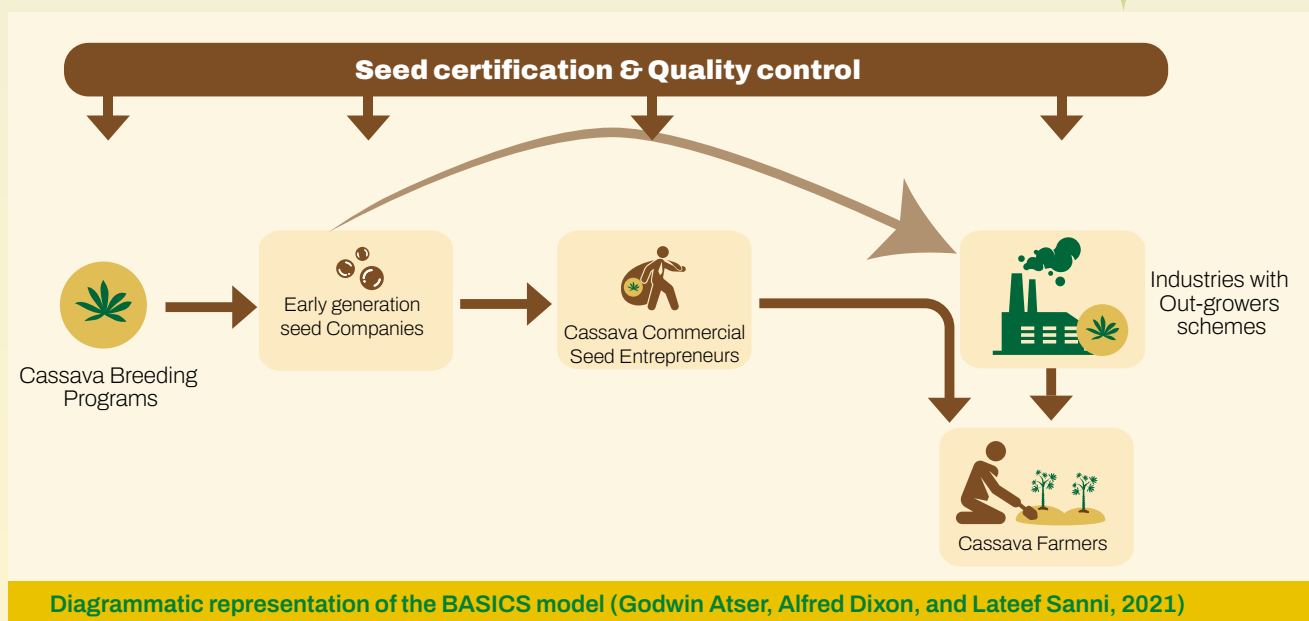


BASICS Model—a seed system model for cassava transformation

The BASICS model is a blueprint for developing an economically sustainable cassava seed system that can reliably deliver quality stems of improved varieties to farmers and processors. The model connects all actors along a seed production pathway to ensure a sustained and reliable supply of quality seeds of improved varieties to farmers and processors. The model comprises the following components: accessing improved varieties, developing early-generation seed (EGS) companies that use rapid multiplication technologies, nurturing the development of a network of decentralized commercial seed entrepreneurs (CSEs), and creating a certification system that promotes quality. The BASICS model is based on selling seeds rather than giving them away because its goal is creating an economically sustainable and entrepreneurial system that is eventually self-financing.



Diagrammatic representation of the BASICS model (Godwin Atser, Alfred Dixon, and Lateef Sanni, 2021)



