
# Strategy for the Development of Sustainable Seed Supply Systems in Niger

SEED SYSTEMS GROUP

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## Country Snapshot

Population- 24 million

41.5% Agricultural share to GDP

17.7 m ha Arable land

16.5 % Undernourished population

Age group < 15 - 49.6%; 15-65 - 48%; > 64 – 2.3%

76% Agricultural employment

Climate Risk index- 26.5

Global hunger index- 30.2

Figure 1: Country Snapshot - Niger

## Nutrition Profile

- Food and nutrition insecurity are driven by poverty, demographic growth, environmental degradation, and cyclical shocks mostly caused by droughts
- Very high rates of child malnutrition (44%) in most of the country
- Insufficient food availability is associated with inadequate production, security constraints, demographic growth, and other factors. The country is heavily dependent on cereal imports
- The national nutrition security policy (2016-2025) and nutrition strategic plan (2017- 2025) aim at eliminating all forms of malnutrition through a multi-sectorial and holistic approach

| Food insecurity | Nutrition | Dietary diversity | Average per capita Fruits & Vegetable intake |
|---|---|---|---|
| • About 25.6% population affected by food insecurity<br>• Poverty rate-44.5 % | • < 5 stunting-40.6 %<br>• <5 wasting- 10.1%<br>• Anaemia in women of 15-49 years age -49.5 % | • 61% of energy source derived from cereals, roots and tubers representing low dietary diversity | • 77.9 and 159.4 g/ day against recommended guidelines 200-250g/day |

Figure 2: Nutritional Profile - Niger

## Crop Profile

Millet, cowpea, sorghum, and groundnut are the key staple crops of Niger, with millet being consumed by more than 80% of the country's population (Figure 3). Cropping systems are dominated by millet (46% of total acre- age), sorghum (18%), and cowpea (32%). Crops such as maize, cotton, groundnut, and Bambara groundnut are also grown in regions like Maradi, Zinder, and Dosso.

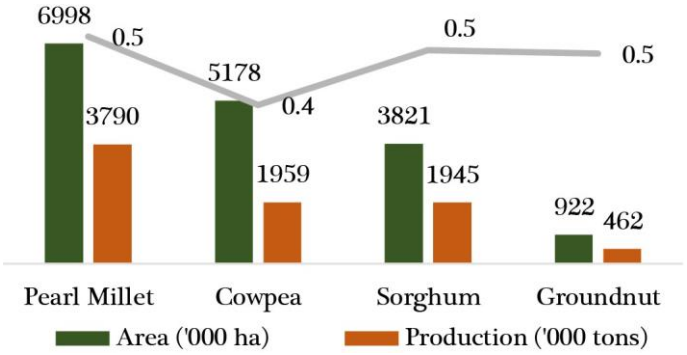


Figure 3: Crop Profile (2017) - Niger

The yield of the key crops is low due to low rainfall, low use of fertilizes, and the predominance of farmer-saved seeds. The area under crop cultivation area is increasing due to the development of irrigation schemes.

Maize hybrids are being grown in a limited area for export of grain to Nigeria. Figure 4 shows that, except for rice, most of the crops have experienced stagnant productivity since 2008. Rice yields increased to 4.7 tons/ha in 2017 from a low of 4.4 tons/ha in 2010. The yield and production fluctuations are mainly due to the irregularities of rainfall distribution.

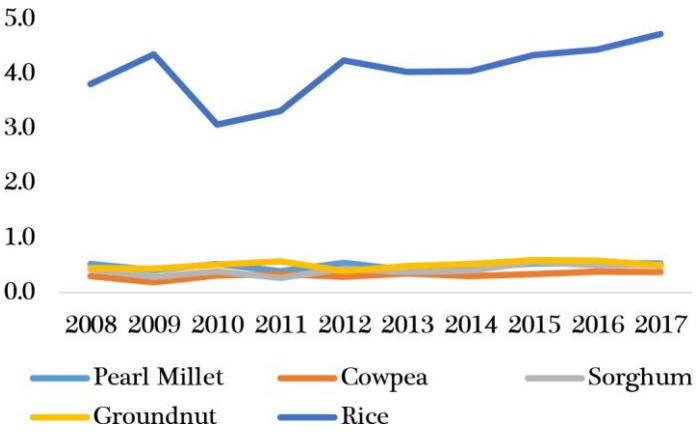


Figure 4: Yield Trends (tons/ha) - Niger

Rainfed agriculture predominantly conducted in the southern part of the country occupies around 16 million hectares while additional areas with irrigation potential are estimated at 270,000 to 300,000 hectares out of which more than 100,000 are under irrigation schemes.

## Breeding, Variety Development and Release

R&D in the country is led by the National Institute of Agronomic Research of Niger (INRAN), a semi-autonomous public institute. INRAN has about 71 researchers engaged in research and development. The

institute's activities include crop breeding, agronomy, livestock, natural resources, socioeconomics, and agricultural engineering.

INRAN has five regional agricultural research centers across the country in Niamey, Kollo, Maradi, Tahoua, and Zinder. The INRAN key crop breeding programs work in collaboration with CGIAR centers or through internationally funded projects. It is estimated that around 10% of the area devoted to major crops production is planted with seeds of improved varieties released by INRAN, ICRISAT, or introduced from other research institutions. It is believed that this low usage of seeds of improved varieties is due to low awareness among farmers on their advantages, a poor coverage of rural areas by the seed distribution network, and inadequate seed promotion activities and seed marketing strategies deployed by private seed operators.

Most of the varieties used by farmers for legume crops (groundnut and cowpea) and rice are improved varieties originating from research institutions (INRAN, ICRISAT, IITA, AfricaRice, and other NARS). However, the quality of the seeds used is not guaranteed because of the predominance of informal seed distribution systems (seed saving, free distribution of seeds, seed production with no quality control, etc.).

For pearl millet, 'HKP' variety developed by INRAN in 1978 remains the most popular improved variety adopted by farmers mostly because of its earliness, wide adaptation, and promotion by the government, NGOs, and projects involved in the free distribution of seeds. Other OPVs ('Zatib' and 'P3Kollo' from INRAN, SOSSAT C88 from ICRISAT) are being grown to a lesser extent by farmers. INRAN and ICRISAT millet programs are also currently working toward the promotion of millet hybrid varieties. Dissemination is however hindered by downy mildew as most CMS germ- plasm sources used in the development of these new millet hybrids seem to be susceptible to the pathogen races in the country.

There is a wide range of farmer preferences for sorghum varieties with regards to cooking qualities, endosperm color, stalk height, and maturity cycles. These factors probably explain the wide use of local varieties by a large number of sorghum growers in the country. Many sorghum varieties of dwarf types to medium stalk size with high grain yield potential are available but not widely adopted by farmers due to a low demand from sorghum grain processors.

Maize production in Niger is restricted to some areas where rainfall is important or irrigation facilities are available. The most popular variety currently grown by farmers is an old yellow OPV P3Kollo due to lack of new improved varieties released recently by INRAN. The recent resumption of the INRAN maize breeding program led to the release of a single cross hybrid which is currently promoted to farmers growers in the country. Many other early and extra early maturing varieties (single crosses, top crosses, synthetics, etc.) are in the development and release process at INRAN.

There is limited breeding and seed dissemination activities for vegetables by the research institutions in the country. Vegetables growers are therefore using whatever variety of their choice either produced locally or introduced by private operators. One such initiative is Climate Smart Agricultural Technologies for improved Rural Livelihoods and Food Security (CSAT) project in collabo- ration with IITA and ICRISAT. The breeding programs evaluate advanced genotypes (F4 and F5 generations) of cowpea, groundnut, maize, sorghum, and millet hybrids to select and release high performing varieties in the country. Maize hybrids from INRAN and from IITA are being tested for release.

Three sorghum hybrids and two maize hybrids developed recently by INRAN have been released. Another project, Cowpea Square, is working towards developing dual purpose cowpea varieties. ICRISAT, through its pearl millet breeding program, is working at developing high yielding hybrids in collaboration with INRAN's hybrid breeding program and four seed companies in the country; however, these hybrids need to be monitored for downy mildew susceptibility. Hybrid millet has been released by ICRISAT and three hybrids are being advanced to possible release in by INRAN. Six improved millet varieties were released in 2018 from ICRISAT viz. ICMH 187333, ICMH 187444, ICMH-Sonu, CHAKTI, and ICMH 1301. The country is also focusing on high planting density for hybrid millet to increase productivity. A single cross hybrid (ICMH 117111 or Alambana 111 is soon to be released. The yield potential is between 2.5 and 3 tons per hectare. At least four seed companies are already trying the variety in their field. Another OPV meant for production in Sahelian zone is also about to be released (ICMV 167001).

Niger's crop breeding programs suffer from infrastructure constraints as the breeding programs lack appropriate breeding fields (nurseries with irrigation facilities), materials, and equipment and greenhouses and funding for technicians. None of the private seed companies operating in Niger (Ferme Semenciere Amate, Nagarota Iri, Alheri, Hasa'a, and AINOMA) have their own research programs and rely on INRAN or ICRISAT for varieties. There are no breeding programs for vegetables in the country.

In 2018 the national variety release committee accepted for registration in the National Catalog of varieties and vegetal species 14 new varieties including:

- Six pearl millet OPVs from ICRISAT (Chakti, ICMV 167002, ICMV 167003, ICMV 167004 ICMV 167005 and ICMV 167006)
- Two sorghum single cross hybrids from INRAN (223A x 90SN1 and 223A x P9405)
- One maize single cross hybrid from INRAN TZEI 124XENT13 (NAGODE),
- One sorghum hybrid (PAC 501) and one three-way maize hybrid (PAC 740) from Advanta Ltd which licenses the release and use to Ainoma Seed Co. in Niger and

- Four Irish potatoes varieties (Yona, Pamela, Daifla and Rosanna) from Germicopa France which licenses its release and use to Manoma SA Seed Co. in Niger.

New varieties for the main crops are in the development process of INRAN breeding programs including:

- Pearl millet breeding program:
  - º On-farm evaluation of downy mildew tolerant/resistant hybrids;
  - º Recombination of local varieties crosses for the development of new composite varieties
- Cowpea breeding program:
  - º Advanced F4 generations for the development of cowpea lines combining earliness and tolerant to low soil phosphorus;
  - º Advanced F5 generations for the development of drought tolerant cowpea lines in development from crosses involving wild parents;
  - º Identification of dual purposes (grain and forage) promising genotypes among the advanced generations
- Sorghum breeding program:
  - º Advanced F4 generations for the development of sorghum lines combining earliness, grain quality, yellow grain endosperm, and mid height from crosses involving Kaoura collection.
- Groundnut breeding program:
  - º Evaluation for DUS and VCU information for registration of four new groundnut varieties including one drought-tolerant variety, one early-maturing variety, and two rosette-resistant varieties
- Maize breeding program:
  - º Crossing blocks for the development of early maturing yellow and white single crosses, top crosses and three-way hybrids
  - º Evaluation for DUS and VCU information for registration of one synthetic early-maturing yellow variety and one improved local yellow variety.

## Proposed Interventions

- Sorghum, millet, and maize hybrids with key traits, specifically downy mildew of mil- lets and drought tolerance for both maize and millets, will be sourced through regional research programs and private MNCs. The aim is to release 20-25 hybrids of sorghum, millet, maize, and vegetables (okra, cole crops, tomatoes, pepper, and pumpkins) in the country over a period of five years. Some of the key sources and yield potential for these crops are:
  - º Pearl Millet: SSG's goal is to double millet yield in Niger to ensure competitive pro-

duction. In the world's major millet producing countries, the targeted productivity is five times the current yields in Niger.

- *Maize*: Yellow maize hybrids with yield gain potential of 7-8 times over current varieties in Niger will be sourced from INRAN, IITA, Mali, and Cameroon. These hybrids have early maturity, Striga and drought tolerance traits
- *Sorghum*: Competitive commercial hybrids are available from ICRISAT-Mali and three hybrids developed in Niger have been recently released. Hybrids from ICRISAT (Niger and Mali) with Striga tolerance and consumer preference for head type will be introduced
- Germplasm (EGS, varieties) for cowpea and groundnut will be sourced from INRAN, IITA, and Burkina Faso, and competitive cowpea varieties for Niger will be introduced
- Vegetables: Okra, cole crops, tomatoes, pepper, onion and pumpkins will be introduced in collaboration with mid-sized global vegetable companies such as East West, Advanta, Technicism, Sakata and AVRDC. These hybrids can be validated for commercialization with the help of private seed companies in Niger

- Enhancement of capacity of seed companies, including AINOMA, FESA, and Alheri seed companies, for the companies to acquire hybrids to produce and sell locally. Training in hybrid seed production and testing for release of high yielding varieties/hybrids with key desirable traits like downy mildew resistance, drought tolerance, and other biotic stresses will be the focus.
- SSG will provide support for accessing the hybrids and varieties from INRAN breeders and other countries and carry out late-stage validation and commercialization.
- Development of human resources for existing and new crops, including vegetables by awarding fellowships to 16 MS breeders or seed technologists. These scientists will be trained in exchange programs with universities in African countries such as Ghana (WACCI), Uganda and India for vegetable breeders. SSG will train MS level breeders for Niger to work with breeding programs to introduce, evaluate, and select hybrids for their countries. MS breeders will also be trained on hybrid development for millet, sorghum, and vegetables, and for varietal development in cowpea and groundnut.

## Seed Systems

The supply of early generation seeds (EGS) is done primarily by the seed unit of INRAN. The ICRISAT seed unit also supplies foundation seeds which are produced by private seed companies on contract basis, under the supervision of the research institutions. For instance, in 2018, the FESA (a private seed company based in Maradi) produced in collaboration with INRAN and ICRISAT about 30 metric tons of foundation seeds of pearl millet, cowpea, groundnut, maize and sorghum (Annuaires, 2018). Similar collaborations exist between these institutions and other seed companies (AINOMA, HUSA'A, ALHERI). There are some cases of collaboration on foundation seed production between ICRISAT and farmers organizations (case of Madda Ben of Falwel in Dos- so region). The seed policy has the provision of basic seeds supply by private sector; however, none of the seed companies currently have the technical expertise to produce basic seeds. Private seed companies and farmer organizations produce approximately 9,000 MT (Figure 5) of bulk seed in the country. The supply of breeder and foundation seeds for the last five years is summarized in Table 1.

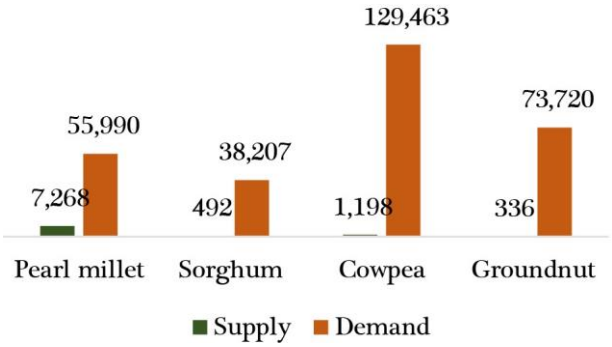


Figure 5: Seed Supply-Demand Gap (MT) - Niger

Table 1: Breeder and Foundation Seed Supply

| Crop | 2018 | 2017 | 2016 | 2015 | 2014 | Total |
|---|---|---|---|---|---|---|
| Pearl millet | 16.065 | 15.87 | 12.10 | 32.53 | 26.25 | 102.815 |
| Sorghum | 6.224 | 4.62 | 3.63 | 10.35 | 7.87 | 32.694 |
| Rice | 1.013 | 0.90 | 0.78 | 1.75 | 1.69 | 6.133 |
| Maize | 0.526 | 1.57 | 1.46 | 0.36 | 3.173 | 7.089 |
| Cowpea | 8.905 | 5.27 | 4.58 | 5.74 | 9.58 | 34.075 |
| Groundnut | 3.133 | 2.30 | 2.00 | 8.11 | 4.34 | 19.883 |
| **Total** | **35.866** | **30.53** | **24.55** | **58.84** | **52.903** | **202.689** |

Table 2: Certified Seed Supply

| Crop | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|
| Pearl millet | 7268 | 5338 | 5679 | 5516 | 8372 |
| Sorghum | 492 | 483 | 403 | 390 | 1098 |
| Cowpea | 1198 | 832 | 1629 | 1894 | 2726 |
| Groundnut | 336 | 382 | 218 | 216 | 252 |
| Maize | 122 | 21 | 77 | 11 | 9 |
| Rice | 1 | 1.5 | 203 | 125 | 318 |
| **Total** | **9417** | **7057.5** | **8209** | **8152** | **12775** |

Over the past five years, the level of seed production of major crops has not exceeded 10,000 metric tons except in 2014 when the production reached almost 13,000 metric tons. This is far below the government aim of covering 30% of the area under production with seed of improved varieties, which is the main objective of the national seed policy. According to statistics derived from the ministry of agricultural annual report on seed use, 103,209 metric tons of improved varieties of pearl millet, sorghum, cowpea, groundnut, and maize are needed to cover 30% of the area under production during the 2019 rainy season. More effort should therefore be put on seed production by private seed companies to meet this objective in the near future.

Government efforts to increase access of seeds to smallholder farmers through direct seed aid is supposed to increase the demand of improved seeds from private seed companies but on contrary, is producing the reverse effect. From the 2011 to 2018 cropping seasons, the government purchased between 10,000 to 15,000 metric tons each year. Considering the level of production of certified seeds in the country, all seeds produced should have been sold by the seed producers. Surprisingly, however many carry-overs are reported each year. The direct seed aid by government and other partners which is undertaken for relief to areas of low production is sometimes extended to almost all agricultural zones. More resources should be put in improved seed marketing to be able to sell seeds in the areas where seeds are freely distributed. Fortunately, the Ministry of Agri- culture is in agreement with this priority.

Among the national companies present in the country, only AINOMA, FESA and Alheri have seed production, processing, seed marketing, and extension activities. Technisem, Advanta, and Bayer have testing locations but no production and processing facilities. Other MNCs like Enza Zaden and Bejo are engaged only in seed sales in Niger.

The major supply of commercial seeds is through a government distribution system; however, farmers often prefer using their own seeds as they don't receive the government supply in time for sowing. AINOMA and Alheriseed companies have current seed production capacity of 7,000 MT per year that can increase to 15,000-20,000 MT with capacity enhancement and funding support for infrastructure. The production capacity of Husa'a-Dosso is approximately 350 MT. Seed multiplication and production is done by farmer cooperatives and groups of farmers contracted by private seed companies. Union MADDA BEN, OP NIYYA, and OP Tchigaban Gari are the leading farmer organizations, which produced 109 MT, 14 MT, and 11 MT seeds of different crops respectively in 2018. Collectively, farmer organizations produced 349 MT of seeds in 2018.

Niger's private seed companies have varying levels of seed production infrastructure, e.g. Alehri aims to produce 800 MT of quality seeds whereas AINOMA's seed production capacity is 7,000 MT. However, this

capacity is not enough to meet the seed demand of the country. Private companies can be supported to increase their seed production capacities and develop capabilities for hybrid seed production of key crops and selected vegetable crops. Currently, the entire vegetable seed quantity is produced and processed outside of Niger and brought in for marketing.

Table3: Private Seed Companies Operating in the Country and Their Estimated Annual Supply

| Enterprise | Volume of production 2018 (kg) |
|---|---|
| CIGABAN KARKARA | 148,852 |
| EAO | 350,854 |
| Entreprise,Alfarey,Mazada | 450,320 |
| Entreprise,Alhéri, | 139,100 |
| Entreprise,Ambouta | 938,280 |
| Entreprise,Amintchi | 23,000 |
| Entreprise,Husa'a | 483,623 |
| entreprise,SAWKI | 12,921 |
| ETP,Adamou,Oumarou | 47,690 |
| Ferme,agricole,Moullou | 5,800 |
| FESA | 206,220 |
| FS,Gandou | 145,220 |
| FS,Mutashi,Da,Kammu | 59,920 |
| FS,Sadik | 71,300 |
| FSA | 350,835 |
| GAISA-SARL | 227,100 |
| Halal | 64,740 |
| Manoma,SA | 1,140 |
| Nagarta,Iri | 104,900 |
| SMS,IRI,NAGARI | 60,425 |
| TATACHE,IRI | 342,415 |
| Grand Total | 4,234,655 |

Processing plants owned by the government are located in seed regional centers (created in the 1970s and 80s). Five processing plants are now functioning: one in Lossa (Tillabéri region); one in Guéchémé (Dosso Region); one in Doukou-Doukou (Tahoua region), one in Kouroungoussaou (Maradi region); and one in Angoual Gamdji (Zinder Region). INRAN also owns one medium seed cleaner for breeder and foundation seed processing. There are three complete processing plants owned private companies (by Alheri S.A, Ainoma, and Nagarta SARL). Husa'a and FESA also have a medium-size seed cleaner each.

The agro-dealers registered by the Direction Générale de l'Agriculture (DCCS) to market seeds are in most cases seed companies and other private entities. As a result, there are far too few agro-dealers operating in the country. The registration of seed companies allows them to set up a network of agro-dealers (wholesalers and retailers) for the commercialization of seeds. Only 38 seed dealers are registered so far, but a large number of wholesalers and retailers are operating under its umbrella.

The distribution of inputs by private registered agro-dealers started very recently. Based on the public entity responsible for the registration of agro-dealers, there are three different groups of agro-dealers:

- Agro-dealers distributing phytosanitary chemicals registered by the General Direction for Plant Protection (Direction Générale de la Protection des Végétaux, DGPV)
- Agro-dealers registered to market seeds by the General Direction of Agriculture (Direction Générale de l'Agriculture, DGA) through the DCCS
- Agro-dealers distributing fertilizer and equipment that are registered by the Central for the Supply of Inputs and Agricultural Equipement (Centrale d'approvisionnement des Intrants et Matériels Agricoles, CAIMA)

Recently a number of activities aimed at improving the supply of seeds have been initiated by both the public institution and the private sector:

- The Ministry of Agriculture adopted an action plan for the development of seed sub-sector. The main objective is to develop the seed subsector to reach a level of seed production and use of 19,943 metric tons in 2020. The action plan clearly proposed the development of public-private partnership which will later lead to the accreditation of private entities to conduct seed quality control.
- Increase the production of seeds of major crops. The government financed projects for the production of foundation seeds. Projects like PASEC, SAPEP, PPAAO and the national budget financed the production of breeder and foundation seeds by INRAN Seed Unit.
- The private seed companies and other seed producers (farmer groups and private individuals) conducted a restructuring of the former Association of Private Seed Producers (Associa- tion

des Producteurs Privés des Semences, APPSN) which changed to Association Nigérienne des Opérateurs de Semences, ANOS. The objective of the reform is to bring all private seed producers and other seed private professionals under an umbrella and promote the production and supply of quality seeds for the benefit of end users.

## Policy Advocacy

The National Direction for Seed Control and Certification (Direction de Contrôle et de Certification de Semences, DCCS) is in charge of all aspects of seed regulation including seed certification. At the national level in Niamey, the permanent staff is composed of eight active members. They are in charge of supervising a team of 77 seed inspectors and lab technicians distributed across the country (in regions, departments, and districts). The staff is relatively small with regard to the activities to be conducted. Also, the staff need capacity building in almost all areas. The DCCS is endowed with a central seed laboratory in Niamey and five regional laboratories in Tillabéri, Dos- so, Tahoua, Maradi, and Zinder.

## Proposed Interventions

- Provide grant funding to five private seed companies including AINOMA, Ferme Semencière Amate, Alheri, Husa'a and Nagarota) to increase their production of hybrid seed and marketing to farmers via agro-dealers
    - Expand the seed distribution network through support for agro-dealer development and increased farmer awareness of hybrids and improved varieties
    - Increase the capacity of quality seed production: aim to increase the quality seed production of existing varieties/hybrids and newly introduced ones by 30%
    - Production of hybrids seeds and capacity development
    - Strengthen business entrepreneurship skills of 80 personnel through professional training courses over a period of five years
    - Business management practices including ERP solutions and vital information systems
    - Technical skill improvement such as seed standards and quality, molecular selection- and controlled storage
    - Traceability of packaged seeds

- Support INRAN breeders to conduct hybrid and variety development trials for recommending suitable hybrids for seed enterprises
- Strengthening of seed processing infrastructure: upgrade the processing capacity of three

private enterprises and installation of additional capacity of 2 tons/day with two private seed companies in the country with versatile processing equipment for production of small batches of large and small seeds

- Agro-dealer development
    - Provide matching grants to 800 agro-dealers in Niger to open new outlets, refurbish or relocate shops, procure inventory supplies, and build cost effective storage unit
    - Capacity building of the agro-dealers on aspects related to storage, quality control and safe handling of products, and how to better manage micro enterprises through courses on bookkeeping, cash management, inventory management, quality standards, customer relations, and compliance. All the 800 agro-dealers will be trained on these modules over a period of five years
- Extension and knowledgedissemination
    - Enabling wider adoption of improved varieties through grants to NGOs for demos, small packs, etc
    - Promotion and introduction of ICT enabled infrastructure through various stakeholders to accelerate adoption of quality seeds
    - Professional trainings will be provided to over 150 extension professionals over a period of 5 years. Trainings will be provided on aspects related to farm demonstrations, farmer training through deployment of ICT tools
- Seed policy and advocacy
    - Continued dialogue with public sector stakeholders for sensitization on national seed laws implementation and outreach methods to stakeholders, seed standards and regulations refinement and oversight of the seed delivery by national and international players and harmonization of regional policy
    - Professional trainings will be provided to more than 80 seed inspectors on proper seed quality assessment and seed certification aspects

Facilitate an increase in quality seed production for the key crops- to 27,804 tons covering an area of 15% under quality seeds (Figure 6) at the end of five year period, and 75,110 tons covering 35% area at the end of 10 years.

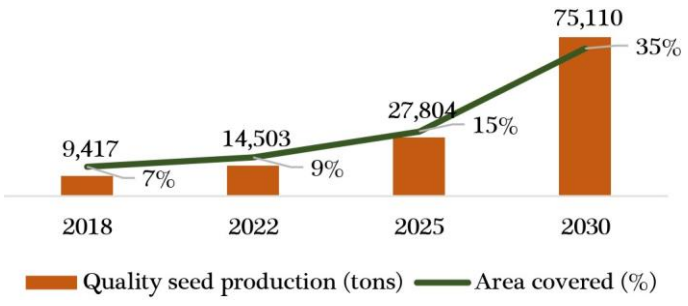


Figure 6: Projected Seed Quantity (MT) - Niger

## Budget

Table4: Niger Budget

| Components | Amount (USD million) | | | | | |
|---|---|---|---|---|---|---|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Total |
| **Component 1: Crop Variety Improvement** | | | | | | |
| NARS varietal Trials | 0.38 | 0.30 | 0.10 | 0.00 | 0.00 | **0.78** |
| Early generation seed production | 0.08 | 0.08 | 0.05 | 0.00 | 0.00 | **0.20** |
| MSc fellowships | 0.11 | 0.25 | 0.21 | 0.00 | 0.00 | **0.56** |
| PhD fellowships | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **0.00** |
| **Component 2: Seed Enterprise Development** | | | | | | |
| Grants for start-up seed companies | 0.23 | 0.23 | 0.15 | 0.15 | 0.00 | **0.75** |
| Multiplication support for vegetative crops | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **0.00** |
| Hybrid seed production training | 0.50 | 0.25 | 0.25 | 0.00 | 0.00 | **1.00** |
| Professional trainings | 0.05 | 0.06 | 0.05 | 0.00 | 0.00 | **0.15** |
| **Component 3: Agro-dealer Development** | | | | | | |
| Grants to agro-dealer development agencies | 0.23 | 0.45 | 0.53 | 0.00 | 0.00 | **1.20** |
| Capacity Development (Book keeping, information dissemination, inventory management etc.) | 0.01 | 0.02 | 0.02 | 0.00 | 0.00 | **0.06** |
| **Component 4: Seed extension** | | | | | | |
| Grants to NGOs for demos, small packs, etc. | 0.46 | 0.42 | 0.00 | 0.00 | 0.00 | **0.88** |
| ICT, infrastructure and training support | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | **0.38** |
| Professional trainings | 0.06 | 0.05 | 0.05 | 0.00 | 0.00 | **0.15** |
| **Component 5: Seed Policy and Advocacy** | | | | | | |
| Seed Policy and Advocacy (grantee and stakeholder meetings) | 0.08 | 0.08 | 0.00 | 0.00 | 0.00 | **0.15** |
| Professional trainings | 0.02 | 0.03 | 0.02 | 0.00 | 0.00 | **0.06** |
| **Total** | **2.54** | **2.19** | **1.41** | **0.15** | **0.00** | **6.29** |