

## Factsheet final findings Applied Research Fund Call 3



### Enhancing Kersting's groundnut (*Macrotyloma geocarpum*) production and marketability in Benin (Project Doyiwé)

#### Summary

The production of Kersting's Groundnut (KG) in Benin is constrained by poor agronomic practices and the lack of quality seeds leading to low yield and poor quality products. To tackle these constraints, the Project Doyiwé has been developed and aims at making quality KG grains available in rural and urban markets in Benin. The project intends to answer three research questions: (i) what are the preferences of Beninese farmers, processors and consumers for KG?; (ii) how diverse are the KG accessions and how do they perform in Benin?; (iii) which high-yielding accessions among the existing germplasm fulfil the needs of the actors? Seeds of the accessions from Burkina Faso and Benin have been increased and 81 accessions from which sufficient seeds have been obtained, have undergone agro-morphological characterization. Some other accessions have been included in an experiment to assess best practices for KG seed production, which is ongoing. In addition, experiments are ongoing to understand the phenology and reproductive biology of KG. Seed health and storage techniques assessment are still running as well. More recently, multi-location trials started up in three major KG growing areas of Benin. Twenty elites materials are being evaluated in such trials. A qualitative study was conducted to understand the market creation potential for KG and its value chain actors' preferences. Cultural heterogeneity and different levels of economic development of regions in Benin cause the occurrence of various fragmented markets on different development stages. The results serve as guidance for entrepreneurs and policy makers to exploit the full potential of existing markets for KG, develop emerging markets for KG and increase KG awareness in remote markets. The remaining work includes multi-location evaluation, selection, and nutritional and sensory evaluation of elite cultivars and transforming the results into business cases.

#### Research findings

- Accessions collected: 99 from Benin, 38 from Burkina Faso, 12 from Ghana, 12 from Togo, 6 from South Africa and 4 from Nigeria.
- Characteristics of 81 accessions are known.
- Production and storage constraints are mapped.
- Preferences and use of KG: The perception of KG varies considerably between different parts of Benin. Respondents of every zone and on all stages of the value chain emphasized the importance of affordability as a key factor for the production, trade, processing and consumption of KG. The white KG with small grain size is highly accepted and strongly demanded.
- Designing institutional arrangements to enhance the production of KG in Benin: The preliminary results indicate that the quantity of KG produced will increase significantly when these arrangements are proposed to farmers: 'prepaid deposit' as payment methods, 'seeds being provided by a known organization' such as Sojagnon, 'variable price depending on the market' as price option, and that 'farmers invest in post-harvest facilities by themselves' for post-harvest facilities provision.
- Packaging for the commercialization of KG is developed.

#### Outcomes achieved

- KG traders and consumers reported that there was no appropriate packaging for preserving KG to market it. To address this issue, the private partner of the consortium, Benin Agribusiness Incubation Hub (BAIH), has developed a good-looking packaging of 1-2 Kg capacity for the commercialization of KG. It is a biodegradable packaging, respecting environmental standards, water resistant, and allowing the product to show through. This triggered the desire of consumers to purchase more KG.

- Although not documented, farmers are showing more interest to grow KG in Benin, and in the areas where KG cultivation has been abandoned, there is strong willingness to resume.

### Project messages to

#### A) Actors from private sector:

- To assess the market potential for KG, entrepreneurs may follow the traders of the KG products to see where they end up and investigate why they are not traded further.

#### B) Civil society and practitioners organizations:

- To reduce the cost and risks that constrain the supply of KG, NGOs can disseminate improved seeds and best farming practices and provide contract-farming schemes that fit farmers' preferences, through farmer cooperatives.

#### C) Policy makers:

- Benin endogenous products like KG deserve more attention in Benin's agricultural development agenda.

### Knowledge products

- Article "[Kersting's Groundnut \[Macrotyloma geocarpum \(Harms\) Maréchal & Baudet\] Crop Attracts More Field Pests and Diseases than Reported Before.](#)" By Eric E Agoyi, N'danikou S, Médard K, Mathieu A, Frejus AK S, et al; Agricultural Research & Technology Open Access Journal, 21 (5) (June 2019).
- Master thesis "Market Creation in Emerging Economies with an application to KG in Benin", defended at Wageningen University (*to be published soon*).
- Second round revision paper on "Market Development for African Endogenous Products".

#### Project posters

- "[Amélioration de la production et du potentiel commercial de la lentille de terre au Bénin \(Projet Doyiwé\)](#)". To honor and acknowledge the outstanding contributions made by Prof. J. Hounhouigan and Prof. A. Adjanooun to research & development in Benin (June 2019)
- "[Enhancing Kersting's Groundnut \(Macrotyloma Geocarpum\) production and marketability in Benin](#)". For the RUFORUM Biennial Conference 2018 (October 2018).
- "[Enhancing Kersting's Groundnut \(Macrotyloma geocarpum\) production and marketability to improve Food Security in Benin \(Project Doyiwé\)](#)". For the Third ARF international workshop in Ethiopia (February 2018).

#### Project PowerPoint presentations

- "[Création de marchés dans les économies émergentes](#)". By WUR Master student Philip Barth, at scientific days of the Faculté des Sciences Economiques et de Gestion (FASEG) of the Université de Parakou, Benin (April 2018).
- "[Approach for Research uptake](#)". By the Project research team for the Third ARF international workshop in Ethiopia (February 2018).

### Knowledge networks

The soybean consortium of Benin (Consortium Soja du Bénin) is a member of the Platform for African-European Partnership in Agricultural Research for Development (PAEPARD). This provides the consortium with the opportunity to disseminate the results of the project to a wider audience. SOJAGNON and REDAD are founding members of RENOVA, a network of non-governmental organizations in the agricultural sector in Benin. Two members of the research teams recently went to Uganda to attend the Gender Responsive (GREAT) course. The team has developed a proposal to collect gender-disaggregated data that would enable understanding KG preference criteria, as well as analysing the breeding scheme that would do no harm to both sexes. The research project is therefore part of the GREAT Community of Practice and do put on a gender lens in all implementation sections of the project.

### Knowledge co-creation

The co-creation process began by the express of needs by KG actors to alleviate their constraints. To tackle these constraints, partners leverage their expertise in a complementary manner with feedback. Thus, the farmer preference survey took the report on accession collection of the UAC/FSA team as a starting point. That report provided the WUR team with a list of production areas and KG farmers. The results on the preferences survey is helping the FSA team to select the cultivars, meeting the needs of farmers. After the study on the preferences for KG with the collaboration of SOJAGNON and a master student from WUR, the designing of the study on institutional arrangements for KG production has been operationalized based on the farmers list provided by UAC/FSA team and in collaboration with the practitioners (SOJAGNON and BAIH) for facilitation and enumerators recruitment. Practitioners (SOJAGNON and BAIH) act as middlemen between end-users and researchers by transmitting feedback from end-users to research to help reshape research activities. These complementarities generate learnings and networking.

Co-creation also lies on the creation of a team between FSA, SOJAGNON and WUR to implement research on gender responsive breeding in the implementation of this project.

### Consortium Partners

- [SOJAGNON – Association for the Development of Soybean](#) (Benin)
- [Benin Agribusiness Incubation Hub \(BAIH-Sarl\)](#) (Benin)
- UAC/FSA – University of Abomey-Calavi Laboratory of Applied Ecology (Benin)
- REDAD – Sustainable Agriculture Development Network (Benin)
- [Wageningen University and Research – Marketing and Consumer Behaviour Group](#) (Netherlands)

### Contact

Agboton Martin, [agbotonmartin@gmail.com](mailto:agbotonmartin@gmail.com)

### Project website

[F&BKP Research Project page](#)