In the News

Jamie Oliver’s foundation highlights millet as part of the global food revolution, changing the face of nutrition at home and abroad

Four new food products that are disrupting traditional supply chains

With our planet’s growing population, rapidly decreasing land availability and increasingly unpredictable climate, we need to take a closer look at how we feed ourselves. Are we making the most of the space we have? Are we growing food that’s water-efficient and low in waste? Are we getting as much nutritional bang for our buck as possible?

These questions have led a range of innovators to look for sustainable solutions, transforming the way we view, grow and consume food. Here are four LAUNCH Food innovators who are changing the face of nutrition at home and abroad – Entomo Farms, CoffeeFlour, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and HarvestPlus.

Extract from Jamie’s Food Revolution blog. Read the full article here

Millet

Millet Many people associate the word ‘millet’ with bird seed, the pale, straw-like grain we feed to pet budgies and parrots. What gets forgotten is that it’s also a key component in the diets of millions around the world, and has seen its popularity boom in recent years.

One of the advocates for millet as an alternative to more common grains such as wheat is the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), which has launched its Smart Food initiative to help bring millet and other ‘smart foods’ back into the mainstream.

“We say a food is a ‘smart food’ if it meets three criteria: good for you, good for the planet, and good for the farmer,” says Joanna Kane-Potaka, coordinator of the Smart Food initiative and Strategic Marketing and Communications Director at ICRISAT.
“10 years ago, food security was one of the most challenging questions we were facing, but now we’ve expanded on that discussion to include the environmental and nutritional benefits of the food we grow.”

“At ICRI SAT we work with farmers working in very arid environments, where people experience high levels of malnutrition and are more likely to be adversely affected by climate change. It became very obvious to us very quickly that the crops that are most suitable for growing in dry soils get the least funding. Instead, we see funding dedicated to growing crops such as rice or maize, which is lacking in terms of nutritional value, leading to a movement away from crops that have traditionally been grown in those areas, which are far more nutritious. This has led to communities in semi-arid tropics growing foods which are less suitable for the environment and lead to a less diverse diet for the local population.”

“We conducted research into traditional crops such as sorghum and millet, and found that not only are they easier to grow in arid conditions, which leads to increased food security, but they are also more nutritionally valuable than other staple crops.”

“Pearl millet is high in zinc, folic acid, and iron – in fact, the only food that is higher in iron are oysters. It’s such an important micronutrient, especially for women and girls who are at higher risks of developing anemia, which can affect their performance at work and school. Finger millet contains three times as much calcium as the equivalent amount of milk, so can be used as a weaning product for babies. It can also help young people and the elderly to develop strong and healthy bones.”

“Not only that, but it’s extremely versatile. It can be made into a flour and used to bake cakes, biscuits and pizza dough. Left in its grain form, it’s a great addition to soups, or can be eaten in the same way as rice or couscous. You can even use it in porridge, as a replacement for rolled oats, or instead of rice in rice pudding.”

“However, crops like millet have a bit of a PR problem: not only are they underfunded, making them less commercially viable for farmers to grow, they’re seen as a ‘poor person’s food’.” “What we’ve been working on is changing the image of millet, collaborating with food manufacturers to create convenience products that are more accessible to a broader market. Having seen how popular other traditional grains such as quinoa have become in recent years, there’s no reason why millet might not be the next big thing!”

“The benefits of bringing crops such as millet and sorghum back into the mainstream won’t only be felt in developing countries; there will be huge benefits for people living in other countries that experience a dry climate, such as Australia. With the trend towards ancient grains and superfoods, I think the appetite for smart foods such as millet around the world will continue to grow.”

This work contributes to UN Sustainable Development Goals

School children in Maharashtra eating high iron pearl millet “bhakri” (flat bread) as part of their mid-day meal.
Popularizing digital agriculture in Nigeria

A hands-on training on the use of remote sensing and Geographical Information System (GIS) for agriculture was recently organized. Participants were trained on modern tools such as ERDAS\textsuperscript{R} 2015 and QGIS to facilitate editing, processing and analyzing geospatial data.

The objective of the training was to create new skill sets for the multidisciplinary team of 35 researchers in their respective fields and integrate spatial information from various disciplines. Case studies were discussed to understand the various multi- and inter-disciplinary applications.

Special emphasis was laid on using remote sensing imagery for crop dominance mapping and monitoring using time series data. Analysis of, and changes in, land use over time was also demonstrated.

Participants undertook a data collection field study to better understand the applications of the new tools and prepared a land use / land cover map of Kano (see map).

Spatial modeling using multiple sources of information, especially the inclusion of socio-economic factors for identification of suitable sites for interventions and watershed prioritization was demonstrated. Participants were provided with copies of recommended reading material and relevant published papers.

The five day training was organized at the Centre for Dryland Agriculture (CDA), Bayero University, Kano in collaboration with ICRISAT, Kano led by Dr Hakeem Ajeigbe, Country Representative-Nigeria, ICRISAT, Dr Anthony Whitbread, Research Program Director - Innovation Systems for the Drylands, ICRISAT and Dr Murali Krishna Gumma, Head - GIS & Remote Sensing Lab, ICRISAT.

The participants in the training included soil scientists, crop modelers, economists and geographers.

The workshop was inaugurated by Dr Nasir Yusuf Gawuna, Commissioner for Agriculture and Natural Resources, Kano State, Prof Adamu Tanko, Deputy Vice Chancellor, Bayero University Kano (BUK). ICRISAT in collaboration with the Centre for Dryland Agriculture, BUK, organized the training from 10-15 July.

Dr Murali Krishna Gumma, Head - GIS & Remote Sensing Lab, ICRISAT; Irshad Ahmed, Lead scientific officer, RS & GIS lab, ICRISAT; Ismail Rafi, Senior Associate GIS, ICRISAT; Dr Anthony Whitbread, Research Program Director - Innovation Systems for the Drylands, ICRISAT; Prof Jibrin M Jibrin and Dr Murtala M Badamasi, CDA, Bayero University Kano Nigeria were involved in making this course possible as part of the capacity building in geospatial tools.

This activity was undertaken as part of the CGIAR research program on Dryland Systems and ICRISAT-Nigeria office.

This work contributes to UN Sustainable Development Goals.
Ochung Martin’s Story

Farming was the only livelihood option left for Ochung Martin after the civil war in Uganda. He started growing several crops including groundnut, sorghum and cassava. During this time, Ochung took on experimental farming by collaborating with research centers and became a ‘link farmer’ of a groundnut breeding program. For two years, Ochung set aside a plot on his field to test promising material lines and to multiply basic seeds of improved groundnut varieties Serenut 8 and Serenut 11. Having already harvested 1,092 kg, Ochung has 0.80 ha more of groundnut ready for harvest from which he expects a further 1,890 kgs.

The additional income gained from seed multiplication has boosted Ochung’s economic and social status.

“The money I gained through my seed business with NaSARRI enabled me to organize my wedding ceremony.”

“...my seed business has given me the choice for my children’s education. I am now sending them to a high quality private school.”

The Success of Tukwatirile Wamu Youth Seed Farmer Group

The youth of Masaka, Uganda have organized themselves to produce quality bean seeds.

All 24 members in the group are registered as quality declared seed producers. The youth group produces several varieties of beans on their individual farms, which is then monitored by a seed inspector. The bean varieties grown are Nabe 1, 2, 4, 14, 15.

While the youth procure basic seed for multiplication from National Crop Resources Research Institute (NaCRRI), the uniqueness is their affiliation with the private sector such as CEDO Seed Company for seed sales. Such affiliations have greatly increased their seed business in addition to the amount they sell to their fellow farmers in the community. While the cost of 1 kg common bean is about UGX 2000 (USD 0.5), the same quantity of quality seed fetches a price of UGX 3000 (USD 0.8).

Producing and using improved bean seed has resulted in significant changes in the lives of these young farmers. While some have purchased motor bikes for farm and household use, others have built houses.

To sustain their economic benefits, the youth have collectively strategized to postpone their sales to a later point to obtain higher prices. At the same time they collect seed at market price after harvest (when seeds are abundant and sell at lower prices), and sell later when supplies are lower and prices have risen. Half of the difference in sale price is returned to group members and the remaining half is kept for the group account.

The Tukwatirile Wamu Youth Seed Farmer Group is one of the seed producer groups affiliated with the bean breeding program of NaSARRI.
The Success of Loyokwo Groundnut Seed Farmers Group

The former war occupied zone in Nwoya district is ridden with land conflict which has left several families to face serious loss of livelihoods. However one farmer group stands out from the rest. The 30 member group with 77% women started farming on a 0.8 ha groundnut plot in 2016. They are producing groundnut varieties such as: Serenut 5R, Serenut 9T, Serenut 14R along with their preferred varieties: Serenut 9 (locally named ‘Aber’ meaning ‘very good’) and Serenut 5.

The group is well organized with a thorough distribution of tasks among group members where both women and men are assigned responsibilities. A ‘quality insurance committee’ has been set up to monitor and ensure production of quality seeds.

The farmer group is dedicated to rebuilding their community and regaining a prosperous life, which is visible in their interactions and on-farm practices like weeding and field keeping. The Loyokwo Groundnut Seed Farmer Group is supported by the NGO ZOA.

This NGO is implementing a post-war intervention project called ‘Land Security and Economic Development’ with help from the community. Gathering support from NaSARRI and partners, the NGO links farmers to access quality seeds. Adequate training on seed multiplication is also provided by project partners.

Currently in its first season of groundnut seed production, the group is keen on increasing the number of production sites and testing new lines especially, the high yielding, drought and rosette virus tolerant lines.

The Loyokwo Groundnut Seed Farmer Group has also built social kudos and their influential status means they are a channel to effectively communicate relevant messages to the community.

NaSARRI, a partner of the National Agricultural Research Systems has implemented a nationwide groundnut breeding program in Uganda.
Access to quality seeds diversifies income and improves living standards

Ever since Tanzanian farmers gained access to improved seeds for multiplication and sale, they have reported exciting transformations in their lives.

**Daudi Bukuku**, a farmer in Mbozi district was trained on bean production in 2007/2008 and stepped up from using grain as seed to using high quality seed of improved varieties.

His productivity has quadrupled from 200 kg/0.4 ha to 800 kg/0.4 ha which he says has shifted him to be a middle-income earner. Producing and selling improved seeds has enabled him to own semi-permanent rental houses, produce biogas for sale and purchase a milling and sifting machine.

**Charles Mbwana** used to produce no more than 100 kg/0.4 ha, but access to high quality seeds of improved varieties and accompanying production packages has dramatically changed his situation. He now produces 800 kg/0.4 ha and the extra income has enabled him to invest in vans to provide a public transport service.

**Neema Marasusahas** experienced a fourfold increase in her productivity from 200 kg to 800 kg/0.4 ha. She uses the additional income towards educating her siblings and constructing her family house.

---

**Project:** Tropical Legumes III  
**Funder:** Bill & Melinda Gates Foundation  
**Partners:** CIAT, IITA and National Agricultural Research System (NARS) in Ethiopia, Tanzania, Uganda, Burkina Faso, Ghana, Mali, Nigeria, India, and ICRISAT.

This work contributes to UN Sustainable Development Goals
Congratulations

Recognizing the outstanding scientific achievements in Chickpea genomics and molecular breeding, the Telangana Academy of Sciences has honored Dr Mahendar Thudi, Senior Scientist-Chickpea Genomics, ICRISAT with a Fellowship. On an annual basis, the Academy honors scientists in recognition of their contributions to scientific excellence.

The election of the Fellows is by nomination done by Fellows of the Academy. Dr Thudi was felicitated on July 1, 2017 in Hyderabad by Dr Mohan Rao, President of the Telangana Academy of Sciences.

Dr Thudi being felicitated.

New projects

Transforming smallholder irrigation into profitable and self-sustaining systems in Southern Africa
Principal investigator: Andre van Rooyen
Funder: Australian Centre for International Agricultural Research (ACIAR) thru Australian National University

Africa RISING - Scaling niche-specific Input delivery systems in the Ethiopian highlands (INiches)
Principal investigator: Tilahun Amede
Funder: USAID thru ILRI

Project to Support Climate Smart Agriculture in Niger – Projet d’Appui à l’Agriculture Sensible aux risques Climatiques (PASEC)
Principal investigator: Malick Niango Ba
Funder: World Bank thru National Coordination Unit, Government of Niger

Announcement

ICRISAT will be collaborating with Cambridge University’s TIGR2ESS program which was awarded new funding from the Global Challenges Research Fund last week. TIGR2ESS is part of the Cambridge Global Food Security Research initiative which also includes the Cambridge Centre for Crop Science. ICRISAT will work with key partners to ensure agricultural research developments reach smallholder farmers in India.

Cambridge Global Food Security is a Strategic Research Initiative of the University of Cambridge which aims to use an interdisciplinary approach to address the challenge of ensuring all people at all times have access to sufficient, safe and nutritious food that meets their dietary needs and preferences for an active and healthy life.