

TAAT news

A Quarterly Publication Of Technologies For African Agricultural Transformation (TAAT)



Also in this edition

July – September 2019

Vol 3



TAAT Excites Beninese Farmers with Pro Vitamin A Cassava
Story on Page 5



African Development Bank unveils Scale Up Source book
Story on Page 9



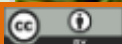
TAAT Partners IWMI & CIP to promote high-quality vine production in Malawi
Story on Page 11



How TAAT is strengthening the cassava Seed sector through Technology transfer
Story on Page 15



TAAT promotes trailblazing Hybrid Rice Technology adapted to African conditions



TAAT Commodity Compacts

The overall goal of TAAT is to radically transform African agriculture into a competitive sector by deploying productivity enhancing technologies and focusing on nine commodity value chains.



This Compact is led by the International Potato Center (CIP) with partnerships in eight countries located in Central, East, Southern and West Africa.



This Compact is led by WorldFish and the through activities in five countries offering greatest opportunity and infrastructure to greatly expand and improve aquaculture.



This Compact is led by the International Center for Tropical Agriculture (CIAT) through partnerships in eight countries located in upland areas of Central, East and Southern Africa where bean production offers greatest opportunity.



The Wheat Compact is led by the International Center for Agricultural Research in the Dry Areas (ICARDA) with activities in seven countries including the East African Highlands, Southern Africa Plateau and Sahel.



The Rice Compact is led by AfricaRice and has established partnerships in 16 countries, mostly in West Africa where massive importation of rice occurs.



Poultry, Sheep and Goats are the three commodity value chains within the Livestock Compact led by the International Livestock Research Institute (ILRI) with strategic partnerships in seven countries.



This Maize Compact is led by the African Agricultural Technology Foundation (AATF) and IITA with partnerships in 12 countries located in Sub-humid climates of Central, East, Southern and West Africa.



The Sorghum-Millet Compact is led by the International Crops Research Institute for the Semi-Arid Tropics with national partnership in seven countries of the Sahel.



The Cassava Compact is led by IITA with partnerships in 15 countries of Central, East, Southern and West Africa.

TAAT Enabler Compacts

The six Enabler Compacts provide support services for soil fertility management, water management, capacity building and development, advocating supportive seed technology policy, mobilising youth into agribusiness and organising a response to fall army worm invasion.



TAAT Promotes Trailblazing Hybrid Rice Technology adapted to Africa

The Rice Compact of Technologies for African Agricultural Transformation (TAAT) is paving the way for rice transformation in sub-Saharan Africa by promoting locally-adapted high-yielding hybrid rice varieties developed by the Africa Rice Center (AfricaRice).

The Rice Compact of Technologies for African Agricultural Transformation (TAAT) is paving the way for rice transformation in sub-Saharan Africa by promoting locally-adapted high-yielding hybrid rice varieties developed by the Africa Rice Center (AfricaRice).

One of such trailblazers is AR051H, which is the first hybrid rice variety released by the Senegalese Institute of Agricultural Research (ISRA) in Senegal under the name ISRIZ-9 in 2017. With high yield potential of 11-13 t/ha, long slender grains and good milling quality, ISRIZ-9, is aromatic, a trait that is highly appreciated by Senegalese consumers.

As a result of heterosis (hybrid vigor), hybrid rice typically shows a yield advantage of 15–20% over the best conventionally bred varieties

(inbreds) grown under the same conditions. It can provide an avenue for African rice farmers to boost rice yields and improve profitability.

“While research is continuing to develop productive rice varieties and hybrids like these, we farmers and seed producers must also adopt these new technologies so that we can reduce rice imports and make our country self sufficient in rice”

Moreover, hybrid rice seed production can be a lucrative business for seed companies and create employment opportunities for Africa’s youth.

As part of its approach to catalyze agribusiness and entrepreneurship development in the rice value chain

with the active involvement of seed enterprises, the TAAT Rice Compact facilitated the large-scale demonstration of ISRIZ-9 seed production at a Field Day organized by AfricaRice and ISRA at the AfricaRice Regional Center in Saint Louis, Senegal, on 6 August 2019.

“Hybrid rice technology developed for Africa is a magnificent achievement as it can revolutionize our rice production,” declared Mr Cheikh Sidi Vall from SRIA, a major seed enterprise in Mauritania.

“We are very keen to test and adopt this in our country.” Mr Vall was one of the 77 participants from five countries (Senegal, Mauritania, Mali, Cote d’Ivoire and Egypt), who attended the Field Day.

Thanking the TAAT programme and AfricaRice, Mrs Penda Cissé,



The consumer-preferred hybrid, ISRIZ-9 (Photo: AfricaRice/R. Raman)



Hybrid rice varieties are released by TAAT in Africa following a decade of breeders' efforts (insert: a new variety on display).

Founder/Director of the FEPRODES women rice producers' association in Saint Louis, remarked, "While research is continuing to develop productive rice varieties and hybrids like these, we farmers and seed producers must also adopt these new technologies, so that we can reduce rice imports and make our country self-sufficient in rice."

According to Dr Sidi Sanyang, TAAT Rice Compact Coordinator, the main purpose of the Field Day was to initiate functional partnerships with seed enterprises in the production and commercialization of hybrid rice seeds and contribute to food and nutrition security in Africa.

"As part of the next step, seed enterprises are expected to support large-scale hybrid demonstrations in farmers' fields with technical backstopping from AfricaRice and ISRA," Dr Sanyang explained. Seed of ISRIZ-9 and a few other promising hybrid lines developed by AfricaRice will be provided for these demonstrations.

The Field Day included an in-depth group discussion and question-answer session on the hybrid rice technology, which was coordinated

"Hybrid rice means agribusiness. All the key partners will work together to develop win-win public-private partnership models..."

by Dr Baboucarr Manneh, AfricaRice Irrigated Rice Breeder. "We have new hybrid lines, some of which are better than ISRIZ-9 and have yield potential of up to 14-15 t/ha," Dr Manneh revealed during the discussions.

For a new technology such as hybrid rice in sub-Saharan Africa, capacity development is critical to its long-term sustainability. The TAAT Rice Compact and the West and Central African Council for Agricultural Research and Development (CORAF) are partnering to initiate training in hybrid rice seed production.

"It is important for local companies to be trained in hybrid rice seed production as there are risks of rice diseases spreading through hybrid seed brought from outside Africa," stated Dr Raafat El-Namaky, Hybrid Rice Breeder from the Rice Research and Training Centre (RRTC), Egypt, who led the AfricaRice hybrid rice breeding

program from 2009 to 2018. Dr El-Namaky – who can claim the title of 'Father of AfricaRice hybrid rice' – spearheaded the development of almost 800 hybrids and their parental lines at AfricaRice. Some of these hybrids have been evaluated in several African countries.

