



Grain Legumes Strategies and Seed Roadmaps for Select Countries in Sub-Saharan Africa and South Asia



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Abstract

Tropical Legumes II (TL-II) is a Bill and Melinda Gates Foundation (BMGF) sponsored project implemented by three International Agricultural Research Centers – ICRISAT, CIAT and IITA. TL-II aims to improve the livelihoods of smallholder farmers in the drought-prone areas of Sub-Saharan Africa (SSA) and South Asia through improved productivity and production of six major grain legumes – chickpea, common bean, cowpea, groundnut, pigeonpea and soybean. The project activities are in Burkina Faso, Ghana, Mali, Niger, Nigeria, Senegal, Ethiopia, Kenya, Malawi, Mozambique, Tanzania, Uganda and Zimbabwe in SSA and India and Bangladesh in South Asia. The project has formed a wide range of partnerships with the host national agricultural research systems, advanced research institutions, NGOs, and several other projects funded by the BMGF and other organizations to ensure the sustainability and scalability of the project outcomes. In the six years since inception in 2007/08, a total of 113 new legume varieties have been released in collaboration with NARS in the partner countries. The newly released groundnut, cowpea, common bean, chickpea, pigeonpea and soybean varieties are fast replacing old varieties in these areas of Africa and Asia resulting in significant increases in productivity and production at national level. Participatory variety selection trials have been expanded to new villages to up-scale dissemination of new varieties in all project countries. The project was able to undertake trials with more than 281,000 farmers directly during the past six years (2007/08–2012/13). Workable and efficient models for the production of different categories of seed have been identified. The seed production systems are country-specific. Women and women's groups have been empowered to produce and market legume seed in many countries. A total of 222,531 tons of improved legume seed of all six crops have been produced and distributed since inception. The project strategy is to reach smallholder farmers with improved varieties through small seed packs (1, 2 and 5 kg) for wider technology dissemination. At the current smallholder land allocation to legumes of approximately 0.2 ha per household, the 5kg pack will guarantee farmers their seed legume requirement within one season. The seed so far produced is enough to serve 44.5 million smallholder farmers, providing the legume protein and nutrition requirement of 222.5 million individuals (5 persons per household). Cumulatively, as a result of improved seed availability and accessibility, farmers have adopted improved legume varieties in about 27% of the area under legumes in Mali, 38% in Niger, 57% in Malawi, 35% in Tanzania, 59% in selected districts of Uganda and 22% in Nigeria. The reduction in per unit cost of cultivation of improved varieties ranges from 21% in Malawi to 44% in Uganda, compared to local varieties.

Cover Photo Captions (clockwise)

1. Ms Shabila Musa, her husband and daughter – one of many smallholder farmers from Southern Tanzania – are now making a living from seed production of improved groundnut varieties; they are members of the Muungano Farmer Group in Mnanje village Masasi.
2. A chickpea farmer in Andhra Pradesh, India admiring his lucrative crop.
3. A woman farmer from the Lake Zone region of Tanzania shelling her groundnut. Women are empowered to make decisions on marketing their produce.

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Grain Legumes Strategies and Seed Roadmaps for Select Countries in Sub-Saharan Africa and South Asia

Tropical Legumes II Project Report

Editors

Emmanuel S Monyo and CL Laxmipathi Gowda

This work has
been undertaken
as part of the



RESEARCH
PROGRAM ON
Grain Legumes



**International Crops Research Institute
for the Semi-Arid Tropics**

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Foreword

Legumes – Country Strategies and Seed Roadmaps

Comprehensive in-country information on grain legumes in developing countries is currently available only through searches of a multitude of hard-to-access documents. To begin to address this problem, a group of dedicated scientists from Sub-Saharan Africa and South Asia worked hard to organize future opportunities in 13 Sub-Saharan African and 2 South Asian countries for six key legume crops. It will serve as an important benchmark and reference document for several different types of stakeholders, including donors and project implementers to help them target legumes and broader cropping systems investments. The crops include common bean (*Phaseolus vulgaris*), cowpea (*Vigna unguiculata*), chickpea (*Cicer arietinum*), soybean (*Glycine max*), pigeonpea (*Cajanus cajan*) and groundnut (*Arachis hypogaea*). Taken together, these crops are grown on some 60 million hectares in low income geographies, an area greater than that devoted to maize cultivation.

This publication represents an important output of the Tropical Legumes II project supported by the Bill & Melinda Gates Foundation, containing information that is not available elsewhere in such a one-stop way. The Tropical Legumes II project is being executed by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in collaboration with a broad range of partners including two CGIAR centers, the International Center for Tropical Agriculture (CIAT) and the International Institute for Tropical Agriculture (IITA) as well as the National Research Institute of each partner country. The project has made remarkable successes – release of 113 new legume varieties during the past 6 years; the adoption of new chickpea cultivars and agronomic practices that have doubled yields in Ethiopia; and the re-invigoration of the groundnut export trade in Malawi through efforts by the project to extend crop management practices for the control of aflatoxin and to get seed of improved varieties to farmers.

The legume crops featured in this publication are critically important to smallholder farmers for a number of reasons. They help intensify staple cereal, roots and tuber cropping systems as catch, relay and intercrop options and provide nitrogen and other soil health benefits associated with crop rotation. Legume grains contain 2–3 times higher protein content than the starchy staples that form the bulk of the diets of smallholder and urban poor families thus providing critical nutritional and health benefits. As the legume crops are largely grown by women, improvements in legume productivity bring additional income to them. Legumes help diversify smallholder food production and income streams and hence mitigate risks associated with price fluctuations, and reduce disease and pest infestations and climate-related production disruptions. Thus grain legumes contribute significantly towards the Foundation's core goals of reducing poverty, improving food security, improving nutrition and health, enhance women's empowerment and sustain the natural resource base.

We congratulate the volume editors Emmanuel Monyo and CL Laxmipathi Gowda for their outstanding effort to bring the various country level perspectives together in a highly readable document. We are proud to have supported the people and institutions across Sub-Saharan Africa and South Asia who contributed to this work.

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