Project develops first ever rice hybrids for farmers in Africa

Africa will soon have its own rice hybrids thanks to a public-private partnership project, the Hybrid Rice: Breeding by Design Project, that has developed the first ever indigenous hybrid rice in Sub-Saharan Africa (SSA). The varieties, which have been developed using the 2-line rice hybrid technology, have the potential to produce 7 tonnes per hectare.

Kenya will be among the first countries to benefit from this pioneering breakthrough in rice breeding in SSA as early as next year considering that two hybrids are already undergoing national performance trials. Farmers in Tanzania are likely to get access to the hybrids in 2018.

The project is further evaluating the performance of 127 rice hybrids for advancement to national performance trials, according to Dr Kayode Sanni, the Project Manager.

This is indeed good news to farmers, seed companies and rice consumers in SSA. While global production of rice has risen steadily from 132 million tonnes in 1960 to 491.5 million tonnes in 2015, Africa has not contributed much to the increase, producing only 3 per cent, with Asia accounting for 90 per cent of the global production.

Rice demand on the continent exceeds production and Africa has been forced to rely heavily on importing large quantities of rice to meet demand at a very huge cost.
Except for a few countries that have attained self-sufficiency in rice production, as many as 21 of the 39 rice-producing countries in Africa import between 50 and 99 per cent of their rice requirements. SSA produces 14.8 million of milled rice per year, but consumes nearly double that amount at 26.4 million tonnes of milled rice per year.

With an annual production of 1.7 million tonnes and an annual consumption of 1.77 million tonnes, Tanzania is the only country in East Africa that appears to be heading towards self-sufficiency in rice with annual imports accounting for only 5.6 percent.

Kenya’s annual demand of milled rice is 550,000 tonnes. With an annual production of 102,000 tonnes, the imported 420,000 tonnes in 2015 were not enough to cater for demand, leaving the country with a deficit of 15,000 tonnes. Uganda on her part imported 53.8 percent of the 223,000 tonnes of rice required. Uganda produces 143,000 tonnes of milled rice per year.

‘Hybrid rice technology revolutionised rice production in Asia dramatically increasing productivity from an average of 1.89 tonnes per hectare in 1949 to 6.71 tonnes in 2012, and it will do the same for Africa,’ states Dr Denis Kyetere, Executive Director African Agricultural Technology Foundation (AATF), that coordinates the Hybrid Rice Project. ‘Now that we have also acquired the 2-line hybrid rice technology, Africa should be self-sufficient in rice production and even compete globally for exports, and not imports,’ added Dr Kyetere.

Africa’s inability to reach self-sufficiency in rice is the result of a combination of several factors in the rice industry. The continent suffers low rice productivity averaging 2.2 t/ha against the global average of 3.4 t/ha. This is largely caused by lack of high performing varieties, poor seed systems making it difficult for farmers to access certified and high quality seeds, and vagaries of weather brought about by climate change. Farmers are further discouraged from investing in rice due to high production costs that make their products more costly and hence less competitive in the market.
An agricultural guru appointed AATF Board Chair

A ATF Board of Trustees has appointment Dr Ousmane Badiane as the new Chair of the Board of Trustees. Dr Badiane, who joined AATF Board in January 2015, takes over from Prof. Idah Sithole-Niang who joined AATF Board in January 2009, and appointed Chair in 2011.

Badiane, who is the Director for Africa, International Food Policy Research Institute (IFPRI), brings with him more than 30 years’ experience in the agricultural sector in Africa. As an Advisor to the New Partnership for Africa’s Development (NEPAD) Secretariat from 2004 to 2007, he was instrumental in developing and guiding the implementation of the Comprehensive Africa Agriculture Development Programme (CAADP). He also served as the Lead Specialist for Food and Agricultural Policy for the Africa Region at the World Bank, among other organisations in Africa.