"AfricaRice has now more than 50 promising hybrids and at least 15 of these are ready for release and wide-scale adoption," he told the participants of the Field Day.

In addition to participants from ISRA, AfricaRice and RRTC, the Field Day was attended by representatives from sectors such as agribusiness, seed enterprises and associations from Senegal, Mauritania and Mali (CNT, CASL, SEDAB, FASO-KABA, FEPRODES, GIE AGRITECH, GIE DYNNA, UNIS, SRIA, KORKA RICE).

Others include donor community (USAID, Syngenta Foundation); research, development and extension organizations and university from Senegal and Mauritania (DRDR, SODAGRI, SAED, UGB, CNRADA, SONADER); Rice farmers; and seed producers from Senegal.

Thanking the African Development Bank for its strong support to the promotion of the hybrid rice technology in Africa through the TAAT programme and all the participants for their active participation, Dr Karim Traoré, interim head of the AfricaRice Regional Center in Saint Louis, Senegal, stated "Hybrid rice means agribusiness. All the key partners will work together to develop win-win public-private partnership models so that our farmers and seed enterprises can fully benefit from this technology."

TAAT Excites Beninese Farmers with Pro Vitamin A Cassava Varieties



A staple to about 350 million people in sub-Saharan Africa, cassava, had been declared in 2003 by African Heads of State as a poverty fighter. However, the crop is yet to prove its mettle as millions of growers in sub-Saharan Africa who depend on the crop for their livelihoods still live below the poverty line.

Some of the reasons adduced for the poor performance of cassava and indeed several other crops include poor productivity, low value-addition, inability of farmers to access improved varieties and profitable market.

Consequently, Africa's cassava productivity per ha is less than 10 tons per hectare compared to Asia where productivity is more than 20 tons per hectare.

Food insecurity in Benin

In the republic of Benin, over half of

the nearly 10 million population rely on subsistence farming for their livelihood and the poor have not benefited from the country's legacies as one of Africa's largest cotton producers. Cotton is the only cash crop available to small-scale farmers, making up 40 per cent of the country's GDP and over 80 per cent of export revenues.

According to World Food Programme (WFP), 3.3 million people, in Benin are considered food insecure, representing 34% of households in the country.

Since the mid-1980s Benin has increased production of yams, cassava, maize, peanuts and pulses but poor infrastructure, low yields, flooding, which can wipe out harvests and seed stocks, are major challenges Benin farmers face.

To address some of these challenges,

the African Development Bank (AfDB) over a year ago, launched the Technologies for African Agriculture Transformation (TAAT) programme, as part of the Bank's Feed Africa strategy that is harnessing elite scientific research/technologies and disseminating at scale to African farmers.

A commitment to agricultural transformation

TAAT's main objective is to improve the business of agriculture across Africa by raising agricultural productivity, mitigating risks and promoting diversification and processing in 18 agricultural value chains within eight Priority Intervention Areas (PIA).

The programme increases agricultural productivity through the deployment of proven and high-performance agricultural

technologies at scale along selected value chains which include cassava.

The TAAT Cassava Compact, led by the International Institute of Tropical Agriculture (IITA) with presence in 18 African countries, set out to achieve cassava intensification as a priority intervention area, identified poor productivity, low value-addition, and lack of access to improved varieties as some of the key challenges facing cassava production in Benin.

Coordinated by Dr. Adebayo Abass, the compact established partnerships with critical stakeholders in Beninese agricultural sector led by the government, private sector, farmer cooperatives, academic institutions and the civil society.

Some of these partners who keyed into TAAT's plan to boost cassava production in the Republic of Benin include Institut National de Recherches Agricoles au Bénin (INRAB), Université d'Abomey Calavi, Laboratoire de Biotechnologies, Ressources Génétiques et Amélioration des Espèces Animales et Végétales (BIORAVE) amongst others.

An initial step taken by TAAT and partners in Benin was the recognition of the fact that cassava is still largely produced at a subsistent level in the country. This is in spite of the crop's high growth potential for contributing to job creation, improved incomes and the living conditions of the people.

In the face of the diversity of products derivable from cassava for industrial applications and export, the processing of cassava in Benin still remains artisanal and traditional cassava products such as fufu, garri, tapioca have limited commercial transactions.

Thus, the decision to introduce

technologies for rapid multiplication of planting materials of improved cassava varieties that address nutritional deficiency and increase cassava yield up to an average of 25 ton/ha became an absolute necessity.

Closely linked to this is the need for these technologies developed by researchers over the years to get into the hands of Beninese farmers and facilitate large scale adoption.

Deploying Pro Vitamin A Cassava at scale in Benin

It would be recalled that over the past 45 years, the International Institute of Tropical Agriculture (IITA) has played a pivotal role in the genetic improvement of cassava for resource-poor farmers in sub-Saharan Africa (SSA).

With over 400 cassava varieties developed so far, that are not only high yielding but also resistant to diseases and pests, many of these improved varieties have been extensively deployed across Africa.

While almost all cassava in Benin are currently white fleshed, pro vitamin A cassava which produces yellow-fleshed roots (popularly referred to

as yellow cassava) with nutritionally significant concentrations of carotenoids that produce vitamin A in the human body is yet to be accepted in the country.

This is largely linked to unverified rumors that yellow cassava is not good for the human body, a belief held by many. Beninese farmers, therefore decided to stay away from it for fear of glut due to buyers' lack of interest.

To address this challenge, a behavioural change communication model involving the transfer of planting materials of provitamin A cassava varieties from IITA Nigeria to Benin and extensive sensitisation campaigns in key villages was adopted by the TAAT Cassava Compact and partners.

The planting materials were multiplied to provide 200,000 cuttings, distributed to seed growers and farmers in selected villages such as Massi, Akouègba in Glazoué, Houèdo in Abomey-Calavi, and Tatonnoukon in Adjohoun, Allada, Niaouli, Attogon, Lotodonou, Agon, Sakete 1, Sakete 2, Houmbo, Daagbe, Djedje, Chada, Hego, Adodo, Ifangni, Sahorot-Nagot, Adanmanyi, Dagba, Meke, Dagbaou, and Yoko.



