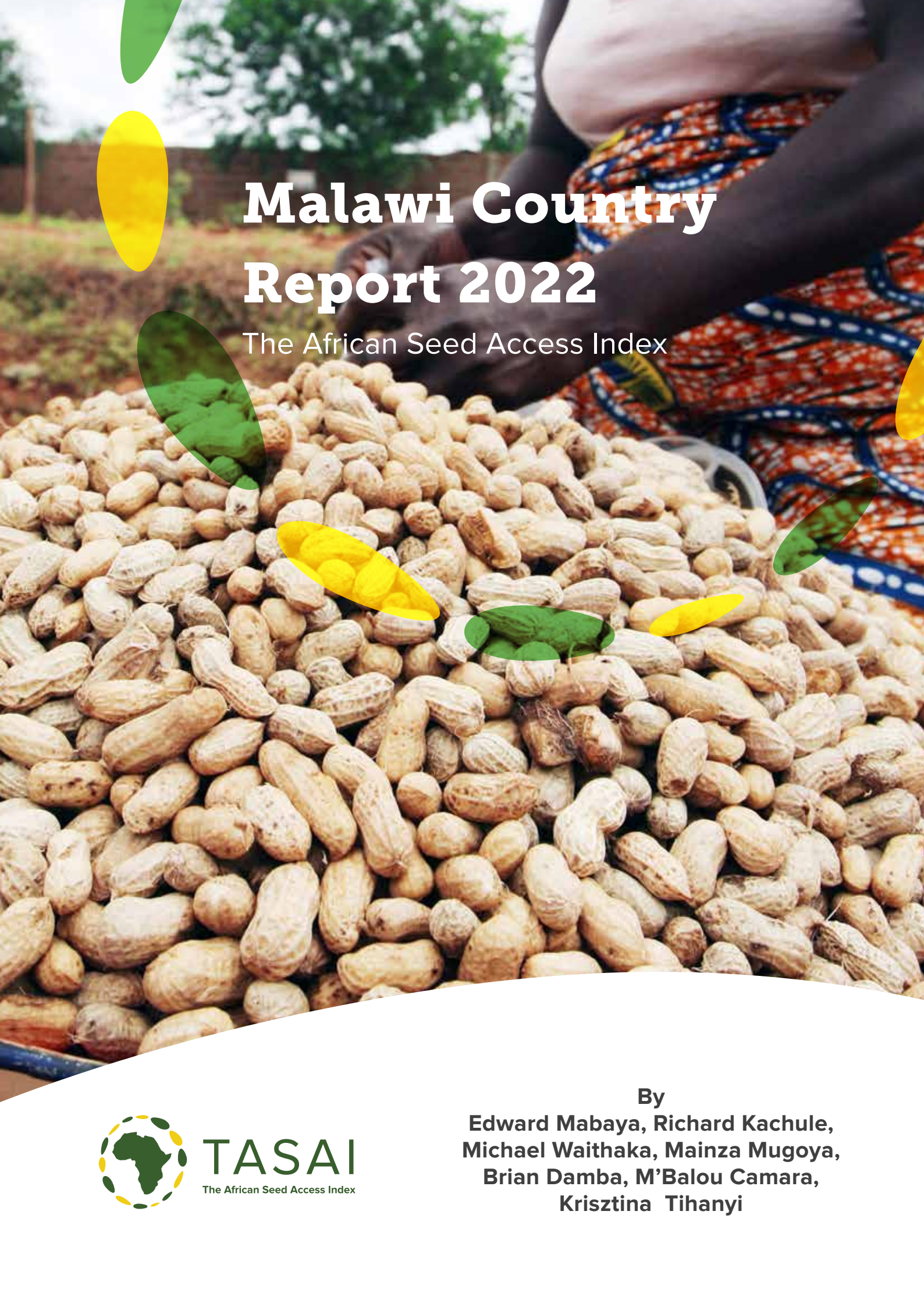




Malawi Country Report 2022

The African Seed Access Index



TASAI
The African Seed Access Index

By
Edward Mabaya, Richard Kachule,
Michael Waithaka, Mainza Mugoya,
Brian Damba, M'Balou Camara,
Krisztina Tihanyi

Malawi Country Report 2022

The African Seed Access Index

By

Edward Mabaya, Richard Kachule,
Michael Waithaka, Mainza Mugoya,
Brian Damba, M'Balou Camara, Krisztina Tihanyi

Reviewed by

Hastings Musopole

April 2023

The findings in this report were presented to seed sector stakeholders in a TASAI dissemination meeting held in Lilongwe, Malawi on December 14, 2022. The current version incorporates feedback from the meeting.

Cite as: Mabaya, E., Kachule, R., Waithaka, M., Mugoya, M., Damba, B., Camara, M., Tihanyi, K. 2023. Malawi Country Report 2022 - The African Seed Access Index (version April 2023)



CONTENTS

INTRODUCTION	1
RESEARCH AND DEVELOPMENT.....	5
INDUSTRY COMPETITIVENESS	11
SEED POLICY AND REGULATIONS	18
INSTITUTIONAL SUPPORT	23
SERVICE TO SMALLHOLDER FARMERS	25
CONCLUSION	29
REFERENCES.....	30



LIST OF ACRONYMS

AATF	African Agricultural Technology Foundation
AIP	Affordable Inputs Program (formerly called the Farm Input Subsidy Program)
APES	Agricultural Production Estimates
ATCC	Agriculture Technology Clearing Committee
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Centre for Tropical Agriculture
COMESA	Common Market for Eastern and Southern Africa
CIMMYT	International Maize and Wheat Improvement Center
DAES	Department of Agricultural Extension Services
DARS	Department of Agricultural Research Services
DUS	Distinctiveness, Uniformity and Stability
ICRISAT	International Crops Research Institute for Semi-Arid Tropics
IITA	International Institute of Tropical Agriculture
LUANAR	Lilongwe University of Agriculture and Natural Resources
MoA	Ministry of Agriculture
MUSECO	Multi Seeds Company Limited
NADA	National Agro-dealer Association
OPV	Open Pollinated Varieties
RUMARK	Rural Market Development Trust
SADC	Southern African Development Community
SSU	Seed Services Unit
STAM	Seed Trade Association of Malawi
TTU	Technology Transfer Unit
VCU	Value for Cultivation and Use

INTRODUCTION

The increased use of productivity enhancing technologies, including mechanization, irrigation, fertilizer and improved seed¹, are critical to improving food and nutritional security across Africa. For field crops, a competitive formal seed sector is key to ensuring the timely availability of high-quality seed of improved, appropriate varieties at affordable prices for smallholder farmers. Improved seed can deliver state-of-the-art technology to farmers including higher yields, disease and pest resistance, climate change adaptation, reduced post-harvest losses, and improved nutrition. To facilitate the delivery of these benefits to the farmers, The African Seed Access Index (TASAI) conducts seed industry assessments at the national level and uses the findings 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 in Africa.

This report summarizes the key findings of the study conducted by TASAI in 2022 to appraise the structure and economic performance of Malawi's formal seed sector. For Malawi, two similar studies were conducted in 2017 and 2020. TASAI studies focus on the four grain and legume crops important to a country's food and nutritional security (the "four focus crops"). In Malawi, the focus crops are maize, bean, groundnut, and soya bean. According to FAOSTAT (2020), the four crops account for 91% of the total area harvested for cereals, pulses, and key oil crops in 2020. Of the four crops, maize is the most important, accounting for 59% of the total area harvested.²

The focus crops are selected based on their contribution to both food security and income generation for agricultural households in Malawi. Maize is the country's staple food

crop grown by most smallholder farmers for domestic consumption. Legumes are promoted by the government because they are good sources of protein and edible oils, contribute to improved soil health, and provide income to agricultural households.

OVERVIEW OF MALAWI'S FORMAL SEED INDUSTRY

Like most other African countries, Malawi's seed industry consists of two systems: the informal and formal system. While TASAI acknowledges the presence of pluralistic seed systems, the primary focus of TASAI studies is the formal seed system: accordingly, this Country Report focuses almost exclusively on the formal seed system.

The informal system refers to a system where seed is produced, maintained, and distributed through informal networks. These activities "tend to be decentralized and might revolve around local entrepreneurship, seed banking, community-based seed production, or seed villages" (McGuire & Sperling, 2016). In many cases, farmers keep seed from the harvest and exchange it with neighbors and relatives, or sell it through rural markets. As the sector is not monitored or controlled by government policies or regulations, seed from the informal sector is of variable varietal purity as well as physical and sanitary quality.³ Although farmers do use their own technical knowledge and experience to guide seed production and genetic selection, the process is less rigorous than the R&D processes that characterize the formal sector. Nevertheless, most Malawian farmers continue to access seed (particularly legume seed) from the informal sector.

1 TASAI uses "improved seed" as shorthand for "quality seed of improved varieties".

2 Source: <https://www.fao.org/faostat/en/#data/QCL>, accessed on 16 September 2022

3 "Seed System Definitions," Agrilinks, USAID, accessed on January 30, 2023, <https://www.agrilinks.org/post/seed-system-definitions>.





The formal system is a structured and regulated value chain to produce and sell seed of improved variety. This process involves many actors and institutions, from breeding varieties to the multiplication, processing, and distribution of certified seeds which are sold in the formal seed sector. Depending on the existing regulations and standards, the different stages of improved seed production are regulated by the government. Seed from this system is sold through limited distribution channels, such as registered seed growers⁴ (or seed companies) and agro-dealers. Malawi's formal seed sector comprises seed companies that deliver certified seed of improved varieties to the country's agricultural community.

In Malawi, the Seed Services Unit (SSU) in the Department of Agricultural Research Services (DARS) is the government agency responsible for the overall coordination of seed industry activities in the country, including the implementation of the Seed Regulations. In addition, the Seed Trade Association of Malawi (STAM), an apex body of seed companies, plays a key role in coordinating the private sector's collaboration with the government. Table 1 below provides a list of stakeholders and their key roles in Malawi's formal seed sector.

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

ROLE	KEY PLAYERS
Research and breeding	Department of Agricultural Research Services (DARS), private seed companies, Consultative Group on International Agricultural Research (CGIAR) centers
Variety release and regulation	DARS, Seed Services Unit (SSU), Ministry of Agriculture (MoA)
Seed production and processing	Seed companies, farmers' cooperatives, CGIAR centers, and individual seed growers
Education, training, and extension	Seed Trade Association of Malawi (STAM), Department of Agricultural Extension Services (DAES), Lilongwe University of Agriculture and Natural Resources (LUANAR), DARS and seed companies
Distribution and sales	Seed companies and agro-dealers

⁴ Malawi's Seed Regulations require anyone producing and selling seed to be registered as a seed grower or processor annually (Part IV) (MAIWD 2018). Seed companies are seed growers that are also registered as companies before they commence operations as a seed business. Membership to STAM is open to seed companies.



METHODS

TASAI studies cover 22 indicators divided into five categories: **Research and Development, Industry Competitiveness, Seed Policy and Regulations, Institutional Support, and Service to Smallholder Farmers** (Table 2). In most TASAI studies, the bulk of the performance data reported comes from the year preceding the year when the study is conducted ("the study year"). Accordingly, the data reported in this Country Report pertain primarily to 2021; however, whenever 2022 data were available, they are included in the report.

Table 2: TASAI Indicators

	Crop-specific	Impact on seed access ^a
A RESEARCH AND DEVELOPMENT		
A1 Adequacy of active breeders	Yes	+
A2 Number of varieties released	Yes	+
A3 Number of varieties with 'special' attributes/ features	Yes	+
A4 Availability of basic seed	Yes	+
B INDUSTRY COMPETITIVENESS		
B1 Number of active seed companies/producers	Yes	+
B2 Quantity of seed produced	Yes	+
B3 Number of varieties sold	Yes	+
B4 Average age of varieties sold	Yes	-
B5 Market concentration	Yes	-
B6 Market share of state-owned seed company	Yes	-
B7 Efficiency of seed import/export processes	Yes	+
C SEED POLICY AND REGULATIONS		
C1 Length and cost of variety release process	Yes	-
C2 Status and implementation of national seed policy framework	No	+/-
C3 Harmonization with regional regulations	No	+
C4 Adequacy of efforts to eradicate counterfeit seed	No	+
C5 Use of government subsidies	No	+/-
D INSTITUTIONAL SUPPORT		
D1 Performance of national seed association	No	+
D2 Adequacy of seed inspection services	No	+
E SERVICE TO SMALLHOLDER FARMERS		
E1 Availability of agricultural extension services for smallholder farmers	No	+
E2 Concentration of agro-dealer network	No	+
E3 Availability of seed in small packages	Yes	+
E4 Seed and grain price at planting time	Yes	+/-

^a A plus/negative sign signals a positive/negative correlation between the indicator and smallholder farmers' access to improved seed.

To show progress, the Country Report draws comparisons to the findings of the 2017 and 2020 TASAI Malawi studies (with performance data primarily from 2016 and 2019, respectively).⁵ In addition, since TASAI has conducted similar studies in 21 other African countries, this report also draws relevant cross-country comparisons. More detailed temporal (across previous studies) and cross-sectional (across other African countries) comparisons are now available through an online dashboard (<https://dashboard.tasai.org>).

Using TASAI survey tools, data collection focused on three key seed industry players: seed companies, plant breeders, and representatives of government entities active in Malawi's seed sector. Of these, seed growers were the primary source of information. For several indicators, TASAI supplemented quantitative data with self-reported average levels of industry satisfaction on a 0-100 scale, with the following brackets: 0-19.99% **extremely poor**, 20-39.99% **poor**, 40-59.99% **fair**, 60-79.99% **good**, and 80-100% **excellent**.

⁵ TASAI methodology has become more precise and detailed since the first studies were conducted; as a result, data may not be available for all indicators and all years.

