Representatives from Kenyan seed companies participate in a Field Day at the Kiboko Research Facility in Makindu to know more about sorghum hybrid parents developed by ICRISAT.

Kenya seed companies commit to strengthen the country’s sorghum hybrid seed system

In a first of its kind, a sorghum hybrid parents research consortium has been formed in Kenya by the Seed Traders Association of Kenya (STAK) and ICRISAT.

The consortium uses a public-private partnership approach to build the seed industry for supply of high performing hybrids to smallholder farmers. ICRISAT was the first international research center under the CGIAR to set up a public-private partnership to develop and improve crop varieties. ICRISAT has run a Hybrid Parents Research Consortium in India since the year 2000. Over time, ICRISAT has set up and managed three hybrid consortia for sorghum, pearl millet and pigeonpea. In these partnerships, members have access to hybrid parents developed by ICRISAT.

Sorghum plays an important role as a food security crop especially in semi-arid lands of Kenya. The crop is quite popular in drier areas of Kenya where farmers have few alternative crops that can survive in those conditions. According to the Kenya agricultural sector development strategy (2010-2020), the reason for low productivity of crops such as sorghum is partly because of the low use of improved hybrid seeds due to poor seed distribution systems. Sorghum hybrids are more productive by 15-40% compared to open-pollinated varieties. Collaborations such as this consortium will go a long way to make sure small holder farmers have easier access to the more productive sorghum seeds.

“Kenya has a very active seed system with maize as the main crop. However with the devastation caused by Maize Lethal Necrotic Disease (MLND), sorghum is a key alternative food crop” says Dr Evans Sikinyi a senior STAK official.

On 25 March, seed companies were invited to the ICRISAT Kiboko Research Facility located in Makindu, for a field day. The companies were exposed to the sorghum hybrid parents developed by ICRISAT which have been tested for adaptability in the dry lowland areas of Kenya.
Indian state of Odisha gets its first hybrid pigeonpea

The State Varietal Release Committee (SVRC) of Government of Odisha released its first improved pigeonpea cultivar, ICPH 3762, in the name of Goddess Pārbati. The release of this hybrid has given hope to smallholder pigeonpea farmers in the State to enhance their income and livelihood. According to Dr Myer Mula, Scientist, Seed Systems, ICRISAT three more pigeonpea hybrids are ready for release by yearend.

Highlights of Pārbati (ICPH 3762)
- It is a mid-late duration hybrid and takes around 180 to 190 days to mature
- Average yield under normal conditions is 1.8 t/ha
- Suitable for cultivation in almost all agro-climatic conditions of Odisha
- Highly resistant to fusarium wilt and sterility mosaic disease
- Tolerant to terminal drought due to deep root system
- Pest load is comparatively low
- The seed is brown in color with medium bold seed size (11 g) and is preferred by millers
- Possess acceptable dal quality and high milling recovery (>75%).

ICPH 3762 recorded 125% increase in yield over local types. This hybrid also possesses complete resistance against wilt and sterility mosaic diseases. It was tested in 72 locations in five major pigeonpea growing districts of Odisha.

This work was part of the Tropical Legumes II project funded by the Bill & Melinda Gates Foundation. Funding was also received from Department of Agriculture, Government of Odisha through the Rashtriya Krishi Vikas Yojana (RKVY) project.

Pigeonpea is an important rainfed crop in Odisha state cultivated in 150,000 ha. Wilt and sterility mosaic disease are endemic in the state. Until now, the state did not have any improved cultivar (either variety or hybrid) released for cultivation. Farmers cultivated local landraces and varieties available in the market which resulted in low productivity and less income.

More on pigeonpea see [http://exploreit.icrisat.org/page/pigeonpea/687](http://exploreit.icrisat.org/page/pigeonpea/687)

Partners: Odisha University of Agriculture and Technology; ICRISAT

NGOs – Loksebak, People’s Forum, Sahabagi Vikas Abhiyan, Shramika Shakti Sangha, Centre for Social Action and Tribal Development.

Nominations invited

The Dryland Cereals Scholarship Program

Nominations are invited for the Dryland Cereals Scholarship Program which provides support and a platform for motivated, young scientists from developing countries in Africa and Asia to pursue agricultural research to end food, nutrition and environmental insecurity.

Students must be nominated by and have a strong recommendation from a scientist from a CGIAR center, APAARI, RUFORUM, WACCI, or National Agricultural Research System (NARS). Closing Date: 5 April 2015.

Biofortified pearl millet breeding gains momentum with new partners

In a major boost to ICRISAT’s pearl millet biofortification breeding program six new partners – three private sector and three public sector – have joined the effort. (See box for list of partners). Private partners will further enhance large-scale seed production and dissemination of biofortified cultivars. Another significant development is that majority of the private sector partners have collectively committed to take up pearl millet biofortification breeding programs.

Mr VN Kulkarni, Vice President R&D, JK AgriGenetics, stated that JK Seed Company has instructed its breeders to breed high-iron and high-yielding hybrids with downy mildew resistance. Subsequently breeders have started utilizing high-iron parent from ICRISAT in their crossing programs which have >60 ppm iron content. Also at a recent Scientist Field Day, participants selected 172 biofortified breeding lines and these were supplied to 19 partners.

At the Pearl Millet Biofortification Review and Planning meeting which had around half the participants from private sector seed companies, discussions were held around the adoption of ‘Dhanashakti’ by Indian farmers for general cultivation in more than 40,000 ha of land and the commercialization of the first high-iron and high-yielding hybrid – Shakti 1201 (ICMH 1201). Dhanashakti, developed by ICRISAT, is the first high-iron biofortified cultivar of any crop variety officially released.

Existing partners:

**Public sector:** All India Coordinated Pearl Millet Improvement Project; Mahatama Phule Krishi Vidyapeeth; Junagadh Agricultural University; Vasantrao Naik Marathwada Krishi Vidyapeeth; Sri Karan Narendra Agriculture University; CCS Haryana Agricultural University; ICRISAT

**Private sector:** Ajeet Seeds Ltd; Bayer BioScience Pvt Ltd; Bioseed Research India Pvt Ltd; Ganga Kaveri Seeds Private Limited; Devgen Seeds & Crop Technology Pvt Ltd; Hytech Seed India Pvt. Ltd; JK Agri-Genetics Ltd; Kaveri Seed Company Pvt Ltd; Metahelix Life Sciences Limited; Nirmal Seeds Private Limited; Nuziveedu Seeds Limited; Pioneer Hi-Bred Pvt Ltd; Shakti Vardhak Hybrid Seeds Pvt.Ltd; Hi-Yield Agri-Genetics Private Limited

**New partners:**

**Public sector:** Prof. Jayashankar Telangana State Agricultural University; Karnataka State Seeds Corporation Ltd; Maharashtra State Seeds Corporation Ltd.

**Private sector:** Nath Bio-Genes (I) Ltd; Nu Genes Private Limited; Mangalam Seeds Limited

This work is being undertaken as part of the CGIAR Research Program Agriculture for Nutrition and Health (A4NH).

In line with the Government of India’s Nutri-Farm national pilot program to eradicate micronutrient malnourishment, partners from State Seed Corporations, public and private seed companies and ICRISAT are working towards developing mineral-dense pearl millet cultivars for general cultivation.

Dr M Govindaraj, Project Investigator, Pearl Millet Biofortification Breeding, ICRISAT, said the work plan for 2015 includes 23 biofortification field trials and nurseries. Ten trials will be conducted in north India, eight in peninsular India and five in both the zones.

ICRISAT’s biofortification team which developed ‘Dhanashakti’ is expecting to commercialize three more hybrids by 2016. Also, about 10 high-iron hybrids (with >80 ppm Fe) are set for all-India trials. These promising hybrids identified from HarvestPlus trials...
Farewell

Ms Cristina P Bejosano, Head-Public Awareness and Marketing Support, Strategic Marketing & Communication, Patancheru, concludes her assignment on 31 March 2015, after over 4 years of valuable service to ICRISAT.

The following staff members are retiring on 31 March:

- **Mr A Prasad Singh**, Security Associate, Security Services, after serving the Institute for over 21 years.
- **Mr Ranga Reddy**, Senior Field Helper II, ILRI, after serving the Institute for over 40 years.

On their retirement, Team ICRISAT wishes them a very happy retired life.

New publications

**Labor-Market Participation in Semi-Arid Tropical Villages of India with Specific Reference to Gender**

Authors: Kiresur VR, Chandrakal SK, Chopde VK, Mohan Rao Y and Bantilan MCS


Abstract: The issue of gender differentials in relation to farm productivity in subsistence farming has been of special interest from the standpoint of public policy in developing countries, as the difference is often viewed from the angle of human capital theory and measurement of discrimination. The role of rural women in agricultural development draws not only the attention of the academicians but also of the politicians, assuming that gender equality does matter for overall economic development and welfare measurement.


**Vulnerability to Climate Change: Adaptation Strategies and Layers of Resilience - Agro-climatic analysis of Climatic Trends in Semi-Arid Tropics of India (Andhra Pradesh and Maharashtra)**

Authors: Singh NP, Byjesh K, Bantilan C, Murthy MVR, Rao VUM, Rao GGSN, Manikandan M and Harini D


Abstract: Climate resources inventory using micro-regional weather data is essential to understand and prepare the strategies to cope up with climate change/vulnerability over a region. Semi-arid Tropical (SAT) regions in India are vulnerable to climate extremes and the food grain production of these regions is often affected. Therefore, to prepare viable adaptation strategies to cope with climate risks, we carried out detailed climatic analysis with respect to rainfall and temperature variability in four vulnerable districts, two in Andhra Pradesh (Anantapur and Mahbubnagar) and two in Maharashtra (Akola and Solapur).


Biofortified pearl millet breeding...from page 3

will be evaluated through All India Coordinated Pearl Millet Improvement Project (AICPMIP) trials in 2015.

Welcoming the participants, Dr David Bergvinson, Director General, ICRISAT, emphasized, “Tackling micronutrient malnutrition is the most critical agenda in developing countries including India. Pearl millet is a highly nutritious cereal having balanced nutritional profile compared to other major cereals, thus pearl millet has potential to make significant contributions to nutritional security in addition to food security in the dryland system.”

He congratulated the biofortification team for delivering ‘Dhanashakti’ and urged researchers to have immediate business plan for upscaling it. He also urged the group to mainstream iron and zinc as core traits in their breeding program for long-term adoption of biofortified cultivars by farmers and consumers.

The review meeting was held on 23 March at ICRISAT-India. (For more on Dhanashakti, see [http://www.icrisat.org/newsroom/latestnews/happenings/happenings1626.htm](http://www.icrisat.org/newsroom/latestnews/happenings/happenings1626.htm)).