

Strategic Actions for Strengthening Formal Vegetable Seed Systems in Benin

Mathieu A.T. Ayenan, Lys A. Aglinglo, Denis Sognizoun, Dédéou A. Tchokponhoue,
Joël Azagba, N'Danikou Sognigbé, Pepijn Schreinemachers and Roland Schafleitner

Policy Brief N°001 | December 2022



Need for strengthening of vegetable seed systems

Vegetable crops play an important role in food and nutrition security and are a source of income for actors involved in their value chains (Schreinemachers et al., 2018). In Benin, the production, availability and accessibility of vegetable crops remain limited (MAEP, 2017). This is partly due to the low availability of production inputs, in particular quality seeds of improved varieties (MAEP, 2021). Reaching the full potential of vegetable crops for improved incomes and nutritional security requires the development of a well-organized and dynamic seed system (Nabuuma et al., 2022; Schreinemachers et al., 2021). Such a system must ensure the availability of quality seeds of well-adapted varieties at affordable costs to farmers.

Against this background, an analysis of the vegetable seed sector was carried out and strategic actions were formulated in the form of a roadmap to establish a dynamic and sustainable seed system. The proposed strategic actions align with the policies and strategies governing the seed sector in Benin, including but not limited to the harmonized seed regulation in West Africa (ECOWAS, 2008), the national seed policy (MAEP, 2015) and the national development strategy for the seed sector (MAEP, 2021). This policy brief, developed based on the Benin vegetable seed system roadmap, calls for actions to create an enabling environment for the development of a strong vegetable seed system.



Approach for the development of the Benin vegetable seed system roadmap

The development of the roadmap was guided by three key questions : what is the current situation of the vegetable seed system in Benin; what are the visions and ambitions of stakeholders in the vegetable seed system; and what are the strategic actions required to create a strong vegetable seed system in Benin? The methodology comprised of the following steps: Review of regional and national seed policy documents, individual consultations with stakeholders in the vegetable seed sector in Benin (researchers, seed inspectors, seed producers, seed distributors, extension agents, vegetable farmers), organization of two multi-stakeholders workshops to analyze the current vegetable seed systems, formulation of a vision, ambitions, and strategic actions, the presentation of the draft roadmap to the Ministry of Agriculture, Livestock and Fisheries (MAEP) and a review of the draft of the roadmap by a committee of seed systems experts.



Vegetable seed systems

The vegetable seed sector is characterized by the coexistence of formal, semi-formal and informal systems. The predominance of each system depends on several factors including, among others, the ease of seed production at the local level and the existence of improved varieties (Table 1). It is important to consider the diversity of vegetable crops grown in Benin. The constraints and priority actions presented in this document are oriented towards both exotic and traditional vegetables.

Table 1: Importance of formal and informal seed systems by vegetable type

Vegetable type	Imported seeds	Formal (locally produced and certified seed)	Semi-formal	Informal
Exotic vegetables not suitable for local seed production (e.g. lettuce, carrot, cabbage)	++++	-	-	-
Exotic vegetables suitable for local seed production (e.g. tomato, pepper, onion)	++	+	+	+++
Traditional vegetables (e.g. jute mallow, bitter leaf, African basil)	-	+	+	++++

“+” indicates the importance of the system and “-” indicates that the system does not provide significant amounts of seed for this category of vegetables.



Major constraints to the vegetable seed sector

The Benin seed policy landscape is rooted in the regional harmonized seed regulation (ECOWAS, 2008). Various policy and technical documents support the development of the seed sector, but several constraints limit their implementation. Specifically for vegetable seed systems, the major constraints are :

- the low availability of specialized human resources in vegetable breeding in the public and private sector and in seed inspection at the Directorate of Plant Production (DPV) and at the Departmental Directorates of Agriculture, Livestock and Fisheries (DDAEP) ;
- the lack of investment in vegetable breeding by the public and private sectors ;
- the long duration (about two years) for variety registration and release ;
- the lack of information on the cost for variety release and registration in the Beninese Catalog of Species and Varieties (CaBeV) ;
- the delay in seed certification due to the centralization of the process and the lack of resources (financial, materials, inspectors) of DPV and DDAEP ;
- an inefficient seed distribution network of the formal sector that only covers part of the country ;
- the lack of resources of the National Committee for Plant Seeds (CNSV) -- the body in charge of seed policies and regulations.



Ambitions and strategic actions to strengthen the vegetable seed sector

Stakeholders tied the vision for the vegetable seed system roadmap to the national strategy for the development of the plant seed sub-sector in Benin, which is : "*The seed sector is the lever for the sustainable acceleration of the transformation of agriculture by making high quality seeds accessible to all.*" (MAEP, 2021). The main ambitions and priority actions defined by the actors are :

01 **Research and vegetable varietal improvement**

Ambition : A market-led vegetable variety improvement.

Priority actions :

- Strengthen research and breeding capacity in terms of research infrastructure and human resources through investment in training of vegetable breeders and seed technologists, as well as in research infrastructure.
- Support public private partnerships in variety development, testing, registration, and scaling.



02 **Variety release and registration**

Ambition : An efficient variety release and registration mechanism.

Priority actions :

- Streamline the variety release and registration processes by allowing breeders to use their own data from multi-locational evaluation trials for registration.
- Create an online platform to facilitate a timelier updating of the national species and variety catalog as well as to provide stakeholders with up-to-date information on varieties registered for use together with other relevant documents.



03 **Breeder and foundation seed**

Ambition : Increased and timelier availability of high quality early-generation seed (pre-basic and basic) for certified seed producers.

Priority actions :

- Establish forecasting mechanisms to facilitate the planning of the production of early-generation seeds.
- Allow registered seed companies to produce their own early-generation seed.
- Strengthen the capacity of the private seed sector and public sector in terms of human capacity and infrastructure to produce and deliver high-quality early-generation seed.



04 **Commercial seed production and quality assurance**

Ambition : A well-structured and efficient quality assurance system taking into account the diversity of vegetables. Locally produced seed is of high quality, competitive in price, and includes a diverse range of vegetable species and varieties.

Priority actions :

- Train more seed inspectors in vegetable certification and set up additional seed quality (germination, purity, health) testing laboratories to decentralize the certification process to the departmental level.
- Develop and introduce quality assurance mechanisms such as Quality Declared Seed (QDS), minimum quality standards or truth-in-labeling as alternatives to government-controlled seed certification for vegetables.
- Allow commercial seed production of traditional vegetables which are not currently registered in the national catalog using alternative quality assurance mechanisms.



05 **Seed marketing**

Ambition : A resilient distribution network to facilitate vegetable farmers' access to quality seed.

Priority actions :

- Promote locally produced certified seed through seed fairs, demonstration trials, exchange visits, media, and the distribution of seed samples to farmers.
- Implement anti-fraud measures to counter the distribution of fake seed.



06 **Sector regulation and governance**

Ambition : Improved functioning of seed sector governing bodies and a more conducive environment for the development of the sector.

Priority actions :

- Establish a funding mechanism inspired by the National Seed Fund in Burkina-Faso financed by certification fees, to support the functioning of the National Plant Seed Committee (CNVS) and seed certification process.





- Attract foreign investment (money, technical know-how, and germplasm) by creating a conducive environment for variety registration with strong intellectual property protection, ease of doing business, offering seed companies the possibilities to use Benin as a base to breed and introduce varieties to the rest of ECOWAS.
- Advocate at regional level the need to expand the number of vegetable crops included in the regional catalog for seed trade and define a list of quarantine pests to ease safe seed movement between countries.

The implementation of these actions would create a dynamic, resilient vegetable seed sector that is open for innovation through investment in the development and scaling of improved varieties and guarantees seed identity and quality. A committee to monitor the implementation of the strategic actions will be set up by the Ministry of Agriculture (MAEP).



Funding

This work received financial support from (i) the One CGIAR Trust Fund through the Fruit and Vegetables for Sustainable Healthy Diets Initiative (FRESH), (ii) the German Federal Ministry for Economic Cooperation and Development (BMZ) commissioned and administered through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Fund for International Agricultural Research (FIA) through the project “Choose, Grow, Thrive: Using citizen science in expanding West Africa’s food basket with African vegetables to tackle malnutrition”, and (iii) European Union and the Ministry of Foreign Affairs of the Netherlands through the project - ID-4000003936, part of the DeSIRA program and implemented by the World Vegetable Center, CIRAD and Wageningen University & Research (WUR). The views expressed in this document can in no way be taken to reflect the official opinion of the European Union or the Ministry of Foreign Affairs of the Netherlands.



Acknowledgments

We are grateful to Romuald Dossou, Armel Mensah, and Malick Niango Ba for their contributions to the development of the roadmap. We are also grateful to all the participants in the individual consultation meetings, and in the workshops organized within the framework of the elaboration of the Roadmap for the development of the vegetable seeds sub-sector in Benin.



References

- 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. Abuja, Nigeria: ECOWAS.
<http://www.coraf.org/wasp2013/wp-content/uploads/2013/07/Regulation-seed-ECOWAS-signed-ENG.pdf>.
- MAEP (Ministère de l'Agriculture, de l'Elevage et de la Pêche), 2015. Projet de document actualisé de politique semencière nationale au Bénin. Cotonou, Benin: MAEP, 40 p.
https://pspdb.dev.gouv.bj/server/storage/app/PolitiqueFichiers/70_PSN-version-finale3.pdf
- MAEP (Ministère de l'Agriculture, de l'Elevage et de la Pêche), 2018. Etude de faisabilité du Programme National de Développement de la Filière Maraîchère. Cotonou, Benin: MAEP, 79 p.
- MAEP (Ministère de l'Agriculture, de l'Elevage et de la Pêche) ; 2021. Stratégie nationale de développement du sous-secteur des semences végétales 2022 -2026. Cotonou, Benin: MAEP 147 p.
- Nabuuma, D., Reimers, C., Hoang, K.T., Stomph, T.J., Swaans, K., & Raneri, J.E. (2022). Impact of seed system interventions on food and nutrition security in low- and middle-income countries: A scoping review. *Global Food Security*, 33, 100638.
<https://doi.org/10.1016/j.gfs.2022.100638>
- Schreinemachers, P., Simmons, E. B., and Wopereis, M. C. S. (2018). Tapping the economic and nutritional power of vegetables. *Glob. Food Sec.* 16, 36–45.
doi:10.1016/j.gfs.2017.09.005.
- Schreinemachers, P., Howard, J., Turner, M., Groot, S.N., Dubey, B., Mwadzingeni, L., Chagomoka, T., Ngugi, M., Afari-sefa, V., Hanson, P., & Wopereis, M.C.S. (2021). Africa's evolving vegetable seed sector: status, policy options and lessons from Asia. *Food Security*,
<https://doi.org/https://doi.org/10.1007/s12571-021-01146-y>.



World Vegetable Center

Mathieu A.T. Ayenan
Lys A. Aglinglo
N'Danikou Sognigbé
Pepijn Schreinemachers
Roland Schafleitner

Ministère de l'Agriculture, l'Élevage et de la Pêche, Direction de la Production Végétale, Republic of Benin

Dénis Sognizoun

Laboratory of Genetics, Biotechnology and Seed Sciences (GBioS), Faculty of Agronomic Sciences (FSA) Université d'Abomey-Calavi (UAC), Republic of Benin

Dèdéou A. Tchokponhoue

Institut National des Recherches Agricoles du Bénin / Programme Cultures Maraîchères, Republic of Benin

Joël Azagba

DOI: 10.22001/wvc.75811

<https://worldveg.tind.io/record/75811?ln=en>