In 2021, 25 seed companies were registered to produce seed in Malawi. According to the SSU, 16 seed companies registered to produce and market maize, bean, groundnut, or soya bean seed in 2021 (Table 3). Out of the 16 seed companies, 13 were interviewed. The remaining three were reluctant to be part of the survey. For bean, groundnut and soya bean, the number of companies surveyed by TASAI was greater than the number registered by SSU. The explanation for this is that some of the companies that had registered to produce maize also produced and marketed seed of other crops.

In addition to the seed companies, the study interviewed seed industry stakeholders, including the DAES, the SSU under DARS, the Affordable Inputs Program (AIP) in the Ministry of Agriculture, and government breeders working on the focus crops. Several non-governmental organizations, such as AGRA, the Farmers Union of Malawi (FUM), and the National Association of Smallholder Farmers in Malawi (NASFAM) were also interviewed.

Table 3: Breakdown of registered seed companies by crop (2021)

Crop	Number of registered seed companies (SSU data)	Number of seed companies surveyed (TASAI data)
 Maize	14	13
 Bean	8	10
 Groundnut	8	9
 Soya bean	8	9
Total	16	13



RESEARCH AND DEVELOPMENT

NUMBER OF ACTIVE BREEDERS

A functioning seed system needs vibrant public and private breeding programs to develop improved varieties that respond to the needs of farmers and consumers. The number of active⁶ public breeders is indicative of the level of investment in research and development - the strength of the national breeding programs. In addition to tracking the number of breeders working on the four focus crops, the study also measured seed companies' level of satisfaction with the public breeding programs. The latter reflects the ability of active breeders in public institutions to produce new varieties.

DARS develops varieties for release through the government variety release system. As of 2021, DARS had 7 active breeders for the four focus crops: 3 for maize, 1 for soya bean, 1 for groundnut, and 2 for bean seed (Table 4). In addition, the CGIAR centers employ an additional 5 breeders. ICRISAT has 1 groundnut breeder, CIAT has 1 bean breeder, and 1 soya bean breeder is employed by IITA. It is important to note that these breeders develop varieties for multiple countries in the region; as such, we mention them but do not include them in the count of active public breeders for Malawi.

⁶ TASAI studies define an "active breeder" as a breeder who is currently engaged in breeding/maintaining a variety or who had either developed and released at least one variety or was developing a variety of crop of interest at the time of the TASAI study. This indicator tracks the vibrancy of public breeding programs; as such, it does not assess the adequacy of breeders from the CGIAR (and similar) centers whose mandate covers multiple countries/regions, although they may be mentioned in the report.

According to seed companies, the country's public breeding programs led by DARS do not have adequate financial support from government, so breeders often rely on external funding for their work. However, such projects are usually short-term and do not cover the full costs of long-term variety development. Another challenge lies in poor infrastructure, including inadequate cold storage for planting materials and a lack of reliable irrigation facilities, forcing breeders to rely on rain for crop production.

At present, no private seed company in Malawi has its own breeding program, although multinational companies conduct adaptation trials for varieties developed in other countries but which may also be suitable for Malawi's agro-ecological zones. Those varieties are not included in the study. Local seed companies in Malawi rely on DARS to access public varieties, developed and/or released by public breeding institutes.

Table 4 shows the number of active public breeders and seed companies' level of satisfaction with the adequacy of the said breeders. Between 2016 and 2021, the number of breeders working on maize, bean and groundnut declined slightly. Despite the decline in numbers, the satisfaction ratings were "good" for agroundnut and soya bean and "fair" for maize and bean crops in 2021: 56% for maize, 54% for bean, 66% for groundnut, and 61% for soya bean. Importantly, the overall trend since 2016 points upwards for bean groundnut and soyabean. As will be discussed in later sections, this improvement is due to the larger number of varieties released in the last few years and increased availability of basic seed.

Table 4: Number and adequacy of active breeders in Malawi

Crop	Total number of DARS breeders			Satisfaction rating (out of 100%)		
	2016	2019	2021	2016	2019	2021
 Maize	4	2	3	71%	64%	56%
 Bean	3	2	2	46%	57%	54%
 Groundnut	2	2	1	56%	68%	66%
 Soya bean	2	1	1	54%	57%	61%
Total^a	8	7	7			

^a In some cases, the same breeder may work on multiple crops, so the total number of breeders may not equal the sum of breeders by crop.

extremely poor poor fair good excellent

VARIETIES RELEASED IN THE LAST THREE YEARS (2019-2021)

The number of varieties released is a good measure of the functioning of the variety development and release system. In addition to higher yields, new varieties often carry desired traits, such as climate smartness, disease/pest resistance, and nutrition-enhancements. A total of 183 varieties of the focus crops have been released in Malawi during the years 2000-2021. Maize has seen the most releases with a total of 128 varieties, followed by bean (35), soya bean (13), and groundnut varieties (7). Focusing on the last three years (2019-2021), 33 improved varieties were released: 16 for maize, 4 for bean, 3 for groundnut, and 10 for soya bean.

Figure 1 shows the trend in the number of varieties released (3-year moving average).⁷ The number of varieties released for maize and groundnut has declined since 2018. In contrast, soya bean has seen a sudden increase in variety releases, using support provided to the DARS soya bean breeding program by the Partnerships for Seed Technology Transfer in Africa (PASTTA) project, implemented by the African Agricultural Technology Foundation (AATF). We note that no varieties were released following the COMESA Seed Trade Harmonized Regulations. SSU indicated that they expects to implement the COMESA system once the Seed Act of 2022 is enacted.

⁷ A moving average is commonly used to smooth out short-term fluctuations in time-series data; this indicator uses a 3-year moving average.

Figure 1: Trend in the number of varieties released (3-year moving average)



VARIETIES WITH SPECIAL FEATURES

Varieties may have special characteristics, for instance climate-smart, use-related (e.g., fast-cooking or nutrition-enhanced), or industry-demanded features. While acknowledging the increase in biotic stresses (pests, weeds, and diseases) due to climate change, TASAI studies narrowly define “climate-smart features” as those that respond to extreme weather events (droughts, floods, and frost) that affect current farming practices. Examples of climate-smart features are drought tolerance, early maturity, or extra-early maturity.

Between 2019 and 2021, 9 out of the 16 maize varieties released were early maturing (a climate-smart feature). These early maturing maize varieties were ZAP 55, ZAP 43, PGS 51, ZAP 63, SY5054, and SY5944 (released in 2020) and DKC 80-23, SC 555, and SC559 (released in 2021). Out of the 10 soya bean varieties released between 2019 to 2021, 2 had climate-smart and another 2 had industry-demanded features. No bean varieties released during this period had special features. Two soya bean varieties released in 2020 (AVSBO 810 and TGX 1991-22F) were early maturing, and two other soya bean varieties (SC signal and SC Saga) contained oil and protein (an industry-demanded feature). All three groundnut varieties released between 2019 and 2021 were early maturing and drought tolerant (CG15, CG16, and GNA (ICGV-SM 03517)).

Table 5: Number of varieties released that have special features (2019 - 2021)

Feature	Description of feature	Number of varieties released				
		Maize	Bean	Groundnut	Soya bean	Total
All varieties released		16	4	3	10	33
All varieties released with special features		9	0	3	4	16
Climate-smart features	All	9	0	3	2	14
	Drought tolerance	0	0	3	0	3
	Early / extra-early maturing	9	0	3	2	14
Use-related features	All	0	0	0	0	0
	Fast-cooking	0	0	0	0	0
	Nutrition-enhanced	0	0	0	0	0
Industry-demanded features	All	0	0	0	2	2
	Oil and protein content	0	0	0	2	2

NUMBER OF VARIETIES SOLD

An increase in the number of varieties sold in a country often results in increased choice of varieties available to farmers. Table 6 shows that from 2019 to 2021, the number of varieties sold to farmers across the four focus crops increased from 47 to 51. Much of the overall increase can be attributed to maize varieties sold, which went up from 31 to 39. The number of varieties sold for groundnuts was the same, while the number of bean and soya bean varieties sold changed little. The legume varieties released in the period (bean, groundnut, and soya bean) are all public varieties (i.e., they were released by DARS). Overall, the number of varieties sold for these crops is relatively low because bulking the basic seed is time consuming and costly for both public institutions and seed companies.

In 2021, only 3 out of the 12 commonly sold varieties were under 10 years old (Table 6), indicating that most varieties used by farmers in Malawi are generally old. Among the most commonly sold maize varieties were three from the ZM series, OPV maize varieties developed by CIMMYT, which were 12 or 18 years old depending on the variety. The fourth commonly sold variety, MH40A, was 5 years old. The 'popularity' of the ZM series is due to the fact that these varieties were provided under the Affordable Inputs Program (seed subsidy program) at low cost to farmers.

In the case of bean, the two most commonly sold varieties are NUA 45 and NUA 59, both 12 years old. For groundnuts, the most commonly sold varieties were CG7, CG9, and CG11. Of these, CG7 is 31 years old -and the oldest variety on the market at this time, while the other two varieties are 7 years old. CG7 is known for its large grains. Despite the fact that this groundnut variety is susceptible to rosette disease and newer varieties (such as CG9, CG10 and CG11) have been released, CG7 is still widely used. Finally, the two most commonly sold soya bean varieties are Tikolore and Makwacha, 11 and 18 years old, respectively. A common challenge across the four crops is that old(er) varieties persist because new varieties are not adequately promoted to farmers.





Table 6: Number, name, age, and average age of commonly sold varieties

Crop	Number of varieties sold			Name of commonly sold variety ^a	Age of variety in years (2021)	Average age of commonly sold varieties (all varieties sold)
	2016	2019	2021			
 Maize	29	31	39	ZM 523	12	12(9)
				ZM 623	18	
				ZM 309	12	
				MH 40A	5	
				SC719	13	
 Bean	8	6	5	NUA 45	12	12(11)
				NUA 59	12	
 Groundnut	3	5	5	CG 9	7	15(15)
				CG 7	31	
				CG 11	7	
 Soya bean	6	5	6	Tikolore	11	15(15)
				Makwacha	18	

^a Privately owned varieties (owned by seed companies) are not listed among the commonly sold varieties as they are only sold by one seed company. However, some of these varieties may be very popular among farmers.

SOURCES AND AVAILABILITY OF FOUNDATION (BASIC) SEED

Seed companies use foundation (or basic) seed to produce certified seed to sell to farmers. In many African countries seed companies find it difficult to scale production because they have limited access to basic seed from public institutions.

Seed companies may request basic seed from DARS without prior notice or application, and, if the requisite amount and variety of basic seed is available, DARS invoices the seed company, and, upon payment, the company may collect the basic seed. Given this process of accessing basic seed, public institutions produce basic seed without information about upcoming demand, which in turn may result in a scarcity or a surplus of basic seed. It also indicates that seed companies do not forecast their certified seed demand either.

Sources of basic seed: There were four main sources of basic seed in Malawi in 2021: DARS, CGIAR centers (CIMMYT and ICRISAT), other seed companies, and own source. All source entities are registered by the SSU, who inspects all corresponding fields of production. DARS was the main source of basic seed for maize, bean, and soya bean, responsible for between 34-48% of transactions. ICRISAT was the source of 73% of basic seed for groundnut. Private companies (using their own basic seed or supplying basic seed from other companies) were a source of basic seed for 44% of all maize transactions and 55% soya bean transactions.

Seed companies' assessment of the availability of basic seed by organization: Seed companies were asked to assess each source organization on three aspects related to the availability of basic seed: the quality of basic seed received, whether they received the quantity of basic seed requested, and the timeliness of delivery of the seed. Table 7 summarizes these ratings by crop and source organization.



Table 7: Sources of basic seed by crop, number of transactions, and percentage of total transactions (2021)

	Maize		Bean		Groundnut		Soya bean	
Source of basic seed	Number of transactions	% of total	Number of transactions	% of total	Number of transactions	% of total	Number of transactions	% of total
DARS	8	44%	5	46%	2	18%	3	34%
Other ^a	4	22%	1	9%	1	9%	3	33%
Own	4	22%	1	9%	0	0%	2	22%
CIMMYT	1	6%	0	0%	0	0%	0	0%
ICRISAT	0	0%	4	36%	8	73%	0	0%
MUSECO	1	6%	0	0%	0	0%	1	11%
Totals	18	100%	11	100%	11	100%	9	100%

^a "Other" in this case refers to other seed companies.

Table 8: Satisfaction rating of the quality, quantity, and timeliness of basic seed received by source organization (2021)

Crops		CIMMYT	DARS	MUSECO	OWN	ICRISAT	OTHER
 Maize (n=18)	Quality	50	69	80	90	N/A	88
	Quantity	50	60	90	90	N/A	83
	Timeliness	50	64	80	85	N/A	80
 Bean (n=11)	Quality	N/A ^a	56	N/A	80	73	80
	Quantity	N/A	40	N/A	60	67	20
	Timeliness	N/A	64	N/A	60	83	60
 Groundnut (n=11)	Quality	N/A	70	N/A	N/A	69	70
	Quantity	N/A	65	N/A	N/A	73	90
	Timeliness	N/A	65	N/A	N/A	79	90
 Soya bean (n=9)	Quality	N/A	80	70	75	N/A	77
	Quantity	N/A	77	70	80	N/A	53
	Timeliness ^b	N/A	80	80	80	N/A	77

^a "N/A" means that the information requested does not apply to the source organization.

^b Quality, quantity and timeliness of basic seed are all opinion ratings and reflect how satisfied seed companies were with these attributes for the basic seed that they received.

extremely poor poor fair good excellent

Seed companies' assessment of the quality of basic seed:

Seed companies' rating of the quality of maize seed supplied was "excellent" for MUSECO, other, and own source, "good" for DARS, and "fair" for CIMMYT. For bean, the rating was "excellent" for other, own source, and MUSECO, "good" for ICRISAT, and "fair" for DARS. For groundnut, the rating was "good" for DARS, ICRISAT, other, or own. For soya bean the rating was "excellent" for DARS and "good" for MUSECO and other and own source.

Seed companies' assessment of the quantity of basic seed:

Seed companies' rating of the quantity of seed supplied was "excellent" for MUSECO, other, and own source, "good" for DARS, and "fair" for CIMMYT. For bean, the rating was "good" for own and ICRISAT, "poor" for DARS, and "very poor" for "other." For groundnut, the rating was "excellent" for "other," and "good" for ICRISAT and DARS. For soya bean the rating was "excellent" for own source, "good" for DARS and MUSECO, and "fair" for "other."

Seed companies' assessment of timeliness of delivery of basic seed:

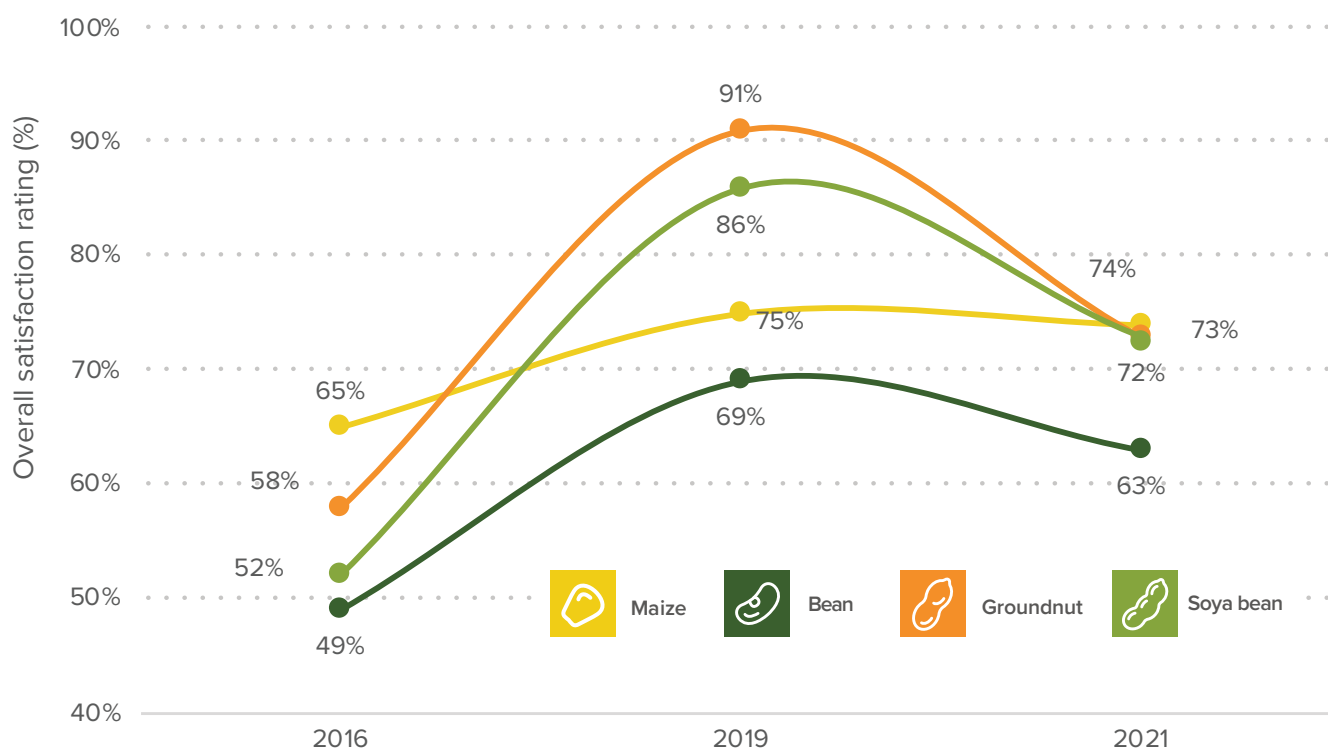
Overall, the timeliness of maize basic seed was rated "excellent" for MUSECO, other, and own source, "good" for DARS and "fair" for CIMMYT. For bean the rating was "excellent" for ICRISAT and "good" for DARS, own source

and other seed companies. For groundnut, the rating was "excellent" for other and "good" DARS and ICRISAT. For soya bean, the rating was "excellent" for DARS, MUSECO and own source, and "good" for other seed companies.

Normally, buyers of basic seed make arrangements to collect the seed when ready. Due to COVID-19 and the precautionary measures that followed to reduce its spread, these seed collection processes were hindered in 2021, impacting the timeliness of basic seed delivery in particular.

Overall ratings on the availability of basic seed: Averaging all three ratings, the study also presents the overall ratings on the availability of basic seed. Figure 2 presents these overall satisfaction levels by crop and compares available data from 2016, 2019, and 2021. Accordingly, satisfaction levels with the availability of basic seed decreased by 1% for maize, 6% for bean, 18% for groundnut, and 13% for soya bean from 2019 to 2021. During this period, the Malawian government's seed subsidy program significantly reduced the volumes of legume seed used by the program. As a result, companies producing basic seed also reduced their volumes of seed supplied. Despite the drop over time, seed companies' satisfaction levels remained "good" for all four crops in 2021: 74% for maize, 63% for bean, 74% for groundnut, and 72% for soya bean.

Figure 2: Overall satisfaction rating of the availability of basic seed



INDUSTRY COMPETITIVENESS

NUMBER OF ACTIVE SEED COMPANIES

Competition breeds excellence: the presence of more active seed companies⁸ increases competition and creates incentives for companies to innovate and improve. A vibrant seed sector depends on a robust private sector in which seed companies invest in developing, producing, processing, and marketing improved varieties to farmers. This section tracks the number of registered seed growers/companies that produced and marketed seed of one or more of the focus crops.

To operate as a business in Malawi, seed companies must register with the Registrar of Companies and their operations must follow the regulations based on the Business Licensing Act, the Companies Act, and the Taxation Act. For purposes of seed quality control and inspection, the seed companies must also register with the SSU each growing season. During the 2021/22 growing season, 20 companies registered with the SSU to produce seed. Of the 20 companies, sixteen registered to produce at least one of the four focus crops, and thus were counted as 'active seed companies.' The remaining four entities were a company that focused on tobacco seed and three CGIAR research institutions.

⁸ TASAI defines an "active seed company" as a company that produces and/or markets seed of one or more of the four focus crops in the TASAI study year.

Figure 3: Number of active seed companies

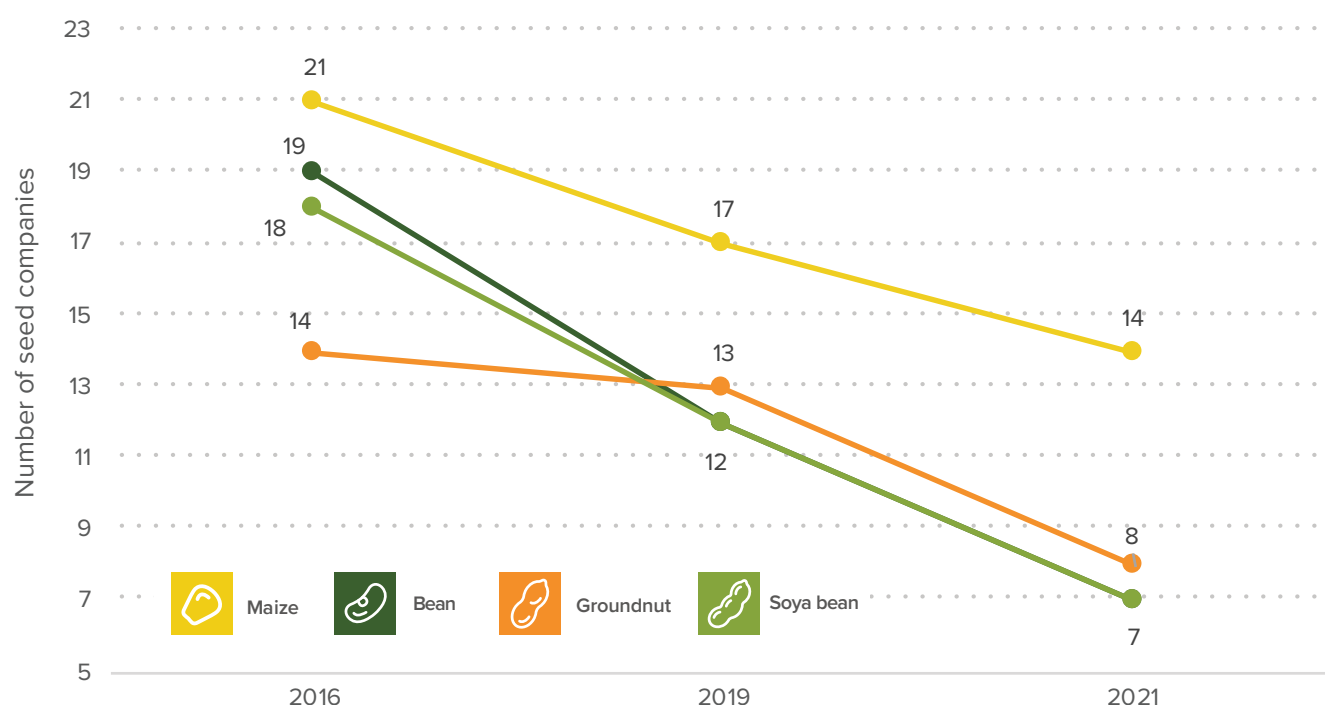


Table 9 shows that in 2021, of the 16 seed companies, 14 produced certified seed for maize, 8 for groundnut, and 7 each for bean and soya bean. As shown in Figure 3, the number of companies actively producing each of the four crops declined steadily between 2016 and 2021. This decline is the result of the reduction in the volume of seed procured by the AIP (formerly FISP). The program has steadily reduced

the number of beneficiary households targeted, which also decreased the amount of seed supplied through the program, especially for maize, the program's main focus crop. Importantly, because the AIP has served as a major buyer for almost all seed companies, any significant change in the AIP may affect the viability of seed companies that are dependent on the program.

Table 9: Number of registered seed companies (2021)

Crop	Number of companies registered to produce certified seed	Number of other entities registered for EGS (basic, pre-basic)
 Maize	14	7
 Bean	7	10
 Groundnut	8	14
 Soya bean	7	17

GENDER IN MANAGEMENT OF SEED BUSINESSES

TASAI also tracks the number of women in management and ownership positions within seed companies. Table 10 shows the number of women in management positions in 2019 and 2021. In 2021, 24% of all management positions were held by women, an increase from 14% in 2019. Further, in the same year, 23% of seed companies surveyed had a woman top manager and 50% of the companies had a female owner. Overall, these numbers point to an increase in women's participation in the formal seed sector overall.

Figure 4 shows the comparison of women in seed company management across African countries studied by TASAI between 2020 and 2022. The figure shows that, with respect to the percentage of women in management positions, Malawi lags behind a number of other countries in the sample. However, when it comes to the percentage of companies with a woman top manager, Malawi is second to Rwanda in the group.

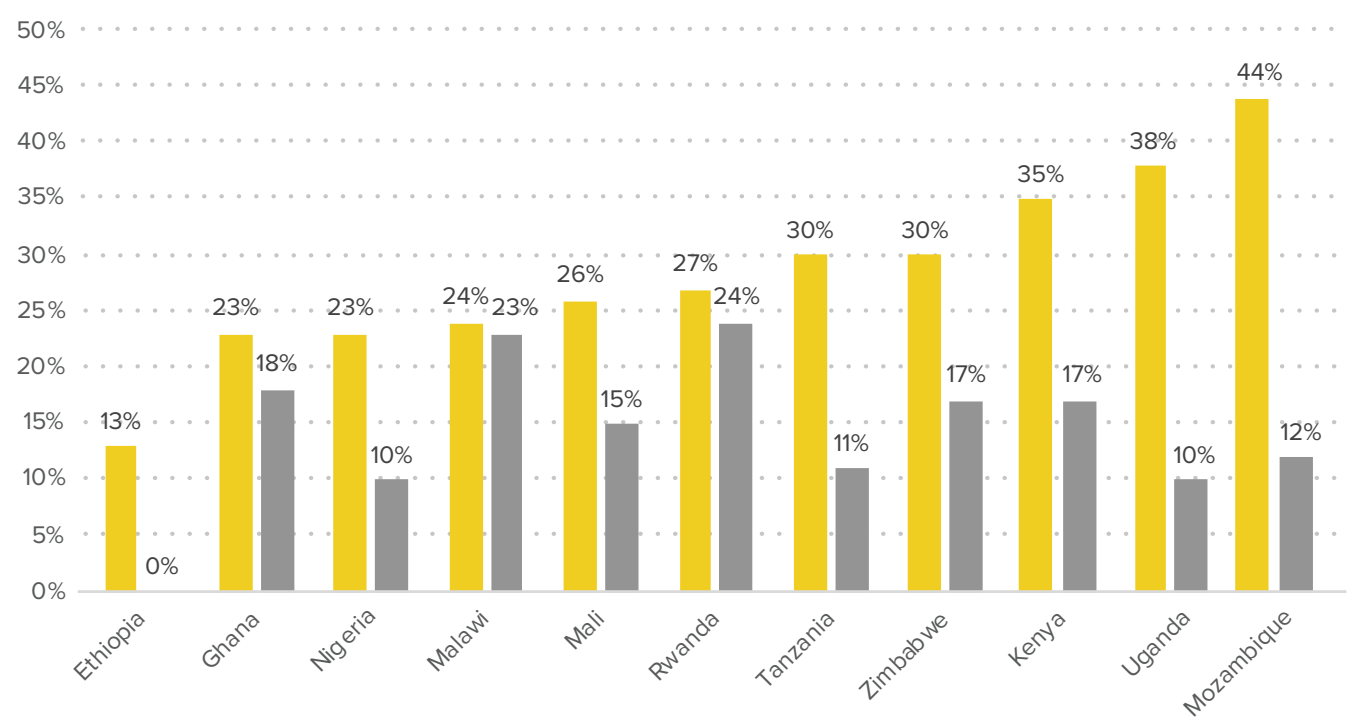
Figure 4 shows the comparison of women in seed company management across African countries studied by TASAI between 2020 and 2022. The figure shows that, with respect to the percentage of women in management positions, Malawi lags behind a number of other countries in the sample. However, when it comes to the percentage of companies with a woman top manager, Malawi is second to Rwanda in the group.

Table 10: Gender in management of seed companies

Indicator	2019		2021	
Gender indicator	Number (n)	%	Number (n)	%
Women in management positions	9 (63)	14%	21(86)	24%
Companies with at least one woman in a management position	6(15)	40%	11(13)	85%
Companies with a woman top manager	2(15)	13%	3(13)	23%
Companies with a woman owner	3(12)	25%	4(8)	50%



Figure 4: Percentage of women in seed company management in select countries surveyed by TASAI



PRODUCTION AND SALE OF CERTIFIED SEED

To measure the overall size of a country’s seed sector, TASAI tracks the volumes of seed produced and sold for the four focus crops. The data are presented as aggregate quantities in metric tons (MT) of certified seed sold in the data collection year, as reported by active seed companies.

Table 11 shows the aggregate volume of seed produced in 2021 as reported to TASAI during the survey and the volume of seed listed in government records. The government data for 2021 is higher than TASAI data for all crops except maize.

The differences may be due to under-reporting to TASAI, as some respondents expressed reluctance to share what they deemed sensitive information. Based on the government data, the volume of seed produced in 2021 is higher than the volumes produced in 2019, for all crops. The increases were particularly high for groundnut and soya bean.

Sales data were sourced from companies. The most notable change was observed for bean seed, sales of which decreased by 45% from 2016 to 2019, followed by a further 69% decline from 2019 to 2021, resulting in an overall decline of 83% during the five-year period. For the other three crops, sales dropped significantly between 2016 and 2019 but were close to or exceeded 2016 levels in 2021.

Table 11: Seed production and seed sales

Crop	Seed production in MT			Seed sales in MT (TASAI data)		
	Government data (2019)	Government data (2021)	TASAI data (2021)	2016	2019	2021
 Maize	17,281	19,628	25,053	14,350	11,738	18,284
 Bean	735	1,086	668	1,061	579	179
 Groundnut	286	3,484	2,086	1,561	702	1,415
 Soya bean	271	5,032	2,144	1,641	618	1,620

MARKET SHARE OF TOP SEED COMPANIES

Competition among seed companies benefits farmers via lower prices, a wider set of choices, increased innovation, and better customer service. To assess the level of market concentration in the industry, TASAI uses seed sales data for each crop, to calculate the market share of the four largest firms, also known as four-firm concentration ratio (CR4), as well as the Herfindahl-Hirschman Index (HHI) (Table 12). The calculations in this section are based on government data presented in Table 11.

Figure 5 shows the market share of the top four seed companies (CR4) between 2016 and 2021. In 2021, the CR4 was 87% for maize, 92% for bean, 95% for groundnut, and 88% for soya bean. For the top four maize, bean, and soya bean seed companies, the market shares did not change significantly since 2019. However, the market share of the top four groundnut seed companies increased from 65% in 2019 to 95% in 2021, suggesting that the groundnut seed industry became more concentrated over that period.

Table 12 illustrates that market concentration levels were moderate for maize and soya bean, high for groundnut, and extremely high for bean. The HHI scores suggest that few seed companies dominated the seed markets for groundnut and bean. Moreover, the seed market for groundnut was more concentrated in 2021 than in 2019. For maize and soya bean during the same period, the degree of concentration has shown a small increase, signaling growing concentration,

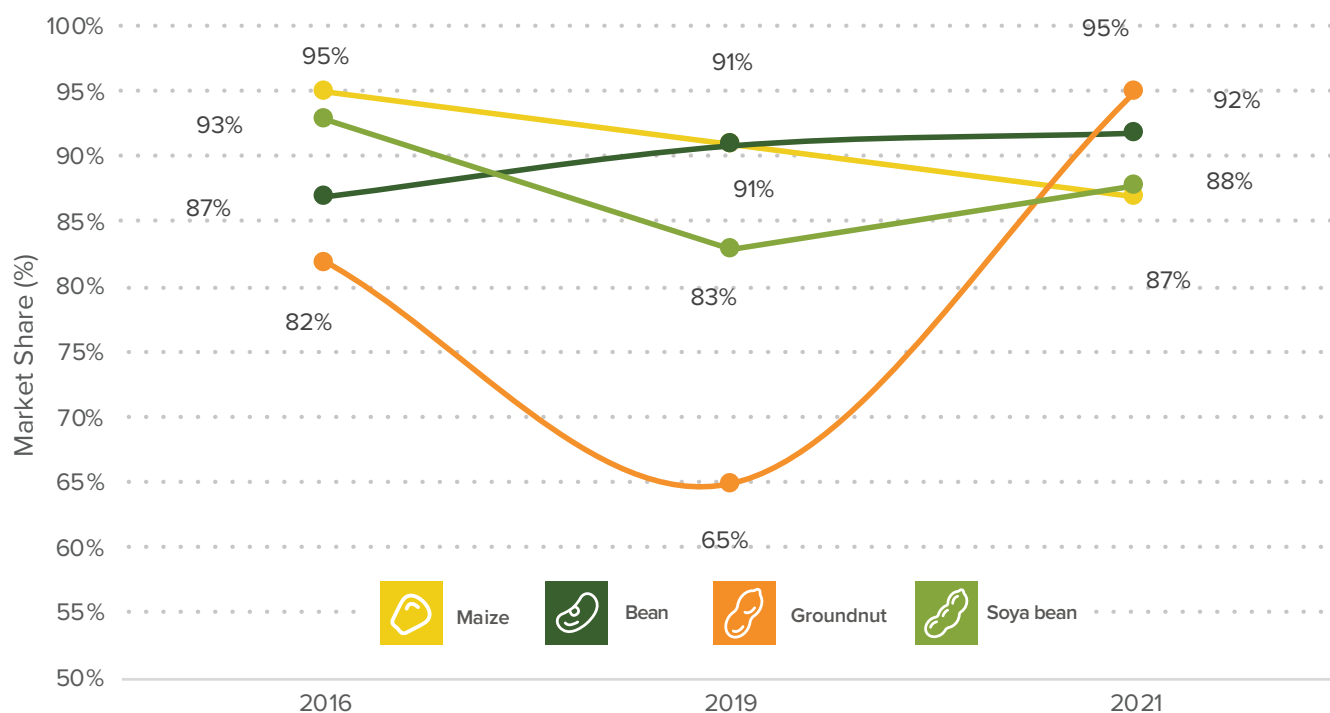
while the HHI figures for beans show a small reduction in concentration, though the bean market is still highly concentrated. Due to the decreased demand by the AIP, most of the 8 active groundnut seed producing companies reduced their production, and, by definition, their market share against the two largest groundnut seed producing companies, who increased production. The high market shares and market concentration scores indicate that a few seed companies dominate the seed markets for the four focus crops. This is notable as the lack of competition may reflect a lack of choice for farmers.

Table 12: Market concentration (HHI)^a

Crop	HHI (2016)	HHI (2019)	HHI (2021)
 Maize	3,539	2,309	2,839
 Bean	2,754	4,967	4,546
 Groundnut	2,013	1,326	3,788
 Soya bean	3,308	2,107	2,625

^a The HHI is a measure of market concentration and is calculated by squaring the market share of each firm competing in a market, and then adding up the results. It ranges from close to zero for perfect competition to 10,000 for monopoly. The scale for HHI scores, ranges from extremely low to extremely high levels of market concentration: less than 1,000 is **extremely low**, 1,000-1,999 is **low**, 2,000-2,999 is **average**, 3,000-3,999 is **high**, and greater than 4,000 is **extremely high**, i.e., monopoly or near monopoly.

Figure 5: Trends in market shares of top four seed companies (CR4)



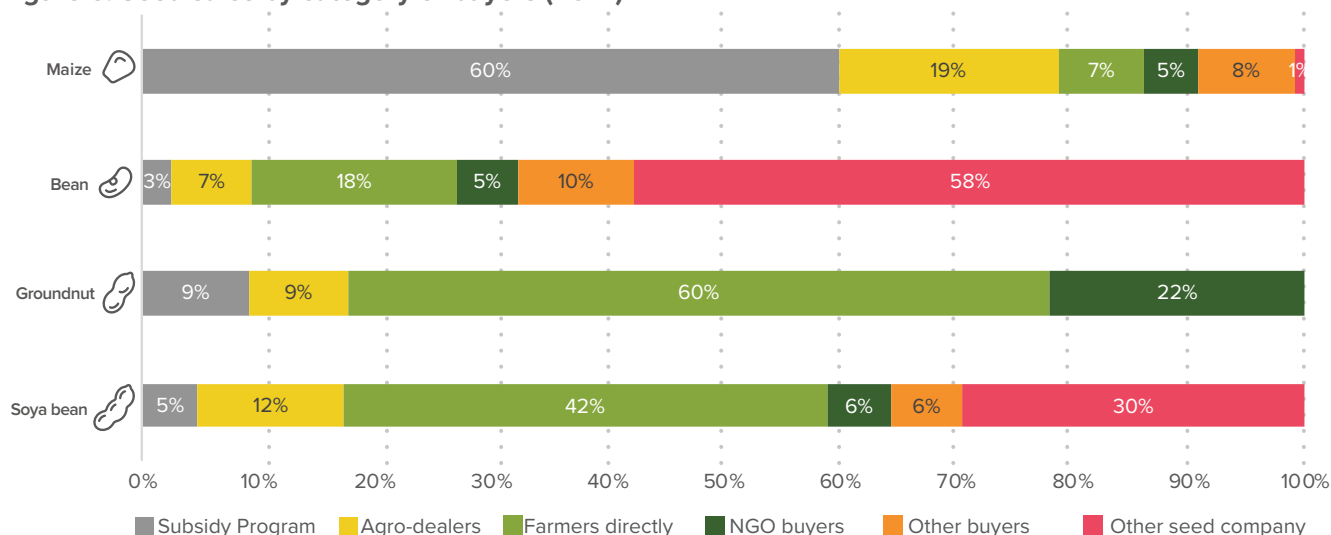
MARKET SHARE OF GOVERNMENT PARASTATAL

In some African countries, public entities are active players in the marketing and sale of certified seed. Public seed companies can play a critical role in meeting farmer demand for varieties that private seed companies deem less profitable. In addition to supporting seed production, public seed companies may support other national objectives, such as university training and research. However, state-owned companies may benefit from preferential treatment, less stringent enforcement of regulations, access to competitor information, and indirect production subsidies. Collectively, these privileges can result in unfair competition against purely private seed companies. In Malawi, no government entity is involved in the production and marketing of certified seed for the four crops.

SEED SALES TO DIFFERENT CATEGORIES OF BUYERS

The TASAI study tracked six different categories of seed buyers in Malawi in 2021 (Figure 6). Although the amount of seed purchased through the AIP has declined, (see section on seed subsidies), the program was still the main buyer of maize seed in Malawi, accounting for 60% of company sales for the crop in 2021. Direct purchases by farmers were relatively high for groundnut seed (60%) and soya bean seed (42%), while “other companies” accounted for 58% of bean seed, and 30% of soya bean seed. NGOs were an important buyer only for groundnut seed in 2021. Other buyers, such as the government’s Agriculture Sector-Wide Approach (ASWA) program, were important buyers of bean and maize seed in 2021.

Figure 6: Seed sales by category of buyers (2021)



SEED IMPORT AND EXPORT PROCESS

Efficient seed import and export processes tend to extend the seed market beyond national borders. While seed companies benefit from an expanded market, farmers can access a wider range of varieties from across the region. The length of the import process is measured as the sum of the number of days used to obtain import documentation (import permit, phytosanitary certificates, and an International Orange Certificate⁹, if applicable) and the number of days to clear seed at the border. The length of the import process excludes transportation time. The length of export process is calculated as the number of days from the day an export permit is requested to the time when the seed is cleared at the border.

⁹ The International Orange Certificate is issued by a laboratory accredited by the International Seed Testing Association (ISTA) when both sampling from the seed lot and testing of the sample are carried out by the same laboratory.



Seed importation: Seed companies import varieties that have been released and registered in Malawi in compliance with the regulations. The import permit is issued by the Ministry of Trade and Industry after the company has received import authorization from Ministry of Agriculture. The application must include a phytosanitary certificate (issued by the exporting country), a fumigation certificate, and an international orange certificate (issued by the seed certifying agency of the exporting country) for each seed variety the company plans to import. These documents must accompany the consignment by the time it reaches the border point of entry. The company must notify the SSU at least seven days before the arrival of the seed consignment so that SSU may re-test it upon arrival. Once the 2022 Seed Act is operationalized, retesting will no longer be required for varieties registered in the COMESA or SADC variety catalogues.

Based on data collected from importing seed companies, the average length of the process has reduced from 15 days in 2019 to 12 days in 2021 (Figure 7). During this period, the Malawian government strengthened the import process through reforms, such as the opening of the One Stop Border Post on the Malawi-Zambia border, a major route for seed trade. Reflecting the success of these efforts, seed companies' level of satisfaction with the import process increased from 73% in 2019 to 77% in 2021.

In 2021, only maize seed was imported. As shown in Table 13, seed companies imported a total of 8,065MT of maize seed from Zambia and Zimbabwe in 2021. Most of these imports were purchased by the government to distribute through the AIP program. Although originating from SADC/COMESA countries, the imports did not carry the seed labels for these regional economic communities; the Malawian government is yet to implement the regional harmonized seed regulations that have been incorporated into the Seed Act of 2022.

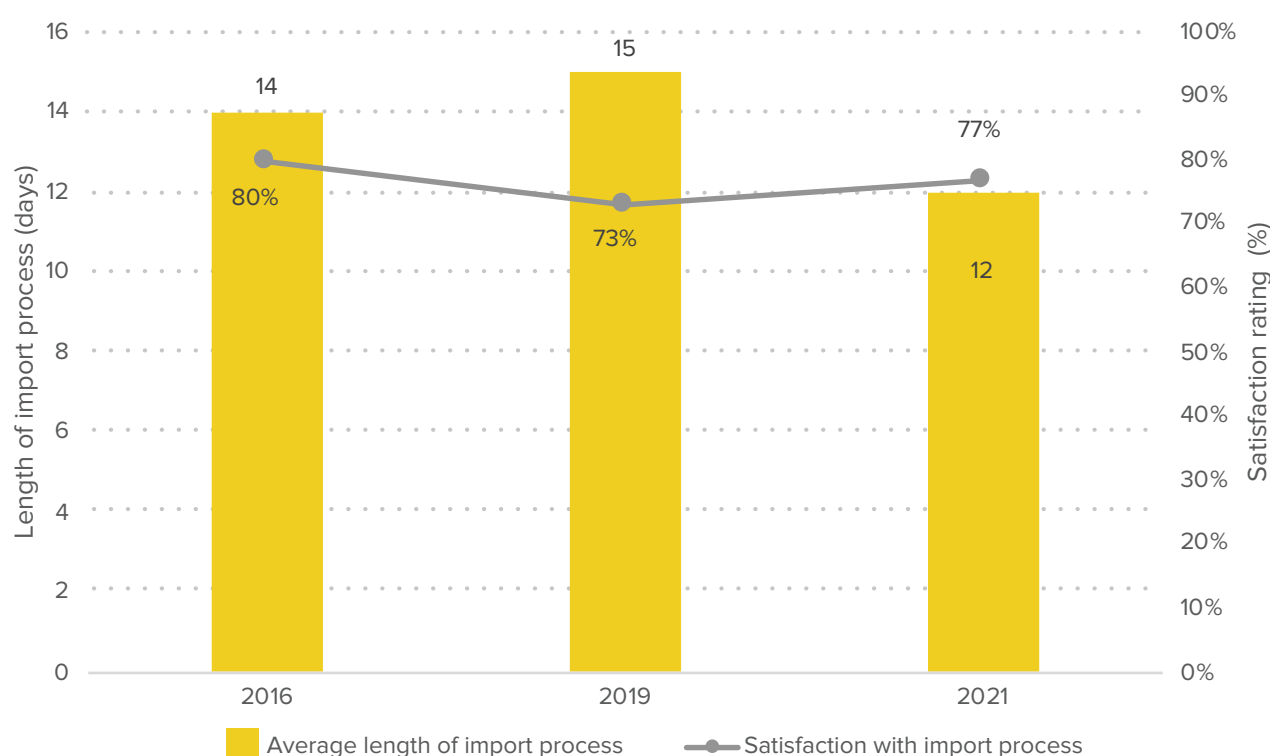


Figure 7: Average length and satisfaction rating of import process

Table 13: Overview of seed imports (2021)

Crops	No. of importing companies	Main country sources of imports	Seed imports in MT		
			Total	From COMESA/SADC countries	From COMESA/SADC and with COMESA/SADC label
 Maize	2	Zambia, Zimbabwe	8,065	8,065	0
 Bean	0	N/A ^a	N/A	N/A	N/A
 Groundnut	0	N/A	N/A	N/A	N/A
 Soya bean	0	N/A	N/A	N/A	N/A

^a "N/A" means that the information requested does not apply to the crop.

Seed exportation: To export seed from Malawi, a seed company needs a seed export permit, a phytosanitary certificate, a fumigation certificate, an International Orange Certificate, and customs clearance documents. The export permit is issued by the Ministry of Trade and Industry after the company has received export authorization from Ministry of Agriculture. The Ministry of Agriculture issues the phytosanitary certificate to confirm that the seed crop was inspected and is free of pests or diseases. Fumigation certificates certify that the seed consignment has been treated. The SSU issues the International Orange Certificate to confirm that the seed meets certification standards. Finally, the Malawi Revenue Authority issues a customs clearance to export the seed.

According to the seed exporting companies, the average length of the process had reduced from 14 days in 2019 to 10 days in 2021 (Table 14), although, depending on the crop, obtaining the International Orange Certificate may extend the process. Nevertheless, the overall reduction can be attributed to government reforms aimed to improve the business environment. Reflecting this improvement, seed company satisfaction with the export process improved from “good” (60%) in 2019 to “excellent” (80%) in 2021 (Figure 8).

In 2021 seed companies in Malawi exported 1,603MT of maize seed, 118MT of bean seed, and 416 MT of soya bean seed to Mozambique and Ghana.

Figure 8: Average length and satisfaction rating of export process

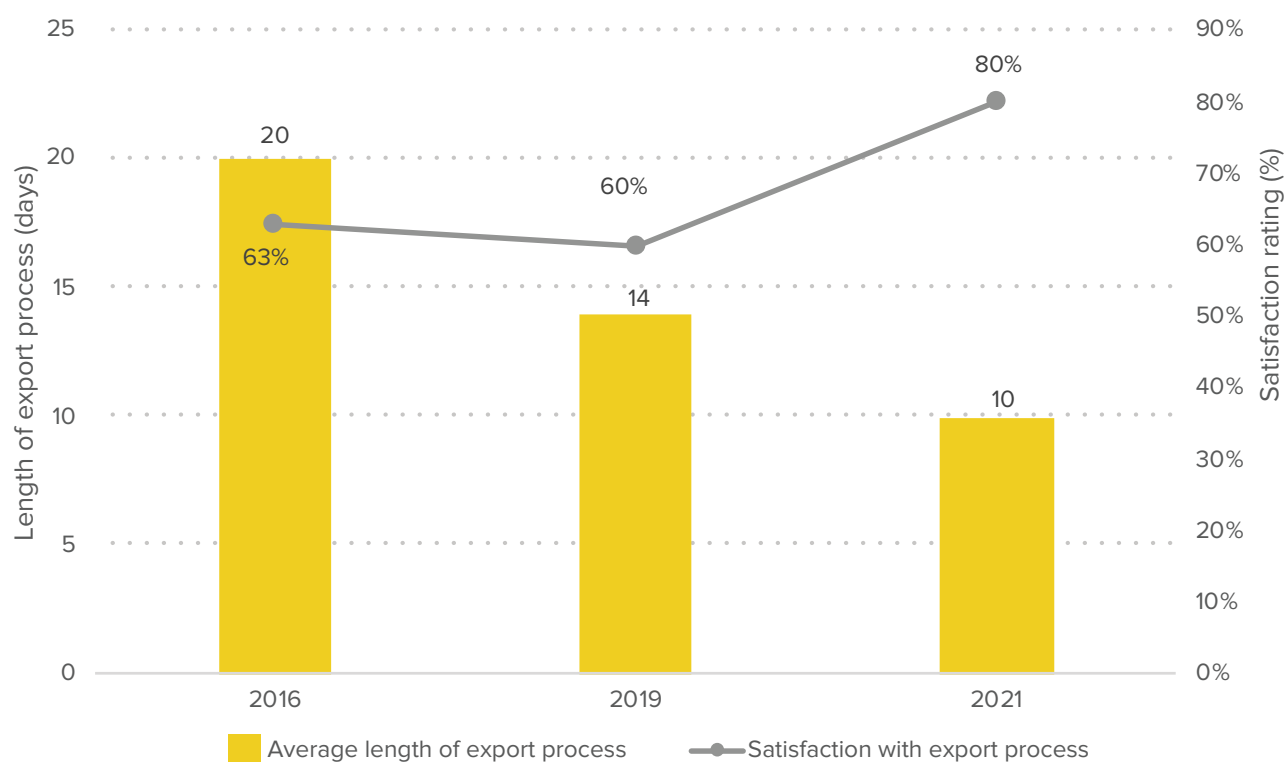


Table 14: Overview of seed exports (2021)

Crops	No. of exporting companies	Main destination country for exports	Seed imports in MT		
			Total	To COMESA/SADC countries	To COMESA/SADC and w COMESA/SADC label
 Maize	1	Ghana, Mozambique	1,603	1,450	0
 Bean	1	Mozambique	118	118	0
 Groundnut	0	N/A ^a	N/A	N/A	N/A
 Soya bean	1	Mozambique	416	416	0

a “N/A” means that the information requested does not apply to the crop.

SEED POLICY AND REGULATIONS

LENGTH OF VARIETY RELEASE PROCESS

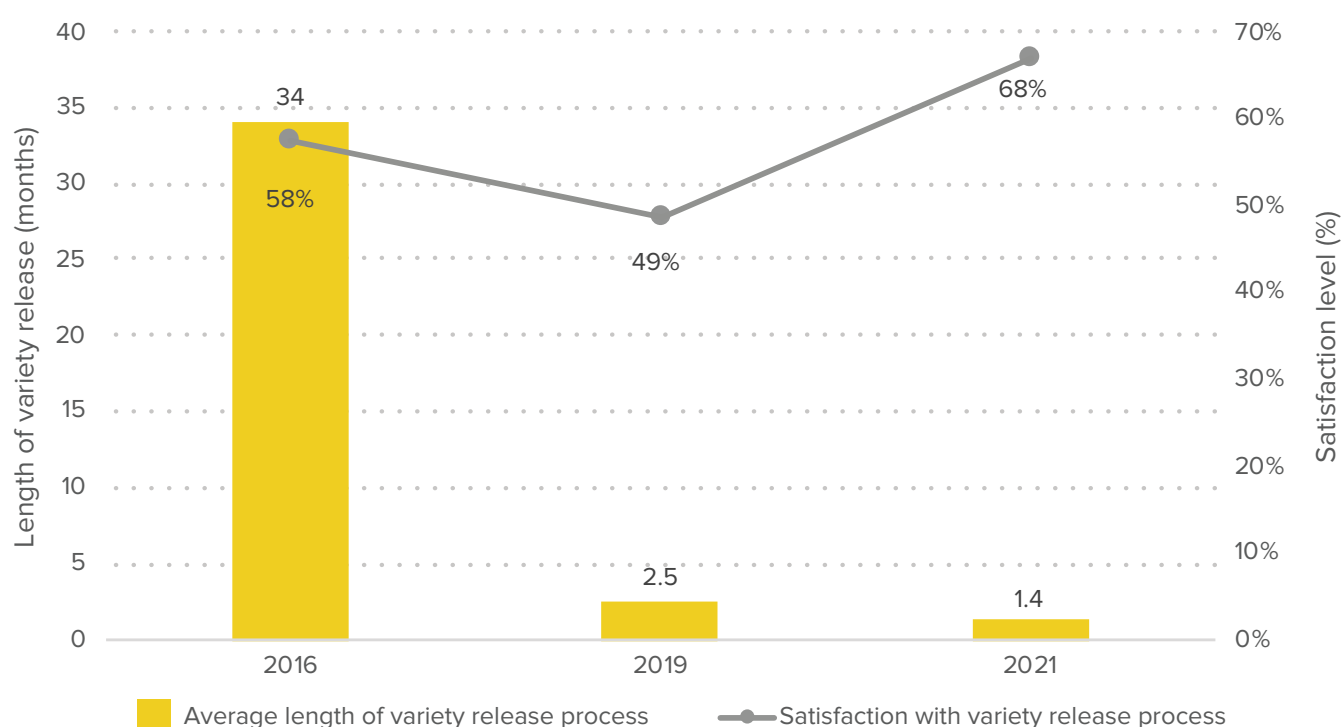
Plant variety release is the process during which new varieties undergo various tests for yield, Value for Cultivation and Use (VCU), as well as Distinctness, Uniformity, and Stability (DUS). If varieties perform satisfactorily on these tests, they are approved for release by the national variety release committee. A vibrant seed sector has a functional variety release system that is well understood by the relevant actors and is followed diligently. Lengthy and/or costly variety release processes can limit the number of released varieties and this can adversely affect how a farmer makes choices among improved varieties. The length of the variety release process is calculated by the time it takes the variety to be approved for release after it is submitted to the variety release committee. This calculation does not include the time it takes to develop the variety by the breeder.

The Agricultural Technology Clearing Committee (ATCC) is responsible for variety release in Malawi. ATCC comprises experts in the agriculture sector and meets at least twice a year. After the variety has undergone performance trials in different agro-ecological zones and the breeder is satisfied with the trial data, the variety can be submitted for release to

ATCC. The ATCC issues a notice to those breeders intending to release varieties. It further requests information to assist the evaluation of and decision-making on the variety. This guides and clarifies the breeder's application process to avoid sending back proposals and variety rejections. Applications are submitted to ATCC through the Technology Transfer Unit (TTU), ATCC's secretariat, in the Department of Agricultural Research Services. The application details the results of the VCU and some DUS descriptors, the purpose of the variety, and its most suitable agro-ecology. If the application meets the requirements, the ATCC approves the variety for release and commercialization. Released varieties are entered into the national variety catalog, which is maintained by DARS.

According to breeders, the average length of the variety release process in 2021 was 1.4 months, a decrease from 2.5 months reported in 2019 (Figure 9). The decrease may be attributed to the COVID-19 pandemic. Due to restrictions on in-person meetings, the ATCC held one virtual variety release meeting in 2020, and one in-person meeting in 2021. Despite the increase in the length of the variety release process, the breeders' satisfaction with the variety release process increased from 49% in 2019 to 68% in 2021. Satisfaction rating increases during this period may have resulted from intensified interactions between the ATCC and breeders to ensure that their reports conformed to the set guidelines.

Figure 9: Average length and satisfaction rating of the variety release process





COST OF THE VARIETY RELEASE PROCESS

In well-functioning seed systems, the costs of releasing a variety should not be so high as to disincentivize variety releases altogether. In Malawi there is no specific cost incurred by breeders from the time a release application is submitted to ATCC to the point it is approved for release and commercialization. The ATCC’s decisions to approve or reject varieties for release are based on submitted VCU data and some DUS descriptors. Moreover, the ATTC is not involved in variety evaluations. The only costs associated with the variety release process are the breeder’s accommodation and transport costs to attend the committee meetings and deliver presentations. Private companies reported that the variety release process cost 2,618 US\$ while public breeders did not report any cost associated with variety release. TASAI findings from other countries show that the costs of variety release in Malawi are within the range of other African countries studied between 2020 and 2022. For example, in 2022, the cost of releasing a variety averaged US\$ 3,000 in Kenya and US\$ 28,70 in Ghana while in 2021, it was US\$ 7,031 in Mali.

STATUS AND IMPLEMENTATION OF NATIONAL SEED POLICY FRAMEWORK

Well-functioning formal seed systems have effective coordinating institutions that work well together and follow rules and procedures stipulated in clearly defined, regularly updated legal instruments.

Malawi has four policy instruments that are relevant to the seed sector; (1) the National Seed Policy (2018) (Malawi Government 2018a), (2) the Malawi Seed Act (2022), (3) the Malawi Seed Regulations (CAP 67:06), (4) the Plant Breeders’ Rights Act of 2018 (No. 20 of 2018) (Malawi Government 2018b) and the (4) Plant Protection Act of 2018 (No. 19 of 2018) (Malawi Government 2018c). They are described in Table 15 below.

Table 15: Key seed instruments in Malawi

Instrument	Description
National Seed Policy (2018)	The Seed Policy was passed in April 2018. The overall goal of the Policy is to provide clear guidelines for developing and promoting the seed industry in order to raise agricultural productivity through the provision of sustainable, adequate, and high-quality seeds. Specifically, the policy aims to enhance the seed regulatory framework and seed quality assurance, promote the growth of the domestic seed industry and the establishment of a reliable and internationally acceptable seed certification system.
Malawi Seed Act (1996)	The Seed Act was approved in 1996. This Act governs the regulation of the formal seed system from seed certification and registration, registration of seed producers, importers and sellers and importation and exportation.
Seed Act (2022)	The Malawi Seed Act was enacted in April 2022. The Act establishes the Malawi Seed Regulatory Authority as the government entity in charge of enforcement. The Act also stipulates tougher penalties for offenders and outlines procedures for seed importation and exportation in line with the harmonized seed trade agreements.
Malawi Seed Regulations (2018)	In addition, the Seed Act provides a framework for the release and registration of new crop varieties before varieties get produced and sold on the market. A Crop Variety Release and Registration Committee (CVRRC) is to be established to evaluate and make appropriate recommendations to the Authority on applications for release and registration of new crop varieties.
	The Malawi Seed Regulations were passed in 2018. The Seed Regulations guide the country’s seed industry operations in the interest of various players such as seed producers, processors, sellers, and users. Key aspects covered in the Regulations include the registration of all seed actors (seed growers/producer and processors), the seed certification process, seed importation and exportation, and penalties for contravening the regulations, e.g., sale of counterfeit seed.



QUALITY AND ENFORCEMENT OF SEED REGULATIONS

Seed regulations give structure to the formal seed system. The TASAI study assesses stakeholder perspectives on various aspects of seed regulations, including their support of formal seed sector growth, stakeholders' role in their design and implementation, stakeholders' level of awareness of the laws and regulations, the presence of an enforcement agency, the costs of regulation, and the effectiveness of punitive measures.

ENFORCEMENT OF THE DOMESTIC SEED REGULATIONS/DECREES

Up until the enactment of the Seed Act in April 2022, domestic seed regulations were based on the Seed Act of 1996, under which the seed industry was regulated by the SSU. However, the SSU was often criticized for not being efficient enough, which was primarily due to a lack of resources and independence to make decisions that would allow efficient seed industry operations. When enforced, the newly enacted Seed Act of 2022 will transform the SSU into the Malawi Seed Regulatory Authority. Before that happens, SSU will continue to oversee seed regulation in Malawi. The seed industry expects that the Authority will be operationalized quickly and adequately resourced to effectively undertake its mandate. In addition to the Malawi Seed Regulatory Authority, other institutions such as the Malawi Police Service and Malawi Judiciary are involved enforcing the regulations and prosecuting violations. These judgements are based on the Seed Act of 1996. Most players in the country's seed industry are frustrated by the fact that the penalties are not punitive enough to deter offenders. However, the penalties have been increased in the Seed Act 2022 – see section on counterfeit seed.

IMPLEMENTATION OF REGIONAL SEED REGULATIONS

Malawi is a signatory to the Southern Africa Development Community's (SADC) Technical Agreements on Harmonization of Seed Regulations, 2018 as well as the Common Market for Eastern and Southern Africa's (COMESA) Seed Trade Harmonization Regulations of 2014. Both protocols aim to remove technical or non-tariff barriers, facilitate the movement of seed in the Southern Africa region, and ensure both agricultural growth and regional seed security. Although Malawi has adopted both protocols, implementation has been limited in absence of a seed law that enshrined the regional provisions. The new Malawi Seed Act (2022) includes several articles that respond to these regional harmonization requirements, such as:

- **Article 24(1)(b) on requirements for registration for crop varieties.** The article specifies that a variety that has complied with a variety release system in the region can be registered in Malawi's national variety catalogue.
- **Article 30(2) on crop varieties for seed production.** The article permits a seed grower in Malawi to produce seed of a variety that is registered on a regional catalogue.
- **Article 46(1)(a) on conditions for seed imports.** The article permits a seed company in Malawi to import seed of a crop variety that is registered in the regional catalogue.

Seed companies rated the enforcement of seed regulations as "good" at 61%. This was a slight decline from the 62% rating in 2019. Given that the rating in 2016 was "fair" at 46% the recent improvements in enforcing the registration of basic seed production, mandatory training of agro-dealers, and the introduction of scratch-off seed labels are noticed by seed companies.

EFFORTS TO ERADICATE COUNTERFEIT SEED

Counterfeit seed threatens the formal seed sector in two important ways. First, it reduces farmers' confidence in certified seed after farmers unknowingly plant inferior quality grain labeled as certified seed. Second, it threatens the success of government efforts to increase improved seed variety adoption. TASAI tracks the number of cases of counterfeit seeds reported by seed companies and the government in the data collection year. The figure is likely to be an underestimate, as most cases of counterfeit seed sales are not officially reported since the trade is illegal. In addition, seed companies report their level of satisfaction with government efforts to eliminate counterfeit seed.

The proliferation of counterfeit seed has been a long-standing challenge for Malawi's seed industry, with 20 cases recorded by TASAI (as reported by seed companies) in 2016 and 21 cases in 2019. In contrast, the number of cases recorded in 2021 showed a notable decline to 10 cases (Table 16). It is important to note that government data on the number of counterfeit seed cases was only available in 2019, when it was significantly lower than the number reported by seed companies. However, to date, the government has its own tracking system for counterfeit seed through the SSU which conducts random checks in the market.

According to the seed companies, the main sources of counterfeit seeds are unscrupulous seed vendors who sell grain as seed, packed either in fake packaging materials which resemble seed companies' own packaging or in genuine packaging materials stolen by employees of the seed companies and sold to the vendors. There are also cases of seed companies selling grain instead of seed, when the amount of seed produced cannot satisfy demand.

Table 16: Industry satisfaction with government efforts to address counterfeit seed

Indicators	2016	2019	2021
Number of cases of counterfeit seed (seed companies)	20	21	10
Number of cases of counterfeit seed (government)	MD	5	MD
Seed industry satisfaction with government effort to address counterfeit seed (out of 100%)	38%	55%	48%

extremely poor
poor
fair
good
excellent

Several initiatives are currently in being implemented by the government, seed companies, and civil society organizations to combat counterfeit seed including the following:

- educating farmers how to identify fake seed on the market using both electronic and print media.
- promoting the use of scratch cards on the seed packages (introduced in the 2021/22 marketing season).
- training the police on how to identify counterfeit seeds
- sensitizing the police and the judiciary on the penalties stipulated in the new Seed Act. This activity was sponsored by AGRA.

Part IX of the Seed Act 2022 spells out penalties to various offences in the seed industry. Section 55 of the Act states that any person who: (a) sells as certified seed, any seed which is not certified under of or (b) uses in the description or name of any seed, the word "certified" or any cognate word in relation to seed which is not certified under this Act, commits an offence and shall, upon conviction, be liable to a fine of K50,000,000 (US\$ 48,314)¹⁰ and to imprisonment for ten years. These penalties are a major departure from the previous K 2,000 (US\$ 1.93) but will apply when the Seed Act 2022 is enforced.

USE OF GOVERNMENT SUBSIDIES

Seed subsidies are short or medium-term measures intended to encourage farmers to adopt improved crop varieties. In terms of scale, targeting, distribution arrangements, and payment systems, the design and execution of subsidy programs, may contribute to the development of the seed market in positive ways or it may be disruptive to market forces.

Since the 2005/2006 growing season, the Malawi government has operated an inputs subsidy program. Initially called the Farm Inputs Subsidy Program (FISP), during the 2020/2021 growing season, the program was renamed the Affordable Inputs Program (AIP). The subsidy program targets low-income smallholder farmers. The target number of beneficiaries has varied over the years. Maize and fertilizer are the major components of the subsidy. Some of the maize seed distributed originates from imports, which the government purchases from seed companies. During past growing seasons, groundnuts, bean, and soybean seed were also included in the program. Programs such as the Agriculture Sectorwide Approach and the Sustainable Agricultural Production Program have been involved in the production of groundnuts and other legumes such as soybean; in addition, they procure seed from some of the seed companies.

During the 2021/22 growing season, the program targeted 3.5 million agricultural households with a total budget allocation of MWK 142 billion (or USD 14 Million). The 2021/22 subsidy program provided maize seed (23% hybrid varieties and 77%

¹⁰ Exchange MK 1 = US\$ 0.00097 during the survey.

OPVs) and basal and top-dressing fertilizer to farmers in all 28 districts of the country. Newly developed varieties were also included in the program, as well as rice and sorghum in select districts. Legumes were not part of the 2021/22 AIP. Farmers were allowed to choose the variety they preferred unless the preferred variety was not available. Disbursement of inputs for the 2021/22 AIP commenced in October 2021 and ended in February 2022.

Between 2019 and 2021, the number of seed companies selling seed to the AIP declined by between 75% to 88% for bean, groundnut and sorghum (Table 17). For maize the decline was minimal. Over the same period, the percentage of seed sales increased for maize, as the amount of maize seed purchased by government increased from 7,500MT of maize seed in 2019 to 18,500MT in 2021. The percentage sold to government declined drastically for the other crops.

Table 17: Number of seed companies selling seed to AIP and percentage of seed sold

Crop	Number of seed companies selling to government subsidy programs		% of seed sold to government programs		
	2019	2021	2016	2019	2021
 Maize	12	10	66%	38%	60%
 Bean	8	1	82%	57%	3%
 Groundnut	10	2	82%	36%	9%
 Soya bean	8	2	65%	52%	5%

To participate in the AIP program, seed companies respond to government tenders to supply seed. This also applies to private transporters who distribute inputs in the country. Participating seed and fertilizer companies are paid upon providing the AIP with a list of beneficiaries (farmers) who procured the inputs.

One of the challenges of the 2021/22 AIP was late input deliveries, particularly fertilizer, which was issued after the recommended period of application stage. Another challenge was that, in most cases, at planting time only basal dressing fertilizer was available, so most farmers were issued two bags of topdressing fertilizer instead of the planned one bag of basal dressing and one bag of top dressing.

Seed companies rated their satisfaction with the implementation of the seed subsidy program on three aspects: (1) openness and transparency of the seed procurement process; (2) predictability of the seed procurement process; and (3) efficiency of payments. Table 18 illustrates that the lowest rating in 2021 was for the predictability of the seed procurement process (33%), which represented a significant decline from 2019 (51%). Seed companies complained that the government did not provide information on the types and quantities of seed required in advance. Furthermore, companies did not receive adequate notice that legumes were not going to be included in the 2021/22 season. This

lack of information hindered seed companies' planning of production. On the positive side, seed companies reported an increased level of satisfaction (71%) with the efficiency of payments, a notable improvement from the satisfaction rating of "fair" (51%) in 2019.

Table 18: Seed companies' opinion of the implementation of the government subsidy program

Aspects of government subsidy program	Satisfaction rating (out of 100%)	
	2019	2021
Openness and transparency of the seed procurement process	79%	50%
Predictability of the seed procurement process	51%	33%
Efficiency of payments	51%	71%

extremely poor poor fair good excellent



INSTITUTIONAL SUPPORT

QUALITY OF THE NATIONAL SEED TRADE ASSOCIATION

Well-functioning national seed trade associations play a key role in representing the interests of the seed industry and engaging with the government. Membership of national seed associations typically includes seed companies, seed growers, seed cooperatives, seed associations, individual seed producers, and at times agro-dealers.

The Seed Trade Association of Malawi (STAM) was established in 2004. As of 2021, STAM's membership stands at 26 members, all seed companies. STAM's mandate is to promote the use of improved seed as the key to sustainable food security and socioeconomic development in Malawi¹¹. The vision of the association is to deliver new seed varieties to smallholder farmers at affordable prices through an expanded network of agro-dealers. The day-to-day operations of the association are managed by its Secretariat, which is led by a Chief Executive Officer, who is supported by a Business Development Manager, a Finance Officer, and a Seed Systems Compliance Manager¹². However, at the time of writing, the CEO, Business Officer, and Seed Systems Officer positions were vacant, though STAM was planning to recruit the Business Development Officer and Seed Systems Compliance Officer. In addition to a Secretariat, STAM has a 7-member board, to which the Secretariat reports. The board members serving are elected by members of the association for a three-year term. At present, the board has five men and two women.

Seed companies were asked to rate the performance of STAM. As shown in Figure 10, seed companies' overall rating of STAM in 2021 was "good" at 65%, below the ratings of 73% and 79% reported in 2016 and 2019, respectively. Reflecting the overall decline, STAM members' satisfaction ratings also decreased in other performance areas, including "activity on important seed sector issues" (65%), "providing value to members" (61%), "managerial ability" (65%), "effectiveness in advocacy" (62%), and "democracy in elections" (75%). This drop in satisfaction reflects the shortcomings of STAM identified by the seed companies surveyed. Specifically, the companies recommended that STAM should be adequately staffed to carry out its activities, that it should advocate for the use of certified seed, convince the government to allow all STAM members to participate in the AIP, decentralize its offices in the country, and engage in more revenue-generating activities to effectively undertake its advocacy role.

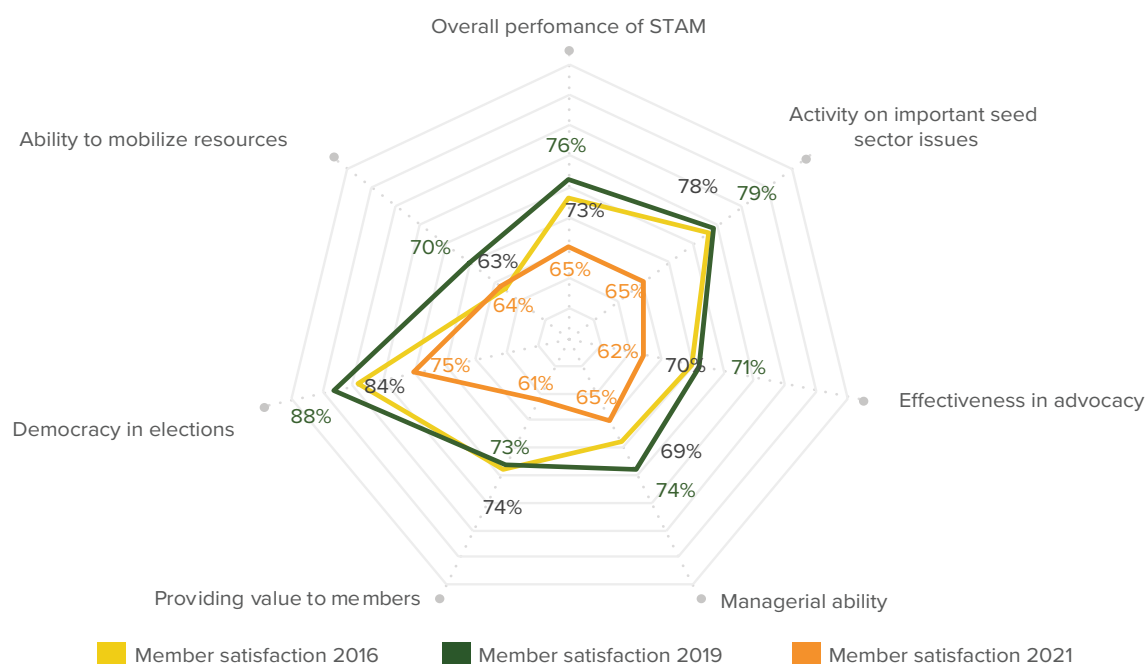
The low ratings notwithstanding, STAM has reported several achievements in 2021, including holding three regional maize demonstration sites, developing and sensitizing members on seed business code of ethics, lobbying for the enactment of the seed bill of 2022 into law, and piloting scratch-off seed labels in collaboration with the MoA. Moving forward, STAM plans to contribute to combatting the proliferation of fake seed in the country, improving the availability of certified seed to smallholder farmers, operationalizing the 2022 Seed Act, and building capacity within seed companies and other seed industry stakeholders.

11 <https://seedtrademalawi.com/> Accessed 29 November 2022.

12 <https://seedtrademalawi.com/stam-board/> Accessed 29 November 2022



Figure 10: Members' satisfaction with STAM



ADEQUACY OF SEED INSPECTORS

Seed inspection services ensure that certified seed meets the regulatory quality standards. Providing adequate inspection services requires a sufficient number of well-resourced inspectors. TASAI studies track the number of inspectors as well as other information related to their effectiveness (e.g., availability of resources and the use of (new) digital tools).

In Malawi, seed inspection services fall under the authority of the SSU. In 2022, the country had 55 seed inspectors (Table 19). Of these, the SSU had 22 seed inspectors spread across the public research institutions. In addition, the SSU licensed 26 private inspectors in October 2022. Previously, these licensed inspectors were para-inspectors employed in the public sector (district level/ agricultural extension officers) or in private seed companies. The SSU licensed private seed inspectors to companies that have adequate internal quality control systems. This arrangement is under trial by SSU and the inspectors' work is limited to legumes.

In addition to the SSU inspectors and the newly-licensed private inspectors, there were 7 para-inspectors. According to SSU, the main role of the para-inspectors is to monitor, identify, and report cases of counterfeit seed.

The SSU has introduced an online seed certification system that has digitized some of the seed inspection services. Seed inspectors now transmit field data to the SSU head office online using tablets. In addition to using tablets, some inspectors also transmit the data using mobile phones.

Seed companies' satisfaction with the seed inspection services was 65% in 2021, a slight decline from the rating of 69% recorded in 2019 (Table 19). These ratings match the corresponding opinions by seed companies that a lack of sufficient resources, such as transport available to the SSU, limit the performance of their inspectors, as they are not able to inspect all fields and may end up focusing on maize at the expense of other crops. The hope is that the 26 private seed inspectors licensed in October 2022 will improve this situation.

Table 19: Number and rating of the adequacy of seed inspectors

Indicators	2016	2019	2022
Number of public seed inspectors	37	23	22
Number of private seed inspectors	0	0	26
Number of private (para) seed inspectors	0	16	7
Total public and private seed inspectors	37	39	55
Seed industry satisfaction with seed inspectors (out of 100%)	49%	69%	65%

extremely poor poor fair good excellent

SERVICE TO SMALLHOLDER FARMERS

ADEQUACY OF EXTENSION SERVICES

Well-functioning agricultural extension services are critical to the successful adoption of improved seeds by smallholder farmers. TASAI tracks the average number of agricultural households served by one extension officer. The lower the ratio, the better access farmers have to expert information and advice on how to access and use improved seeds and other relevant agricultural technologies. This indicator tracks the number of extension officers by sector (public and private) and gender. It is not crop-specific.

Public agricultural extension services in Malawi are overseen by the DAES, based in the MoA. The DAES Director's office estimated the ratio of extension officers to agricultural households to be 1:3,000 in 2021 (Table 20). This figure is significantly higher than those recorded in 2016 and 2019, signaling a decline in the adequacy of extension services; however, the figure is only an estimate because agricultural extension services had been decentralized to the district level. Data that was previously consolidated in one office was now collected in district offices and national totals were not yet available at the time of publication. Nevertheless, the Director of DAES mentioned that attrition was due to staff moving to the private sector, retirement, or death, and that the government had not replaced those that left or hired new staff. A new development is that, to improve the delivery of public extension services, the Malawi government

is training extension staff at one of the public universities. In addition, the government encourages the use of technology and media in the delivery of extension services via mobile phones, radio, and television.

Private extension agents complement public extension personnel only in part, because they are fewer in number and they focus only on after sales services for a limited number of crops. In most cases, the private 'extension' agents are regular sales and marketing staff working for seed companies or NGOs who also perform extension duties when they interact with farmers and agro-dealers in the field. Seed companies surveyed reported that they employed a total of 207 extension officers in 2021, a significant increase from the 78 officers employed in 2019.

As displayed in Table 20, seed companies rated the adequacy of extension services as "good" at 46% in 2021. This represented a slight increase from 45% in 2019. This improvement can be attributed to the increase in the number of private sector extension agents as well as the diverse avenues for delivering seed extension messages.

Table 20: Number and adequacy of agricultural extension services

Indicators	2016	2019	2021
Number of public extension officers employed by the government	1,862	1,604	- ^a
Number of private extension officers employed by seed companies	40	78	207
Total number of extension officers	1,902	1,682	- ^a
Ratio of extension officers to agricultural households	1:1,832	1:2,007	1:3,000
Seed industry satisfaction with extension officers (out of 100%)	47%	45%	46%

^a The DAES could not provide this data at the time of reporting.

extremely poor poor fair good excellent

CONCENTRATION OF THE AGRO-DEALER NETWORK

Agro-dealers are key to expanding Africa's seed distribution systems and connecting seed companies to individual farmers, especially in hard-to-reach rural areas. Agro-dealers are often the main point of sale for certified seed. A higher concentration of agro-dealers typically implies that smallholder farmers have greater access to improved seed. TASAI tracks the number of agro-dealers and, where possible, disaggregates them by registered vs. non-registered agro-dealers. This indicator is not crop specific.

Malawi's seed legislation (MoAIWD 2018) requires that a person or firm selling certified seed be registered with the government. Only those with seed seller licenses are recognized as agro-dealers. The SSU registers and trains agro-dealers and licenses seed seller outlets¹³. The registration includes the details of the shop owner and the location of the retail outlet to allow for monitoring compliance by the SSU, as stipulated in the Seed Regulations. STAM facilitates agro-dealers' registration and licensing. Registered agro-dealers sell seed from multiple seed companies.

13 Each selling point is recorded as an agro-dealer, even if owned by the same person. For purposes of this report, we use agro-dealer to mean agro-dealer outlet.

In 2021, there were 474 agro-dealers registered and licensed to sell seed, which is a small increase from the 468 recorded in 2019 (Table 21). One agro-dealer may own more than one shop, so in 2021, there were 2,472 licensed seed outlets representing 474 agro-dealers. This represents an 58% increase from the 1,565 official seed selling points recorded in 2019. The increases in the number of agro-dealers and shops may be attributed to the AIP. As stated earlier, the AIP increased volume of maize seed, providing opportunities for new entrants. The MoA estimates that Malawi has 3.7 million agricultural households, meaning that one agro-dealer outlet serves about 1,498 farming households. This represents an improvement from the ratio of 1:2,157 in 2019. Despite this improvement, seed company satisfaction with the adequacy of the agro-dealer network remains virtually unchanged from 67% in 2019 to 65% in 2021.

The SSU is mandated to train agro-dealers on the steps of the seed production and certification processes, as well as on how to handle and store seed to maintain its quality. On matters related to seed, the SSU only recognizes its own training programs as official; however, the SSU also offers agro-dealers the opportunity to attend business and finance training organized by National Agro-dealer Association (NADA) and the Rural Market Development Trust (RUMARK). At present, the SSU does not offer any specific training to women agro-dealers.

Table 21: Number of agro-dealer outlets and satisfaction rating of the agro-dealer network

Indicator	2016	2019	2021
Number of agro-dealer outlets	2,000	1,565	2,472
Number of farming households served by one agro-dealer outlet	1,552	2,157	1,498
Seed industry satisfaction with agro-dealer network (out of 100%)	64%	67%	65%

extremely poor
poor
fair
good
excellent

AVAILABILITY OF SEED IN SMALL PACKAGES

Since most farmers in Sub-Saharan Africa operate on a small scale, making seed available in small, more affordable packages is a good way to increase adoption rates. TASAI tracks the percentage of seed sold in different package sizes, i.e., 2 kg and below, 2-10 kg; 10-25 kg, and above 25 kg.

As illustrated in Figure 11, 86% of bean and 62% of soya bean seed was sold in small packages in 2021; this makes sense, as these crops are usually sold directly to smallholder farmers or to other companies that then sell to them. In contrast, only 5% of maize and 13% of groundnut seeds were sold in packages of 2 kgs or less; the most common package

size for maize was 2-10kg (89% of sales), and over 25kg for groundnut (49% of sales) The explanation for the figure for maize is that most maize seed is sold to the AIP program, which requires that the OPV seed (which accounts for 77% of the maize seed purchases by AIP) is sold in 5kg bags. Most of the groundnut seed is purchased by commercial farmers, who prefer large packages.

Figure 12 shows the trend in the volume of seed sold in small packages package sizes in 2016, 2019, and 2021. The use of 2 kg size packages declined for maize, bean and groundnut between 2019 and 2021. Now that groundnut and other legumes have not been part of the AIP package, seed companies producing groundnut seed may have resorted to larger packages which are preferred by large-scale producers. This supports the fact that 13% of groundnut seed was sold in small packages in 2021.

Figure 11: Percentage of seed sold in different package sizes (2021)

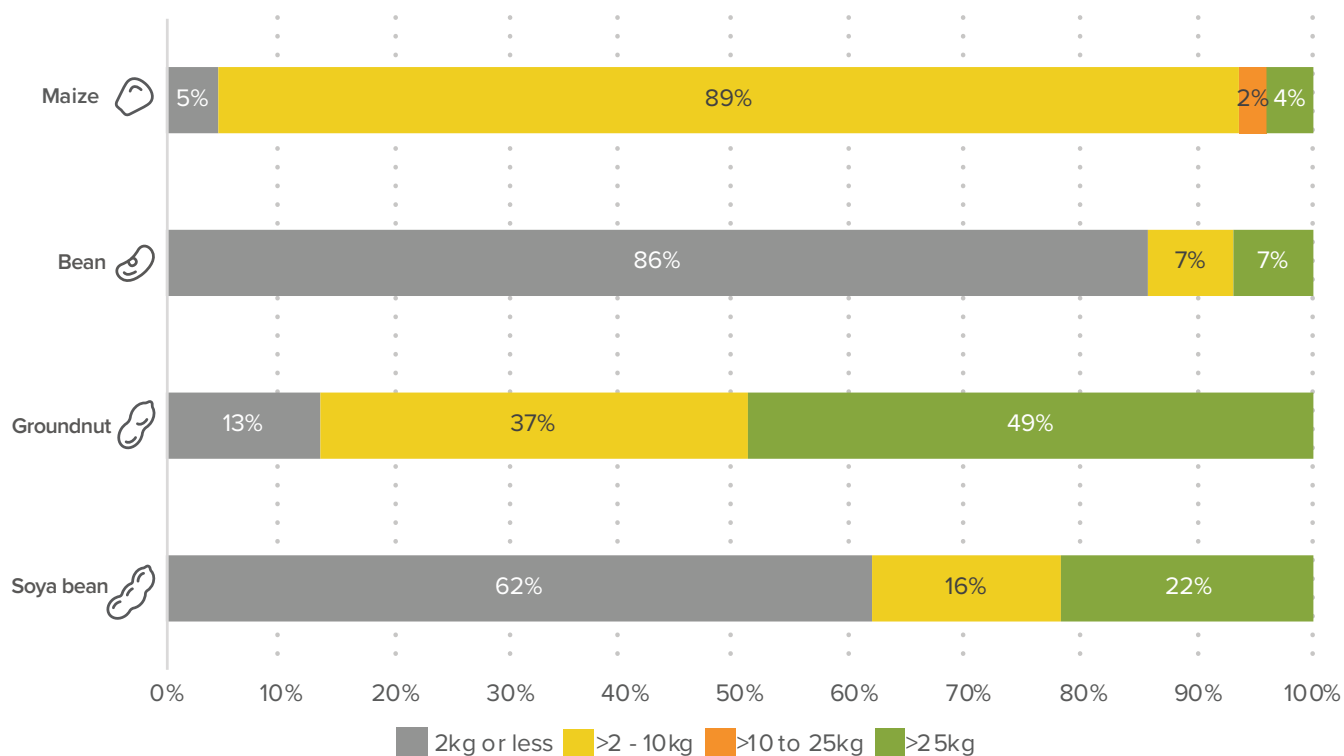
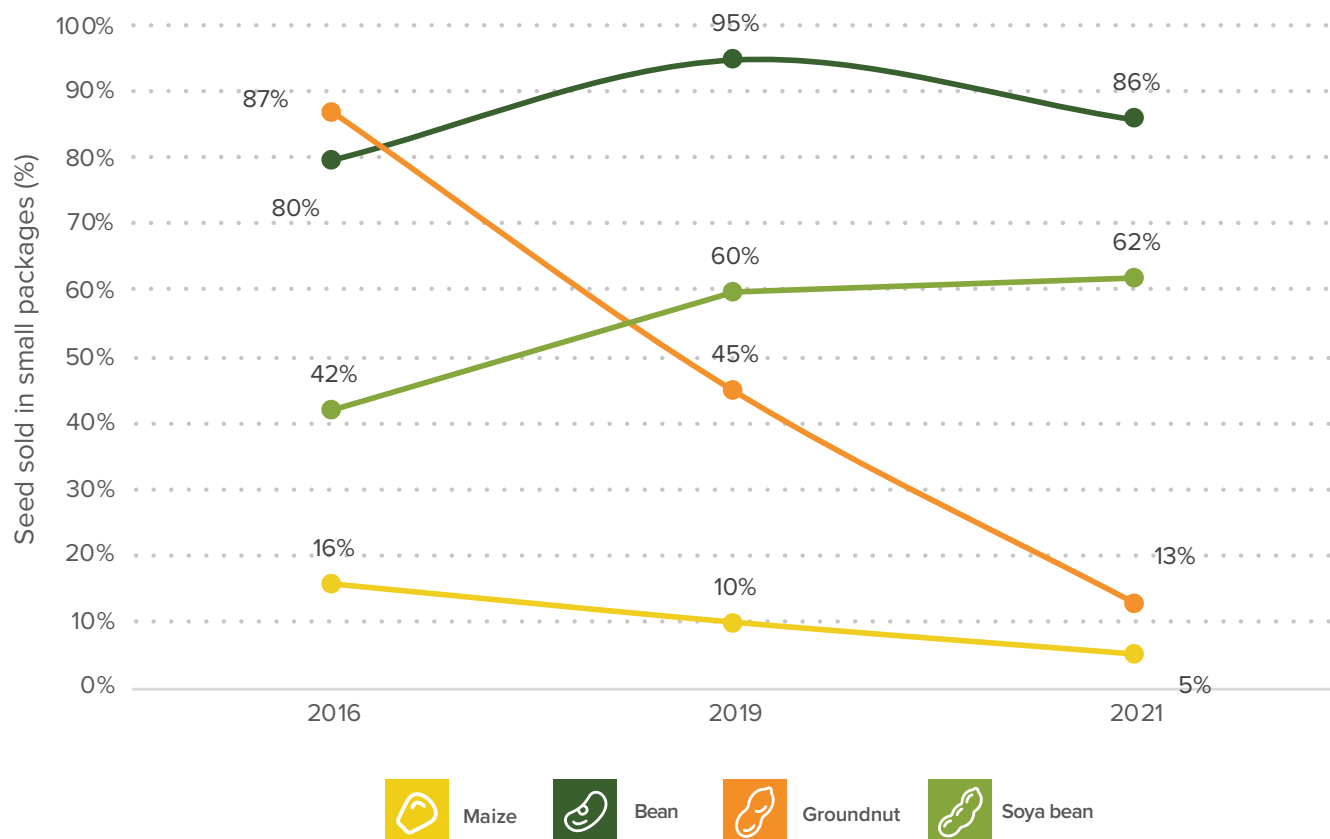


Figure 12: Trend in percentage of seed sold in small packages (2kg or less)





SEED AND GRAIN PRICES

Seed and grain prices at the time of planting are a good measure of improved seed affordability. These data points are important as many smallholder farmers end up making a choice between purchasing seed from the formal sector or planting grain. The greater the price difference between the two, the less likely that resource-poor farmers will purchase certified seed.

Average seed prices per kilogram were generally lower for all crops in 2021 compared to 2019. A likely reason for the reduced average price of OPV maize seed is that the 2021 growing season was impacted by the COVID-19 pandemic, which prompted the Malawi government to request that seed businesses not increase commodity prices. STAM also requested the same of its members.

Table 22: Seed and grain prices

Crop	Average Seed price (MKW/kg)			Average Grain price (MKW/kg)		
	2016	2019	2021	2016	2019	2021
 Maize (hybrid)	900	1,489	1,180	215.94	150	150
 Maize (OPV)	875	1,189	929	215.94	150	150
 Bean	1,060	2,050	1,433	708.53	420	510
 Groundnut	1,097.5	1,873	1,718	579.80	450	480
 Soya bean	800	1,061	1,059	440.37	280	320



CONCLUSION

Malawi's formal seed sector is in the growth stage of development (Ariga et al. 2019). The country has registered several years of steady private sector involvement in the production and commercialization of varieties as well as a stable seed policy environment. The agro-dealer network is strong and well-linked to seed companies. The report shows mixed performance across the five indicator categories.

As far as **research and development** goes, none of the local seed companies have their own breeding programs. The companies source basic seed from DARS, CGIAR institutions, and other companies. This approach appears to be working as the companies reported a high level of satisfaction with the availability of basic seed for all four crops. However, there is need for DARS to lay out a structured procedure for seed companies to access basic seed. Currently, basic seed can be accessed in ad-hoc first-come-first-served arrangements without pre-booking. This arrangement does not allow DARS to forecast the basic seed requirements in advance. On the plus side, seed companies are actively engaged in the release of varieties through the variety release system. Most of the maize and soya bean releases between 2019 and 2021 were owned by private companies. Further, most of these releases had climate smart features or industry-demanded features.

In terms of **industry competitiveness**, Malawi's seed industry is highly dependent on the AIP, the government seed subsidy program. The program focused on maize seed in 2020/21 and accounted for 61% of maize seed sales that year. The program did not include legume seed in its scope, leading to a reduced number of active seed companies for bean, groundnut, and soya bean. The smaller number of seed companies in turn led to a higher level of market concentration in 2021 than in 2019. This was especially true for the bean and soya bean seed markets. Further, the market shares of the top four companies for the four crops were very high, between 87% and 95%, providing further evidence of a highly concentrated seed market with few seed companies holding large shares. On the plus side, there were more women involved in the management of seed companies in 2021 than in 2019. In 2021, women occupied more management and ownership positions, and more companies had women in the top management.

Malawi is a significant importer and exporter of seed for the four crops. In 2021, seed companies imported 8,065 MT of maize seed. These imports mainly responded to the government's demand under the AIP. In this year, seed was imported from Zambia and Zimbabwe. The imports did not carry the COMESA or SADC seed labels. That said, seed importers were mostly satisfied with the seed importation process.

The main development in the Malawi's **seed policy framework** was the passing of the Malawi Seed Act in April 2022. The Seed Act established the Malawi Seed Regulatory Authority to implement seed regulations in the seed sector. The Act also establishes the Crop Variety Release and

Registration Committee as the entity handling variety release and registration. Further, the Act has harmonized several clauses with the provisions in the SADC Seed Agreement and COMESA Seed Trade Harmonized Regulations. Lastly, the Act increases the penalties to be paid by offenders who deliberately violate the law. The Act has inspired several ongoing initiatives by the government and development partners to address the challenge of counterfeit seed in the country.

In the realm of **institutional support**, STAM is mandated to promote improved seed as key to sustainable food security and socioeconomic development in Malawi. Seed company members of STAM reported a slight drop in their level of satisfaction with the association. This drop can be attributed to inadequate staffing, failure to effectively advocate for key issues affecting members, and limited revenue-generating capacity. On the government side, seed inspection services under SSU received a satisfaction rating of 64% from seed companies. This relatively high rating can be attributed to government efforts to address counterfeit seed and an increase in the number of para seed inspectors, who are deployed to support the SSU seed inspection services. Despite these improvements, SSU requires additional resources to make their service delivery more efficient.

In terms of **service to smallholder farmers**, the number of agricultural extension officers has not changed over the last few years. Malawi's public extension officers are complemented by extension staff from seed companies and NGOs. Further, the government is in the process of training and licensing additional public and private seed inspectors. In 2021, there were a total of 474 licensed agro-dealers owning a total of 2,472 outlets, an increase from the 468 licensed agro-dealers 2019 who owned a total of 1,569 outlets. The increase in the number of agro-dealers and shops can be attributed to the AIP, as it increased the volume of seed and opened up seed industry opportunities for new entrants.

In 2021, most bean and soya bean seed companies packaged their seed in small packages of 2 kg or less. However, maize seed companies packaged the seed in 5 kg bags in response to the requirements of the AIP program, which was the main buyer of maize seed.

On seed prices, this study found that average seed prices per kg were generally lower in 2021 for all crops compared to 2019. A likely reason for the reduced average price of OPV maize seed is that the 2021 growing season was impacted by the COVID-19 pandemic, which prompted the Malawi government to request that seed businesses not increase commodity prices. STAM also requested the same of its members.



REFERENCES

- Ariga, J., Mabaya, E., Waithaka, M., Wanzala-Mlobela, M. 2019. Can improved agricultural technologies spur a green revolution in Africa? A multicountry analysis of seed and fertilizer delivery systems. *Agricultural Economics*. 50:63–74.
- Mabaya, E., Kachule, R., Waithaka, M., Mugoya, M., Kanyenji, G., and Tihanyi, K. 2021. Malawi 2020 Country Study - The African Seed Access Index (version August 2021).
- Mabaya, E., Kachule, R., Mugoya, M. 2019. Malawi Brief 2017 - The African Seed Access Index.
- Malawi Government. 2018a. National Seed Policy.
- , 2018b. Plant Breeders Act
- , 2018c. Plant protection Act
- , 2022. "Seed Bill, The Malawi Gazette Supplement"
- MoAIWD (Ministry of Agriculture Irrigation and Water Development). 2018. Seed Regulations 2018, Arrangements of Regulations.
- McGuire, S., Sperling, L. 2016. Seed Systems Smallholder Farmers Use. *Food Security*. 8(1): 179–195.

PHOTO CREDITS

- Cover: iStockphoto.com/peeterv
- Page 1: iStockphoto.com/intek1
- Page 2: iStockphoto.com/Joseph Egabor
- Page 4: iStockphoto.com/divanvdw
- Page 7: pixabay.com
- Page 12: iStockphoto.com/MissHlbiscus
- Page 15: iStockphoto.com/tsmarkley
- Page 20: iStockphoto.com/DS70
- Page 22: iStockphoto.com/peeterv
- Page 23: iStockphoto.com/egal
- Page 28: iStockphoto.com/golero

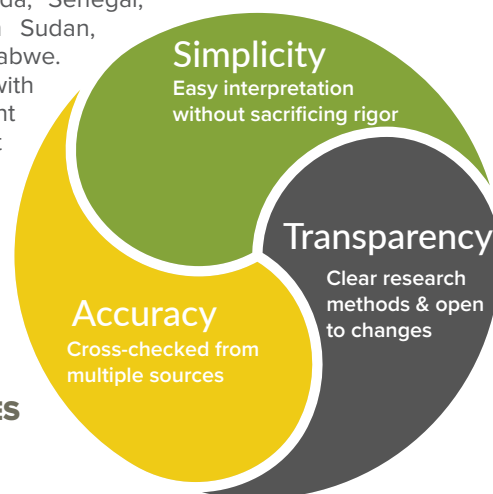
ABOUT TASAI



TASAI'S THEORY OF CHANGE

The African Seed Access Index (TASAI) is a seed industry research initiative that is coordinated by the nonprofit organization TASAI 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 African countries. The intended outcome of the index is improved access to locally adapted, affordable, and high-quality seed of improved varieties by smallholder farmers in Sub-Saharan Africa.

To assess the status of the seed industry value chain, TASAI tracks indicators in the following five categories: Research and Development, Industry Competitiveness, Policy and Regulations, Institutional Support and Service to Smallholder Farmers. By the end of 2022, TASAI studies will have been completed in 22 African countries: Burkina Faso, Burundi, the Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, South Sudan, 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. TASAI's approach is guided by the principles of Simplicity, Transparency, and Accuracy.



TASAI PRINCIPLES

BROWSE TASAI DATA ONLINE:

For a comparison of TASAI Indicators across different countries and years, please visit the TASAI Dashboard online: <https://dashboard.tasai.org>

READ TASAI REPORTS ONLINE:

<https://tasai.org/reports/>



TASAI

The African Seed Access Index



FOR MORE INFORMATION:



THE AFRICAN SEED ACCESS INDEX HAS BEEN SUPPORTED BY:

**BILL & MELINDA
GATES foundation**



AGRA
Sustainably Growing
Africa's Food Systems



USAID
FROM THE AMERICAN PEOPLE



**Adam Smith
International**

