

## Brazilian National Cassava Seed System - RENIVA

RENIVA is a national program developed by Embrapa to produce disease free cassava planting material to attend smallholders and big farmers throughout Brazil.

Cassava is a major staple crop for Brazilians and is strongly affected by systemic diseases such as virus. In most cases there is an average decrease of 30 – 40% of yield due to virus infections in planting materials. Cassava is predominantly planted by stem cuttings harvested from plants producing roots.

In this conventional propagation manner, multiplication rates are way too low, varying from 1:5 up to 1:10. This demands enormous volumes of stem cuttings to be transported to plant new areas.

Besides this inconvenience, in Brazil after the harvest season, there is a period of more than five months until next showers begin to fall again. This mismatch between harvest and next planting seasons results in great losses of planting material and a struggle to obtain cassava stem cuttings to plant new areas.

To overcome these difficulties Embrapa Cassava and Fruits came across an initiative consisted of implementing a network to produce and commercialize cassava stem cuttings, in high amounts, free from virus and also training smallholders (MANIVEIROS) with technologies to mass propagate their own adapted genotypes.

This strategy was named RENIVA, which stands for Network for Multiplication and Transference of Cassava Planting Material with High Genetic and Phytosanitary Standards.

A new player was immediately introduced in the cassava chain production named Maniveiro (Cassava Seed Entrepreneur), whose job is to produce cassava stem cuttings in large amounts from local adapted landraces using techniques of rapid multiplication to reach high propagation rates.

Embrapa's role in the RENIVA network is to promote technical training to maniveiros and also to train extension service staff, in charge of assisting smallholders and also to provide certified mother plants guaranteed to be virus free.

In order to coordinate all these tasks throughout the country Embrapa needs a software system capable of gathering all information concerning amounts, types of planting materials and regions where the maniveiros are established. In this sense, after having seen Dr Lava Kumar's presentation about Cassava Seed Tracker in the last Global Cassava Partnership conference GCP 21 held in Benin, we realized that this is the tool we need to access all the important information to conduce stewardship of the RENIVA network and promote the entrepreneurship with cassava planting material across the country.

Embrapa is also responsible for delivering innovation to benefit cassava farmers within RENIVA. This includes evaluations of agronomic traits of new released varieties from the national breeding program to be recommended to a larger scope of adoption by both smallholders and big farmers. One other important innovation are the minicuttings used as planting materials, produced in screehouses from etiolated plants without having to discard any single mother plant.

In this sense, there are some premises one has to have in mind if wishes to invest in RENIVA either as a Maniveiro or extension staff or even as a financial provider which are:

1. Every planting material propagated within the network ought to be virus free, with test proof;
2. Use of rapid multiplication techniques to enhance propagation rates in production of stem cuttings;
3. Establishment of Maniveiros as the nucleus of the network.

RENIVA is nowadays spread across many states of four main regions of Brazil (North, Northeast, Center West and Southeast). With RENIVA Tracker we will be able to have all this panorama in our hands on time, which is crucial to maintain the network running correctly.

If I may express all these tasks in short terms these are:

- Entrepreneurship
- Certification
- Self-sustainability
- Innovations
- Partnership
- Collaborations



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