

Zimbabwe Country Report 2022

The African Seed Access Index

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TASAI
The African Seed Access Index

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LIST OF ACRONYMS:

AFSTA	The African Seed Trade Association
AGRITEX	Department of Agricultural, Technical and Extension Services
AMA	Agriculture Marketing Authority
CBI	Crop Breeding Institute
CIMMYT	International Maize and Wheat Improvement Centre
COMESA	Common Market for Eastern and Southern Africa
DUS	Distinctness, Uniformity, and Stability
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ISF	International Seed Federation
ISTA	International Seed Testing Association
LFSP	Livelihood Food Security Project
MLAFW&RD	Ministry of Lands, Agriculture, Fisheries, Water and Rural Development
NBA	National Biotechnology Authority
NDS	National Development Strategy
NGO	Non-Governmental Organization
OECD	Organization for Economic Cooperation and Development
PQSI	Plant Quarantine Services Institute
SADC	Southern African Development Community
SPP&BD	Strategic Policy Planning and Business Development
SSI	Seed Services Institute
TASAI	The African Seed Access Index
VCU	Value for Cultivation and Use
VRC	Variety Release Committee
ZSA	The Zimbabwe Seed Association



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 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 Zimbabwe's formal seed sector. Similar TASAI studies of the seed sector in Zimbabwe were completed in 2015 and 2017 (TASAI 2015; Mabaya et al. 2017). TASAI studies focus on the four grain and legume crops important to a country's food and nutritional security (the "four focus crops"). In Zimbabwe, these crops are maize, bean, soya bean, and sorghum. Together, the four crops account for 72% of the area harvested to food crops in Zimbabwe² (FAOSTAT 2020). Maize is the most preferred staple crop and is therefore generally regarded as a major strategic crop. It accounts for 57% of the total area harvested to food crops in Zimbabwe. Sorghum is the second most important food crop and is better suited in areas with lower levels of rainfall than maize. It accounts for 13% of the total area harvested to food crops in the country. Bean is a protein-rich food crop that complements cereal-based diets. Soya bean, though traditionally regarded as an oilseed crop, is also a good source of protein. The local demand for soya bean has been rising due to the growing market for cooking oil, stockfeed, and protein-rich foods (e.g. soya-based relish, soymilk, and breakfast cereals). All four crops are included in the government's agriculture input support programs discussed in the section on government subsidies.

OVERVIEW OF ZIMBABWE'S FORMAL SEED INDUSTRY

Like most other African countries, Zimbabwe's seed industry consists of two systems: the informal and formal systems. This Country Report focuses almost exclusively on the formal seed sector. Zimbabwe has gone through tough macro-economic conditions in the last couple of years. This may have implications on the following seed systems:

The informal system refers to a system in which 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, and through rural markets. Seed from this system is of variable varietal purity, as well as physical and sanitary quality.³ Self- and open-pollinated varieties are more likely to be retained as seed and exchanged through this informal system. This system also facilitates access to farmer-preferred seed varieties, which could be traditional varieties handed down through generations, or commercial varieties no longer readily available through the formal system. In recent years, some non-governmental organizations (NGOs) and development agencies have equipped farmers with seed production and retention skills to help enhance the quality of seed coming from the informal system. Others have been active in the community seed banks.

The formal system is a structured and regulated value chain for the production of improved seed varieties. This system involves many actors and institutions. The formal seed sector's activities range from breeding varieties to the multiplication, processing, and distribution of certified seed. The different stages of improved seed production are regulated by governments based on approved regulations and standards. The sale of seed from this system takes place through limited distribution channels such as registered seed growers/companies and agro-dealers.

In Zimbabwe, the formal seed sector focuses on the production and sale of certified seed of registered varieties according to official regulations and standards. The formal seed sector is regulated by the Seed Services Institute (SSI)

¹ TASAI uses "improved seed" as the short form of "quality seed of improved varieties".

² Food crops include cereal crops, pulses and selected oil crops (soya bean and groundnut).

³ "Seed System Definitions," Agrilinks, USAID, accessed December 6, 2022 <https://www.agrilinks.org/post/seed-system-definitions>



of the Research Services Department within the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development (MLAFW&RD). The SSI also serves as the secretariat of the Variety Release Committee (VRC), which evaluates applications for the release of improved crop varieties. A variety approved for release is gazetted and listed in what is known as the “Second Schedule” (section 3) of the national variety list maintained by the SSI. This is an important first step in certified seed production. Crop breeding research and development is carried out in the public sector by the Crop Breeding Institute (CBI), the International Maize and Wheat Improvement Centre (CIMMYT) for maize, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) for sorghum, and the International Institute of Tropical Agriculture (IITA) for tropical crops as well as maize and soya bean. Crop breeding research and development is also carried out by a few private seed companies whose breeding programs are at varying stages of development. The public breeding institutions maintain the released varieties and provide breeder seed for further multiplication (Table 1).

The multiplication of foundation and certified seeds is conducted primarily by seed companies, who in turn usually contract seed growers. The seed companies register the seed growers and crops and submit seed inspection reports to the SSI. Seed quality evaluation is carried out by the SSI,

which houses an International Seed Testing Association (ISTA) accredited seed laboratory. SSI also monitors government-registered private seed laboratories that operate in seed companies. Currently, the country has seven private seed laboratories, four of which work on one or more of the four focus crops. The SSI also inspects seed processing plants where seed is conditioned and packaged.

Seed distribution and sales are mostly carried out by seed companies using seed merchants and sellers registered with the SSI. The SSI also inspects and monitors seed distribution channels nationwide to ensure compliance with seed regulations and to help combat counterfeit seed. At times development agents, NGOs, crop production contractors and the government distribute seed directly to smallholder farmers.

The National Seed Certification Scheme is based on the Organization for Economic Cooperation and Development (OECD) Seed Schemes. However, seed companies may also produce seed under the Common Market for Eastern and Southern Africa (COMESA) and the Southern African Development Community (SADC) seed schemes. Zimbabwe ratified the COMESA Regulations in 2016 and submitted papers for accession to the SADC Harmonized Seed Regulations in 2021.

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

ROLE	KEY PLAYERS
Research and breeding	Crop Breeding Institute (CBI), seed companies, universities, International Maize and Wheat Improvement Centre (CIMMYT), and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Variety release and regulation	Seed Services Institute (SSI), Variety Release Committee (VRC)
Seed production and processing	Seed companies, CBI, contracted farmers, CIMMYT, ICRISAT
Education, training, and extension	AGRITEX, seed companies, NGOs, development agencies, universities, agricultural colleges, International Center for Tropical Agriculture (CIAT) - Harvest Plus
Distribution and sales	Seed companies, registered seed merchants and sellers, NGOs and development agencies, Government, crop production contractors



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.** In most TASAI studies, the bulk of the performance data reported comes from the year before the year in which the study is conducted (“the study year”) because that is the year for which the most recent data are available. 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’ features	Yes	+
A4 Availability of basic seed	Yes	+
B INDUSTRY COMPETITIVENESS		
B1 Number of active seed companies/producers	Yes	+
B2 Quantity of seed produced and sold	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 prices 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 with the findings of TASAI's 2015 pilot study and the 2017 country study for Zimbabwe (with performance data primarily from 2016 and 2014⁴, respectively). 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 available at <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 the country's seed sector. Of these, seed companies were the study's 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**.

As of January 2022, Zimbabwe had 81 registered seed companies, 10 of which were considered inactive⁵ as they had not produced seed for more than 10 years. Of the remaining 71, 32 seed companies were registered to produce and/or market seed for at least one of the four focus crops, and all were targeted for interview. Of these, 23 seed companies

were surveyed. The sample size included all big companies since the total production reported by 23 seed company respondents from the TASAI study comprised of close to 100% (104% maize, 79% bean, 95% soya bean, and 62% sorghum) of the official production based on government records. Table 3 gives a breakdown of seed companies interviewed for each crop.

In addition to seed companies, interviews were conducted with the following government institutions: the Seed Services Institute (SSI), responsible for several regulatory tasks; the Agricultural Technical and Extension Services (AGRITEX), responsible for agricultural extension services; the Department of Strategic Policy Planning and Business Development (SPP&BD), in charge of the government subsidy program as well as the importation and exportation of seed; and the Agricultural Marketing Authority (AMA), mandated to register agro-dealers. Several international research institutions were also interviewed. CIMMYT, which runs a regional station in Zimbabwe, is active in maize breeding research and the provision of basic seed to seed companies. ICRISAT works on sorghum breeding and the provision of basic seed. Harvest Plus⁶ is another international agricultural research organization which supports the breeding, testing and release of nutrient-dense varieties of bean developed by the International Center for Tropical Agriculture (CIAT) and vitamin A maize varieties developed by CIMMYT and facilitates access to foundation seed in Zimbabwe. Lastly, we also surveyed IITA, which is active in variety improvement for tropical crops as well as maize and soya bean.

⁴ Since the TASAI sampling methodology has improved over the course of the country studies, the number of years in the temporal comparison may vary for the different indicators.

⁵ TASAI defines an "active seed company" as a company that produces and/or markets seed of one or more of the four focus crops.

⁶ "Zimbabwe," HarvestPlus, IFPRI, Accessed on December 6, 2022, <https://www.harvestplus.org/countries/zimbabwe/>

Table 3: Breakdown of seed companies by crop (2022)

Crop	Number of registered seed companies (Government data)	Number of registered seed companies surveyed (TASAI data)	% share of seed production from TASAI data vs government data
 Maize	31	20	104%
 Bean	22	16	79%
 Soya bean	13	6	95%
 Sorghum	19	12	62%
Total	32	23^a	

^a The total number of seed companies differs from those by crops because some seed companies produce more than one crop.

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 farmer and consumer needs. The number of active breeders is indicative of the level of investment in seed research and development.⁷ In addition to tracking the number of breeders working on the four focus crops, the TASAI study also measured seed companies' level of satisfaction with the public breeding programs. The latter reflects active breeders' (from public institutions) ability to produce new varieties.

Table 4 shows that there were no significant changes in the total number of breeders working on the focus crops between 2016 and 2021. In 2021, there were 33 breeders. Of the 33 breeders, most (49%) worked on maize, followed by soya bean (21%), bean (15%), and sorghum (15%). Generally, breeders working for public institutions or private companies with well-developed breeding programs worked on a single crop. In contrast, in the case of smaller private companies, one breeder may be responsible for breeding multiple crops. In 2021, Zimbabwe had more private breeders (28) than public breeders (5).

⁷ TASAI studies define an "active breeder" as a breeder who is currently engaged in breeding/maintaining a variety or a breeder who had either developed and released at least one variety or was developing a variety of a crop of interest at the time of the TASAI study.

Between 2016 and 2021 the number of breeders in the public sector reduced by two— one working on maize and another working on bean seed. The private sector gained 3 breeders, one breeder for bean, soya bean, and sorghum seed. The breeders who left the public sector joined the private sector or international organizations. During the same period, the country lost a significant breeding research capacity and experience once a multinational entity stopped its breeding activities in Zimbabwe. However, some smaller companies are starting to invest in breeding research, as a result of which the overall change in the number of active breeders remains small.

All the breeding institutions had linkages to international organizations working on the crop(s) of interest and had access to varieties developed by these international institutions. Some companies accessed varieties ready for commercialization and conducted adaptation trials prior to releasing the varieties. Others accessed hybrid lines for use in their breeding programs. Most of the smaller seed companies accessed publicly bred varieties and had licensing agreements with the CBI to commercialize them.

Results from the TASAI survey (Table 4) show that seed companies' levels of satisfaction with public breeders declined from "excellent" in 2016 to "good" for maize, bean, and soya bean, and "fair" for sorghum in 2021. Some seed companies perceived that staff turnover within breeding programs had a negative impact on the quantity and quality of seed developed by the public breeding programs. Other seed companies were concerned that the public institutions did not have enough resources to conduct their research activities.

Table 4: Number and adequacy of active breeders in Zimbabwe

Crop	No. of public breeders		No. of private breeders		Total number of breeders			Satisfaction rating of public breeders (out of 100%)		
	2016	2021	2016	2021	2014	2016	2021	2014	2016	2021
 Maize	3	2	14	14	21	17	16	94	84	72
 Bean	2	1	3	4	- ^a	5	5	-	83	66
 Soya bean	1	1	5	6	7	6	7	80	93	62
 Sorghum	1	1	3	4	7	4	5	75	83	56
Total^b	7	5	25	28	34^c	32	33			

^a Data for bean was not collected in 2014.

^b 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.

^c 2014 data was not disaggregated into public vs private breeders.

extremely poor poor fair good excellent



VARIETIES RELEASED IN THE LAST THREE YEARS

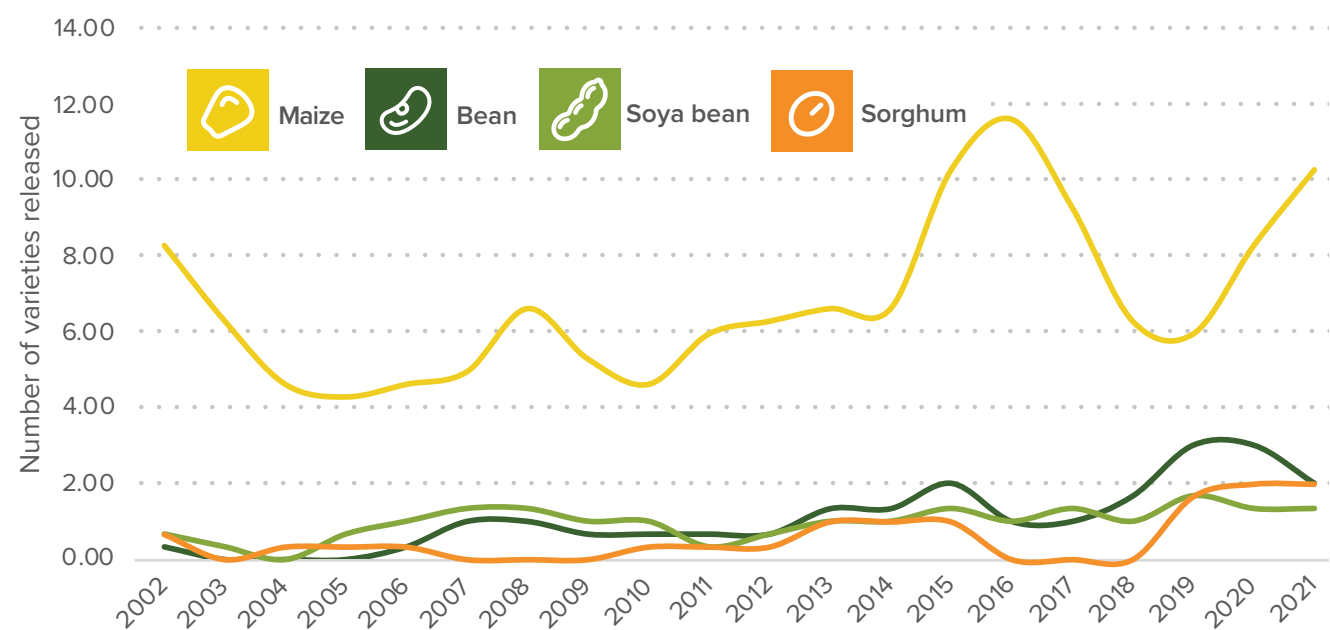
The number of varieties released is a good measure of the functioning of the variety development and release system. In addition to higher yields, new varieties often carry desirable traits such as climate stress resilience, disease/pest resistance, and nutrition-enhancements.

A total of 46 varieties were released between 2019 and 2021. This represents a slight increase from the 41 varieties released in the three years preceding the previous study (2014-2016). The new releases comprised 30 maize varieties, 6 bean varieties, 4 soya bean varieties, and 6 sorghum varieties. However, it should be noted that six of the maize varieties were adopted from the COMESA catalogue, having met the listing requirements.

Figure 1 illustrates the 3-year moving averages of crop variety releases between 2002 and 2021. A 3-year moving average is a statistic that captures the average change in varieties released every three years.

Results in Figure 1 show that more varieties of bean, soya bean, and sorghum were released during the 2019-2021 period (6 bean, 4 soya bean, and 6 sorghum varieties) than the 2014-2016 period (3 bean, 3 soya bean, and 0 sorghum varieties). As indicated in Figure 1, most varieties released for the four focus crops are maize. This is to be expected given the focus on maize by all seed companies. In addition, given the growing emphasis on nutrition and climate change adaptation, the recent increase in varieties released for the other crops is commendable.

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 (e.g., good canning attributes, high oil content, malting traits). 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) which affect current farming practices. Examples of climate-smart features are drought tolerance, early maturity, or extra-early maturity.

The climate-smart attributes that have been a major focus for breeders include very early to early maturity, drought tolerance, and heat stress tolerance. Table 5 lists the climate-smart varieties of maize, bean, and sorghum seed released between 2019 and 2021. At least 50% of the maize and sorghum varieties released in these years had one or more climate-smart features. Varieties with fast-cooking and nutrition-enhanced features were released for maize and bean. One maize variety was a quality protein maize and the other a Provitamin A maize (orange maize) variety. Two bean varieties were fast cooking, and one bean variety was biofortified with high iron and zinc. Varieties with industry-demanded features included three bean varieties with good canning attributes and one sorghum variety with good malting attributes. None of the soya bean varieties released had any special features.

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

Feature	Description	Number of varieties released				
		Maize	Bean	Soya bean	Sorghum	Total
All varieties released		30	6	4	6	46
All varieties released with special features		17	4	0	3	24
Climate-smart features	All	15	1	0	3	19
	Drought tolerant	8	0	0	3	11
	Heat stress tolerant	4	0	0	3	7
	Early / extra-early maturing	12	1	0	1	14
Use-related features	All	2	2	0	0	4
	Fast-cooking	0	2	0	0	2
	Nutrition-enhanced features	2	1	0	0	3
Industry-demanded features	All	0	3	0	1	4
	Canning	0	3	0	0	3
	Malting	0	0	0	1	1

NUMBER OF VARIETIES SOLD IN 2021

An increase in the number of varieties sold in a country often results in an increased choice of varieties available to farmers. The results in Table 6 show that in 2021, 52 varieties of maize, 14 varieties of bean, 8 varieties of soya bean, and 10 varieties of sorghum were sold. A comparison with 2016 results shows that fewer varieties of maize, soya bean and sorghum were sold in 2021 than in 2016, whilst the number of bean varieties sold remained the same.

Seven of the eight commonly (non-exclusively) sold varieties were released by the CBI. The CBI does not grant exclusive marketing rights, so their varieties may be commercialized by any company under contract. The eighth commonly sold variety was Macia. Despite being listed as having been released by a private company, Macia was developed within the SADC/ICRISAT sorghum and millet improvement program, so more companies had access to parental seed for this variety.

The age of the commonly sold varieties is a matter of concern, as most of the varieties were over 10 years old in 2021, despite many varieties (including CBI varieties) being released in the past 10 years. The high age of varieties is partly due to farmer preferences as well as delays in commercialization of newly released CBI-bred varieties. The low level of commercialization is in part attributed to the high costs of marketing to raise sufficient awareness about new varieties across the country. Further, the low quantity of breeder seed that is available to seed companies limits the quantity of certified seed on the market.

NUA45, a bio-fortified (high iron) and fast-cooking bean variety, was the most sold variety. It was sold by 12 seed companies, and a reason for its popularity was that it was promoted via the Livelihood Food Security Project (LFSP).⁸ Furthermore, one of the four projects under LFSP worked with 11 seed companies to multiply seed of biofortified crop varieties such as NUA45.⁹

⁸ "Livelihoods and Food Security Programme," LFSP, Accessed on December 6, 2022, <https://lfspzwcom.wordpress.com/home/>

⁹ "Lessons and Success Stories from the Livelihoods and Food Security Program," Krishak Jagat, Harvest Plus, accessed on December 6, 2022, <https://www.en.krishakjagat.org/crop-nutrition/lessons-and-success-stories-from-the-livelihoods-and-food-security-program/>



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

Crop	Number of varieties sold		Name of commonly sold variety (2021) (frequency)	Age of variety in years (2021)	Median age of variety in years (2021)
	2016	2021			
 Maize	59	52	ZS265 (5)	10	7
			ZM521 (5)	19	
			ZM301 (4)	12	
 Bean	14	14	NUA45 (12)	11	8
			Gloria (5)	11	
 Soya bean	10	8	Bimha (2)	2	12
 Sorghum	12	10	Macia (10)	23	14
			SV4 (5)	23	

SOURCES AND AVAILABILITY OF FOUNDATION (BASIC) SEED

Seed companies use foundation (or basic) seed to produce certified seed for sale 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. To obtain the desired quantities of basic seed, the grower begins by applying to the research institution that produces or supplies the desired basic seed, specifying the crop, variety, and quantity needed. The research institution invoices the grower for the basic seed and, upon payment, the grower receives the seed.

Sources of pre-basic (breeder) seed: Table 7 shows the sources of basic seed for the four crops and the number of seed companies sourcing basic seed from each source. Seed companies obtained basic seed from the public CBI, CIMMYT, Quali Basic Seed (QBS) (a regional seed company specializing in the production and sale of basic seed, headquartered in Kenya and with subsidiaries in Zambia and South Africa), ICRISAT, IITA, internal sources and other sources such as another seed company. Most seed companies sourced breeder seed from either the CBI, their own sources or from the CIMMYT. The CBI was the leading source of breeder seed for bean and sorghum, while three of the six seed companies producing soya bean seed maintained their own breeder seed. CBI, CIMMYT, and own sources were the main sources of maize basic seed.

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

Source of basic seed	Maize		Bean		Soya bean		Sorghum	
	No. of transactions	% of total	No. of transactions	% of total	No. of transactions	% of total	No. of transactions	% of total
CBI	7	29%	11	65%	2	33%	6	50%
CIMMYT	6	25%	0	0%	0	0%	0	0%
OTHER	2	8%	2	12%	1	17%	1	8%
OWN	7	29%	4	24%	3	50%	3	25%
QBS	2	8%	0	0%	0	0%	0	0%
ICRISAT	0	0%	0	0%	0	0%	2	17%
	27	100%	17	100%	6	100%	12	100%

In Zimbabwe, seed companies obtain breeder (pre-basic) seed from the national public CBI which they use to produce both basic seed and certified seed. For a company to access breeder seed from the CBI, it must be licensed to commercialize the CBI-bred variety of interest. The company submits a request for breeder seed and, if the seed is readily available, the company may purchase it and collect the seed from CBI warehouses. CBI asks the seed companies to send their requests a season in advance to allow CBI to plan their seed production program. Occasionally, the CBI has only limited quantities of breeder seed available. In these cases, if the applications are launched at the same time and the companies meet CBI expectations, then the seed is shared among the interested seed companies. However, as a result, some companies may end up receiving smaller quantities than they have requested.

To access maize breeder seed from CIMMYT in Zimbabwe, seed companies must first indicate their interest in commercializing CIMMYT material and sign the necessary Material Transfer Agreements. CIMMYT does not produce breeder seed to order, but rather provides up to 1 kg of breeder seed of parental lines. The seed company is invoiced and pays CIMMYT headquarters in Mexico for the seed. It then arranges to collect the seed from the CIMMYT station in Harare when it becomes available.

ICRISAT has just re-established its sorghum breeding program in Zimbabwe. It set a limit of up to 10 kg of parental seed at no cost to interested partners upon request and after signing the necessary Material Transfer Agreement. Should a seed company require more seed, they are expected to cover the associated costs.

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 that they requested, and the timeliness of delivery of the seed. Table 8 presents their responses.

Availability of basic seed: Comparing the overall availability between 2016 and 2021 (Figure 2) the opinion ratings were “excellent” for maize, bean, and soya bean and “good” for sorghum in 2021. The overall rating for availability of basic seed was increased for bean, soya bean and sorghum and declined slightly for maize.

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

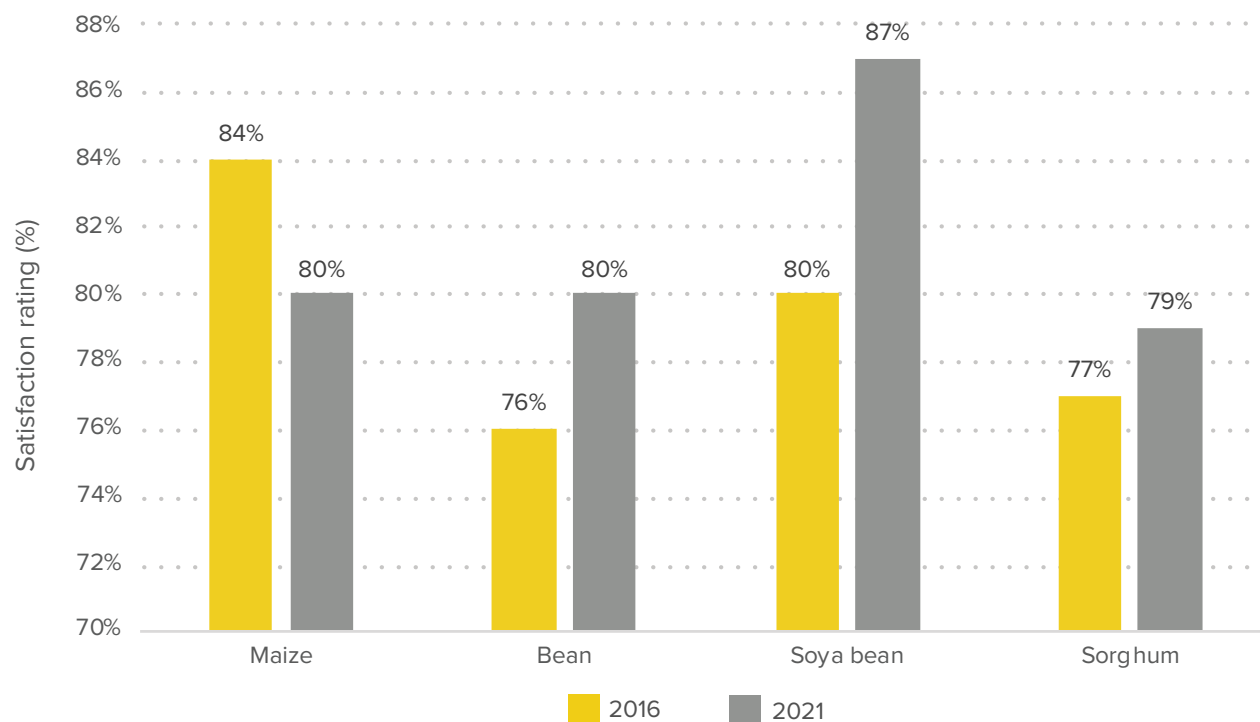
Crops		CBI	CIMMYT	Own	QBS	ICRISAT	Other	Overall
 Maize (n=124)	Quality ^a	83	84	96	80	N/A	60	85
	Quantity	69	76	91	85	N/A	65	78
	Timeliness	73	78	87	65	N/A	80	78
 Bean (n=17)	Quality	80	N/A ^a	93	N/A	N/A	90	84
	Quantity	75	N/A	83	N/A	N/A	90	78
	Timeliness	74	N/A	90	N/A	N/A	85	79
 Soya bean (n=6)	Quality	80	N/A	97	N/A	N/A	80	88
	Quantity	80	N/A	97	N/A	N/A	60	85
	Timeliness	90	N/A	97	N/A	N/A	70	88
 Sorghum (n=12)	Quality	76	N/A	97	N/A	85	40	80
	Quantity	70	N/A	90	N/A	90	70	78
	Timeliness ^b	72	N/A	93	N/A	85	50	76

extremely poor poor fair good excellent

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.

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



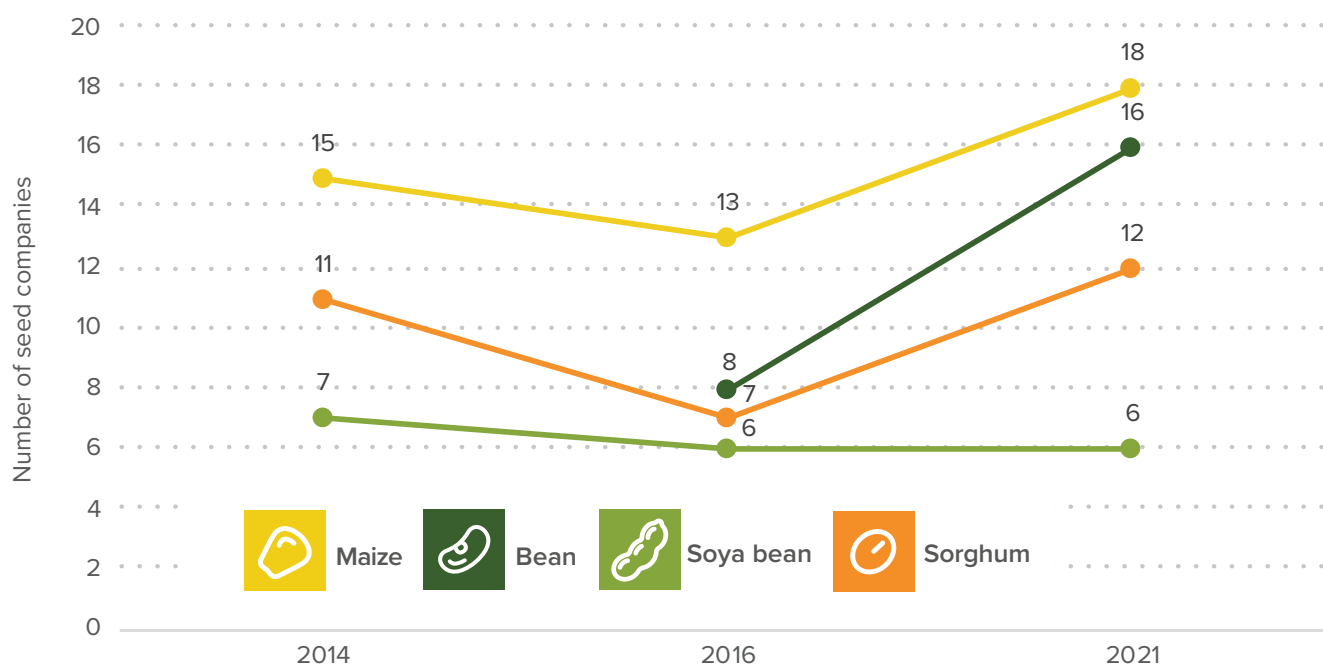
INDUSTRY COMPETITIVENESS

NUMBER OF ACTIVE SEED COMPANIES

Competition breeds excellence: the presence of more active seed companies 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 companies that produced and marketed seed of one or more of the focus crops.

In 2021, 23 active seed companies focused on the four focus crops (Table 3). This represented an increase from 16 active seed companies in 2016 and 20 seed companies in 2014. As shown in Figure 3, the number of active seed companies increased for maize, bean, and sorghum, and remained constant for soya bean from 2016 to 2021. During the same period, 11 seed companies entered the market, 1 multinational seed company exited the market, 1 seed company was dormant, and 1 company that had been dormant in 2016 restarted its operations. These changes reflect an increasingly competitive seed sector in Zimbabwe.

Figure 3: Trend in the number of active seed companies



GENDER IN MANAGEMENT OF SEED BUSINESSES

TASAI also tracks the number of women in management and ownership positions in seed companies. Article 6 of the SADC Protocol on Gender and Development requires that member states ensure that women and men have equal employment and economic opportunities (SADC 2008a). The 2021 TASAI study looked at gender in the management of seed businesses in Zimbabwe. Table 9 shows that of the six companies owned by an individual, only one was

owned by a woman.¹⁰ Whilst most seed companies (87%) had women in their management teams, only 4 out of the 23 seed companies had a woman top manager.

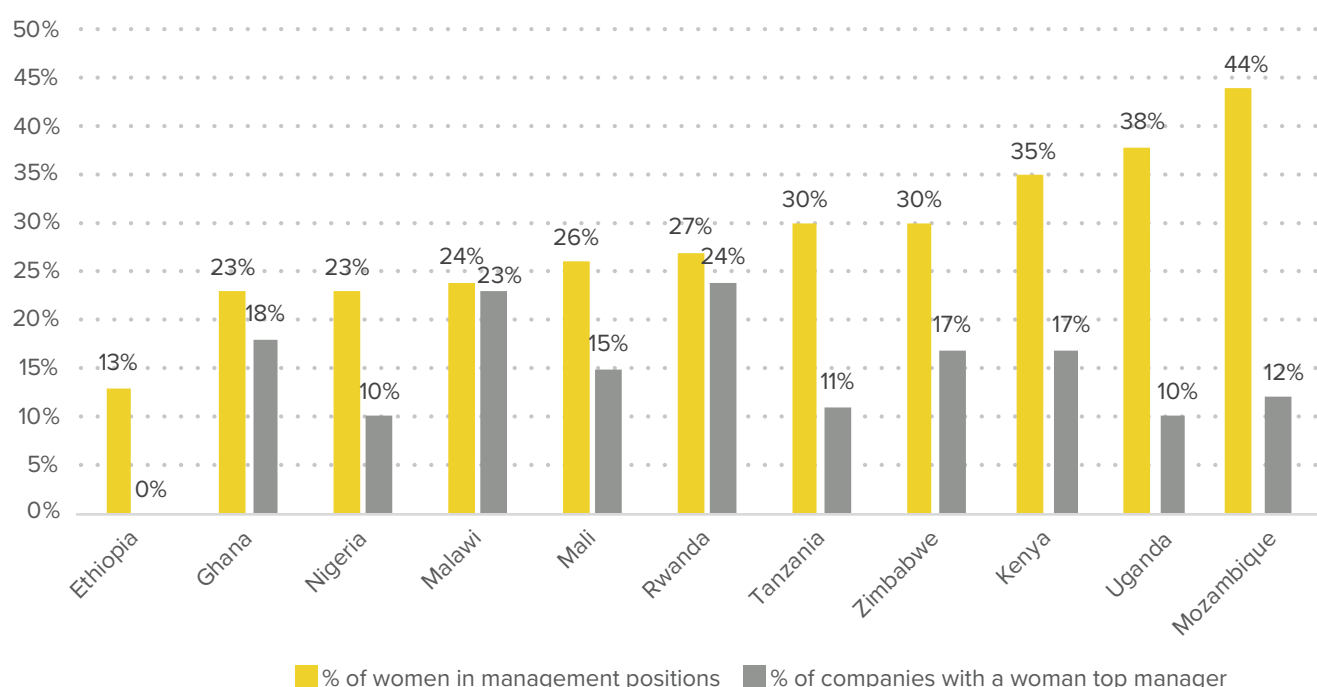
When compared to other African countries, Zimbabwe compares favorably in terms of women's participation in seed company management and ownership. Figure 4 shows that women's participation in seed company management in Africa is generally low. Zimbabwe leads in terms of the percentage of companies with women top managers. It also ranks fourth (after Kenya, Uganda, and Mozambique) in terms of the percentage of women in management positions.

¹⁰ Some companies such as research and public institutions do not have company management structures like privately-run companies.

Table 9: Gender in management of seed businesses (2021)

Gender indicator	Number	%
Women in management positions (n = 173)	52	30%
Companies with at least one woman in a management position (n =23)	20	87%
Companies with a woman top manager (n = 23)	4	17%
Companies with a woman owner (n = 6)	1	17%

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.

TASAI studies show that, from 2016 to 2021, Zimbabwe's seed sale trends by crop were complex. The study reveals that maize decreased by 16% from 44,150 MT to 38,095 MT.

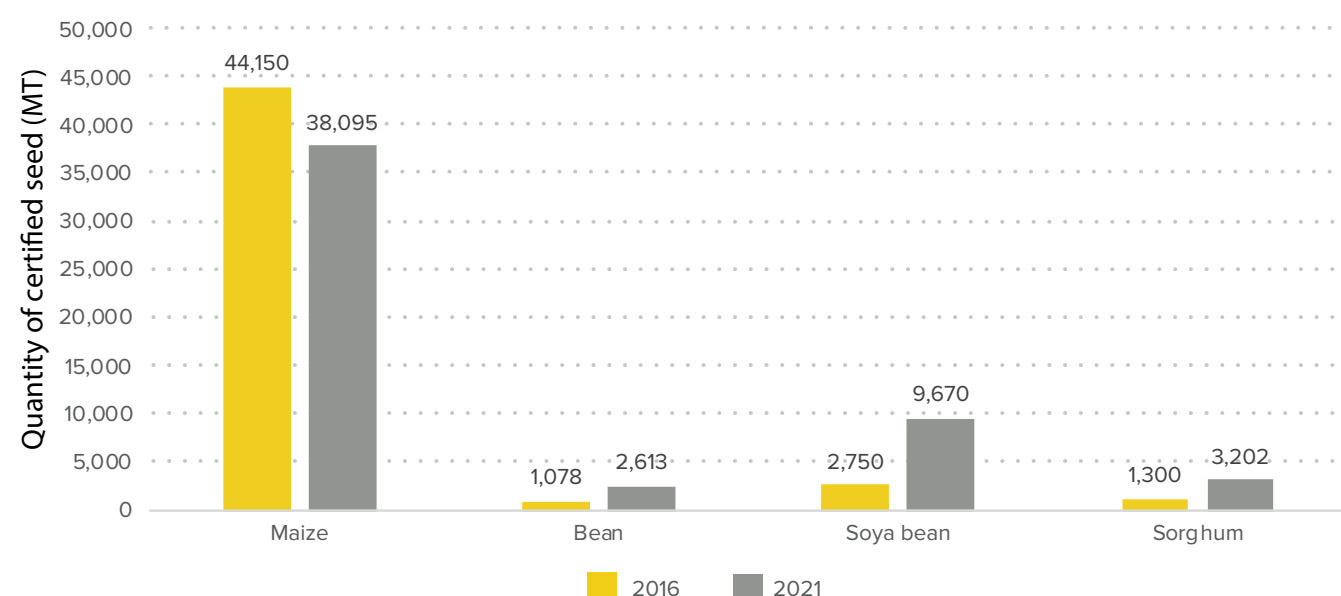
On the other hand, soya bean sales increased by 252%, while bean and sorghum increased by 142% and 146%, respectively (Figure 5). These increases suggest the seed industry has grown. During the 2021/22 season, the seasonal rains were delayed, which in turn delayed the growing season overall. To mitigate losses, it is possible that farmers planted crops that required a shorter growing period than maize.

As Table 10 shows, seed sales were lower than seed production in 2021 for maize, bean, and soya bean and marginally lower for sorghum. Thus, there was some carryover stock for maize, bean, and soya bean.

Table 10: Seed production and sales (2021)

Crop	Seed production in MT		Seed sales in MT (TASAI data)
	TASAI data	Government data	
 Maize	47,542	45,720	38,095
 Bean	3,410	4,330	2,613
 Soya bean	11,550	12,200	9,670
 Sorghum	3,380	5,424	3,202

Figure 5: Certified seed sold by crop



MARKET SHARE OF TOP SEED COMPANIES

Competition among seed companies benefits farmers via lower prices, wider choices, increased innovation, and better customer service. To assess the level of industry market concentration, TASAI uses seed sales data for each crop, as reported by seed companies, 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).¹¹

According to CR4 scores in Figure 6, the market share for the top four companies was lower in 2021 than in 2016 for maize, bean, and sorghum. As indicated in Figure 3, all three of these crops saw growth in the number of active seed companies between 2016 and 2021. New entrants reduced

the market share of the top four companies. However, there was a slight increase in the market share of the top four companies that produced soya bean.

Generally, lower HHI and CR4 scores are desirable, as these indicate a more competitive sector. Market concentration levels in 2021 were moderate for maize, bean, and sorghum, and extremely high for soya bean (Table 11). This is a positive change from 2016 where only bean crop had a moderate market concentration, maize and sorghum with high market concentration and soya bean extremely high. The CR4 shares and the HHI scores both indicate that the soya bean seed market is highly concentrated and dominated by a few players, while the maize, bean, and sorghum seed markets are fairly concentrated.

¹¹ See Table 11.

Figure 6: Market share for the four focus crops (CR4)

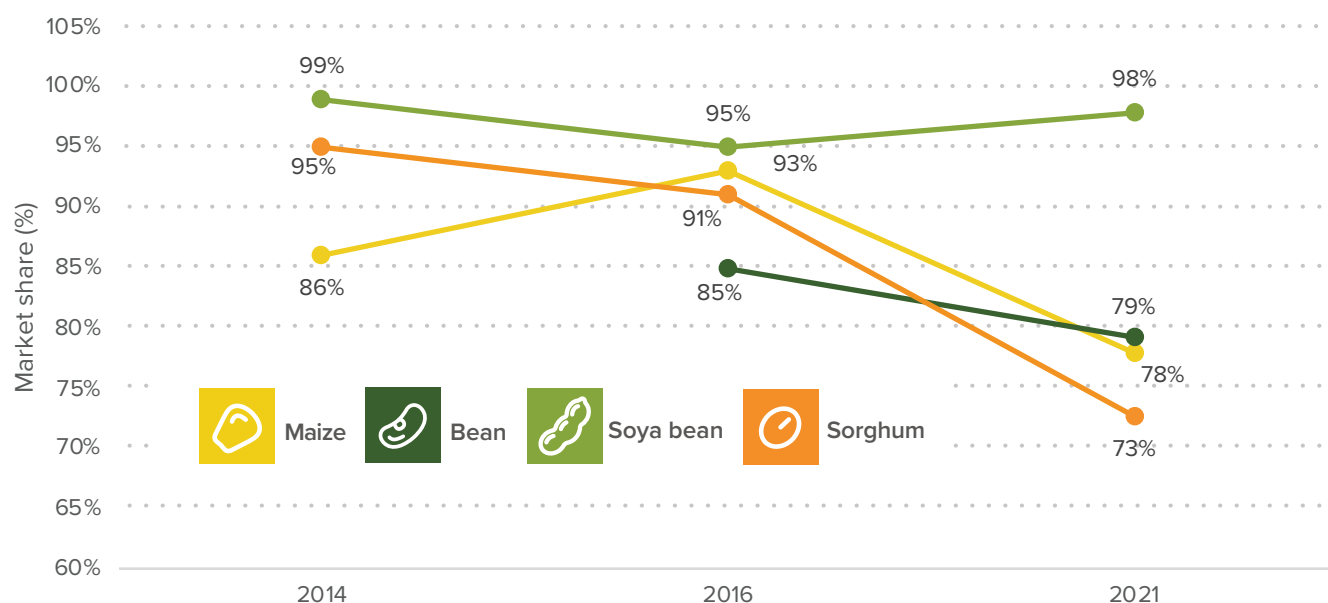


Table 11: Market concentration (HHI)^a

Crop	HHI (2014)	HHI (2016)	HHI (2021)
Maize	2,734	3,380	2,802
Bean	MD ^b	2,370	2,305
Soya bean	5,393	8,297	4,786
Sorghum	3,027	3,565	2,551

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 **moderate**, 3,000-3,999 is **high**, and greater than 4,000 is **extremely high**, i.e., monopoly or near monopoly.

b "MD" refers to missing data.

MARKET SHARE OF GOVERNMENT PARASTATAL

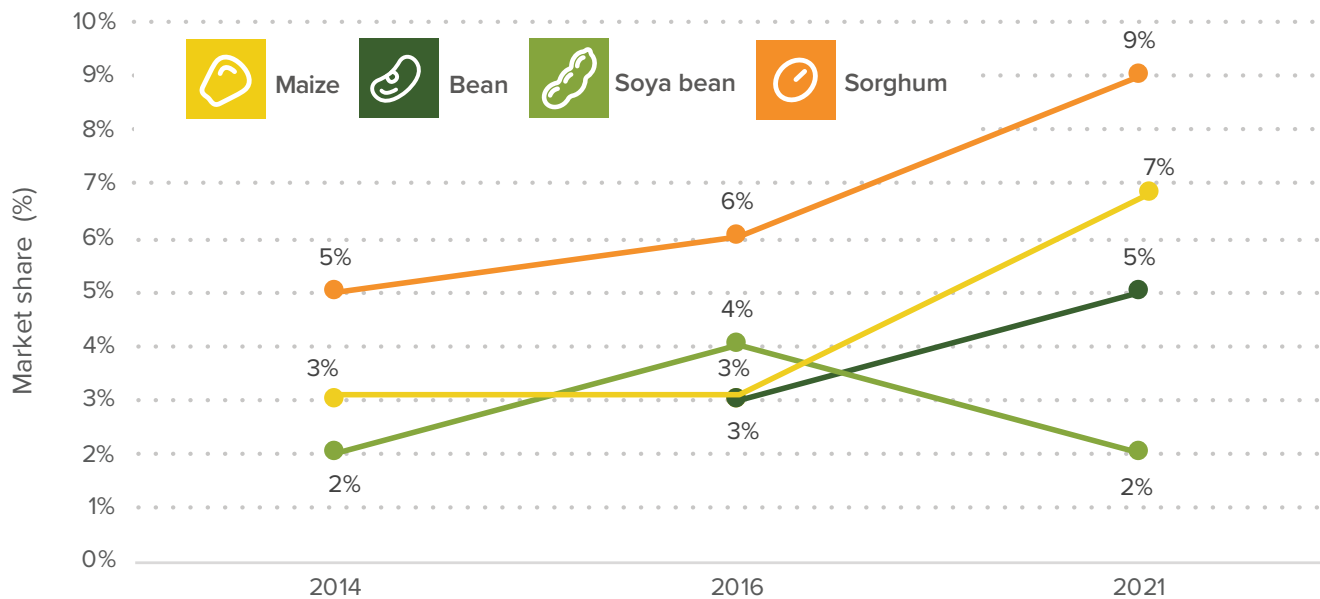
In some countries, public entities are still active players in the marketing and sale of certified seed. Public seed companies can play a critical role in meeting farmer demand for varieties that private seed companies deem less profitable. In addition to supporting seed production, public companies 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.

Zimbabwe has two government entities active in the seed sector: (1) Arda Seeds, which produces seed for a variety of crops including the four focus crops; and (2) Zimbabwe Technology Solution, which only produces maize seed. The mandate of these two entities is to contribute to national seed security and meet the needs of smallholder farmers. Since 2014, the government entities' market share for all crops has been below 10%. In 2021 their collective market share for maize, sorghum, and bean seed increased slightly, while their market share for soya bean seed decreased (Figure 7).



Figure 7: Market share of government entities



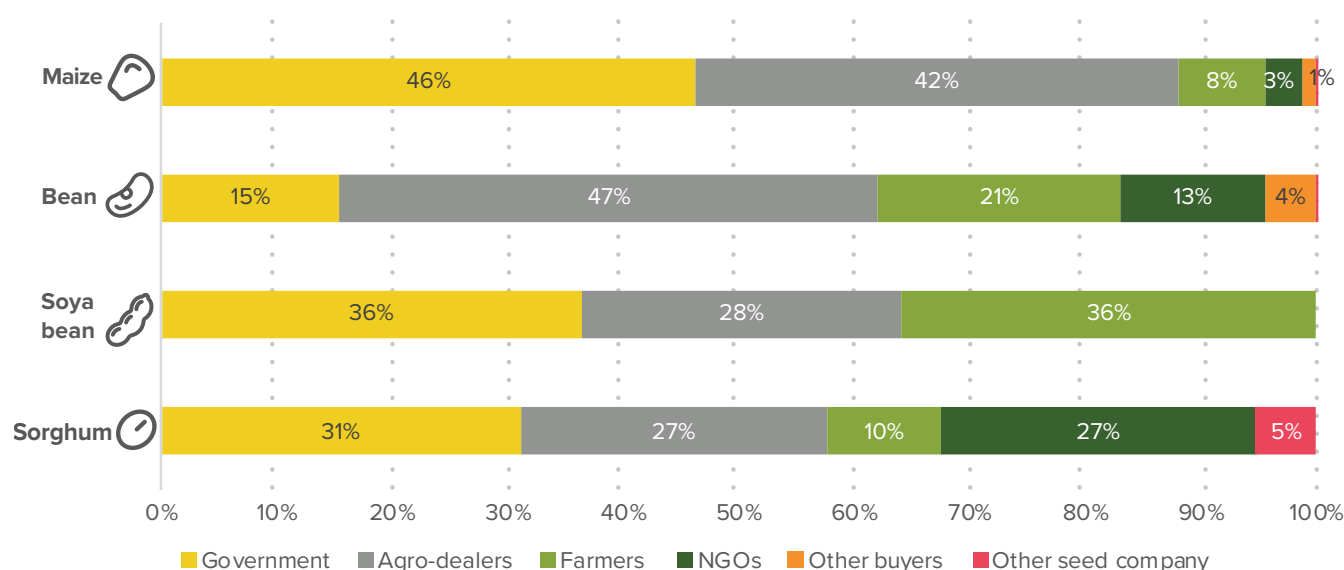
SEED SALES TO DIFFERENT CATEGORIES OF BUYERS

The TASAI study tracked six different categories of seed buyers in Zimbabwe in 2021, namely, the government, agro-dealers, farmers, NGOs, other buyers, and other seed companies. Figure 8 shows the breakdown of seed sales by category of buyers in 2021. The major buyers (entities collectively responsible for at least 10% of sales for any one of the crops) were the government, agro-dealers, farmers making direct purchases, and NGOs. The major buyers varied significantly by crop. The government was the major buyer of maize and sorghum seed, while agro-dealers constituted the main buyers of bean seed. In the case of soya bean, government and farmers' direct purchases represented the two largest buyers.

All four focus crops were part of the Presidential Input Support Scheme for the 2020/21 financial year. Two other government-sanctioned input support schemes targeted commercial farmers in 2021: (1) CBZ Agro-yield focused on maize and soya bean; and (2) AFC Holdings targeted maize. NGOs generally provide free input support to targeted beneficiaries and, when combined with the government's free input support scheme, these two schemes accounted for 49% of maize seed sales, 28% of bean seed sales, 36% of soya bean seed sales and 58% of sorghum seed sales (see section on government subsidies for analysis of trends across the study years). A few respondents expressed fears that the provision of free seed created dependency among the beneficiaries, which would harm seed sales on the open market in the long term. Assuming farmers either purchased seed from agro-dealers or directly from seed companies, farmer seed purchases account for 50% of maize seed sales, 68% of bean seed sales, 64% of soya bean seed sales and 37% of sorghum seed sales (Figure 8).



Figure 8: Seed sales by category of buyers (2021)



SEED IMPORT AND EXPORT PROCESS

Efficient seed import and export processes 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 in days is measured as the sum of the number of days used to obtain import documentation (import permit, phytosanitary certificates, and an International Orange Certificate¹², if applicable) and the number of days needed to clear seed at the border. It excludes transportation time.

In 2019 the government established a one-stop permit processing office that issues various agriculture-related permits, housed at the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development (MLAFW&RD). This office has representatives from all the regulatory agencies involved in the seed trade, namely the SSI, the Plant Quarantine Services Institute (PQSI), the National Biotechnology Authority (NBA), the Agriculture Marketing Authority (AMA), and the SPP&BD.

Seed importation: A seed company wishing to import seed into the country has to register with the SSI and AMA. The importing company submits an application form accompanied

by a letter requesting to import seed. The request will be processed by several regulatory agencies, and the applicant is required to formally pay for the documents required at each stage. The documents involved include a support letter and the International Orange Certificate from the SSI, a plant import permit from the PQSI, an AMA certificate, an NBA certificate, and a Control of Goods permit from the SPP&BD.

Despite the establishment of the permit processing office, which was meant to speed up the process, there was an increase in the average length of the import process from 30 days in 2016 to 45 days in 2021 (Figure 9). Among other factors, staff shortages related to COVID-19 contributed to the increased processing time. Even though the seed sector was regarded as an essential service, staff at key government agencies were reduced during the pandemic, which negatively affected the efficiency of service delivery. Despite the reduced staff levels, seed companies' satisfaction with the import process remained relatively unchanged: 44% in 2016 and 47% in 2021. The seed companies' main complaint was that the paperwork had to be processed by various institutions, which takes a long time, particularly at the PQSI and NBA.

In 2021, 60 MT of maize and 300 MT of sorghum were imported from within the COMESA/SADC region (Table 12). However, none of the import transactions carried either a COMESA or an SADC label.

¹² 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.

Figure 9: Average length and satisfaction rating of import process

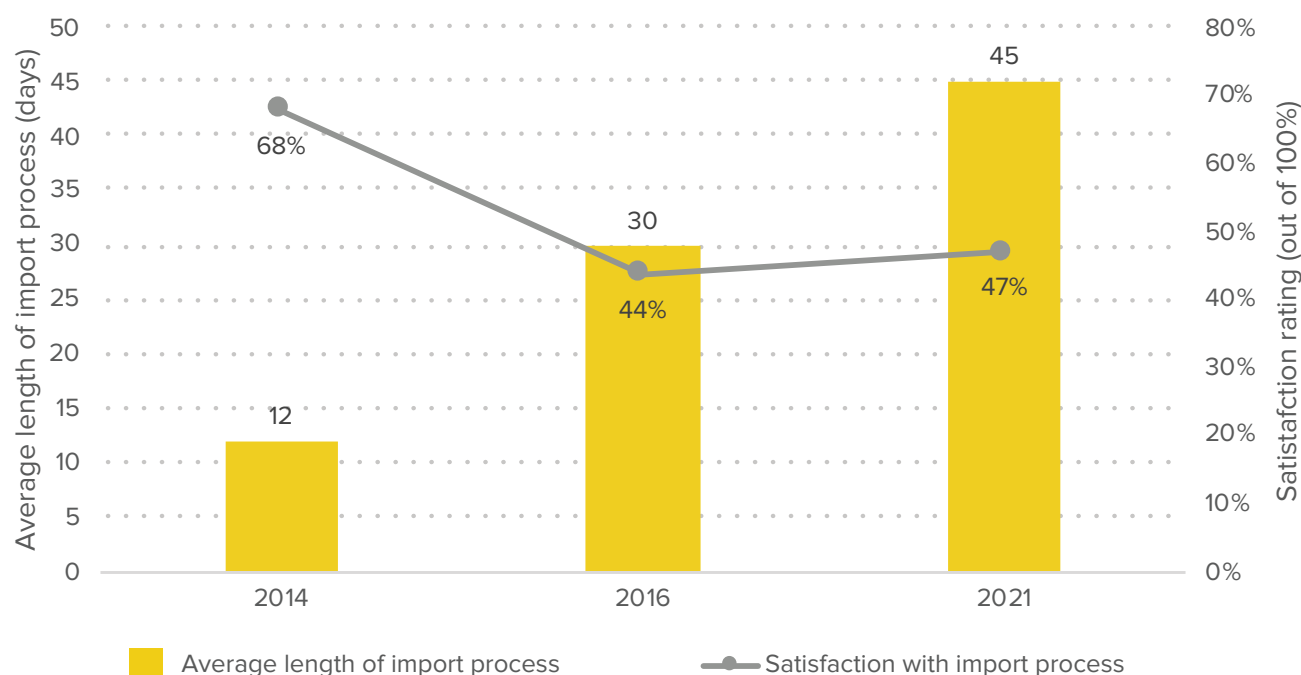


Table 12: Overview of seed imports (2021)

Crop	Number 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	60	60	0
 Bean	0	N/A ^a	N/A	N/A	N/A
 Soya bean	0	N/A	N/A	N/A	N/A
 Sorghum	1	South Africa	300	300	0

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

Seed exportation: Just as is the case for seed imports, a seed company planning to export seed from the country must register with the SSI and AMA and obtain a valid tax clearance certificate. During the seed production stage, the crop has to be inspected by the SSI and PQSI for compliance with the seed regulation scheme and the phytosanitary requirements of the recipient country. The company submits an application including a letter requesting to export seed and clearly stating the volumes involved. This will go through several regulatory agencies, and the applicant pays the fees for the various documents required for the process. The exporting company also needs an import permit from the receiving country to allow for the processing and issuance of the phytosanitary certificate. Additionally, the company

should have obtained a control of goods export permit, an Orange International Certificate, and any other documents required by the recipient country to allow for the export of seed. Exporting companies should also meet the Reserve Bank of Zimbabwe Exchange Control regulations.

In 2021, the average length of the export process was 21 days, which was shorter than in 2016, when the process took an average of 35 days (Figure 10).¹³ Furthermore, seed companies' level of satisfaction with the seed export process improved from "poor" at 27% in 2016 to "fair" at 54% in 2021. Despite their improved levels of satisfaction, companies wished for better service, noting that delays in receiving permits affected their competitiveness.

¹³ Data on satisfaction ratings of the export process was not collected in 2014.



In 2021, seed companies exported 1,383 MT of maize seed, 2.5 MT of bean seed, and 30 MT of sorghum seed to Angola, Botswana, Mozambique, and South Africa (Table 13). However, only 450 MT of maize seed exports followed the SADC Harmonized Seed Regulatory System (HSRS) and carried the SADC label. These export transactions were conducted with Mozambique and were facilitated through the USAID-funded Southern Africa Seed Trade project. The SSI expects more imports from and exports to the SADC region to carry the SADC label, following the accession of Zimbabwe to the SADC HSRS Memorandum of Understanding in October 2021¹⁴ (USAID 2022).

¹⁴ The SADC HSRS MoU is the formal agreement signed by SADC member states to certify their accession to the SADC Seed Regulations. Zimbabwe signed the MoU in October 2021.

Figure 10: Average length and satisfaction rating of export process

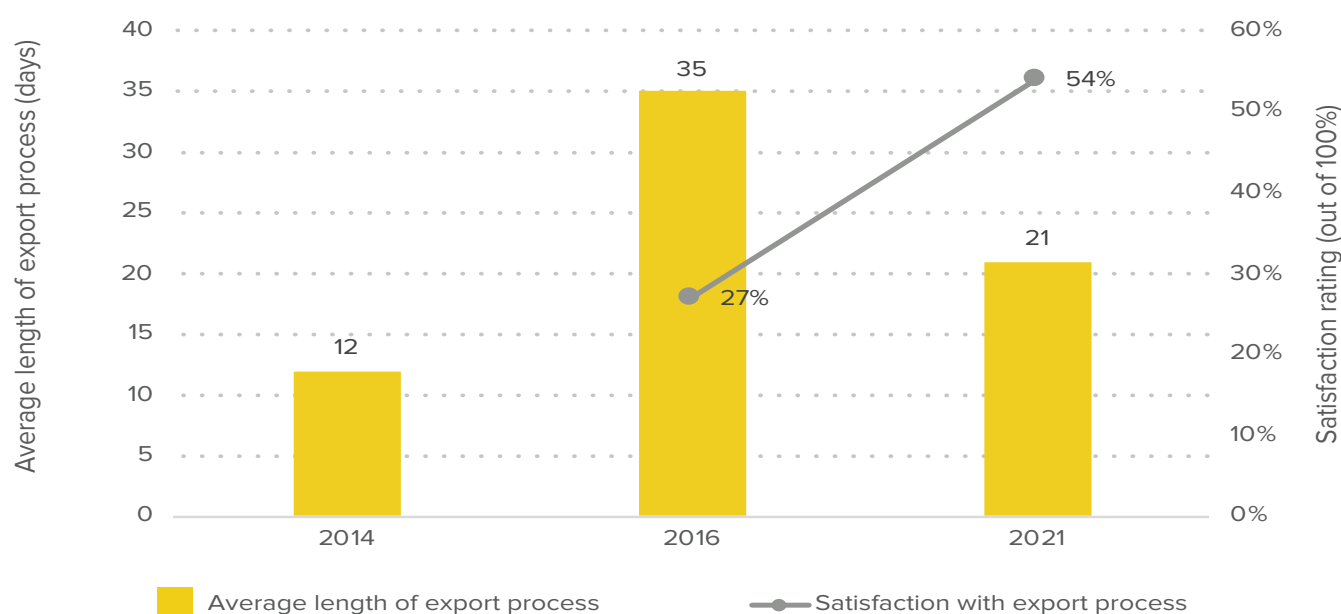


Table 13: Overview of seed exports (2021)

Crop	No. of exporting companies	Main destination country for exports	Seed exports in MT		
			Total volume of seed exports	To SADC countries	To SADC and with SADC label
 Maize	8	Mozambique	1,383	933	450
 Bean	2	South Africa, Mozambique	2.5	2.5	0
 Soya bean	0	N/A ^a	N/A	N/A	N/A
 Sorghum	2	Angola, Botswana	30	30	0

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

SEED POLICY AND REGULATIONS

LENGTH OF VARIETY RELEASE PROCESS

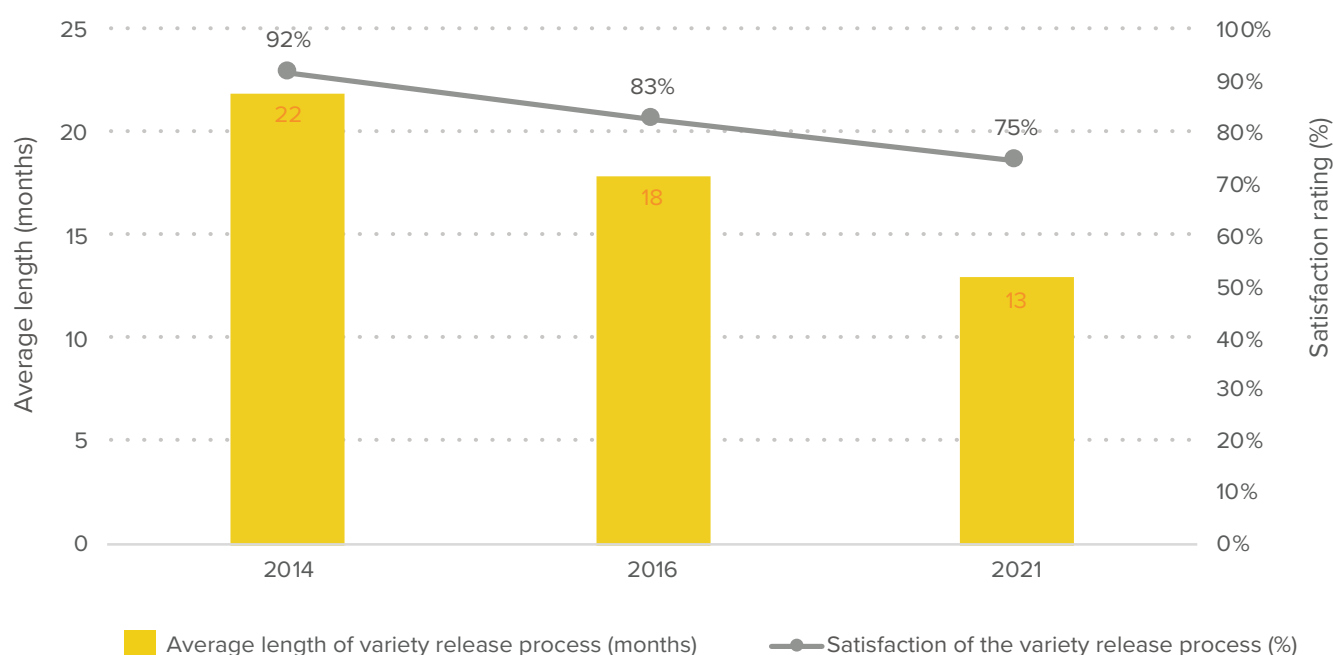
Plant variety release is the process during which new varieties undergo various tests for yield, Value for Cultivation and Use (VCU), and Distinctness, Uniformity, and Stability (DUS). Varieties that perform satisfactorily in these tests are approved for release by the Variety Release Committee. A vibrant 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, which can adversely affect farmer choice. The length of the variety release process is calculated from the date the variety is submitted to the variety release committee to the date when the variety is approved for release. The calculation does not include the time the breeder spends developing the variety.

When a breeder has gathered adequate information to justify the release of a candidate variety, they submit a variety release proposal to SSI, including all the required forms and seed sample for the DUS tests. The DUS tests generally take a year to conduct. Although, if a candidate variety's traits are very similar to an existing variety, the process may take two years. In addition to the DUS tests, the variety release process also includes the VCU test, conducted by the breeder prior to the submission of the release proposal. The breeder is required to run the test over at least two seasons in five representative locations.

Once the DUS evaluation results are available, the breeder is invited to present the variety proposal to the Variety Release Committee (VRC), made up of key players in the crop value chain, including farmers, agro-processors, researchers, and extension agents. It is chaired by the Director of Research and Specialist Services, and the SSI provides the VRC with secretariat services. The VRC reviews proposals at least twice a year. Once a variety has been approved for release, it is listed in the Second Schedule, the national variety list. Figure 11 shows that, in 2021, the average length of the variety release process was 13 months, indicating that the length of the process has decreased significantly overtime (22 and 18 months in 2014 and 2016, respectively). Most companies commended the variety release process, saying it was straightforward, with a well-constituted VRC that included a wide range of stakeholders. However, despite the positive opinions, the satisfaction level had decreased from “excellent” (92% and 83% in 2014 and 2016, respectively), to “good” (75% in 2021). A few respondents indicated that the VRC should meet more frequently to speed up the variety release process.

In 2021, six of the 46 maize varieties listed in the Second Schedule were adopted from the COMESA catalogue. If a company wants to market a crop variety that is already listed in the COMESA or SADC catalogues, it submits a request to the SSI, and the variety is automatically listed in the national variety list of Zimbabwe.

Figure 11: Average length and satisfaction rating of variety release



COST OF 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.

Officially, it cost US\$350 to submit a variety for DUS, which is the only cost required by the SSI for the variety release process. VCU trials are the responsibility of the breeder and hence costs vary between institutions, depending on the variety evaluation program implemented.

Results in Table 14 show that the costs incurred by private seed companies were significantly lower than those incurred by public institutions. For both private and public institutions, the highest costs were incurred for maize. One reason for the extra expense is that, in general, maize trials are conducted across the whole country: as the major staple crop, maize is grown all over the country, including in less ideal regions. However, for sorghum, soya bean, and bean seed, trials are more restricted and only conducted in major producing areas for the crop.

Table 14: Cost of variety release process (2021)

Crop	Average cost incurred by seed companies in US\$ ^a				Average cost incurred by public breeders in US\$			
	DUS	VCU ^b	Other	Total	DUS	VCU	Other	Total
 Maize	350	4,805	MD ^c	5,155	350	16,960	3,016	20,336
 Bean	350	1,800	MD	2,150	350	6,900	1,087	8,337
 Soya bean	350	3,550	MD	3,900	350	5,620	1,397	7,367
 Sorghum	350	3,546	MD	3,896	350	5,728	1,177	7,255

a Zimbabwe has a multi-currency system and the U.S. dollar is legal tender. Thus, some prices were given in the USD value and not converted based on the prevailing exchange rate.

b The report is not making any inference on the significant difference between the VCU costs incurred by the public breeders and private companies as only one private company provided data on this cost.

c "MD" refers to missing data.

STATUS AND IMPLEMENTATION OF NATIONAL SEED POLICY FRAMEWORK

Well-functioning formal seed systems have effective coordinating institutions that work well together, following rules and procedures stipulated in clearly defined and regularly updated legal instruments. In most African countries, the seed sectors are regulated by seed policies and or strategies that are implemented through seed laws which are operationalized through regulations or decrees. However, in Zimbabwe, the regulatory framework for the seed sector is guided by a seed law and regulations (Table 15). This section provides an overview of the relevant legal instruments, while the next section discusses the current level of enforcement.

Zimbabwe does not have a **National Seed Policy**, but the industry is guided by the **National Development Strategy (NDS 1)** and various blueprints under the auspices of the MLAFW&RD (ROZ 2020). Past efforts to develop a National Seed Policy document have not been fruitful and current efforts are being hindered by limitations on the resources required to conduct the necessary processes to create an all-inclusive policy document.

The broad objectives of the **NDS 1** are to promote new enterprise development, ensure sustainable environmental protection and resilience, and modernize the economy using ICT and digital technology.

The **Seeds Act** (Chapter 19:13) (ROZ 2001) and its enabling regulations and the Seed Certification Scheme Notice (2000) spell out the procedures and guidelines for seed certification and quality control. **Statutory Instrument 142: Seed (Certification Scheme) (Amendment)** Notice, 2016 (No. 4) addresses issues such as seed certification, inspection, variety release, and seed movement in the region.

The **Plant Breeders' Rights Act Chapter 18:16 of 1972** and the **Seed Act Chapter 19:13 of 1971** with its enabling regulations and schemes are key legislations that govern operations of the seed sector in Zimbabwe. The varietal development by the seed sector is strengthened by the Plant Breeders' Rights Act, which gives breeders rights to royalties on any of their varieties that are commercialized by seed companies. To make sure that traded seed is recognized and of high quality, the Seed Act provides seed certification and quality assurance for the variety release.

In 2016, various seed regulations and subsidiary legislation were amended and published to conform with the Common Market for Eastern and Southern Africa (**COMESA Seed Trade Harmonization Regulations** (COMESA and ACTESA 2014).

Table 15: Key seed policy instruments in Zimbabwe

Instrument	Description
National Seed Policy	Zimbabwe does not have a standalone seed policy.
National Development Strategy 1 (NDS 1) (ROZ 2020)	Provides the broad blueprint for transformative and inclusive growth of the Zimbabwean economy.
Seeds Act (Chapter 19:13) (ROZ 2001)	The principal legislation governing the regulation of seed production and various players in the seed sector.
Seed Regulations of 1971	The regulations provide acceptable quality standards for seed testing.
Plant Breeders' Rights Act of 1972	The Act establishes breeders' rights related to varieties.
Statutory Instrument 213: Seed (Certification Scheme) (ROZ 2000)	Statutory instrument for the Zimbabwe National Seed Scheme, guiding varietal certification in the fields and the Variety Release System in Zimbabwe.
Statutory Instrument 142: Seed (Certification Scheme) (Amendment) (ROZ 2016)	This was an amendment to align with the COMESA Seed Trade Harmonization Regulations

QUALITY AND ENFORCEMENT OF SEED REGULATIONS

Seed regulations give structure to the formal seed sector. The TASAI study assesses stakeholder perspectives on various aspects of seed regulations, including whether they are supportive to the growth of the seed sector, the role stakeholders play in their design and implementation, stakeholders' awareness of the laws and regulations, the presence of an enforcement agency, the costs of regulation, and the effectiveness of punitive measures. Table 1 lists the key seed instruments that govern the operations of the seed sector. This section briefly describes the mandate of each instrument and discusses the current level of enforcement.

The Zimbabwe **Seeds Act and Plant Breeders' Rights Act** are implemented through various seed regulations and subsidiary legislations. Their implementation is the mandate of the SSI, which is responsible for registering and inspecting seed crops, guided by seed certification schemes that are currently operational in the country. The SSI conducts seed sampling and testing, and conducts pre- and post-control tests for seed quality assurance purposes. It registers, monitors, and inspects relevant actors. The SSI also facilitates different aspects of seed production and trade. Finally, it issues official documents, licenses and certificates necessary for seed trade. Seed inspectors and analysts are also trained and gazetted by the SSI.

In 2016, Zimbabwe acceded to the **COMESA Seed Trade Harmonization Regulations**. This followed the gazetting of Statutory Instrument 142 of 2016 by the Government of Zimbabwe that addressed issues such as seed certification, inspection, variety release, and seed movement in the region. In 2021, the country acceded to the **SADC Harmonized Seed Regulatory System (HSRS)** (SADC 2008b) by signing the SADC HSRS Memorandum of Understanding. However, Zimbabwe's national regulations are not yet aligned with the SADC HSRS. Nevertheless, if a company wants to import or export seed under the SADC HSRS, it is allowed to do so, and the SSI will allow these transactions in line with the SADC guidelines. More specifically, when submitting seed crop registration forms, seed companies indicate the seed production scheme under which they wish to register their seed crop - the national seed certification scheme, the OECD seed scheme, the COMESA seed scheme, or the SADC seed scheme.

In both 2016 and 2021, seed companies' level of satisfaction with the degree of enforcement of existing seed regulations was "good" at 77%.



EFFORTS TO ERADICATE COUNTERFEIT SEED

Counterfeit seed threatens the seed sector in two important ways: first, it reduces farmers' confidence in certified seed when farmers unknowingly plant inferior quality grain falsely labeled as certified seed. Second, it threatens the success of efforts to increase the adoption of improved varieties because farmers are not sure which seed is genuine. TASAI tracks the number of cases of counterfeit seeds reported by seed companies and the government in the data collection year. In addition, seed companies report their level of satisfaction with government efforts to eliminate counterfeit seed.

In 2021, seed companies recorded a total of 45 cases of counterfeit seed, a slight increase from the number of cases

reported in the previous two studies. In the same year, the number of government-reported cases remained at 10 (Table 16). The most commonly mentioned sources of counterfeit seed included traders in the informal sector, former seed company employees, and unscrupulous agro-dealers. When the SSI receives reports of counterfeit seed, it investigates and works with police to prosecute offenders based on the legal provisions in the Seed Act. The SSI also conducts spot checks throughout the year, checking the validity of licenses as well as the source, storage, and quality of seed being sold. The SSI has the power to impound and destroy counterfeit seed and can withdraw offenders' licenses. However, the surveyed seed companies felt that these provisions were not punitive enough. They expressed concern over the increasing number of instances of counterfeit seed and repeat offenders. It is, therefore, not surprising that seed companies considered efforts to address counterfeit seed as "fair" (49%).

Table 16: Industry satisfaction rating of government efforts to address counterfeit seed

Indicators	2014	2016	2021
Number of cases of counterfeit seed (seed companies)	41	52	45
Number of cases of counterfeit seed (government)	MD ^a	10	10
Seed industry satisfaction with government effort to address counterfeit seed (out of 100%)	67%	56%	49%

a "MD" refers to missing data.

extremely poor poor fair good excellent

USE OF GOVERNMENT SUBSIDIES

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

In Zimbabwe, the Presidential Input Support Scheme is an ongoing agriculture subsidy program for the smallholder farming community, which provides free inputs, including seed. This program has been in operation since 2000. Initially, it targetted only maize, as a staple crop, to ensure food security. Over the years, more crops have been included. In 2021, all four focus crops benefitted from the subsidy program. This was due to the government's promotion of crop diversification to improve food and nutrition security and to increase the supply of raw materials to agro-processing industries. In 2021, the subsidy program received ZWL\$24,437,897,036.00 (USD278,780,481.00) in funding.¹⁵

According to the first round of crop and livestock assessment for 2021, inputs including seed, fertilizer, and fall armyworm pesticide were provided to 3.3 million vulnerable households (MLAFW&RD 2022). The beneficiaries were identified by AGRITEX in collaboration with local leaders.

The supplier of seed was selected through a tender process conducted by the government's procurement body. The winner of the tender sub-contracted registered seed companies to supply seed. The seed was distributed through the Grain Marketing Board, a government parastatal. The distribution of crop varieties was determined based on agroecological regions. Low rainfall areas received sorghum seed, high rainfall areas received maize seed, and marginal maize-growing areas received very early maturing maize varieties.

Table 17 shows that the number of companies selling seed to the government subsidy program increased from 6 to 10 for maize, and from 2 to 6 for sorghum from 2016 to 2021. In 2021, four companies sold bean seed and five companies sold soya bean seed. These crops were not included in the program in 2016. The percentage of seed sold to government programs increased between 2016 and 2021, with government purchases of seed ranging from 15% for bean seed to 46% for maize seed in 2021.

¹⁵ ZimRates.com, accessed on December 6, 2022, <https://www.zimrates.com/2021/09/>

Table 17: Number of companies selling seed to the government subsidy program and percentage of seed sold to government programs

Crop	Number of seed companies		% of seed sold	
	2016	2021	2016	2021
 Maize	6	10	7%	46%
 Bean	- ^a	4	-	15%
 Soya bean	-	5	-	36%
 Sorghum	2	6	23%	31%

^a Data was not collected in 2016.

Seed companies' satisfaction levels with the implementation of the government subsidy program in 2021 are provided in Table 18. Whilst the openness and transparency of the seed procurement process were rated "good" (61%), the predictability of the process and the efficiency of payments were rated "fair" at 56% and 41%, respectively. Late payments for seed deliveries were the main source of complaint among seed companies. When further asked to comment on the impact of the government subsidy program on the seed sector, 18% of the seed companies considered the impact to be negative. These companies argued that the program was not sustainable, contributed to dependency syndrome,

and depressed seed sales in the open market. They also noted that the program's low seed prices and late payments threatened the viability of participating seed companies. Most companies considered the impact of the subsidy program to be either neutral (39%) or positive (43%). On the positive side, the subsidy program provided a guaranteed market for seed, facilitated brand awareness nationwide, and lowered distribution, marketing, and debt collection costs to seed companies. For the vulnerable households targeted by the program, it facilitated access to seed of improved varieties, contributed to enhanced food security, and improved nutritional outcomes.

Table 18: Industry satisfaction rating of the implementation of the government subsidy program

Aspect of the government seed subsidy program	Rating (out of 100%)	Interpretation
Openness and transparency of the seed procurement process	61%	Good
Predictability of the seed procurement process	56%	Fair
Efficiency of payments	41%	Fair

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 industry and engaging with the government. The membership of the national seed associations includes seed companies, seed growers, seed cooperatives, seed associations, individual seed producers and, at times, agro-dealers.

The Zimbabwe Seed Association (ZSA) (formerly the Zimbabwe Seed Trade Association) is a voluntary membership-based representative body of the formal seed sector that protects and promotes the trade and business of its members. It seeks to maintain the high standards required in the handling of high-quality seed through the seed value chain. The association was founded in the early 1990s and changed its name in December 2020. It is guided by a constitution and is in the process of drawing up a Trust Deed as its guiding legal document. In 2021, the association had 29 members who were all seed companies. It is recognized by the government and is a member of the African Seed Trade Association (AFSTA). The organization has one part-time staff member who is a woman. Its leadership consists of an elected executive committee led by a chairperson.

Figure 12: Members' opinion of the ZSA

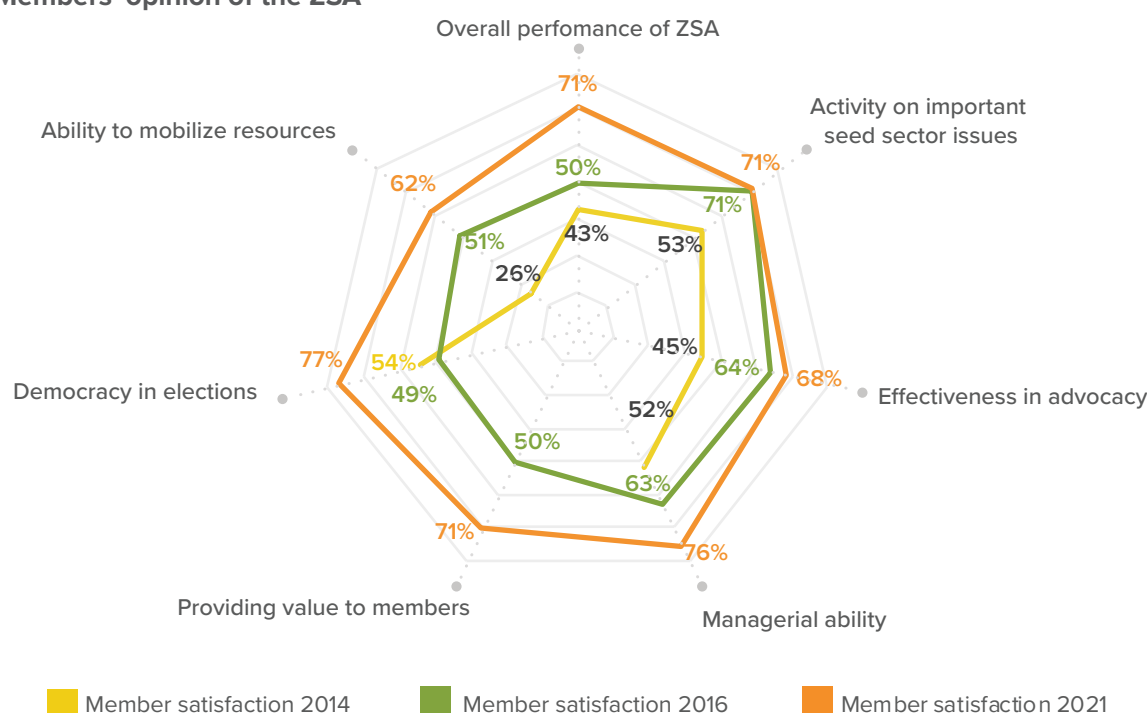


Figure 12 shows that seed companies' satisfaction with the association improved in all aspects considered in 2021 when compared with previous studies, although the degree of improvement varied by performance aspect. With a rating of 62%, the ZSA's ability to mobilize resources had the lowest rating, while democracy in elections was the highest-rated performance area (77%) in 2021. Ratings of the ZSA's overall performance showed gradual improvement from 43% in 2014¹⁶, to 50% in 2016, and 71% in 2021.

One of its recent achievements was successfully lobbying the government on the accession to the SADC HSRS. This effort resulted in the Memorandum of Understanding submission in October 2021. It has also contributed to capacity building for OECD seed schemes by providing training and procuring facilities to print the OECD labels. Other achievements included the development of the association's strategic action plan and improved engagement with the government and ZSA members. The achievements have helped further enhance the ZSA's visibility and value to members.

¹⁶ Members were not asked about the performance area "providing value to members" in 2014.

ADEQUACY OF SEED INSPECTORS

Seed inspection services ensure that certified commercial seed meets the regulatory quality standards. To provide adequate inspection services requires enough well-resourced inspectors. TASAI studies track the number of inspectors and other information pertinent to their effectiveness, such as the availability of resources and the use of (new) digital tools.

The SSI is the authority responsible for training and gazetting all seed inspectors in the country. The seed production schemes in the country are based on the OECD Seed Schemes. Under the OECD Seed Scheme, government inspectors inspect 10% of registered seed crops as well as all seed crops targeted for export. Seed companies employ government-gazetted seed inspectors, who then inspect the remaining 90% of the seed crops registered by their company and send the required reports to the SSI.

From 2016 to 2021, the number of public seed inspectors increased by 71.4% and the number of private seed inspectors increased by 63.8%. In 2021, there were nearly 3.2 times more private seed inspectors than public seed inspectors (Table 19). This is not surprising given the increase in the number of seed companies, most of which employed their own qualified seed inspectors. The seed companies' level of satisfaction with seed inspection services was "excellent" (83%) in 2021. The seed companies have consistently rated inspection services as "excellent" in the previous TASAI studies: 82% in 2014 and 84% in 2016.

Despite the overall positive assessment, one drawback to seed inspection is the lack of digitization. Currently all registrations of seed growers and seed crops, as well as submission of reports, are paper based. There is a need to migrate to online platforms and tools that are more efficient, less susceptible to human error, and easier to maintain.

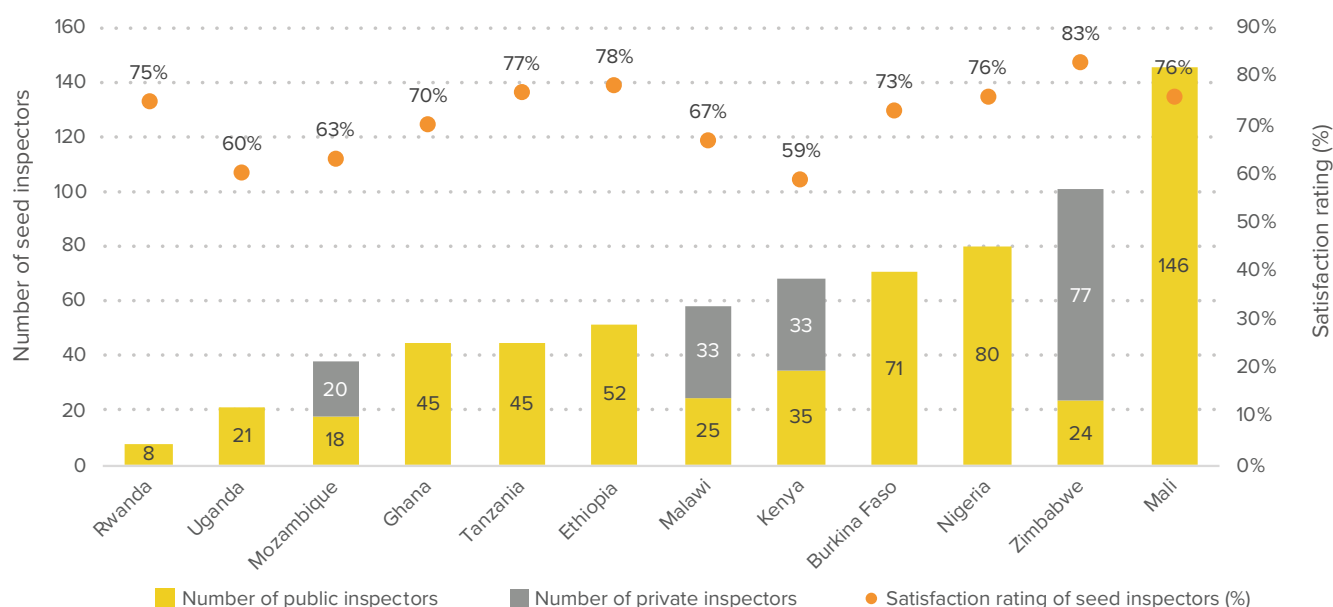
Table 19: Number and rating of the adequacy of seed inspectors

Indicators	2014	2016	2021
Number of public seed inspectors	12	14	24
Number of private seed inspectors	56	47	77
Seed industry satisfaction with seed inspectors (out of 100%)	82%	84%	83%

extremely poor	poor	fair	good	excellent
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Figure 13 shows the number of seed inspectors across countries studied by TASAI between 2020 and 2022. Zimbabwe leads by the number of private seed inspectors followed by Kenya and Mozambique. Zimbabwe also leads with the highest satisfaction rating for seed inspectors (83%).

Figure 13: Number and satisfaction rating of seed inspectors in Africa



SERVICE TO SMALLHOLDER FARMERS

ADEQUACY OF EXTENSION SERVICES

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

Zimbabwe's agricultural extension services are dominated by the government under AGRITEX. AGRITEX's field-based officers cover all aspects of agriculture, and the government aims to have two to three officers per ward. Agro-input suppliers (including seed companies), agriculture-related NGOs, development agencies, farmers' unions, and crop production contractors also employ extension officers. Though, these are generally limited to a particular area and crop based on the focus of their organizations.

In 2021, the government invested heavily in increasing the capacity of its extension officers by buying a total of 3,746 motorbikes to improve their mobility. The government

also provided all officers with tablets and allowances for airtime and mobile data to facilitate e-extension and training, communication, and information dissemination. The government also embarked on in-house training programs to upgrade extension officers' skills and knowledge.

Table 20 shows that there were 4,881 extension officers in 2021, of which 4,727 were employed by the government. The remaining 154 were employed by a combination of seed companies. The total number of extension officers in 2021 was higher than in 2014 and 2017. The ratio of extension officers to agricultural households was highest in 2021, implying challenges in the provision of services to farmers. Both the seed companies and key informants were satisfied with the numbers but felt that the quality of the extension services was limited, as the extension officers did not possess the required skills, technical expertise, nor practical experience.

The level of seed industry satisfaction with public extension services, though lower in 2021 (69%) than in 2016 (72%), remained "good", as shown in Table 20. The investment in improving the capacity of extension officers on the ground is too recent to have had an impact on these ratings, which may explain the absence of significant changes to this rating. The impact of this investment is likely to be felt in future years.

Table 20: Number and adequacy of agricultural extension services

Indicator	2014	2016	2021		
Number of public extension officers employed by the government	4,700	4,202	4,727		
Number of private extension officers employed by seed companies	— ^a	206	154		
Total number of extension officers	4,700	4,408	4,881		
Ratio of extension officers to agricultural households	1:300	1:400	1:483		
Seed industry satisfaction with extension officers (out of 100%)	64%	72%	69%		
	extremely poor	poor	fair	good	excellent

^a Data on private inspectors was not collected in 2014.

CONCENTRATION OF THE AGRO-DEALER NETWORK

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

In Zimbabwe the Agricultural Marketing Authority (AMA) is mandated to register agro-dealers. Some of the agro-dealers operating in Zimbabwe are just general dealers who may or may not stock seed. All those who sell seed must be registered with the SSI and renew their license every year, hence SSI records provide a more reliable picture of the seed-related agro-dealer network. To be licensed, these seed sellers must complete application forms and submit them to the SSI. They must also have the necessary facilities, particularly seed storage facilities. The government does not offer any training for agro-dealers. Furthermore, there is no accreditation system for agro-dealers in Zimbabwe.

In 2021, the SSI registered 929 seed sellers, notably less than the 1,278 registered in 2016 (Table 21). The ratio of agro-dealers to agricultural households was highest in 2021 was 1:2,538. Seed industry satisfaction with the agro-dealer network remains "good", although the level of satisfaction is slightly lower than it was in previous years.

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

Indicator	2014	2016	2021
Number of agro-dealers	354	1,278	929
Average number of agro-dealers per agricultural household	MD ^a	1:1,380	1:2,538
% of companies with exclusive agro-dealers	MD	MD	30%
Seed industry satisfaction with agro-dealer network (out of 100%)	70%	75%	65%

extremely poor poor fair good excellent

a "MD" refers to missing data.

AVAILABILITY OF SEED IN SMALL PACKAGES

Because 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 of improved seed. 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.

Smallholder farmers are more likely to prefer package sizes less than 10 kg, while commercial farmers with larger plots of land generally prefer larger package sizes. Figure 14 shows that in 2021, 59% of maize seed was sold in packages of 2-10 kg, while 30% of maize seed was sold in packages of 10-25 kg. At 38% each, the 2-10 kg and 10-25 kg package sizes were most common for bean seed sales. Soya bean seed was purchased mostly by large scale commercial farmers, which is evident in the preference for larger package sizes: 26% of seed was sold in packages of 2-10kgs and 68% in packages of 10-25 kg. In the case of sorghum, most (60%) seed was sold in packages of 2-10 kg, indicating its popularity mostly with smallholder farmers. When compared to 2016, there was a slight increase in the amount of bean and sorghum seed sold in smaller packets (Figure 15). However, smaller package sizes usage decreased for the other two crops due to farmers' financial challenges.

It should be noted that the package sizes of seed supplied to the government input program were 10 kg for maize, 5 kg for sorghum, 5 kg for soya bean, and 5 kg for bean. All crops had seed sold in the 2-10 kg package size, but it is unclear how much this was influenced by the government input scheme market.

All companies listed their contact details on or inside the seed package, except for one, which acted as a distributor of already packaged and branded products.

SEED AND GRAIN PRICES

Seed and grain prices at the time of planting are a good measure of the affordability of improved seed. 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. This indicator tracks the ratio of the retail price of seed (at agro-dealer level) vis-à-vis the market price of grain at the time of planting.

Comparing 2016 and 2021 data (Table 22), seed prices had increased slightly for all focus crops except soya bean. The increases were most likely due to inflationary pressure. The price of hybrid sorghum seed decreased slightly, from US\$ 2.60 in 2016 to US\$ 2.54 in 2021 because most of the seed was imported.

Figure 14: Percentage of seed sold in different package sizes (2021)

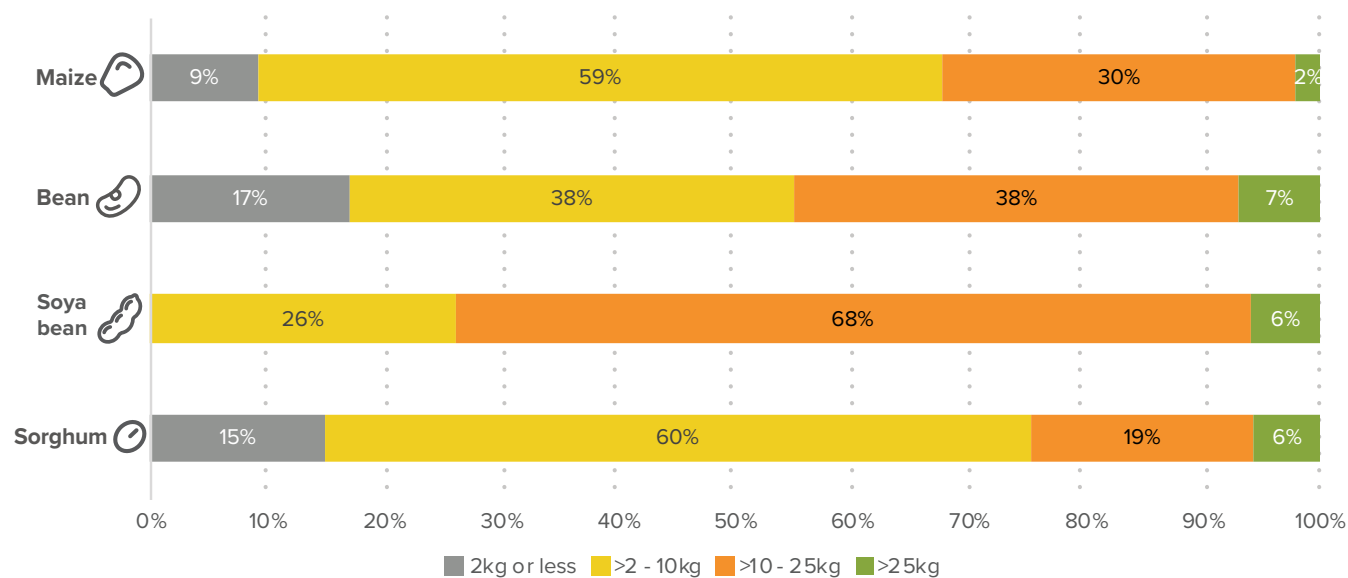


Figure 15: Trend in percentage of seed sold in small packages (2kg or less)

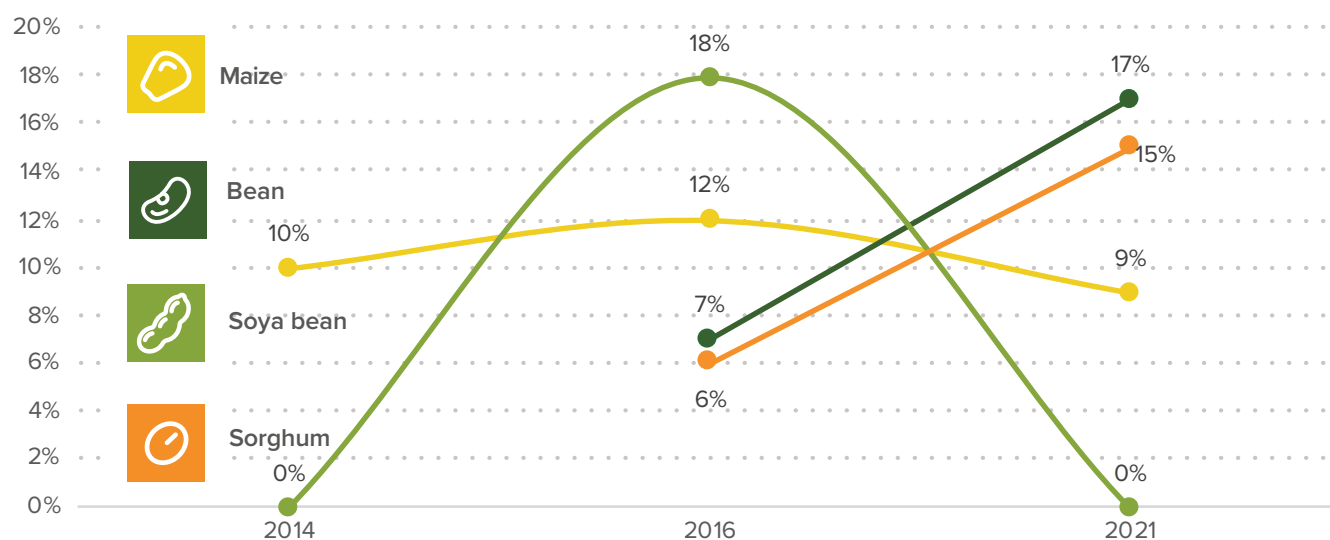


Table 22: Seed and grain prices

Crop	Average seed prices (US\$/kg)		Average grain prices (US\$/kg)	
	2016	2021	2016	2021
Maize (hybrid)	2.80	2.90	0.30	0.33
Maize (OPV)	1.40	1.60	0.40	0.33
Bean	2.80	3.00	1.30	1.24
Soya bean	1.60	1.60	0.60	0.49
Sorghum (hybrid)	2.60	2.54	0.30	0.39
Sorghum (OPV)	1.60	1.64	0.20	0.39



CONCLUSION

Zimbabwe's formal seed system is in the growth stage of development, characterized by well-established breeding programs, evolving seed policy environment, a sizeable segment of small- and medium-sized seed companies, and a growing agro-dealer network (Ariga et al., 2019). The seed sector is driven by well-established private companies that are supported by strong breeding programs and enabling seed policy instruments. The private-sector activity is highly competitive, often with multinational and domestic seed companies producing a wide array of high-quality seeds distributed through a developing agro-dealer network that includes specialized outlets.

Under the **research and development** category, the study noted increases in the number of active breeders, particularly for bean, soya bean, and sorghum seed. Unlike other African countries studied by TASAI, Zimbabwe has more private than public breeders. The fact that 24 out of 46 varieties released had some special features indicates that breeders are responding to new demands such as climate change or nutritional needs. The relatively high number of new varieties released was achieved despite high staff turnover among breeders. Seed companies' satisfaction with the general availability and the quality, quantity and timeliness of delivery of breeder seed ranged between "good" and "excellent". However, the delayed deployment of these new varieties on the market is worrying, as shown by the advanced age of commonly sold varieties and the high average age of varieties sold.

In the **industry competitiveness** category, Zimbabwe's seed industry is growing, as seen in the increased number of active seed companies and the larger volumes of seed produced and traded. Although there are signs of slightly higher levels of competitiveness than in previous studies, both the CR4 data and the HHI scores indicate that the seed markets are still controlled by a handful of major companies. Despite the establishment of a one-stop-shop to handle import and export permits, seed companies remain unhappy with the process. However, the dissatisfaction recorded in 2021 is likely to be the result of the COVID-19 pandemic.

Though Zimbabwe does not yet have a standalone **seed policy** document, it has a seed law, seed regulations, and regulatory institutions to govern the sector. In 2021, the seed companies surveyed were satisfied with the enforcement of laws by the Seed Services Institute. At the same time, they registered concern about the increase in reports of counterfeit seed incidents and felt that this matter should be addressed with stricter punitive measures than currently exist.

Zimbabwe has good **institutional support** for the seed sector, as evidenced by the mostly 'excellent' ratings given to the Zimbabwe Seed Association (ZSA) by its members. The number of seed inspectors had also grown from 2016 to 2021, and the majority were employees of private seed companies who were accredited by the government.

Service to smallholder farmers has improved, as shown by the increased number of extension officers, who has access to more motorbikes, digital tools, and training to deliver their services to farmers. Although fewer agro-dealers were registered in 2021 than in 2016, this did not seem to limit access to seed, since seed companies' satisfaction levels remained good. Seed package sizes and seed prices also did not seem to limit smallholder farmers' access to seed. However, there were two exceptions: soya bean seed was not available to farmers in packages of 2 kg and below, and the high price of hybrid sorghum seed compared to the OPV variety may have restricted smallholders' access.

Given that Zimbabwe has seen significant macroeconomic challenges for several years, the overall performance of the seed sector captured in this report is generally impressive. It shows a private sector-led system that is resilient and able to deliver improved seed to farmers despite economy-wide shocks.



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.

COMESA and ACTESA. 2014. COMESA Seed Trade Harmonization Regulations.

FAOSTAT. 2020. Crops and livestock products. Food and Agriculture Organization of the United Nations (FAO), <https://www.fao.org/faostat/en/#data/QCL>

Mabaya, E., Mujaju, C., Nyakanda, P., Mugoya, M. 2017. (Revised 2019) Zimbabwe Brief 2017 - The African Seed Access Index.

McGuire, S., Sperling, L. 2016. Seed Systems Smallholder Farmers Use. *Food Security*. 8(1): 179–195.

ROZ. 1971. Seed Regulations of 1971 (Rhodesia Government Notice No. 661 of 1971).

-----, 1972. Plant Breeders' Rights Act of 1972.

-----, Statutory Instrument 213" Seed (Certification Scheme) Notice, 2000

-----, 2001. Seeds Act, Chapter 19:13.

-----, 2016. Statutory instrument 142 of 2016. Seeds (Certification Scheme) (Amendment) Notice 2016 (No. 4).

-----, 2020. National Development Strategy 1, - Towards a Prosperous & Empowered Upper Middle Income Society by 2030

SADC. 2008a. SADC Protocol on Gender and Development.

-----, 2008b. Technical agreements on the harmonisation of seed regulations in the SADC region: Seed variety release, seed certification and quality assurance, quarantine and phytosanitary measures for seed. Gaborone, Botswana.

TASAI. 2015. Zimbabwe Brief 2015 - The African Seed Access Index.

USAID. 2022. Feed the Future Southern Africa Seed Trade Project. 2021 Annual Report. United States Agency of International Development.

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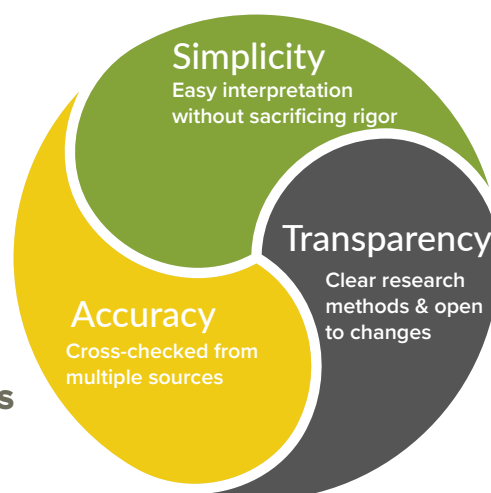
ABOUT TASAI



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>

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