Harnessing Opportunities for Productivity Enhancement (HOPE) of sorghum and millets (2009-2013)

The main thrust of the HOPE project is to provide poor dryland households with the technologies, linkages, and development impetus they need to harness the pull of these growing markets. In collaboration with ICRISAT, Maiduguri, IAR-Zaria, FAO-CARDOP and several CBOs, NGOs and private companies, this project is implemented in eight states – Sokoto, Kebbi, Zamfara, Katsina, Kano, Jigawa, Yobe and Borno. A total of 342 farmers across seven states have participated in the on-farm evaluation of three newly developed pearl millet varieties (PEO 5532, PEO 5984, PEO 5684). This activity led to the registration and release of PEO 5532 as a new millet variety in Nigeria with the code name LCIC MV 3 and dubbed as SUPER SOSAT in Yobe State in 2012. PEO 5984 was released in December 2013 with the code name LCIC MV 4 and dubbed jira-ni (meaning ‘wait for me’ in the local language). Phase 2 of the project is expected with approval of a bridge to Phase 2 in 2014.

Moving forward

ICRISAT is in the process of increasing its investment in Nigeria with the additional appointment of two Breeders; one each for groundnut and sorghum at the senior scientist level. They will join the System Agronomist and partners to develop new improved lines of mandate crops and associated systems. In addition four CGIAR Research Programs are being implemented by ICRISAT in collaboration with partners in Nigeria. ICRISAT will continue to work with Nigerian 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.

The goal of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is to harness the power of technology for development, food security, poverty alleviation and environmental protection, targeted at poor rural families in the semi-arid tropics of the world. ICRISAT’s Inclusive Market-Oriented Development (IMOD) strategy focuses on helping the farming poor in the drylands to access markets to increase their incomes and improve their food security and livelihoods.

Nigeria and ICRISAT

ICRISAT’s activities in Nigeria (1976-1985) under the Semi-Arid Food Grain Research and Development / United States Agency for International Development (SAGFRA/USAID) project resulted in the development and adoption of several sorghum and pearl millet varieties. In 1988, ICRISAT set up a research station at Bagauda near Kano to pursue a research program focused on the improvement of sorghum varieties and hybrids to be used within sorghum-based cropping systems. Two sorghum varieties, ICV 400 and ICV 111, and two sorghum hybrids, ICSH 89002 NG and ICSH 89009 NG, were developed and released in collaboration with the Institute for Agricultural Research (IAR), Nigeria.

From 1992, ICRISAT and IAR embarked on a large hybridization program to develop early maturing groundnut varieties resistant to rosette diseases that would fit into the short growing season in the Sudano-Saharan savanna zones – the groundnut growing region in Nigeria. A series of joint on-station and on-farm participatory trials, involving state Agricultural and Rural Development Authorities (ARDA)s of Borno, Kaduna, Kano, Katsina and Jigawa states were conducted between 1996 and 2000. From this program, a set of 44 advanced breeding lines with resistance to groundnut rosette were tested.
Three varieties, SAMNUT 21, SAMNUT 22, and SAMNUT 23, were formally released in 2001. Subsequently there was a period of uncertainty when ICRISAT and Nigeria did not directly work together. Then, in 2008, Dr BY Abubakar, Executive Secretary, Agricultural Research Council of Nigeria (ARCN) and Dr William D Dar, Director General, ICRISAT, signed a Memorandum of Understanding (MOU) to collaborate on the development and implementation of joint research programs in Nigeria. Together with ARCN, IAR, and the Lake Chad Research Institute (LCRI), ICRISAT has since been working in Nigeria on sorghum, millet and groundnut. Mutual cooperation and collaboration has been established on such areas as exchange of germplasm, breeding material, scientific information and techniques, and capacity development.

House of Representatives strengthens partnership with ICRISAT

An ICRISAT team led by Dr Farid Waliyar, Director-General and Central Africa, met with the Committee on Agriculture of the House of Representatives of the Federal Republic of Nigeria on 13 November 2013 and discussed possible training opportunities that the Institute could offer to support universities and agricultural research institutes in Nigeria. Mr Mohammed Tahir Monguno, Chair of the Committee, expressed confidence in ICRISAT’s research activities and recognized the institute as a very important partner in efforts to bring about a green revolution in Nigeria. He stated that the government will support ICRISAT in its research towards getting and improving access to high-yielding varieties as well as technologies to combat diseases. Dr Waliyar also updated the Members of Parliament with information on two major projects to be funded by the Federal Government in order to revitalize the sorghum value chain and rebuild the groundnut pyramids.

Agriculture in Nigeria

Agriculture is vital to the Nigerian economy as it provides employment for almost 70% of the population. The country faces critical agricultural development challenges including poor crop-livestock productivity, inadequate strategic diversification of production systems, and weak farmer-market linkages. ICRISAT and Nigeria collaborate on projects that address these challenges, with emphasis on sorghum, pearl millet and groundnut, all three of which are significant to the agricultural economy of Nigeria.

Nigeria is one of the largest groundnut producers in Africa, accounting for 39% of the total production. Furthermore, Nigeria accounts for 51% of the total production in the West Africa region. Prior to 1980, groundnut production decreased significantly due to high incidence of groundnut rosette disease and drought, coupled with stringent export restrictions due to aflatoxin contamination. However, production has been increasing with growth estimated at 8% resulting both from area expansion (6%) and increased productivity (2%) since 1984.

Nigeria is the largest producer of food sorghum in the world. The other leading sorghum producers (USA and India) produce sorghum mainly for livestock while Nigeria produces for direct human consumption. The country produced 8.5 million tons in 2008, 9.32 million tons in 2009 and by 2010 it was 10 million tons.

The Federal Government of Nigeria launched the Agricultural Transformation Agenda (ATA) with a vision to achieve a hunger-free Nigeria through an agricultural sector that drives income growth, accelerates achievement of food and nutritional security, generates employment, and transforms Nigeria into a leading player in global food markets to grow wealth for millions of farmers. The Growth Enhancement Support (GES) investment is targeting 20 million farmers. ATA’s action plan initially focuses on priority agricultural commodities including sorghum and groundnut, two of ICRISAT’s mandate crops. ICRISAT and the Federal Ministry of Agriculture and Rural Development signed agreements on two new projects (see first two projects in the section that follows).

Projects

There are several collaborative research projects between ICRISAT and various Nigerian organizations. Recent developments through ICRISAT’s collaborative association with Nigeria are described below.

- Rebuilding the groundnut pyramids: boosting farmers’ income through new groundnut varieties, crop systems and processing technologies in Nigeria (2013-2015)

The overall goal of this project is to increase incomes and enhance livelihoods of the actors along the groundnut value chain through increased productivity by adoption of farmer- and market-preferred groundnut varieties, improved quality of grains and produce, and reduced transaction costs. This will be achieved by improving the profitability of groundnut production by broadening the genetic base and promoting improved cultivars and agronomic practices that meet farmers’ needs and market requirements; developing improved sorghum seed demand and supply by ensuring timely access and availability of seed to farmers; and helping farmers identify and provide sorghum grain to processors and markets. The project will also assist in the industrial utilization of sorghum through products from sweet sorghum and sorghum for the poultry and fish feed industries.

Through public-private partnerships the project will aim to achieve the following:
- Reach 2,000,000 farmers through the use of a clustering approach to extension in a total of 13 major sorghum producing states in the north-west and the north-east;
- At least 1,500,000 metric tons of sorghum will be used for industrially processed foods, such as fortified foods like Soy-Akamu (a soybean-sorghum flour blend), for the national School Feeding Program and the World Food Program as an export product;
- At least 2,000,000 metric tons of sorghum will be used for industrial production of high quality sorghum flour for packaged instant food items; and
- Increase the industrial use of sorghum as malt for malt drinks and beverages up to 500,000 metric tons.

- Improving the livelihoods of smallholder farmers in drought-prone areas of sub-Saharan Africa and South Asia through enhanced grain legume production and productivity (TL II Phase 2) (2011-2014)

The Tropical Legumes II Phase 2 (TL II Phase 2) project builds on the achievements of Phase 1 (2007-2011) as well as...