



INTRODUCTION

A competitive seed sector is key to ensuring timely availability of appropriate, high quality seeds at affordable prices to smallholder farmers in Zimbabwe. This country brief summarizes the key findings of a major study conducted in 2013 and 2014 to appraise the structure and economic performance of Zimbabwe's seed sector by Dr. Claid Mujaju and Mr. Munyaradzi Jonga. With a focus on four grain crops that are important to food security—maize, cotton, soybean and sorghum—the report evaluates the enabling environment for a vibrant private sector-led seed industry. The report covers 16 indicators that are divided into the following categories: research and development, industry competitiveness, service to smallholder farmers, seed, policy and regulations, and institutional support. To give perspective, the performance of Zimbabwe's seed sector is compared against three other countries, namely Kenya, South Africa and Uganda, where similar studies were conducted under The African Seed Access Index (TASAI). TASAI seeks to encourage public policy makers and development agencies to create and maintain enabling environments that will accelerate the development of local private sector-led seed systems serving smallholder farmers.

OVERVIEW

As early as the 1960s, the government of Zimbabwe recognised the urgent need to enhance the provision of quality seeds to farmers. The Department of

Research and Specialist Services (DR&SS), established in 1948, was mandated to initiate research on new varieties and start seed production in the country. Key institutions within DR&SS for seed sector development were the Crop Breeding Institute (CBI) for variety development and the Seed Services Institute (SSI) for seed certification and quality control as required under the Seed legislation (Seed Act, 1971; Seed Regulations, 1971; Seed Certification Scheme Notice 2000).

In the early 1980s, Seed Co. Ltd. was the sole producer of seed for seven crops (maize, sunflower, wheat, barley, soybeans, groundnuts and sorghum). Up until 1990, Zimbabwe's seed industry was dominated by three companies (Seed Co. Ltd., Pannar Seeds, and Pioneer). Since then, the number of seed companies has grown tremendously and currently there are 22 out of 38 companies selling the focus crops (maize, soybean, cotton and sorghum). These companies are registered with the National Certifying Authority (NCA). Variety registration, seed production and marketing activities are regulated by Seed Services (National Certifying Authority), under the Ministry of Agriculture. Complementing Seed Services is an association of seed companies known as the Zimbabwe Seed Trade Association (ZSTA) that also coordinates seed industry activities and sales. Through Seed Services and ZSTA, the Zimbabwe seed industry works and participates in various regional and international associations and technical bodies such as ISTA, AFSTA, SADC, COMESA, UPOV, ARIPO and OECD.

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

ROLE	KEY PLAYERS
Research and breeding	CRI; CBI; ZTS-SIRDC; MNCs; SME seed companies
Variety registration & regulation	Seed Services (National Certifying Authority)
Breeders and foundation seed production	CRI; CBI; ZTS-SIRDC; MNCs; SME seed companies
Seed production	SME Seed Companies; MNCs; contract farming companies
Processing and packaging	Seed companies; MNCs
Education, training, extension	Seed companies; government extension agents; NGOs
Distribution and sales	ZSTA; seed companies; rural agro-dealers; NGOs; Government

Key Acronyms: **AFSTA** - Africa Seed Trade Association; **CBI** – Crop Breeding Institute; **COMESA** - Common Market for Eastern and Southern Africa; **CRI** – Cotton Research Institute; **ISTA** - International Seed Testing Association; **MNC** – Multinational Corporation; **NGO** – Non Governmental Organization; **SME** – Small and Medium Enterprise; **UPOV** - International Union for the Protection of new Plant Varieties; **ZSTA** – Zimbabwe Seed Trade Association; **ZTS-SIRDC** – Zimbabwe Technological Services -Scientific Industrial Research & Development Center



Table 2: Zimbabwe's formal seed sector compared to other African countries

COUNTRY PROFILE			KENYA	SOUTH AFRICA	UGANDA	ZIMBABWE
Focus crop 1			Maize	Maize	Maize	Maize
Focus crop 2			Sorghum	Soybean	Beans	Cotton
Focus crop 3			Beans	Sunflower	Millet	Soybean
Focus crop 4			Cowpeas	Wheat	Sorghum	Sorghum
Population (Million)			43	51	36	13
Size (KM ²)			569,250	1,214,470	197,100	390,760
Arable land (Million Ha) (% of size)			4.89	14.8	5.3	3.58
2014 Ease of Doing Business rank (Rank out of 189)			136	43	150	171
Stage of seed sector development			Growth	Mature	Growth	Decline
A. RESEARCH AND DEVELOPMENT						
1	Number of active breeders	Total	68	53	11	40
		Score	--	43.3	36.3	79.1
2	Varieties released in last 3 years	Total	60	310	19	35
		3 year average	20	103	6.3	11.7
3	Availability of foundation seed	Score	61.3	91.3	42.8	99.3
B. INDUSTRY COMPETITIVENESS						
4	Number of active crop seed companies for focus crops	Total	17	37	14	20
5	Time it takes to import/export seed from neighboring countries (days)	Import seed	26	38	48	12
		Export seed	12	--	18	12
		Score	58.9	68.7	55	68
6	Market share of top four companies, Herfindahl-Hirschman Index	Crop 1	6,450	2,489	1,509	2,734
		Crop 2	1,989	3,625	950	10,000
		Crop 3	3,223	2,473	1,350	5,393
		Crop 4	3,240	4,816	1,050	3,027
7	Market share of government parastatal	% mkt share	62.4	0	0	2.5
C. SERVICE TO SMALLHOLDER FARMERS						
8	Concentration of rural agro-dealer network	Score	--	55	49	70.2
9	Availability of seed in small packages	% volume sold	94.4	2.5	29.1	7.8
		Score	--	30.8	50	63.4
D. SEED POLICY AND REGULATIONS						
10	Length of variety release process	Time (months)	37	12	37	22
		Score	32.7	81.0	55.8	92.2
11	Quality of seed policy framework	Score	65.2	82.7	47	65.5
12	Quality of seed law/regulations	Score	60.9	70	44.2	87.3
	Quality of enforcement systems	Score	53.1	70	41.4	83
13	Adequacy of seed inspectors	Total inspectors	60	148	4	68
		Score	63.8	--	43.5	82.3
14	Efforts to stamp out fake seed	Reported cases in 3 yrs	36	17	--	41
		Score	38.5	60	40.6	66.9
E. INSTITUTIONAL SUPPORT						
15	Availability of extension services for smallholder farmers	Ratio to farmers	1:1000	1:3313	1:3140	1:300
		Score	--	35.2	45	63.6
16	Quality of national seed trade association	Score	53.4	91.5	60.6	43.2

KEY

Score	80 to 100	60 to 79.99	40 to 59.99	20 to 39.99	0 to 19.99
Grade	A	B	C	D	F
Color Code					
Interpretation	Excellent	Good	Fair	Poor	Extremely poor
H-4 Index	<1000	1000-1999	2000-2999	3000-3999	>4000



RESEARCH AND DEVELOPMENT

Number of active seed breeders

Four private institutions (Seed-Co, Pannar, Pioneer, and Quton) are leading breeding efforts for the focus crops. Currently, there are 21 active breeders for maize (two public and eight private), five for cotton (two public and three private), seven for soybean, (one public and six private) and seven for sorghum (one public and five private). About 80% of the active breeders are employed in the private sector. Including the above four, altogether 10 medium and large seed companies have breeding programs, while other seed companies depend on national breeding institutions or international organizations like CIMMYT and ICRISAT. Maize seed dominates breeding efforts, which reflects the importance of maize seed for the seed companies and Zimbabwean agriculture as a whole. The seed sector rates the number of maize breeders as excellent, with a 94% satisfaction rate. The adequacy of active breeders for each of the focus crops was rated as follows by industry representatives: maize is excellent at 94%, cotton is good at 66%, soybean is excellent at 80% and sorghum is good at 75%.

Varieties released in the last three years

As illustrated in Figure 1, the number of varieties released annually clearly demonstrates a strong bias for maize in breeding activities. For the three-year period from 2011 through 2013, the following varieties were released for each crop: maize 28, cotton one, soybean three, sorghum three. Thus, about 80 % of the total varieties released in the last three years were for maize, mainly from private sector breeders. The seed companies surveyed rated the adequacy of varieties as very good-to-excellent. One exception to this was cotton, which was rated at X, reflecting the fact that few breeders and companies focus on cotton. Importantly, the performance of varieties released for all the focus crops were deemed excellent, as they are well adapted to Zimbabwe's agronomic conditions and are tolerant to most diseases.

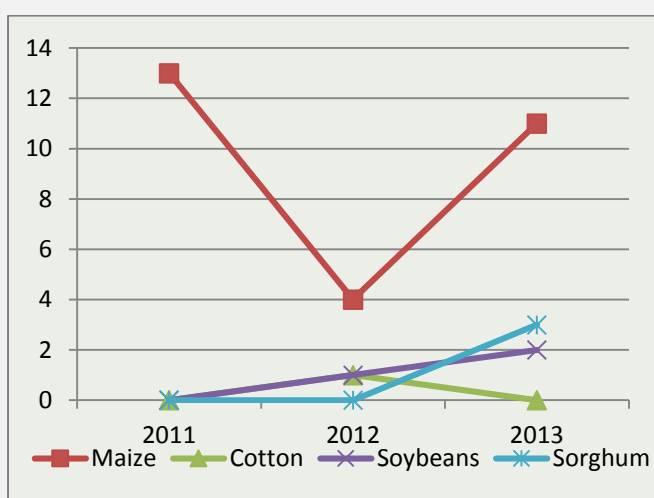


Figure 1: Number of varieties released

Availability of foundation seed

Seed companies in Zimbabwe produce and maintain their own foundation seed. Availability of foundation seed is rated as excellent by seed companies with

perfect scores for cotton, soybeans and sorghum. All but one company rated availability of perfect seed as perfect. The only company that gave this measure a less than perfect score of 70% was a government parastatal that is producing maize. This company gets its foundation seed from public research institutes.

INDUSTRY COMPETITIVENESS

Number of active seed companies

The number of new seed company registrations over the last decade showed that registrations were stagnant from years 2006 and 2010, when Zimbabwe's economy was in hyperinflation. Currently, there are 38 registered seed companies in Zimbabwe. Of the 20 that are involved in the focus crops, 15 and 11 are active in the production and supply of maize and sorghum seed, respectively. Only seven of the companies produce soybean seed, while only three produce cotton seed. Cotton has the lowest number of active seed companies. The underlying reason for this is that, for a long time, Quton had the sole right to multiply and market Cotton Research Institute varieties for domestic and international trade. Because of the exclusivity of cotton varieties, no other company could venture into the cotton seed business. The recent expiry of the exclusivity of cotton varieties by Quton has attracted two other companies (Cargill and Alliance Ginnerie) to join the cotton seed business and is likely to result in a more competitive cotton seed market.

Time it takes to import seed

For the four focus crops, the import and export processes are similar. Only registered seed companies are allowed to import and export seed for sanitary and phytosanitary reasons. In 2013, Zimbabwe imported a total of 266mt of seed for the four focus crops, 178mt of which was maize, 80mt sorghum, 4mt cotton, and 4mt soybean. In the same year 391mt of seed for the focus crops were exported—250mt of cotton, 141mt of maize, and negligible quantities of soybean and sorghum. The average number of days for import processing are: 10 for maize, 15 for soybean and 12 for sorghum. The number of days it took to process the required paperwork varied by crop and was constrained by stringent national biosafety requirements and the absence of a one-stop permit management system. Other bottlenecks included delays due to confusion regarding the approval sequence among government officials, resulting in delays obtaining export certificates and Agricultural Marketing Authority approval. Despite such obstacles, the import/exports procedures were rated by seed companies as good on average.

Market share of top seed companies

As shown in Figure 2, the seed sector in Zimbabwe is dominated by few large companies. One company controls about 47% of the maize seed market and 67% of the soybean seed market. For maize seed, the second, third and fourth largest companies, control 16%, 13% and 10% market share, respectively. Two of the largest companies in the sorghum market control 39% and 35% of the market, respectively. There is a

monopoly in the supply of cotton seed, which is currently supplied by Quton Seed Company only. As mentioned above, in 2012, two other companies entered the scene, but they are not yet producing cotton seed at significant rates.

Seed companies in Zimbabwe largely compete for customers using product performance and services rendered to farmers. There is little variance in seed prices across companies due to government price controls. The government has also been purchasing and distributing significant amounts of seeds to farmers. For example, in 2013, the government bought 16,200mt (46.3%) of the 35,000mt of maize seed required each season for the production of maize grain. Seed companies submit information about their quantities of seed in stock to the Ministry of Agriculture whose officials determine how much seed to buy from each company.

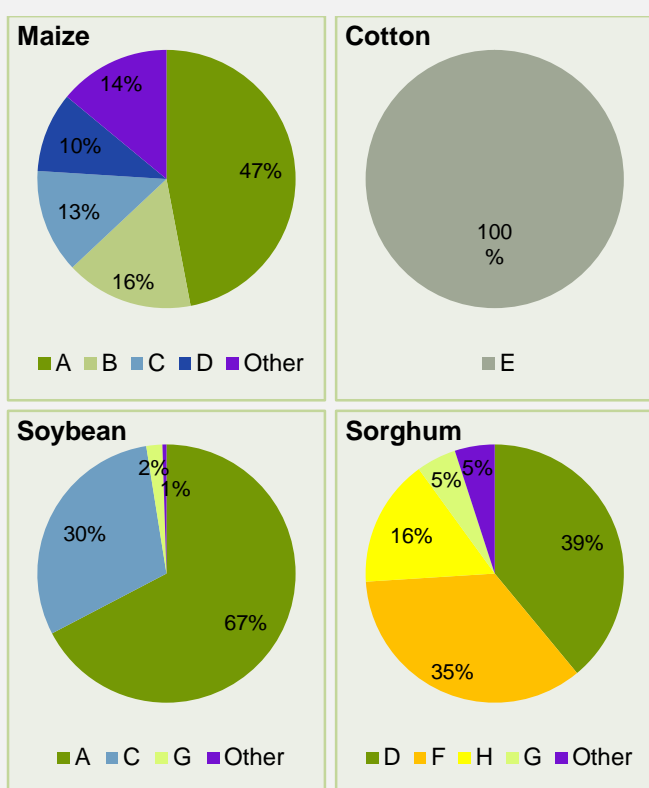


Figure 2: Seed volume market shares for staple crops

Market share of government parastatal

Private seed companies are by far the dominant seed producers in Zimbabwe. However, two parastatals, namely ARDA Seeds and Zimbabwe Technological Solutions (ZTS), are currently producing and distributing minor quantities of seed. The two parastatals both have a mandate to meet the needs of smallholder farmers in areas of the market where private seed companies have limited involvement. Because of this, the competition between parastatals and private companies is little-to-none, and the seed industry is mostly privatized. At present, the combined market share of the two government parastatals above is 3% for maize, 2.25% for soybeans, and 4.68% for sorghum. In the TASAI survey, this indicator was rated “excellent” by respondents.

SERVICE TO SMALLHOLDER FARMERS

Concentration of rural agro-dealer network

The channels through which rural smallholder farmers access seed breaks down as follows: 28.7% access seed from regional seed company distributors or seed company depots; 21.1% from government programs, 18.4% receive seeds directly as seed given to farmers and farmer groups, 15.6% through NGOs and relief programs, 14.7% from rural stockists, 1.5% through contractors. Only cotton seed is accessed through contractors/ginners to guard against fake seed. Larger commercial farmers generally have direct access of seed from seed companies. In the TASAI survey respondents scored the concentration of rural agro-dealer networks serving mostly smallholder farmers as good with an average score of 70%. When broken down by focus crops, the ratings were as follows: maize—76%, cotton—80%, soybeans—62% and sorghum—63%.

Availability of seed in small packages

The TASAI survey uncovered a growing trend among seed companies to distribute seeds in smaller packages suitable for smallholder farmers. Much of the maize and sorghum seed is packed in small bags of 2, 5 & 10kg. Specifically, during the time period surveyed, the package sizes for maize seed sold were distributed as follows: 6% were sold in 50kg bags, 6% in 20 or 25kg bags, 66% in 10kg bags, 13% in 5 kg bags, and 10% in 2kg bags. Soybean seeds are mainly sold in 25kg bags (67%) and some 10kg bags (16%) in line with the recommended seeding rate of 32–40kg of seed per acre. Smallholder farmers who plant less than an acre can buy 10kg packs. Cotton is supplied only in 20kg units, the designated amount for one hectare. Most smallholder cotton farmers in Zimbabwe work under contractual arrangements by registered ginning companies, which purchase inputs including cotton seed and fertilizers and in turn issue them to growers. The contracts are usually signed per hectare, making the 20 kg pack size most suitable for sale. Unlike farmers in Kenya and Uganda who prefer very small packages of seed (2kg or less), the preferred seed package size in Zimbabwe is larger in part due to larger land holdings and a longer history of adoption of improved seed. Despite relatively lower volumes of seed sold in very small packages, respondents to the TASAI survey scored the availability of seed in small packages as “good.”

SEED POLICY AND REGULATIONS

Length of variety release process

Under normal circumstances, the time it takes for a variety to be released ranges from 12 to 24 months. The average release time is 22 months, or about two growing seasons. The minimum time of 12 months is only achievable when all documentation detailing information on Distinctness, Uniformity and Stability (DUS), and Value for Cultivation and Use (VCU) are submitted on time. The seed industry stakeholders (including breeding institutions, seed production and marketing companies) rated the length of variety release process as “excellent,” with a score of 92%.



Quality of seed policy framework

Two seed laws support the variety development and seed certification in Zimbabwe, namely 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. The varietal development by the private 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. The Seed Act, its enabling regulations and the Seed Certification Scheme Notice (2000) spell out the procedures and guidelines for seed certification and quality control. The seed industry representatives surveyed for TASAI rated their satisfaction with Zimbabwe's seed policy framework as good with an average score of 65%.

Quality of seed regulation and enforcement

The average rating for satisfaction with seed regulations and enforcement is excellent at 83%. However, survey respondents from seed companies noted that the quality of enforcement is compromised by the national certifying authority's dependence on seed company vehicles to aid their mobility. They recommended that public inspectors have their own vehicles in order to conduct their work independently. Private seed inspectors and seed analysts have a dual role of enforcing seed laws and regulations on behalf of the NCA and meeting the interests of the seed companies where they are employed. This presents a clear conflict of interest. In addition, respondents noted the need for practical training and attachments among junior inspectors to maintain the quality of service in regulation and enforcement.

Adequacy of seed inspectors

The law in Zimbabwe stipulates that no seed company can be registered without an inspectorate section in place. However, the few companies that have been adversely affected by recent brain drain or staff attrition are supported by the Seed Certifying Authority. For the focus crops there are 56 inspectors including 12 from the Certifying Authority who are authorized to certify all crops. Private seed companies' seed inspectors generally inspect all crops except for cotton, which has specifically trained inspectors. The availability of seed inspection services is regarded as excellent with a score of 83%. Private inspectors are, on average, better resourced in terms of vehicles for mobility compared to the public ones. As such, public inspectors depend on transport from seed companies. Being chauffeur driven in a private seed company vehicle can compromise the impartiality of inspectors. Whilst seed companies inspect 90% of their fields, public inspectors inspect the remaining 10% as a quality control measure. Seed Services has currently licensed six private seed testing laboratories from Seed-Co, Pannar, Prime Seeds, Forestry Commission, Tobacco Research Board (TRB) and Quton respectively to test and certify seeds for local market. The laboratories conduct seed testing in accordance with guidelines from the Certifying Authority (Seed Services) of the government.

Efforts to stamp out fake seed

Fifteen Seed companies observed 41 cases of fake seed in the market over the past three years. Maize seed is the main target for counterfeit seed with very few reported cases in the other focus crops. Fake seed cases reported by seed companies over three years varied from a minimum of zero to a maximum of twelve cases reported per company. While these figures are considered low, they may indicate early signs of a problem that is likely to increase. The main source of fake seed has been through unscrupulous seed dealers outside the distribution networks. Government efforts for stamping out fake seed are rated by seed companies good with a score of 67%.

INSTITUTIONAL SUPPORT

Availability of extension services

Zimbabwe has a well-developed extension service system serving smallholder farmers. With an extension officer to farmer ratio of about 1 to 300, Zimbabwe outperforms Kenya Uganda and South Africa on this measure. The seed industry rated the availability of extension services as good, with an average score of 63.60%. Private seed companies keep a highly active relationship with government extension officers especially during the planting and growing season. However, access to government extension workers by private seed companies can be unequal. Large seed companies like Seed-Co, Pioneer and Pannar often run meetings where they award grower of the year and extension worker of the year, through which they provide motorbikes for extension staff to increase their mobility. Smaller seed companies with limited incentives to lure extension officers are less pleased with extension services.

Quality of national seed trade association

The Zimbabwe Seed Trade Association (ZSTA) is an umbrella organization for all seed companies representing the national seed trade association. The primary functions of ZSTA are to coordinate industry activities. The association also plays an advocacy role and represents members at various platforms and especially with government. The members of ZSTA are primarily all the seed companies, both private and parastatals. The current registration fee is US\$1,000 per member, which is a comfortable figure if the economy is vibrant. However, because of the harsh economic conditions prevailing in the country, only 15 seed companies are formally registered. The performance of the ZSTA is rated by members as fair with an average score of 43%. The rating of the different aspects of the association are as follows: activeness is fair at 53%, effectiveness in advocacy is fair at 45%, managerial ability is fair at 52%, democracy in elections and decision making is fair at 53%, capacity to mobilize resources is poor at 26%. The poor performance of the association is mostly attributed to the lack of an independent secretariat to run the affairs of the seed industry.



CONCLUSION

The seed industry in Zimbabwe is mature and dominated by private seed companies. Most of the indicators discussed above show the dominance and importance of maize seed to the seed sector in Zimbabwe as evidenced by the number of breeders, varieties released, quantities sold per season and the number of active companies producing and marketing the seed. As measured by market share, the industry is dominated by four companies that control more than half of the market. Based on well-established seed policies and regulations, the seed sector is generally

well functioning with the necessary mechanisms and controls for each stage in the seed value chain to ensure supply of certified seed to the farmers. However, the economic hardships facing the Zimbabwean economy over the last decade seem to be taking a toll on the overall performance of the sector. Weak demand by smallholder farmers (largely attributed to lower purchasing power by smallholder farmers) has justified government participation as a big buyer and distributor of seed. This could affect the long-term vibrancy of the industry. The seed traders association—ZSTA—is weak and unable to satisfactorily meet the needs of its members.

REFERENCES

Claid Mujaju and Munyaradzi Jonga. (2014). The African Seed Access Index Country Report on Zimbabwe.

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