Yellow-fleshed cassava cuttings (PHOTO: IITA Bode Olaoluwa)

Others include Agbanate, Eglime, Massè, Adja-Ouéré, , Banigbé, Fouditi, , Trobossi, Ikpilè, Oke-Ata, Pobè, Igbo-Itche, Adakplamè, Tovlamè (Camp), Agbotolou, Kokoua, Dotortanou, Zassa, and Détékpa.

Funded by TAAT and driven by partners such as INRAB, Université d'Abomey Calavi, and BIORAVE (with support from the CGIAR RTB Programme), the sensitization campaigns which held across these locations consecutively in September 2019 had in attendance, men and women farmers including youth and representatives of IITA, RTB and HarvestPlus.

Addressing the farmers and villagers who thronged to the Houèdo centre with the help of an interpreter in Fon language, Dr Elizabeth Parkes of HarvestPlus enjoined Beninese farmers to adopt the pro vitamin A cassava variety as it eliminates the problem of nutritional deficiency which afflicts almost 20% of pregnant women and about 30% of

children under the age of five.

“Vitamin A deficiency results in stunting in children, predisposes them to sicknesses such as diarrhea and measles, and even premature death. In pregnant women, vitamin A deficiency results in night

“This set of pro-vitamin A cassava varieties have increased beta-carotene levels as well as matching agronomic characteristics as an incentive for better farmer adoption,”

blindness and increases the risk of mortality but with yellow-fleshed cassava, all that will be taken care of as it is biofortified with nutritionally significant concentrations of carotenoids that produce vitamin A,” Dr Parkes said.

“I heard that you are afraid of yellow cassava or yellow garri? Would you like to taste it just as I am doing now? Yellow cassava is not only harmless but very tasty and good for the

body,” she added, tasting the harvested fresh root of yellow cassava and other by-products of the variety like yellow garri, cassava flakes and crackers.

While engaging farmers and traders at the Akouègba centre in Idacha language, Oluwatoyin Adetunji, Agricultural Transformation Specialist with TAAT harped on the guaranteed return on investment that the variety represents.

“This set of pro-vitamin A cassava varieties have increased beta-carotene levels as well as matching agronomic characteristics as an incentive for better farmer adoption,” she added.

TAAT is about boosting the productivity of African farmers in order for Africa to feed itself and through this set of varieties that we are distributing today, you are guaranteed an increased cassava yield up to an average of 25 ton/ha,” Ms Adetunji said.



Happy farmers after receiving the yellow-fleshed cassava stem cuttings (PHOTO: IITA/Bode Olaoluwa)

The appreciative farmers and processors across the 42 villages responded in songs of joy and appreciation, commending the TAAT programme for coming to clear their doubts about yellow cassava as well as making the variety accessible to them.

Technology scale up secures the future

Mlle Ezaie Etenou, a garri processor in Massi is already dreaming of a future with yellow cassava.

“This sensitization that we had today is going to help us a lot. If we succeed in producing this new yellow cassava variety, it will greatly help in changing the whole community,” she said.

Nazaire Donkpegan, a farmer is fascinated about the possibility of increased yields from yellow cassava.

“My impression of this awareness is that as a producer I am used to growing white cassava variety which gives me little yields hence I sell at a cheap price. But with this new

yellow cassava varieties, I am very happy and will produce it in large scale,” he added.

Speaking on behalf of the partners at the end of the hugely successful sensitization campaign across Benin, Prof Alexandre Dansi, the Executive Director of BIORAVE lauded TAAT as an excellent programme.

According to him, “the concept of

“if we develop technologies and these technologies are not scaled up to millions of farmers, we have practically done nothing.”

TAAT has being a dream I personally had before the programme eventually came on board. Several institutions are spending millions of dollars to develop varieties and technologies but “if we develop technologies and these technologies are not scaled up to millions of farmers, we have practically done nothing.”

“I invite other donors to go in this direction as we have several technologies from 20 to 30 years of agronomic research still sleeping on the shelves. Is it on the shelf that their impact will be felt? He queried.

“It is when the beneficiaries come in contact with these technologies that one can be considered fulfilled as a researcher,” Prof Dansi said.

He further expressed his belief that TAAT as a programme sponsored by AfDB to take existing agricultural technologies to scale is an excellent idea that should have a second, third and even a fourth phase.

“TAAT is programme that needs to be supported, and my best wishes go to everyone in TAAT and also HarvestPlus for supporting us tremendously to harvest more in Benin. We need more support, more financing even up to billions of dollars so that African agriculture can experience a positive, radical change,” Prof Dansi concluded.



African Development Bank unveils Scale Up Sourcebook at AGRF 2019



Ms Jennifer Blanke Vice President African Development Bank speaking on the urgency of scaling up in Africa (PHOTO: TAAT/Atayi Opaluwah)

The African Development Bank in collaboration with Purdue University have launched a sourcebook on scaling up agricultural innovations.

The sourcebook summarizing key insights, tools, examples, and references on designing for scale, assessing scalability, financing the scaling process, and the effective use of partnerships to support scaling.

“There is no green revolution in Africa, yet so many technologies exist,” said Jennifer Blanke, Vice President, Agriculture, Human and Social Development at the bank.

“With these technologies, Africa should be able to leapfrog, but this can only happen if projects are scaled up,” she said during the sourcebook launch on the sidelines

of the Africa Green Revolution Forum (AGRF) in Accra, Ghana.

According to Larry Cooley, the co-author of the Scale Up Sourcebook,

“most organizations live in a donor project- world where accountability is complex and where reward for a good project is another project”.

As a result, “we get smaller projects chasing large-scale transformations,” he told AGRF delegates during the launch.

He pointed out that delivery at scale is not a gigantic project or a series of projects. “We need to plan for millions, not thousands; for uncontrolled, not controlled, settings; for generations, not for five years; and for addressing, not working around, political and

market realities”.

The book has nine chapters covering project designs and innovations with scale in mind, assessing scalability, using commercial markets to drive pro-poor scaling and financing the transition to scale.

The sourcebook further covers creating an enabling environment for scale—partnerships, policy, behavioral change, and institutions, tailoring metrics, monitoring, and evaluation to support sustainable outcomes at scale, the critical role of intermediary and donor organizations and an invitation to continue the conversation.

In order to scale up projects, Cooley noted that development assistance can be of help, though it will not solve the problem. “Only markets

According to the author, short-term interventions (“projects”) and subsidies can make big and positive differences, especially in reaching underserved smallholders and small and medium enterprises (SMEs), but only if used strategically. “They can also introduce major distortions,” he warned.

