Ethiopia and ICRISAT

Working with partners for prosperous semi-arid tropics

ICRISAT focus areas in Ethiopia

- Improving production and productivity of mandate dryland cereals and grain legumes through development and dissemination of improved varieties
- Sustainable management of natural resources for increased productivity and profitability under variable and changing climatic conditions
- Enhancing access to input and output markets and enabling policy and institutional arrangements to drive the uptake of new technologies
Achievements and Impacts

- Large-scale adoption of high yielding market preferred, large seeded kabuli chickpea varieties has led to 86% increase in production, 39% increase in area and 34% increase in productivity.
- Each year Ethiopia exports 34,000 tons of chickpea valued at US$ 20.93 m.
- Estimated total benefit from chickpea improvement is about US$ 111 m over 30 years. Of this consumers estimated to get 39% and producers 61% of the benefits.
- Development of diversified breeding materials for sorghum, groundnut, chickpea and finger millet resulted in release of several varieties which were widely adopted.
- Collaborative research with national partners led to release of two sorghum hybrids ESH1 and ESH2.
- Adoption and utilization of improved varieties is promoted through:
  - Support to seed multiplication
  - Awareness creation on use of improved varieties and fertilizer microdosing
  - Capacity strengthening along the sorghum and millet value chains
  - Support to post-graduate studies
- Watershed-based management of natural resources is helping to rehabilitate degraded lands, enhance productivity and diversify incomes.

ICRISAT’s work with Ethiopian partners

ICRISAT extended its work into southern Africa in 1981. ICRISAT’s work with the USAID funded Semi-Arid Food Grain Research and Development (SAFGRAD) covered Ethiopia along with a number of other east African countries. In the mid-eighties, ICRISAT began a farming systems program in Ethiopia with funding largely from the Dutch government. Partners included the Ethiopian Ministry of Agriculture, the Institute of Agricultural Research, International Livestock Center for Africa (ILCA) and Alemaya University. ICRISAT opened a country office in Ethiopia in November 2013.

Among the ICRISAT mandate crops, sorghum is the most extensively grown crop while chickpea is the most economically important crop. In 2012, total area under sorghum, finger millet, chickpea and groundnut cultivation was about 2.5 m ha.

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.

ICRISAT’s work in Ethiopia over the next few years will focus on:
1. Unlocking the potential of chickpea
2. Strengthening the groundnut value chain – from field to consumer
3. Promoting production and utilization of pigeonpea
4. Diversifying sorghum and millet uses to spur additional markets
5. Sustainable intensification of agricultural systems through watershed based management of resources
6. Enabling smallholder farmers adapted to climate vulnerabilities
7. Improving nutrition of poor families through diet diversification with semi-arid tropic crops
8. Strengthening tef crop improvement and management.
**Chickpea**

Ethiopia is the leading producer, consumer and exporter of chickpea in Africa and has 4.5% share of the global chickpea market and more than 60% of Africa’s global chickpea market share. The area under chickpea cultivation has more than doubled from 109,000 ha in 1993 to about 230,000 ha in 2012 while the yields jumped from about 550 kg/ha to 1,730 kg/ha during the same period.

![Graph of Chickpea Area and Yield](image1)

**Sorghum**

Ethiopia is the second largest sorghum growing country in eastern and southern Africa, after Sudan. Sorghum production has significantly increased in recent years, from 1.7 million tons in 2004-05 to nearly 4.0 million in 2012. Yield increased from an average of 1.4 tons/ha in 2004 to an average of 2.1 tons/ha in 2012, while area under sorghum increased by 51 percent, from 1.2 million ha in 2004-05 to 1.9 million ha in 2012 (FAOSTAT).

![Graph of Sorghum Area and Yield](image2)

**Groundnut**

Groundnut is an important lowland oilseed crop in Ethiopia. The area under groundnut increased from about 12,600 ha in 1993 to 64,500 ha in 2012 while its yield increased from 750 kg/ha to 1,600 kg/ha during the same period.

![Graph of Groundnut Area and Yield](image3)

**Finger millet**

In Ethiopia, finger millet is currently grown on more than 431,506 ha, from which 742,297 tons is harvested. Over the past two decades (between 1993 and 2012) the area under finger millet increased by about 145% while the yields nearly doubled during the same period.

![Graph of Finger Millet Area and Yield](image4)
About ICRISAT

ICRISAT is a member of the CGIAR Consortium

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Selected projects and activities

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: Bill & Melinda Gates Foundation

Grant Period: 2011 – 2015

Tropical Legumes-II aims to increase productivity and production of legumes and the income of poor farmers by 15 percent, with improved varieties. It is a joint initiative of ICRISAT, International Institute of Tropical Agriculture (IITA) and International Centre for Tropical Agriculture (CIAT) with relevant national agricultural research system from 10 different countries in SSA and SA. In Ethiopia, the program is focused on commonbean (CIAT) and chickpea (ICRISAT and ICARDA).

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

Donor: Bill & Melinda Gates Foundation

Grant Period: 2009 - 2015

The HOPE project seeks to help smallholder farmers increase the yields of the two dryland cereal crops — sorghum and millet — in 11 countries of SSA and SA. The project aims to increase sorghum, pearl millet and finger millet yields for targeted farmers by 35-40% in its first four years. In Ethiopia, the target areas include Western Hararge (Chiro, and Meiso woredas) and North Wollo (Sirinka and Kobo woredas) for sorghum and Western Gojam (Adet, Achefer, Guangua, and Dangila woredas) and Central Rift Valley (Arsi-Negele, Shashamane, and Siraro woredas) for finger millet.

The Agricultural Model Intercomparison and Improvement Project (AgMIP)

Donor: Department for International Development (DFID)

Grant Period: 2012 – 2014 (Phase I)
2014 – 2016 (Phase II)

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 substantially improve the characterization of world food security due to climate change and to enhance adaptation capacity in both developing and developed countries. Ethiopia is one of the four participating countries from Eastern Africa.

During the first phase comprehensive assessment of climate change impacts were made for maize Adama Woreda (district) in Oromia region and for wheat in Hintalo Wajirat Woreda in Tigray region.

Other Activities: A number of other activities under different CGIAR Research Programs (CRPs) on grain Legumes, Dryland Cereals, Dryland Systems, Water, Land and Ecosystems (WLE) and Climate Change, Agriculture and Food Security (CCAFS) are also in progress. These include participatory varietal trials and demos of pipeline and released varieties of chickpea and sorghum, marker assisted back crossing trials for Helicoverpa, heat and drought tolerant varieties in chickpea and Striga and drought tolerant varieties and hybrids in sorghum, optimizing management for chickpea and sorghum, identifying and promoting options for sustainable intensification and improving systems resilience through integrated watershed management.