Badiane, a national of Senegal, takes the mantle during a critical time for agricultural development in Africa, where the impacts of decisions made by regional and global leaders will be felt by generations to come. Badiane will play a key role in building on the successful work Prof Idah Sithole-Niang has undertaken to position the Foundation as one of the continent’s leading providers of expertise and know-how on identification, access, development, delivery and utilisation of appropriate agricultural technologies for sustainable use by smallholder farmers in Sub-Saharan Africa.

‘I have spent all my life working on development issues in Africa. And anyone familiar with these issues knows how important technology is in overcoming the issues. We have huge agricultural potential in Africa but unless we harness the power of technology, we will not realise it. Technology is the weapon of humanity in solving the issues we have. I strongly believe that the future of agriculture is technological, nothing else,’ stated Badiane while thanking the AATF Board for giving him the opportunity to lead an organisation whose vision he shares and values. ‘I look forward to working with the Board and staff to ensure that AATF becomes even bigger and better.’

Dr Denis Kyetere, Executive Director AATF welcomed the new chair of the Board saying ‘Badiane’s understanding of and engagement in the issues we work on will give the Foundation great momentum in delivering the technologies our smallholder farmers need to revolutionise agriculture and attain food security.’

Denis praised and thanked Idah for great leadership during her tenure. ‘Idah joined the Board when AATF was going through a very difficult period. But through her great leadership, she guided AATF through the turbulent times leaving it a much better, reformed and smooth sailing organisation.’

On her part, Idah thanked the Board, staff and donors for their dedication to AATF. ‘It has been a wonderful journey, one that proves that Africa is becoming a global participant in agricultural development. It has been a pleasure working with this highly effective Board destined to take AATF to the highest level.’
Celebrating 2015 achievements, gearing up for 2016 challenges

AATF held its Annual Review and Planning Meeting in Naivasha, Kenya from 22-25 February 2016. During the meeting, staff reviewed 2015 project and corporate activities, held a brainstorming session on the year ahead and planned its activities for 2016.

The review noted 2015 as a successful year for AATF as it continued to deliver agricultural technologies and the resultant tangible benefits to small-scale farmers in Africa.

Dr Denis Kyetere, Executive Director AATF, thanked staff for their efforts and commitments in 2015 that brought about the celebrated achievements and urged them to gear up for a more challenging 2016. ‘This year transgenic products enter the deployment phase which will require greater efforts on our part. We will also need to adjust our way of doing business in line with internal and external factors and focus more on deploying products to farmers to realise impacts,’ stated Denis.

Dr Emmanuel Okogbenin, Technical Director of Operations, urged staff to focus their key performance indicators in line with the institutional goals, and called for greater efficiency through balancing implementation time and resources that are available.

AATF Executive Director joins other African leaders in charting the way for the new Alliance for African Partnership at MSU

Dr Denis Kyetere was among a small group of distinguished leaders from Africa who met at the inaugural Alliance for African Partnership Convening that explored opportunities for collaborative engagement between Michigan State University (MSU) and its partners in Africa to address the emerging challenges influencing this new millennium. The Convening was held from 10-12 May 2016 at MSU, East Lansing, Michigan, USA.

During the meeting, Kyetere shared with other participants AATF’s experience with partnerships in agricultural development in Africa. ‘AATF is about African farmers and providing them with practical technology solutions,’ stated Kyetere saying, ‘at AATF we believe that we can contribute to realising the full potential of African agriculture through harnessing public private partnerships, access to and use of innovative technologies, contribution to capacity strengthening, building experience, knowledge and education, and practicing flexibility in how we do our business.’

He gave the example of the Water Efficient Maize for Africa (WEMA), whose success he attributed to the unique partnership that has brought together both private and public institutions to deliver drought-tolerant and insect-protected technologies to small holder farmers in Africa. These partners include CIMMYT, a world leader in breeding maize for African agro-ecological zones; Monsanto, a world leader in gene discovery who donated three transgenes and about 700 global germplasm royalty-free to the partnership; and the national agricultural research systems that bring expertise in field trials of maize varieties. 
AfDB President meets AATF delegation

A team from the African Agricultural Technology Foundation (AATF) paid a courtesy call on Dr. Akinwumi Adesina, President of the African Development Bank (AfDB) in Abidjan, Cote d’Ivoire, on 25 April 2016.

The AATF team, led by Dr. Ousmane Badiane, Board Chair, included Dr. Denis Kyetere, Executive Director, Dr. Emmanuel Okogbenin, Technical Operations Director and Mr. John Makokha, Resource Mobilisation Officer.

The AATF team congratulated Adesina for initiating the Technologies for African Agricultural Transformation (TAAT) program, a critical strategy of AfDB to transform Africa’s agriculture and ensure that the continent is self-sufficient in food production. TAAT, which was established in 2015 after Adesina took over as the President of AfDB, aims at eliminating extreme poverty, ending hunger and malnutrition, achieving food sufficiency, and turning Africa into a net food exporter as well as setting Africa in step with global commodity and agricultural value chains.

The program, to be jointly implemented by the CGIAR system in collaboration with the Forum for Agricultural Research in Africa (FARA) and other agricultural research and development organisations in Africa has eight priority agricultural value chain areas: rice sufficiency, cassava intensification, Sahelian food security, savannas as breadbaskets, restoring tree plantations, expanding horticulture, increasing wheat production, and expanded fish farming.

‘TAAT is about right technologies getting into the hands of farmers. AATF’s products fit very well into the TAAT priority areas. Inclusion of AATF technologies in TAAT presents us with a large array of technologies for farmers to choose from. It is therefore important that AATF with its wealth of experience and ready technologies becomes an implementing partner in TAAT,’ stated Adesina.

During the meeting, Kyetere shared with the AfDB team AATF’s approach and experience with public-private-partnerships, accessing technology solutions for smallholder farmers, and enhancing productivity as well as agribusiness opportunities for wealth creation.

Dr. Adesina (right), President, AfDB welcomes Dr. Denis Kyetere, Executive Director, AATF.

We have ready to roll technologies that are already creating impact among rural farmers in Sub-Saharan Africa and that resonate well with TAAT’s priorities. We are happy to participate in this great initiative towards a food secure Africa,’ said Kyetere.

He highlighted some of the AATF initiatives that could add value to TAAT’s goals such as the Cassava Mechanisation and Agri-Business Project that has increased cassava yields from 9 to 25 tonnes/ha and farmer incomes from US$62 to US$92 per tonne through production efficiency and reduction in labour drudgery especially for women; DroughtTego maize, a product of the Water Efficient Maize for Africa Project that is helping farmers deal with climate change challenges, StrigaAway technology that is already changing the lives of smallholders in Striga endemic areas in East Africa and Hybrid rice that aims at achieving self-sufficiency in rice production in the region and currently showing potential to yield up to 7 tonnes per hectare.

Other technologies and initiatives that AATF is involved with and that have potential to change farmers’ livelihoods and help TAAT realise the goal of turning African Savannas into bread baskets include the Pod Borer Resistant Cowpea, Bt maize and the Seeds2B initiative that is about getting the right seed to market at the right time and right price.
The Cassava Mechanisation and Agro-processing Project (CAMAP) was officially launched in Zambia on 19 April 2016 by the Minister of Agriculture and Livestock, Hon. Given Lubinda, MP. The project, which is also being implemented in Nigeria and Uganda, commenced activities in Zambia in 2013 where farmers have reported yields of over 33 tonnes per hectare compared to the current 9-12 tonnes per hectare as a result of its holistic approach to farming as a business that combines mechanisation, improved seed, best agronomic practices and market linkages.

The Minister noted that while cassava is the country’s second most important food and cash crop after maize, the country continued to grapple with low productivity. ‘In spite of its importance, cassava yields in Zambia are still very low at 9-12 tonnes per hectare compared to over 25 tonnes per hectare in Asia and Latin America,’ stated Lubinda attributing the low productivity to poor farming practices that are predominantly manual, labour intensive and employing traditional tools in all operations.

‘Mechanisation of the labour intensive cassava production operations is therefore one of the major interventions to improve production systems. The availability of and access to appropriate machines and associated services by farmers remains a challenge in Zambia,’ stated Lubinda saying that unless this is urgently addressed, it is unlikely that cassava farmers and entrepreneurs will benefit from the potential market opportunities that can be generated through increased productivity and value addition.

Dr. Denis Kyetere, AATF Executive Director said that the project has acquired the appropriate machines such as cassava planters, cultivators, boom sprayers and root diggers or harvesters for use by the farmers.

The Minister thanked AATF for partnering with the Zambian Agricultural Research Institute to introduce CAMAP. The project is turning around the potentially huge market for cassava in Zambia through upgrading and expanding traditional planting, harvesting and processing.

George Marechera, CAMAP Project Manager, noted that the project, which has been implemented in Mansa, Samfya and Kaoma since 2013, has resulted in higher yields and better quality tubers that have earned farmers over US$2,750 per hectare compared to previous earnings of less than US$500 per hectare.
WEMA records breeding progress in Mozambique and Zimbabwe

Dr. Stephen Mugo (right), Principal Scientist/Breeder, CIMMYT explains to other members of PDT progress in breeding during a previous tour of Kiboko Research Station, Mukuweni County, Kenya.

The Product Development Team (PDT) of the Water Efficient Maize for Africa (WEMA) lauded the breeding programs in Mozambique and Zimbabwe during their visit that took place 3-8 April 2016.

The team, which was in Zimbabwe from 4-5 April was impressed with the uniform trials at the International Maize and Wheat Improvement Center (CIMMYT), Harare station. The layout of nurseries and demonstration plots was well planned making it easy to compare germplasm objectively, especially for spacing and density data. The structure of breeding was excellent with a rich germplasm that provides diverse sources of material for line development and an integrated system that enables handing over of germplasm to partners with ease. Genotype and environment interaction was very clear in the CIMMYT fields and the effect made very clear due to good management. The investment in use of electronic equipment to collect data was paying off through improved data quality and speed of collection.

Sylvester Oikeh, the WEMA Project Manager, thanked Amsal Terekegne and his CIMMYT Harare team for the excellent work that should be emulated by other country teams. Amsal attributed the excellent work to improved trial management and professional commitment of staff. ‘CIMMYT quality of cleanliness in trials is due to improved trial management. Planning trials and proper land utilisation, eliminating sources of variation, use of field books all contribute. But professional commitment of staff is the driving force,’ Amsal said.

In Mozambique, the team was particularly impressed with the improvement in quality and pipeline numbers during the tour of the trials on 6-7 April. The team is set to release their first ever WEMA hybrids - WE2101 and WE3128 - this year. This is in spite of the challenges in irrigation and leveling of the sloppy fields being used for trials. Oikeh urged the Mozambican team to do their best to improve the irrigation system to help improve quality of the plots.

According to James Gethi, a breeder with CIMMYT-Harare, the challenge at hand is to see the products released by WEMA reach farmers. ‘This should be our goal as it seems the real work has just begun for the project. Efforts of each person in the team are what make the work at CIMMYT look what it is.’

Stressing the importance of getting WEMA products to farmers, Oikeh stated, ‘WEMA is about impact. How the products released are adopted and give benefit to farmers by improving their livelihoods is the key impact that will be recognised, not the number of hybrids released.’

The product development team included Yoseph Beyene, Gethi, and Amsal from CIMMYT; Oikeh and Caleb Obunyali from AATF, Kiru Pillay, Barbra Meisel and Trey Cutts from Monsanto; Julius Sssemungu and Grace Abalo from the National Agricultural Research Organisation, Uganda; Egas Nhamucho and Pedro Fato from Mozambique’s Institute of Agricultural Research; Kingstone Mashingaidze, Siphiwokuhle Shandu and Leketso Mohemoholo from the Agricultural Research Council of South Africa; Murenga Mwimali, Kenya Agricultural and Livestock Research Organisation; and Alois Kullaya, AATF Consultant, Tanzania.

WEMA hailed for robust product pipeline, Bt maize approval


Key project milestones that included the development of a robust product pipeline for conventional products; stack approval in South Africa, Kenya and Mozambique; approval for environmental release of Bt maize in Kenya; and amendment of the strict liability clause in Tanzania.

Addressing the meeting, Lawrence Kent from the Bill & Melinda Gates Foundation said WEMA Phase III would focus on product deployment and the project needed to therefore focus on that.

The message was echoed by the guest of honor, Dr Florence Turuka, Permanent Secretary in the Ministry of Agriculture Livestock and Fisheries in Tanzania who also urged scientists to ensure the products of their work reach farmers.
WEMA and seed companies on sales promotion campaign in Kenya

In March 2016, the Water Efficient Maize for Africa (WEMA) Project and seed companies participating in the project in Kenya embarked on a campaign to promote commercialised DroughtTEGO hybrids in Kenya through road shows, short messaging service and radio to support awareness and encourage purchases by farmers.

Five seed companies, Elgon Kenya Ltd, Ultravetis East Africa Ltd, Dryland Ltd, East Africa Seed and Olerai Ltd took part in the road shows, where each seed company promoted their brand of DroughtTEGO. Over 3,500 sample seed packs were issued to farmers and stockists during the road shows.

Comedians and musicians entertained enthusiastic crowds as the caravan crisscrossed 17 counties in Western and Eastern Kenya over one week.

The radio promotions were aired on three vernacular radio stations and attracted enquiries from farmers on the new hybrid maize seed.

AATF and partners develop procedures for managing MLN disease

Over 40 participants from seed companies, research and development organisations met on 24 May 2016 in Nairobi, Kenya to review standard operating procedures (SOPs) for managing the maize lethal necrosis (MLN) disease.

The review of the SOPs, jointly developed by AATF, the Alliance for Green Revolution in Africa (AGRA) and the International Maize and Wheat Improvement Center (CIMMYT) helped to formulate a practical checklist for field monitoring and management of MLN disease that is seriously threatening maize production in East African.

Some of the management practices that help control MLN include rigorous disease management practices in seed production plots, seed coating, use of resistant varieties, controlling weeds that act as alternate hosts, controlling insect-vectors using appropriate insecticide, and having adequate isolation from MLN-infected fields.

Dr Gospel Omanya, Senior Manager, Projects Management and Deployment, AATF, noted that the SOPs and the practical checklist will go a long way in helping, AATF, AGRA, CIMMYT and seed company field staff in managing the spread of MLN disease.
AATF and COMESA partner to raise agricultural productivity and trade in Africa

AATF and the Common Market for Eastern and Southern Africa (COMESA) signed a memorandum of understanding (MoU) on 23 May that will enable them work together to create a conducive environment for the application of various agricultural innovative technologies including modern biotechnology that are necessary for raising agricultural productivity and trade in the region.

Under the MoU, AATF will be responsible for the identification and engagement of key stakeholders in the development and dissemination of information on agricultural technologies including biotechnology. COMESA will facilitate engagement and participation of key stakeholders, including civil society, relevant NGOs in decision making processes related to agricultural technologies including modern biotechnology.

Speaking during the signing of the MoU, Sindiso Ngwenya, COMESA Secretary General, warned that the negative publicity against new technologies such as modern biotechnology not only sent mixed signals to policy-makers, farmers and consumers, but undermined efforts to secure Africa's future through productivity-enhancing technological interventions.

Denis Kyetere, AATF's Executive Director, said that the decision on what technology to bring to farmers was informed by the kind of constraints the farmers were facing and on the on-going efforts in addressing them.

A major step forward in the development of GM rice Nigeria

The Nitrogen-Use Efficient, Water-Use Efficient and Salt Tolerant (NEWEST) Rice Project received a major boost when the Nigerian government commissioned a confined field trial (CFT) facility at the National Cereal Research Institute (NCRI) Badeggi, Niger State in November last year. The facility will be used for the development of a genetically modified (GM) rice variety that is capable of producing high yields even under low levels of nitrogen. This is important for a country that is the highest importer of rice in Sub-Saharan Africa and accounts for 20 percent of the total rice imports to Africa. Having high yielding varieties is not only critical in driving Nigeria towards self-sufficiency in rice production, but also in saving it the US$5 million it spends on rice imports per year.

Speaking at the inauguration of the CFT, Mrs. Winifred Oyo-Ita, acting Head of Service of the Federal State, said the commissioning of the facility was a clear indication of Nigeria’s intention to use cutting edge technologies such as biotechnology to boost agricultural productivity.

Dr. Denis Kyetere, AATF Executive Director, noted that the NEWEST Rice Project was using cutting edge technologies to genetically improve African rice varieties to perform better even under unfavourable conditions.

The inauguration of the facility was well attended by different stakeholders including government dignitaries, regulators, private seed companies, religious leaders, traditional rulers, seed producers’ associations and farmers.
Equipping farmers and partners in Zambia with business skills

The Cassava Mechanisation and Agro-Processing Project (CAMAP) held a training workshop for over 40 farmers and other stakeholders from 12-13 November, 2015 in Mansa, Zambia. The Training Workshop on Farming as a Business was organised in collaboration with the Zambia Agriculture Research Institute, the national implementing partner.

The workshop sought to reach common understanding and shared vision of CAMAP among the various stakeholders as an innovative project that should be implemented as a business. Specifically, the partners were trained on sustainable farming business models; brainstormed on market linkages and processing; reviewed Project’s progress; and planned for 2016.

CAMAP’s Coordinator in Zambia, Ivor Mukuka, stressed the importance of communicating the Project’s goal of empowering farmers to make money through the implementation of the sustainable business model.

Expounding on the business model, George Marechera, CAMAP Project Manager, noted that the project aims at creating wealth for farmers by increasing productivity and linking them to premium markets.

‘Farmers are linked to high yielding, disease resistant cassava varieties and supported with best agronomic practices including herbicide application, weeding, and fertiliser application,’ he said adding, ‘Farmers are also linked to various machines to support planting, harvesting and processing. To support wealth creation, the project trains participating farmers in business management and sustainable farming practices’.

DFID renews its support to AATF

The Department for International Development (DFID) has renewed its funding support to AATF for another five years with a larger commitment of US$ 14.6 million divided into core funding at US$ 11million and performance-based funding at US$ 3.6 million. The renewed support, which is the third since AATF was formed in 2004, runs from 1 October 2015 to 30 September 2020.

BioRAPP launched in Nairobi

The Program for Biosafety Systems (PBS) of the International Food Policy Research Institute (IFPRI) launched the Biotechnology and Biosafety Rapid Assessment and Policy Platform (BioRAPP) in Nairobi Kenya on 10 March 2016. AATF participated in the launch of the four-year project funded by the Bill and Melinda Gates Foundation which is focused on the development of economic models and a series of case study analyses to forecast biotechnology impacts of GM crops and trait specific varieties in Ghana, Nigeria, Tanzania, Uganda and Ethiopia.
CCARDESA and AATF sign MOU to boost access and delivery of agricultural technologies to smallholder farmers in the SADC region

AATF signed an MOU with the Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) in October 2015 to enhance access and delivery of agricultural technologies in the SADC region.

Under the MOU, AATF will facilitate access of CCARDESA countries to appropriate agricultural technologies. AATF will also provide technical support to CCARDESA countries on areas such as regulatory affairs management, seed systems and liability management in Africa.

On its part, CCARDESA, which coordinates agricultural research and development in the South African Development Cooperation region, will facilitate the development of common interests in research and development projects, in addition to facilitating collaborative agricultural policy enabling initiatives in its countries of operation.

AATF and AWARD in pact to boost women participation in agricultural research and leadership

AATF and the African Women in Agricultural Research and Development (AWARD) signed a memorandum of understanding (MOU) in 2015 to promote and support mentoring and leadership programs for talented women scientists, staff and partners of both organisations with the aim of strengthening research and leadership skills in agriculture. In the MOU, the two institutions will seek opportunities to organise joint events, run leadership courses and structure mentoring programs based on the tool developed by AWARD that has had great success and satisfaction for users.