

Burkina Faso Country Report 2022

The African Seed Access Index

By
Edward Mabaya, Abdalla Dao,
Edgar Valentin Traore, Michael Waithaka, Mainza
Mugoya, Brian Damba, M'Balou Camara, Krisztina Tihanyi



TASAI
The African Seed Access Index

Burkina Faso Country Report

The African Seed Access Index

By

Edward Mabaya

Abdalla Dao

Valentin S. Edgar Traore

Mainza Mugoya

Brian Damba

M'Balou Camara

Krisztina Tihanyi

Reviewed by

Koussao Some

April 2023

The findings in this report were presented to seed sector stakeholders in a TASAI dissemination meeting held in Ouagadougou, Burkina Faso on January 25, 2023. The current version incorporates feedback from the meeting.

Cite as: Mabaya, E., Dao, A., Traore, V. S. E., Waithaka, M., Mugoya, M., Damba, B., Camara, M., Tihanyi, K. 2022. Burkina Faso Country Report 2022 - The African Seed Access Index (version April 2023).



CONTENTS

INTRODUCTION	1
RESEARCH AND DEVELOPMENT.....	5
INDUSTRY COMPETITIVENESS	11
SEED POLICY AND REGULATIONS	16
INSTITUTIONAL SUPPORT	22
SERVICE TO SMALLHOLDER FARMERS	25
CONCLUSION	29
REFERENCES.....	30



LIST OF ACRONYMS

ANES-BF	<i>Association National des Entreprises Semencières au Burkina Faso/ National Seed Companies Association in Burkina Faso</i>
CGIAR	Consultative Group on International Agricultural Research
CNS	<i>Comité National de Semences / National Seed Committee</i>
DGPV	<i>Direction Générale de la Production Végétale/ General Directorate of Plant Production</i>
DRREA	<i>Directions Régionales de Recherches Environnementales et Agricoles/ Regional Directorates of Environmental and Agricultural Research</i>
DUS	Distinctness, Uniformity and Stability
ECOWAS	Economic Community of West African States
INERA	<i>Institut de l'Environnement et de Recherches Agricoles/ Institute of Environment and Agricultural Research</i>
ISTA	International Seed Testing Association
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)
MAAH	<i>Ministère de l'Agriculture et des Aménagements Hydro-agricoles/ Ministry of Agriculture and Hydro-agricultural Developments</i>
MESRI	<i>Ministère de l'Enseignement Supérieur, de la Recherche et de l'Innovation/ Ministry of Higher Education, Research and Innovation</i>
MINEFID	<i>Ministre de l'Economie, des Finances et du Développement/ Ministry of Economy, Finance and Development</i>
MICIA	<i>Ministère du Commerce, de l'Industrie et de l'Artisanat/ Ministry of Commerce, Industry and Handicrafts</i>
OECD	Organization for Economic Co-operation and Development
SCHV	Sous-Comité d'Homologation des Variétés agricoles
SNS	Service National des Semences/ National Seed Service
UNPS-B	<i>Union National des Producteurs Semenciers du Burkina/ National Seed Producers in Burkina Faso</i>
VCU	Value for Cultivation and Use



INTRODUCTION

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

This report summarizes the key findings of the study conducted by TASAI in 2022 to appraise the structure and economic performance of Burkina Faso's formal seed sector. For Burkina Faso two similar studies were conducted in 2018 and 2020. TASAI studies focus on the four grain and legume crops important to a country's food and nutritional security (the "four focus crops"). In Burkina Faso, these crops are maize, rice, sorghum, and cowpea.

Agricultural production in Burkina Faso is dominated by cereals (sorghum, millet, maize and rice), which are the country's main food crops. Cereals cover more than 4 million hectares, that is, three-quarters of the area cultivated in Burkina Faso. According to the Ministère de l'Agriculture et des Aménagements Hydrauliques (MAAH), cereal production for the 2019-2020 season was estimated at 5,029,321 MT (MAAH 2020). Although this was a 3% reduction compared to the volume produced in 2018-2019, it was 12% over the average of the last five years. For the 2020-2021 crop year, cereal production has been estimated at 5,179,000 MT. For the 2019-2020 crop year, as in most previous years, cereal production was dominated by millet and sorghum, followed by maize, and rice, which accounted for 44%, 31%, 21%, and 4% of total production, respectively (MAAH 2020).

Ninety percent of sorghum is produced for local consumption and is grown in the cotton zones, where it benefits from the inputs (fertilizer) allocated to cotton farmers (Laudien et al. 2022). Like sorghum, 85% of maize is also produced for domestic consumption. Rice is a crop of increasing importance to consumers and farmers. Rice is grown mainly in lowlands and in a few regions where it is irrigated or rainfed. National rice production is insufficient and covers only 47% of the population's consumption needs.

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

In addition to these three cereals, cowpea occupies an important place in the diet of Burkina Faso. It has a high protein content and it also fixes nitrogen in the soil, thereby requiring minimal fertilizer. It has a high demand in both domestic and export markets. With more than 1,376,000 cultivated hectares producing approximately 666,000 MT of cowpea in 2020, Burkina Faso is the third-largest producer of cowpea in Africa, after Niger and Nigeria (FAOSTAT 2021).

OVERVIEW OF BURKINA FASO'S FORMAL SEED INDUSTRY

Like most other African countries, Burkina Faso's seed industry consists of two systems: the informal and formal systems. This Country Report focuses almost exclusively on the formal seed system.

The informal system refers to a system in which seed is produced, maintained, and distributed through informal networks. These activities "tend to be decentralized and might revolve around local entrepreneurship, seed banking, community-based seed production, or seed villages" (McGuire & Sperling 2016). In many cases, farmers keep seed from the harvest and exchange it with neighbors, relatives, and through rural markets. Seed from this system is of variable varietal purity, physical and sanitary quality.² In Burkina Faso, about 85% of the smallholder farmers still rely on the informal seed sector for seed for most crops (Sanou et al., 2017).

2 See seed system definitions at <https://www.agrilinks.org/post/seed-system-definitions>





The formal system is a structured and regulated value chain for the production of improved seed varieties. This process involves many actors and institutions, whose activities range from breeding varieties to the multiplication, processing, and distribution of certified seed. The different stages of improved seed production are regulated by governments based on approved regulations and standards. The sale of seed from this system is conducted through limited distribution channels such as registered seed growers/companies and agro-dealers. According to MAAH, the percentage of farmers utilizing improved seed for the four crops is 20% for maize, 15% for rice, 6% for white sorghum, 3% for red sorghum, and 13% for cowpea (MAAH 2020).

The formal seed system is governed by Law N° 010-2006/AN of March 31, 2006, on the regulation of plant seeds in Burkina Faso (L'Assemblée Nationale 2006), and following the provisions of Decree N°2006-225/PRES of May 19, 2006. The breeding and/or selection of varieties is carried out by the *Institut de l'Environnement et de Recherches Agricoles* (INERA). Variety development takes a minimum of 5 to 7 years. After the breeding stage, the variety is tested to meet the conditions for variety release stipulated by the International Union for the Protection of New Varieties of Plants (UPOV). After this stage, the variety is officially registered in the National Catalogue of Plant Species and Varieties.

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

ROLE	KEY PLAYERS
Research and breeding	Institute of Environment and Agricultural Research (INERA); Universities
Variety release and regulation	Institute of Environment and Agricultural Research (INERA); Comité National de Semences (CNS); Service National des Semences (SNS)
Seed production and processing	INERA; Association National des Entreprises Semencières au Burkina Faso (ANES-BF); Union National des Producteurs Semenciers du Burkina (UNPS-B); Seed producers
Education, training, and extension	INERA; Universities; Ministère de l'Agriculture et des Aménagements Hydro-agricoles (MAAH), NGOs
Distribution and sales	INERA; ANES-BF; UNPS-B; Agro-dealers



METHODS

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

Table 2: TASAI Indicators

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

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



To show progress, the Country Report draws comparisons with the findings of the 2020 and 2018 TASAI Burkina Faso studies (with performance data primarily from 2019 and 2017, respectively). In addition, since TASAI has conducted similar studies in 20 other African countries, this report also draws relevant cross-country comparisons. More detailed temporal (across the 2 previous studies) and cross-sectional (across other African countries) comparisons are now available through an online dashboard available at <https://dashboard.tasai.org>.

Using TASAI survey tools, data collection focused on three key seed industry players: seed producers³, plant breeders, and representatives of government entities active in the country's seed sector. Of these, seed producers were this study's primary source of information. For several indicators, TASAI supplemented quantitative data with self-reported average levels of industry satisfaction on a 0-100 scale, with the following brackets: 0-19.99% **extremely poor**, 20-39.99% **poor**, 40-59.99% **fair**, 60-79.99% **good**, and 80-100% **excellent**.

In 2022, Burkina Faso had a total of 2,659 registered seed producers, which included 22 seed companies. The TASAI study targeted registered companies or importers that produced and/or sold one or more of the four focus crops - maize, rice, sorghum and cowpea in 2021. A total of 38 seed producers (22 seed companies, 13 regional unions, and 3 seed cooperatives) met the selection criteria. In total, 34 seed producers were interviewed as part of the study and the remaining 4 seed producers did not respond to the participation request. Of those that were interviewed, 12 were regional unions, 2 were seed cooperatives and 20 were seed companies: 7 of the 20 seed companies were members of the *Association Nationale des Entreprises Semencières au Burkina Faso* (ANES-BF), 8 were also members of the *Union National des Producteurs Semenciers du Burkina* (UNPS-B) and 5 were not members of either organization. All 12 regional unions were members of the UNPS-B.

Further, interviews were conducted with breeders at the *Institut de l'Environnement et de Recherches Agricoles* (INERA), the *Ministère de l'Agriculture et des Aménagements Hydro-agricoles*, the *Service National des Semences* (SNS), extension agents, and the two main umbrella organizations of the private seed industry in Burkina Faso, the UNPS-B and ANES-BF.

.....
³ For purposes of this study, "seed producer" refers to seed companies, co-operatives and individual producers. A distinction is made for each category when applicable.



RESEARCH AND DEVELOPMENT

NUMBER OF ACTIVE BREEDERS

A functioning seed system needs vibrant public and private breeding programs to develop improved varieties that respond to farmer and consumer needs. The number of active breeders is indicative of the level of investment in research and development⁴. In addition to tracking the number of breeders working on the four focus crops, the study also measured the level of satisfaction reported by seed companies/producers with the public breeding programs. The latter reflects the ability of active breeders in public institutions to produce new varieties.

In 2021, there were 16 active breeders for the four crops in Burkina Faso: 3 for maize, 4 for rice, 4 for sorghum, and 7 for cowpea (Table 3). Of the 4 sorghum breeders, one was also working on maize and one of the 4 rice breeders was also working on sorghum. Of the 16 breeders, 4 were women - 2 sorghum breeders and 2 cowpea breeders. The number of breeders in 2021 had increased from 9 in 2017 and 14 in 2019. However, it should be noted that the increase in maize and rice breeders since 2017 is not from hiring of additional breeders, but due to the fact that several breeders work on two crops at the same time.

⁴ TASAI studies define an "active breeder" as a breeder who is currently engaged in breeding/maintaining a variety or a breeder who had either developed and released at least one variety or was developing a variety of the crop of interest at the time of the TASAI study.

Since 2008, Burkina Faso has received support through a regional plant breeding training program supported by AGRA. Nine out of the 16 active breeders in the country are graduates of the University of Ghana-Legon at the West African Center for Crop Improvement (WACCI), an AGRA-supported initiative.

Interviews with the breeders revealed that their main challenge is insufficient or no funding for variety development from the government. The government mainly provides funds for salaries and basic infrastructure, and the breeders noted that the infrastructure is obsolete. Almost all funding for variety development comes from competitive funds offered by external donors and partners such as AGRA, the Gesellschaft für Internationale Zusammenarbeit (GIZ) and the International Atomic Energy Agency (IAEA). These competitive funds have covered the cost of building greenhouses, drilling boreholes, installing irrigation systems, and building cold rooms for the conservation of early generation seed.

