Agriculture is the backbone of the Kenyan economy since it contributes about 25% of the GDP and employs 75% of the national workforce. Over 80% of the Kenyan population lives in rural areas and makes a living, directly or indirectly, from agriculture.

Half the territory in Kenya comprises agricultural land but with its dry climate and growing desertification, only 20% is considered arable. Persistent climate shocks such as the droughts in 2009 and 2011 induce frequent food crises.

Many farmers cannot afford readily available, modern farming technologies such as improved seeds, fertilizers or irrigation. The profitability of climate-dependent smallholder farming is also impeded by poor institutions and infrastructure, and inefficient value chains.

ICRISAT and Kenya

ICRISAT’s office in Kenya is the regional hub for Eastern and Southern Africa (ESA) overseeing other offices in Ethiopia, Kenya, Zimbabwe, Malawi and Mozambique.

ICRISAT’s association with Kenya started in 1981 with the Semi-Arid Food Grain Research and Development Program (SAFGRAD), largely funded by USAID.
Push for legumes

- Along with partners such as TechnoServe, Catholic Relief Services (CRS), Kenya Agricultural Research Institute (KARI), and private sector processors and exporters, ICRISAT focused on legume commercialization; stimulating the growth of local seed production and strengthening agro-dealer networks for distribution and marketing.
- Producer marketing groups (PMGs) facilitated community seed production, local distribution and market access, and helped to increase local producer prices by 20–25% in Nairobi and Mombasa after linking producers to wholesalers.

- Introduction of medium-duration varieties (ICEAPs 00554 and 00557) that provide two crops a year in 2003.
- Research to improve protein and micronutrient content of grain legumes and chickpea, thereby helping improve family nutrition, and aflatoxin management through low-cost testing kits.

Growing drought-tolerant crops for improving resilience

As maize, the main staple crop, often fails in the drylands, farmers are being encouraged to grow more drought-tolerant crops like millets including sorghum. Farmers from Siaya county for instance now grow finger millet instead of maize, earning three times more, thanks to an early maturing variety (80 days to mature instead of 120 days). A sorghum-legume cropping system has also been introduced in Wote, eastern Kenya, which enhances food and nutrition security.

ICRISAT collaborates with private seed companies, NGOs and public research and extension institutions to disseminate improved varieties of dryland cereals and nutri-resilient legumes through community seed bank, small seed packets and other seed systems.

Watershed Management

Community-based watershed management is another of ICRISAT’s activities in Kenya. Farmers have been trained in better soil and water conservation practices (check dams and tight ridges) and climate-smart agronomic practices such as tumbukiza pits to establish grass and forage trees.

With the Kenya Meteorological Department (KMD) and Kenya Agricultural Research Institute (KARI), ICRISAT is testing the concept of climate analogue locations to build climate adaptation strategies with farmers. Innovative media campaigns are helping spread the information to farmers.
Hybrid Parents Research Consortium

A sorghum hybrid parents research consortium was formed in Kenya by the Seed Traders Association of Kenya (STAK) and ICRISAT in March 2015. Eight regional and multinational seed companies and seven small and medium scale seed companies operating in Kenya, universities, county governments’ extension heads, sorghum grain marketers and processors took part in a meeting held in Nairobi in December 2014.

Selected ongoing projects

**Improving the livelihoods of smallholder farmers in drought-prone areas of Sub-Saharan Africa and South Asia through enhanced grain legume production and productivity (TLII Phase 2)**

- **Donor Organization:** Bill & Melinda Gates Foundation
- **Grant Period:** 2011 - 2015

The overall goal of the TLII project is to enhance productivity by at least 20% for six legume crops covered by this project (chickpea, common bean, cowpea, groundnut, pigeonpea and soybean) in drought-prone areas of SSA and SA, principally through the availability and adoption of improved crop varieties and associated crop management practices. A partnership involving three CGIAR centers, the scientists of 14 national programs, advanced research institutes, the private sector and other R&D organizations will provide the necessary scientific inputs to achieve the goal.

**Harnessing Opportunities for Productivity Enhancement (HOPE) of Sorghum and Millets in sub-Saharan Africa and South Asia**

- **Donor Organization:** Bill & Melinda Gates Foundation
- **Grant Period:** 2009 - 2015

This project seeks to take an integrated value-chain approach that harnesses market pull linked to increased production potential from technologies to stimulate the production of sorghum and millets in selected target areas representative of major sorghum and millet production zones. Organizations providing seed, fertilizer, credit, and know-how are being interlinked with producers, buyers, and marketers so that increased production is enabled by essential inputs, and driven by market demand.

**AgMIP Phase II. The Future of Food and Farming in South Asia and Sub Saharan Africa**

- **Donor Organization:** Department for International Development (DFID)
- **Grant Period:** 2014 - 2016

The Agricultural Model Intercomparison and Improvement Project (AgMIP) is a major international effort linking the climate, crop, and economic modeling communities with cutting-edge information technology to produce next generation of climate impact projections for the agricultural sector. The goals of AgMIP are to improve substantially the characterization of world food security due to climate change and to enhance adaptation capacity in both developing and developed countries.

AgMIP Phase II aims at reducing poverty and enhancing resilience to climate change, building pathways for sustainable futures for smallholder crop-livestock systems in semi-arid regions.
The objective of the project is to generate, collate and deliver sorghum and finger millet technologies that minimize the effects of climate change; and raise productivity and income of sorghum and finger millet producing farmers through development-oriented research and action in eastern Africa.

Key completed projects

- Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA)
- Adapting agriculture to climate change: Developing promising strategies using analogue locations in Eastern and Southern Africa
- Chickpea – Accelerating development of genomic resources and strengthening NARS partner capacities for enhancing adoption of molecular breeding for drought tolerance in chickpea
- CP - CIMMYT/GCP-CI (Amd. 1)
- Attributed Funding from Germany for 2014 for “Conservation, regeneration, characterization / evaluation of germplasm collections of sorghum, pearl millet, chickpea, pigeonpea, groundnut and small millets at ICRISAT-Patancheru, India and at the regional genebanks in Niamey-Niger; Nairobi-Kenya; and Bulawayo-Zimbabwe.”

Moving forward

The ICRISAT Governing Board in September 2014 made a decision to boost its research in Sub-Saharan Africa (SSA) by investing US$ 5 million towards upgrading research infrastructure and building scientific skills on the African continent. This investment will be across SSA where ICRISAT has its offices and will focus on harnessing the required resources to further advance the productivity of smallholder agriculture in SSA for greater self-reliance and resilience, particularly in light of climate change, and for increased participation in the market economy. These new investments will provide greater opportunities for collaborative research and strengthen partnerships along the whole value chain.

ICRISAT will continue to work with Kenyan scientists, producers, development workers, private sector and government departments in addressing the various challenges facing the agriculture and rural sectors of the country to meet the goals of improving food security, alleviating poverty and safeguarding the environment.

Development of commercially sustainable Sorghum for Multiple Uses (SMU) value chains in Kenya and Tanzania

**Donor Organization:** EC/IFAD  
**Grant Period:** 2013 - 2015

The main objective of the project is to support the development, dissemination and uptake of new sorghum multipurpose varieties that are higher yielding and resistant to both biotic and abiotic stresses; improving access to markets by farmers in the arid and semi-arid agro-ecologies of Eastern Province of Kenya and in the Northern, Lake and Central zones of Tanzania.

**Implementation phase of the Universities, Business and Research in Agricultural Innovation (UniBRAIN) project**

**Donor Organization:** FARA  
**Grant Period:** 2012 - 2015

The main objective of UniBRAIN is to establish six pilot agribusiness incubators in Ghana, Kenya, Mali, Uganda and Zambia. ICRISAT Agri-Business Initiative will exploit its knowledge and experience of establishing and running its own agribusiness incubator, as well as in establishing ten other successful agribusiness incubators, to support the UniBRAIN incubators on leadership in business planning, and incubator management, governance and training.

Delivering new sorghum and millet innovations for food security and improvement of livelihoods in Eastern Africa

**Donor Organization:** ILRI: Bio-Innovate Program  
**Grant Period:** 2011 - 2015

**About ICRISAT**

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid tropics have over 2 billion people, of whom 644 million are the poorest of the poor. ICRISAT innovations help the dryland poor move from poverty to prosperity by harnessing markets while managing risks – a strategy called Inclusive Market-Oriented Development (IMOD).

ICRISAT is headquartered in Patancheru, Telangana, India, with two regional hubs and six country offices in sub-Saharan Africa. It is a member of the CGIAR Consortium. CGIAR is a global research partnership for a food secure future.

**About ICRISAT:** [www.icrisat.org](http://www.icrisat.org)  
**ICRISAT’s scientific information:** [http://EXPLOREit.icrisat.org](http://EXPLOREit.icrisat.org)