Access to Seeds Index

Identifying Leading Seed Companies in Eastern and Southern Africa

Landscaping study for the Regional Access to Seeds Index for Eastern & Southern Africa

Coordinated and under the supervision of Mr. Claid Mujaju, PhD, Harare, Zimbabwe.

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Introduction

The Regional Access to Seeds Index for Eastern and Southern Africa will evaluate the efforts of 22 leading seed companies in the region, aimed at improving access to seeds for smallholder farmers. Improving smallholder farmer productivity is one of the main targets on the United Nations' Sustainable Development Goals agenda. By providing clarity on leadership and good practices in the industry, the Access to Seeds Index aims to contribute to achieving these goals.

This list of 22 companies is the result of a process of research, consultations and validation, which started with studies of the seed industry in 19 countries in the region: Angola, Botswana, Burundi, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Rwanda, Somalia, South Africa, South Sudan, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.

The final selection of companies was based on the following set of criteria: (1) having an integrated seed business model; (2) regional presence or a dominant position in one country; (3) physical presence and business activities in the region and (4) peer recognition as a leading company. Seed volumes and revenues were considered where possible to determine size and dominance in each country or multiple countries. The studies and company selection were discussed and approved by a regional expert review committee which convened in Johannesburg on 12 October 2017.

Companies selected for the Regional Access to Seeds Index for Eastern & Southern Africa

	Company	Country	Seed portfolio	Ownership
1	Capstone Seeds	ZAF	Field crops	Private
2	Darusalam Seed Co	SOM	Field crops	Private
3	Demeter Seed	MWI	Field crops	Private
4	DowDuPont	USA	Field crops	Listed
5	East African Seed	KEN	Field crops & vegetables	Private
6	East-West Seed	THA	Vegetables	Private
7	Ethiopian Seed Enterprise	ETH	Field crops	State-owned
8	Equator Seed Co	UGA	Field crops	Private
9	FICA Seeds	UGA	Field crops & vegetables	Private
10	Hygrotech	ZAF	Vegetables	Private
11	Kenya Seed Company	KEN	Field crops & vegetables	State-owned
12	Kenya Highland Seed	KEN	Vegetables	Private
13	Klein Karoo Seed Marketing	ZAF	Field crops & vegetables	Private
14	Monsanto	USA	Field crops & vegetables	Listed
15	NASECO	UGA	Field crops	Private
16	Pop Vriend Seeds	NLD	Vegetables	Private
17	Seed Co	ZWE	Field crops & vegetables	Listed
18	Starke Ayres	ZAF	Vegetables	Private
19	Syngenta (ChemChina)	CHE	Field crops & vegetables	Private
20	Technisem	FRA	Vegetables	Private
21	Victoria Seeds	UGA	Field crops & vegetables	Private
22	Zamseed	ZAM	Field crops & vegetables	Private

1. Landscaping the Seed Sector in Eastern and Southern Africa

1.1 Methodology

This landscaping report provides an overview of the outcomes of 19 country studies to identify leading seed companies in Eastern and Southern Africa. In addition, background is provided on developments in seed harmonization and seed policies on a regional and country level to reflect the environment in which the seed industry operates in the region.

Country specific profiles were developed by national focal points, who provided overviews of local seed sectors as well as a list of leading seed companies in their respective countries. Information has been sourced from existing literature and interviews with international, regional and national seed sector players using these national focal points in each country. The work was undertaken under the supervision of Mr. Claid Mujaju, PhD, a regional consultant based in Harare, Zimbabwe.

To gather data for the country profiles, a survey was sent to stakeholders in the 19 countries including various seed companies to seek feedback on their activities in the region. Focal points gathered information on the characteristics of the 19 countries' seed sectors in terms of major field, vegetable and local crops, and information about the seed sector regulatory frameworks.

For validation purposes, the studies and company selection was discussed and approved by a regional expert review committee which convened in Johannesburg on 12 October 2017.

Regional Expert Review Committee for Eastern and Southern Africa

1. Fhumulani Mashau, Projects Officer at Southern African Confederation of Agricultural Unions (SACAU)
2. John Mukuka, Seed Development Expert at COMESA/ACTESA
3. Essau Mwendo Phiri, Chairman, National Smallholder Farmers' Association of Malawi
4. Patience Nyakanda, Coordinator at the Zimbabwe Plant Breeders Association
5. Bob Shuma, Executive Director at the Tanzania Seed Trade Association
6. Evans Sikinyi, Seed Systems Consultant

List of country focal points, responsible for country profiles

Country	Focal point
Angola	Augusto Caetano Da Silva, Deputy Director General, National Seed Centre, Ministry of Agriculture
Botswana	Sabone Botsile, Principal Agricultural Research Officer, Seed Multiplication Unit, Department of Agricultural Research
Burundi	Donatien Bigirimana, Burundi Office, International Rice Research Institute East and Southern Africa
Ethiopia	Daniel Mekonnen, Director Plant Variety Release, Protection and Seed Quality Control
Kenya	Simon Maina, Head Seed Certification and Plant Variety Protection, Kenya Plant Health Inspectorate Service
Lesotho	Selikane Marankoe, Head Seed Development Unit, Department of Agricultural Research, Ministry of Agriculture and Food Security
Madagascar	Ketamalala Ramarokoto, Director National Agency for Official Seed Control
Malawi	Samson Kazombo, Agricultural Economist, Planning Unit, Department of Agricultural Research Services
Mozambique	Elsa Adelia Timana, Head of Seed Department, National Directorate of Agricultural and Silviculture
Namibia	Magdalena Hangula, Chief Agricultural Scientific Officer, Directorate of Agricultural Research and Development, Ministry of Agriculture, Water and Forestry
Rwanda	Gabriel Nkuliyimana, Coordinator of the Association for Development of Nyabimata (ADENYA), Chairman of the Seed Trade Association of Rwanda
Somalia	Mohamed Bube, Operations Manager, Darusalam Seed Co
South Africa	Claid Mujaju, Head of Seed Services Institute Zimbabwe, in collaboration with Joseph Ahenda, FAO Policy and Technical Advisor in the Eastern Africa region
South Sudan	Cirino Oketayot, Executive Director of Research, Ministry of Agriculture and Food Security
Swaziland	Abraham Dlamini, Principal Research Officer, Ministry of Agriculture
Tanzania	Patrick Ngwediagi, Director General, Tanzania Official Seed Certification Institute (TOSCI)
Uganda	Emmanuel Mubangizi, independent seed specialist and seed company consultant
Zambia	Bruce Chulu Simbunji, Acting Chief Seeds Officer, Head of Seed Testing, Seed Control and Certification Institute (SCCI)
Zimbabwe	Edmore Mtetwa, Seed Technologist, Zimbabwe Seed Services Institute

1.2 Seed policies

The seed sector in the region has high potential for growth given the favorable environmental conditions for most crops and the increasing demand arising from population growth and climate change. Moreover, studies show that farmers access around 90% of their seed from informal systems of which approximately 50% is derived from local markets.[1] As such, over 50% of seed is paid for by cash, indicating that smallholder farmers are already making important investments in this arena.

The variation in policy and regulatory regimes is pivotal to the existing differences in seed sector development among the countries in the Eastern and Southern African region.

Companies in countries with a liberal market system appear to be growing faster, and spreading their presence throughout the region.

Generally, all the countries in the Eastern and Southern Africa region have some form of policies governing the seed industry, except for Somalia, which has been plagued by war since 1991. Two countries in Southern Africa, Lesotho and Namibia, are functioning under the auspices of the national seed policies, but without the requisite seed laws and regulations governing production of certified seed. They mostly thrive on exports from neighboring countries (Zambia for Namibia and South Africa for Lesotho) that have vibrant seed industries. South Sudan, being one of the countries ravaged by civil wars, took advantage of seed harmonization in East Africa and developed its seed regulations based on the Harmonized East African Seeds Standards and Regulation. However, the seed industry in South Sudan is only governed by subsidiary regulations without the principal legislation.

Major international and regional seed companies have a strong base in countries with a relatively strong regulated seed industry. All these countries are members of international organizations that support the establishment of a regulatory/enabling environment for the seed industry. These countries include Kenya, Zambia, Zimbabwe, Tanzania, Malawi and South Africa who are either member of the International Seed Testing Association (ISTA), Union for Protection of Varieties (UPOV) or Organization for Economic Cooperation and Development (OECD).

The development of a seed market in the COMESA region continues to be hampered due to segregated and small seed markets, which are difficult to access across the continent. This has been exacerbated by varying procedures pertaining to variety release, seed certification and quarantine and phytosanitary measures for seed in neighboring countries, which deny or delay farmer access to new products. The primary objective of harmonization is to integrate smaller and more isolated national seed markets into one larger market for seed. In most African countries, agriculture is predominated by smallholder farmers. Adoption of a harmonized system has high potential to improve the flow of improved seed among countries, thus increasing farmer access to higher yielding varieties.

Countries and their seed policies

Country	Seed policies & laws		Regional seed harmonization		National seed authority	
	Yes/No	Which in place?	Yes/No	Which?	Yes/No	Which?
Angola	Yes	2011 Seeds Law No. 07/05 and No. 96; Seed Act No. 93/16	Yes	SADC	Yes	National Seed Service
Botswana	Yes	1976 Seed Certification Act (CAP 35:07)	Yes	SADC	Yes	Dept. of Agricultural Research
Burundi	Yes	1999 Seed Act; 2012 Seed Act No. 1/08, 2012; 2012 Decree No. 100/305; 2011 Law No. 1/03; 2012 Decree No. 100/251; 1993 Decree Law No. 1/032	Yes	EAC COMESA	Yes	National Seed Quality Control and Certification (ONCCS)
Ethiopia	Yes	1992 Ethiopian Seed Policy; Ethiopian Seed Proclamation No. 782/2013; Ethiopian Seed Regulation No. 375/2015; Ethiopian Service Fee 361/ 2016; Plant Breeders' Right Proclamation 481/2000; 2001 National Variety Release Guideline (NVRC); seed standards for more than 74 specific crops in place	Yes	EAC COMESA	Yes	Directorate under the Ministry of Agriculture and Natural Resource
Kenya	Yes	2016 Seeds and Plant Varieties Act (Cap 326); 2009 National Performance Trials and Regulations; 2012 Seed Policy	Yes	EAC COMESA	Yes	Kenya Plant Health Inspectorate Service (KEPHIS)
Lesotho	No	Seed policy approved by cabinet but no laws in place	Yes	SADC	Yes	Department of Agricultural Research
Madagascar	Yes	Seed Act 94-038	Yes	EAC SADC	Yes	National Agency for Official Seed Control (ANCOS)
Malawi	Yes	Seed Act 1996 – regulations and schemes	Yes	SADC COMESA	Yes	Seed Services Unit (SSU)
Mozambique	Yes	Decree 12/2013 Seed Regulation; Plant Breeders' Rights Decree 26/2008 & Decree 26/2014 (not operational)	Yes	SADC	Yes	Department of Seeds (DS)
Namibia	No	Seed policy but no laws in place	Yes	SADC	Yes	Crop Quality Control section
Rwanda	Yes	National Seed Policy; Seed Law No. 14/2003; Ministerial Order No. 002/11.30 of 18/08/2010; Ministerial Order No. 003/11.30 of 18/08/2010; Ministerial Order No. 00411.30 of 18/08/2010	Yes	EAC COMESA	Yes	Rwanda Agriculture Board (RAB)
Somalia	No	-	No	-	-	-
South Africa	Yes	1976 Plant Improvement Act (Act 53); Seed Certification Scheme and Plant Breeders' Rights Act (Act 15/1976)	Yes	SADC	Yes	South African National Seed Organization (SANSOR)
South Sudan	Yes	Seed regulations based on HESSREP	Yes	EAC COMESA	Yes	-
Swaziland	Yes	1995 Seed Act No. 94-038 of 03.01; Decree No. 2010-1009; 2000 Seeds and Plant Varieties Act	Yes	SADC COMESA	Yes	Seed Quality Control Services (SQCS)
Tanzania	Yes	1973 Seed Act; 2003 Seed Act, 2007 Seed Regulations	Yes	EAC SADC	Yes	TOSCI
Uganda	Yes	2006 Seeds and Plant Act	Yes	EAC COMESA	Yes	National Seed Certification Service
Zambia	Yes	The Plant Varieties and Seeds Act (Cap. 236) & Regulations; Plant Breeders' Rights Act (No. 18 2007) and regulations	Yes	SADC COMESA	Yes	SCCI
Zimbabwe	Yes	Seed Act 19:13; Seed Certification Scheme 2000 & 2016 amendment to seed regulations; Plant Breeders' Rights Act 18:16 and regulations	Yes	SADC COMESA	Yes	Seed Services Institute

Source: summarized from country presentations, 2017.

1.3 Harmonization

In Eastern and Southern Africa, three regional organizations are working on seed regulation harmonization

East African Community (EAC)
The East African Community (EAC) is a regional intergovernmental organization founded in 1967 and currently comprising six member states, namely Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda. For Eastern African countries, harmonization backdates to 2002, through the support of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). Currently, ASARECA is a not-for-profit sub-regional organization of the National Agricultural Research Systems (NARs) and has 11 member countries, namely: Burundi, the Democratic Republic of the Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, South Sudan, Sudan, Tanzania and Uganda. The East Africa Seed Committee (EASCOM), whose composition constituted a balanced public-private partnership, was formed in 2004 to spearhead the harmonization of seed policies and regulations. Through the efforts of ASARECA and EASCOM, the EAC has agreed to harmonize certification standards covering at least 42 staple foods, including grains, pulses, edible oil, and tubers.[2]

Common Market for Eastern and Southern Africa (COMESA)
The Common Market for Eastern and Southern Africa (COMESA) is a free trade area with nineteen member states. In 2010, COMESA adopted the seed regulation harmonization developed by SADC. In 2013, under the tripartite agreement among the EAC, COMESA, and SADC, a common harmonized seed regulation was adopted by Eastern and Southern Africa member countries of COMESA. The COMESA Seed Trade Harmonization Regulations were approved by the COMESA Council of Ministers in February 2014 and have since been published in the Official Gazette of the Common Market in May 2014. In addition, Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA) has put in place the COMESA Seed Harmonization Implementation Plan (COMSHIP).

The aim of harmonizing country seed laws and regulations under COMSHIP is to bring about consistent domestication, application, monitoring and improvement in seed certification, quarantine and phytosanitary measures. In addition, this will shorten the time required for the evaluation and release of seed varieties among COMESA member countries. Furthermore, it aims to give smallholder farmers in the region better access to quality inputs and related technologies. Domestication of the regulations at a national level has been facilitated by COMESA through the formation of National Review Teams. Currently Kenya, Uganda, Rwanda, Burundi and Zimbabwe completed the alignment of the national laws and launched this to signal the beginning of the implementation of COMESA Harmonized Seed Regulations. The remaining 14 COMESA member states are expected to domesticate the harmonized policies and regulations over the next years.

Southern African Development Community (SADC)
SADC is an inter-governmental organization comprised of 15 member states, namely Angola, Botswana, Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. The SADC Secretariat developed three tools to optimize harmonization among its member states, namely, the SADC Variety Release System, the SADC Seed Certification and Quality Assurance System, and the SADC Quarantine and Phytosanitary Measures for Seed. SADC member states have also agreed to cooperate in the implementation of the Harmonized Seed Regulations in the region through a memorandum of understanding (MOU), to create an integrated seed market that will facilitate the availability of quality seed to farmers. The harmonization implementation commenced on 7 July 2013 when 11 member states out of 15 had appended their signatures on the MOU, to meet the two-thirds majority required.

1.4 The Seed Industry

Based on the information obtained, seed companies in the region can be grouped into three types: local, regional and international companies based on the scope i.e. regional coverage, crop diversity and the seed value chain in which they are involved.

- The first category of nationally operating companies is comprised of Darusalam Seed Co (Somalia), Demeter Seed (Malawi) and Ethiopian Seed Enterprise. These companies have high seed turnover and/or market share, are dominant in one or more markets and are involved in a broad spectrum of activities along the seed value chain.
- The second category consists of various larger regionally operating seed companies such as Seed Co, Kenya Seed Company, Klein Karoo Seed Marketing, East African Seed and Starke Ayres. Smaller regional companies also operate in the region, having modest seed distribution in their sub-region, such as NASECO, Victoria Seeds and Zamseed. Some of these seed companies have their seeds in the regional market operating through agents although they have no physical presence.
- The third category is formed by multiple multinational and globally operating seed companies active in Eastern & Southern Africa and are considered leading in the region. Among these are DowDuPont, Monsanto, Technisem and Syngenta (ChemChina).

The main players in the Eastern and Southern Africa region have been grouped based on the assessment of leading seed companies in each of the 19 countries. The region has a wide range of seed companies focusing on different countries, ecological zones, crops, parts of the seed value chain and even markets. The main players in the region are made up of 52 local seed companies, ten regional seed companies and five international seed companies.

International seed companies are often based outside Africa, mostly in Europe or the United States of America. Many of these companies access the African market by selling their seeds through agents, and have developed a stronger presence by starting research and development (R&D) in the region supported by production and marketing of seed. Monsanto, DowDuPont and Syngenta (ChemChina) are mainly involved in field crops, while companies such as East-West Seed, Pop Vriend Seeds and Technisem focus on vegetables.

Regional seed companies are established within a selected country in each region and subsequently spread to have operations in more than one country. SADC, COMESA and EAC have enabled this kind of activity. Seed, like any other agricultural input, is traded among member countries. There are multiple regional seed companies such as Seed Co, Kenya Seed Company, Klein Karoo Seed Marketing, East African Seed, Starke Ayres and Zamseed that have

Seed companies in Eastern & Southern Africa - business models and portfolio

Role	Types of companies	No. of crops in company portfolio			Collaborating partners
		Field crops	Vegetables	Locals	
Research and Development	52 Local	13	0	4	International Seed Companies, IARCs, NARs, universities
	10 Regional	10	5	0	
	5 Global	3	4	0	
Seed Production	52 Local	37	0	4	IARCs, NARs, universities
	10 Regional	10	5	0	
	5 Global	3	4	0	
Capacity Building	52 Local	48	7	4	IARCs, NARs, universities
	10 Regional	10	5	0	
	5 Global	3	4	0	
Marketing and Sales	52 Local	48	8	4	NGOs, distributors, retailers, government agencies
	10 Regional	10	5	0	
	5 Global	3	4	0	

Source: summarized from country presentations, 2017

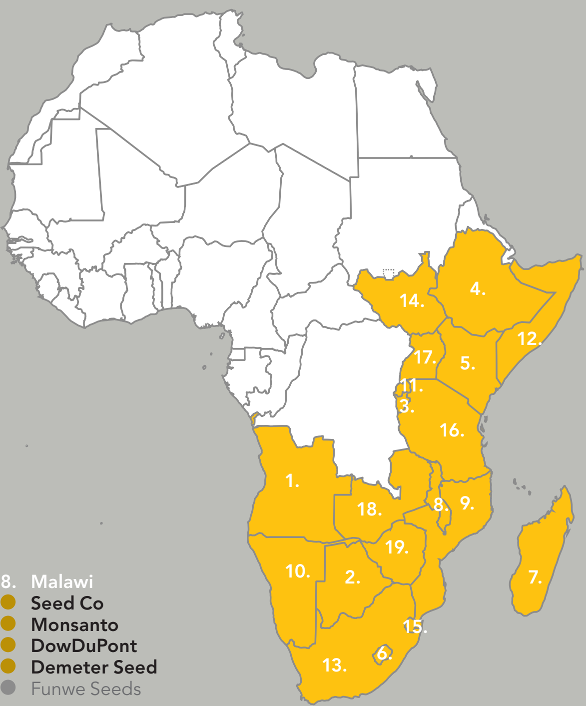
developed R&D in the region and offer strong competition to international seed companies.
Local seed companies are those companies producing and supplying seeds within the country: 13 of the 52 local companies assessed are involved in research and development, with the others being dependent on NARs, international agricultural research centers (IARCs), and universities for breeding activities for field crops. There is virtually no breeding for vegetables. Initially, local companies included cooperatives and state-owned enterprises that produced and supplied seeds to farmers, mostly in situations where there are weak seed policies to attract a private sector driven seed supply. In certain instances, these companies have been privatized or have had government shares reduced. Recently, they have included private seed companies with special niche markets, with a special focus on addressing specific ecological and market requirements.

In recent years, developments in the seed industry have been driven by either acquisitions or mergers of regional players by multi-national and/or international seed companies. A major regional seed company, Seed Co, founded in Zimbabwe, has ties with a French seed company Groupe Limagrain, through disposing of a third of its company shares. Further, Seed Co, has sold its shares in the largest cotton seed company, Quton, to Mahyco of India.

Swiss biotech company Syngenta (ChemChina), formerly known as Syngenta, acquired Zambian MRI Seed in 2013, while in South Africa, the largest domestic seed company, Pannar Seed, was taken over by US firm DowDuPont in 2012. In South Africa, the process of acquisition started as early as 1999 and 2000 when Monsanto purchased two of the country's largest seed companies, Carnia and Sensako. The two acquisitions, in South Africa, consequently gave DowDupont and Monsanto over 85% market shares of the top five field crops. Furthermore, even the smaller South African companies are strategically positioning themselves in the global setup, with Link Seed becoming part of Groupe Limagrain in 2013.

Leading seed companies selected for the Access to Seeds Index for Eastern & Southern Africa

- **Companies selected for the 2019 Access to Seeds Index**
- Companies that did not meet the selection criteria



1. Angola
- Novagrolider
- Jardins da Yoba
- Kambondo
- Valagro
- Vrelo

2. Botswana
- **Seed Co**
- Cross Corn (Capstone Seeds)
- Botswana Agricultural Marketing Board (BAMB)
- Feed Seeds
- Gear Force

3. Burundi
- COPROSEBU
- COPROSEBU-Nyuganira
- ISABU
- SRDI
- **NASECO**
- AVET
- UHACOM

4. Ethiopia
- Oromia Seed Enterprise
- **Ethiopian Seed Enterprise**
- South Seed Enterprise
- **DowDuPont**
- Nono Agricultural Development PLC

5. Kenya
- **Kenya Seed Company**
- Western Seed Company
- **Monsanto**
- **East African Seed**
- **Kenya Highland Seed**

6. Lesotho
- Lehakoe Seed Company
- **DowDuPont**
- **Seed Co**
- **Monsanto**
- **Capstone Seeds**

7. Madagascar
- SCAA (Société Commerciale et Agricole d'Ambohimangakely)
- CTAS (Centre Technique de l'Agroécologie du Sud/Ambovombe)
- Enterprise DOM
- VALY Prodsem
- CMS SAKAY
- **Technisem**

8. Malawi
- **Seed Co**
- **Monsanto**
- **DowDuPont**
- **Demeter Seed**
- Funwe Seeds

9. Mozambique
- Phoenix Seed
- **DowDuPont**
- **Klein Karoo Seed Marketing**
- ORUWERA
- KCI

10 Namibia
- Northern Namibia Farmers Seed Grower Cooperative (NNFSGC)
- Katima Farmers Seed Producer Cooperative (KAFASEPCO)
- Likorerere

11. Rwanda
- **Kenya Seed Company**
- **Seed Co**
- **DowDuPont**
- Tubura Seed
- Rijk Zwaan (Hollanda Green Tech)

12. Somalia
- Barwaaqo General Trading Co.
- **Darusalam Seed Co**
- Filsan Somalia
- Ikow Agrovit
- Ikow Agritrade

13. South Africa
- **DowDuPont**
- **Monsanto**
- **Klein Karoo Seed Marketing**
- **Capstone Seeds**
- **Starke Ayres**
- **Hygrotech**

14. South Sudan
- South Farmers
- Century Seeds Co
- GIAS
- Magwi Seeds Company (MASCO)
- Seed Grow

15. Swaziland
- **Seed Co**
- **DowDuPont**
- Lake Agriculture
- Tshala Seed Enterprise
- **Capstone Seeds**

16. Tanzania
- **Seed Co**
- **Monsanto**
- Beula Seed Company and Consultant
- IFFA Seed Company
- **East African Seed**
- **East-West Seed**
- **Pop Vriend Seeds**

17. Uganda
- **NASECO**
- **FICA Seeds**
- **Equator Seed Co**
- Pearl Seeds
- **Victoria Seeds**

18. Zambia
- **Seed Co**
- **Zamseed**
- **DowDuPont**
- **Syngenta (ChemChina)**
- **Monsanto**
- AfriSeed
- Kamano
- **Klein Karoo Seed Marketing**

19. Zimbabwe
- **Seed Co**
- **DowDuPont**
- **Klein Karoo Seed Marketing**
- Agri Seeds
- **Starke Ayres**
- **East-West Seed**

Disclaimer: Country borders or names do not necessarily reflect the Access to Seeds Foundation's official position. Maps used are for illustrative purposes and do not imply the expression of any opinion on the part of the Foundation, concerning the legal status of any country or territory or concerning the delimitation of frontiers or boundaries.

1.5 Main Crops

In terms of the major crops in Eastern and Southern Africa, the overall top five are field crops, largely based on the highest seed turnover and total market value. The main field crops are maize, sorghum, beans, wheat, soybean, groundnut and rice. Maize is the dominant crop grown in all 19 countries in Eastern and Southern Africa, with the highest number of international, regional and local seed companies involved, compared to other field crops. Maize, beans, groundnuts and rice are produced by farmers in small scale farming, large scale farming, irrigation farming and rain-fed agriculture. Maize, beans and groundnuts are grown across all agro-ecological regions, while rice is predominantly grown in humid to sub-humid environments and in wet patches (vlei) within semi-arid to arid environments.

Leaf vegetables (cabbage, rape), tomatoes, onion, cucurbits and carrots are the main types grown in the Eastern and Southern region. Local vegetable seed companies are mostly agents for international and regional seed companies. Local crops are mostly country dependant, and are either vegetative or have a high seed retention, making it unviable for international and regional seed companies to venture into serious seed business. The seed business for local crops is small, and regarded as a niche market. Tef is produced in Ethiopia, and the only local crop that is in any top five overall crop list.

Crops in portfolio of seed companies in Eastern and Southern Africa

Role	In portfolio companies: Global	Regional	Local	In country top 5	Farming systems	Agro-ecologies
Field crops						
Maize	3	10	43	19	Small scale farming, large scale farming, irrigation farming and rain-fed agriculture	All agro-ecological zones
Sorghum	2	5	14	13		Semi-arid to Arid
Beans	2	5	26	11		All agro-ecological zones
Wheat	3	4	5	8	Large scale farming, irrigation farming	Humid, Sub-humid
Soybean	3	4	9	5	Large scale farming, irrigation farming	Humid, Sub-humid
Groundnut	-	5	12	9	Small scale farming, large scale farming, irrigation farming and rain-fed agriculture	All agro-ecological zones
Rice	-	1	11	7		Humid, Sub-humid
Vegetables						
Leaf vegetables	4	5	6	-	Small scale farming, large scale farming, irrigation farming and rain-fed agriculture	All agro-ecological zones
Tomatoes	4	5	4	-		
Onion	4	5	3	-		
Cucurbits	4	5	5	-		
Carrot	4	5	4	-		
Local crops						
Tef	0	0	2	1	Small scale farming, large scale farming, irrigation farming and rain-fed agriculture	Humid, Sub-humid
Cassava	0	0	2	1		All agro-ecological zones
Sweet potato	0	0	4	-	Small scale farming, irrigation farming and rain-fed agriculture	All agro-ecological zones
Banana	0	0	1	-	Small scale farming, large scale farming, irrigation farming and rain-fed agriculture	Humid, Sub-humid, Semi-arid
Amaranth	0	0	2	-	Small scale farming, irrigation farming and rain-fed agriculture	Sub-humid to Arid

Source: summarized from country presentations, 2017

2. Country profiles

Country specific profiles were developed by national focal points, who provided overviews of local seed sectors as well as a list of leading seed companies in their respective countries. Information has been sourced from existing literature and interviews with national, regional and international seed sector players using national focal points in each country.

2.1 Angola

Country focal point: Augusto Caetano Da Silva, Deputy Director General, National Seed Centre, Ministry of Agriculture

Leading seed companies in Angola

Company	Crops	Countries
Novagrolider	Field crops (potato)	Angola
Jardins da Yoba	Field crops	Angola
Kambondo	Field crops	Angola
Valagro	Field crops	Angola
Vrelo	Field crops	Angola

Background

Since the end of civil unrest in 2002, there has been limited commercial seed industry activity in Angola, with farmers relying almost entirely on farm-saved seed or imported seed by the government and private companies. It is estimated that 94% of maize seed planted by farmers in Angola comes from grain that is saved on the farm or from grain or seed that is multiplied by farmers.[3] This percentage is believed to be higher for other open pollinated crops such as beans, millet, sorghum, groundnuts and wheat. Crop production is characterized by low productivity resulting from the use of degenerated varieties of low quality seed, together with traditional low input crop management practices.[4]

The government of Angola plays a large role in the provisioning of improved seed varieties and agronomic extension services to farmers, having instituted a legal and regulatory structure for the seed industry such as a recently passed Seed Regulatory Law.[5] The Angola government stimulates the development of a commercial seed sector and encourages the participation of foreign seed companies, based on long-term investment.[6]

Seed industry

Most companies that are active in Angola rely on seed imports from abroad. There are some companies that have breeding or variety selection activities. Unlike other neighboring countries, there is little activity from multinational seed companies in Angola.

After conducting research in different locations in Angola, Chinese company Winall Hi-tech Seed Company is currently in the process of submitting 20 rice varieties and 23 soy varieties for registration in the country.

The five leading companies – in order of volume of seed produced – are as follows: Novagrolider, Jardins da Yoba, Kambondo, Valagro, and Vrelo. Novagrolider focuses exclusively on potato, while Jardins da Yoba mainly produces maize seeds of different varieties and potato seeds. Limited information is available on these companies. Generally, these companies purchase basic seed from abroad, followed by multiplication and then selling seeds after certification by the National Seed Service. All companies focus on local markets.

2.2 Botswana

Country focal point: Sabone Botsile, Principal Agricultural Research Officer, Seed Multiplication Unit, Department of Agricultural Research

Leading seed companies in Botswana

Company	Crops	Countries
Seed Co (incl Prime Seed Co)	Field crops, vegetables	Regional
Capstone Seeds (Cross Corn)	Field crops	Botswana
Botswana Agricultural Marketing Board (BAMB)	Field crops	Botswana
Feed Seeds	Field crops	Botswana
Gear Force	Field crops	Botswana

Background

The agriculture sector in Botswana contributes 3% to the country's GDP.[7] The government certifies and produces seed through its Department of Agricultural Research (DAR)[8], in addition to distributing new varieties through its Seed Multiplication Unit (SMU).

The DAR is responsible for the administration of seed certifications through the 1976 Seed Certification Act (CAP 35:07). This Act is complemented by the country's Seed Bill.

The government distributes some seed varieties to farmers throughout the country through DAR, to support programs such as the Integrated Support Program for Arable Agricultural Development (ISPAAD) that began in 2008. ISPAAD is one of the main agricultural support schemes to address challenges in the arable sub-sector, such as poor technology adoption by farmers and low agricultural productivity. Through this program farmers receive inputs including seeds. This program is implemented by the extension services department of the Ministry of Agricultural Development and Food Security.

Seed industry

Although private sector participation in seed is stimulated, none of the registered seed companies in Botswana have research and development activities in the country. Some foreign companies that are active in Botswana, such as Seed Co and Capstone Seeds, have breeding activities but mainly outside Botswana. The private seed industry in Botswana is dominated by distributors that import pre-packaged seed ready for supply to the farming community.

All seed companies must register with the National Seed Authority. As of the 2016/2017 cropping season, there were 340 registered seed suppliers. Leading companies in Botswana, in order of volume, include Seed Co, CrossCorn (the exclusive distributor in Botswana of Capstone Seeds), Feed Seeds and Gear Force. The seed suppliers focus largely on subsistence farmers. Seed Co and CrossCorn sell seeds exclusively, while the other three companies sell seeds as well as other agricultural inputs. Seed Co and CrossCorn distribute their seed by engaging agents who facilitate outreach to smallholder farmers.

The Botswana Agricultural Marketing Board (BAMB) also plays a large role in seed supply to farmers. Established by an Act of Parliament in 1974, it was, among other things, mandated to provide inputs to farmers such as seeds for cereals, pulses/beans and oilseeds. BAMB has 38 outlets in all the regions in the country.

2.3 Burundi

Country focal point: Donatien Bigirimana, Burundi Office, International Rice Research Institute East and Southern Africa

Leading seed companies in Burundi

Company	Crops	Countries
COPROSEBU	Field crops, local crops	Burundi
COPROSEBU-Nyunganira	Field crops, local crops	Burundi
ISABU	Field crops, vegetables, local crops	Burundi
SRDI	Field crops (rice)	Burundi
NASECO	Field crops (maize)	Burundi, Uganda, Democratic Republic of Congo (DRC)
AVET	Field crops, vegetables	Burundi
UHACOM	Vegetables	Burundi

Background

Although development began in 1985 with the draft of a national seed program that was introduced in 1987, the presence of a commercial seed sector is limited. The first decree on seed production and trade was promulgated in 1993,[9] which emphasized four main components: the development of a national catalogue of crops and varieties, improving the production, import and commercialization of certified seeds, the development of a seed control and certification system and the identification of roles of all partners in the seed value chain. In 1999, the Ministry of Agriculture and Livestock signed a series of ordinances applying measures to the above decree,[10] but these have not entered into force.

Following national legislation, the National Seed Quality Control and Certification (ONCCS) is active, and private seed producers can operate as associations or individuals.

Seed industry

Collectif des Compagnies et Coopératives de Production des Semences du Burundi (COPROSEBU) is equivalent to the Burundi Seed Trade Association and has been active in the seed sector since 2010. This association recently elaborated its Constitution and internal rules of conduct that were already promulgated in 2015. COPROSEBU is a group of private growers involved in the production of certified seeds. The group is made up of over 30 members who meet certain criteria. It is recognized by the Burundian government. The seed organization also contributes to seed sector development by increasing the transparency in seed production and seed quality.

There are currently 19 seeds traders registered in the seed department of The Agriculture and Livestock Ministry. Among those seed traders formally registered, some are organized in associations while others act as companies or sell seeds as individuals. Apart from COPROSEBU and COPROSEB-Nyunganira, the following companies are considered more dominant in Burundi: *Société Régionale de Développement de l'Imbo* (SRDI), NASECO, AVET, and UHACOM. SRDI is a public seed company with an exclusive focus on rice seed production. AVET does not produce seeds but imports seeds from neighboring countries. The national research institute ISABU also plays an important role in the Burundi seed sector.

Many of these companies operate exclusively in Burundi, whereas NASECO operates in Burundi, Uganda and Democratic Republic of the Congo. NASECO conducts breeding activities with a research station in Uganda, but none of the other leading companies have a breeding program. In cases where a breeding program is absent, companies use pre-basic seeds from ISABU that are then multiplied. UHACOM works with Haguruka Popular University (UPH) in conducting crop trials and making selections.

2.4 Ethiopia

Country focal point: Daniel Mekonnen, Director Plant Variety Release, Protection and Seed Quality Control

Leading seed companies in Ethiopia

Company	Crops	Countries
Oromia Seed Enterprise	Field crops	Ethiopia
Ethiopian Seed Enterprise	Field crops, local crops	Ethiopia
South Seed Enterprise	Field crops, local crops, vegetables	Ethiopia
DowDuPont	Field crops	Global
Nono Agricultural Development PLC	Field crops, local crops	Ethiopia

Background
Smallholder farmers dominate the agricultural sector in Ethiopia with 90% of the farms smaller than two hectares.[11] Farm-saved seed is the prevailing system of seed used for 85% of smallholder farmers. In general, most seed formally produced and distributed in Ethiopia is done by the public sector. Agricultural production follows traditional farming systems with low use of inputs and rain-fed farming.

Since implementation in 2011 of the Growth Transformation Program (I. and II.), agricultural productivity has increased by a rate of 8% for seven consecutive years. In 1992, the Ethiopian government created a National Seed Policy to create a supportive enabling environment that would encourage the private sector to be actively involved in the production and marketing of seeds. The policy further allows private foreign seed companies to undertake crop research activities on non-restricted crops.

Following the National Seed Policy, several additional developments occurred to enhance Ethiopia's enabling environment, namely, the 2013 Ethiopian Seed Proclamation No. 782; 2015 Ethiopian Seed Regulation No. 375; 2000 Plant Breeders' Right Proclamation 481 (under amendment); 2001 National Variety Release Guideline; and seed standards for more than 74 specific crops. At present, seed certification is compulsory in Ethiopia. The Ethiopia Seed Association, established in 2006, carries out seed quality inspections and certification.

The government is working to harmonize Ethiopia's seed laws with COMESA regulations. As such, a semi-autonomous agency was established that is responsible for handling seed issues in Ethiopia, namely the Ethiopia Seed and Other Agricultural Inputs Authority. To become operational, it needs prior approval from the Minister of Agriculture; additional testing of varieties that have already been tested in two other COMESA member states also needs appraisal.[12]

Seed industry
There are 31 registered private companies in Ethiopia. In the 2016/2017 production season, the private seed sector provided 40% of the total formal seed supply of hybrid maize, highlighting the industry's growth. However, both public and private seed producers play a role in the Ethiopian agriculture sector.

Different private enterprises and companies are involved in seed production and distribution of seeds. Based on market share and volume, the only private multinational seed company that has substantial activities in Ethiopia is DowDuPont with a 30% market share. The company has its own integrated seed business model for hybrid maize in the region. The remaining larger seed companies active in Ethiopia are the public seed enterprises. These are Oromia Seed Enterprise (35.7% market share), South Seed Enterprise (18%) and Nono Agricultural Development PLC (.9%). Ethiopian Seed Enterprise is significant in the region for its substantial market share (28.3%) and breeding in local crops of national importance such as tef. Ethiopian Seed Enterprise is the only state-owned enterprise that has a research and development program, working in collaboration with international organizations such as CIMMYT to develop high yielding and disease resistant hybrid maize varieties.

2.5 Kenya

Country focal point: Simon Maina, Head Seed Certification and Plant Variety Protection, Kenya Plant Health Inspectorate Service

Leading seed companies in Kenya

Company	Crops	Countries
Kenya Seed Company	Field crops, vegetables	Kenya, Tanzania, Uganda
Western Seed Company	Field crops	Kenya
Monsanto	Field crops, vegetables	Global
East African Seed	Field crops, vegetables, local crops	Kenya, Tanzania, Uganda, Ethiopia, Eritrea, Rwanda, Burundi, Somalia, Sudan, DRC & Zambia
Kenya Highland Seed	Vegetables, local crops	Kenya

Background
The agriculture sector employs more than 40% of the total population and more than 70% of Kenya's rural people.[13] The sector accounts for 65% of the export earnings, and provides the livelihood for more than 80% of the Kenyan population. With a growing population, the sector remains vital to food and nutrition security in the country.

The seed industry in Kenya is guided by the National Seed Policy and associated laws. The National Seed Policy aims at developing, promoting and regulating a modern and competitive seed industry. The principal law that guides the Kenyan seed industry is the Seeds and Plant Varieties Act (Cap 326) of 2016. This law comprehensively addresses all legislative issues relating to seeds and plant varieties and seeks harmonization with other related acts and international agreements where Kenya is a signatory. Some recent amendments of the Act and the implementing regulations have been undertaken to authorize specified seed certification activities on behalf of the regulator; provide for governance of forestry seeds and other species including domestication of wild plants; and the establishment of a Plant Genetic Resources Centre.

The seed industry in Kenya is regulated by the National Designated Authority (NDA) on seeds, the Kenya Plant Health Inspectorate Service. There is a seed traders' association with membership from both the private and the public sector.

Seed industry
The Kenyan seed sector is characterized by a multitude of public, parastatal, non-governmental and private players. Currently there are over 130 registered seed companies in Kenya, 85 of which are actively dealing in cereals, pulses, oil crops, horticultural, industrial and forestry seeds.

The top five seed companies in Kenya were selected based on an average volume of seeds traded within the last three years. The volumes are based on data for importation and local production.

Kenya Seed Company is a parastatal company that researches, develops and markets hybrid and open pollinated variety (OPV) field crop and vegetable seed. It has a research division, and offers diverse package sizes to farmers. It distributes its seeds on a regional scale. Western Seed Company is a privately-owned hybrid and OPV field crop company with an integrated seed business model and partners with international research institutes to obtain germplasm for varietal development.

Monsanto has seed production activities in Kenya and is active in hybrid and genetically modified (GM) maize and vegetable seeds. The company has its own global breeding programs, which include collaborative research with local and regional partners dedicated to the development of traits that are potentially useful for smallholder farmers in the region. East African Seed is a privately-owned company conducting research and development and is considered the top vegetable seed company in terms of volume of seeds traded. It has a breeding station where it also does research on local vegetable crops such as amaranth. Kenya Highland Seed is another company of repute, and operates exclusively as a distributor of vegetable seeds.

2.6 Lesotho

Country focal point: Selikane Marankoe, Head Seed Development Unit, Department of Agricultural Research, Ministry of Agriculture and Food Security

Leading seed companies in Lesotho

Company	Crops	Countries
Lehakoe Seed Company	Field crops	Lesotho
DowDuPont (Pannar)	Field crops	Global
Seed Co (incl Prime Seed Co)	Field crops, vegetables	Global
Monsanto	Field crops	Global
Capstone Seeds	Field crops	Botswana, Namibia, South Africa

Background

Agriculture employs 60% of the total population in Lesotho and is a main source of livelihood for 90% of its rural population, with crop production representing 2% of GDP.[14] Most farmers in Lesotho are smallholders. Their crop productivity is relatively low due to soil erosion, poor agricultural practices, recurring bouts of drought and increased cost of farming inputs.[15]

The bulk of seed sourced – maize 80%, sorghum 90%, beans 87%, wheat 90% and peas 90% – is farm saved.[16] There is a community-based seed system that involves associations of individuals, often organized as a group or cooperative with the support of non-governmental organizations that assist with seed multiplication and establishing community seed banks. This is often done to support farming systems recovering from systemic stress such as drought, pests or diseases or to strengthen farmer-based systems with improved varieties or seed quality enhancing techniques.

The Department of Agricultural Research (DAR) secures germplasm for evaluation, variety maintenance and production of basic seed while the private sector multiplies and distributes seed to farmers.

Seed industry

Private sector participation in seed value chains in Lesotho is low. There is only one registered seed company in Lesotho, Lehakoe Seed Company. This company undertakes seed multiplication and distribution. It obtains breeder material, mainly maize and beans from DAR, which gets multiplied under supervision of the Seed Development Unit of DAR.

There are seven private seed companies originating in South Africa and Zimbabwe that have agents in Lesotho, which include DowDuPont (Pannar), Monsanto, Seed Co, Capstone Seeds, Klein Karoo Seed Marketing, Mayford and Starke Ayres. Lehakoe Seed Company is the only company that produces open pollination varieties of maize and beans in the country while other private seed companies mainly focus on marketing and distribution of hybrid seed.

2.7 Madagascar

Country focal point: Ketamalala Ramarokoto,
Director National Agency for Official Seed Control

Leading seed companies in Madagascar

Company	Crops	Countries
Société Commerciale et Agricole d'Ambohimangakely (SCAA)	Field crops	Madagascar
Centre Technique de l'Agroécologie du Sud/Ambovombe (CTAS)	Field crops, local crops	Madagascar
Enterprise DOM	Vegetables, local crops	Madagascar
VALY Prodsem	Field crops	Madagascar
CMS SAKAY	Field crops, local crops	Madagascar
Semana (Technisem)	Vegetables	Regional

Background

Agriculture employs 70% of the population in Madagascar. Due to diverse climates, altitudes and soils, a wide range of food and cash crops are grown. Smallholder farmers dominate the agricultural sector, accounting for more than 95% of food produced on roughly 96% of cultivated land.[17] More than 90% of the seeds used are farm-saved seeds of traditional varieties. The production of certified seed is still insufficient to meet local demand.[18]

The 1995 Seed Act[19] outlines a division of responsibilities between the public and private sector, leaving regulation to the public sector. The public sector focuses on breeding and evaluating improved seed while the formal seed sector comprises numerous institutions. The 2008 National Seed Strategy Document (DSNS)[20] further builds on the Seed Act, and subsequently the National Agency for Official Seed and Plants Control (ANCOS) was established in 2013. ANCOS is the regulating entity for seed in Madagascar. A Plant Breeders' Rights Act and Plant Improvement Act are in place.

The National Seeds Certifying Authority is mandated to do seed certification. Quality control is in place through ANCOS which partners with the Malagasy Association for the Promotion of Seeds (AMPROSEM) to promote quality seed and seed policy orientation. The state-owned agricultural research institute FOFIFA has five research centres for rice, maize, cassava, beans and vegetables.

Seed industry

Private sector participation remains low in Madagascar, with only two private foreign companies operational. SEMANA is a partner of French company Technisem, producing vegetable seeds for local use and export. The Spanish company CASTELLS produces certified rice seed.

Madagascar has five larger local private seed companies: SCAA, Enterprise DOM, VALY Prodsem, SILAC and AGRI-PROGRES. SCAA only has rice in its portfolio, but is considered the country's largest seed company. Enterprise DOM produces exclusively OPVs of vegetables and some local varieties. VALY Prodsem produces exclusively OPVs of beans, maize and cowpea. Four leading cooperatives are SEEDFAS, SEEDLAN, ANDRI-KO and KLI, while the three leading NGOs that are active in seeds are CTAS Ambovombe, APDIP Tsiroanomandidy, and SdMad Ambatondrazaka. CTAS operates as a private company with NGO support, producing exclusively OPVs and indigenous varieties grown within rain-fed agricultural systems. CTAS also has its own breeding program in collaboration with The National Center for Applied Research and Rural Development in Madagascar (FOFIFA) and other international organizations, such as ICRISAT India, ICRISAT Niger and The French Agricultural Research Centre for International Development (CIRAD). Madagascar has 62 seed associations, the primary one being the Seed Growers Association (GPS).

2.8 Malawi

Country focal point: Samson Kazombo, Agricultural Economist, Planning Unit, Department of Agricultural Research Services

Leading seed companies in Malawi

Company	Crops	Countries
Seed Co	Field crops, vegetables	Regional
Monsanto	Field crops (maize), vegetables	Global
DowDuPont (Pannar)	Field crops	Global
Demeter Seed	Field crops	Malawi, Tanzania, Mozambique, Zambia
Funwe Seeds	Field crops	Malawi
Multi Seeds Company	Field crops	Malawi

Background

Agriculture employs 80% of Malawi's population and contributes 30% of its GDP. The agricultural sector is predominately comprised of smallholders. The smallholder subsector is mainly subsistence and largely focused on maize cultivation alongside certain cash crops such as groundnuts, soybeans and, to some extent, tobacco.

The Malawian government through the Malawi Growth and Development Strategy II (MGDS II) identifies agricultural productivity, diversification, and food security as focus areas for growth of the sector (Malawi government, 2012). The Department of Agricultural Research Services (DARS) Seed Services Unit (SSU) is responsible for seed certification involved in inspection and testing. It also has a seed testing laboratory, which is accredited to the International Seed Testing Association (ISTA).

The seed sector in Malawi is further characterized by the strong promotion of improved seed, which is distributed to small-scale farmers through agro-dealers.[21] The country's Farm Input Subsidy Programme (FISP) is engaged in the promotion and marketing of quality seeds of improved varieties of maize, groundnut, pigeon pea, common beans, cotton and soybean. Other major crops in Malawi, such as cassava, potatoes, rice, and sorghum, have not been able to attract commercial entrepreneurs other than those spurred by NGOs.

Malawi is a signatory of both COMESA and SADC.

Seed industry

According to the Seed Trade Association of Malawi (STAM), there are 26 registered private seed companies in Malawi. Local commercial seed companies and farmers' associations are involved in seed multiplication, contracting farmers for seed production, and distribution. These companies do not engage in varietal development and testing.

Multinational seed companies are involved in breeding, seed production, multiplication, processing and distribution of mostly hybrid maize. In addition, multinationals engage in the promotion and demonstration of improved varieties and quality seed. Demeter Seed is the largest company that focuses exclusively on the Malawian market. Malawi's main seed companies are (in order of volume produced) Seed Co, Monsanto, DowDuPont (Pannar), Demeter Seed, Funwe Seeds and Multi Seeds Company (MUSECO). All lead companies have an integrated seed business model, and receive parent material from either their own breeding programs (Monsanto and DowDuPont) or public institutions and CGIAR centers. Hybrid maize features prominently in multinational company profiles. Funwe and Demeter Seed are the only companies offering OPVs.

2.9 Mozambique

Country focal point: Elsa Adelia Timana, Head of Seed Department, National Directorate of Agricultural and Silviculture

Leading seed companies in Mozambique

Company	Crops	Countries
Phoenix Seed	Field crops	Mozambique
DowDuPont (Pannar)	Field crops	Global
Klein Karoo Seed Marketing	Field crops	Regional
ORUWERA	Field crops	Mozambique
KCI	Field crops	Mozambique

Background

Agriculture employs 70% of Mozambique's population and contributes 24% of its GDP.[22] The average size of a smallholder farm is 1.2 hectares, which accounts for 90% of cultivated land used by over 3.9 million households.

While no seed laws or seed policies are currently implemented in Mozambique, the 12/2013 Seed Regulation Decree is the regulatory body governing seed activity registration and release of new varieties and is harmonized with SADC regulations. It defines rules for seed production, inspection and commercialization as well as seed quality control. It establishes the National Seed Committee (NSC) as an advisory committee to the Ministry of Agriculture, and the Subcommittee for Variety Registration and Release as the technical adviser committee for the NSC for registration of new varieties.[23]

The first Regulation of Plant Breeder Rights Decree 26/2008 was reviewed to align with UPOV guidelines and approved as Decree 26/2014 for Protection of New Plant Varieties. This regulation is not yet implemented. The main policy instruments guiding the seed sector are the Strategic Plan of Development of the Agricultural Sector (PEDSA), which operates through the Program for Strengthening of the Seed Chain (PFCS) and the Comprehensive Seed Regulation.[24]

The Instituto de Investigação Agrária de Moçambique (IIAM) is a government institution with the mandate to coordinate and conduct agricultural research within the country. IIAM, under the Directorate of Agronomy and Natural Resources, conducts local variety breeding.

Seed industry

In 2000, private companies began to formally operate in the country. Currently 54 seed companies, 24 dealing with seed production and 30 dealing with seed trade, are registered with NSA. According to a study conducted in 2011,[25] SEMOC and DowDuPont were producing more than 90% of the country's maize seed. DowDuPont was the only company producing hybrid seed, all of it under contract with MozFoods/MIA and several commercial seed growers. Based on seed production volumes, the top five companies are Phoenix Seed, Klein Karoo Seed Marketing, ORUWERA, Companhia de Zembe and Nzara Yapera. With respect to market share the top companies are DowDuPont, Phoenix, Klein Karoo Seed Marketing, Oruwera and KCI. DowDuPont and Syngenta (ChemChina) mainly focus on hybrid maize varieties.

Most local seed companies focus on the production of OPV maize and other grain seed crops. The seed companies interviewed for this report note that the proportion of OPV seeds produced, compared to hybrid, is 75% to 25%. According to surveys conducted in the country, Mozambique has the poorest hybrid maize coverage in the Southern African region, with less than 4% of land under maize being hybrid varieties (AGRA 2015). There are no private breeding programs in the country and no national seed companies with breeding capacity. Moreover, there is no vegetable seed production taking place in Mozambique. Vegetable seed is imported from international seed companies in South Africa, Europe and Asia.

2.10 Namibia

Country focal point: Magdalena Hangula, Chief Agricultural Scientific Officer, Directorate of Agricultural Research and Development, Ministry of Agriculture, Water and Forestry

Leading seed companies in Namibia

Company	Crops	Countries
Zamseed (Namseed)	Field crops, vegetables	Regional
Northern Namibia Farmers Seed Grower Cooperative (NNFSGC)	Field crops, local crops	Namibia
Katima Farmers Seed Producer Cooperative (KAFASEPCO)	Field crops (OPV maize)	Namibia
Likorerere	Field crops	Namibia

Background

Namibia is an arid country with a total land area of 824,268 km2. The country consists of poorly vegetated steppe-like areas, deserts, extensive savannah, woodlands and subtropical forests. Although agricultural potential is relatively low – in part due to low rainfall levels – the sector remains an important source of income for most Namibians.

Government seed cooperatives dominate production and distribution of seeds. Activities undertaken by the Ministry of Agriculture, Water and Forestry (MAWF) face challenges to meet the demand for seed. Namibia has experienced a seed shortage for the past six cropping seasons, which has affected more than 60% of the country's population.

The Subdivision of Crop Production and Management through the Section of Crop Quality Control carries out seed quality control and certification of all seeds produced at research stations, green schemes and seed growers' fields.

Seed cooperatives struggle to produce sufficient quantities of seed. Inadequate funds hinder production of adequate quality seed and the effective application of seed quality control mechanisms such as field and laboratory seed inspection and testing. The current available land is not adequate to produce the required quantity of seed, and climatic conditions remain a challenge to seed production.

Seed industry

Most private companies active in Namibia are only involved in field crops. Zamseed (registered as Namseed in Namibia) is the only company that sells imported vegetable seeds. The Northern Namibia Farmers Seed Grower Cooperative (NNFSGC) operates exclusively in Namibia and does not have research facilities. It offers capacity building for its members that is conducted by the MAWF. Another cooperative, KAFASEPCO, is similar to NNFSGC; it produces OPV maize and operates exclusively in Namibia. Likorerere is another prominent seed cooperative based exclusively in Namibia, and active only in the production and sale of field crop seeds.

There are companies that sell seeds for both cereals and vegetables but these companies do not produce seeds in Namibia. They import seed from neighboring countries like Zambia and South Africa for distribution in Namibia. Some farmers and the national Agribusiness Development Agency source their seeds from agro-dealers such as Aqua land in Windhoek, Agra in Windhoek and Grootfontein in South Africa. The Agribusiness Development Agency buys in bulk and distributes to government irrigation projects in the country. Farmers also source seed in retail shops in Namibia.

2.11 Rwanda

Country focal point: Gabriel Nkuliyimana, Coordinator of the Association for Development of Nyabimata (ADENYA), Chairman of the Seed Trade Association of Rwanda

Leading seed companies in Rwanda

Company	Crops	Countries
Kenya Seed Company	Field crops, vegetables	Kenya, Tanzania, Uganda
Seed Co (incl Prime Seed Co)	Field crops, vegetables	Regional
DowDuPont	Field crops, vegetables	Global
Tubura Seed	Field crops, vegetables	Kenya, Rwanda
Rijk Zwaan (Hollanda Green Tech)	Vegetables	Kenya

Background

Adoption of improved varieties is relatively low across Rwanda, with the informal seed sector dominating. A 2009 AGRA Baseline Study estimated that the adoption of improved varieties in Rwanda is 7-13%.[26] Adoption has likely increased since this study was conducted, but is deemed to be low across all crops in Rwanda, except for hybrid maize.

The Rwanda Agriculture Board (RAB) is responsible for producing breeder and pre-basic seed. For crops of main economic importance such as maize, beans, rice, wheat, the CIP (Crop Intensification Program) was introduced in 2007 aimed at mobilizing small farmers using improved inputs (seeds and fertilizers), access to capacity building programs, and, credits while embracing land consolidated schemes for commercial production purposes.

Though Rwanda depends on seed imports, the regulatory principles of UPOV and Breeder's Rights are quite new in Rwanda and were only recently introduced under newly introduced seed regulations. Intellectual property in Rwanda is governed by intellectual property protection law.[27]

The Ministry of Agriculture and Animal Resources has officially launched the National Seed Association of Rwanda (NSAR), bringing together seed traders, seed multipliers, agro-dealers and institutions that develop plant varieties and avail quality seed to farmers.

Seed industry

Forestry Agricultural Investment Management for Africa (FAIM Africa) is the first and only private company operating a commercial tissue culture lab and modern plant propagation facility in Rwanda. It focuses mainly on disease-free banana, passion fruits, pyrethrum, and bamboo plants.

For grains, cereals and pulses, leading seed companies in Rwanda are Kenya Seed Company, Seed Co, DowDuPont and Tubura Seed. Agriseeds is a local company, notable for leading in early generation potato seeds. Kenya Seed Company is a parastatal that researches, develops and markets field crops, such as hybrid maize, and has the biggest share of wheat and vegetable seeds on the market. Seed Co imports seeds to Rwanda, relying on public bids for the supply of improved hybrid maize seeds.

Tubura Seed is a private venture funded by the One Acre Fund Africa, an international NGO, that works directly with smallholder farmers to help them improve financial returns generated in their farming operations. Tubura's core program, which is focused on helping individual farmers, includes variety evaluations for the crops it has targeted (currently hybrid maize, common bean, potato, and vegetables) to identify appropriate varieties, training farmers in good farming practices, purchasing seed of the selected varieties, and providing credit to farmers to purchase seed and fertilizer.

2.12 Somalia

Country focal point: Mohamed Bube, Operations Manager, Darusalam Seed Co

Leading seed companies in Somalia

Company	Crops	Countries
Barwaaqo General Trading Co.	Vegetables	Somalia
Darusalam Seed Co	Field crops, vegetables	Somalia
Filsan Somalia	Field crops, vegetables	Somalia
Ikow Agrovit	Vegetables	Somalia
Ikow Agritrade	Vegetables	Somalia

Background

Somalia has been plagued with civil unrest since 1991. This has led to the breakdown of various productive sectors such as agriculture. Seed systems that were established by the government have been severely hit by the unrest as well as the subsequent droughts in the larger Horn of Africa region. Relief agencies and development organizations are committing resources to reactivate the agriculture sector; part of these efforts are directed towards reviving seed systems.

The country has no seed policy, law or regulations, nor are seed imports subjected to any inspections for quality and phytosanitary checks.

Somali seed systems are predominantly informal, whereby farmers use farm-saved seeds for most of their field and local crops. The main field crops are maize, sorghum, cowpea and rice. There are different local varieties and landraces of maize, sorghum and cowpea in different parts of the country with unique adaptation to drought. Rice varieties grown in river basins of Shabelle and Juba in southern Somalia were obtained from international research organizations during the pre-war period. They have been maintained by farmers through on-farm seed regeneration.

Seed industry

Besides farm-saved seed, Somali farmers source their seeds from traders, relief agencies and relatives. The prevailing insecurity and socio-economic situation has discouraged private sector investment in the seed industry. The five seed companies that emerged account for a very small amount of seed (below 1%) being used by farmers in crop production. Most of these companies import vegetable seeds from the East African region and the Middle East. The main vegetable crops being imported by the seed companies include tomato, onion, spinach, pepper and cabbage. The main seed companies are Darusalam Seed Co, Barwaaqo, Ikow Agrovit, FILSAN Company and Ikow Agritrade Company. Their main clients are smallholders from rain-fed and irrigated agriculture.

Darusalam Seed Co is the biggest local company dealing with seeds and other farm inputs, and the only company doing local seed production of field crops; alongside FILSAN and Ikow Agritrade, it provides trainings to farmers.

2.13 South Africa

Profile compiled by: Claid Mujaju, Head of Seed Services Institute Zimbabwe, with help from Joseph Ahenda, FAO Policy and Technical Advisor for the Eastern African region

Leading seed companies in South Africa

Company	Crops	Countries
DowDuPont (Pannar)	Field crops	Global
Monsanto	Field crops	Global
Klein Karoo Seed Marketing	Field crops	Regional
Capstone Seeds	Field crops	Regional
Starke Ayres	Vegetables	Regional
Hygrotech	Vegetables	Regional

Background

South Africa's agriculture sector is comprised of well-developed commercial farmers on the one end and small-scale farmers on the other. Agriculture contributes to a relative small share of national GDP, around 2% in 2015.[28]

The seed industry in South Africa is regulated under the 1976 Plant Improvement Act[29] to ensure orderly trade in seed. The South African National Seed Organisation (SANSOR) is the designated body to administer seed certification schemes on behalf of the Ministry of Agriculture, Forestry and Fisheries.

Political transformation in South Africa since 1990 resulted in the deregulation of agricultural marketing. The 1997 Plant Improvement Act makes provisions for the registration of premises from which the sale, cleaning and packing of seed may be undertaken, and to prescribe the conditions subject to which seed may be sold. However, participation in seed certification is voluntary. The basic objective of seed certification is to make seed of superior quality available and guarantee the quality by means of a certificate, seal and label, with an emphasis on genetic quality i.e. varietal true-to-type, with high requirements of germination and physical purity. The 1997 Plant Improvement Act has since been updated by the 2015 Plant Improvement Draft Bill (8B).

Seed testing started in South Africa in the late 1940s, with the Official Seed Testing Station (OSTS) based at Roodeplaat. The OSTS aims to ensure the physical and physiological quality of seed. Furthermore, it is involved in the development of policy and guidelines for the physical and physiological quality of seed and to control, investigate and maintain seed quality. A system was also introduced whereby private and company seed testing laboratories can register and conduct tests, such as for certification purposes, and advertise their testing services at a cost.

Seed industry

The seed industry has evolved over more than a century into a relatively mature sector with 107 seed companies that are members of the SANSOR.[30] The industry has evolved to meet the needs of large-scale commercial farming taking precedence over smallholder activities, while access to improved seed is still a challenge in some areas in the country.[31]

As a sign of industry maturity, there is significant specialization by seed crop, with international companies interested in major food crops. The main field crop seed companies include DowDuPont (including Pannar), Monsanto, Klein Karoo Seed Marketing, Capstone Seeds and Advance Seed.

Monsanto and DowDuPont account for nearly 85% of the maize, soybean, sunflower and wheat industry where small companies only account for 2-15% across all major crops. There are also many vegetable seed companies in South Africa, which export their products into the region. South African company Starke Ayres has a strong presence in the country and is the leading brand in the SADC region, with its own breeding program. It has the only ISTA accredited privately owned laboratory in Africa. The main vegetable companies in South Africa apart from Starke Ayres include Syngenta (ChemChina), Hygrotech, Klein Karoo Seed Marketing and Sakata.

2.14 South Sudan

Country focal point: Cirino Oketayot, Executive Director of Research, Ministry of Agriculture and Food Security

Leading seed companies in South Sudan

Company	Crops	Countries
South Farmers	Field crops	South Sudan
Century Seeds Co	Field crops	South Sudan
GIAS	Field crops	South Sudan
Magwi Seeds Company (MASCO)	Field crops	South Sudan
Seed Grow	Field crops	South Sudan

Background

The Ministry of Agriculture and Food Security (MAFS) was established in 2010 after South Sudan gained independence, with support from regional and international organizations as well as donors. Instability had rendered most of the existing seed companies ineffective, many having temporarily relocated to Uganda. Given this, the country largely depends on food imports despite fertile lands and an array of agro-ecological zones where various types of crops can be grown. The Seed Trade Association is in its infancy, being mentored by the Alliance for Green Revolution in Africa (AGRA).

The seed sector falls under the Research and Plant Protection Directorates of the Ministry, which suffers from limited funding. NGOs and FAO take lead of the seed sector with an emphasis on community based production of quality declared seeds as dictated by funding cycles. Seed production, in collaboration with MAFS, is geared towards topping up imported seeds and food items from neighbouring countries for distribution.

MAFS has seed regulations in place based on the Harmonized East African Seeds Standards and Regulation (HESSREP), which is an active member of Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). It also has a Seeds Act which is still before the parliament and is guided by the COMESA harmonized seeds policy.

Through AGRA, the Research Department of the Ministry increased local capacity for breeding varieties for maize, sorghum, rice, beans, cowpeas, groundnuts, sesame and cassava. Breeding programs focus on developing disease resistant, drought tolerant and high yielding varieties. Nevertheless, the commercial seed companies acquire most parent seeds from the national and international research stations. Vegetable seeds are not being produced in South Sudan on a commercial basis except for local crops such as okra. AGRA-supported seed companies are emerging in South Sudan, with additional funding from USAID, the Howard Buffet Foundation and the Dutch government.

Seed industry

Multinational seed companies have very limited activities in South Sudan. Some companies distribute seeds in the country, mainly from neighboring countries, such as FICA Seeds, NASECO (Uganda) and Kenya Seed Company.

All the main seed companies featured in this study are privately owned and local: South Farmers, Century Seeds Co, GIAS, Magwi Seeds Company Ltd (MASCO) and Seed Grow. These seed companies produce part of their seed portfolio on their own farms or rented land, with a significant proportion being produced by out-growers. These companies also offer extension services, and process their seeds manually with support from NGOs. Out of the 15 seed companies that won contracts to supply FAO with seeds in 2016, only two from South Sudan qualified: Century Seeds Co and South Farmers. Only South Farmers undertakes research, validating new varieties for commercialization in South Sudan.

2.15 Swaziland

Country focal point: Abraham Dlamini, Principal Research Officer, Ministry of Agriculture

Leading seed companies in Swaziland

Company	Crops	Countries
Seed Co (incl Prime Seed Co)	Field crops, vegetables	Regional
DowDuPont (Pannar)	Field crops	Global
Lake Agriculture	Field crops	South Africa, Swaziland
Tshala Seed Enterprise	Field crops	Swaziland
Capstone Seeds	Field crops	South Africa, Swaziland

Background

Swaziland's land tenure system is divided into two categories: land that is owned by private commercial farmers that export cash crops abroad and land that is owned by smallholder farmers.

The government of Swaziland introduced the National Maize Cooperation (NMC), a market where farmers sell their maize. This market is located strategically throughout the whole country, reducing the burden on farmers in selling. The government also created a seed processing plant called the Seed Multiplication Project (SMP) and contracted commercial farmers to produce seed on behalf of the government. SMP activities were outsourced to Etsala Seed Company, which is no longer functional.

Seeds are imported from seed companies in the region. The SMP recently became operational and repackages seed that comes in bulk from other countries. SMP also delivers farming inputs to retailers in all parts of the country, which makes it easier for smallholder farmers to access farming inputs locally.

To discourage an influx of fake seed, the government introduced the Seeds and Plant Varieties Act of 2000. If there is a seed company that wishes to produce its seed in the country (a variety that is on the variety list), it registers with the Registrar of Seeds and is monitored by the Seed Quality Control services from pre-planting up to packaging.

Seed industry

After privatization of the seed sector, the following companies began to operate in Swaziland: Seed Co, DowDuPont, Monsanto, Capstone Seeds, Umlimi Lokhonile Seeds, Tshala Seed Enterprise, Smiling through Investments, Lake Agriculture and Mbhazane Seed growers. These companies are mostly specialized in field crop seed production, especially maize and beans, except for Smiling through Investments and Mbhazane Seed growers who are solely active in bean seed production.

Out of ten registered companies, Seed Co, DowDuPont, Lake Agriculture, Tshala Seed Enterprise and Capstone Seeds are leading. These seed companies, except for Tshala Seed Enterprise, produce and pack their seed in other countries and import them to Swaziland. For example, DowDuPont produces and packs its seed in South Africa, and then ships the seed to Swaziland. It also has a breeding program in South Africa. Tshala Seed Enterprise produces and sells OPV maize and beans within Swaziland but does not have its own breeding program, using public varieties that have been released by the variety release committee sourced from the CGIAR centers.

2.16 Tanzania

Country focal point: Patrick Ngwediagi, Director General, Tanzania Official Seed Certification Institute (TOSCI)

Leading seed companies in Tanzania

Company	Crops	Countries
Seed Co (incl Prime Seed Co)	Field crops, vegetables	Regional
Monsanto	Field crops	Global
Beula Seed Company and Consultant	Field crops, vegetables	Tanzania
IFFA Seed Company	Field crops, vegetables	Tanzania
East African Seed	Field crops, local crops, vegetables	Tanzania
East-West Seed	Vegetables	Global
Pop Vriend Seeds	Vegetables	Regional

Background

Agriculture employs 75% of the total Tanzanian labour force and contributes 24% of its GDP.[32] Crop production dominates the agricultural sector: an estimated 23 million hectares of food crops are cultivated annually.

Seed production, processing and marketing is undertaken by both the private and public sector. The Tanzania Official Seed Certification Institute (TOSCI) is a semi-autonomous government under the Ministry of Agriculture, Livestock and Fisheries (MALF) established in 2003 by the Seed Act No. 18. TOSCI is responsible for the certification and promotion of quality agricultural seeds produced or imported into the country for sale.

The first national seed initiative was created with assistance from the United States Agency for International Development (USAID) and ran between 1970-1982. This program focused on the establishment of key institutions for seed supply production and quality control, from breeding to seed certification. The program established seed testing laboratories, foundation seed farms, training of officers in various seed areas including seed technology and enactment of the first seed law (Seeds Act of 1973).

The government of Tanzania established the Tanzania Seed Company (TANSEED) to operationalize the law, which dealt with certified seed production, processing, marketing and distribution of seeds. TANSEED subsequently closed due to competition pressure when the government liberalized trade in the late 1980s. As a result, the Seeds Act of 1973 was replaced by Seeds Act No. 18 of 2003. Thereafter the country joined both the International Seed Testing Association (ISTA) for seed testing procedures and the Organization for Economic Cooperation and Development (OECD) seed scheme for facilitating international seed trade.

In addition, the 1997 Plant Protection Act and the 2002 Protection of New Plant Varieties (Plant Breeders' Rights) Act and its 2008 Regulations came into effect. In 2012 Tanzania enacted a new Plant Breeders' Rights Act in line with the UPOV Convention of 1991.

Seed industry

Currently there are more than 100 private seed companies operating in Tanzania, with many companies involved in variety development, seed production, processing, marketing, export and import of seeds.

The five leading seed companies in order of volume are Seed Co, Monsanto, Beula Seed Co, IFFA Seed Co, and East African Seed. All have activities in maize seed. Most small grains, particularly sorghums and legumes, provide niche markets for smaller to medium sized companies, such as Beula Seed Co, IFFA Seed Co and East African Seed. Most companies focus on hybrid field crops. However, for vegetable and horticultural crops, some companies trade significant quantities of OPV. Worth mentioning are Pop Vriend Seeds and East-West Seed with seed production and testing facilities in Tanzania from which they serve the region.

For most field crops, seed companies derive most of their parent material for research from various sources, such as their own breeding programs (Monsanto, IFFA Seed Co), or CGIAR, AATF and CIMMYT centers. Companies' seed distribution systems are mainly set up through regionally based distributors and/or regional seed company depots, agro-dealers and retailers (rural stockists and wholesalers) across the country. Other services that reach smallholder farmers include subsidized government distribution programs, direct sale to farmers and farmer groups, NGOs and relief programs.

Generally, all seed companies, whether specializing in field and/or vegetable crops, offer some form of extension service and training to farmers. Production of seed by seed companies is mostly done through contracted large scale farmers. Only local seed companies and ASA involve smallholder farmers in the production of seeds for crops like groundnuts, cowpeas and OPV maize.

2.17. Uganda

Country focal point: Emmanuel Mubangizi, independent seed specialist and seed company consultant

Leading seed companies in Uganda

Company	Crops	Countries
NASECO	Field crops	Regional
FICA Seeds	Field crops	Tanzania, Uganda, Kenya, South Sudan
Equator Seed Co	Field crops	Uganda
Pearl Seeds	Field crops	Uganda
Victoria Seeds	Field crops, local crops, vegetables	Uganda, Kenya

Background

In the mid-1990s, following government liberalization, the Ugandan private seed industry began to form. Local seed companies started to access breeder and basic seed from public research institutes, in addition to importing vegetable and pasture seed.

The Ugandan government is responsible for developing research capacity while the private sector carries out seed production, seed conditioning and marketing. The government also leads in ensuring an enabling environment and oversight of regulations. The National Agricultural System Act (2005), Seeds and Plant Act (2006) and Plant Variety Protection Act (2014) are in place and operational. The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), through the Directorate of Crop Production, is the official focal point mandated to regulate the seed industry, with the National Seed Certification Services responsible for seed certification.

The Seeds and Plant Act is the principle legislation for the seed industry, with the government regulating official release of new varieties, licensing and oversight of seed merchant activities, especially regulating import/export of seed, quality assurance in seed production, seed conditioning and local seed trade and overall regulatory framework implementation.

Uganda abides by OECD field standards, but its national laboratory still awaits accreditation by the International Seed Testing Association (ISTA). However, one private laboratory, Chemiphar, is accredited by ISTA. Private seed companies have formed a corporate company, AgCertify, to complement the official certification unit. COMESA is currently translated to regional seed regulations governing Eastern Africa.

The Plant Variety Protection Act (2014) was enacted to protect, incentivize and reward breeder innovations while establishing a registrar of varieties, although implementation is still in process. The Seed Policy (2014) is yet to be implemented, but recognizes two dominant seed systems in Uganda – formal and informal.

Seed industry

In part due to a lack of international accreditation (particularly ISTA), multinational seed company presence in Uganda is limited. Local seed companies have basic and certified seed production activities on-farm or with seed growers. Major seed selling outlets are facilitated by the government, agro-dealer distribution networks and NGOs operating in the region.

The leading seed companies in Uganda in field crop seeds (in order of volume marketed) are NASECO, Equator Seed Co, FICA Seeds, Victoria Seeds and Pearl Seeds. Of these companies, only Victoria Seeds has vegetables and local crops in its portfolio. NASECO, FICA Seeds and Victoria Seeds have their own breeding programs. The others, not having their own program, access breeder and basic seeds from Uganda's only public research institute, National Agricultural Research Organization (NARO). The five field crop companies all employ seed production in Uganda, at their own sites or by engaging with outgrowers, including smallholder farmers. Distribution is mainly done through agro dealers, agents and distributors. Victoria Seeds makes use of tuk tuks to reach remote areas. Capacity building activities are provided in different forms throughout the country.

2.18. Zambia

Country focal point: Bruce Chulu Simbunji, Acting Chief Seeds Officer, Head of Seed Testing, Seed Control and Certification Institute (SCCI)

Leading seed companies in Zambia

Company	Crops	Countries
Seed Co (incl Prime Seed Co)	Field crops, vegetables	Regional
Zamseed	Field crops	DRC, Tanzania, Mozambique, Zimbabwe, Zambia
DowDuPont	Field crops	Global
Syngenta (ChemChina)	Field crops	Global
Monsanto	Field crops	Global
AfriSeed	Local crops	Uganda
Kamano	Field crops	Uganda
Klein Karoo Seed Marketing	Field crops	Uganda

Background

Agriculture employs 70% of the rural population in Zambia and generates approximately 10% of its GDP. The sector absorbs 67% of the labour force, representing the country's main source of income.

From independence in 1964 until early 1990, the agriculture sector was state controlled through input subsidies to support maize production, with no private sector involvement. The Zambian government, through the Soils and Crops Research Branch (SCRB) under the Department of Research and Specialist Services, was responsible for genetic resource management and crop varietal research. Zambia Seed Company (Zamseed) was established in 1980 with assistance from the Swedish International Development Authority (SIDA), and is the only government parastatal in the country involved in seed production, processing, and marketing of varieties developed by public research. The company held exclusive rights on all products resulting from government-funded breeding.[33]

Prior to liberalization, the government played a controlling role in the entire chain from breeding to seed production and marketing, as well as quality control and certification. The government remains in full control of seed certification, phytosanitary review, research and plant breeding. The current legal regime governing seeds in Zambia includes the following acts and their regulations: the Plant Varieties and Seeds Act (Cap 236 of the Laws of Zambia); the Plant Pests and Diseases Act (Cap 231 of the Laws of Zambia); and the Plant Breeders' Rights Act (No. 18 of 2007).

The Seed Control and Certification Institute (SCCI), a government department under the Ministry of Agriculture, is Zambia's seed certification authority and provides the country with additional seed-related services. Another key player in the seed sector is the Zambia Seed Trade Association (ZASTA). ZASTA is a national seed association with membership from individuals, seed associations, firms and companies.

Seed industry

Most of the seed traded in Zambia is produced and marketed by the formal seed sector. Farmer-to-farmer and local diffusion mechanisms are, however, the main distribution channels through which farmers get their seed.

For seed companies in the formal sector, the most important crop is maize, which accounts for over 80% of turnover by volume. Leading companies include, in order of volume for field crop seed, Seed Co, Zamseed, DowDuPont, Syngenta (ChemChina) and Monsanto. Zamseed, which is now a private seed company, has the widest range of seed crops on the market.[34] Aside from Monsanto and DowDuPont, all seed companies work in collaboration with research institutions in breeding efforts. Zamseed is the only leading company involved in vegetable seed production in the country in the 2016/2017 season. Seed production for major seed companies is done through contracted commercial seed growers, and in some cases some seed companies do seed production on their research farms. Kamano, Afriseed, Zamseed and Klein Karoo Seed Marketing (the latter in which 25% of seed is produced by smallholder farmers) have involved smallholder farmers in seed production. Four seed companies have their own seed testing laboratories; Monsanto, Seed Co, Zamseed and DowDuPont, who are licensed by SCCI to conduct seed testing of various crops for seed destined for the local market. Multinational seed companies have no OPV seed production while local seed companies produce local seeds. The proportion of OPV to hybrid seed production ranges from 75-100%.

2.19 Zimbabwe

Country focal point: Edmore Mtetwa, Seed Technologist, Zimbabwe Seed Services Institute

Leading seed companies in Zimbabwe

Company	Crops	Countries
Seed Co (incl. Prime Seed Co)	Field crops, vegetables	Regional
DowDuPont	Field crops	Global
Klein Karoo Seed Marketing	Field crops, vegetables	Regional
Agri Seeds	Field crops	Zimbabwe
Starke Ayres	Vegetables	Regional
East-West Seed	Vegetables	Global

Background

The economy of Zimbabwe has suffered from a decade-long recession that resulted in a sharp drop in agricultural production, falling incomes and increasing food shortages. With some 70% of people relying on agriculture for their livelihoods, the strength of this sector is key to economic recovery.[35]

Variety registration, seed production and marketing activities are regulated by the Seed Services Institute (SSI) which is under the Ministry of Agriculture. Complimenting SSI is an association of seed companies known as the Zimbabwe Seed Trade Association (ZSTA) that also coordinates seed industry activities, sales and marketing. In addition, ZSTA plays an advocacy role and represents members at various forums.

Although most of the seed companies have their own in-house seed inspectors, the government has seed inspectors to oversee the certification process of all seeds that are under compulsory certification. The certification process is carried out based on the Seeds Act of 1971, Chapter 19:13, Seed Regulations and Seed Certification Scheme (Notice 2000). The Scheme and Seed Regulations, among others, stipulate minimum field and laboratory quality standards respectively.

Laboratory seed testing is done by the SSI, which also issues local seed certificates as well as the Orange International Certificate (OIC) for seed intended for export. However, some of the companies have their own laboratories and produce internal seed certificates for domestic sales only. Such laboratories are monitored and audited by SSI to ensure that standards are met through their participation in three proficiency test programs annually and a physical laboratory audit done annually for accreditation purpose.

Through SSI and ZSTA, the Zimbabwe seed industry participates in various regional and international associations and technical bodies such as the African Seed Trade Association (AFSTA), ISTA, COMESA, UPOV, ARIPO and OECD.

Seed industry

There are currently 45 seed companies registered in Zimbabwe. Most of the seed companies have partnership arrangements, providing them with the ability to access, screen and register varieties from public breeding institutions (such as CIMMYT). The five leading seed companies in Zimbabwe are predominantly involved in the production of maize seed – these are, in the order of seed volume production, Seed Co, DowDuPont (Pannar), Klein Karoo Seed Marketing, AGRI Seeds and Arda Seeds. Seed Co is the only company listed on the Zimbabwe Stock Exchange.

Generally, all the companies promote hybrid seed in all agro-ecological regions of the country for all the farming systems (small-scale, large-scale, irrigation, rain-fed). Seed production is mostly done through contract farming arrangements between seed companies and individual growers. Due to financial constraints, most contracted seed growers are given inputs in advance by contractors to ensure successful seed production. All seed crops contracted by seed companies are registered by SSI for purposes of certification. Across seed companies involved in field crops, generally the bigger to medium companies like Seed Co, DowDuPont, Klein Karoo Seed Marketing and Agri Seeds concentrate more on their own breeding programs, even though they supplement with breeding material obtained from public institutions, international research centers and partner organizations. Arda Seeds collaborates with the Crop Breeding Institution, which is a National Agricultural Research Center (NAR) for its crop varieties through contractual arrangements.

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