Seed producers reported high levels of satisfaction with the number and adequacy of active breeders (Table 3). In 2021, satisfaction was excellent for maize (85%) and rice (82%) and good for cowpea (78%) and sorghum (69%). This high satisfaction has been reported consistently since 2017.

Table 3: Number and adequacy of active breeders in Burkina Faso

Crop	Total number of INERA breeders			Satisfaction with breeders (out of 100%)		
	2017	2019	2021	2017	2019	2021
 Maize	2	2	3	80	70	85
 Rice	3	3	4	60	80	82
 Sorghum	2	4	4	80	80	69
 Cowpea	2	6	7	80	80	78
Total	9	14	16			

extremely poor poor fair good excellent

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

The number of varieties released is a good measure of the functioning of the variety development and release system. The greater the number of varieties released in a country, the higher the chances of enhancing smallholders' access to improved seed. In addition to higher yields, new varieties often carry desired traits such as climate smartness, disease/pest resistance, and nutrition-enhancements. Importantly, the release of varieties also needs to be supported by the commercialization and bulking of early generation seed before the varieties can become more accessible to farmers.

Table 4 shows the number of varieties released annually starting with 2014 and the three-year moving average.

Between 2019 and 2021, the INERA maize breeding program did not release any new maize varieties, although several maize varieties were awaiting registration. At the same time, one foreign-owned seed company released one maize variety. The other INERA breeding programs released 17 new varieties in total. Four were rice varieties, developed by INERA/CREAK in Kamboinsé. These are varieties with high yield potential and resilience to several common rice diseases, such as the rice yellow mottle virus and blast. The varieties are KBR2 or Massamalo, KBR4 or Nongsaamè, KBR6 or Bitonkini and KBR8 or Mouifiida. These varieties are considered resilient because, in addition to their disease tolerance attributes, the varieties are relatively early with a crop duration of less than 120 days. Also, they perform well on low water retention soils. In addition, 7 sorghum varieties were released: Sariasso26, Sariasso28, Sariasso29, Sariasso30, Sariasso34, Sariasso35 and Sariasso37. Finally, 6 new cowpea varieties were also released: Yipoussi, Neerwaya, Issa-sosso, Makoyin, Gourgou, and Teeksongo.

Table 4: Variety releases with 3-year moving average

Year	Maize		Rice		Sorghum		Cowpea	
	Annual Counts	3-yr Moving Average	Annual Counts	3-yr Moving Average	Annual Counts	3-yr Moving Average	Annual Counts	3-yr Moving Average
Up to 2014	30	-	43	-	27	-	19	-
2015	0	-	0	-	0	-	0	-
2016	0	10	0	14	0	9	0	6
2017	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0
2019	0	0	4	1.3	7	2.3	6	2
2020	1	0.3	0	1.3	0	2.3	0	2
2021	0	0.3	0	1.3	0	3.3	0	2

Before 2014, Burkina Faso had no formal variety release process. A variety was released once it had been developed by a breeder and its characteristics were listed in a breeders' report. The breeder would then make the variety available for commercialization. In 2014, the Comité National de Semences (CNS) started to formalize the variety release process, with support from the Food and Agriculture Organization of the United Nations. The new formal process followed the seed law, which had been passed in 2010. A team of experts compiled a list of all varieties that had been developed and commercialized by breeders before 2014. This one-time measure allowed for the registration of these varieties without following the variety release process as prescribed in the seed law. The varieties were included in the first National Catalogue of Plant Species and Varieties.

Since 2014, a new variety is expected to follow the variety release process outlined in law 10-2006 AN (L'Assemblée Nationale 2006). The CNS formally introduced the process and requirements for variety release and registration to breeders in 2017, which include both the Distinctness Uniformity and Stability (DUS) and Value for Cultivation and Use (VCU) tests. There were no varieties released between 2015 and 2018 due to delays in the variety release process caused by a lack of financial resources. Then in 2019, 18 varieties for the four crops were released in one year. The CNS does not have adequate funding to assess applications for variety release, which require funds for field visits and other costs. As a result, several varieties are waiting to be evaluated before they can be released. Importantly, the variety release catalogue, which was supposed to be updated every five years, does not yet include the new varieties.

VARIETIES WITH SPECIAL FEATURES

Varieties may have special characteristics, for instance, climate-smart, use-related (e.g., fast-cooking or nutrition-enhanced), or industry-demanded features (e.g., suitability for making starch, suitability for livestock feed, high-oil content, etc.). While acknowledging the increase in biotic stresses (pests, weeds and diseases) due to climate change, TASAI studies narrowly define “climate-smart features” as those that

respond to extreme weather events, such as droughts, floods and frost, that affect current farming practices. Examples of climate-smart features are drought tolerance, early maturity, or extra-early maturity.

The CNS has not publicly released the latest version of the national variety catalogue. As such, there is no publicly available source of information on the features of the varieties released since 2019. Based on information from breeders, the features of the varieties released are presented in Table 5.

Table 5: Number of varieties released that have special features

Feature	Description of feature	Number of varieties released 2019-2021				
		Maize	Rice	Sorghum	Cowpea	TOTAL
All varieties released		1	4	7	6	18
All varieties released with special features		0	4	7	6	17
Climate smart features	All	0	4	7	6	17
	Drought tolerant	0	0	0	6	6
	Resistant/tolerant to striga	0	0	7	6	13
	Tolerant to RYMV	0	4	0	0	4
	Tolerant panicle pest	0	0	7	0	7
	Early / extra-early maturing	0	0	0	6	6
Use-related features	All	0	4	0	0	4
	Fast cooking	0	4	0	0	4
	Nutrition-enhanced features	0	0	0	0	0
Industry-demanded features	All	0	0	0	0	0
	Good milling rate	0	0	0	0	0



NUMBER OF VARIETIES SOLD IN 2021

An increase in the number of varieties sold in a country often results in an increased choice of varieties available to farmers. A total of 43 varieties of the four crops were sold in 2021, of which 13 were maize varieties, 12 were rice varieties, 12 were sorghum varieties and 6 were cowpea varieties. The number of varieties sold in 2021 slightly increased for maize, rice and sorghum, but decreased for cowpea. In 2021, the commonly sold maize and sorghum varieties were 14 years old or older, while the commonly sold rice and cowpea

varieties were less than 10 years old. The Wari and Barka maize varieties are popular in the northern zone, because they are early-maturing and drought-tolerant varieties. Espoir is popular in areas with good rainfall, especially the southern zone. FKR64/TS2 and FKR84/Orylux6 are very popular in lowland irrigated areas. FKR84/Orylux6 was introduced from AfricaRice by INERA in 2019, while FKR64/TS2 was introduced with support from China in 2006. Kapelga sorghum variety is popular because of its good grain quality and high-yielding characteristics. Tiligré and Komcalle cowpea varieties were released in the same year and are popular because they are resistant to the striga disease, and are drought-tolerant and high-yielding.

Table 6: Name and age of commonly sold varieties

Crop	Number of varieties sold		Names of commonly sold variety	Age of variety in 2021 (years)	Average age of popular varieties (all varieties sold)
	2019	2021			
 Maize	11	13	Barka	14	15(20)
			Wari	14	
			Espoir	17	
 Rice	11	12	FKR64/TS2	7	4.5(15)
			FKR84/Orylux6	2	
 Sorghum	11	12	Kapelga	20	20(20)
 Cowpea	9	6	Komcalle	9	9(15)
			Tiligré	9	

SOURCES AND AVAILABILITY OF FOUNDATION (BASIC) SEED

Seed companies use basic seed to produce certified seed for sale to farmers. In many African countries, limited access to basic seed from public research institutions tends to constrict the ability of seed companies to scale up production. In Burkina Faso, the process by which seed companies obtain basic seed from public institutions is as follows: basic seed is produced by INERA alone, or by a seed producer or a seed company with the technical assistance of INERA. To produce basic seed, the producer first declares its intent to produce seed to the *Service National des Semences* (SNS),

which oversees field inspections and seed quality control. Once certified by the SNS, the basic seed is repackaged and sealed in bags indicating the name of the institution and a unique certificate number. The basic seed is sold at the research station where it was produced and at the annual seed fair organized by INERA.

Sources of basic seed: INERA is a specialized agricultural, agronomic and environmental research institution of the *Centre National de la Recherche Scientifique et Technologique* (CNRST) under the *Ministère de l'Enseignement Supérieur, de la Recherche Scientifique et de l'Innovation* (MESRSI). It is mandated to ensure the training, execution and coordination of environmental and agricultural research according to development policies in Burkina Faso. INERA is in charge of plant breeding and the management of early generation seed (breeder, pre-basic and basic seed).



INERA also trains seed producers in seed production. Kamboinsé is the headquarters of scientific departments and central laboratories and support services. In addition to CREAM, INERA has five *Directions Régionales de Recherches Environnementales et Agricoles* (DRREAs): The DRREA of the Center, Saria headquarters (Koudougou); the DRREA of the East, Kouaré headquarters (Fada-Ngourma); the DRREA of the North-West, Di headquarters (Tougan); the DRREA of the West, headquartered in Farako-Bâ (Bobo-Dioulasso); and finally the DRREA of the Sahel (North), headquartered in Katchari (Dori). INERA operates from the Central Directorate, whose headquarters are located in Ouagadougou at Gounghin. It has a total of four scientific departments with 18 programs and a National Center for Specialization in Fruit and Vegetables (CNS-FL).

All seed producers accessed basic seed from INERA (Table 7). INERA produces basic seed on its own plots or under contract with seed multipliers and seed companies. In those cases, INERA provides technical monitoring of the plots of basic seed production. INERA avails pre-basic seed and/or basic seed of released varieties (registered in the official catalog) to seed producers that need it.

Seed companies were asked to assess three aspects of the availability of basic seed: quality of seed received, timeliness of delivery, and whether they had received the requested quantities. In addition, the overall availability of basic seed in the country was calculated based on the satisfaction rating of the three aspects provided.

Seed producers' assessment of the quality of basic seed from INERA was “excellent” for maize seed at 84% and rice seed at 82%. The rating for the quality of sorghum and cowpea seed was “good” at 79%.

Seed producers' assessment of the quantity of basic seed from INERA was “excellent” for rice seed at 80% and “good” for maize at 79%, sorghum at 71% and cowpea seed at 69%.

Seed producers' assessment of the timeliness of delivery of basic seed from INERA was “excellent” rice and cowpea seed (80%), and sorghum seed (82%). The rating was “good” for maize at 79%.

Seed producers' assessment of the availability of basic seed: The seed producers' satisfaction ratings with the overall availability of basic seed have improved since 2017 (Figure 1): the ratings for maize and rice basic seed were “excellent” at 81% and “good” for sorghum and cowpea basic seed at 77% and 76% respectively. The most significant increase since 2017 was for sorghum basic seed (13%).



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

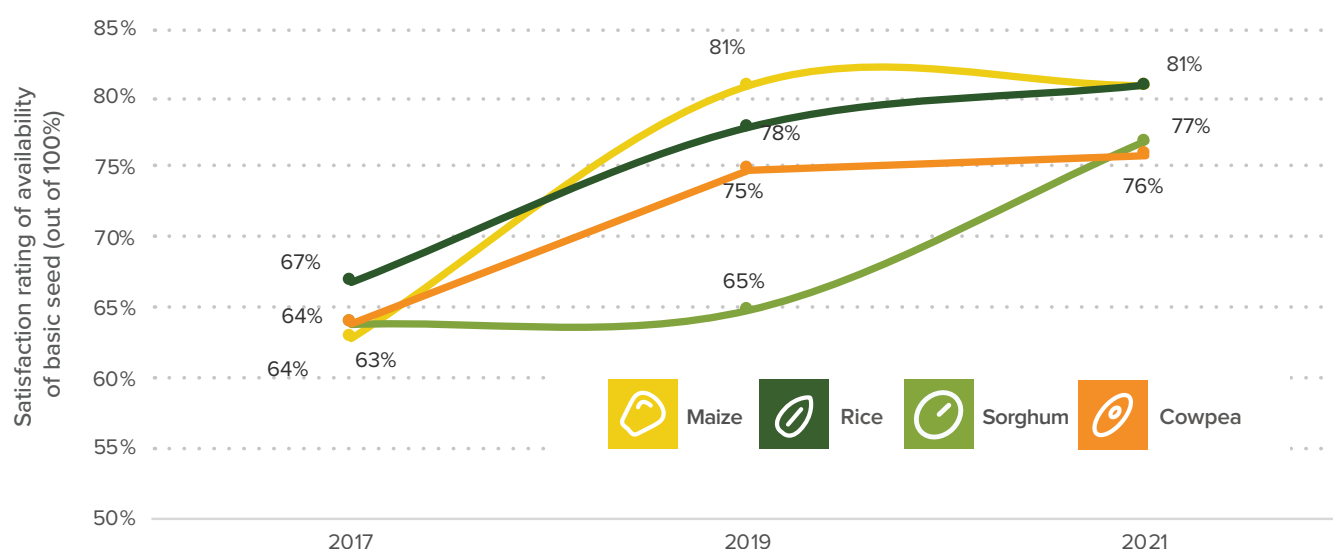
	Maize		Rice		Sorghum		Cowpea	
Source of basic seed	Number of transactions	% of total	Number of transactions	% of total	Number of transactions	% of total	Number of transactions	% of total
INERA	32	100%	29	100%	28	100%	30	100%
Total	32	100	29	100	28	100	30	100

Table 8: Seed companies' assessment of the availability of basic seed (2021)

Aspect of availability	Maize	Rice	Sorghum	Cowpea
Quality of basic seed (out of 100%)	84%	82%	79%	79%
Quantity of basic seed received (% yes)	79%	80%	71%	69%
Timeliness of delivery (% yes)	79%	80%	82%	80%

extremely poor
poor
fair
good
excellent

Figure 1: Overall satisfaction rating of availability of basic seed (2017-2021)



INDUSTRY COMPETITIVENESS

NUMBER OF ACTIVE SEED COMPANIES

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

In total, 20 local seed companies were active in 2021 and produced and marketed certified seed for at least one of the four focus crops (Table 9). Most seed companies produced and sold more than one crop. Maize was produced by almost all seed companies, while fewer companies produced and sold sorghum. The same trends were observed since 2017. There has not been any significant change in the number of active seed companies for the four crops since the previous study in 2019.

Table 9: Number of active seed companies

Crop	2017	2019	2021
 Maize	17	21	19
 Rice	16	18	17
 Sorghum	14	16	13
 Cowpea	16	17	17
Total	17	21	20

GENDER IN MANAGEMENT OF SEED BUSINESSES

TASAI also tracks the number of women in management and ownership positions in seed companies. For this study, only seed companies were considered since they have structures where management positions are explicit. The positions include managing director/chief executive officer, distribution

manager, operations manager, finance and administration manager, research and development manager, country lead, and sales and marketing manager. The involvement of women in the top management of seed companies in Burkina Faso is low. Out of the 20 seed companies surveyed, 12 seed companies reported on the gender of the owner and manager. Only one seed company had a female top manager and owner. This has not changed since the last study in 2019. However, the number of women in various managerial positions was not captured due to a translation error.

Table 10: Gender in management of seed companies

Gender indicator	2019		2021	
	Number	%	Number	%
Entities with female top manager (n=21 in 2019; n= 12 in 2021)	1	5%	1	8%
Entities with female owner (n=21 in 2019; n= 20 in 2021)	1	5%	1	5%
Women in management positions (out of 113 positions in the 40 entities in 2019; out of 403 positions in 20 entities in 2021)	10	9%	MD ^a	MD

a Data was not collected for this indicator in 2021.

PRODUCTION AND SALE OF CERTIFIED SEED

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

As indicated in Table 11, in 2021, the surveyed seed companies produced 7,489 MT of maize seed, 5,810 MT of rice seed, 1,975 MT of sorghum seed, and 784 MT of cowpea seed, a total of 16,058 MT. Table 11 also compares TASAI's aggregate data on seed production with data from the government. The surveyed seed companies reported

producing higher volumes of seed for three of the four crops - maize, sorghum and cowpea - than the volumes recorded by the government. Several reasons may account for the disparities. One, according to SNS, the periods over which the government and the TASAI study collected the data were not exactly the same. Two, some seed companies have poor record-keeping and management systems, and thus are only able to provide estimated quantities. Finally, some seed companies may have included carryovers from the previous year in their calculations.

It is also likely that the quantities of seed declared to the SNS by the seed companies were not all certified. Except for cowpea, the volume of seed sold for the four crops fluctuated between 2017 and 2021. However, for the most part, the changes were not very significant.



Table 11: Seed production and seed sales

Crop	Seed production (in MT)			Seed sales in MT (TASAI data)		
	Government data (2019)	Government data (2021)	TASAI data (2021)	2017	2019	2021
 Maize	6,865	5,008	7,489	5,893	5,991	4,709
 Rice	4,044	5,826	5,810	5,007	4,251	4,859
 Sorghum	1,257	1,196	1,975	869	1,460	1,085
 Cowpea	382	393	784	647	647	673
Total	12,548	12,423	16,058	12,416	12,349	11,326

MARKET SHARE OF TOP SEED COMPANIES

Competition among seed companies benefits farmers via lower prices, wider choices, increased innovation, and better customer service. To assess the level of industry market concentration, TASAI uses seed sales data for each crop, as reported by seed companies, to calculate the market share of the four largest firms, also known as four-firm concentration ratio (CR4), as well as the Herfindahl-Hirschman Index (HHI).⁵

Figure 2 and Table 12 show the CR4 and HHI scores in 2017, 2019 and 2021. In 2021, the market share of the top four seed

companies was low for all four focus crops. The HHI scores for the four crops were all below 1,000, indicating that the level of market concentration was extremely low. The CR4 shares and the HHI scores both indicate that there was no single company or group of companies that dominate the seed sector for any of the four crops. That is, the seed markets are very competitive with no players holding a monopoly.

The CR4 shares and HHI scores in 2021 and 2019 show low levels of market concentration in both years. The level of market concentration has decreased for maize, rice and sorghum, and has remained unchanged for cowpea. The data is only shown for 2019 and 2021, and not for 2017 due to the changes in the sampling methodology. The methods used in 2019 and 2021 were different from those used in 2017.

⁵ See below Table 12

Figure 2: Trends in market share of top four seed producers (2017-2021)

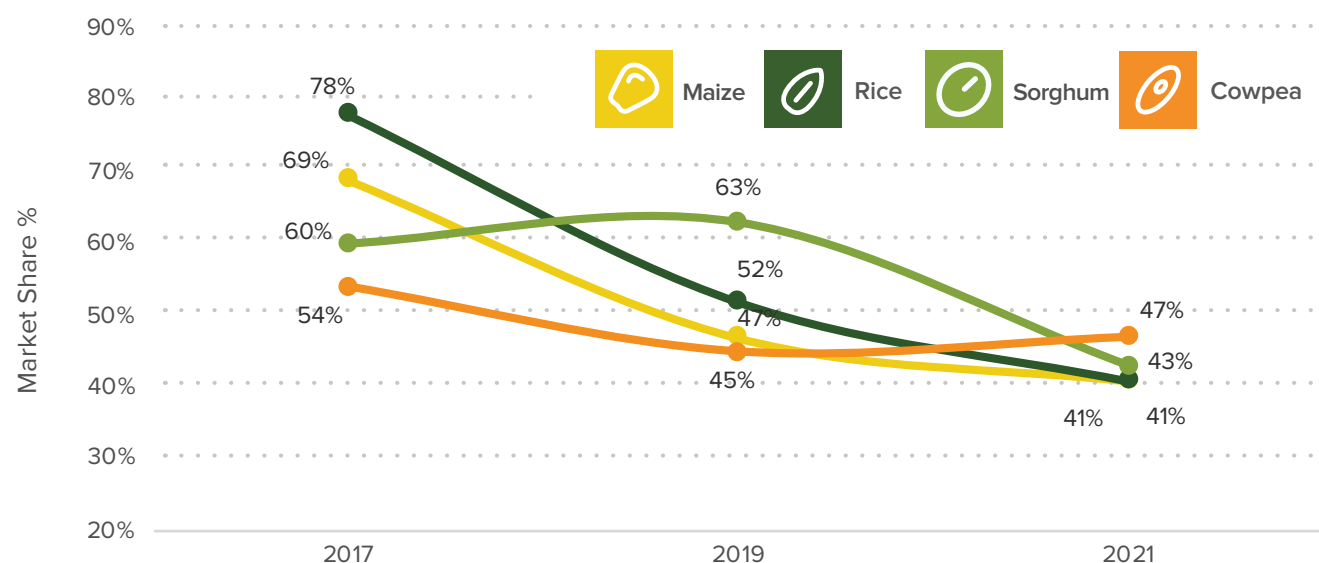


Table 12: Market concentration (HHI)

Crop	HHI (2017)	HHI (2019)	HHI (2021)
 Maize	1,555	849	691
 Rice	4,267	1,130	699
 Sorghum	1,124	1,192	772
 Cowpea	945	743	779

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

MARKET SHARE OF GOVERNMENT PARASTATAL

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

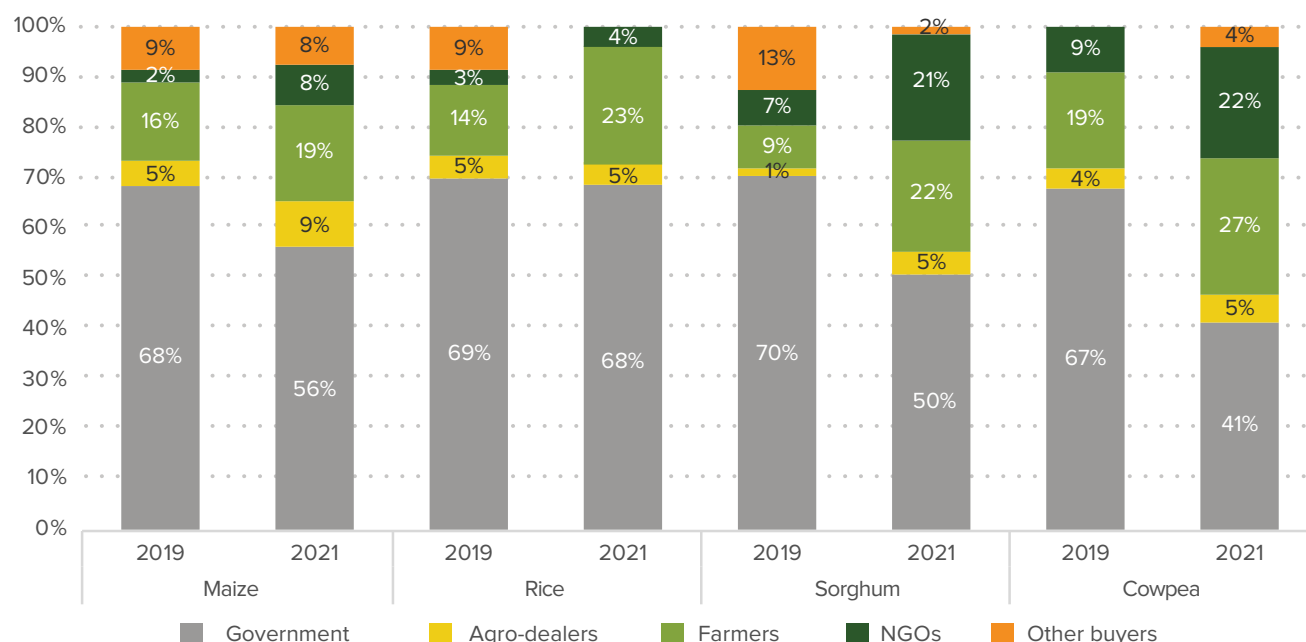
SEED SALES TO DIFFERENT CATEGORIES OF BUYERS

The TASAI study tracked five different categories of seed buyers in Burkina Faso in 2021: the government (through the national subsidy program), agro-dealers, farmers (who bought seed directly from seed producers), NGOs, other seed companies and other buyers.

