Nigeria faces critical agricultural development challenges including poor crop-livestock productivity and inadequate strategic diversification of production systems. Nigeria presently consumes about 30 million liters of fuel per day. At 10% blending levels, three million liters of ethanol are needed. In view of the great demand for ethanol as transport fuel in Nigeria, many prospective entrepreneurs have contacted ICRISAT for exploring the possibilities of sweet sorghum for ethanol production. Moreover, Nigeria’s agro-climatic conditions are congenial for sweet sorghum cultivation.

ICRISAT has evaluated improved sweet sorghum cultivars and local sweet sorghum lines and accessions in several locations of Western and Central Africa. The promising genotypes are: ICSV accessions in several locations of Western and Central Africa. The promising genotypes are: ICSV 91046, ICSA 749 x SP 4511-3, ICSA 24005 x SP 4511-2, IS 10043, IS 10230, IS 23519, CSM135, CRINKANSS Local Teneya, F60, SS Local 2 and Diakarida Senbila. ICRISAT further supplied 68 sweet sorghum A/B lines and 19 restorers/varieties to IAR-Zaria, 42 A/B lines and 8 restorers/varieties to Ahmadu Bello University, Zaria.

Moving forward

Recently, ICRISAT has reaffirmed its commitment to collaborate with the Nigerian government in boosting groundnut production to export levels by increasing productivity and sustainability of groundnut-based systems through increased adoption of farmer- and market-preferred groundnut varieties, a proposal of which is now being developed to concretize the collaboration. A revival of the vibrant groundnut industry would help generate employment opportunities and improve the livelihoods of millions of Nigeria’s smallholder farmers.

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. It will continue to pursue and carry out collaborative research with Nigerian institutions in the production of sorghum, millet, and certain leguminous crops, and the development of farming systems relevant to these crops.

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 (SAT) of the world. ICRISAT, however, cannot do this alone. Countries such as Nigeria help ICRISAT achieve this goal.

Along with agricultural research for development, ICRISAT sees the need for more effective social assistance programs to help the poorest of the poor connect to markets, while building their own resilience rather than creating dependency. ICRISAT’s Inclusive Market-Oriented Development (IMOD) strategy focuses on helping the farming poor in the drylands to access markets to increase their food supplies and incomes.

Nigeria and ICRISAT

ICRISAT’s activities in Nigeria (1976-1985) under the SAFGRAD/USAID project resulted in the development and adoption of several sorghum and pearl millet varieties. In 1988, ICRISAT set up a research station at Bauchi 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, ICSV 400 and ICSV 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.

The beneficiaries of these collaborative activities carried out between 1988 and 2004 were: Nigerian farmers and communities especially those involved in the production, marketing and consumption of groundnut, millet and sorghum; as well as Nigerian scientists, technicians and students who participated in the implementation of these activities through formal and informal training.

Subsequently there was a period of uncertainty when ICRISAT and Nigeria did not directly work together. Then, in 2008, Dr BY Alubokhot, Executive Secretary, Agricultural Research Council of Nigeria (ARCN) and Dr William D Dar, Director General, ICRISAT, signed

---

**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, and 644 million of these are the poorest of the poor. ICRISAT and its partners help empower these people to overcome poverty, hunger and a degraded environment through better agriculture.

ICRISAT is headquartered in Hyderabad, Andhra Pradesh, India, with two regional hubs and four country offices in sub-Saharan Africa. It belongs to the Consortium of Centers supported by the Consultative Group on International Agricultural Research (CGIAR).

---

**Contact Information**

**ICRISAT-Patancheru (Headquarters)**
Patancheru 502 324
Andhra Pradesh, India
Tel +91 40 23071307
Fax +91 40 23071374
icrar@cgiar.org

**ICRISAT-Nairobi (Regional hub ESA)**
ICRISAT Nairobi, PO Box 39635, Nairobi, Kenya
Tel +254 20 7224550
Fax +254 20 72241201
icrisat-nairobi@cgiar.org

**ICRISAT-Lusaka (Regional hub SCA)**
Lusaka Agricultural Research Station, PO Box 1096
Lusaka, Zambia
Tel +260 1 707297, 071, 067, 057
Fax +265 1 707286
icrisat-malawi@cgiar.org

**ICRISAT-Maputo (Regional hub WCA)**
c/o IIAM, Av. das FPLM No 2698
Maputo, Mozambique
Tel +258 21 461666, 461657
Fax +258 21 461581
icrisat-mw-mali@cgiar.org

---

**Early-maturing sorghum varieties helped to tide over end-of-season drought and floods in Nigeria. ICRISAT’s sorghum variety ICSV 111 was grown in more than 30% of the Jigawa region.**
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.

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. It is a major cash and food crop for many households, resulting both from area expansion (6%) and increased production in the West Africa region. Prior to 1980, groundnut production decreased significantly due to aflatoxin contamination. However, production in the West Africa region. Prior to 1980, groundnut production decreased significantly due to aflatoxin contamination. However, production in Nigeria has been increasing with growth estimated at 8% due to improved yield, higher price of groundnut, and increased productivity (2%) since 1984. Groundnut is both a major cash and food crop for many households, accounting for 21% of rural cash earnings, and it is also a major source of employment.

Ongoing projects

There are several ongoing collaborative research projects between ICRISAT and Nigerian research institutes, universities, agricultural development programs, farmers’ associations, non-government organizations, private sector, policy units, and government departments. Some of these projects are regional in scope and provide mutual learning, information and knowledge sharing opportunities to all participating countries. Recent developments through ICRISAT’s collaborative association with Nigeria are described below.

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

The Tropical Legumes II Phase 2 (TLI Phase 2) project builds on the achievements of Phase 1 (2007-2011) as well as outputs from its sister Tropical Legumes I (TLI) project. This project aims to increase the productivity (yield per unit area) and production (total availability) of six major grain legumes – chickpea, common bean, cowpea, groundnut, pigeonpea and soybean. These legumes are important sources of protein for more than 2.1 billion people living in sub-Saharan Africa (including Nigeria) and South Asia.

This project is implemented in collaboration with Agricultural Development Programs (ADPs), IAR, several Community-based Organizations (CBOs) and NGOs in Nigeria, directly in three States (Kano, Jigawa and Katsina). IAR is authorized to conduct groundnut trials in several other locations as well.

- Integrated ecosystem management of trans-boundary areas between Nigeria and Niger (2006-2013)

This project was set up to create conditions for sustainable integrated ecosystem management to improve livelihoods in the areas covered by the Maiduguri Agreement between Nigeria and Niger. This is being carried out by developing an integrated legal and institutional framework for collaboration and coordinated financing from the Niger-Nigeria Joint Commission for Cooperation between community-based organizations, by harnessing and improving research-based and indigenous knowledge and cultural values to support natural resource management, conservation and productivity; and developing and implementing sub-regional catchment and community level ecosystem management plans through participatory and inclusive processes.

- West Africa Seed Alliance (WASA) (2007-2012)

The West Africa Seed Alliance (WASA), supported by USAID, is a collaborative program intended to establish a sustainable commercial seed industry capable of ensuring that small-scale farmers have affordable, timely and reliable access to high quality seeds and planting materials. Supported by USAID, the project focused primarily on addressing two key agricultural development program elements: improving agricultural productivity and strengthening the agriculture enabling environment. The project was initiated in Nigeria in 2008.

Over the past four years, the project has made substantial progress towards developing a sustainable commercial seed sector in West Africa. In Nigeria it has provided various types of assistance, which included assisting governments to harmonize seed policies; capacity building of plant breeders, emerging seed enterprises and agro-dealers in introducing more productive varieties and hybrids and producing various classes of seeds; and assistance to seed trade associations and farmers in creating demand for, and utilization of, quality seeds.

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

In recent years, major new trends towards increasing demand for dryland cereals have begun to emerge that provide a renewed opportunity for sorghum and millets in the marketplace. The main thrust of the HOPE project is to provide dryland households with the technologies, linkages, and development incentives they need to harness the pull of these growing markets. In collaboration with LCRI-Maiduguri, IAR-Zaria, IFAD-CBARDP 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 5864). 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 SOST in Yobe State.

The improved millet varieties being introduced to farmers under HOPE Project are SOST-C86 (LCIC MV 1), LCIC MV 2 and LCIC MV 3 (SUPER SOST).

Biofuel production from sweet sorghum

ICRISAT has launched a global BioPower initiative, with a view to power the dryland poor to benefit from it, rather than be marginalized by, the bioenergy revolution. The BioPower strategy focuses on feedstock sources and approaches that do not compete with food production; it instead produces both food and fuel. Sweet sorghum is a suitable crop for this as it offers grain for human consumption, stalk sugars for fuel production, and residues as fodder for livestock.