Problem

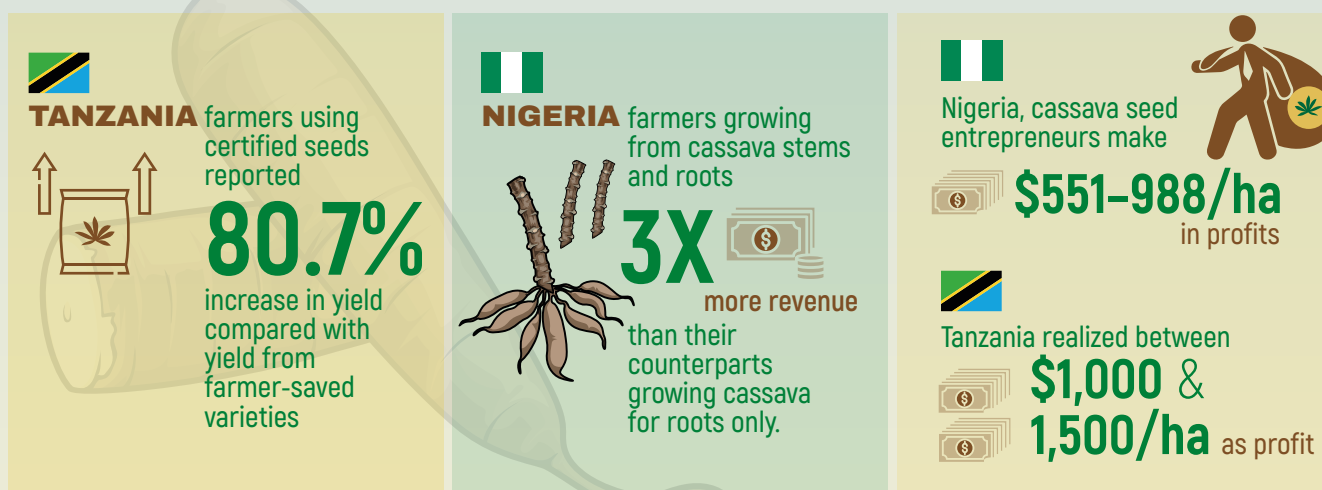
- 1 Low productivity:** The widespread use of unimproved varieties that are saved and recycled leads to low yields in terms of tons per hectare and dry matter (which is important for processors).
- 2 Dissemination of diseased planting materials:** Farmers' traditional practice of saving and replanting cassava stems (seeds) perpetuates the spread of viral and bacterial diseases that reduce yields.
- 3** Conventional campaigns that use donor or public money to multiply and give away free stems are temporary and unsustainable solutions that cannot ensure the ongoing availability of quality seeds of improved varieties.

Solution

- 1** The BASICS model enhances the availability and accessibility of improved, disease-free, and genetically pure planting materials of preferred varieties that can drive productivity increases.
- 2** The model ensures that only improved disease-free varieties are multiplied and passed on to farmers. This is achieved by systematically linking farmers to the seed supply chain that involves foundation seed producers and commercial seed entrepreneurs.
- 3** The BASICS model ensures that early-generation seeds are not infected with the viruses responsible for Mosaic and Brown Streak diseases. Quality seed production procedures, including the use of disease-free planting material and inspections during the crop growth stage, ensure disease control and prevent the cutting and distribution of infected stem cuttings. Seed quality is assessed at all levels of the system, ensuring that only high-quality materials are sold to farmers.

Return on investment

Cassava seeds coming from the BASICS model have consistently demonstrated superiority to farmer-saved seeds in terms of yield and return on investment. In Tanzania, farmers using certified seeds reported an 80.7% increase in yield compared with yield from farmer-saved varieties. In Nigeria, farmers growing cassava for stems and roots realized three times more revenue than their counterparts growing cassava for roots only. Lastly, in Nigeria, cassava seed entrepreneurs make USD 551–988/ha in profits, while their counterparts in Tanzania realized between USD 1,000 and 1,500/ha as profit.



Key points to design your project

The demand for cassava in Africa is growing and will continue in the foreseeable future as new processing industries spring up on the continent. Meeting the raw material demands of these industries requires the continual development and deployment of improved varieties to help the continent leapfrog from the current yields of less than 10 tons per hectare to at least 20 tons per ha. The BASICS model becomes a handy tool for governments and the private sector to make this transformative change.

Replicating and adapting the BASICS model demands the following:

1. Establish an early-generation seed company or business unit in a government entity, or a private sector seed company, or both, with the responsibility to rapidly multiply breeder seeds.
2. Establish a semi autotrophic hydroponics (SAH) laboratory and systems to rapidly multiply planting materials of the most promising new cassava varieties. Several EGS have adopted the SAH to ramp up the multiplication of cassava stems.
3. Nurture the creation of a network of private CSEs. These are farmers who are trained to multiply and sell cassava stems profitably to other farmers. The creation of CSEs provides job opportunities for young people, and governments can leverage CSEs to create employment and wealth.
4. Strengthen the capacity of national regulatory authorities to carry out the necessary regulatory functions for quality seed assurance.

Partners under the BASICS-II project are ready to help with project design, advice, and initial implementation.

Partners:

