INTRODUCTION

A competitive seed sector is key to ensuring the timely availability of high quality seeds of improved, appropriate varieties at affordable prices for smallholder farmers. TA‐SAI 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.

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. The study evaluates the enabling environment necessary to build a vibrant formal seed sector, focusing on four grain and legume crops important to food security in Malawi – maize, beans, groundnut, and soya bean – the cultivation of which 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 with 12 other African countries where TASAI has conducted similar studies.

Overview

Like in 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 in which 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 for 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 local social structures. The locally grounded nature of these transactions means that there is scant performance data available on the informal sector.

The formal sector focuses on breeding and evaluating improved varieties, as well as producing and selling certified seed. The seed is certified by the Seed Services Unit (SSU) within the Department of Agricultural Research Services (DARS) in the Ministry of Agriculture, Irrigation and Water Development (MOAIWD). On average, about 30% of farmers in Malawi use certified seed, 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 from both 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

<table>
<thead>
<tr>
<th>ROLE</th>
<th>KEY PLAYERS</th>
</tr>
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<tbody>
<tr>
<td>Research and breeding</td>
<td>DARS, IITA, CIAT, CIMMYT, MUSECO, LUANAR</td>
</tr>
<tr>
<td>Variety release and regulation</td>
<td>DARS, SSU</td>
</tr>
<tr>
<td>Seed production and processing</td>
<td>Seed companies, NASFAM</td>
</tr>
<tr>
<td>Education, training, and extension</td>
<td>Seed companies, LUANAR, DARS, STAM, SSU, DAES, NASFAM</td>
</tr>
<tr>
<td>Distribution and sales</td>
<td>Seed companies, agro-dealers, NASFAM</td>
</tr>
</tbody>
</table>

Key acronyms: AFSTA – African Seed Trade Association; CGIAR – Consultative Group on International Agricultural Development; CIAT – International Center for Tropical Agriculture CIMMYT – International Maize and Wheat Improvement Center; 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.
Number of active breeders

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

On average, seed companies’ rate their satisfaction with the number of active breeders as “fair” (58%).¹ They are most satisfied with the number of maize breeders, which are rated as “good” (71%), while satisfaction ratings for the number of breeders for the other three crops – beans (46%), groundnut (56%), and soya bean (54%) – are “fair”. Despite the 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 improve satisfaction among seed companies by increasing the number of public breeders for all four crops.

Varieties released in the last three years

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

¹ All scores are based on industry self-reporting of satisfaction on the following scale: 0-19.99% (extremely poor), 20-39.99% (poor), 40-59.99% (fair), 60-79.99% (good), and 80-100% (excellent).

Availability of foundation seed

On average, seed companies rate their satisfaction with the availability of foundation seed for all four crops as “fair” (56%). They are most satisfied with maize (65%) and least satisfied with 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 across companies: multinational seed companies (most of which maintain their own foundation seed) are content with the availability of foundation seed (72% average rating), while smaller seed companies (most of which rely on public institutions) are dissatisfied with the current situation (28% average rating).

For local companies, the main sources of foundation seed for the four crops are DARS as well as centers under the CGIAR – primarily 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 a notable shortage in the supply of breeder seed due to the low financial and technical capacity of research
institutions and the low level of private sector engagement in 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 most popular varieties, i.e. the varieties sold by most companies, are older. The two most popular maize varieties, which are sold by 7 companies, are 6 and 8 years old. The most popular bean, groundnut, and soya bean varieties are 14 years, 26 years, and 13 years old, respectively. This implies that farmers are generally reluctant to adopt new varieties, preferring 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 the 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. 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 produces only foundation seed, while the rest are engaged in the production and marketing of certified seed. The TASAI survey covers 18 of these companies. The level of seed company specialization by crop is limited – most of the seed companies are involved in the production of at least three of the four focus crops.

The estimated aggregate sales of the four crops in 2015 was 18,590 tons. The breakdown by crop is in Table 1. The volumes of seed sales, in comparison to the estimated demand for seed indicate that there is room for growth in all four crops. The estimates for demand for seed are from The Early Generation Seed study by AGRA (AGRA, 2015). These estimates are based on the percentage of land utilization and the seeding rate for each crop. (Note that groundnut was not included in the AGRA study.)

**Table 1: Seed sales and estimated demand for seed in Malawi**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Seed sales in MT (TASAI data)</th>
<th>Estimated demand in MT (AGRA EGS study)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>14,350</td>
<td>20,500</td>
</tr>
<tr>
<td>Beans</td>
<td>1,061</td>
<td>1,882</td>
</tr>
<tr>
<td>Groundnut</td>
<td>1,561</td>
<td>-</td>
</tr>
<tr>
<td>Soya bean</td>
<td>1,614</td>
<td>11,076</td>
</tr>
</tbody>
</table>

**Market share of top seed companies**

The market share of the four top seed companies is calculated using seed sales as 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 (see the preceding section), 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. The HHI was

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2 Using 2015 data as this was most complete.
calculated for all seed companies for each crop. The market concentration for maize (3,539) and soya bean (3,308) is high, while the market concentration for beans (2,574) and groundnut (2,013) is lower. The market shares of the top four companies and the HHI results both indicate poor levels of competition in the seed market for three crops – maize, beans, 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 application for an import permit to the time that the seed is cleared at the border. Of the four crops, only maize is imported into Malawi, coming from Zimbabwe and Tanzania. Seed companies reported that, on average, it takes 14 days to import seed into Malawi, and rated the process as excellent (83%). Malawian 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%). However, seed companies did express 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 period of time from the submission of an application for a variety release to the time of its release by the relevant authority. In Malawi, crop variety release falls under the mandate of the Technology Release Committee.

The average release time across crops was 34 months, with a range of 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 passed in 1996. Significant industry developments led to revisions of the Policy and the Act in 2014 and 2013, respectively, but these are yet to be ratified by parliament. Until the revised Seed Policy and bill are ratified, the 1993 Seed Policy, the Seed Act of 1996, as well as the Seed Regulations of 1997 are still in force. Most stakeholders expressed concerns that current legislation does not reflect 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 not very satisfied with the quality of the current 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 even less satisfied with the enforcement of regulations, to which they give a rating of 46% (“fair”). The SSU, which is mandated to enforce the seed law, is constrained by low funding and limited numbers of qualified personnel to take on the required functions. In this regard, the revised Seed Policy has recommended the transformation of the SSU into an autonomous institution, which would give it more freedom to carry out its mandate.
Adequacy of seed inspectors

The SSU has a total of 37 seed inspectors distributed across three regions. On average, seed companies rate their satisfaction with seed inspection services as “fair” (49%). The main challenges inspection services face are a lack of inspectors and limited transportation resources to enable them to fulfill their duties. In some cases, seed companies are expected to offer the inspectors transport for the inspection of their seed fields. To alleviate these challenges, the 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 will still be conducted by the SSU. The accreditation was conducted in 2016, and the para‐inspectors were expected to start working 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 received a total of 20 reports of fake seed sales in 2016. This figure is likely to be an underestimate, as most cases of fake seed sales are not officially reported. On average, seed companies are not satisfied with the government’s efforts to stamp out fake seed, rating these as “poor” (38%). According to the seed companies, the main sources of fake seed are agro‐dealers (who repackaging seed in used packages) and other seed companies (which do not have sufficient controls over the handling of their seed packages).

The SSU is mandated to enforce seed regulations, which includes tackling the problem of fake seeds on the market. Recognizing the current limitations of the SSU, and in an effort to reduce cases of fake seed sales, STAM has 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 act as 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 prison terms between six months and 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 farmer 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 works as follows: the 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, the 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. The 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 difficulty seed companies face with FISP is the lack of certainty concerning the types of crops covered in a given year, unpredictable pricing, 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 per 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 surveyed reported that they employ private extension workers, coming to a total of 40 extension workers across the
10 companies. 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 ongoing concern is that public extension officers do not always have the latest information on new varieties, current prices and the suitability of the new varieties for different agro-ecologies.

**Quality of the national seed trade association**

Established in 2004, STAM comprises “entities involved with and dealing in seed production, processing, transportation, distribution, and marketing” (Seed Trade Association of Malawi, 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, 2017).

STAM currently has 28 members, including all the seed companies interviewed for this study. Seed companies rate 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](image)

**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 or districts, or located within the same district. Thus, the number of registered agrodealers 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 agrodealers in rural areas, some farmers have to walk or 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 16% for maize to a high of 87% for groundnut, with 80% of beans and 42% of soya bean sold in small packages. Most (82%) maize seed is sold in packages between 2 kg and 10 kg. These 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 the 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](image)

**Seed-to-grain price ratio**

Assuming stable prices at planting time, seed-to-grain price ratios can reflect the attractiveness of a variety or the affordability of improved seed relative to farmer-
recycled grain. The seed-to-grain price ratio for the four crops did not vary significantly during the study period. Maize hybrids (4.17:1) and maize OPV (4.05:1) have higher seed-to-grain price ratios than the other crops – beans (1.5:1), groundnut (1.89:1), and soya bean (1.82:1). The ratios for maize hybrids 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 of all other legumes (beans, groundnut, pigeon pea, and cowpea).

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. However, 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.

To sustain an enabling environment for the industry, the government 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 should ensure that the implementation 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. Furthermore, 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. The private sector, on the other hand, needs to invest more in research and breeding efforts, extension services, and in agro-dealer distribution networks.

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

REFERENCES


APPENDIX 1.

For a comparison of TASAI Indicators across 13 countries, please visit: http://tasai.org/wp-content/uploads/TASAI-Appendix-CURRENT.pdf
ABOUT THE AFRICAN SEED ACCESS INDEX

The African Seed Access Index (TASAI) is a seed industry research initiative housed at Market Matters Inc. (MM Inc.). TASAI’s goal is to encourage African governments and other seed industry players to create and maintain enabling environments that will accelerate the development of a vibrant private sector-led seed system serving smallholder farmers. It is this enabling environment that TASAI seeks to measure, track and compare across Africa countries.

To assess the status of the seed industry value chain, TASAI employs 20 indicators grouped into five categories: Research and Development, Industry Competitiveness, Policy and Regulations, Institutional Support and Service to Smallholder Farmers.

By the end of 2019, TASAI studies will have been completed in 21 African countries: Burkina Faso, Burundi, Cote d’Ivoire, the Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe. In each country, TASAI works closely with local seed industry actors, government and international development agencies to share the TASAI findings and to identify the next steps for creating a vibrant national seed sector.

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