According to Dr Akinwumi Adesina, President AfDB, all the conditions for African agriculture’s “Giant Leap” are in place. “Africa holds 65% of all the uncultivated arable land left in the world, and the technologies to transform this resource into a breadbasket of healthy, nutritious food and finished agricultural

products exist. What remains is a systematic process to deploy these technologies and the required complementary services to millions of farmers, while stimulating value addition and unlocking regional and global markets,” he said in a Forward message to the Sourcebook.

“This sourcebook, distilling the incredible expertise, groundbreaking innovations, and examples of successful scale on display at the conference (Scale Up Conference organized by Purdue University and held in West Lafayette, Indiana, USA, in September 2018), will surely serve as a valuable guide for those driven by the imperative to revolutionize

African agriculture,” said Dr Adesina.

He noted that AfDB has launched a \$1 billion initiative called “Technologies for African Agricultural Transformation” (TAAT)—in collaboration with our partners at the World Bank, the Bill and Melinda Gates Foundation, the International Fund for Agricultural Development (IFAD), the Alliance for a Green Revolution in Africa (AGRA), and others.

The Scale Up Sourcebook is set to accelerate initiatives that in turn scale up agricultural innovations such as TAAT and many more.



The Bank’s Vice President flanked by other panelists during the presentation of the book (PHOTO: TAAT/Atayi Opaluwah)

TAAT partners IWMI & CIP to promote high-quality vine production in Malawi

Malawi's cuisine is quite dependent on root crops, with meals boasting the likes of potatoes and cassava.

So, when varying weather conditions interfere with anticipated production projections, vine producers are left to find ways to ensure that plants are watered adequately.

Technologies for African Agricultural Transformation (TAAT) is supporting Malawian farmers with the right set of technologies that ensure good yields despite challenging weather

value chains within eight Priority Intervention Areas (PIA).

The programme increases agricultural productivity through the deployment of proven and high-performance agricultural technologies at scale along selected nine commodity compacts. These work with six enabler compacts addressing transversal issues such as soil fertility management, water

availability of sufficient and premium vines at the start of the rainy season is essential to producers to ensure they obtain good yields.

Vine production takes place during the dry and hot months preceding the rainy months. Producers are required to water their plants, a task which is commonly done by hand, using water cans and tapping water from streams and hand-dug wells.

As it is a laborious and heavy-duty task, consequently only small areas can be planted. Oftentimes, plants receive insufficient water compared to their demands and water stress leads to lower production and quality of vines.

By supporting vine producers with access to modern varieties, good agronomic practices and appropriate irrigation technologies, an increase and steady flow of income to farmers is being targeted.

Moreover, irrigation equipment will be deployed to irrigate other crops during the dry season thereby contributing to agricultural intensification in Africa and creating resilience among the small-scale farmers.

"Both TAAT OFSP and Water Enabler Compacts are excited about the development and are already in talks to foster a closer partnership to scale this technology among OFSP farmers in Malawi," Dr. Adebayo Oke, Irrigation Engineer at IWMI said.

"This is in furtherance of TAAT's commitment to achieving closer collaboration among stakeholders in

the implementation of an efficient



OFSP vines being watered with rain hoses; a low-cost water solution for efficient water distribution. (PHOTO: IWMI/Sander Zwart)

agronomic recommendations in combination with appropriate irrigation technologies are showcased as a solution to boost productivity and generate stable income to farmers.

The support is being driven by the International Water Management Institute (IWMI) in line with its mission to promote farmer-led irrigation approaches, and the International Potato Center (CIP).

Sponsored by the African Development Bank (AfDB) as part of its Feed Africa Initiative, TAAT's main objective is to improve the business of agriculture across Africa by raising agricultural productivity, mitigating risks and promoting diversification and processing in 18 agricultural

development, policy support, attracting African youth in agribusiness and fall armyworm response.

Led by IWMI, the TAAT Water Enabler Compact (WEC), promotes low-cost and easy-to-deploy irrigation and water management technologies to small-scale farmers across Africa.

Particularly in Malawi, TAAT-WEC enables the orange-fleshed Sweet Potato (OFSP) compact that is led by CIP. Through this, IWMI and CIP joined forces to support small-scale farmers in producing high-quality vines for OFSP.

With ranging weather conditions, the



OFSP vine producers in Malawi receive on-the-job training in installation of irrigation equipment (PHOTO: IWMI/Sander Zwart)

technology toolkit capable of driving improvement in farmers' productivity," he said.

Specialists from both institutes set up demonstration sites around Blantyre in southern Malawi. Irrigation equipment was procured with the support of local irrigation pipe producers, Pipeco Ltd. Local production significantly reduces cost and the sustainable high-density polyethylene (HPDE) pipes were priced equally to that of the polyvinyl chloride (PVC) pipes.

Surface water was then pumped into a water-efficient conveyance system and distributed to the field using two different technologies: gun sprinklers and rain hoses.

An upcoming technology for low-growing crops including OFSP, rain hoses also lead to a more homogeneous water distribution within the farmer's field and it is less impacted by wind.

On both sites, farmers also received on-the-job training in the implementation and operation of the

system by Dr. Oke.

Impressed by the achievements, farmers inquired about possibilities to expand the existing systems and implement elsewhere.

"Farmers reacted enthusiastically and began to reflect on other crops they could cultivate to make optimal use of the new irrigation infrastructure," Dr. Sander Zwart, TAAT-WEC coordinator said. "Up to three cropping cycles per year are possible and cultivated areas can now be expanded."

Dr. Zwart said farmers also expressed their concerns about the costs of the materials. "We therefore need to link up with microfinance organizations," he said. "We believe this is potentially very profitable technology that can take farming in Malawi to new levels."

Personal financial resources and stable demand from the market and other issues will be discussed during anticipated innovation platform meetings.



Farmers and team members of CIP and IWMI celebrate the development of irrigation facilities that enables OFSP vine producers to increase productivity and quality of produce (PHOTO: IWMI/Sander Zwart)

TAAT's hybrid rice varieties elicit strong interest from private sector and key stakeholders

A set of four high-yielding hybrid rice varieties with excellent grain quality have elicited strong interest from key stakeholders, especially seed companies and farmers.



Participants at the field day (Photo : R.Raman, AfricaRice)

The rice varieties were showcased during field days held recently at AfricaRice research station in M'bé, Côte d'Ivoire.

The field days to showcase the performance of the hybrids were organized by the Rice Compact of the 'Technologies for African Agricultural Transformation (TAAT) Programme.

Funded by the African Development Bank (AfDB), TAAT's main objective is to improve the business of agriculture across Africa by raising agricultural productivity, mitigating risks and promoting diversification and processing in 18 agricultural value chains within eight Priority Intervention Areas (PIA).

The programme increases agricultural productivity through the deployment of proven and high-performance agricultural

technologies at scale along selected value chains which include rice.

The hybrids showcased in the field days included AR051H, an aromatic variety with high-yield potential (12-13 t/ha under favourable conditions and about 9 t/ha in farmers' fields) and milling recovery of 80%.

"This is a milestone for Africa in terms of raising rice productivity,"

Developed by AfricaRice, AR051H, was released by the Senegalese Institute of Agricultural Research (ISRA) as ISRIZ-9 in 2017.

"This is a wonderful effort which is very promising for Africa, as until now we had heard of hybrid rice success only in China and India," said Abdoulaye Sawadogo, head of NAFASO seed company, after the field visit.

"We want our governments to support this initiative, which will improve our capacity to meet market demand and reduce rice imports."

Representatives of 11 seed companies, two milling companies, two farmers' organizations, national seed system partners and research and development organizations participated in the field days.

These participants, drawn from Benin, Burkina Faso, Côte d'Ivoire, Mali, Nigeria and Senegal attended the field days to observe first-hand the performance of the AfricaRice-developed hybrids in the demonstration plots as well as hybrid seed production fields.

The participants from Nigeria, including two policy-makers, showed a keen interest to test the hybrids in Nigeria.

"This is a milestone for Africa in terms of raising rice productivity," said Hon. Munir Babba Dan Agundi, a

member of Nigeria's lower house of parliament. "The hybrids should be made available to farmers in Nigeria as quickly as possible, along with training," he added.

The four hybrids showcased in the field days are early-maturing (110-120 days), which will allow farmers to grow two crops per year. They have 15-20% (1.0-1.5 t/ha) yield advantage compared with the best non-hybrid (inbred) variety grown under the same conditions, and good grain quality traits (medium and long grains with intermediate to high amylose content) and high milling recovery.

"Developed after nearly 10 years of intense research, these high-yielding hybrid rice varieties adapted to African conditions are ready to be rolled out," said Dr Sidi Sanyang, who coordinates the TAAT Rice Compact.

"The release of the consumer-preferred hybrid, ISRIZ-9, in Senegal,

offers new opportunities for smallholder farmers to increase production and access national markets," he added.

"Capacity building of our partners in hybrid rice technology is a key component of our strategy, so that we can support our farmers and seed producers."

Dr Sanyang explained that an effective public-private partnerships (PPPs) strategy is critical for the successful deployment of these hybrid rice varieties in Africa.

"In partnership with national programmes, we wish to actively engage with the private sector to expedite the adoption of promising hybrid rice varieties in Africa."

At the end of the field days, seed companies expressed their willingness to host demonstrations of these hybrids within countries for which PPP modalities will be worked

out with support from the TAAT Policy Enabler Compact, led by African Agricultural Technology Foundation (AATF).

Because of heterosis (hybrid vigor), hybrid rice can significantly out-yield inbred varieties. It can thus provide an avenue to African rice farmers to raise rice yields and profitability and play a central role in feeding Africa's growing population. Hybrid rice seed production can be a profitable business and create employment opportunities for Africa's youth.

Considering all these factors and in response to the strong demand from its member countries, AfricaRice established its own hybrid rice breeding program for Africa.

About 50 high-yielding hybrid rice lines/varieties have been developed by AfricaRice and evaluated in several African countries. The four hybrids showcased during the field days are part of this set.



A view of the hybrid varieties (Photo: AfricaRice/R.Raman)

How TAAT is strengthening the cassava seed sector through Technology transfer

In 2018, Technologies for African Agricultural Transformation (TAAT) through its Cassava Compact began the transfer of the know-how on a new technique for the rapid propagation of cassava, Semi Autotrophic Hydroponics (SAHTM), to some African countries.

The technique was developed by SAHtechno LLC for potatoes but later adapted for cassava propagation by the International Institute of Tropical Agriculture (IITA).

The technical staff of National Agricultural Research and extension

System (NARES) and private sector partners from DRC, Zambia, Tanzania, Sierra Leone, and Togo were trained by GoSeed in Nigeria on the use of the technique for rapid propagation of cassava.

The 10-day training for each country

team involved both laboratory and field techniques to ensure a successful implementation by the trainees upon return. Licenses were obtained from SAHtechno for the use of the SAH technology in the five countries.



Healthy and disease-free cassava plants of Kiroba ready for field planting (PHOTO: KilimOrgano.org)

By July 2019, new SAH laboratories were being built in Zambia, Togo, and Sierra Leone, while new SAH laboratories were already operational in DRC and Tanzania.

A beneficiary of this technology-transfer effort, KilimOrgano, is a Tanzania-based agriculture biotechnology company that micro-propagates and distributes disease-free and high-quality tissue culture plants of banana, pineapple, cassava, lemon, pomegranate, potatoes and other crops.

After the training in Nigeria, IITA experts through TAAT continued to provide other support to the company and her technical staff based on the local growth room conditions of the company's laboratory. Part of the support TAAT made available to the company included required consumables from Nigeria, in form of substrate and containers needed for two months to perfect the technique.

With the adoption of the more advanced, cost-effective SAH technology, KilimOrgano now produces cassava plants in its state-of-the-art laboratory maintained at

Class 10,000 sterility conditions via a combination of the new SAH technology and the tissue culture method.

The company delivers to seed farmers, cassava plants which are planted directly in the field without any further treatments.

Since SAH plants have well-developed shoots and roots, no replacement is required as in the case of cassava stem cuttings if no sprouting is observed. Although it is yet to be determined if SAH plants

TAAT Cassava Compact is actively promoting partnerships with farmers' associations, cassava projects, NGOs, companies, donors and governments to transfer this technology

produce higher yield compared to disease-free cuttings, the SAH plants are more robust and healthier in the field compared to traditional cassava stem cuttings and the possibility of disease contamination is reduced if good agricultural practices are followed. However, SAH plants could offer higher farm outputs in disease affected locations.

KilimOrgano can now supply cassava plants in millions in a shorter time and at a price less than seven times to that initially offered using tissue culture method, thus more farmers are able to afford high-quality plants.

The laboratory has the capacity to produce 7 million plants per annum and provides 14 different varieties of cassava to farmers together with field technical support to ensure a profitable and sustainable harvest.

With the production of SAH plants, cross-border transfer of large volume of planting materials has become easier. At a requirement of 3 million plants of cassava to be produced via SAH, the company offers each plant at USD 0.12 ex-laboratory. Prices will go down if more volume of plants are ordered by farmers' associations, cassava projects, NGOs, companies, or governments.

With large orders, the plants will be delivered in batches starting 12 weeks from first production and with additional costs for shipment and handling to reach the country or agro-zone of field production.

In collaboration with TAAT Cassava Compact and other local and international stakeholders involved in the cassava supply chain development in Tanzania, KilimOrgano is actively conducting workshops to educate farmers on the advantages of SAH technology.

TAAT Cassava Compact is actively promoting partnerships with farmers' associations, cassava projects, NGOs, companies, donors and governments to transfer this technology more widely in order to develop the cassava seed sector across Africa.



TAAT Showcases Commitment to Scaling Technologies for Digital Growth in Africa



TAAT @ AGRF2019

Technologies for African Agricultural Transformation (TAAT) has restated its commitment to scaling proven technologies capable of driving digital growth in African agriculture.

Dr Chrys Akem, Programme Coordinator of the TAAT Programme made this known at the ongoing 2019 African Green Revolution Forum (AGRF) holding at Accra International Conference Center (AICC), Accra, Ghana.

The Forum, which brings together more than 2,500 delegates and high-level dignitaries, including current and former Heads of State and Government; Agriculture and Finance Ministers; eminent leaders of global and regional development institutions; is considering the theme “Grow Digital: Leveraging Digital Transformation to Drive Sustainable Food Systems in Africa.”

According to Dr Akem, given unprecedented growth and adoption of digital technologies across the continent, Africa has an opportunity to leapfrog the agricultural transformation

trajectory of the past and revolutionize life by overcoming isolation, speeding up change and creating jobs of the future.

“But all these cannot happen if we don’t take digital solutions to scale in African agriculture and that is where TAAT comes in,” Dr Akem said.

Funded by the African Development Bank (AfDB), TAAT’s main objective is to improve the business of agriculture across Africa by raising agricultural productivity, mitigating risks and promoting diversification and processing in 18 agricultural value chains within eight Priority Intervention Areas (PIA).

The programme increases agricultural productivity through the deployment of proven and high-performance agricultural technologies at scale along selected value chains including rice, aquaculture, maize, cassava, wheat, and livestock. Others are sorghum and millet, orange-fleshed sweet potato and high iron beans.

This year’s forum, according to Dr

Akem, is paying particular attention to issues relating to TAAT’s mandate especially with regards to leveraging digital tools comprising of precision agriculture, sensor technology, digital financial services, data-driven agriculture, and ICT-enabled extension services to transform agriculture.

“TAAT is therefore using its exhibition booth at the forum to showcase how it is deploying proven, digital technologies to transform African agriculture. Some of the success stories on display include decision support tools for farmers, cassava business connector, RiceAdvice, the free Android-based decision-support tool for providing farmers with guideline on field-specific crop management practices for rice to improve rice productivity and increase profitability amidst others.

“There is no green revolution in Africa, yet so many technologies exist,” said Jennifer Blanke, Vice President, Agriculture, Human and Social Development at the African Development.”

“With these technologies, Africa should be able to leapfrog, but this can only happen if projects are scaled up,” she said

Dr Agnes Kalibata, President of African Green Revolution Alliance (AGRA) echoed similar sentiments while kick-starting a week of discussions.

“By using digitalization to leapfrog traditional development pathways, we can make the decade to 2030 the last mile of delivering Africa’s green revolution”.

The 2019 AGRF features digital technologies and platforms

transforming agriculture across the continent and globe. It seeks to identify and catalyse the enabling policies, programs, and investments needed to further leverage this digital transformation for sustainable African food systems

School Feeding programmes provide an entry point for HIB business ecosystem in Tanzania



Demonstration site at a primary school in Nyaga District, District, Kagera Region, Tanzania

A large proportion of school children suffer from malnutrition, adversely affecting their physical growth and cognitive ability to learn.

Many school-age children in food insecure areas remain out of school for extended periods of time, further negatively impacting their success at education.

The school feeding programmes (SFP) is a targeted safety net tool that

provides health and educational benefits to vulnerable children. Having food every day at school does not only mean better nutrition and health but also increased access to and achievement in education.

It is a strong incentive for children to attend school.

Through the Technologies for African Agricultural (TAAT), the High iron

Beans (HIB) Compact, led by the International Centre for Tropical Agriculture (CIAT), has used the school feeding programmes as an entry point for introducing technologies that enhance nutrition and incomes of farming communities around schools in Tanzania.

137 schools in the regions of Kagera (25), Iringa (10), Njombe (5), Mbeya

(5), Songwe (10), Manyara (12), Kilimanjaro (14), Arusha (10), Karatu (7), and Musoma (40) were provided with quality seed of JESCA, Selian 14 and Selian 15 varieties of HIB.

Of the 137 schools, 113 received 10kg of seed each and 24 received 20kg of seed each.

The three varieties are high-yielding and rich in iron and zinc. The schools were then guided to set up demonstration plots at their farms,

where children studying agriculture gained practical lessons on good agricultural practices (GAPs), which they can apply at home to enhance productivity.

The demonstrations were set up in close collaboration with local governments authorities (agricultural extension and education departments) and Project Concern International (PCI).

At the end of the season, field days were organized where a wide range of actors are invited – teachers, parents/ farming communities, input suppliers (seed companies, agro dealers), grain offtakers, local government authorities among others.

There have been high levels of participation in the field days because the schools are used as

venues for various local events. This, in turn, has sparked greater interest among governments who are looking for entry points for improving nutrition and enrollment in schools, and adoption of technologies that will enhance farmers' incomes.

The school feeding programmes have created ripples in the wider business ecosystem by catalyzing private sector investments in provision of inputs and in marketing of good quality grain. The approach has received strong support from policy makers from the national to the local government.



Dr. Magdalena William (TARI-Maruku) creating awareness on nutritional value of HIBs

TAAT Convenes Cassava Investment Forum in Nigeria

A new initiative by the African Development Bank (AfDB) is unleashing the potential and power of cassava across the African Continent, creating wealth and improving the livelihoods of farmers, and taking cassava to a new frontier.



A view of the hightable at the investment forum in Abuja (PHOTO: TAAT/Atayi OPALUWAH)

The initiative—known as Technologies for African Agriculture Transformation (TAAT), is part of the Bank's Feed Africa strategy that is harnessing elite scientific research/technologies and disseminating at scale to African farmers.

A staple to about 350 million people in sub Saharan Africa, cassava had been declared in 2003 by African Heads of State as a poverty fighter. However, the crop is yet to prove its mettle as millions of growers in sub Saharan Africa who depend on the crop for their livelihoods are still below the poverty line.

Some of the reasons behind the poor performance of cassava and indeed several other crops is poor productivity, low value addition,

inability of farmers to access improved varieties and market.

Consequently, Africa's cassava productivity per ha is less than 10 tons per ha compared to Asia where productivity is more than 20 tons per ha.

To address these shortcomings in Nigeria, the Cassava Compact, led by the International Institute of Tropical Agriculture (IITA) with presence in 18 African countries, has established demonstration farms across three agro-ecologies—guinea savannah, derived savannah, humid forest based on technology toolkits that combine improved varieties, correct tillage, optimum plant density, fertilization and integrated weed control measures that guarantee farmers more than 20 tons per ha

harvest.

The agro-ecologies where the demos are being implemented in Nigeria cover north-central, south east and south western Nigeria with more than 200 extension agents trained on Good Agricultural Practices (GAPS) in 2018.

With extension agent- farmer ratio of 1: 3000, the 200 extension agents will reach at least 600,000 farmers with knowledge and information on cassava GAPS.

In addition to these, the TAAT Cassava compact has established several platforms and partnerships with leading institutions and groups with a view to upscaling proven cassava technologies across Nigeria. One of these is the Federal

University of Agriculture Abeokuta (FUNAAB) which collaborated with AfDB and IITA to hold Nigeria's first cassava investment forum.

According to Prof Lateef Sanni, Deputy Vice Chancellor, Federal University of Agriculture, Abeokuta (FUNAAB), the forum analysed key elements of a successful cassava investment; what it takes to make investments easy and successful for the intending entrepreneurs and the youth; and to strengthen Business-to-Business linkages among the cassava value chain actors in Nigeria.

Dr. Adebayo Abass, who coordinates the TAAT Cassava Compact averred that the AfDB through the compact is already addressing the limiting factors to cassava transformation using a holistic and multi-stakeholder approach that brings on

board researchers, extension service providers, development practitioners, input dealers, information service providers, processors and farmers etc across the cassava value chain.

“Increased productivity would increase average farm-level outputs and incomes. Private sector owners of moribund cassava processing factories have been engaged to receive technical expertise from TAAT Cassava Compact in order to resuscitate their operations and engage smallholder farmers on out-grower schemes,” Dr Abass said.

“The dissemination of nutrient-dense cassava varieties to TAAT Cassava Compact countries would increase the nutritional status of the consumers of cassava products. Production of HQCF to substitute

expensively imported wheat flour in bakeries would increase market access for cassava farmers, reduce foreign exchange expenditure on foods, boost the local economy, increase national GDP and that is why we organised the cassava investment forum,” he added.

The forum, which held from 18 – 19 July in Abuja, Nigeria brought together key actors in the cassava value chain including the Federal Ministry of Agriculture, Central Bank of Nigeria, and the organised private sector. Others include major buyers of cassava (fresh, chips, flour, starch), major processors of cassava (fresh, chips, flour, starch), Cassava Users, Off-Takers and Suppliers and Ministry of Agriculture (FGN-FMARD-CTAP fund beneficiaries (Farmers, Processors, Bakers, Etc.).



TAAT Cassava Compact Leader Dr Abass presenting the Mobile Cassava Processing Unit to participants at the forum

TAAT eyes \$2.8bn additional food production for Africa



Dr Jonas Chianu & Dr Chrys Akem

(Burkina Faso, Cote d'Ivoire, Mali, Nigeria, Senegal)," Chianu added.

Also speaking at the same session during the 2019 AAAE conference, Dr. Chrysantus Akem, the Programme Coordinator of Technologies for African Agricultural Transformation (TAAT) added that Nigeria can invest in the growth of wheat to cut down on the cost of importation.

He said that the huge amount of money being lost to the importation of wheat on an annual basis could be used to grow the crop locally, thereby generating income for the country.

He said that wheat could be grown in Africa, particularly Nigeria, contrary to beliefs that it was a Mediterranean crop. According to him, researches have proven that certain tropic tolerant varieties can grow in Africa.

He said TAAT had begun experimenting those varieties in some select states in the country. "Wheat is one of the 18 commodities targeted by the TAAT programme to ensure improved quality and high productivity of farm produce" he added.

Akem said that about 500,000 hectares of wheat had been grown in Nigeria with the support of the African Development Bank within the last three years.

"We screened a lot of varieties and identified a particular variety not yielding the typical two metric tonnes per hectare but yielding four to eight metric tonnes.

Dr Akem said a number of Northern states like Kano, Jigawa, and Gombe have been targeted for the growing of wheat. He said that the target states could produce wheat year-round under tropical rainfall and through irrigation. He commended the Government of Nigeria for its support to the programme and called for more collaboration from the private sector.

Technologies for African Agricultural Transformation (TAAT) is targeting to add 120 million metric tons to Africa's food production, valued between \$1.5 billion to \$2.8 billion.

The TAAT Coordinator at the African Development Bank (AfDB), Dr. Jonas Chianu disclosed this during a presentation at the 6th African Association of Agricultural Economists (AAAE) Conference held in Abuja.

TAAT is a program initiated by the bank as part of its Feed Africa Initiative.

The main objective of the program is to improve the business of agriculture across Africa by raising agricultural productivity, mitigating risks and promoting diversification and processing in 18 agricultural value chains within eight Priority Intervention Areas (PIA).

Chianu said TAAT was seeking to increase agricultural productivity across Africa by deploying proven agricultural technologies to farmers and establishing partnerships that bring together all the key players in a unique delivery system to make regional approach happen.

He, however, listed the expected outcome of the programme to include "raising productivity and increase food production over the next 8-10

years.

Listing some of the achievements of the programme so far, Chianu said "several commodity value chain stakeholders have been e-registered (Rice, Wheat, Maize, HIB, etc.). Numerous improved and climate-smart crop varieties have been deployed (Maize, Wheat, Rice, HIB, Cassava, etc.).

"Challenges of access/permit for water bodies/dams/reservoir usage for aquaculture production have been identified and are being tackled, active involvement in the formulation of numerous country programmes in Cassava, High Iron Beans, Maize, Rice, Aquaculture, and Small Livestock is ongoing."

With respect to wheat, the quantity of heat-tolerant varieties deployed as basic, certified and quality-declared seeds under TAAT programme activities are 30,500 MT for Sudan, 25,438 MT for Ethiopia, 7,600 MT for Nigeria.

Others include 1,060 MT for Zimbabwe, 642 MT for Tanzania, 450 MT for Kenya, 72 MT for Eritrea, 70 MT for Niger, and 9 MT for Mauritania.

"Across varieties, 4.2 tons of breeder seed of climate-smart rice, expected to be planted in 120 hectares of land were supplied to SMEs in 5 countries



TAAT's footprint in Africa

143 interventions, 259 technology toolkits deployed in 732 sites across 31 countries



With 143 interventions in 27 countries in its first year, TAAT has embarked on a continent-wide effort to modernise agriculture and promote agribusiness by scaling up proven agricultural technologies to increase crop and livestock productivity; ensure food self-sufficiency; create jobs and wealth; and make Africa a net food exporter!

In partnership with:



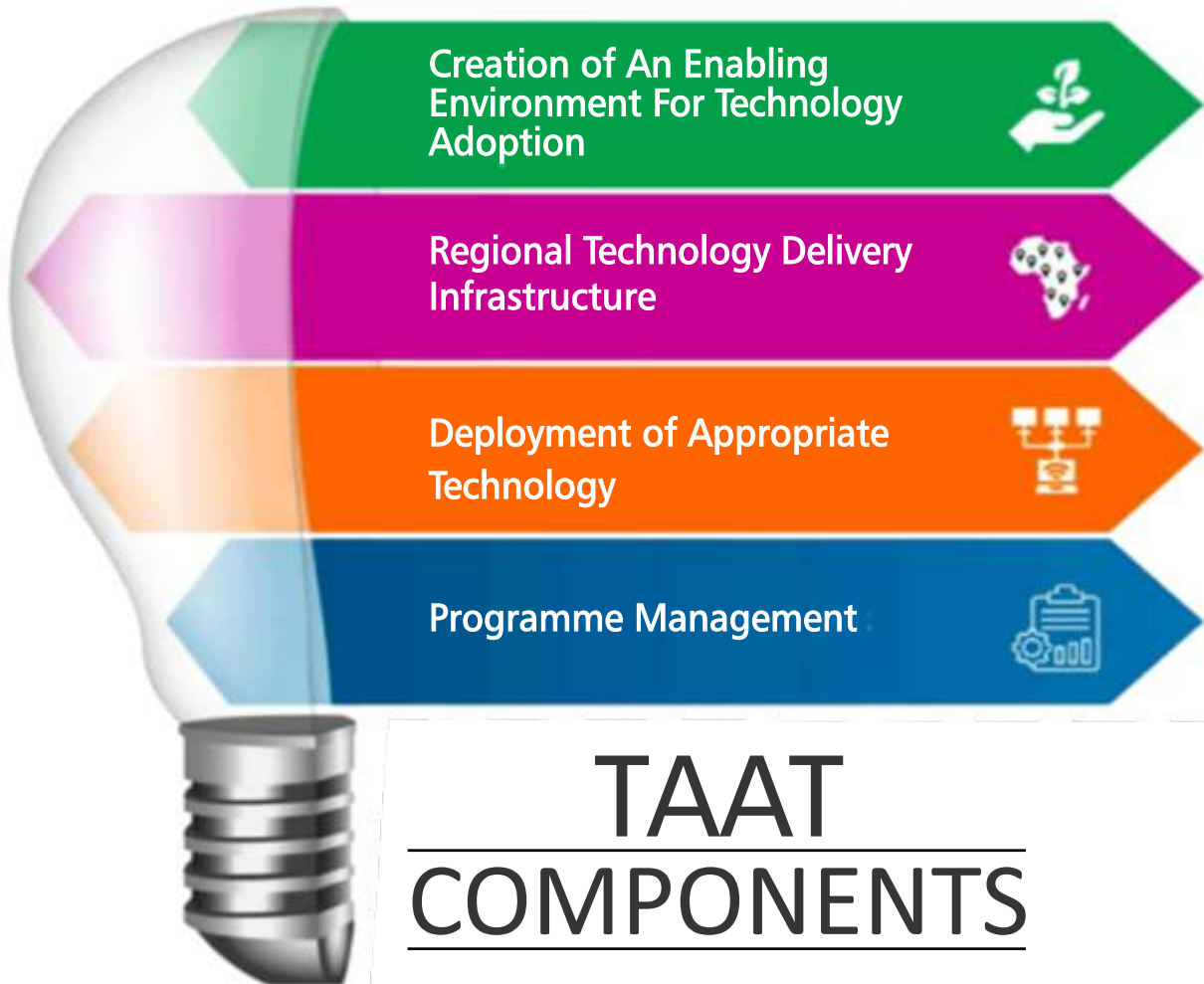
Table 1:
Number of farmers targeted by Commodity Technology Delivery Compacts.

Commodity	Compact	Compact Lead Institution(s)	Target Beneficiaries farmers
Maize		AATF	4,300,000
Rice		AfricaRice	2,260,000
Wheat		ICARDA	850,000
Sorghum / Millet		ICRISAT	2,350,000
Beans		CIAT	1,220,000
Cassava		IITA	3,380,000
OFSP		CIP	1,250,000
Small livestock		ILRI	1,650,000
Aquaculture		WorldFish	1,150,000

Enablers	Lead Institution(s)	Target Beneficiaries
Policy Support	AATF/IITA/MMI	40,000,000
Capacity Development	FARA	2,500,000
Soil Fertility Management	IFDC	24,000
Water Management	IWMI	650,000
ENABLE-TAAT (Youth in Agribusiness)	IYA-IITA	850,000
Fall Army Worm Control	IITA	15,000,000

Table 2:
Additional food production targeted to be reached by 2025.

Commodity	2016 Average African productivity (Baseline) (metric tons/ha)	2016 Average productivity of lead producers (metric tons/ha)	2025 Average African productivity (metric tons/ha)	Additional food production (metric tons/ha)
Maize	2	5	4	30 million
Lowland Rice	2	5.5	4	15 million
Wheat	1.5	3.5	3	25 million
Sorghum	1	2.5	2	10 million
Millet	1	2	2	5 million
Cassava	12	24	20	20 million
Small livestock (12 month live weight)	25 kg	60 kg	50 kg	10 million
Fish (12 month live weight)	3 kg	8 kg	5 kg	5 million



For more information, please contact:

TAAT Programme Management Unit, IITA HQ, Ibadan – Nigeria

TAAT Clearinghouse, IITA Benin, Cotonou – Benin

TAAT-Africa@cgiar.org +229 60855188

PARTNERS:

