



TASAI

THE AFRICAN SEED ACCESS INDEX



Mali Brief 2018 - The African Seed Access Index

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October 2019

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INTRODUCTION

A competitive seed sector is key to ensuring the timely availability of high-quality seed of improved, appropriate varieties at affordable prices for smallholder farmers. The African Seed Access Index (TASAI) seeks 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 country brief summarizes the key findings of the TASAI study conducted in 2018 to appraise the structure and economic performance of Mali's seed sector. The study evaluates the enabling environment necessary to build a vibrant formal seed sector, focusing on five food crops important to food security in Mali – maize, rice, sorghum, cowpea and cassava – the cultivation of which covers about 34% of the country's arable land (Food and Agriculture Organization (UN), 2019). Cassava, though a vegetatively-propagated crop, is included with a focus on its nutrition-enhanced characteristics. It is important to note that, while included in the study, not all TASAI indicators are applicable to cassava, as these have been developed for the study of seed-propagated crops. As such, the findings discussed in this brief in general apply to the four main seed-propagated crops; when the findings concern cassava, this will be indicated.

The study covers 20 indicators divided into the following categories: Research and Development, Industry Competitiveness, Seed Policy and Regulations, Institutional Support, and Service to Smallholder Farmers. [Appendix 1](#) summarizes all 20 indicators 20 countries.

Overview

The seed industry in Mali consists of two systems: the informal and the formal seed sector. This policy brief focuses almost exclusively on the formal seed sector.

The informal sector broadly refers to farmers' traditional practices through which they produce and maintain local varieties. Under this system, farmers either retain seed from the previous harvest or source seed from neighbors, family members or food markets. Due to limited private sector investment in seed production and processing, about 90% of the smallholder farmers in Mali still rely on the informal seed sector for seed for most crops (Coulibaly, Bazile and Sidibe, 2014).

The formal sector focuses on breeding and evaluating improved varieties, as well as producing and selling certified seed. Utilization of certified seed in Mali is low and varies by crop, ranging from 15% for maize seed to about 1% for groundnut seed (ISSD, 2017), and between 13% and 30% for sorghum, depending on measurement method and geographical location (Smale *et al.*, 2018). Mali's formal seed sector comprises various institutions from the public and the private sectors. Variety development lies within the remit of the *Institut d'Economie Rurale* (IER). Seed quality control, inspection and certification is conducted by the *Laboratoire des Semences du Mali* (LABOSEM), which is under the *Direction Nationale de l'Agriculture* (DNA). The *Service National de Semences* (SSN) falls under the DNA and is in charge of implementing the National Seed Plan. Seed production and marketing is conducted by seed companies, seed co-operatives and individual seed producers. The *Association Semencière du Mali* (ASSEMA) is the national seed association and brings together the seed producers under one umbrella.

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

ROLE	KEY PLAYERS
Research and breeding	IER, CGIAR centers
Variety release and regulation	DNA, CNSOV, SNS
Seed production and processing	Individual seed producers, seed co-operatives, seed companies
Education, training, and extension	ASSEMA, NGOs, extension officers
Distribution and sales	Seed co-operatives, seed companies, agro-dealers

Key acronyms: ASSEMA - Association Semencière du Mali; CGIAR – Consultative Group on International Agricultural Development; CNSOV - National Committee for Seed and Plant Origin; DNA - Direction Nationale de l'Agriculture; IER – Institut d'Economie Rurale; LABOSEM – Laboratoire des Semences du Mali; NGO – non-governmental organization; SSN – Service National de Semences;



RESEARCH AND DEVELOPMENT

Number of active breeders

Mali has nine active breeders for the five priority crops maize, rice, sorghum, cowpea and cassava. All breeders are employed by the *Institut d'Economie Rurale* (IER), the government agricultural research institution. Three breeders work with both maize and rice, two work with sorghum and one breeder works with cowpea and cassava. Mali has no private seed breeders for any of the five crops.

On average, seed producers rate their satisfaction with the number of active breeders as “good”¹ for maize (68%), rice (78%), sorghum (72%) and cowpea (75%), but only “fair” for cassava (43%). Despite the low number of producers, the satisfaction rating is high for some crops, because the government breeding programs are supported by several Consultative Group on International Agricultural Research (CGIAR) centers, namely: Africa Rice, the International Institute of Tropical Agriculture (IITA), the International Maize and Wheat Improvement Centre (CIMMYT), and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). The support is mainly provided in the form of shared germplasm, human resources and research facilities. Thanks to this support, Mali has been designated as the National Centre of Specialization (NCOS) for rice in the Economic Community of West African States (ECOWAS) region. Despite these additional resources, the IER’s research activities are constrained by the overall shortage of breeders.

Varieties released in the last three years

Figure 1 shows the 3-year moving average of variety releases from 2000 to 2017. Between 2015 and 2017, a total of 49 varieties were released: 14 rice, 26 sorghum and 9 cowpea varieties. No maize or cassava varieties were released during this period. In fact, there were no cowpea releases in 16 of the 18 years, no maize releases in 14 of the 18 years, and no rice releases in 10 of the 18 years. No cassava varieties were released over the entire 18-year period. However, Mali has an

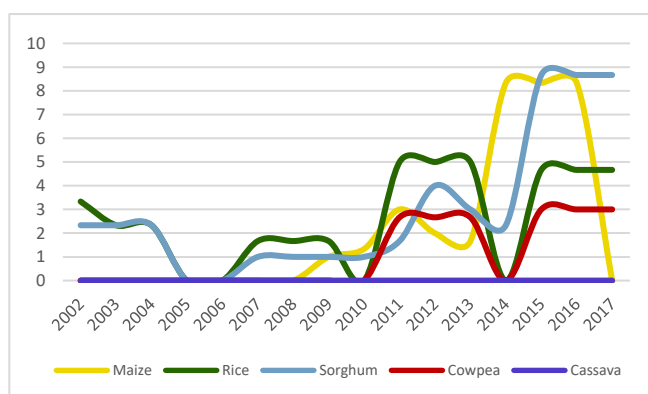


Figure 1: 3-year moving average in variety releases (2000-2017)

active sorghum breeding program. Out of the 171 sorghum varieties on the ECOWAS Catalogue, 54 were developed by IER. These include five hybrid sorghum varieties that were released in 2011 and 2012.

Number of varieties sold in 2017

In 2017, seed producers sold a combined total of 58 varieties of the five crops to farmers. The breakdown by variety was as follows: maize (17), rice (18), sorghum (12), cowpea (9) and cassava (2). The number of rice varieties sold in Mali (18) is in the middle of the pack compared to other West African countries where rice is one of the main staples like Senegal (2), Sierra Leone (5), Burkina Faso (12), Liberia (20) and Sierra Leone (21) (Figure 2).

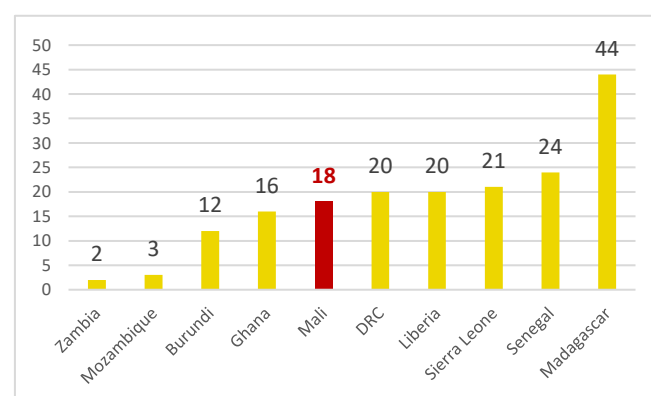


Figure 2: Number of rice varieties sold in African countries

The number of maize varieties sold in Mali (17) is high when compared with other West African countries such as Burkina Faso (12), Liberia (8), Sierra Leone (5) and Senegal (2) (Figure 3). However, the number is relatively low when compared to the numbers sold in eastern and southern Africa countries.

¹ All scores are based on industry self-reporting of satisfaction on the following scale: 0-19.99% (extremely poor), 20-39.99% (poor), 40-59.99% (fair), 60-79.99% (good), and 80-100% (excellent).



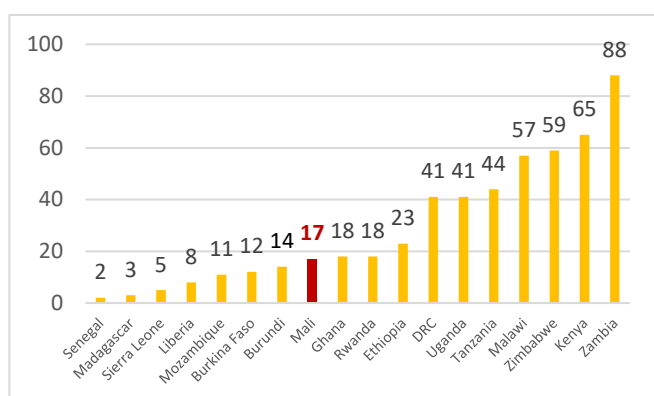


Figure 3: Number of maize varieties sold in African countries

Number of varieties dropped over the last 10 years

The TASAI survey asked seed producers to indicate if they had dropped, i.e., stopped producing, certain varieties during the 10-year-period from 2008-2017². Across the four seed-propagated crops, seed producers reported dropping 44 varieties in all: 9 maize, 14 rice, 11 sorghum and 10 cowpea varieties (Table 2). The main reasons for dropping varieties were low yield and weak resistance to pests and diseases.

Table 2: Number of, and reasons for dropping varieties

Crop	Number of varieties dropped	Examples of varieties dropped	Reasons for dropping varieties
Maize	9	Zanguereni; Molobaladen; Kabablen; Kabadiè; Dembagnouma; Sotubaka; QPM jaune; Nièleni; Tiémantié	Low yield; dislike of the grain color
Rice	14	Nerica L1 IER; Nerica L2 IER; BG 90-1; WAH 310; BG 52; RPK 2; M2; Fadiala; Lanoko; Dourado; Sikasso; koumabani; Nerica 4; Wassa	Low yield; low resistance to disease and pests
Sorghum	11	Fambé; Tiémantié; Seguetana; Kégnéble; Kégnéfin; Grinkan; Fentebolo; Soumalenba; Sewa; Omba; Seguifa	Low yield; low resistance to disease and pests
Cowpea	10	Yerewolo; Bachion; Sakaneka; Chiodiè; Bolo-blen; Barawa; Telimani; Fogoni; Niban; Sangarak	Low yield; low resistance to disease and pests

² Note: a variety may be dropped by one seed producer, but still be multiplied by another.

Availability of foundation seed

Seed producers rate their satisfaction with the availability of foundation seed as “good” for maize (79%), rice (70%), sorghum (74%) and cowpea (70%). The producers are less satisfied with the availability of planting materials for cassava (50%). Most seed producers source foundation seed for all the crops from the IER. The satisfaction levels for maize, rice, sorghum and cowpea are high, because the IER supplies the foundation seed for these crops in a timely manner. Further, different CGIAR centers, namely, IITA (for maize) and Africa Rice (for rice) work closely with the IER in the production and supply of foundation seed in Mali.

Despite a high average satisfaction, some seed producers are not satisfied with the availability of foundation seed. The evidence of this is the high standard deviations from the average responses of between 23% and 28% for three crops – maize, rice and cowpea.

Average age of varieties sold

The average age of the varieties currently on the market is as follows: 10 years for maize, 17 years for rice, 10 years for sorghum and 17 years for cowpea. However, most of the popular varieties sold to farmers are notably older. In fact, 8 out of 13 of the most popular varieties of the four seed-propagated crops are 19 years or older, while only 4 of the 13 of the popular varieties are 10 years or younger (Table 3).

Table 3: Age of the most popular varieties in Mali

Crop	Most popular varieties ³	Year released	Age (in 2018)
Maize	Sotubaka	1995	23
	Dembagnouma	1998	20
	Brico	2011	7
	Jorobana	2010	8
Rice (irrigated variety)	Adny11	1987	31
	Gambiaca Kokoun	1987	31
Rice (flooding variety)	Shwetaskoke	2002	16
	Khao Gaewn	1987	31
Sorghum	CSM63E	1987	3
	Tiandougou coura	2010	8

³ Listed in order of priority, as measured by number of seed producers selling the variety.



Cowpea	Korobalen	1998	20
	Sangaraka	1998	20
	Wilibali	2011	7

Varieties with climate-smart features

To be classified as climate-smart, a crop variety must meet at least one of two criteria – early maturity and/or tolerance to extreme weather conditions such as drought, flooding, or frost. Table 4 summarizes the climate-smart variety releases between 2015 and 2017. Many of the varieties released during this period – 50% of the rice varieties, 92% of the sorghum varieties and all of the cowpea varieties - had climate-smart characteristics (Table 4).

Table 4: Number of varieties released between 2015 and 2017 with climate-smart characteristics

Crop	Number of varieties released between 2015-2017	Number of varieties with climate-smart characteristics	%
Maize	0	0	NA
Rice	14	7	50%
Sorghum	26	24	92%
Cowpea	9	9	100%

INDUSTRY COMPETITIVENESS

Number of active seed producers

In 2017, 174 active seed producers were registered and certified by *Laboratoire des Semences du Mali* (LABOSEM), the seed-certifying agency in Mali. These seed producers fall into three categories – individual seed producers, seed co-operatives, and seed companies (Table 5). Out of the 174 producers, 64 were interviewed for the present TASAI study. Many seed producers are also members of seed co-operatives; in cases like this, respondents were interviewed as registered seed producers to avoid the risk of double counting. Further, most of those who were not interviewed were seed associations or co-operatives that produce seed for the different co-operatives or the seed companies.

Table 5: Number of seed producers by category

Type of seed producer	Number of active certified seed producers	Number of interviewed seed producers
Individual seed producers	24	19
Seed associations/ co-operatives	109	18
Seed companies	41	27
Total	174	64

Of the 64 interviewed seed producers, 54 produced maize seed, 56 produced bean seed, 12 produced rice seed and 10 produced wheat seed in 2017.

The estimated aggregate volume of seed produced for the four seed crops was 2,092 tons of maize seed, 1,904 tons of rice seed, 364 tons of sorghum seed and 262 tons of cowpea seed (Table 6).

Table 6: Seed production and sales in 2017

Crop	Volume of certified seed produced (in tons)	Volume of certified seed sold (in tons)
Maize	2,092	1,946
Rice	1,904	2,295
Sorghum	364	374
Cowpea	262	306

Market share of top seed producers

The market share of the top four seed producers is calculated using the volume of seed sales as reported by producers. By crop, the market shares for the top four producers are: 63% for maize, 56% for rice, 63% for sorghum and 56% for cowpea (Figure 4).

The Herfindahl-Hirschman Index (HHI) was also used to quantify industry competitiveness. The index, a sum of squared market shares, ranges from near zero for perfect competition to 10,000 for a pure monopoly⁴. The HHI was calculated for all seed producers for each crop. The market for three crops is competitive: maize (1,287), sorghum (1,282) and cowpea (1,064), while the market for rice seed is highly competitive (979).

⁴ Scale for HHI scores, ranging from extremely low to extremely high levels of market concentration: <1,000 (highly competitive), 1,000-1,999 (competitive), 2,000-2,999

(average), 3,000-3,999 (high concentration), >4,000 (extremely high concentration, i.e., monopoly or near monopoly).



The market shares of the top four companies and the HHI results both indicate that, at least for the four seed crops surveyed, Mali's seed industry is competitive with no individual seed producer dominating the market.

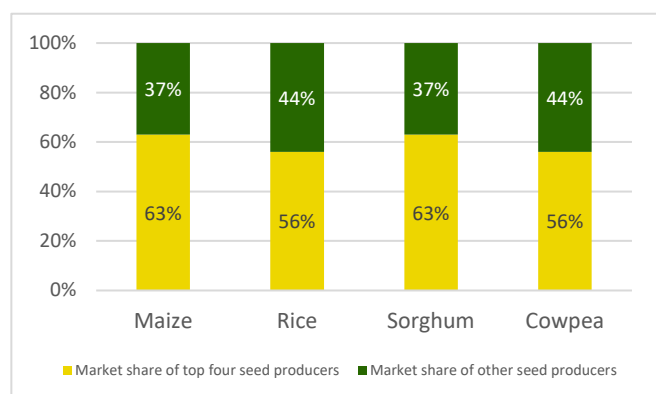


Figure 4: Market share of top four seed producers

Market share of government parastatal

There is no government parastatal involved in the production and marketing of certified seed in Mali.

Length of import/export process for seed

In 2017, seven seed producers imported seed for the four seed-propagated crops into Mali. Maize seed (56 tons), rice seed (115 tons) and sorghum seed (3 tons) were imported. The main source countries were India and Cote d'Ivoire (for rice), Burkina Faso, France, India and Nigeria (for maize) and Vietnam (for sorghum).

The seed trade in Mali is regulated by the seed law, *Relative aux Semences d'Origine Végétale* of 2010 (No 10-032/12/7/2010) and the Seed Decree (Decree No. 10-428/PRM). According to these Regulations, a seed importer must apply for an import permit from the Ministry of Agriculture. The application must include the relevant details about the seed that is being imported, i.e., the variety, seed class, and quantities, and the application must be accompanied by a phytosanitary certificate.

Seed importers reported that, on average, it takes between 9 and 38 days to complete the relevant import procedures, with an average of 18 days. An average of 7 days are taken up by obtaining an import permit, while the remaining 11 days are used to clear the seed at the border point of entry. Seed importers rate the import process as "good" (60%).

Only three seed producers exported seed from Mali in 2017. All the exports concerned rice seed, and the main export destinations were Senegal, Cote d'Ivoire, and the Democratic Republic of Congo (DRC).

SEED POLICY AND REGULATIONS

Length of the variety release process

The length of the variety release process is the period of time from the submission of an application for a variety release to the time of its release by the relevant authority. Applications for variety release are submitted to the *Direction Nationale de l'Agriculture*. Verification of the application, field-testing and recommendation for release are conducted by the National Committee for Seed and Plant Origin (CNSOV). The Chairperson of the CNSOV is responsible for updating the variety catalogue and notifying the applicant of the Committee's decision.

For ECOWAS member states like Mali, there are two catalogues - The ECOWAS Regulations stipulate that countries should maintain and update a national Catalogue of Plant Varieties and Species. The ECOWAS Regulations also require that all varieties released at the national level should automatically be included in the ECOWAS Catalogues of Plants and Species (ECOWAS, 2008). In Mali, the National Catalogue was last updated in 2016.

For the four seed-propagated crops, the average length of the variety release process is 24 months. The cost of conducting DUS tests is US \$4,000. Breeders are satisfied with the variety release process, rating is "good" (60%).

Status of seed policy framework

The seed policy framework in Mali consists of the following instruments: the National Seed Policy (NSP), adopted in December 2009, the National Seed Act (No.10-032/12/7/2010), adopted in 2010, and a seed decree (Decree No. 10-428/PRM) adopted on August 9, 2010. Two decrees were adopted in August 2019: (i) the decree establishing, organizing and operating the National Seed Committee, and (ii) the decree establishing the National Catalogue of Species and Varieties of Mali.



Importantly, all of these are in line with the ECOWAS Seed Regulation (C/Reg.4/05/2008), passed in 2008 (ECOWAS, 2008). In addition, Mali has several complementary policy instruments: the Agriculture Orientation Law (AOL, 2003) and the Agriculture Development Policy of 2013 (ADP, 2013).

Quality of seed regulations and enforcement

Seed producers in Mali are generally satisfied with the quality of the current seed law, regulation and decrees, rating them at the low end of “excellent” (80%). This high rating is not surprising, since in the past decade several programs such as the West Africa Agricultural Productivity Program (WAAPP) and the West Africa Seed Program (WASP) placed a significant focus on strengthening the regulatory arrangements in the national seed sectors in West Africa. In contrast, seed producers are less satisfied with the *enforcement* of the laws and decrees, rating this as “good” (70%).

The ECOWAS Harmonized Seed Regulation (C/Reg.4/05/2008) was created to harmonize rules governing quality control, certification and marketing of seed and seed materials in the ECOWAS region. The implementation of the harmonized regulation has been slow in many member states, including Mali. For example, Article 9 (2) requires countries to maintain a national catalogue of plant species and varieties; in Mali, the catalogue was last updated in 2013. Article 16 requires all seed producers to be registered; in Mali, fewer than 30% of active seed producers are registered. Further, articles in Chapter IX on Production Control, including the guidelines for field inspections (Articles 33, 34 and 36) and internal quality control for seed producers (Article 38) are not being implemented. While a detailed investigation of the reasons for these gaps is beyond the scope of the TASAI study, slow implementation of the ECOWAS regulation will delay the development of Mali’s seed sector.

Adequacy of seed inspectors

Currently NDA has 60 seed inspectors. According to the seed producers surveyed, this number is insufficient, especially considering that fields are scattered across a large country and that the rainy season, when inspections have to be conducted, is short. As a result, seed

inspectors do not always conduct the required number of inspections, leading to insufficient quality control in the seed supply chain. Seed analysis and certification is conducted by LABOSEM. However, the seed laboratory is not well-equipped and is not accredited to the International Seed Testing Association (ISTA).

Efforts to stamp out fake seed

The challenge of counterfeit seed is common in most African countries. On average, seed producers are not satisfied with the government’s efforts to stamp out fake seed, rating these as “fair” (50%).

Use of smart seed subsidies

In 2017, the Malian government did not implement a seed subsidy program in the country. However, prior to 2017, the government purchased and distributed more than 4,000 tons of certified seed for cereal, legume and vegetable crops under the WASP program. The purpose of this program was to promote the use of improved seed among farmers.

INSTITUTIONAL SUPPORT

Availability of extension services

In 2017, Mali had 1,348 agricultural extension workers. This translates to a ratio of roughly one extension officer per 598 agricultural households. Most of the extension workers (1,135 or 84%) are employed by the government, mainly under the DNA.

The remaining 213 agricultural extension workers are employed by seed companies, NGOs or farmer organizations and cooperatives. There are a number of NGO-funded agricultural extension programs, including those implemented by SG2000, Malimark and SNV. As a result, the number of extension officers is likely to be an under-estimate as these organizations were not contacted for the study. The Ministry of Agriculture is aware of this and has set up a framework to ensure that extension services are better coordinated.



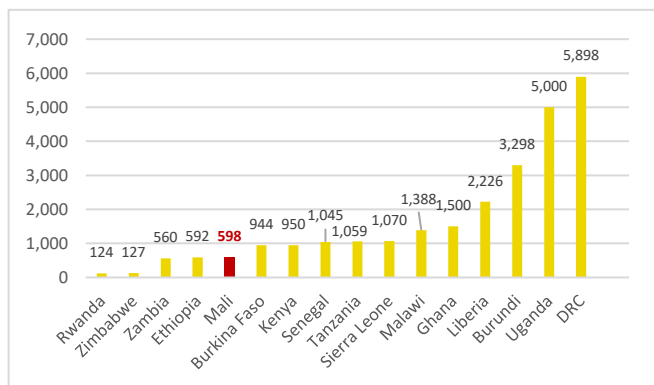


Figure 5: Number of households served by one agricultural extension officer

Seed companies rate their satisfaction with the extension services as “good” (72%). Despite the relatively high average rating, a quarter of the seed producers gave a rating of 50% or less, indicating their dissatisfaction with the extension services.

The number of households per agricultural extension officer in Mali is low when compared with other African countries, meaning that households in Mali have better access to agricultural extension services than most countries surveyed (Figure 5).

Quality of the national seed trade association

Established in 2002, the *Association Semencière du Mali* (ASSEMA) is the national association of seed producers in Mali. ASSEMA is recognized by the DNA and is an active member of the African Seed Trade Association (AFSTA), where it currently serves as a board member. ASSEMA hosted the 2010 AFSTA Congress in Bamako. ASSEMA is run by a seven-member executive council. The main functions of the association are to build the technical and business capacity of members, promote effective collaboration between industry players, advocate on behalf of its membership, and provide general seed industry information.

ASSEMA is actively involved in various seed industry processes in the country. For example, the association participated actively in the process to harmonize the Mali seed regulations with the ECOWAS Harmonized Seed Regulations. It is a member of the Committee of the National Seed Council (CONASEM) and works with

various organizations involved in the seed industry, including ICRISAT, the NDA, the CNRA, AGRA, the IER, and CORAF.

ASSEMA’s members include all active seed companies (including seed importers and exporters), most of the seed co-operatives and associations, individual seed producers and multipliers, and plant breeders. Its membership has grown from 20 members in 2013 to 40 members in 2018, due to technical and financial support from the WASP program. Seed producers who were not members indicated that their main reason for not joining ASSEMA was the lack of information about the association.

Despite being actively involved in various seed industry-related activities, ASSEMA members rate the overall quality of the association as “fair” (40%) (Figure 6).

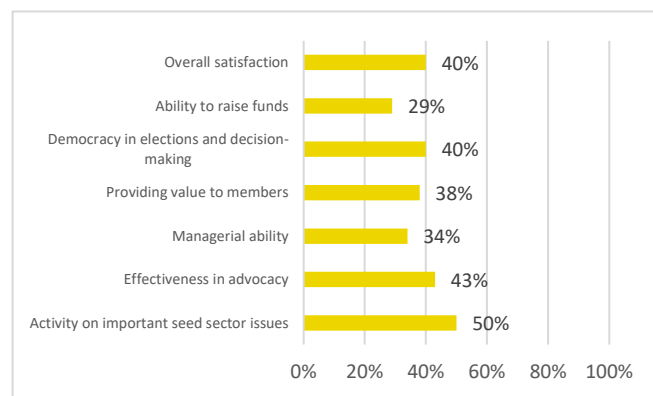


Figure 6: Members’ satisfaction with ASSEMA

The main concerns raised by ASSEMA members were inadequate managerial ability, the need to provide more value to members and the need to raise more funds for the association’s activities. The association was rated slightly higher in the areas of “activity on important seed sector issues” and “effectiveness in advocacy”.

SERVICE TO SMALLHOLDER FARMERS

Concentration of rural agro-dealer network

In 2017, Mali had 3,003 agro-dealers⁵, which translates to a ratio of one agro-dealer for every 268 agricultural households. The agro-dealers are mainly located in the

⁵ <https://www.cnfa.org/program/agrodealer-strengthening-program-for-mali/>



regions of Koulikoro, Sikasso, Segou and the district of Bamako, which are the main agricultural producing areas in the country.

The agro-dealers have been trained by the CNFA in business management and product safety. Although the national seed policy envisions the creation of accredited agro-dealer networks across the country, this is yet to be accomplished. The ECOWAS Seed Regulations require that agro-dealers (also called Seed Distributors) be officially accredited within their respective countries.

The agro-dealer to farmer ratio is the highest among the countries surveyed by TASAI (Figure 7). Understandably, seed producers rated their satisfaction with the agro-dealer network as “good” (72%).

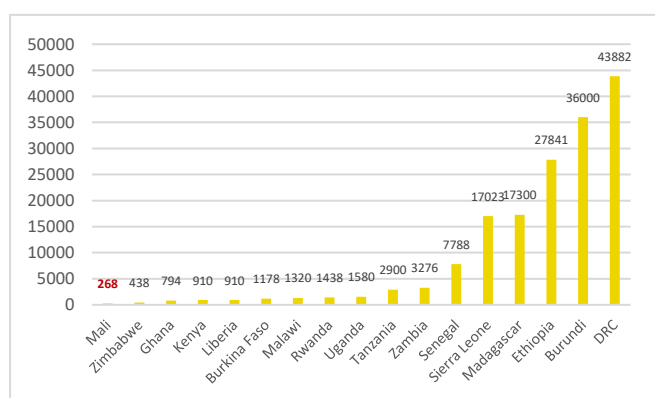


Figure 8: Number of farming households served by one agro-dealer

Despite this high rating, one quarter of the seed producers (27%) rated their satisfaction as 50% or less, indicating that many seed producers are dissatisfied with the agro-dealer network.

Availability of seed in small packages

ECOWAS regulations require that all seed producers package (Article 52) and label (Article 62) seed. At present, fewer than half (27 of 66) of Malian seed producers interviewed follow this practice. Of the 27 seed producers that follow ECOWAS regulations, 20 are seed companies, 5 are individual seed producers and 2 are cooperatives, clearly showing that, to date, seed companies have the highest compliance rate. Most seed is sold in package sizes of larger than 2kg. Only 18% of maize seed, 2% of rice seed, 19% of sorghum seed and 16% of cowpea seed is sold in small packages (Figure 8).

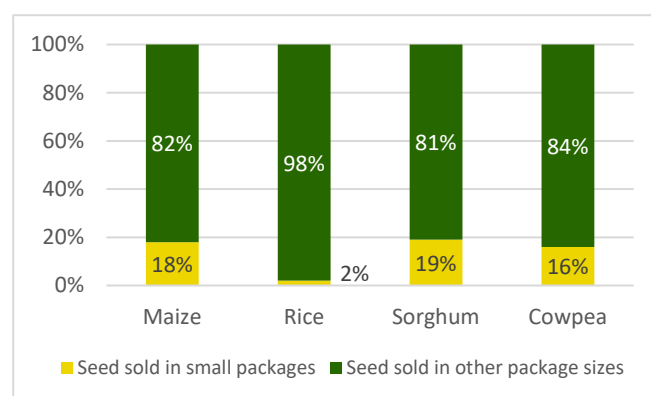


Figure 7: Percentage of seed sold in small packages of 2kg or less

Despite the low volume of seed sold in small packages, seed producers are relatively satisfied with the availability of small package sizes, rating it as “good” for maize (75%), sorghum (74%) and cowpea (78%) and “fair” for rice (58%). Seed producers are satisfied with the package sizes (for maize, sorghum and cowpea) because they feel that the package sizes correspond well to the average sizes of farmers’ fields.

Seed-to-grain price ratios

Seed prices are an indication of the affordability of seed for farmers. In Mali, the price of hybrid seed for maize, rice and sorghum is more than twice the price of their OPV equivalents. In addition, the prices of hybrids are significantly higher than the prices of grain. The seed-to-grain price ratios are 7.5:1 (for maize hybrid), 3.8:1 (for rice hybrid) and 6.7:1 (for sorghum hybrid). The ratios for OPV seed are notably lower: 3.3:1 (for maize OPV), 1.6:1 (for rice OPV), 2.9:1 (for sorghum OPV) and 2.7:1 (for cowpea).

However, the seed prices for the two main crops in Mali – rice and maize – are comparable to or slightly higher than prices in other African countries. The average price of hybrid maize ranges from US \$1.3 per kg to US \$7.0 per kg, with the price in Mali on the upper end of this range (Figure 9).



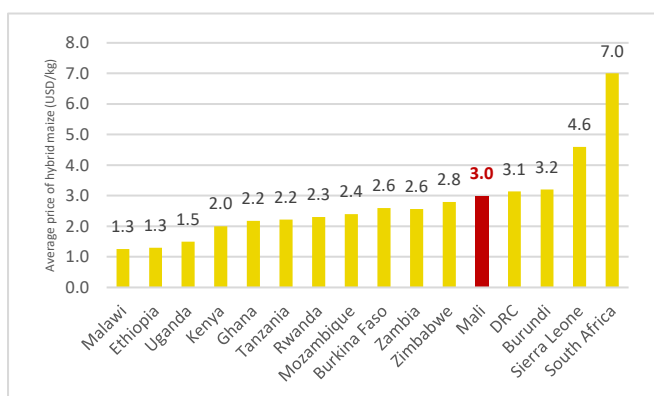


Figure 9: Average price of hybrid maize seed in African countries

The average price of OPV rice seed⁶ in Mali (US \$1.3 per kg) is slightly higher than the average price in other West African countries such as Burkina Faso, Ghana, Sierra Leone and Senegal, where rice is a staple crop. The average price of rice seed in these countries is US \$1 per kg or less (Figure 10).

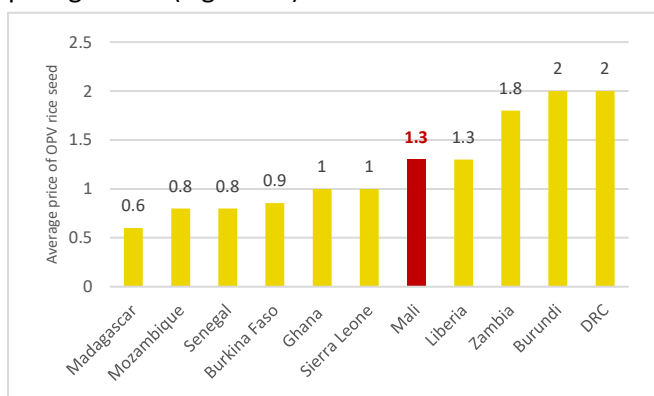


Figure 10: Average price of OPV rice seed in African countries (USD per kg)

CONCLUSION

The seed industry in Mali is in the early stages of growth. The low adoption rates (less than 30%) of certified seed for key food crops and the low volume of seed sales suggests that there is room for development.

On the positive side, the country has a well-defined policy and regulatory environment, as the key policy instruments are up to date. In addition, the ECOWAS Seed Regulations have been ratified. However, implementation of all these has lagged behind, which means that Mali's seed sector is not able to enjoy the benefits of these new policy instruments.

In other areas, too, substantial challenges remain, which need to be addressed to ensure that the country creates

an enabling environment for seed sector development. Based on the TASAI country study findings, the priorities for development are as follows:

Despite seed producers rating the availability of foundation seed for the four crops as "good", between 70% and 79%, they still highlighted the need to **strengthen the IER in terms of the number of breeders and financial resources for variety development**. Further evidence of this need comes from the high standard deviation in this rating - above 20 for maize, rice and cowpea. This shows that a number of seed producers rated the availability of foundation seed below 50%.

There is an urgent **need to review the seed production system in Mali to ensure that seed that is sold to farmers meets the quality requirements** as stipulated in the seed regulations and decree. The review would focus on the categorization and registration of seed producers. The intended end-result is to ensure that seed producers receive the necessary services, such as seed inspection, and meet the necessary requirements in terms of quality seed production and seed packaging, among others.

One in eight seed producers mentioned that they were unable to sell their seed in 2017, which is evidence of the low level of utilization of certified seed, for all crops. This signals an urgent need to **develop the market for certified seed**, by exploiting – and further strengthening - the network of rural agro-dealers and agricultural extension services, as they are the main sources of agricultural inputs and accompanying information to farmers. In addition, seed producers should exploit market opportunities afforded through seed field days, demonstrations and government tenders.

Strengthen LABOSEM. LABOSEM's activities include the registration of seed producers, seed sampling and analysis, seed inspection and seed certification. However, as a seed laboratory, LABOSEM's intended role is seed testing and analysis. LABOSEM is under-staffed and underfunded to adequately undertake the other roles. NDA needs to clarify the role of LABOSEM as well as the institutional arrangements for the other key seed services including the registration of seed producers, seed inspection and certification in line with the ECOWAS

⁶ In most countries, seed companies only seed OPV rice



Seed Regulations. More importantly, LABOSEM needs sufficient financing to provide adequate seed quality assurance services.

The national seed laboratory should apply for ISTA accreditation. Under the auspices of LABOSEM, the laboratory is in urgent need of updated facilities and new equipment as it prepares to apply for ISTA accreditation.

The **NDA needs to fully operationalize the National Committee for Seed and Plant Origin (CNSOV)** to ensure that the variety release process is well-understood and clearly followed. The expectation is that the CNSOV would convene regular committee meetings, inform the breeders of the process, and update the seed industry about new releases. This would contribute to ensuring that the process is predictable.

There is a need to **strengthen ASSEMA to serve as an effective platform for private sector engagement with the government** on all matters related to the seed industry. The first step to achieving this would be for ASSEMA to participate in all the key seed sector-related activities in the country. One of the key activities should be the strengthening of seed producers to ensure that the seed that is sold to farmers meets the quality standards defined in the seed regulations and decree.

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APPENDIX 1.

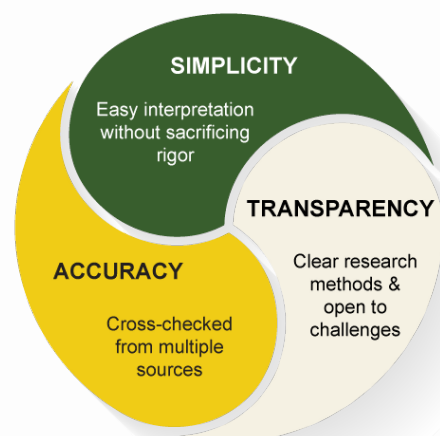
For a comparison of TASAI Indicators across different countries, please visit: <http://tasai.org/wp-content/uploads/TASAI-Appendix-CURRENT.pdf>



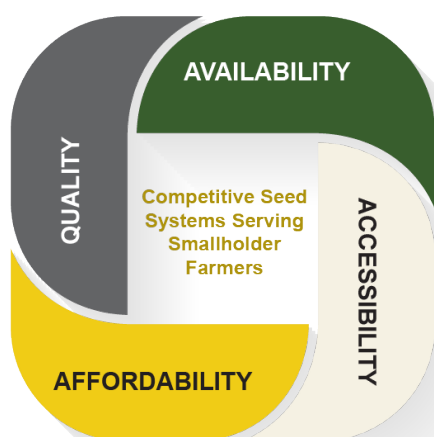
ABOUT THE AFRICAN SEED ACCESS INDEX

The African Seed Access Index (TASAI) is a seed industry research initiative housed at **Market Matters Inc.** (MM 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.

To assess the status of the seed industry value chain, TASAI employs **20 indicators** grouped into five categories: **Research and Development, Industry Competitiveness, Policy and Regulations, Institutional Support** and **Service to Smallholder Farmers**.



TASAI Principles



Pillars of competitive seed sectors

By the end of 2019, TASAI studies will have been completed in **21 African countries**: Burkina Faso, Burundi, Cote d'Ivoire, the Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, 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.

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Suggested citation:

Michael Waithaka, Sokona Dagnoko, Siaka Dembele, Mainza Mugoya, Krisztina Tihanyi. 2019. *Mali Brief 2018 - The African Seed Access Index*. Available at: tasai.org/reports

The work of TASAI is supported by:

