

The Tropical Legumes projects were a series of initiatives that developed and distributed high-yielding, climate-resilient food legume varieties to millions of poor farmers across Africa and Asia. Implemented over a 12-year period with US\$67 million in funding from the Bill & Melinda Gates Foundation, the projects were led by three international CGIAR research organizations – the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the International Center for Tropical Agriculture (CIAT), and the International Institute of Tropical Agriculture (IITA) – and executed by national and regional partners.

In Tanzania, the main partner was the Tanzania Agricultural Research Institute (TARI). The projects also collaborated with several other organizations to exchange knowledge and resources, including the Alliance for a Green Revolution in Africa and the Feed the Future Lab at the University of California, Riverside.



CONTEXT

In 2018, Tanzania produced 1,210,000 tons of common bean grain (the highest in Africa), 108,000 tons of chickpea grain, 940,000 tons of groundnut grain, and 316,000 tons of pigeonpea grain.^a All four of these crops are key food legumes in the country, and they have the potential to generate many more economic and livelihood benefits. Packed with essential proteins and nutrients, they could also be used more strategically to address the country's widespread malnutrition levels, which cause economic losses of around 2.65% of GDP every year.^b

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APPROACH

STRENGTHENING BREEDING CAPACITY

Renovating screenhouses, installing cold rooms, and building new irrigation facilities were some of the critical infrastructure improvements that the Tropical Legumes projects introduced to improve the performance of Tanzania's breeding programs. The initiatives also enhanced the skills of crop breeders, including next generation scientists, and provided training in the use of modern breeding methods. **By 2018, for instance, Tanzania's groundnut improvement program was managing 100 crosses and three crop generations per season.^c** At this rate, future varieties can be bred in a span of just five years.

CROP FOCUS:



Chickpea



Groundnut

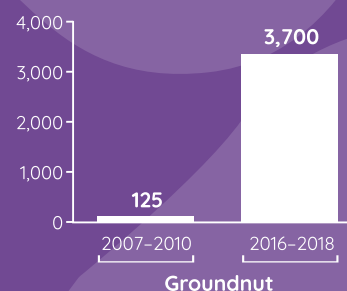


Pigeonpea

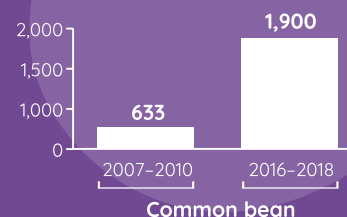


Common bean

Improved seed produced
(annual average tons/year)^c



Improved seed produced
(annual average tons/year)^c



^a FAOSTAT: www.fao.org/faostat/en

^b https://www.smarterfutures.net/wp-content/uploads/2013/12/Tanzania-Fortification_Action_Plan.pdf

^c Tropical Legumes III, Final Narrative: <https://tropicallegumeshub.com/rc/tropical-legumes-iii-final-report/>

TANZANIA: FACTSHEET

DEVELOPING FARMER-PREFERRED VARIETIES

The Tropical Legumes initiatives helped Tanzania's crop improvement programs to become more efficient and effective – enabling farmers to keep pace with rapidly changing environmental conditions. **Between 2007 and 2018, improved, high-yielding and resilient food legume varieties were developed.** Farmers played an important role in variety selection – helping to more precisely target environmental conditions and market opportunities. For instance, **over 3,900 farmers were involved in pigeonpea trials from 2011 to 2015.**^c

IMPROVING SEED DELIVERY SYSTEMS

The Tropical Legumes initiatives worked closely with local farmers and seed producers to increase the availability of quality seed. They provided a vital outlet in areas where markets for seed were absent or weak.

OUTCOMES

As a result of investments made by the Tropical Legumes initiatives, production of the improved seed increased substantially. The average annual amount of groundnut seed produced increased from **125 tons** in the three-year period 2007–2010 to **3,700 tons** in 2016–2018. Over the same period, the amount of common bean seed increased from an average of **633 tons/year** to an average of **1,900 tons/year.**^c

For pigeonpea, production of improved seed increased from an annual average of **69 tons/year** in the three-year period 2008–2010 to **357 tons/year** in 2012–2014. Production of improved chickpea seed also grew from **131 tons/year** in 2011 to **785 tons/year** in 2014.^c

LOOKING AHEAD

The gains of the Tropical Legumes initiatives are now being consolidated by a new project, Accelerated Varietal Improvement and Seed Delivery of Legumes and Cereals in Africa (AVISA), which is building on the experience of its predecessors to continue enhancing the efficiency and effectiveness of African breeding programs and seed systems.

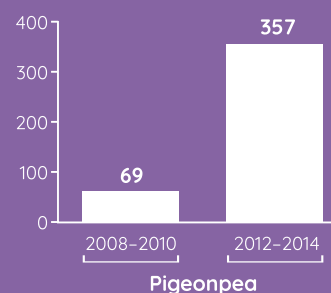
Despite progress, there are still challenges to address. Early generation seed production remains limited and is far below what the country needs, and weak seed distribution systems mean that seed continues to allude the farmers who need it to raise their productivity and strengthen their resilience. In addition, there are low public and private investments in seed production and weak linkages exist between grain and seed markets.

Future work will focus on encouraging farmers to form seed companies, strengthening seed distribution networks, providing training in seed business, promoting mechanization, and encouraging increased private sector investments.

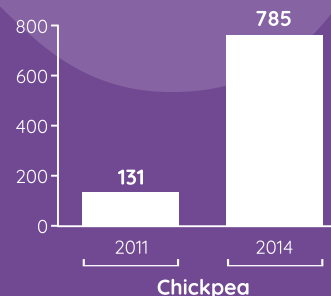
Dr Geoffrey Mkamilo, Director General, Tanzania Agricultural Research Institute (TARI), said, **“With a total investment of US\$67 million, together with partners, we have been able to achieve so much on the ground.”**



Improved seed produced
(annual average tons/year)^c



Improved seed produced
(average tons/year)^c



TROPICAL
LEGUMES HUB

Find out more about the
Tropical Legumes projects at
www.tropicallegumeshub.com

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Find out more: Varshney, R.K., Ojiewo, C., Monyo, E. A decade of Tropical Legumes projects: Development and adoption of improved varieties, creation of market-demand to benefit smallholder farmers and empowerment of national programmes in sub-Saharan Africa and South Asia. *Plant Breeding* 2019; 138: 379–388.