In the Media

Innovation platforms help dryland communities shift to climate-smart thinking

Small farmers will have to innovate fast to adapt to more extreme and recurrent climate stresses

From 6-17 November, the world’s governments are meeting for the 23rd annual conference of the parties (COP) to tackle global warming. A perfect occasion to show how Zimbabwean smallholder farmers have adopted sustainable, climate-smart innovations and set their paths to prosperous development.

Recently, four million people were estimated to be food-insecure because of the El Niño-induced drought in Zimbabwe.

In the coming decades, small farmers will have to innovate fast to adapt to more extreme and recurrent climate stresses.

A recent study from the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) suggests scaling up agricultural innovation platforms could be an efficient way to make smallholder farming more productive and climate resilient in the years to come.

“I fattened my steer to market standards using self-made livestock feed with mucuna hay and sorghum stover and I sold it directly at the abattoir in Gokwe for $1,000,” says farmer Mpofu from Nkayi, Zimbabwe.

Mpofu is one of the 60,000 farmers who have benefited from a unique ‘innovation platform’ (IP) approach implemented by the ZimCLIFS project in Zimbabwe.

Livestock is important in Zimbabwe as more than 75 percent of smallholder farmers depend on crop-livestock farming.
Yet, several small farmers do not feed their animals well as they traditionally use cereal crop residues during the long dry season. The residues are low in nutrition and inadequate to maintain animal health during dry periods, affecting household nutrition and bringing down the market value of livestock.

Recurrent droughts, poor soils and low yields make dryland communities more vulnerable.

How do we trigger large-scale adoption of climate-smart innovations to enable rural communities to improve their productivity and cope with future extreme situations?

Investing in social networks and grassroots capacity-building through innovation platforms has proven to have great impact on farmers’ livelihoods in many different farming contexts. In Zimbabwe, farmers like Mpofu have experimented and taken on sustainable market-oriented climate smart innovations to tap into opportunities stimulated by crop-livestock innovation platforms.

Innovation platforms stimulate sustainable changes in dryland farms

Innovation platforms not only foster innovative ideas to break socio-economic barriers but also build confidence and initiate agreements among stakeholders.

Women frequently share their knowledge on farm management in IP meetings. They are consulted more and involved in land allocation, input use, sale of commodities and income expenditure decisions.

Successful farmers demonstrate their technologies and extension officers take it upon themselves to facilitate farmer-to-farmer visits from within and outside the district. In Nkayi, extension officers mediated the sales of mucuna seed and extension services have become more relevant as farmers appreciate the value of technologies better.

Since the start of ZimCLIFS, collaborations between ICRISAT, Matopos Research Institute, Amalima program, Help Germany, and government extension services, have scaled innovations from two to 14 districts in Zimbabwe, Mozambique and Malawi – benefiting 60,000 farmers.

Proof of concept for policy uptake

Looking at the rich evidence with positive impact on farmers, policy makers decided to support the scaling up of innovation platforms. The Zimbabwe Government is now promoting market-oriented crop-livestock production as a lucrative farming activity for smallholder farmers. Special emphasis is on livestock feeding to increase and sustain quality and quantity.

As millions of dryland communities worldwide suffer from lack of market access, prolonged dry season, and poor income, innovation platform proves to be a viable stimulus to overcome those challenges.

Setting the global agenda to sustainably transform agriculture and invest in climate actions in the face of climate change, the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is hosting a series of side events at the ongoing COP23 meetings.

Along with water, land and gender aspects of small-scale agriculture, enhancing farmers’ institutional capacity to gain effectiveness will be a topic of discussion.
Turning brewery waste into women’s wealth

More extreme weather events and shifting seasons is expected as a result of global warming, according to a 2009 Food Policy Report by the IFPRI. Rainfed farmers in developing countries are particularly exposed to climate change.

In India, while wealthier farmers have access to irrigation, most smallholder farmers rely on monsoon rains to get a good harvest, often succumbing to despair when rains fail. To improve their climate resilience, diversifying their farming and non-farming activities is important.

Thousands of farmers in the dryland region of Telangana in India used to depend solely on rainfed agriculture and their few cows and buffaloes for income. During drought years, their crop yield would diminish and so would the milk supply from their cattle due to lack of sufficient fodder. So the erratic and insufficient rainfall cut down both their income and food security.

In December 2011, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and leading brewery ABInBev started a sustainable development initiative, along with the non-governmental organisation Rural Education and Agriculture Development (READ), targeting some villages in Telangana, in India. One of its aims was to provide new income-generating activities for vulnerable families.

TURNING WASTE TO WORTH

The project looked at the spent malt, a byproduct of the beer manufacturing process, produced at the brewery. It is considered as a waste; however it is far from that. Spent malt (also known as brewers’ spent grain) has been used as cattle feed since ancient times. It is rich in moisture, cellulose, proteins, minerals and lipids, and is also a good source of dietary fiber. It is known to help milk production in cattle.

The brewery started regularly selling spent malt to women’s self-help groups in the nearby Fasalvadi village. The groups then sell this to cattle owners as a nutritious feed for their livestock. The women use some of the profits to run welfare schemes for women and children.

The village head, Saayamma (67), says: “Since we started feeding the cows and buffaloes with spent malt, we’re seeing an increase in milk production by them. The cattle give at least two litres more milk per day than before. Not only that, the milk has higher fat content and better taste. As a result, the cattle owners are enjoying a good increase in income after this project started in our village.”

The leader says that this rise in the economic power of her villagers has also resulted in greater awareness about education and hygiene. Many farming families can now...
 afford to send their children to private schools. “These children should not be deprived of the education that we could not get,” Saayamma says.

Apart from the tangible economic benefits, the spent malt project has also resulted in significant intangible benefits for women in the village.

Yaadamma, a woman who was chosen to head the self-help group in Fasalvadi, was given the responsibility of collecting the spent malt and selling it from her homestead. Today, the mother of three is a proud entrepreneur.

The increased income has given the women better health, dignity and confidence. Yaadamma and her husband share a respectful relationship as Yaadamma has considerable decision-making power and independence now.

Speaking about this project, Suhas Wani, director at ICRISAT’s Development Center, says, “We want to take a holistic, sustainable approach to rural development and believe that women play a key role in it. By increasing livelihood opportunities for women, such initiatives create better financial security for rural families, which are especially susceptible to climate change impacts.”

According to Ashwin Kak, senior manager at ABInBev: “This project helped us rethink our concept of waste; we realised that waste can become a valuable resource. Channeling the waste into cattle feed makes our breweries more sustainable and it is a win-win situation, as local communities like Fasalvadi benefit from this new circular economy. We now aim to scale up this initiative to include eight more villages and four more self help groups this year, not just in Telangana but also in Haryana and Rajasthan.”

The success of the spent malt initiative has shown that supporting rural women entrepreneurs is an effective and sustainable way to help rural women lift themselves out of hunger and poverty.
The hot topics of the UN and other global agencies engaged in food

It was a valuable experience attending the recent annual Committee on World Food Security (CFS) meet, held at FAO in Rome, to hear what are the issues engaging the attention of global agencies and the approaches they are supporting to tackle these.

It was a clear and sobering message when the Chair of CFS, Amira Gonass opened the meeting with a hard-hitting reality: “We know we are not on track to achieve the SDGs by 2030.” Showing a way out, she emphasized, “We all have a responsibility for ensuring the universal right to food. Success will only be a reality if we break away from our silos and work in collaboration.

Speaking on the biggest issues for the World Food Program – Executive director, David Beasley, at the Committee on World Food Security, October 2017

We also must think holistically and with an integrated approach.” She also noted that this requires a multi-stakeholder approach implemented within countries.

In September this year the UN released hunger figures showing staggering truth that for the first time in over a decade, the number of people going hungry had increased. This was an additional 38 million more hungry people from 2015 to 2016 – reaching 815 million people. This was reported as being mainly caused by conflict and climate change.

However, the opposite end of the spectrum also figured prominently on the agenda, with statistics showing that for every one person going hungry there are more than 2 who are overweight. Overweight related deaths is now also higher that deaths related to being underweight. An inescapable reality is that 41 million children under five are overweight (including obese).

Just as jolting was the message from IFAD President Gilbert Houngbo which rang true: “Hunger can reappear and come...
back even stronger than before. We need strategies with sustainability.”

He also stressed the need to work with national level strategies, noting that “two main principles must be followed: leave no one behind; and the issue of national ownership of the SDGs. We need to review our strategies and see what will have the biggest impact – especially for smallholder farmers. Also engagement with civil society and private sector should be increased.”

World Food Program (WFP) Executive director, David Beasley, seemed frustrated with the focus they had to have on emergencies when they would like to focus on development and solutions. He stressed that, “80% of our expenditure today is in war-torn zones... We are spending a fraction of our money on development. Instead of trucking in water, let’s take that money and dig more bore wells.”

WFP released a new form of reporting that looks at the affordability of food rather than the cost – comparing the cost of a plate of pulse stew and a carbohydrate, but as the percentage of average daily income.

The pulse and carbohydrate used in the calculation were the ones most commonly available in each country. The results from the report Counting the Beans The True Cost of a Plate of Food Around the World 3 were staggering.

One comparison given is, “while a New Yorker might expect to spend just 0.6 percent of their daily income on the ingredients to make a simple 600 kilocalorie bean stew, someone in South Sudan would need to spend as much as 155 percent of their income. Or, to approach it from the other end, it would be as if a resident of the Empire State were to pay US$321 for their stew.” (p11) Some other examples are shown in Diagram A.

(Extracted from Counting the Beans The True Cost of a Plate of Food Around the World, p12)

Countries in conflict had such extremely high relative costs for the food they were almost off the graph. The issue of conflict was certainly also high on the agenda of discussions around food security.

The release of The State of Food Security and Nutrition in the World 2017 by five UN agencies reported on how the nature of conflict is changing with more conflict within countries and localized, and less across countries. Also, post-conflict violence was increasingly being observed. The conflict-poverty-malnutrition nexus is clearly reflected in 60-70 percent of undernourished people who live in conflict areas.

“Food Systems” is the popular framework being discussed now. FAO has created an entirely new division called ‘Nutrition and Food Systems’. Concrete solutions were put forward including the release of the CFS committee’s report, Nutrition and Food Systems.4

This was the first high-level report I had seen that included a major focus on ‘marketing’ to the consumer. It includes but also goes past awareness raising and education, with one of its 10 overarching recommendations being to “Create consumer demand for nutritious food”. Many of the suggestions were policy based, encouraging consumer behavior through mass media campaigns and community mobilization together with other examples of marketing and communications.

Similar suggestions were echoed at CFS, from Peter Schmidt, Member of the European Economic and Social Committee, who called for direct action on awareness raising on the value of food, and specifically for a campaign to do this.

There were seemingly contradictory comments, with many sessions stating that food prices are too low and that prices must increase for them to be viable for farmers and to be able to better look after the environment. Yet non-affordability of food was often hailed as one of the major reasons for people going hungry.

Interestingly, the last couple of years have seen the emergence of cross-sector alliances and new innovative approaches to nutrition and food systems, challenging past
approaches and bringing in new thinking. These involve multi-group stakeholders with strong private industry linkages as well as research and multilateral agencies.

An example is the FReSH initiative (Food Reform for Sustainability and Health) 5 launched this year by the EAT Foundation and World Business Council for Sustainable Development. They are bringing together business and science to develop business solutions that create “Healthy, enjoyable diets for all, produced responsibly, within planetary boundaries by 2030”. In less than a year they have grown from 25 founding member companies to 40 companies today, spanning across the food value chain from fork to farm.

There are five work streams to keep a track of the outcomes that are all being worked on now. These are reported in the FReSH Interim Report of October 2017:

1.‘Healthy and sustainable diet’ which will have 12 countries selected as pilots to identify the gaps between national dietary recommendations and actual consumption. Studies have started for Brazil, China and Spain, and India and others will come on board in 2018.

2.‘Food system mapping’ to identify the drivers of its food system.

3.‘Consumption’ stream aims to create consumer awareness and enable the shift in food consumption patterns towards healthy and sustainable diets. Data is being analyzed from more than 80 reports in eight regions to synthesize deep insights into consumption behaviors and trends across the globe.

4.‘Food loss and waste’ stream will develop solutions to reduce this.

5.‘Performance measurement and reporting’ to ensure high level KPIs for deriving business solutions.

FReSH also organized a panel discussion at a side event at the CFS44. As part of this, Karnataka’s Minister for Agriculture Krishna Gowda elaborated on how the Indian state of Karnataka was changing the norm of their food systems. “We started at the production end but then realized this was not going to have lasting change unless we also worked with consumers in driving demand for Smart Food that is healthy and sustainable, and then linking this back to the farmers to ensure they get a fair deal.” The state has been proactive in doing this specifically for millets and sorghum.

Speaking on the Smart Food initiative focusing on food that is good for you, the planet and the farmer - Director of Strategic Marketing for ICRISAT, Joanna Kane-Potaka, at the FReSH (Food Reform for Sustainability and Health) event at the Committee on World Food Security, Oct 2017

Speaking on the marketing approach the Karnataka government has taken to build new business opportunities and value chains for millets - Karnataka’s Minister for Agriculture, Mr Krishna Gowda, at the FReSH (Food Reform for Sustainability and Health) event at the Committee on World Food Security, Oct 2017

My presentation on the panel delved into how the movement is part of a larger Smart Food movement which is popularizing foods like millets and pulses that fulfill the criteria of being “Good for You, the Planet and the Farmer”. One aim is to identify foods that fulfill all these criteria and mainstream them back as a staple while ensuring the value chain is developed and the supporting environment in place. Achieving this will help tackle some SDGs goals in unison, especially overcoming malnutrition, rural poverty and dealing with some environmental issues, in unison.

Other multi-spectral initiatives are the Global Alliance for the Future of Food and iPES (International Panel of Experts on Sustainable Food Systems) which released in October Unravelling the Food- Health Nexus: Addressing Practices, Political Economy, and Power Relations to Build Healthier Food Systems. 6

Ruth Richardson, Executive Director, Global Alliance for the Future of Food 7 opines, “We have enough evidence telling us that the current food system is not supporting health – we must take action to trigger a shift from a system that too often results in harm to a system based on health promotion.” Also providing momentum to new collaborations is the SDG2 Advocacy Hub which set up only this year and is a platform for different groups to share solutions. They saw a gap and need to help bring the different players together. The aim was not to create anything new but help share information and connect the right people and activities. They will work with groups ranging from chef associations to UN agencies. One initiative is to create a chef’s manifesto, bringing together all the major chefs’ associations.
It is inspiring to see that not just the UN but companies, civil society and others are all adopting the SDGs as their own targets. In conclusion, I would like to highlight what Rafael Flor, Director YieldWise, The Rockefeller Foundation, commented at the Heads of States September session of the UN General Assembly – that food and nutrition are at the core of the world’s agenda and that more than half of the 17 SDGs relate to global food security and nutrition. He noted that part of the solution lies in promoting more nutritious crops and reduce our exposure and dependency on the 20 crops that currently constitute our food system. This resonated well with our own efforts to mainstream Smart Food – i.e. food that is good for you, the planet and the farmer.

He continues emphasizing that this should be part of the plan to redesign global food systems. Among the other solutions listed were to follow climate-smart agriculture, the promotion of ethical sourcing and the inclusion of smallholder farmers. This would also include more efficient resource use and therefore more sustainability, promotion of more nutritious crops and diets, and overall, redesigning food systems to be friendlier to investments and businesses, and most of all, to people.

References:
8.https://www.icrisat.org/SmartFood
Potential of new improved sorghum varieties boosts farmers’ confidence in Nigeria

Abdullahi Shehu (standing second from right) with other farmers interested in the improved variety CF35.5.

"Friends have come to me asking for seeds of the two improved varieties to grow in their own fields. I said yes! There was no need for me to say more as they were very excited about having sorghum grains as big and pretty as those in my field," says Abdullahi Shehu, pointing to CF35.5 plants.

Farmer Abdullahi Shehu from Zakirai in Kano state, Nigeria agreed to try two new improved sorghum varieties CF35.5 and KL1. He received 500 g of seeds in mini-packs and in June he planted those alongside his local variety. Three months later into the cropping season, Abdullahi was surprised.

CF35.5, a short variety (<1 meter in height) matured early and produced large panicles with bold grains even without fertilizer application. Another highlight was its tolerance to the deadly parasitic weed Striga, a serious threat to sorghum in the area.

"I am very happy with the results. KL1 performed well too. It is almost at maturity with well-filled grains," he says.

Impressed with the performance of the two improved varieties, Abdullahi is determined to replace his local variety with the improved varieties. For the next cropping season, he intends to grow only CF35.5 and KL1 in all his fields. Witnessing the outcomes of improved varieties, he is willing to experiment further, "This is the first time I have tried new varieties from researchers. I am lucky and I intend to continue," he adds.

Though Abdullahi Shehu is a champion and has encouraged several sorghum growers in the same village to take a step towards change, his case is not the only one. Across Nigeria and Burkina Faso, farmers who tried the seed mini-packs have developed a strong interest towards new sorghum and pearl millet varieties because they yield higher and mature earlier than the local varieties.

“I tried a small quantity of seed offered by another farmer and the results were impressive. Next year I will plant this variety on my 3 ha field,” concludes Boukari Ouedraogo, a farmer in the north central region of Burkina Faso after experimenting with Sariaso 22, a hybrid sorghum.

The seed mini-packs are being disseminated through the HOPE II project.

Project: Harnessing Opportunities for Productivity Enhancement (HOPE II) for Sorghum and Millets in sub-Saharan Africa, Phase II

Funder: Bill & Melinda Gates Foundation

Partners: Institut de l’Environnement et de Recherches Agricoles (INERA), Burkina Faso; Institut d’Economie Rurale (IER), Mali; Institute for Agricultural Research (IAR) of Ahmadu Bello University (ABU) and Usmanu Danfodiyo University of Sokoto (UDUS), Nigeria; Ethiopian Institute of Agricultural Research (EIAR), Ethiopia; Department of Research and Development (DRD), Tanzania; National Semi-Arid Resources Research Institute (NaSARRI) of the National Agricultural Research Organization (NARO), Uganda; and ICRISAT.
Meeting & Workshop

Movements for consumer driven and multi-sector approaches

Smart Food and Millets highlighted at the Asia Pacific Eat Forum in Indonesia

Eat Foundation believes that providing the growing global population a healthy and nutritious diet within safe environmental limits is one of the greatest challenges facing humanity. Their approach is to address this through an integrated approach that addresses food, health and sustainability. One of their initiatives with the World Business Council of Sustainable Development is FReSH – Food Reform for Sustainability and Health which aims to accelerate consumer-centered transformational change in global food systems from farm to fork. Smart Food is one such initiative that is on the ground in making the change.

The recent Eat Foundation Asia Pacific Forum brought multi-sectors together to continue this dialogue. Dr Gunhild Stordalen, Founder and President of EAT Foundation highlighted solutions needing to be science-backed and, “policy makers to have the supporting policies, private sector to enact, chefs to make the right food irresistible and civil society to increase our awareness.” Prince Charles in a video presentation noted that, “This is a highly inconvenient truth that we have been living beyond our means.”

Smart Food was highlighted in a session on Connecting the Dots for more sustainable land use.

Sowing the seeds for a new climate & development agenda | Panel at #EATap...
Millets taken on a road show around pan-India in lead up to an international fair

Karnataka state’s Minister for Agriculture Mr K Byre Gowda has taken on the cause of millets, stepping outside the traditional focus on production and even the state. Instead, he advocates the need to support and drive the whole value chain right from consumers through to farmers. Also acknowledged is that we are players in a bigger system and hence the imperative to work and influence outside our comfort zones. This is what has driven him to undertake a travelling road show around India and to spearhead an Organics and Millets International Fair that will take place in January 2018.

Dr Ashok Dalwai, Chair of the Committee on Doubling the Farmers Income, and CEO of the National Rainfed Area Authority (NRAA), highlighting the value of millets in the dry rainfed areas.

Dr Bhaskarachary, National Institute of Nutrition, talking on millets.
The consumers’ perspective

At each city a sneak preview of a consumer survey is being released. 15,501 consumers were interviewed face to face across 7 cities in India, about their knowledge and consumption of millets.

Some early insights from the survey reveal a large gap between people who consider themselves reasonably or very health conscious and those who were sure millets are healthy. This uncovers a vast potential to increase consumption through awareness. In many cities, the leading reason respondents gave for eating millets was, “I have a health problem”. Another major reason was that “No one else at home eats it.” This shows the potential for a multiplier effect for any marketing of millets given the right person who influences home consumption is targeted. The full survey report will be released early 2018.

This work contributes to UN Sustainable Development Goals
Social entrepreneurs are changing the food system in Asia – and contributing to bringing back Smart Foods

Social entrepreneurs are a growing movement in Asia, and although each one is a relatively small player, together they can galvanize and transform the food system. A wide range of social entrepreneurs showcased how they are changing the food system at the recent Asia Pacific EAT Forum in Jakarta. Many of them are recognized by the USAID and Australian Government Launch program as food innovators from around the globe.

Some of the entrepreneurs related how they are contributing to the food system. Many are also focused on reviving the use of traditional nutritious foods, including millets and other Smart Food.

Charlene Tan, Good Food Co, Philippines, speaking on her social enterprise Community Shared Farming.

Robert Oliver, Celebrity chef, on how he is using reality TV to change fast food diets in the South Pacific islands.

Indian social entrepreneurs

India is known to have a fast growing entrepreneurship culture, mainly in the IT sector. However, lately the food industry too has been attracting many such entrepreneurs. There is also a movement in the food industry. These are from people who are conscious socially, environmentally as well as for health. Many also see the need to support farmers who are at the beginning of the food chain, yet are often the last to benefit. They also recognize the need to return to traditional and more sustainable farming systems to ensure healthier food reaches us.

Here are some of their inspiring stories and their struggles.

Helianti Hilman, Founder and CEO, Javara company, Indonesia, who is helping farmers in Indonesia develop and market their own products.

Cherrie Atilano, Founding Farmer and President, AGREA, working with farmers for sustainable production and marketing of produce in the Philippines.
Charlene Tan, Good Food Co, Philippines, speaking on her social enterprise Community Shared Farming.

Robert Oliver, Celebrity chef, on how he is using reality TV to change fast food diets in the South Pacific islands.

Sridhar Irventi of Go Bharrathi taking a holistic approach from traditional farming to providing nutritious foods.

Dr Gayathri Swahar, Marketing Director, Y-Cook, engaging directly with the farmer and training and helping sell any of their produce.

This work contributes to UN Sustainable Development Goals
India has requested the United Nations to declare 2018 as the International Year of Millets. This has formally been sent by the Minister of Agriculture and Farmers Welfare Mr Radha Mohan Singh to the UN Secretary General. Other countries and prominent individuals are now rallying behind the cause.

Part of the call from Minister Radha Mohan Singh, includes,

“...While they [millets] offer nutrition, resilience and income to farmers in developing countries, for the developed nations millets can help tackle health challenges such as obesity, diabetes and lifestyle problems as they are gluten free, have a low glycemic index and are high in dietary fibre and antioxidants.

However, awareness about millets is low among consumers, policy makers, industry and R&D sector. Majority of the R&D investment, policy support and development aid goes for the big 3 cereals – rice, wheat and maize. Promotion of production and consumption of millets through conscious efforts at global level is likely to contribute substantially in the fight against targeted hunger and mitigate the effect of climate change in long run.

See the case for why millets are a critical part of the solution in achieving the SDGs:

Millets offer nutrition, resilience and income to farmers in developing countries. By providing income and livelihood for farmers even in difficult times millets can help stem migration. On World Food Day 2017, FAO issued a call to change the future of migration by investing in agriculture and food security, especially in the drylands, so that rural families can make a decent living from their farm for themselves and the next generation. We believe millets are part of the answer. The yield of millets can be increased 3 times and they have multiple untapped uses such as food, feed, fodder, biofuels and brewing. Therefore, millets are Smart Food as they are Good for You, Good for the Farmer and Good for the Planet.

Considering the importance of millets for the farmer, the consumer and the environment, the Government of India along with other country governments urges the United Nations to declare 2018 as the “International Year of Millets”. This will go a long way in popularizing millets which would benefit future generations of farmers as well as consumers.”
The need to focus more on millets has been hailed by the father of the Green Revolution in India, Professor MS Swaminathan and Prime Minister Modi of India.
Field days sustain farmer’s and community leader’s interest in pursuing groundnut production in northern Nigeria

Since the 2015 cropping season, farmer field days have been regularly organized in northern Nigeria. Field days bring farmers and curious community members together to showcase and discuss details of introducing improved groundnut varieties particularly – SAMNUT 24, SAMNUT 25 and SAMNUT 26.

These field days empower farmers and community members through information on where to acquire improved groundnut seeds. This not only increases market opportunities but also enhances farmer-to-farmer exchanges of improved seeds. Apart from increasing participation of women, field days have become platforms to showcase hard work and achievements by farmers who host either the demonstration or seed production plots.

Green (or vegetative) field days are organized between August-September for the main season and between March-April for the off season.

Nearly 6,000 people (4,712 men and 1,277 women) have participated in the field days over a span of three years. Women’s participation in these events have been on the increase, moving from 7% in the first year (2015) and 21% during 2016 to 31% in 2017.

Similarly, the participation of and support from community leaders in field days has been sustained. For example, during the 2015 main cropping season, demonstration and/or seed multiplication plots of five community leaders (at least one from each of the five states covered by the project) were used as field day sites. Convinced by the pod and fodder yields of SAMNUT 24, community leaders distributed at least 3 kg of unshelled seeds to interested members of their communities in the 2016 cropping season. After harvest and drying, farm-families returned all the seeds they received and retained a larger proportion to cultivate in 2017.

“I have no grudges against those who collected seeds from me last year since they have returned what I gave and have even given out some to other farmers,” says Ardo Habu of Ganbawa community.

As all these community leaders also rear livestock they found the fodder yield and its quality appealing.

The approach used by community leaders to distribute and recover seeds from community members aligns well with the ‘in-kind pay-back’ method. Suitable project partners are given basic seeds and associated inputs at the onset of each cropping season and are expected to pay back the same quantities of lower classes of seeds plus the cost of associated inputs at the end of each harvest. In the cases being reported here, the beneficiaries of improved seeds commit themselves to uphold this principle and pass on seeds from their harvests to other farmers. As a result, community leaders across the project sites in northern Nigeria are becoming vital components in the dissemination process.


Partners: Institute for Agricultural Research (IAR) of the Amadou Bello University (ABU), Centre for Dryland Agriculture/Bayero University, Kano (CDA/BUK), National Agricultural Seeds Council (NASC), Federal University of Agriculture, Markudi (FUAM), Green Sahel Agricultural and Rural Development Initiative (GSARDI), Catholic Relief Services (CRS), Women Farmers Advancement Network (WOFAN), Kano Agricultural and Rural Development Authority (KNARDA), Jigawa Agricultural and Rural Development Authority (JJARDA), Kebbi Agricultural and Rural Development Authority (KARDA), Sokoto Agricultural Development Project (SADP), Katsina Agricultural and Rural Development Authority (KTARD) and ICRISAT.

Funder: United States Agency for International Development (USAID)

This work contributes to UN Sustainable Development Goals

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Yoweri Kaguta Museveni, President of the Republic of Uganda visited the National Semi-Arid Resources Research Institute (NaSARRI) a key partner in ICRISAT’s Tropical Legumes III (TL III) project.

Dr David Kalule Okello, TL III Focal Point in Uganda, briefed the President on the current advances in groundnut research and available technologies. The President was particularly interested in aflatoxin mitigation strategies (pre- and post-harvest operations), nutrient profile of groundnut (protein, fats and mineral densities) and varietal responses to climate change. He stressed the need to create awareness on aflatoxins by reaching out to urban markets where processing and value addition initiatives takes place.

The President highlighted the need to increase productivity, production and quality of groundnut to achieve better nutrition and income to both producers and consumers.

Communication materials on ICRISAT’s research on groundnut such as groundnuts production guide for Uganda, groundnut seed production manual, brochures and flyers were well received by the President. Some of the issues raised by the President are currently defining the TL III project’s product-profile, for example – high yields, aflatoxin mitigation, multi-stress tolerance, drought resistance, information dissemination, conservation and demand driven research.

Pleased with the project interventions, the President assured full government support for research and infrastructure development at NaSARRI Serere. He applauded the scientists and the National Agricultural Research Organization (Uganda) – NaSARRI for their commitment.

NaSARRI is a center of excellence for research on oil crops (groundnuts, sunflower and sesame), dryland legumes (cowpea, greengram and pigeonpea), dryland cereals (millet, sorghum) and fiber (cotton). The President’s visit took place on 1st October 2017.

To know more about ICRISAT’s work on groundnut click here

To know more about ICRISAT’s work on groundnut click here
Field visits to increase the awareness of farmers and agriculture extension workers on improved technologies for sustainable agricultural intensification

I was among the first group of farmers trained on contour bunding as part of the Africa RISING technology park activities in Bougouni. This training has brought a significant change in my farming. When surrounding farms were hit by dry spells, my crops were still green,” says farmer Zie Samake.

Another farmer, Fousseyni Samake says, “To cope with climate variability and drought it is important to adapt by using improved varieties and appropriate crop management practices. I discovered that agriculture is still profitable when right technologies are applied. I feel confident to use these technologies in my own farm even after the completion of the project.”

Both Zie Samake and Fousseyni Samake are two of the 300 participants of farmer’s field visits organized in four technology parks of the Africa RISING project in southern Mali.

Technology Parks at Flola and Madina, Bougouni District

The field visits commenced on 3rd October and focused on climate-smart land and water management technologies developed by ICRISAT and the Institut d’Economie Rurale (IER). Participants were exposed to different experimental trials such as: treatment of fertilizers (cow manure, poultry manure and mineral fertilizers) tested on three sorghum varieties (Fadda, Soumba and Tieble) and contour bunding technology applied to maize (Sotubaka) and sorghum (Pablo). The three sorghum varieties are being screened to determine iron and zinc content. According to ICRISAT scientist Dr Baloua Nebie, the level of iron and zinc is very high in improved varieties. Fadda especially has high levels of iron and zinc compared to the local check.

Farmers learnt the integrated soil fertility and striga management (ISFSM) technique using intercropping of sorghum and cowpea combined with mineral fertilizer using microdosing.

Several farmers were impressed by the joint vegetable trials initiated by The World Vegetable Center and the International Fertilizer Development Center. A dual purpose sorghum trial was introduced to visitors who understood and appreciated the possibility of doubling their advantage using specific sorghum varieties as a source of animal feed and human nutrition.

Demonstration of chopping machines to improve animal feeding. PC: A. Diama, ICRISAT

Another attraction was the demonstration of chopping machines and silos for animal feed improvement by Dr Hamidou Nantoume, a scientist from IER. He explained the concept of silo, the conditioning of the straw and its stocking for later use. During a follow up group discussion, farmers asked several questions about different cycles of improved hybrid and dual purpose sorghum varieties as well as the means by which they could make the most out of the demonstrated technologies.

Technology Parks at M’Pessoba and N’Goloniasso, Koutiala District

Combining various improved agronomic practices on different crops were demonstrated and once again the dual purpose sorghum captivated the participants. Most farmers were keen on learning more about the advantages and disadvantages of using chemical fertilizers, improved sorghum varieties, soil, water and crop management practices. They raised several questions such as, how long does it take to have a fertilizer using the compost of cotton stalks and sorghum stalks? What are the benefits of the dual purpose sorghum?

The primary goal of such demonstrations is to increase farming productivity based on best performing varieties and fertility treatment. ICRISAT scientist Dr Florunzo Akinseye says, “We are demonstrating different agronomic technologies that we have found useful on station. From what we have seen in the field, there is a significant impact.
This work contributes to UN Sustainable Development Goals

2020

Project: Africa RISING- Africa Research in Sustainable Intensification for the Next Generation
Funder: United States Agency for International Development as part of the U.S. Government’s Feed the Future initiative.

Partners: Institut d’Economie Rurale, The World Vegetable Center, International Livestock Research Institute, Wageningen University, Climate Change Agriculture and Food Security, International Food Policy Research Institute, ICRISAT Sorghum improvement program, Africa RISING’s Large-scale Diffusion of Technologies for Sorghum and Millet Systems (ARDT-SMS), Fédération Nationale des Producteurs de l’Agriculture Biologique et Equitable du Mali (FENABE) and Association Malienne d’éveil au Développement Durable (AMEDD), The International Institute of Tropical Agriculture (IITA).

To know more about ICRISAT’s work on sorghum click here
ICRISAT at the high-level AP AgTech Summit – Transforming agriculture to benefit farmers

The Government of Andhra Pradesh in India, recently hosted a global event to discuss innovative ideas for agricultural transformation. Global leaders, start-up founders, policymakers, technology experts, farmers and students of agriculture convened at the AP AgTech Summit 2017 in Visakhapatnam.

Surveillance drone with ICRISAT’s ihub partners and visitors.

ICRISAT was invited to showcase its research that contributes to the goal of increasing farmer’s income and developing the agriculture sector towards prosperity. Stalls were set up by ICRISAT scientists with videos and posters depicting proven technologies. ICRISAT Research Program Director Dr Suhas Wani and team presented impacts of the Rythu Kosam Program—aimed at rapid development of agriculture, implemented in partnership with the Andhra Pradesh Government’s Primary Sector Mission. The unique ihub—a creative and participatory space where diverse stakeholders collaborate to improve the entire agriculture value chain, was presented by Ram Dhulipala, Head—Digital Agriculture & Youth, ICRISAT.

A drone surveillance that uses NDVI-a mapping method to monitor cropping area on variables such as water stress and crop health developed by ihub partner Aegis was at display. In addition a survey was designed in partnership with another partner Verdantum to capture the priorities and needs of visitors, especially farmers. Most of the farmers indicated that providing good quality education for their children as a top priority and being informed about market prices as a top requirement. Above 500 visitors took part in the survey which had seven questions in the local language as well.

The global event was inaugurated by the Vice President of India Venkaiah Naidu and the Chief Guests were N Chandrababu Naidu, Chief Minister of Andhra Pradesh and Bill Gates, Co-chair and Trustee of the Bill & Melinda Gates Foundation.

Chief Minister Naidu visited ICRISAT’s stalls and discussed in detail the progress of Rythu Kosam project and enquired about the assessment of various programs implemented by ICRISAT. Recognizing the strong commitment from ICRISAT in the Andhra Pradesh Primary Sector Mission, Chief Minister Naidu offered maximum support.

“A non-competing alliance with stakeholders is a must to transform agriculture for the benefit and empowerment of farmers,” stressed Dr Bergvinson at a panel discussion on ‘Enablers for Effective AgTech Transformation’.

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Chief Minister Naidu interacting with ICRISAT scientists.
Farmers select promising aflatoxin tolerant lines during a field day at Silbelle, Ghana

A participatory varietal selection field day was organized at Silbelle, north Ghana on 5th October. The purpose of the field day was to expose farmers to the advanced breeding genotypes of groundnut that exhibit tolerance to aflatoxin contamination.

Over the past three years, ICRISAT and partners have been researching on identifying aflatoxin tolerant lines from the breeding nursery in Mali and evaluating on-station in Nyankpala, Ghana.

After evaluation, farm trials have been repeated since 2016 in collaboration with agricultural extension agents from the Ministry of Food and Agriculture (MoFA).

During the participatory varietal selection day, farmers selected their most preferred genotype based on their own selection criteria which were: well filled and high number of pods per plant, early maturity (90 days to maturity), good plant stand, fodder quantity to feed animals in the lean season and good canopy cover to suppress weed growth. A total of 94 farmers (63 male and 31 female) came together from six communities. The varietal selection exercise took place along with personnel from the extension services, NGOs, input dealers and seed growers.

Farmers ranked the genotypes at the end of the field day and those in the top five were: ICGV-IS 08837, ICGV 13071, ICGV 91279, ICGV 13015 and ICGV 13106. These genotypes were received from ICRISAT-WCA and will be advanced down the varietal release pipeline.

Aflatoxin contamination in groundnut and groundnut based products is a serious concern in Ghana impacting nutrition, health and the economy. While the permissible level of aflatoxin by Ghanaian regulation in food products is 20 ppb, a 2014 IFPRI report notes an average level of 42.5 ppb in groundnut paste and 76.9 ppb in ‘kulikuli’ – a popular snack in north Ghana. A survey conducted in 2015 by the USAID sponsored ICRISAT groundnut scaling project also revealed aflatoxin levels between 4.7 – 55 ppb.

Hence, wide adoption of aflatoxin tolerant genotypes will benefit farmers and consumers as groundnut is a major part of the diet in Ghana.

Due to high levels of aflatoxin contamination, most farmers are missing out on market opportunities as their products are not meeting food safety standards. Adopting tolerant lines will open up export options to farmers and processors adding extra income and boosting the economy.

To know more about ICRISAT’s work on aflatoxin click here

Participants at the participatory varietal selection field day at Silbelle, Ghana.

Project: Tropical Legumes III
Funder: Bill & Melinda Gates Foundation
Partners: International Center for Tropical Agriculture, International Institute of Tropical Agriculture, ICRISAT, Council for Scientific and Industrial Research – Savanna Agricultural Research Institute (CSIR- SARI) and NARS from selected countries

This work contributes to UN Sustainable Development Goals

Participants at the participatory varietal selection field day at Silbelle, Ghana.

Photo: Haruna Ali

Farmers walk through the field observing suitable genotypes for selection in Silbelle, Ghana.

A strong association between aflatoxin and anemia in pregnant women in Ghana has been found by Shuiab et al. (2010). Another study by Jolly et al. (2006) traced the presence of aflatoxin B1 (AFB1) albumin adducts in the blood plasma (0.12–3.00 pmol/mg) and aflatoxin M1 (AFM1) metabolite in the urine (up to 11,562.36 pg/mg) of people in a heavy peanut and maize consuming part of Ghana. Aflatoxins contribute to low birth weight, growth impairment, immunity suppression as well as mental retardation in children. Infants exposed to the fungi recorded low height-for-age and low weight-for-age scores.

Due to high levels of aflatoxin contamination, most farmers are missing out on market opportunities as their products are not meeting food safety standards. Adopting tolerant lines will open up export options to farmers and processors adding extra income and boosting the economy.

To know more about ICRISAT’s work on aflatoxin click here
To reinforce the skills required to enhance leadership and managerial effectiveness of women scientists and professionals, a seven day course was hosted by ICRISAT.

The course included practical sessions on sustaining team performance, managing conflict, and creating alliances to achieve research and business results.

‘It was a very intense and practical training program. One that helps the individual to discover the inner person, learn to value strengths and capacities to positively impact surroundings’ – Agathe Diama, Head-Regional Information – WCA, ICRISAT

Participants were asked to undertake pre-course work which helped them reflect, analyze and acknowledge leadership and managerial gaps in their profession. Thus, during the training, participants were able to address personal leadership challenges.

During the opening, Sharat Kumar, Director Human Resources and Operations, ICRISAT highlighted the importance of this course within the CGIAR system. Dr David Bervingson, Director General, ICRISAT welcomed all participants and recalled how such trainings are aligned with the institute’s capacity development and mentorship program geared at attracting and retaining talented staff.

With 25 participants and 3 facilitators, the course addressed the following modules:

- Leadership and management (definitions, systems, functions and implications of gender).
- Core communication skills.
- Emotional intelligence and sustaining team performance (focus on what it takes for successful team performance).
- Team building activities: each team activity entailed feedback from the team.
- Different types of power to enhance their assertiveness through practical exercises.
- Dealing with conflict.
- Influencing skills – cultivating trust and agreement.
- Peer consultation and networking.

The training was conducted by Dr Maria G Nassuna-Musoke, Lecturer at Makerere University, Uganda, Florence Ambayo, Counseling Psychologist and Behavioral Analyst and Laura Guyer, Senior Organizational Development Specialist.

The AWARD Women’s Leadership and Management Course took place at ICRISAT from 29 October 2017 – 04 November 2017.

This work contributes to UN Sustainable Development Goal
ICRISAT shares insights on using agricultural biotechnology to facilitate healthy and sustainable consumer food choices

The 2017 Borlaug Dialogue International Symposium held recently in Iowa had a strong ICRISAT presence. ICRISAT’s Ambassador of Goodwill Dr Akinwumi Ayodeji Adesina was honored as the 2017 World Food Prize Laureate in the main event and at one of the sub-events, the crucial role agricultural biotechnology plays in facilitating nutritious, healthy and sustainable consumer food choices was underlined by ICRISAT scientist Dr Pooja Bhatnagar-Mathur. The theme of the symposium was ‘The Road out of Poverty’.

The need for sustainable technological interventions to overcome challenges in agriculture development was discussed by Dr Pooja Bhatnagar-Mathur, Theme Leader – Cell, Molecular Biology & Genetic Engineering, ICRISAT. The presentation titled ‘Solutions for Impact in Emerging Markets: The Role of Biotechnology’ was made at the Seed Security for Food Security Forum convened on 17 October.

“With rising populations, climate change, increased pressure on natural resources, food and energy crises, we need to embrace breakthroughs in biotechnology to breach the genetic glass ceiling to overcome ‘intractable traits’ in crops,” says Dr Bhatnagar-Mathur.

High-value crops such as cowpea and banana found in Africa are insect and virus resistant and biotechnological interventions have already occurred in these traits. However, ‘intractable traits’ for example, aflatoxin in groundnut and striga in cereals are difficult to cope with due to their complexity and lack of genetic variability. It is precisely here that biotechnology has immense potential to find appropriate breeding solutions.

Dr Bhatnagar-Mathur emphasized that ICRISAT’s country strategies for Asia and Africa could forge strategic alliances to help establish clear priorities, outreach and communication of technological interventions.

“The World Food prize can be called as the Nobel Prize for Agriculture. Dr Adesina, who is our Goodwill Ambassador, has gone on to be a real advocate on the role of agriculture in lifting smallholder farmers out of poverty. He has brought visibility on the need for science-based solutions to improve agriculture and rural development more broadly,” said Dr David Bergvinson, Director General-ICRISAT.

Several other speakers called for institutional changes besides technological interventions to step up the game. Marie Haga, Executive Director, Global Crop Diversity Trust emphasized the need for dietary diversification of food for nutrition security.

The application of CRISPR-Cas for cassava, a food security crop for Africa was highlighted by Rebecca Bart, Senior Research Scientist, Donald Danforth Plant Science Center. Chiedozie Egesi, Project Manager at NextGen Cassava Breeding discussed the efforts made towards developing and releasing improved varieties of cassava and yam including the pro-vitamin-A cassava for Nigeria. Edward Mabaya from Cornell University talked about ways to improve the lives of African farmers through private enterprises.

Speakers from Dow DuPont including Neal Gutterson, Vice President, Research & Development, Paul Schickler, retired President, and Jim Gaffney Global Biotech Affairs & Regulatory Lead-Ag Traits, highlighted the firm’s commitment for global food security.

Pooja Bhatnagar-Mathur’s full presentation can be accessed here.
Launch of Cook’s Guide on groundnut opens up pathways to boost consumption in Nigeria

ICRISAT has partnered with the Catholic Relief Services (CRS) and Women Farmers Advancement Network (WOFAN) in the launching of a ‘Cook’s Guide’ on groundnut. The Cook’s Guide comprises 16 different ways of incorporating groundnut into local diets and highlights the nutritional and health benefits of consuming each product.

Groundnut, a smart food, provides energy and essential nutrients such as protein, phosphorous, thiamin and niacin, key to fighting the scourge of hidden hunger. Over 80% (2.2 out of 2.5 million) of the severely malnourished children in Nigeria are in the northern region. Considering that Nigeria is home to the highest number of stunted children on the African continent and ranks third globally with more than 10 million stunted children, this Guide is a handy reference source to address the challenges of malnutrition.

Endorsing the Guide, Dr Hakeem Ajeigbe, Country Representative of ICRISAT, Nigeria said, “The Guide is another icon of the commitment of ICRISAT in supporting national partners in the process of reconstructing the lost groundnut pyramids of northern Nigeria.” He urged the Women in Agriculture (WIA) teams of the Agricultural Development Programs (ADPs) to use the Guide as a hands-on reference material while performing their duties.

The launching ceremonies of the Guide brought together 800 participants from 30 organizations including key State Ministries – Women and Social Development, Secondary Education, Primary Education, Agriculture and local Government as well as civil society organizations. Over a period of three months, the launching took place in four out of the five states covered by the Project — Katsina state (July), Sokoto and Kebbi States (August), and Kano State (September).

These launching programs align well with the project’s continuous awareness raising campaigns on the consumption of aflatoxin-free (healthier) groundnut and groundnut-based products. UNICEF and several state-based media agencies were also represented during each of the programs. Reacting to the press after the launch in Katsina state, Mrs Hajiya Binta Masri, wife of the State’s Governor pointed out that the Cook’s Guide will certainly boost the engagement of women in groundnut production as they are actively engaged in processing groundnut into a range of other products. She promised to pursue this with the state ADP to enhance the production and enable women to have adequate quantities of groundnut for processing.

“I did not know that groundnut could produce so many different food items as outlined in the Guide,” commented Mrs Hajiya Hassana Wara, the Permanent Secretary in the Kebbi Ministry of Women’s Affairs and Social Development, while launching the Guide in Kebbi State. Before committing her Ministry to follow-up actions, she urged those at the ceremony to try out at least one of the items described in the Guide upon return home.

According to Mr Abdullahi Nasiru, Desk Officer of the Project at the Kebbi State ADP, “the Guide is another valuable action of the USAID project.”
**Project:** Increasing Groundnut Productivity of Smallholder farmers in Ghana, Mali and Nigeria (2015-2018)

**Partners:** Institute for Agricultural Research/Amadou Bello University, Zaria (IAR/ABU), Centre for Dryland Agriculture/Bayero University, Kano (CDA/BUK), National Agricultural Seeds Council (NASC), Federal University of Agriculture, Markudi (FUAM), Green Sahel Agricultural and Rural Development Initiative (GSARDI), Catholic Relief Services (CRS), Women Farmers Advancement Network (WOFAN), Agricultural Development Authorities/Projects of Jigawa, Kano, Katsina, Kebbi and Sokoto States.

**Funder:** United States Agency for International Development (USAID)

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This work contributes to UN Sustainable Development Goals

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*Photo: Lawal Bala, Project Technician.*

Tasting the products during the launch in Kebbi state.
Since the 1980s’ “pumping revolution”, the water crisis across India has been grim, with huge inequalities both in term of quantity and quality, for drinking, domestic and irrigation uses. The demand-supply gap is likely to double by 2050. The Indo-French forum on water availability and access in India held at the Indian Institute of Sciences, Bangalore on 20 and 21 November 2017, sought to highlight these issues and suggest solutions.

Groundwater overuse is exacerbating water scarcity, with agriculture being the main user (over 70%). The sanitation situation too is worsening both in the urban (uncontrolled flow of untreated waste water) and rural areas. Even though the water table has plummeted in many parts of India, overuse hasn’t slowed down. And when farmers don’t get enough water, they just dig deeper! More sustainable water management in agriculture together with choosing the right food systems will play a key role in solving the water crisis in India. Irrigation access is crucial for raising the productivity of smallholder agriculture while the focus is often on “blue water”.

Speaking at the forum, Dr Suhas Wani, Research Program Director – Asia Program, ICRISAT, pointed out that rainfed agriculture which still represents over half the farming population and acreage, could triple productivity with the right support in terms of capacity building, better seeds and farming practices. Citing the example of the 12 million hectares of rice fallows, he highlighted how simple tools like the water impact calculator can save 25-30% water and improve yields thanks to better irrigation decisions.

According to Nicolas Faysse, socioeconomist at CIRAD Bangkok, the different water policies in place to reduce agriculture’s water footprint (such as the Jyotigram Yojana in Gujarat that splits the power grid between agri and non-agri usages; electricity metering; large infrastructure investments to harvest surface water and recharge the water table; and shifting to a less water intensive irrigation) have not yet had clear impact because of the rebound effect. This means that whatever water resources saved or gained would ultimately be pumped to irrigate more. The emergence of solar pumping will increase pressure. How people’s interest in farming is changing needs to be documented since it will be a big driver in the use of natural resources in the years to come.

Thanks to advances in hydrology and high resolution remote sensing, scientists can now monitor and map in real time groundwater flows and pollution levels at the watershed level, provide projections, and map soil moisture on a daily basis, says Dr Sat Kumar Tomer from Aapah Innovations Ltd. Farm level technologies developed by innovation brokers (Bosch center Bangalore), such as drones, irrigation automation, and moisture sensors can help improve the productivity of water per drop. Such advances could get to the last mile with the right business model (contract farming with farmer group).

Yet, the hurdle to initiating collective action remains the lack of data on water resources. Social sciences have a robust role to play; yet they are often forgotten and underfunded in current large initiatives. INRA researcher Dr Laurent Ruiz, team leader of ATCHA project on integrated models to assess future water management scenarios, questioned how Indian society envisions future agriculture. Donors and governments still prefer to look at the issue from the point of water supply and technological approaches, which may not necessarily address the huge inequalities in water access. To encourage and promote more sustainable water management, knowledge has to go down to the local watershed scale. Farmers should know their aquifers and barefoot hydrologists must foster debates on more smart and collective decisions. Efforts should be made on participatory modelling (to capture narratives of each stakeholder group) and decision-makers at different levels must be engaged in the process. Communication and education could be the links to break silos (between disciplines and between stakeholders), raise awareness (on the health impacts of exposure to polluted water) and initiate action.
How do we fight the Fall armyworm, the new wound of African agriculture?

To solve the future food needs in sub-Saharan Africa, entomologists must be a critical part of the puzzle. From Nigeria to Ethiopia, South Africa to Chad, African smallholder farmers often face severe crop losses from damaging bugs from locusts to cassava's whiteflies, cowpea pod borers or maize and sorghum stem borers. According to the Center for Agriculture and Biosciences International (CABI), pests, (some emerging due to climate change or shifts in land use), reduce African crop harvests by 50%. Most smallholder farmers don’t have the ability to diagnose crop problems quickly and often have no means or knowledge to control these pests. With climate change and increased movement of goods and people, emerging pests will worsen an already serious problem.

Women empowerment is key to food and economic security in Malawi

Farming became the only option for Witness Ngwira after losing her husband. It provided food for her family. But farming too was not so viable given the erratic rainfall, lack of inputs and knowledge on improved farm practices that made it more challenging for small-scale farmers, especially women.

Not one to give up, Witness joined a local farmers’ club called Chigomezgo which partners with ICRISAT Malawi to produce pigeonpea seed.

Seamless crop-livestock integration in drought-prone Zimbabwe: Discovering and adopting more profitable and sustainable farming through innovation platforms

Last year was a drought year and the only crop we harvested was mucuna. This year we experienced water logging and again the only crop we harvested was mucuna,” says farmer Nlovu from Nkayi district in Zimbabwe.

More than 75% of smallholder farmers in Zimbabwe depend on crop-livestock farming and use cereal crop residues to supplement livestock feed. The residue is low in nutrition and inadequate to maintain animal health during dry periods, affecting household nutrition and bringing down the market value of livestock.
Congratulations

Abhishek honoured as Fellow of the Indian Society of Agricultural Statistics

Dr Abhishek Rathore, Theme Leader – Statistics, Bio-Informatics & Data Management, ICRISAT, was honored as a Fellow of the Indian Society of Agricultural Statistics (ISAS), during its 71st Annual Conference on Statistics and Informatics for Farmers Welfare. Fellows are chosen based on their contribution to agricultural statistics.

The Annual Conference took place in Bharatpur, Rajasthan from 25 to 28 November, where Dr Rathore elaborated on the role of statistics and informatics in doubling farmers’ income.

Established in 1947, the ISAS is the first society of agricultural statistics and operates from the Indian Agricultural Statistics Research Institute (IASRI) in Pusa, New Delhi. ICRISAT’s Governing Board Member, Dr S Trilochan Mohapatra, Secretary (DARE) & Director General (ICAR) is the honorary President of ISAS.

Dr Rajeev K Varshney, Genetic Gains Research Program Director, ICRISAT ranked among The World’s Most Influential Scientific Minds and Highly cited researchers 4th time in a row

According to the latest Clarivate Analytics’ edition of the Highly Cited Researchers List, Dr. Varshney is among 2017’s Highly Cited Researchers worldwide. More than 3,000 researchers from 21 fields who have produced a notable number of highly cited papers in Clarivate’s Web of Science database over the period 2005-2015 are featured in this list. Selection of authors is based on publication of highly cited (those that rank in the top 1% by citations) papers. Such consistent production of highly cited reports indicates that the work of these researchers has been repeatedly judged by their peers to be of notable significance and utility.

One of the very few scientists at the international level and only one from India to be cited for four years in a row, Dr. Varshney is featured in this list under two subject categories (Agricultural Sciences and Plant & Animal Science) for his significant contribution in the areas of genome sequencing, genetic mapping and functional genomics.

Dr. Varshney together with his team and collaborators have published very significant research work in the last few years that directly or indirectly have the potential to address food and nutrition security in the developing countries. The team recently published 2 papers one each in Nature Genetics (Impact Factor: 27.959) and Nature Biotechnology (Impact Factor: 41.667) on “Whole-genome resequencing of 292 pigeonpea accessions identifies genomic regions associated with domestication and agronomic traits” and “Pearl millet genome sequence provides a resource to improve agronomic traits in arid environments” respectively.