New sorghum and finger millet cultivars ready to take off in Malawi

Three early-maturing sorghum cultivars are in the process of getting released in Malawi, while the introduction of three finger millet varieties selected by farmers are expected to resurrect a crop that has ‘disappeared’ in the southern region of the country.

The three sorghum varieties earmarked for on-farm testing and release – KARI Mtama 1, R8602 and IESV 23006 DL – are suitable for food and for brewing beer. In the case of finger millet, farmers wanted access to seeds of Gulu E, ACC 32 and KNE 1124 varieties, so that they can start growing the crop again.

Farmer-preferred traits and potential for sorghum

Field days were held at four Participatory Varietal Selection (PVS) sites – Salima in central Malawi, Supuni and Magoti in southern Malawi, and Nyanje near the Mozambique border. The farmers at all the sites expressed their desire for early-maturing varieties. Drought tolerance, early and high yield, sweet taste (especially green grain) and good grain size and color (white for food and brown for beer) were the key traits considered in sorghum variety selection.

The potential also exists to increase brown grain sorghum production for brewing through high-yielding varieties. The current sorghum grain production for brewing stands at 200 metric tons against a demand of 800 metric tons.

Farmer-preferred traits and potential for finger millet

High yield, light brown color and short duration were the traits preferred by farmers for finger millet. Demonstration of fertilizer use (both organic and inorganic) was appreciated as it showed visible significant yield advantage over non-usage of fertilizer. The high nutritive value of finger millet was highlighted and the demonstration of improved agronomic practices for increased production especially in view of the deteriorating soil and changing climatic conditions was appreciated by farmers.

Demand for other drought-tolerant crops:

The farmers requested for more PVS sites and inclusion of other drought-tolerant crops like pearl millet, groundnut and pigeonpea. The village chief at Magoti site, who is a woman farmer said, “We want to end hunger in this village. The rainfall we receive is not enough to raise a maize crop. We therefore depend on drought-tolerant crops for food.”

Sorghum seed access & multiplication:

The releases are based on initial work by Mr Joseph Kamwaza, National Research Officer at ICRISAT’s Chitala
Dry season groundnut seed production catches up in Nigeria

Local leaders are role models

Farming communities in northern Nigeria, led by their local leaders, showed keen interest in dry season groundnut seed production. Besides being an additional source of income, the prestige that farmers derive by being recognized as reliable producers of improved seed is a strong driving force.

A recent field day organized in Kafin Zaki village of Ningi Local Government Area (LGA) had over 350 farmers in attendance including the Honorable Alhaji Abba Saleh, Chair, Ningi LGA, and Mr Alhaji Mohammad Kilishi Musa, District Head, Ningi. In his opening remarks, the Honorable Alhaji Abba Saleh stated that he and 29 other farmers from his village are beneficiaries of improved seed provided by ICRISAT in collaboration with West Africa Agricultural Productivity Programme for dry season cultivation, and described the performance of the crop in his locality as encouraging. He appreciated the zeal of the farmers in adopting dry season groundnut production. Joining him, the District Head commended the farmers and added that he too cultivated groundnut in the dry season and has started harvesting this year’s produce.

Mr Bako Abdullahi, village head of Kafin Zaki, welcomed the introduction of dry season groundnut production in his community and pledged his continued support.

The aim of the field day was to sensitize farmers on the profitability, income generation and system sustainability that can be achieved through dry season groundnut seed production. A total of 200 farmers were trained and given improved groundnut seeds for production in the 2015 dry season, 60 of them were from Kafin Zaki village where the field day was organized. Dr Iliyasu Gital, manager, Bauchi State Agricultural Development Program, was also part of the proceedings.

Dr Babu Motagi, Senior Scientist - Groundnut Breeding (Grain Legumes) and Mr Ayuba Kunihya, Scientific Officer, ICRISAT-Nigeria, emphasized on the suitability of Samnut-24 – an early-maturing, high-yielding groundnut variety. They noted that in addition to the high price the farmers obtain from sale of seed, grain and fodder from dry season cultivation, groundnut fixes nitrogen contributing to soil fertility maintenance.

The field day had interactive sessions and a progressive farmer, Mr Yahaya Saleh, shared his experiences on dry season groundnut seed production.

Partners: National Agricultural Extension and Research Liaison Services Ahmadu Bello Univerisity, Zaria, FMARD; ICRISAT
Investor: West Africa Agricultural Productivity Programme
CGIAR Research Program: Grain Legumes
For more information on groundnut visit http://exploreit.icrisat.org/page/groundnut/686 and for seed development systems visit http://exploreit.icrisat.org/page/seed_systems/672

New sorghum and finger millet cultivars... from page 1

Station. The current evaluators, Dr Henry Ojulong and Dr Eric Manyasa – Scientists, Breeding (Dryland Cereals), ICRISAT-Nairobi, held discussions with Dr Patrick Okori, ICRISAT Country Representative in Malawi and the following points emerged.

- Dr Okori stressed on the Malawi Government’s request for making available seed of improved sorghum varieties and the release of the varieties in the pipeline. For the purpose, a team comprising ICRISAT scientists and a national sorghum team will come together to compile relevant data to enable release of the sorghum varieties identified between 2007 and 2009 from the collaborative trials.

- Two white-seeded varieties that were released – Pirira 1 and 2 – are still popular with farmers but seed is not available. Therefore a site for off-season seed multiplication of the two varieties is to be identified in the southern region.

- The technical capacity of the research staff of the National Agricultural Research System working on sorghum and millets, especially in field breeding techniques and seed production, needs to be improved through short hands-on training, preferably at ICRISAT-Nairobi.

- The evaluators were in Malawi from 23 April to 2 May to report on the sorghum and finger millet regional on-station trials and PVS trials.

Partners: Department Agricultural Research Services (DARS-Malawi), Ministry of Agriculture, Malawi; ICRISAT
Investor: CRP Dryland Cereals
CGIAR Research Program: Dryland Cereals
For more information on dryland cereals: http://exploreit.icrisat.org/page/dryland_cereals/679
Key changes in rural dynamics identified in Karnataka, India

Farmers in the state of Karnataka are increasingly devoting areas for cultivating high-value food and non-food crops as a result of market demand, supportive government policies and groundwater availability. Evidence of this shift is shown in a recent analysis of panel data from surveys of 160 households across four villages in two districts of Karnataka in 2000 and 2013.

As a result of irrigation through groundwater extraction, a groundnut-based farming system with dairying has risen to prominence in Belladamadugu, floriculture in Tharati, grapes in Kapanimbargi, and pigeonpea and cotton in Markabbinahalli.

Policy driven
“The policy of agricultural credit for drilling irrigation wells and free electricity to pump groundwater for agriculture has both enabled a boom in groundwater extraction, causing a rapid transformation of Indian agriculture from subsistence food to commercial crops,” said Dr Nagaraj, former Principal Scientist (Economics), Markets, Institutions and Policies, ICRISAT. “Similarly, some of the programs such as National Horticulture Mission, watershed development, Mahatma Gandhi National Rural Employment Guarantee Act have had a profound impact on changes in cropping patterns and agricultural diversification.”

Enterprise changes
Other changes as seen through VDSA surveys of the four villages was a 10-54% drop in the area of food crops, such as postrainy (rabi) sorghum and finger millet, paving the way for a 35-85% rise in non-food crops such as floricultural and cotton as well as horticultural crops.

There has also been increased mechanization and shift from draught to milk animals, with a substantial rise in small ruminants. For example, milk production in Belladamadugu grew from 180 liters in 2000 to 500 liters in 2010.

Income growth
These shifts have contributed to increased incomes in the villages, particularly those with good access to markets. The horticultural crops grown in Kapanimbargi and Tharati generated an 80-90% increase in incomes compared to agricultural crops, and also offered a 60-90% boost in farm employment.

The VDSA surveys also reveal a substantial increase in non-farm income in the four villages, which grew from 40 to 60% from 2009-2013. As a result there has been a steep fall in the proportion of men working in agriculture and 10-20% growth in females taking up these roles.

Dr Nagaraj said the heavy use of groundwater in Karnataka has resulted in over-exploitation, leading to low yield of water from irrigation wells. Hence farmers are drilling deep bore wells, adopting drip irrigation and sprinkler systems, investing in storage structures, shifting cropping patterns, and also trading water.

References
Pattern of agricultural transformations in VDSA villages of Karnataka
Policy induced transformation in dryland agriculture: The case of Tharati village in Karnataka.

Area coverage under Food and Non-food crops (ha).

<table>
<thead>
<tr>
<th>Category</th>
<th>2000</th>
<th>2013</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belladamadugu</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>45</td>
<td>41</td>
<td>-10</td>
</tr>
<tr>
<td>Non-Food</td>
<td>23</td>
<td>43</td>
<td>85</td>
</tr>
<tr>
<td>Tharati</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>14</td>
<td>11</td>
<td>-24</td>
</tr>
<tr>
<td>Non-Food</td>
<td>10</td>
<td>16</td>
<td>59</td>
</tr>
<tr>
<td>Kapanimbargi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>48</td>
<td>41</td>
<td>-16</td>
</tr>
<tr>
<td>Non-Food</td>
<td>46</td>
<td>62</td>
<td>35</td>
</tr>
<tr>
<td>Markabbinahalli</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>50</td>
<td>23</td>
<td>-54</td>
</tr>
<tr>
<td>Non-Food</td>
<td>45</td>
<td>74</td>
<td>65</td>
</tr>
</tbody>
</table>
Congratulations

Congratulations to Dr Akinwumi Adesina – ICRISAT’s Ambassador of Goodwill – on being elected President of the African Development Bank, Africa’s leading development finance institution.

As the former Minister of Agriculture and Rural Development of the Federal Republic of Nigeria, Dr Adesina was known for his vision and leadership in the agricultural transformation of Nigerian agriculture and his valuable achievements in the field of agricultural research for development in Africa.

ICRISAT wishes Dr Adesina all success in his new position.

Farewell

Mr K Mohan Sharma concludes his employment as Head-Human Resources, IRS/SMG with ICRISAT on 31 May, after over 38 years of valuable and dedicated service to ICRISAT.

He joined ICRISAT in 1977 in the Economics Program. He has served in the Office of Director (International Cooperation), Office of Advisor to DG (Donor Relations) and in the Human Resources function. His professional knowledge, experience, and commitment to the Institute will always be remembered and cherished.

Team ICRISAT wishes him all success in his future endeavors.

The following staff members are retiring on 31 May:

- Mr Inder Kumar, Senior Executive Associate (Administration), FETS – Program Office, after serving the Institute for over 20 years.
- Mr G Bhagwan Das, Senior Transport Associate, FETS – Transport Services, after serving the Institute for over 25 years.
- Mr D Mohan Reddy, Scientific Associate, ICRISAT Development Center, after serving the Institute for over 30 years.
- Mr R M Gopi, Senior Farm & Engineering Associate (Machinist), FETS – Engineering Services, after serving the Institute for over 34 years.
- Mr G Bhagwan Das, Senior Transport Associate, FETS – Transport Services, after serving the Institute for over 25 years.
- Mr Arthur Abraham, Technical Officer (FMO), FETS – Farm Services, after serving the Institute for over 35 years.
- Ms R Pentamma, Senior Field Helper II, RP – Grain Legumes, after serving the Institute for over 39 years.

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

Readers’ comments

This is very good news (the article – Pearl millet helps fight iron deficiency, evidence from three bioavailability studies – published in 22 May issue of Happenings). We have been waiting for this evidence for quite some time. For those of us who believe in bio-fortification, especially in our staple crops – sorghum, millet, etc., this news is heartwarming.

It is important that at most workshops and conferences, participants are interested to know the bio-availability and retention of the nutrients after processing. This study has now confirmed that our belief in the work of HarvestPlus and ICRISAT as far as millet and sorghum is concerned, is the right way to go.

For us in Nigeria, millet and sorghum is a lifeline. Therefore, the evidence from this study can go a long way in reducing malnutrition in children and in women of childbearing age.

Dr Omooze Ohiokpohai, Nutritionist and Agro-processor team leader, Sorghum Transformation Value Chain, Office of the Honorable Minister Federal Ministry of Agriculture & Rural Development, Abuja, Nigeria

Excellent information on bioavailability and crop insurance! Crop insurance is also needed in coastal Andhra Pradesh where recurring floods occur at the time of paddy harvest (prior or after). The bounty crop is lost due to excess rains or storms.

Dr SS Rao, Principal Scientist (Crop Physiology), Principal Investigator (AICSIP-Physiology & Agronomy I/c) ICAR- Indian Institute of Millets Research