Figure 3. Seed sales to different categories of buyers in 2019 and 2021 shows the breakdown of seed sales for these categories of buyers in 2019 and 2021. In both years, the government seed subsidy program was the main buyer of seed. However, the share of seed sales declined from 2019 to 2021 for all four crops. The most significant reduction was for cowpea, from 67% in 2019 to 41% in 2021. Farmers were the second most important buyer of seed for all four crops. Seed producers sold between 19% (for maize) and 27% (for cowpea) of their seed directly to farmers. NGOs were important buyers of sorghum seed (21%) and cowpea seed (22%). Seed companies sold less than 10% of their seed to other categories of buyers, including agro-dealers and other buyers.⁶ The low levels of seed sales to agro-dealers are attributed to a weak relationship between seed producers and agro-dealers, which is due to the underdeveloped status of Burkina Faso's agro-dealer network. The comparison shows that the profile of seed buyers had not changed much between 2019 and 2021.

⁶ The other buyers are entities, for example agribusiness companies, that purchase seed on behalf of groups of farmers with which they work directly.

Figure 3: Seed sales to different categories of buyers in 2019 and 2021



SEED IMPORT AND EXPORT PROCESS

Efficient seed import and export processes extend the seed market beyond national borders. While seed companies benefit from an expanded market, farmers can access a wider range of varieties from across the region. The length of the import process in days is measured as the sum of the number of days used to obtain import documentation (import permit, phytosanitary certificates, and an International Orange Certificate⁷, if applicable) and the number of days needed to clear seed at the border. It excludes transportation time.

There were no seed imports or exports for the four crops in 2021 and thus the efficiency of the process could not be evaluated. The import and export of seed of improved varieties are governed by Law N° 010-2006/AN, on the regulation of plant seeds in Burkina Faso (L'Assemblée Nationale. 2006). Some provisions of the Joint Order N° 2010/MAHRH/MESSRS (currently being reviewed)

⁷ The International Orange Certificate is issued by a laboratory accredited by the International Seed Testing Association (ISTA) when both sampling from the seed lot and testing of the sample are carried out by the same laboratory.

on technical regulations for quality control under the certification of agricultural seed in Burkina Faso and the Seed certification manual (MARHASA, 2015) also apply to imported and exported seed.

Burkina Faso's seed import procedure is defined by Article 27 of Law N° 010: All seed imports are subject to prior authorization to ensure phytosanitary quality and prevent environmental risks. The prior authorization is issued by the Minister of Trade, after approval by the Ministers of Agriculture or Forestry and the payment of a fee, the amount of which is set by regulation.

Seed exports are governed by article 28 of Law N° 010: The export of seed is free and must be registered by prior declaration to the competent authority. However, considerations of priority national needs and cases of national necessity may require prior authorization by the Minister of Trade, after approval by the Ministers of Agriculture or Forestry. The national need is determined by the joint order of the ministers concerned.

If the imported variety is not listed in the national or regional catalogue, then another procedure is followed, and other technical services are also involved.



SEED POLICY AND REGULATIONS

LENGTH OF VARIETY RELEASE PROCESS

Plant variety release is the process during which new varieties undergo various tests for yield, Value for Cultivation and Use (VCU), and Distinctness, Uniformity, and Stability (DUS). Varieties that perform satisfactorily in these tests are approved for release by the Comité National de Semences (CNS). A vibrant seed sector has a functional variety release system that is well understood by the relevant actors and is followed diligently. Lengthy and/or costly variety release processes can limit the number of released varieties, which can adversely affect farmer choice. The length of the variety release process is calculated from the date the variety is submitted to the variety release committee to the date when the variety is approved for release. The calculation does not include the time spent developing the variety by the breeder.

In Burkina Faso, applicants submit their application file to the SNS, who forwards the application to the Chairman of the CNS, the government unit responsible for the registration of new varieties in the national and ECOWAS catalogues. The application is reviewed by the Sous-Comité d'Homologation des Variétés agricoles (SCHV), a sub-committee of CNS. The application file includes information on the genetic origin, the description of the commercial variety and the results of at least three DUS and VCU trials carried out at the national level during the two years before the application, and a reference sample accompanied by its phytosanitary certificate. Files must be submitted before February 15th of each year. The application provides information on the origin of the variety, the breeder/institution that developed the variety, and the results of the DUS and VCU tests. The evaluation also includes an external review by national or international experts. According to the manual of procedure for the registration of varieties in the National Catalog of Agricultural Species and Varieties of Burkina Faso, the review of the application is expected to be carried out within 75 working days. However, in practice, the process, from submission to approval, take up to one year. Delays are caused by requests for additional information. In addition, the President of the SCHV and the external reviewers are not paid, which also contributes to the longer review period.

Once the Committee reaches a decision, the applicant is informed by the Chairman of the CNS. If the technical

examination is favorable, the President of the SCHV recommends the registration of the new variety in the National Catalogue of Plant Species and Varieties to the Chairman of the CNS. The Chairman of the CNS publishes the registration in the Official Journal of Burkina Faso, including information on the variety. He notifies the applicant of the approval of the new variety by a memo. Once a variety is approved, it is automatically registered and can be commercialized.

The sub-committee for variety registration is mandated to coordinate the variety release process and update the national variety catalogue. The first copy of the catalogue was released in 2014. The catalogue is supposed to be updated every five years and was first updated in 2019 following a meeting convened by CNS to collate the varieties that were released and registered between 2014 and 2019. The 2014 catalogue is publicly available and no updates have been made since then.

Currently, the release committee does not have the technical staff needed to perform DUS and VCU tests. For this reason, the applicant is required to conduct the evaluation with a research institution and provide a report with the results of these tests. Since INERA breeders carry out the DUS and VCU trials themselves, this presents a conflict of interest, since INERA, as a developer of seed varieties, should not be responsible for testing its own varieties. In the case of a private seed company wanting to register a new variety in the national catalog, the company generally signs a collaboration agreement with INERA for DUS and VCU evaluations.

INERA, in partnership with the Pan-African Organization on Intellectual Property (OPAPI), is in the process of setting up an independent body within INERA to carry out DUS and VCU testing. Although the CNS does not conduct DUS and VCU trials, it may conduct the trial for verification purposes. INERA has been in discussions with the International Union for the Protection of New Varieties of Plants (UPOV) about formalizing the system of variety development and release according to UPOV standards.

The INERA breeders surveyed estimated that it takes up to 36 months to release a variety (Table 13). Due to the lack of a formal process for DUS and VCU testing and the delays in reviewing the DUS and VCU applications, the breeders' rated their satisfaction as "fair" (43%).

Table 13: Length and satisfaction with the variety release process

Length of the variety release process	2017	2019	2021
Length of variety process (in months)	N/A ⁸	42	36
Satisfaction with variety release process (%)	N/A	N/A	43

Since these tests are conducted independently by the research institutions, the costs and length of the testing process are embedded in the institution's research and development costs, and are hard to disentangle objectively.

STATUS AND IMPLEMENTATION OF NATIONAL SEED POLICY FRAMEWORK

Well-functioning formal seed sectors have effective coordinating institutions that work well together, following rules and procedures stipulated in clearly defined and regularly updated legal instruments. In Burkina Faso, many strategies and policies have been developed and implemented to support the seed sector. These strategies and policies are most often integrated into the overall development plans of the agricultural sector.

Table 14 lists the key seed policy instruments in Burkina Faso. The country does not have a stand-alone national seed policy. The latest national seed strategy, the *Stratégie de Développement Durable du Secteur Semencier* (SDDSS), guided most of the interventions undertaken in the seed

⁸ There was no formal variety release process in Burkina Faso up until 2014. The first round of variety releases took place in 2019. The N/A in 2019 is because, even that year, the process was still very much in its infancy, and INERA breeders - the only players releasing varieties - could not provide a rating.

Table 14: Key seed instruments in Burkina Faso

Instrument	Description
Loi N° 010-2006 portant réglementation des semences végétales au Burkina Faso	This law governs all activities related to plant seeds in Burkina Faso. The law applies to all agricultural and forestry seeds from improved and traditional varieties.
Law N° 010-2006 on the regulation of plant seeds in Burkina Faso	
Décret N° 2008-680/PRES/PM/MAHRH/MEF/MECV du 27 octobre 2008 portant attributions, composition et fonctionnement du Comité National des Semences	This decree sets the rules for the attribution, composition and functioning of the National Seed Committee (CNS), in the application of the provisions of Article 32 of Law N° 010-2006 on the regulation of plant seeds in Burkina Faso.
Decree N° 2008-680/PRES/PM/MAHRH/ MEF/MECV of October 27, 2008, on the attributions, composition and operation of the National Seed Committee	

sector during 2011-2020 (Ministère de l'Agriculture, de l'Hydraulique et des Ressources Halieutiques, 2010). A national seed policy and seed strategy are currently being developed.

The seed policy framework in Burkina Faso consists of two main instruments: The seed law No 010-2006/AN (Portant Règlementation des Semences Végétales au Burkina Faso), passed on March 31, 2006, (L'Assemblée Nationale. 2006) and the ECOWAS Seed Regulation (C/Reg.4/05/2008) (ECOWAS, 2008). The seed law governs all activities related to plant seeds in Burkina Faso. It aims to promote the production, marketing and use of improved seed, in line with the national objectives of intensifying and modernizing agriculture, increasing agricultural and forestry production, and enhancing food security. To implement the law, the government has adopted certain decrees and regulations, including Decree N° 2008-680/PRES/PM/MAHRH/MECV/MESSRS of October 27, 2008 (La République du Burkina Faso 2008a) on the attributes, composition and functioning of the CNS; Decree N° 2008-705/PRES/PM/MAHRH/MECV of November 17, 2008, on the organization and operation of the Seed Sector Support Fund (La République du Burkina Faso 2008b); Decree N° 2008-706/PRES/PM/MAHRH/MEF/MECV/MJ of November 17, 2008, on the determination of incidences committed in violation of the provisions of seed law (La République du Burkina Faso 2008c); Ministerial Order N° 2011-017/MAHRH/MEDD/MEF of March 15, 2011 (La République du Burkina Faso 2011) that determines the titles and functions of agricultural or forestry agents in charge of quality control for the certification of plant seeds; and Ministerial Order N° 2010-22/MAHRH/MEDD/MICPIPA/MRSI/CAB of March 15, 2011 that outlines the categories of actors in the seed sector in Burkina Faso.

In addition to these legal instruments, there is also a Plant Health Act (Law N° 025-2017/AN of May 15, 2017), a Biotechnology Law (Law No. 064-2012/AN of December 20, 2012), and a law Loi N° 020-2019/AN portant accès aux ressources phylogénétiques pour l'alimentation et l'agriculture et au partage des avantages résultant de leur utilisation that establishes the modalities of access to Plant Genetic Resources, the sharing of benefits arising from their utilization and the codification of farmers' rights, under the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) of November 3, 2001.

Arrêté conjoint N°2010/MAHRH/MECV/MEF portant conditions d'homologation et d'inscription des variétés et des matériels forestiers de base au Catalogue National des Variétés et des Matériels Forestiers de Base

Ministerial Order N°2010/MAHRH/MECV/MEF on the conditions of approval and registration of varieties and basic forestry materials in the National Catalogue of Varieties and Basic Forestry Materials

This order determines the conditions for the approval and registration of agricultural varieties and basic forestry materials in the National Catalogue, following the provisions of Article 9 of Law N° 010-2006/AN on the regulation of plant seeds in Burkina Faso.

Arrêté conjoint N°2010/MAHRH/MESSRS portant Règlements techniques pour le contrôle de qualité au titre de la certification des semences agricoles au Burkina Faso

Ministerial Order N°2010/MAHRH/MESSRS on technical regulations for quality control for the certification of agricultural seeds in Burkina Faso

This order determines the technical regulations for quality control for the certification of agricultural seeds following the provisions of Article 17 of Law N°010-2006/AN of March 31, 2006, on the regulation of plant seeds in Burkina Faso

Décret N° 2008-705/PRES/PM/MAHRH/MEF/MECV du 17 novembre 2008 portant attributions, organisation et fonctionnement du Fonds d'appui au secteur semencier.

Decree N° 2008-705/PRES/PM/MAHRH/MEF/MECV of November 17, 2008, on the attributions, organization and functioning of the Seed Sector Support Fund.

This decree determines the attributions, organization and operation of the Seed Sector Support Fund following Article 33 of the law regulating plant seeds in Burkina Faso. The Fund is intended to finance the development of seed sector activity to ensure sufficient production levels of good quality seed.

Décret N° 2008-706/PRES/PM/MAHRH/MEF/MECV/MJ du 17 novembre 2008 portant détermination des transactions applicables aux infractions commises en violation des dispositions de la Loi N°010-2006/AN du 31 mars 2006 portant réglementation des semences végétales

Decree N° 2008-706/PRES/PM/MAHRH/MEF/MECV/MJ of November 17, 2008, on the determination of penalties applicable to offenses committed in violation of the provisions of law N°010-2006/AN of March 31, 2006, on plant seed regulation

This decree, which follows Article 45 of the law regulating plant seeds in Burkina Faso, sets the terms of the transactions applicable to offenses committed in violation of the provisions of the law regulating plant seeds in Burkina Faso.

Décret N° 2015-1359/PRESTRANS/PM/ MEF/MERH du 20 novembre 2015 portant modification du Décret N° 97025/PRES/PM/MEE du 24 janvier 2007 portant érection du Centre National de Semences Forestières en Etablissement Public à caractère Administratif

Decree N° 2015-1359/PRESTRANS/PM/ MEF/MERH of November 20, 2015, amending Decree N° 97025/PRES/PM/ MEE of January 24, 2007, establishing the Centre National de Semences Forestières as a Public Administrative Establishment

This decree modifies and completes the provisions of articles 1, 4 and 5 of decree N° 97025/PRES/PM/MEE of January 24, 2007, on the establishment of the National Forest Seed Center as a Public Administrative Institution.

Décret N° 2015-1360/ PRESTRANS/PM/MERH/MEF/MRSI du 20 novembre 2015 portant approbation des statuts du Centre National de Semences Forestières (CNSF)

Decree N° 2015-1360/PRESTRANS/PM/MERH/MEF/MRSI of November 20, 2015, approving the statutes of the National Forest Seed Center (CNSF)

This decree approves the statutes of the National Center for Forest Seeds (CNSF), a public establishment of a scientific, cultural and technical nature (EPSCT) responsible for research and development. The mission assigned to the CNSF is to contribute to the fight against desertification and to the reconstitution of the plant cover.

Loi N° 064-2012/AN du 20 décembre 2012 portant régime de sécurité en matière de biotechnologie

Law N° 064-2012/AN of December 20, 2012, on the security regime for biotechnology

This act applies to the development, testing, production, release, storage, destruction or disposal, import, export, transboundary movement and transit of any genetically modified organism and any product consisting of or containing a genetically modified organism.

Loi N°025-2017/AN du 15 mai 2017 portant protection des végétaux au Burkina Faso

Law N°025-2017/AN of May 15, 2017, on plant protection in Burkina Faso

This law regulates the sanitary protection of plants, plant products and other regulated articles, including products of modern biotechnology, without prejudice to any other legislation relating to the protection of forests, water, seeds, soils, and quality control of foodstuffs of plant origin.

Loi N° 020-2019/AN portant accès aux ressources phylogénétiques pour l'alimentation et l'agriculture et au partage des avantages résultant de leur utilisation

Law N° 020-2019/AN on access to phylogenetic resources for food and agriculture and the sharing of benefits resulting from their use

This law determines the procedure for access to plant genetic resources for food and agriculture through bio-prospecting, collection and exchange for scientific research, education, training, conservation or agricultural application. It also ensures the sharing of benefits arising from the use of plant genetic resources for food and agriculture.

QUALITY AND ENFORCEMENT OF SEED REGULATIONS

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

Implementation of the Seed Regulations/Decrees:

The MAAH is the government ministry in charge of all matters related to agriculture. Agricultural inputs fall under the *Direction Générale de la Production Végétale* (DGPV). Under the DGPV, seed issues are handled by the *Service National des Semences* (SNS), which is the leading agency to implement seed law and regulations. The SNS is fully operational.

While there is a low capacity to enforce existing decrees, some existing decrees are being amended and new ones have been proposed to strengthen the application of the law and address shortcomings. In 2018, the country began the process of joining the Organization for Economic Co-operation and Development (OECD) seed systems and accreditation to the International Seed Testing Association (ISTA) standards. This process involves an audit of the variety creation, certification and seed production infrastructures to bring them up to ISTA standards. The mock audit was

completed in 2021. The final accreditation examination originally scheduled for 2022 has been postponed to 2023 due to the political instability in the country.

Implementation of the ECOWAS Regional Seed Regulations:

Burkina Faso adopted the ECOWAS Seed regulations in 2008 and, in subsequent years, passed several decrees to implement different aspects of the regulations. The TASAI study assessed four key areas of implementation required under the ECOWAS regulations: i) the setting up of a national seed committee, ii) the issuing of a decree for seed import and export, iii) the updating of the national variety catalogue, iv) the creation of a seed support fund, and v) other clauses that support the availing of quality improved seed to farmers.

The *Comité National de Semences* (CNS) was established by Article 32 of Law No. 010-2006/AN to bring together the seed industry's main actors, to oversee the enforcement of seed regulations and to advise on seed policy reform. The CNS has established a sub-committee (SCHV) responsible for variety registration and release. While the CNS has been established, it is not fully functional. Despite having defined procedures for operation, the subcommittee does not meet regularly and does not update the National Catalogue of Plant Species and Varieties as originally planned.

In addition, in line with Article 76, seed imports to and exports from Burkina Faso are always accompanied by a phytosanitary certificate.

The Seed Sector Support Fund (SSSF) was created by Decree N°. 2008-705 in 2008 and is intended to fund key activities in the seed sector such as the variety release process, the

operations of the SNS the national seed committee, and the various sub-committees. At the time of data collection, the fund was not operational because the decree did not prescribe a clear mechanism for budget allocation from the national treasury.

Despite these measures, several clauses in the ECOWAS seed regulations are not fully implemented in Burkina Faso. Article 33 on field inspections requires a field to be inspected four times in each planting cycle. This is not strictly followed. Article 37 requires seed producers to hire seed technicians or work closely with seed technicians to enhance the production of quality seed, especially for hybrid varieties. Most seed producers do not follow this requirement.

The CNS is working with the government to amend the law and issue the necessary decrees to fully comply with the ECOWAS seed regulations. This includes plans to authorize the production of basic seed and seed certification inspection services by the private sector.

Table 15: Industry satisfaction with government efforts to address counterfeit seed

Indicators	2017	2019	2021
Number of cases of counterfeit seed (seed companies)	14	18	3
Number of cases of counterfeit seed (government)	-	-	0
Seed industry satisfaction with government effort to address counterfeit seed (out of 100%)	67%	71%	60%

extremely poor
poor
fair
good
excellent

EFFORTS TO ERADICATE COUNTERFEIT SEED

Counterfeit seed threatens the seed sector in two important ways: first, seeds of inferior quality that are falsely labeled as certified seed may cause farmers to lose confidence in certified seed and opt for informal sources that they know. Second, it threatens the success of efforts to increase the adoption of improved varieties, because farmers are not sure which seed is genuine. TASAI tracks the number of suspected cases of counterfeit seed reported by seed companies and the government in the data collection year. In addition, seed companies report their level of satisfaction with government efforts to eliminate counterfeit seed.

Seed producers surveyed by TASAI reported three cases of counterfeit seed in 2021, significantly lower than the 18 and 14 cases reported in 2019 and 2017, respectively (Table 15). For its part, the government did not record any cases that year, as it has not yet established a mechanism for reporting cases of counterfeit seed. Through the SNS, it places particular emphasis on upstream control of seed production from the field to certification, and cases of counterfeit seeds are expected to be reported by seed inspectors during the inspection and post-control activities. If any cases are reported, legal provisions sanction cases of counterfeit seed, including the withdrawal of permission to market seed, and confiscation of non-conforming seed or any object related to fraudulent seed activities. However, in practice, control at seed production, distribution and sale points is very weak and not all cases are reported. Seed producers' satisfaction with government efforts to address the problem of counterfeit seed was "good" at 60%, a decline from the rating in 2017 (67%), and 2019 (71%). According to the researchers, the high rating is based on seed producers' appreciation that the law is strict, but not on the actual implementation of the law.

USE OF GOVERNMENT SUBSIDIES

Seed subsidies are intended as a short or medium-term measure to encourage farmers to adopt improved crop varieties or address shortfalls in seed supply. The design and execution of subsidy programs, in terms of the scale, targeting, distribution arrangements, and payment systems, may contribute to the development of the seed market in positive ways if executed well and in collaboration with relevant partners, or it may be disruptive to market forces.

Burkina Faso launched the agricultural input and equipment subsidy program *Opération 100 000 charrues* or 'Operation of 100,000 ploughs' in 2008. This followed an earlier seed subsidy program. The program began as an emergency plan to address food and nutrition security issues through the distribution of subsidized inputs (fertilizer and seed) to farmers; it does not have an end date. The subsidy is administered as a price subsidy: farmers pay 20% of the final market price irrespective of crop, while the government subsidizes 80% of the cost. The overall goal of the program is to contribute to food security and economic growth through the modernization of family farms. It targets low-income farming households that cultivate between 1 and 5 hectares of land and focuses on maize, rice, sorghum, cowpea, millet, sesame, groundnut, and soya bean.

To date, through the "sustainable development of agricultural production" program, the government has provided subsidies for the purchase of certified seed for vulnerable groups in the agricultural sector of 4,128,551,000 CFA francs (US\$ 6.4 Million). The government acquires the seed from members of the *Union Nationale des Producteurs Semenciers du Burkina* (UNPS-B) and the *Association Nationale des Entreprises Semencières au Burkina Faso* (ANES-BF). The agreements are made between the government and the two organizations. The seed deposited in the communes is distributed to farmers by extension agents.

The beneficiaries of the 2021 seed subsidy program are vulnerable women, men and youth, internally displaced persons (IDPs), IDP hosts, female heads of households, and people with disabilities. Beneficiaries receive only the seed that is available. All four of focus crops are part of the subsidy program.

Seed distribution is supervised by different committees from the national to the village level. The village committee is composed of representatives from MAAH (an extension agent), local administration, agriculture organizations, and women and youth groups. The committee identifies the potential demand at the village level. Seed is supplied through the two associations and delivered to the regional offices of the MAAH, after which these offices distribute the seed to different locations in the region. Farmers collect the seed from different locations. The regional offices are also in charge of monitoring the seed's distribution and utilization in the respective regions.

The distribution of subsidized agricultural inputs, initially provided by the Services of the MAAH, started to involve

private distributors through AGRODIA during the 2013/2014 and 2014/2015 agricultural seasons. The e-voucher approach involving only AGRODIA in the distribution of inputs has been tested in 6 regions and was rolled out nationally in 2020.

Most seed producers sell seed to the government subsidy program (Table 16). In addition, for all three TASAI study years, the seed subsidy program has been the main buyer of seed for the four crops.

Despite the importance of the subsidy program, seed producers have expressed dissatisfaction with how the program is implemented. Seed producers' satisfaction with the openness and transparency of the seed procurement process in 2021 was "good" at 68%, similar to the rating in 2019. The stagnation in the rating is because new seed growers that would like to benefit from the subsidy program are unable to do so unless they join UNPS-B or ANES-BF. Seed producers' rating for predictability of the seed procurement process declined from "good" in 2019 to "fair" in 2021. The rating for the efficiency of payments remained "fair" at 41% in 2021, a slight increase from 38% in 2019.

Table 16: Number of seed companies selling seed to subsidy program

Crop	Number of seed producers selling to government subsidy programs		% of seed sold to government programs		
	2019	2021	2017	2019	2021
 Maize	29	28	77%	68%	56%
 Rice	31	26	81%	69%	66%
 Sorghum	23	25	73%	70%	51%
 Cowpea	27	28	71%	67%	41%

Table 17: Seed producers' opinion of the implementation of seed subsidy program

Aspects of the government subsidy program	Satisfaction rating (out of 100%)		
	2017	2019	2021
Openness and transparency of the seed procurement process	68%	68%	68%
Predictability of the seed procurement process	38%	60%	46%
Efficiency of payments	35%	38%	41%

extremely poor
poor
fair
good
excellent

INSTITUTIONAL SUPPORT

QUALITY OF THE NATIONAL SEED TRADE ASSOCIATION

Well-functioning national seed trade associations play a key role in representing the interests of the industry and engaging with the government. Members of national seed associations include seed companies, seed producers, seed cooperatives, seed associations, individual seed producers and (at times) agro-dealers. Two main national seed organizations exist in Burkina Faso: the National Association of Seed Companies in Burkina Faso (ANES-BF) and the National Union of Seed Producers of Burkina (UNPS-B).

L'Association Nationale des Entreprises Semencières du Burkina Faso (ANES-BF)

ANES-BF is an association of seed companies, created in 2013 and officially recognized in 2014. ANES-BF's main objective is the development and promotion of a competitive formal seed sector in Burkina Faso. The association contributes to strengthening the private sector's supply of quality certified seed. It also contributes to the supply of certified seed to the government under the subsidy program and development partners. The members of the association are officially recognized seed companies in Burkina Faso. Out of the 20 seed companies surveyed, 7 were members of the ANES-BF.

In addition to signing a contract with the government to provide seed under the subsidy program, ANES-BF also supplies seed to NGOs involved in agricultural development. The association's day-to-day activities are managed by a four-person secretariat, established in 2018. Half of the employees are women. ANES-BF does not currently have a board of directors. At the national level, the association is recognized by the MAAH and is a member of the CNS. It is also an active member of the African Seed Trade Association (AFSTA). Over the years, the association's members have been supported by strategic partners such as AGRA, which has contributed significantly to their growth and development.

ANES-BF member companies were asked to assess their level of satisfaction with the functioning of their association in seven key service areas (Figure 4). Its members rated the overall performance of the association as "good" at 63%. This is similar to the members' ratings in previous years: 65% in 2017 and 63% in 2019. The members also rated the association favorably in the areas of activity on important seed sector issues, effectiveness in advocacy, and managerial ability. The members rated governance and democracy in elections "excellent" at 81%, and resource mobilization "fair" at 46%. Over the years, members have consistently rated ANES-BF's ability to mobilize resources poorly (50% in 2017 and 51% in 2019), while democracy in elections has been consistently rated the highest (81% in 2017 and 71% in 2019).

Figure 4: Members' opinion of ANES-BF





Twelve out of 20 seed companies that were interviewed were members of ANES-BF. The few companies that had not yet joined the association cite reasons related to the strategic and organizational weaknesses of ANES-BF. At the strategic level, the association is essentially dependent on supplying seed to the government subsidy program. This is viewed as a narrow and unpredictable focus. The members have recognized that the association needs to explore seed market prospects in Burkina Faso and other western Africa countries. This concern has been consistently voiced by the members in the previous two studies conducted in 2017 and 2019. At the organizational level, the association lacks the financial and human resources to undertake other activities related to seed sector development in Burkina Faso.

L'Union Nationale des Producteurs de Semences du Burkina (UNPS-B)

The UNPS-B was formed on November 20, 2004, and is governed by law N° 014/99/AN of April 15, 1999, on the regulation of cooperative societies and groups in Burkina Faso (L'Assemblée Nationale 1999). It was recognized by Decree N° 2004-000190/MATD/PKAD/H of December 23, 2004. The UNPS-B members are involved in the production of crops such as rice, maize, sorghum, millet, cowpea, sesame, soya bean, vegetable seed, and cuttings (cassava, sweet potato, potato, etc.). Since the start of the government's seed

subsidy programs in 2008, the UNPS-B has been the main supplier of seed to the government, with quantities ranging between 6,000 and 10,000 MT of seed per year.

The UNPS-B's membership grew from 175 seed producers in 2000 to a peak of 4,000 in 2011. In 2021, the UNPS-B had about 3,000 members. UNPS-B is organized according to a pyramidal structure based on an administrative model (national, regional and provincial). It is structured at the base by the producers, who are members of seed producer groups. The producer groups are members of departmental groups, which fall under 45 provincial unions. The provincial unions are grouped into 13 regional unions. The daily activities of the association are managed by a secretariat of 10 people, including 4 women. The secretariat reports to a board of directors of nine members, including two women.

The UNPS-B's members surveyed (22) rated the association highly in 2019 and 2021 (Figure 5). The overall satisfaction rating of "good" was stable at 74% in 2019 and 75% in 2021. The members' rating of the UNPS-B in the six areas of performance ranged between "good" at 72% for managerial ability to "excellent" at 80% for democracy in elections. This indicates a high level of satisfaction with the association, which may be attributed to the association's active performance in the government seed subsidy program, which is the main buyer of seed from the seed producers.

Figure 5: Members' opinion of the UNPS-B



ADEQUACY OF SEED INSPECTORS

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

In Burkina Faso, seed inspection and certification are the mandate of the SNS. Currently, the SNS has 71 seed inspectors (58 men and 13 women) spread across the thirteen regions of the country and in four regional laboratories and one central laboratory. The number of seed inspectors employed by the SNS increased from 45 in 2017 to 94 in 2019 and then decreased to 71 in 2021 (Table 18). The decrease is due to inspectors retiring or being seconded to other service areas. The SNS indicated that the current number of inspectors is insufficient to meet the requirements for seed inspection activities across the country. To bridge the gap, the SNS has trained some public agricultural extension agents to carry out seed inspection in their respective regions. However, they are not official seed inspectors as they have not taken the oath required by Section 30 of the Seed Act (Loi No. 010), which stipulates that the oath provides the legal mandate to carry out seed inspection activities. In addition, the SNS noted that inadequate resources for seed inspection activities posed a challenge to their effective implementation.

The Seed Act stipulates that all seed inspectors be employed by the government. Private seed inspectors are not authorized to operate in the country, although the CNS has proposed a change in the law to allow for the authorization of private seed inspectors.

Seed inspectors employed by the SNS use GPS and mobile devices to carry out inspections and upload field inspection data to the head office for further processing. The system also allows them to automatically generate the certification result. The use of technology has clearly increased the speed and efficiency of seed inspection.

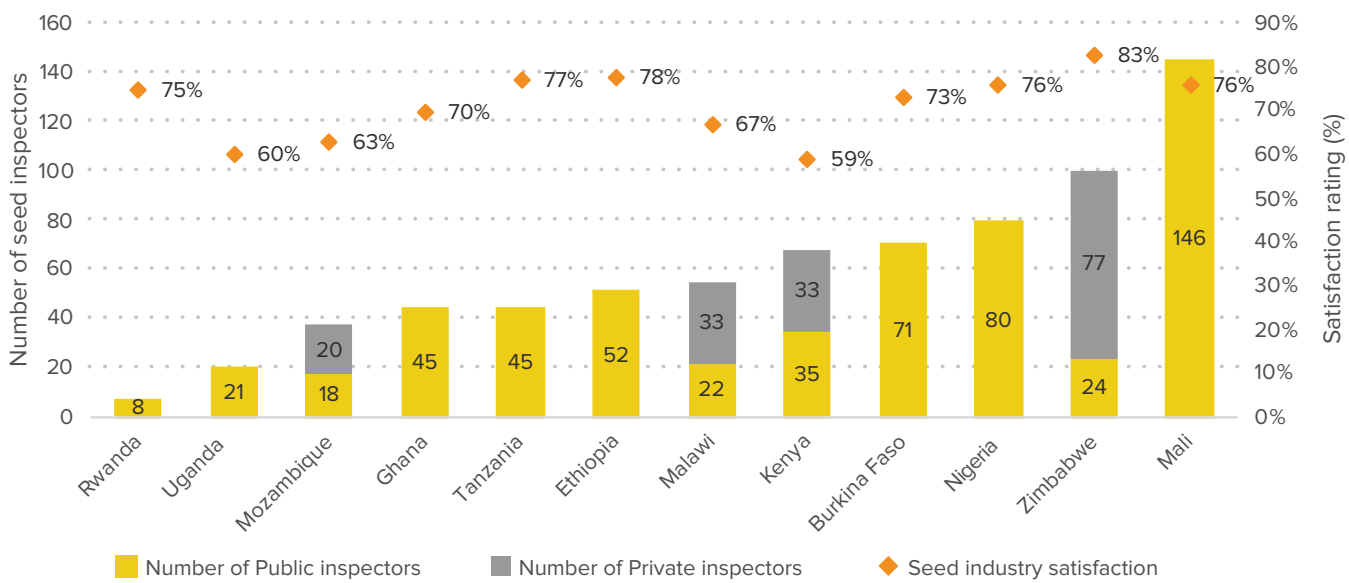
Seed producers' satisfaction with seed inspection services was "good" (73%) in 2021. Seed producers' satisfaction has been consistently "good" since 2017: 78% in 2017 and 2019 (Table 18). Seed producers commented that they recognize the rigor with which seed inspectors conduct their work, and the efforts made to ensure that seed inspectors are available.

Table 18: Number and adequacy of seed inspectors

Indicators	2017	2019	2021
Number of public seed inspectors	45	94	71
Seed industry satisfaction with seed inspectors (out of 100%)	78%	78%	73%

Figure 6 compares the number of seed inspectors and satisfaction ratings in countries studied by TASAI between 2020 and 2022. Burkina Faso follows Mali, Zimbabwe and Nigeria in the countries with the highest number of public seed inspectors. However, as explained earlier, the effectiveness of the inspectors is constrained by a lack of resources.

Figure 6: Comparison of seed inspectors and seed industry satisfaction by country



SERVICE TO SMALLHOLDER FARMERS

ADEQUACY OF EXTENSION SERVICES

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

Agricultural extension services in Burkina Faso are managed by the MAAH. The extension officers are employed by the Plant Production Department (DPV) under the ministry and

deployed through Regional Directorates of Agriculture. The *Ecole Nationale de Formation Agricole* (ENAF) is the main government body that trains extension officers.

In 2021, there were 2,052 public extension officers, a reduction from the 3,993 officers reported in 2019. On the other hand, the number of private sector extension officers employed by seed companies was fairly stable from 2019 (46) to 2021 (42) but still significantly lower than the 134 private extension officers employed in 2017 (Table 19). In 2021, Burkina Faso had 1,811,296 agricultural households (estimate based on a 5.8% population growth rate from 2019-2021), resulting in a 1:865 ratio of extension officers to agricultural households. Seed producers' ratings of the adequacy of extension officers was "good" at 66%, a slight decline from the rating of 73% and 72% in 2017 and 2019 respectively.

Table 19: Number and adequacy of agriculture extension officers

Indicators	2017	2019	2021
Number of public extension officers employed by the government	1,688	3,993	2,052
Number of private extension officers employed by seed companies	134	46	42
Total number of extension officers	1,822	4,038	2,094
Ratio of extension officers to agricultural households	1:844	1:424	1:865
Seed industry satisfaction with extension officers (out of 100%)	73%	72%	66%

extremely poor poor fair good excellent





CONCENTRATION OF THE AGRO-DEALER NETWORK

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

In Burkina Faso, input distributors mainly consist of general merchants and others who specialize in agricultural inputs, such as fertilizers, pesticides, and seed of improved varieties. According to the SNS, 57 agro-dealers were registered and accredited to sell seed in 2021. This number is a slight improvement from the 48 agro-dealers who were registered in 2019. Due to a lack of recent data, it was assumed that the 1,460 agro-dealers reported in 2019 were still active in 2021. Some of the agro-dealers are referred to as “input stores”, are part of groups such as the *Association des Grossistes et Détaillants des Intrants Agricoles* (AGRODIA) or the *Coopérative de Commercialisation des Intrants et du Matériel Agricole* (COCIMA) (Compaoré et al., 2020). These input stores are not widespread across all regions of the country. Seed producers rated their satisfaction with the agro-dealer network as good at 62%, an increase from the rating of 50% in 2019.

Table 20: Number and satisfaction with agro-dealer network

Indicator	2017	2019	2021
Number of registered agro-dealers	1,460	1,460	1,460
Number of agro-dealers accredited by MAAH	MD	48	57
Number of farming households served by one agro-dealer	1,178	1,173	1,241
Seed industry satisfaction with agro-dealer network (out of 100%)	71%	50%	62%

extremely poor

poor

fair

good

excellent

AVAILABILITY OF SEED IN SMALL PACKAGES

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

All seed producers in Burkina Faso are required to package their seed before sale and include their contact details (name and address) on the package. These requirements are generally followed. Figure 7 shows the percentage of seed sold in different package sizes for each crop. Most of the seed sold by seed producers was sold in large packages of at least 25 kg: 79% of maize seed, 78% of rice seed, 75% of sorghum seed and 63% of cowpea seed. This is because

most of the seed was sold to the government seed subsidy program and other buyers who prefer large package sizes. The government (which is the largest buyer) uses large package sizes to bulk seed in a government warehouse in each region. It is from the large packages that farmers buy the quantities of seed that they need.

Figure 8 shows the trend of the percentage of seed sold in different packages in Burkina Faso. The overall trend has been a decline in package sizes for rice, sorghum and cowpea seed since 2017. The same trend was observed for maize seed except that there was a sharp increase in 2019 and then a decline in 2021.

Figure 9 compares the percentage of maize seed sold in packages of 2 kg or less in countries studied by TASAI between 2020 and 2022. Burkina Faso follows Ethiopia as the country with the lowest percentage.



Figure 7: Percentage of seed sold in different package sizes

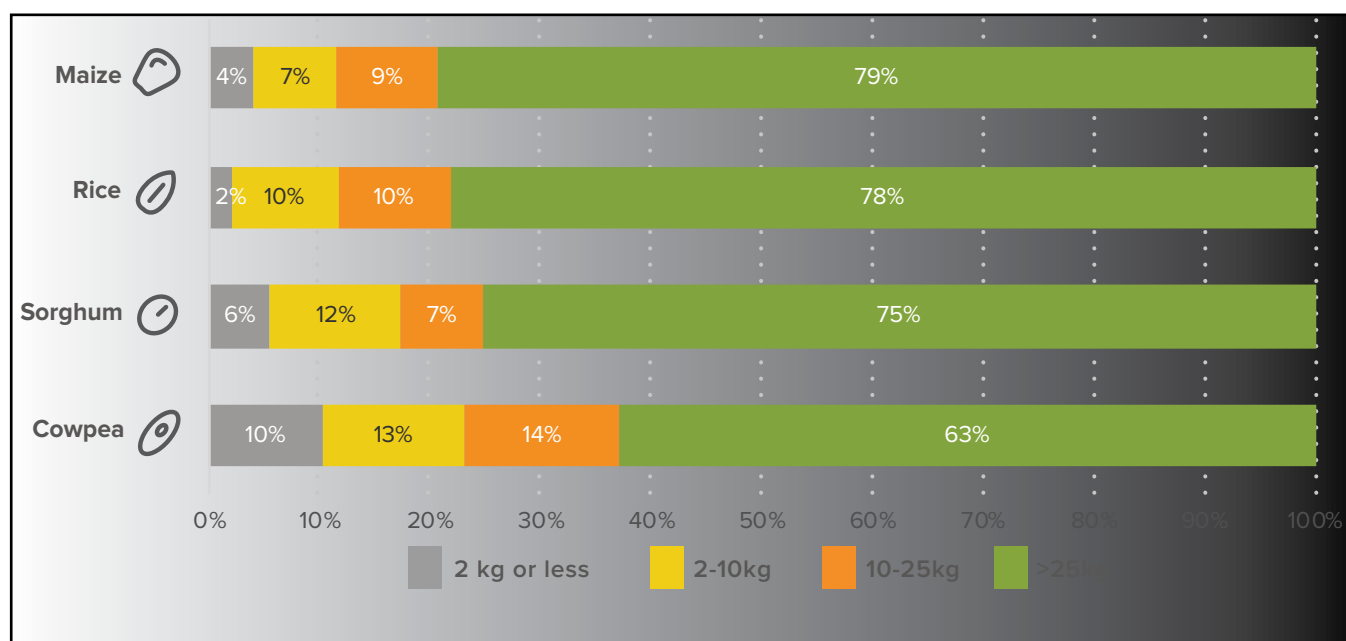


Figure 8: Trend in the % of seed sold in different package sizes

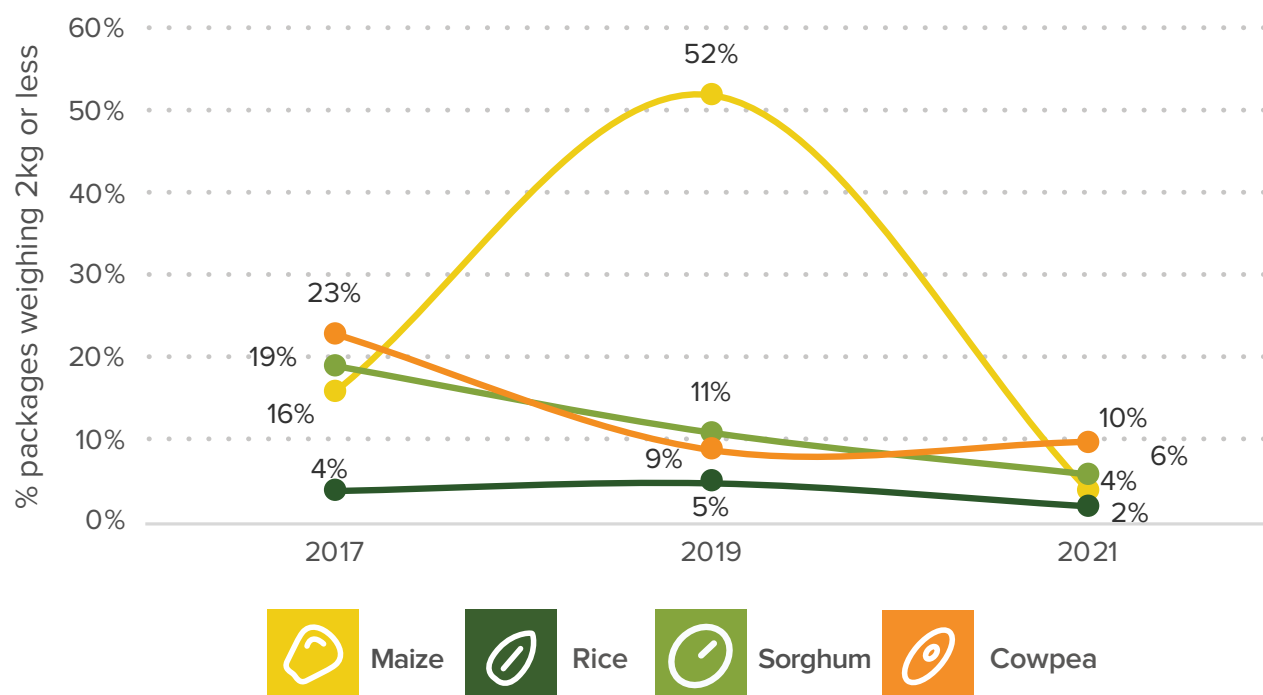
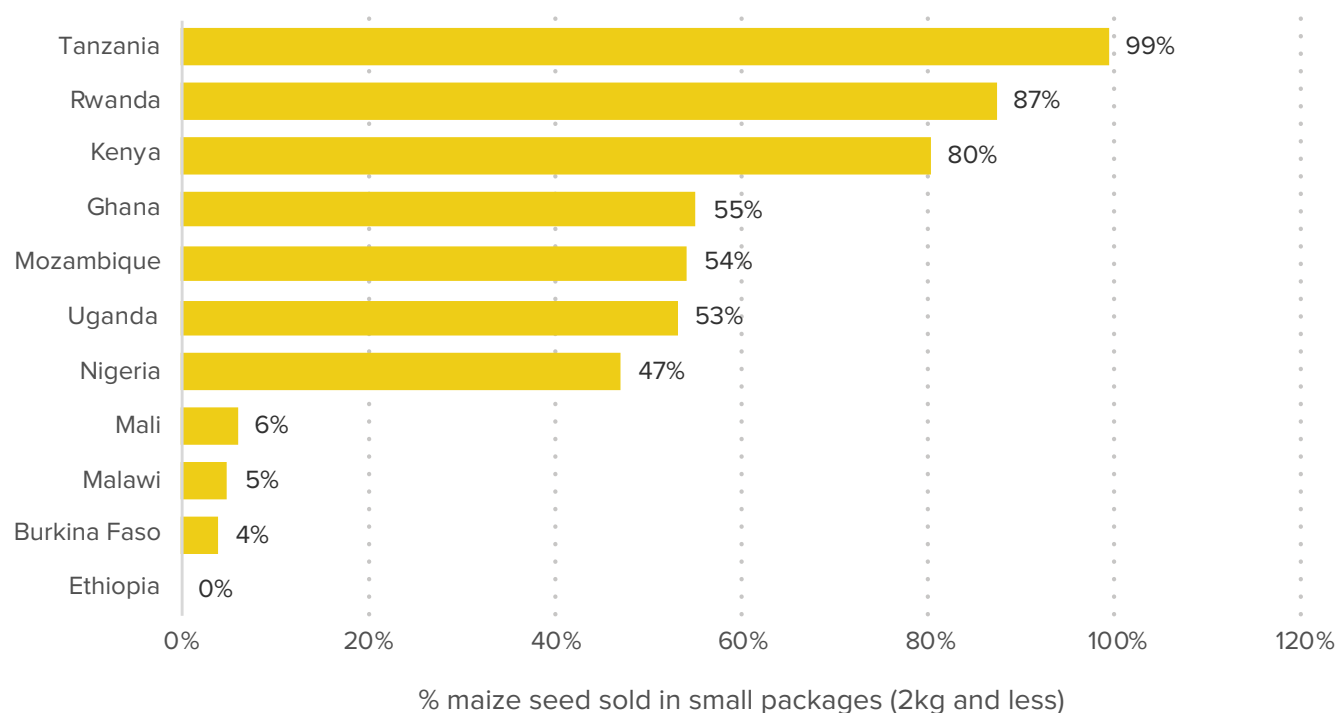


Figure 9: Country comparison of percentage maize seed sold in small packages (2 kg or less)



AVERAGE SEED AND GRAIN PRICES

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

will purchase certified seed. This indicator tracks the retail price of seed (at the agro-dealer level) vis-à-vis the market price of grain at the time of planting.

Table 21 presents the average seed and grain prices in 2017, 2019 and 2021. The seed prices in 2021 were the highest for hybrid maize (FCFA 1,591.00 per kg) and cowpea (FCFA 1,309.00 per kg) and were relatively low for the other crops. The picture in 2021 is the same as for the previous two studies when maize hybrid and cowpea were the most expensive seed.

Table 21: Average seed and grain prices in 2017, 2019 and 2021

Crop	Average Seed price (FCFA/kg)			Average Grain price (FCFA/kg)		
	2017	2019	2021	2017	2019	2021
 Maize (hybrid)	1,500	1,365	1,591	152	155	340
 Maize (OPV)	500	485	491	152	155	340
 Rice	500	550	509	395	165	250
 Sorghum	700	756	762	167	160	400
 Cowpea	1,100	1,060	1,309	395	390	800



CONCLUSION

The formal seed system in Burkina Faso is in the early growth stage of development (Ariga et al. 2019). The private sector plays an important role in seed production and marketing, while the government provides a conducive environment for seed sector development through favorable policy instruments. Despite the overall positive outlook, some challenges remain in different areas of Burkina Faso's seed sector.

Under the **research and development category**, the study recorded several positive developments. First, the number of active breeders at INERA for the four crops doubled from 9 breeders in 2017 to 16 breeders in 2021. Seed producers reported a high level of satisfaction with the adequacy of the INERA breeders. Second, all the varieties released between 2019 and 2021 had at least one climate-smart feature. Third, seed producers reported high levels of satisfaction with the availability of basic seed from INERA for all four crops. Seed producers were satisfied with the quality of the basic seed they received, the timeliness of delivery of basic seed, and the quantity of basic seed they received. Despite these positive aspects, several challenges persist. First, there are no private entities producing and supplying basic seed. INERA is still the main supplier of basic seed for all four crops. While several seed producers accessed basic seed for rice from AfricaRice, INERA remains the dominant source of rice seed. Second, the variety release process is not fully functioning, leading to a backlog of applications for varieties that have been developed by INERA but have not yet been released.

The category of **industry competitiveness** covers seed production and sales, market concentration, and seed importation and exportation. There are two main positive aspects in this category. The first is the higher volume of seed production for maize and rice when compared to sorghum and cowpea. This is because maize and rice are the main food crops in Burkina Faso: 7,489 MT of maize seed and 5,810 MT of rice seed in 2021. The production volumes for these crops were also high in 2017 and 2019. Second, the seed sector is competitive, with no single seed producer or group of seed producers dominating the seed market for any of the four crops. This is evidenced by the low HHI scores and the low market shares of the top four companies. The main challenge identified in this category is the seed producers' over-dependence on the government seed subsidy program as the main buyer of seed for all four crops. In 2021, the government subsidy program accounted for between 41% (of cowpea seed) and 66% (of rice seed) of all seed sold by seed producers. Likewise, the government subsidy program was the most important buyer of seed in 2019.

The category of **seed policy** covers the status of the seed policy instruments and three key aspects of policy implementation: the variety release process, government efforts to eradicate counterfeit seed and the implementation of the national seed subsidy program. The seed policy instruments in Burkina Faso

are relatively complete, as most decrees and ministerial orders have been passed and are being implemented. In addition, Burkina Faso was one of the first countries in the ECOWAS region to adopt the ECOWAS Seed Regulations of 2008. The main implementing entities under the Seed Law, that is, the *Comité National de Semences* and the *Service National des Semences*, are both operational, with various manuals of procedure to guide their functioning. Despite this good basic, there are several challenges regarding the implementation of the seed policy instruments.

The first challenge is the inadequate functioning of the variety release committee, which is yet to fully implement its mandate. For example, the committee does not conduct the DUS and VCU tests required for variety release. These tests are instead conducted by INERA. This presents a conflict of interest, since INERA, as a developer of seed varieties, should not be responsible for testing its own varieties. A second challenge is the incomplete implementation of the ECOWAS regulations. There is a need to ensure that the ECOWAS guidelines for seed inspection, seed packaging and labeling are fully aligned at the national level. This is not yet the case. A third challenge pertains to the inadequacies in the implementation arrangements of the national seed subsidy program. Seed producers have consistently complained about the unpredictability of the procurement process and the inefficiency in the payments made for seed that has been supplied.

The priority areas under this category include: (i) providing more resources to the variety release and registration committee so that these can fully perform their functions related to variety release, (ii) developing and passing ministerial orders for seed packaging, labeling and seed inspection, to fully conform with the ECOWAS Regulations, and (iii) a joint review of the implementation arrangements of the seed subsidy program by the government and the seed producers to address challenges related to payment delays and unpredictability in the program's procurement process.

The category of **institutional support** focuses on the adequacy of seed inspection services and the performance of the national seed trade associations. Seed producers have registered their satisfaction with the SNS' seed inspection services. However, there is a need to further strengthen this service by hiring additional seed inspectors and improving their facilitation. This would complement the ongoing positive developments including the use of various technology applications to improve their efficiency. On average, the seed producers rated their respective national seed associations, the ANES-BF and UNPS-B, highly. However, the members of ANES-BF voiced their concern about the importance of exploring alternative seed market prospects besides the government seed subsidy program, which is the main buyer for seed.

Under **service to smallholder farmers**, seed producers' satisfaction with their adequacy has remained good even though the number of public extension officers has declined over the last three years. Further, the number of agro-dealers has remained above 1,000, though only 57 are officially registered by the SNS. The importance of the seed subsidy program is shown in the package sizes that seed producers use to sell their seed. Across the four crops, most seed is sold in large packages of 25 kg or more. Finally, the average prices of seeds for the four crops have not changed significantly since 2017. Maize hybrid and cowpea seed are the costliest types of seed per kg.

The priorities under this category are: (i) for the SNS to formally register all sellers of seed across the country and encourage the extension of the agro-dealer network; and (ii) the MAAH should strengthen agricultural extension services by increasing the number of extension workers and improving their facilitation.

PHOTO CREDITS

Cover: iStockphoto.com/libre de droit
 Page 1: iStockphoto.com/sayanjo65
 Page 2: iStockphoto.com/egal
 Page 4: iStockphoto.com/Moiz_Cukurel
 Page 7: iStockphoto.com/pkripper503
 Page 9: iStockphoto.com/helovi
 Page 10-11: iStockphoto.com/boezie
 Page 12: iStockphoto.com/Claudiad
 Page 14: iStockphoto.com/rajeshbac
 Page 23: iStockphoto.com/Janine Lamontagne
 Page 25: iStockphoto.com/Ava-Leigh
 Page 27: iStockphoto.com/the.epic.man

REFERENCES

- Ariga, J., Mabaya, E., Waithaka, M., Wanzala-Mlobela, M. 2019. Can improved agricultural technologies spur a green revolution in Africa? A multicountry analysis of seed and fertilizer delivery systems. *Agricultural Economics*. 50:63–74.
- Compaoré, G. C., Sawadogo-Compaore, E. M. F. W., Temple, L., Nlend Nkott, A. L., Sourrisseau, J., Sawadaogo, N. 2020. Gouvernance, structuration du secteur semencier du Burkina Faso. Un focus sur Sorgho, Niébé, Gombo. Working Paper N° 2 – Projet Coex, 34 p
- ECOWAS. 2008. Regulation C/Reg. 4/05/2008 on Harmonization of the Rules Governing Quality Control, Certification and Marketing of Plant Seeds and Seedlings in ECOWAS Region.
- L'Assemblée Nationale. 1999. Loi N° 14/99/AN du 15 Avril 1999 Portant Réglementation des Sociétés Coopératives et Groupements.
- L'Assemblée Nationale. 2006. Loi N° 010-2006. Portant Réglementation des Semences Végétales au Burkina Faso. 31 Mars 2006.
- La République du Burkina Faso. 2008a. Décret No 2008-680/PRES/PM/MAHRH/MECV/MESSRS Portant Attributions, Composition et Fonctionnement du Comité National des Semences.
- La République du Burkina Faso. 2008b. Décret No 2008-705/PRES/PM/MAHRH/MEF/MECV Portant Attributions, Organisation et Fonctionnement du Fonds d'Appui au Secteur Semencier.
- La République du Burkina Faso. 2008c Décret N°2008-706/PRES/PM/MAHRH/MEF/MECV/MJ portant détermination des transactions applicables aux infractions commises en violation des dispositions de la loi N° 010-2006/AN du 31 mars 2006 portant réglementation des semences végétales. 17 novembre 2008
- La République du Burkina Faso. 2011. Arrêté conjoint No 2011-017/MAHRH/MEDD/MEF Portant Détermination des Titres et Fonctions des Agents de L'Agriculture ou des Forêts Chargés du Contrôle de Qualité pour la Certification des semences Végétales.
- Laudien, R., Schauburger, B., Waidl, J., Gornott, C. 2022. A forecast of staple crop production in Burkina Faso to enable early warnings of shortages in domestic food availability. **Scientific Reports** | (2022) 12: 1638. <https://doi.org/10.1038/s41598-022-05561-9>
- Ministère de l'Agriculture et des Aménagements Hydro agricoles (MAAH). 2020. Annuaire des statistiques agricoles 2020. Burkina Faso
- Ministère de l'Agriculture, de l'Hydraulique et des Ressources Halieutiques, 2010. Stratégie de Développement Durable du Secteur Semencier du Burkina Faso (2011-2020). Document final. 46p + annexes, Ouagadougou, Burkina Faso
- MARHASA 2015. Manuel de procédure pour le contrôle qualité et la certification des semences agricoles au Burkina Faso. Ministère de l'Agriculture, des Ressources Hydrauliques, de L'assainissement et de la Sécurité Alimentaire.
- McGuire, S., Sperling, L. 2016. Seed Systems Smallholder Farmers Use. *Food Security*. 8(1): 179–195.
- Sanou, B., Savadogo, K., Sakurai, T. 2017. Determinants of Adoption and Continuous Use of Improved Maize Seeds in Burkina Faso. *Japanese Journal of Agricultural Economics*. 19: 21-26.

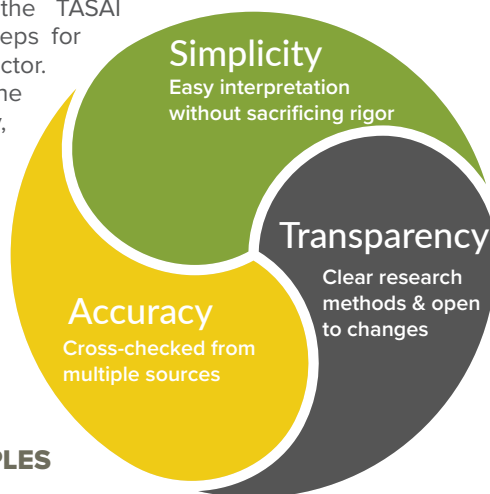
ABOUT TASAI



PILLARS OF COMPETITIVE SEED SECTORS

The African Seed Access Index (TASAI) is a seed industry research initiative that is coordinated by the nonprofit organization TASAI Inc. TASAI's goal is to encourage African governments and other seed industry players to create and maintain enabling environments that will accelerate the development of a vibrant private sector-led seed system serving smallholder farmers. It is this enabling environment that TASAI seeks to measure, track, and compare across African countries. The intended outcome of the index is improved access to locally adapted, affordable, and high-quality seed of improved varieties by smallholder farmers in Sub-Saharan Africa.

To assess the status of the seed industry value chain, TASAI tracks indicators in the following five categories: Research and Development, Industry Competitiveness, Policy and Regulations, Institutional Support and Service to Smallholder Farmers. By the end of 2022, TASAI studies will have been completed in 22 African countries: Burkina Faso, Burundi, the Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, South Sudan, Tanzania, Uganda, Zambia, and Zimbabwe. In each country, TASAI works closely with local seed industry actors, government and international development agencies to share the TASAI findings and to identify the next steps for creating a vibrant national seed sector. TASAI's approach is guided by the principles of Simplicity, Transparency, and Accuracy.



TASAI PRINCIPLES



FOR MORE INFORMATION:



BROWSE TASAI DATA ONLINE:

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

READ TASAI REPORTS ONLINE:

<https://www.tasai.org/en/products/country-reports/>

THE AFRICAN SEED ACCESS INDEX HAS BEEN SUPPORTED BY:

