

Scaling out dual CBD and CMD resistant varieties for the mid-altitude agro-ecologies of East and Central Africa

TECHNOLOGY DESCRIPTION

Two varieties with dual resistance to CBD and CMD developed in collaboration with NARO, Uganda breeders were officially released in 2015. They were developed from botanical seeds introduced from CBD tolerant parents from Tanzania. These are the first varieties with dual resistance to the two devastating viral diseases that are suitable for the mid-altitude areas. The two varieties were officially named NARO-CASS 1 and NARO-CASS 2 (formerly breeding lines TZ 130 and MM 2006/0130 respectively). They are highly preferred by farmers because apart from disease resistance, they are high yielding, sweet in taste and mealy, and have high dry matter content.



Figure 1. Growing shoot (A) and roots (B) of NARO-CASS2 in Uganda.

END USERS AND BENEFITS

- The new varieties are suitable for cultivation in majority of mid-altitude areas of Burundi, DR Congo, Kenya, Rwanda, Tanzania and Uganda where approximately 4 million ha are under cassava production.
- Up to 2.4 million farming households in these countries are estimated to benefit from the improved new varieties for food and incomes. The new varieties have average yields of 20 t/ha fresh roots and over 30% dry matter content. The adoption rate is anticipated to be high with resultant increase in cassava productivity and profitability.
- The traders including women who retail fresh cassava roots on road-side and inside urban food markets will have sustained supply of the roots and make more profits.
- The processing industries for high quality cassava flour, starch, animal feeds and beverage will also have sustained supplies of the roots and hence sustained functioning and profitability of the factories.

KEY PARTNERS FOR SCALING

1. Research to ensure, maintain and supply clean pre-basic seed of the varieties.
2. Seed systems projects e.g. BEST Cassava Project in Tanzania targets 430 CSEs in 11 regions by 2021. In Uganda, the seed systems project targets 80 CSEs
3. NGOs (MEDA) or LGAs to help in mobilization and training of farmers in different parts of the countries in seed multiplication
4. The CSEs at different levels of seed multiplication
5. The commercial oriented cassava farmers with aim of making profits by using clean seed of improved varieties
6. Regulatory agencies to certify the clean seeds

SCALING STRATEGY

The scaling strategy builds on the established institutional and infrastructural networks from previous cassava seed multiplication and dissemination programs. Commercial units to produce reliable pre-basic cassava seed will be created within research. The seed will then be sold to local seed entrepreneurs at province or district levels with commercial capacity to in turn multiply it as basic seed. Through NGOs and local government extension services, village based commercial seed entrepreneurs (CSEs) will be recruited and trained to produce lower levels of seed i.e. commercial and quality declared seed (QDS) that will be sold to farmers for production. At all levels, seed will be inspected and certified at a fee.

LEVEL OF ADOPTION OR USE

The two varieties are newly released and therefore not yet widely adopted. However, NARO-CASS 1 is currently under multiplication in the 5CP Project countries of Malawi, Mozambique, Kenya, Tanzania and Uganda with about 0.5 ha each. By 2020, it can be projected that about 10,000 farmers in each country will be able to plant 0.5 ha of this variety. NARO-CASS 2 is only in Uganda where it is now being multiplied. One farmer in Soroti already has 12 ha for this variety under field multiplication. By 2020, it can be projected that at least 6,000 farmers in Uganda will be able to plant 0.5 ha each.



Figure 2. Growing shoot (A) and roots (B) of NARO-CASS1 in Uganda.

CRITICAL GAPS AND NEXT STEPS

- Sustainability of commercial pre-basis production units at research.
 - Explore contractual arrangements of working with interested individuals to produce pre-basic seed.
- Few seed inspectors for a national scaling program.
 - Equip agriculture extension personnel with knowledge and tools for cassava seed inspection and certification.
- The actual price of the cassava seed is unknown, yet determines the willingness to buy.
 - Different models and systems of seed production to be studied in early stages of scaling to determine affordability of seed.
- Limited project budget to scale national wide.
 - Advocacy activities with government departments to fund more scaling activities.