirschman Index (HHI) was also used to quantify industry competitiveness. The index, a sum of squared market shares, ranges from near zero for perfect competition, to 10,000 for a pure monopoly. HHI was calculated for all the seed companies, for each crop. The market concentration for maize (3,539) and soya bean (3,308) is poor, while the market concentration for bean (2,574) and groundnut (2,013) is fair. The market shares

² Using 2015 data as this was most complete.



of the top four companies and the HHI results both indicate poor levels of competition in the seed market for three crops – maize, bean, and soya bean – as these are dominated by a few players.

Market share of government parastatal

No government parastatal plays a dominant role in the production and/or marketing of certified seed for any of the four crops. However, the Agricultural Development and Marketing Corporation (ADMARC) – a government parastatal that buys and sells agricultural produce predominantly from smallholder farmers – also sells farm inputs including fertilizers and seeds, under the Farm Inputs Subsidy Program (FISP). STAM estimates ADMARC's share of the seed market at 3%.

Length of import/export process for seed

In Malawi five companies are engaged in either exporting or importing certified seed. The length of the import process is calculated as the number of days from the time an import permit is applied for to the time the seed is cleared at the border. Of the four crops, only maize is imported into Malawi and comes from Zimbabwe and Tanzania. Seed companies reported that it takes, on average, 14 days to import seed into Malawi, and rated the process as excellent (83%). Seed companies export maize to Zimbabwe, Mozambique, Tanzania, South Africa, and Zambia; soya bean to Botswana; and groundnut to Zambia. One seed company exports foundation seed for soya bean to Zambia. Companies report that it normally takes 20 days to export seed, and they rate the process as fair (63%). Seed companies expressed frustration with the export process, particularly pertaining to challenges clearing seed at the border.

SEED POLICY AND REGULATIONS

Length of variety release process

The length of the variety release process is the duration of time from when the application for a variety release is submitted to when the variety is released by the relevant authority. In Malawi, crop variety release is the mandate of the Technology Release Committee.

The average release time across crops was 34 months, ranging from 24 to 36 months. Most companies reported that it takes 36 months to release a variety. This is consistent with the country's seed regulations, which require

breeders to present three seasons of performance data. Since the country experiences unimodal rainfall, this equates to three years. On average, seed companies rate their satisfaction with the release time for maize as fair (58%).

Status of seed policy framework

The Malawi National Seed Policy was passed in 1993, while the Seed Act was enacted in 1996. Significant industry developments led to revisions of the Policy and the Act in 2014 and 2013, respectively, but they are yet to be ratified by parliament. Until the seed policy and bill are ratified by Parliament, the 1993 Seed Policy, the Seed Act of 1996, and seed regulations of 1997 are still in force. Most stakeholders expressed concerns that the current legislations do not conform to the developments that have taken place in Malawi's seed industry.

Malawi is a signatory to the Common Market for Eastern and Southern Africa (COMESA) and Southern African Development Community (SADC) seed harmonization protocols and its seed regulations are currently being revised to conform with both regional protocols. The revisions will address issues such as seed certification, inspection, variety release, and seed movement in the region.

Quality of seed regulations and enforcement

Seed companies are generally unsatisfied with the quality of the seed policy and law, rating them as fair (54%). This is because both policy instruments were passed more than 20 years ago and have become outdated. Seed companies expect the regulations to be amended to conform to the COMESA and SADC seed regulations. Companies are less satisfied with the enforcement of regulations, rating the enforcement efforts as fair (46%). The SSU, which is mandated to enforce the seed law, is constrained by low funding and limited qualified personnel and to undertake the required functions. In this regard, the revised seed policy has recommended the transformation of the SSU into autonomous institution.

Adequacy of seed inspectors

The SSU has a total of 37 seed inspectors distributed in three regions. On average, seed companies rate their satisfaction with the adequacy of seed inspection services as fair (49%). The main challenges with inspection services are a lack of inspectors, and limited transportation resources to enable them to fulfil their duties. In some



cases, seed companies are compelled to offer transport to the inspectors for their seed fields to be inspected. To alleviate this challenge, SSU – through the Malawi Improved Seed Systems Project – has received support from USAID to train and accredit 142 seed para-inspectors. These para-inspectors will be responsible for most inspection activities before the final certification, which would still be conducted by SSU. The accreditation was conducted in 2016, and is expected to be rolled out in 2017. To complement this initiative, the Ministry intends to transform the SSU into the National Seed Commission, which would have more powers of enforcement and access to more resources.

Efforts to stamp out fake seed

Seed companies indicated that they had received a total of 20 reported cases of fake seed sales in 2016. This figure is likely to be an underestimate as most cases of fake seed are not officially reported. On average, seed companies are not satisfied with the government's efforts to stamp out fake seed, rating them as poor (38%). According to the seed companies, the main sources of fake seed are agro-dealers (who re-package seed in used packages) and other seed companies (who do not have sufficient controls over the handling of their seed packages).

The SSU is mandated to enforce the seed regulations, which includes the problem of fake seeds on the market. Recognising the current limitations within the SSU, and in an effort to reduce cases of fake seed sales, STAM embarked on a process of registering seed outlets and informing farmers about credible seed outlets.

The current penalties imposed on fake seed dealers are too lenient to be a deterrent (the maximum fine is MK 70,000, approximately US \$98). The 2013 draft Seed Bill proposes harsher penalties of MK 500,000-5,000,000 (approx. US \$700-7,000) in fines and/or imprisonment from six months to three years, for anyone convicted of dealing in fake seed.

Use of smart subsidies

Since 2005, the Malawian government has implemented the Farm Input Subsidy Program (FISP), aimed at low-income smallholder farmers. The program is relevant to seed companies because seed sales to FISP account for a significant portion of their overall seed sales. The number of beneficiaries has varied over time, with 900,000 targeted for the 2016/17 season. Each beneficiary is entitled

to a subsidized pack of 50 kg basal dressing fertilizer, 50 kg top dressing fertilizer, 5 kg maize seed, and 2 kg legume seed. The process is as follows: SSU indicates the tonnage of seed required per crop per company, and STAM negotiates a supply contract with the Ministry of Agriculture, Irrigation and Water Development on behalf of the seed companies, which ensures the delivery of high quality seed to the program. Once the contract requirements are satisfied, seed companies distribute seed through registered agro-dealer outlets. The farmers, who are identified by the MOAIWD, are given vouchers that can be redeemed for seed and fertilizer at agro-dealer outlets. SSU and STAM jointly monitor the outlets to ensure that only quality seed is being sold.

In 2016, 7,135 tons of maize seed and 2,827 tons of legume seed were sold through FISP. The total value of the seed was US \$13 million. On average, seed sold through FISP accounted for 66% of maize sales, 82% of bean sales, 82% of groundnut sales, and 65% of soya bean sales for the seed companies. This is consistent with government records stating that FISP accounts for 70% of total certified seed sales for maize and legumes. The main challenge with FISP is the lack of certainty in the types of crops covered, price, and delays in payments to seed companies.

INSTITUTIONAL SUPPORT

Availability of extension services

There are approximately 1,902 agricultural extension workers in Malawi. This translates to a ratio of one extension officer to 1,388 agricultural households. Most of the extension workers (1,862) are employed by the government under MoAIWD through the Department of Agricultural Extension Services (DAES). In addition to government extension officers, 10 of the 18 seed companies reported that they employ a total of 40 extension workers. This ratio of extension worker to farmer is much lower than in countries such as Ethiopia (1:592) or Zambia (1:560), which have the highest ratios at present. Seed companies rate their satisfaction with the extension services as fair (47%). One concern with the public extension officers is that they do not always have the latest information on new varieties, current prices, and suitability for different agro-ecologies.



Quality of national seed trade association

Established in 2004, STAM (Seed Trade Association of Malawi) comprises “entities involved with and dealing in seed production, processing, transporting, distributing, and marketing” (Seed Trade Association of Malawi (STAM), 2017). STAM aims to strengthen Malawi’s seed industry by: 1) Enhancing communication with MoAIWD;” 2) Promoting the “use of improved seeds to achieve high productivity for food and cash;” and 3) Ensuring “consistency and reliability in the supply of quality, high yielding seed to farmers” (Seed Trade Association of Malawi (STAM), 2017).

STAM currently has 28 members, including all the seed companies interviewed for this study. Seed companies rate their satisfaction with the overall quality of STAM as good (73%). Figure 3 illustrates the seed companies’ level of satisfaction with STAM’s performance in six service areas. STAM scores highest in democracy and governance, which is rated as excellent (84%). It is rated good in all other service areas, including activity on important seed sector issues (78%), effectiveness in advocacy (70%), managerial ability (69%), providing value to members (74%), and ability to mobilize resources (63%).

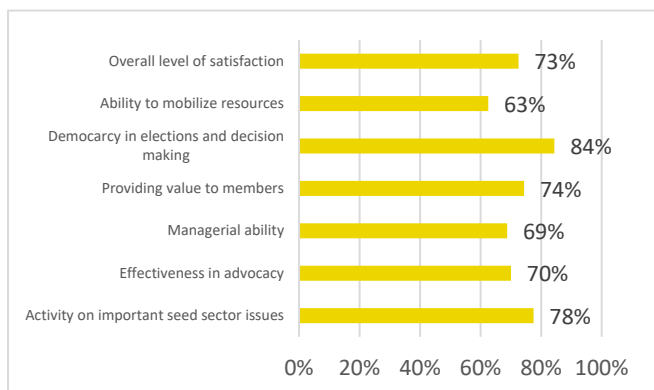


Figure 3: Members' satisfaction with STAM

SERVICE TO SMALLHOLDER FARMERS

Concentration of rural agro-dealer network

STAM facilitates the registration of agro-dealers in Malawi. According to the STAM agro-dealer database, in the 2015/16 season, Malawi had an estimated 2,000 seed outlet shops across the country. This translates to a ratio of one agro-dealer for every 1,320 agricultural households. However, one registered agro-dealer may have up to twenty outlets spread across regions, districts, or within the same district. Thus, the number of registered agro-dealers is likely to be an underestimate of the total

number of agro-dealer outlets. Most agro-dealer outlets are located near tarmac roads or trading centers, with few agro-dealers in rural areas. While seed companies rated their satisfaction with the agro-dealer network as good (64%), due to the small number of agro-dealers in rural areas, some farmers have to walk/travel long distances to access their preferred seed varieties.

Availability of seed in small packages

In total, 29% of the seed sold in Malawi was packaged in bags of 2 kg or less. While this is a relatively small proportion, there is significant variation across the four crops, as shown in Figure 4. The amount of seed sold in small packages ranges from a low of 17% for maize to a high of 87% for groundnut. The corresponding figure for beans is 79% and for soya bean it is 42%. Most (82%) of maize seed is sold in packages between 2 kg and 10 kg. The percentages are a clear reflection of the package sizes distributed through FISP, where maize is sold in 5 kg packages and legumes in 2 kg packages. On average, seed companies rate their satisfaction with the volumes of seed sold in small packages as good (78%). Companies are more satisfied with volumes of seed sold in small packages for maize (83%) and groundnut (84%) than for beans (78%) and soya bean (65%).

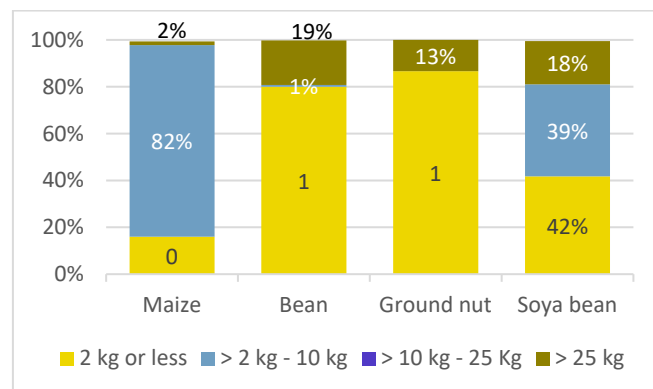


Figure 4. Percentage of seed sold in different package sizes

Seed-to-grain price ratio

Assuming stable prices at planting time, seed-to-grain price ratios can reflect the attractiveness of a variety or affordability of improved seed relative to farmer-recycled grain. The seed-to-grain price ratio for the four crops does not vary significantly. The seed-to-grain price ratios are higher for maize hybrids (4.17:1) and maize OPV (4.05:1) than for the other crops – beans (1.5:1), groundnut (1.89:1), and soya bean (1.82:1). The ratios for maize hybrid and OPV are very similar because both seed types are sold at the same price under FISP (Logistics Unit in the



Ministry of Agriculture, 2016). In the case of legumes, farmers pay MK 500 (US \$0.70) for a FISP pack of 3 kg soya bean or 2 kg for all other legumes (beans, groundnut, pigeon pea, and cowpea).

OPPORTUNITIES AND CHALLENGES

The current aggregate seed sales by seed companies in Malawi are significantly lower than the estimated demand, which presents opportunities for growth for various stakeholders along the seed value chain. This is especially applicable to maize, beans, and soya beans.

Seed companies should invest more in research and breeding to increase the number of varieties available to farmers. This should be complemented by investments in extension services and agro-dealer networks to ensure that seed is delivered to farmers efficiently.

STAM has become a strong association with an effective working relationship with the main actors in the seed sector. The organization should continue to expand its influence by facilitating more dialogue between the seed companies and the government on key issues, such as FISP implementation, engagement in COMESA and SADC seed harmonization efforts, the problem of fake seed, and the enactment and implementation of key seed policy instruments.

The government, on the other hand, needs to fast-track the passing of the seed policy and enactment of the seed law, and subsequently implement these in close collaboration with seed companies and other actors. These policy instruments will formally define the seed policy environment and implementation arrangements. In addition, the government needs to ensure that the implement of FISP is more transparent and reliable in terms of types of seed covered under the program, seed pricing, seed packaging, and payments to companies. These improvements would enable seed companies to make better plans for production. Further, the SSU should explore reducing the duration of the variety release process by conducting irrigated field trials, which could reduce length of the process from three years to under two years.

CONCLUSION

The seed industry in Malawi is in the growth stage. The low adoption rates of certified seed for key food crops (less than 50%) suggests that there is room for growth. The high

number of private seed companies, most of which are local, bodes well for the sector. The presence of an active seed association effectively complements private sector efforts in all aspects of the seed value chain.

To sustain an enabling environment for the industry, the government must work closely with private companies to manage FISP, address the issue of fake seed, and pass and implement relevant seed policy instruments. The private sector, on the other hand, needs to invest more in research and breeding efforts, extension services, and in agro-dealer distribution networks.

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APPENDIX 1.

For a comparison of TASAI Indicators across 13 countries, please visit: <http://tasai.org/wp-content/uploads/TASAI-Appendix-CURRENT.pdf>





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