

TAATnews

A quarterly publication of Technologies for African Agricultural Transformation (TAAT)



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Wheat Farmers in Sudan record increased yields after adoption of proven technologies



Sudanese farmers celebrating the success of new heat resistant wheat varieties.

Sudanese wheat farmers are in a joyous mood. They are celebrating the success of new heat-resistant wheat varieties which have transformed their country's food landscape. Thanks to the scaling up of proven technologies by the Wheat Compact of Technologies for African Agriculture Transformation (TAAT), the farmers can now boast of new cultivars such as Imam, Zakia and Bohain. *Continued on page 3*

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Fish drying Technology transforms Zambian community

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Wheat farmers in Nigeria embrace smart irrigation practices

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Fortenza™ Duo shows it has more to offer Farmers than reduced FAW Leaf Feeding

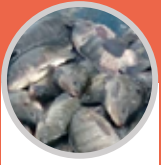
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TAAT Value Chain Compacts

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 Compact

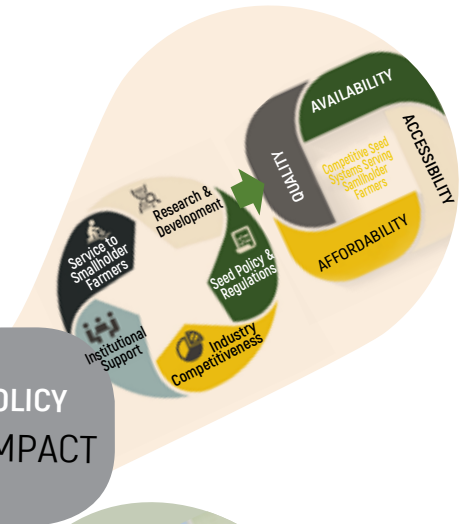
The six Enabler Compacts provides support services for soil fertility management, water management, capacity building and development, advocating supportive seed technology policy, mobilising youth into agribusiness and organising a response to fall army worm invasion.



Capacity Development COMPACT



Fall Army Worm Emergency Response COMPACT



POLICY COMPACT



Soil Fertility Management COMPACT



Water Management COMPACT



Enable TAAT COMPACT

Wheat Farmers in Sudan record increased yields after adoption of proven technologies

These cultivars are facilitated by wheat technologies which include newly-released heat, drought and disease resistant varieties; engineered irrigation; raised bed culture; management of stem rust; mechanized planting and harvesting; and compact milling systems.

Through this deployment, Sudan's wheat-growing areas saw a rise in production to around 303,000 ha, up from 230,000 ha in 2017.

According to the Sudanese Minister of Agriculture and Forestry, Nahar

Osman Nahar, the high productivity and wheat area expansion witnessed during this season has led to a record high production expectation of around 0.85 million tons of wheat, covering up to 45% of the national demand.

Wheat in Sudan

Wheat is one of the most important agricultural commodities in Sudan for food security in terms of quantity and calories consumed.

It is grown on approximately 201,000 ha under irrigation with an average

productivity of 2.5 t/ha. The annual wheat production stands at 513,000 MT, representing about 22 % of the total national requirement of 2 million MT.

The ever-widening gap between local production and consumption led to a huge shortfall that is primarily met by imports, which drains the Sudanese economy of over 500 million dollars per year in foreign exchange.

In 2018, Farmers and other players in Sudanese agricultural sector were hit by a severe bread shortage and sharp price increases last year.

The citizens blamed the bread shortage on a lack of foreign currency, which deepened a crisis that was triggered after the government halted wheat import subsidies.

Also, extreme heat has in recent years affected wheat yields.

Technologies to the rescue

To tackle the wheat crisis, Sudan's National Agricultural Research System, in collaboration with international Centre for Agricultural Research in Dry Areas (ICARDA) and International Maize and Wheat Improvement Centre (CIMMYT) developed and released a number of high yielding heat tolerant wheat varieties ((Imam, Goumria, Zakia, Elnielain and Bohaine...)) with production potential of 5-8 t/ha.

Recent experiences to promote these heat tolerant wheat varieties in Sudan through the AfDB-funded SARD-SC (wheat) project revealed that technology-adopting-wheat farmers at project intervention sites increased their wheat productivity to 4-7 t/ha, while farmers with their traditional varieties rarely exceed 2.5 t/ha.

Despite this potential, Dr Solomon Assefa, the TAAT wheat compact leader said the lack of improved



ARCs Dr. Alswia Osman Hassan identifies with the Imam cultivar in El Gezira region.

wheat seed in sufficient quantity and quality at affordable price was widely regarded as a driving factor significantly contributing to the poor adoption and weak performance of wheat in Sudan.

These and many more prompted the scaling up of heat-tolerant wheat technologies farmers in Sudan.

"The technologies comprised many new wheat varieties with heat and drought tolerance, and stem rust resistance. These traits allow for expansion of wheat production in Africa, including the Sahel during its cooler "winters", Dr Assefa said.

"It is fast-tracking this next generation variety release through national programs. It offers expertise in land preparation including raised beds, furrow and deficit irrigation, and sprinkler systems. It promotes low-cost mechanized planting within conservation agriculture," he added.

From technologies to high yields

Following reports that the TAAT's wheat programme was already yielding significant results in the El-Gezira region of Sudan, the government in collaboration with TAAT, organised a

travelling workshop from the 25 to 29 March 2019.

The workshops featured visits to women groups who received training on wheat value chain during the SARD-SC programme and are now earning a living through the several income yielding opportunities that wheat provides; to farmers harvesting wheat planted and watered in line with proven technologies.

The workshops also had in attendance, a broad range of stakeholders in the wheat sector including policy makers, private sector, credit institutions, input providers, processors, civil society, youth and women's associations and thousands of farmers showed up to witness the Sudanese success story.

During the field day, seed production farms were visited, along with farmers' fields involved in scaling-up activities. Youth and women's groups were trained in wheat production, value addition and farm machinery maintenance services at the Basatna, Wad Elbur and Mukashfi innovation platform (IP) sites.

IP sites are selected by the TAAT wheat team for scaling up and widely promoting the impact of proven wheat technologies

to farmers and stakeholders along the value chain.

At the event, Abdelaziz Mahmood and Idriss Al-Hassan, both technology-adopting farmers expressed their happiness with the impressive performance of heat tolerant wheat varieties.

"We are expecting to realize yields of 4-6 t/ha this season, as compared to 2t/ha we are used to before joining the TAAT programme," Al-Hassan said.

At Wadelneim village, a group of innovative farmers who adopted the heat tolerant varieties (Zakia and Imam) shared their views with field day participants that they are expecting to achieve yields of 6-7 t/ha from their farms. They further indicated that the hands-on training at farmers field school and proper application of the recommended packages were the key to their success.

A cross section of the farmers adorning their TAAT vests watching the new heat-resistant wheat varieties being harvested (Photo: TAAT)

Between 2012 and 2016, Sudan only produced 24% of the country's national wheat demand, leaving it



Sudanese women displaying skills learnt after wheat value addition training.

heavily reliant on imports of over 1.5 million tons of wheat each year.

Heat stress in sub-Saharan Africa is a major constraint to wheat production. In places like Sudan temperatures often exceed 38°C. Climate change is expected to worsen the situation.

In response to the food crunch, the African Development Bank decided to intervene to boost one of the most vital food sources in Sudan.

TAAT as a delivery vehicle

Technologies for African Agricultural Transformation (TAAT) therefore became a vehicle of delivery for the bank.

Within the framework of the TAAT programme, the wheat compact established close collaboration with all concerned partners along the wheat value chain in Sudan to scale up proven wheat technologies with the objective of achieving a widespread and transformative impact.

In concrete terms, the compact went to work on enhancing productivity, farmers' income, job creation, and

value addition; all leading towards attaining wheat self-sufficiency before or by 2025.

During the 2018-19 season, a number of activities were implemented as the compact established 6 Innovation Platform (IP) sites, including the production and delivery of high quality seeds, scaling up and adoption of proven wheat technologies and capacity strengthening of different stakeholders along the wheat value chain.

Funded by the bank, 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.

TAAT operates as a network of interacting "Compacts" with nine devoted to specific commodity

value chains, and six others serving as "Enablers" that provide needed specialist services.

The nine 9 value chain compacts are for rice, maize, cassava, sorghum and millet, orange-flesh sweet potato, high-iron beans, Livestock, aquaculture and wheat which is already achieving set targets in Sudan.

The six 6 enabler compacts are soil fertility management, water management, capacity building, seed policy, fall army worm control and ENABLE TAAT compacts.

According to Hon. Nahar, the Sudanese Agric minister, the growing partnership between the private and public sectors engaged in seed production and other technologies could result in a record amount of certified seed, enough to cultivate around 420,000 hectares of wheat next season.

<https://taat-africa.org/wheat-farmers-in-sudan-record-increased-yields-after-adoption-of-proven-technologies/>



Sudanese farmers adorning their TAAT vests while watching new heat-resistant wheat harvest.

TAAT Compacts hold 2019 Joint Inception Planning Meeting for Benin Republic

The 2019 TAAT National inception planning meeting began today in Cotonou, Benin Republic.

The joint meeting which brings together experts, leaders and representatives of the Maize, Cassava, Aquaculture, Rice and Soil Fertility Compacts is holding at the IITA-Benin conference hall from the 14th to the 16th of January 2019.

According to Dr. Francois Lompo, lead convener and Coordinator of the TAAT Soil Fertility Compact, the joint meeting brings together stakeholders and experts in maize, cassava, aquaculture, rice and soil fertility to plan and agree on the modalities for implementation of TAAT activities in Benin for 2019.

"The need for this meeting is further reinforced by the need for key stakeholders with contributions in the implementation of TAAT activities in Benin to have a common understanding of the expectations of the intervening

compacts and the TAAT programme as a whole," Dr Lompo added.

Dr. Vincent Joseph Mama who represented the Beninese Minister for Agriculture, Livestock and Fishery, Hon. Gaston Cossi Dossouhoui hailed TAAT as a complete programme that perfectly fits into the right line of actions planned by the Government of Benin.

"For this purpose, It will involve planning and actions from all actors including the government to ensure that Benin achieves the national and regional targets of TAAT." Dr Mama added.

Head of TAAT Clearinghouse, Dr. Mpoko Bokanga in his presentation called for extensive support for the TAAT programme as the transformation of African agriculture lies in the technology pathway outlined by TAAT .

Technologies for African Agricultural Transformation (TAAT) is a program initiated by the African Development Bank (AfDB) 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).

The program is implemented by IITA in close partnership with other CGIAR Centres and specialized technical centres (e.g. AATF, IFDC, FARA), national agricultural research and extension systems and private sector partners.

The TAAT programme increases agricultural productivity through the deployment of proven and high-performance agricultural technologies at scale along selected value chains. TAAT operates as a network of interacting "Compacts" with nine devoted to specific commodity value chains, and six others serving as "Enablers" that provide needed specialist services.

The nine **9** value chain compacts are rice, maize, cassava, wheat, sorghum and millet, orange-flesh sweet potato, high-iron beans, Livestock, aquaculture compacts. The six **6** enabler compacts are soil fertility management, water management, capacity building, seed policy, fall army worm control and ENABLE TAAT compacts.

<https://taat-africa.org/taat-compacts-hold-2019-joint-inception-planning-meeting-for-benin/>



A group photo of the participants.

Integrate TAAT Into National Agriculture Programmes – Experts

Experts at a Technologies for African Agricultural Transformation (TAAT) meeting have called for its integration into national agricultural development projects in order to reach millions of farmers across Africa.



(L-R) Mr Andrianarisata, Hon. Dossouhoui, Dr Dashiell and Dr Mude at the meeting.

The call was made in Cotonou, Benin Republic after a two-day high-level meeting which reviewed the programme's activities in 2018 and strategised for the 2019 year.

Declaring the meeting open, Benin Republic Minister for Agriculture who also doubles as the Chair of the TAAT Programme Steering Committee, Hon. Gaston Cossi Dossouhoui, said that TAAT was one of AfDB's flagship programmes for the implementation of its 'Feed Africa' strategy.

"We are pleased to learn that as part of this strategy, the AfDB intends to invest \$24 billion in agriculture in its regional member countries over the next 10 years to transform agriculture from a subsistence sector into an economic development engine," he said.

According to Hon Dossouhoui, Africa needs to adopt high-performance technologies to boost productivity and increase food production and that is where the TAAT programme comes. However, the Agriculture Minister remarked that TAAT alone cannot meet

the challenge of ensuring that proven technologies get into the hands of millions of small African producers.

To achieve this, Dossouhoui continued, "TAAT activities must be integrated into national agricultural development projects that can reach millions of farmers across Africa and it in this light that I invite other development partners like the World Bank, International Fund for Agriculture (IFAD), the European Union, bilateral partners and charities to support the activities of the TAAT programme."

Mr John Andrianarisata, African Development Bank (AfDB) Country Manager for Benin Republic, said that the transformation of African agriculture had become a necessity.

"In 2015, Africa imported \$ 35 billion worth of food that Africa itself could produce. If we do not change our ways, in 2030 our food import bill will triple to \$110 billion.

"Remember that this money is paid without credit and will create jobs and enrich producers in countries where we import

while our producers remain in poverty and our youth are unemployed. This paradigm must change," he added.

In a similar vein, Dr Andrew Mude, Lead, Scaling Technology and Market Access for Smallholder Farmers at the African Development Bank (AfDB) also called for a new approach to agriculture in Africa, adding that until technologies get to the hands of smallholder farmers, african agriculture cannot be said to be transformed.

Also speaking at the end of the three-day review meeting, Dr Ken Dashiell, Deputy Director General, International Institute for Tropical Agriculture (IITA), called for an innovative combination of technical expertise, finance and political will to transform African agriculture.

According to the IITA DDG, the transformation of agriculture will not be possible without the help of adapted technologies.

"To achieve our objectives, we must be able to wisely combine political will, favorable economic and institutional environment, adequate infrastructure, better access to the market and preservation of Africa's natural resources," he said.

"We are all here for the past three days because we believe in this initiative and are convinced that the transformation of agriculture will not be possible without the help of adapted technologies," Dr Dashiell said.

The meeting which brought together ministerial level government representatives and experts from the government of Benin republic, African Development Bank (AfDB), International Institute of Tropical Agriculture (IITA) and the other implementing agencies of the TAAT program, and Coordinators of TAAT Compacts, held from the 5-7 of March 2019.

The main objective of the programme 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 is implemented by IITA in close partnership with other CGIAR Centers and specialized technical centers like AATF, IFDC, FARA, national agricultural research and extension systems and private sector partners.

<https://taat-africa.org/integrate-taat-into-national-agriculture-programmes-experts/>

TAAT Scales out Knowledge of HQCF for Bread and Pastries in Togo

African countries depend on imported foods to feed the population.

The government of Togo is determined to reduce such food imports and is working hard to transform its agriculture sector. To be successful, increasing more foods must be accompanied by increased processing capacity and knowledge to use the crop that is locally produced to substitute for imported food items.

The Togolese government, therefore, identified Technologies for African Agricultural Transformation (TAAT), an African Development Bank funded-programme, as an important partner to achieve its agricultural transformation objective.

Towards this end, Togolese Presidency, the Ministry of Agriculture and the TAAT Cassava Compact are collaborating with other local institutions to deliver innovative cassava production and processing technologies to smallholder farmers, processors, the youth and food manufacturers in the country.

An important technology and knowledge required by bread bakers and pastry chefs in Togo is the production of High-

Quality Cassava Flour (HQCF) and its use for bread baking and pastry production.

In order to scale out this knowledge, the TAAT Cassava Compact in collaboration with the Togolese Presidency and the Ministry of Agriculture conducted the training of trainers on the use of HQCF for bakery/confectionery products.

The training took place at Jerusalem Bread Bakery and Valk Vivi Pastry factory in Lome from 21-23 March 2019. The training centred on production of bread with 10% HQCF and 90% wheat flour on the first day.

The team of experts from Nigeria taught the trainees on the theory of HQCF production and some cassava flour recipes.

The production process for making 100% wheat bread and 10% cassava composite bread with wheat was demonstrated by the Cassava Compact experts.

Both batches of bread produced from 10% HQCF inclusion came out nice and was well appreciated by the participant,

and was of the same quality as 100% wheat bread in appearance, size, shape and taste.

"I have to show these products to my colleagues and friends in Togolese Institute for Agricultural Research (ITRA), thanks to TAAT cassava compact for this initiative," Aziato Kokou, ITRA Postharvest unit staff said.

Another participant and entrepreneur, Mrs Agbadji Mama, the CEO of Jerusalem Bakery Lomé, was full of thanks to TAAT cassava compact for the knowledge that was impacted. "I never knew HQCF could be used to bake different products," she added.

"This is really a plus to the cassava value chain in Togo, I am very happy to be part of the training on the use of HQCF for baked products". Mr Kpadenou Anani, Director at the Togolese Ministry of Agriculture said.

On the second day, the use of HQCF in confectionery products took centre stage. Cassava products made included 100% cassava chin-chin, cake (pan and cupcake) and biscuits, and meat pie, sausage roll and egg rolls made from 50% high-quality cassava flour mixed with 50% wheat flour.

The products were appreciated in terms of taste and appearance.

On the final day, the participants produced different confectionery products from cassava. The participants observed that substitution of 10% wheat flour with cassava produced extra eight (8) loaves of 550g bread more than 100% wheat flour, which is an additional profit for the bakers when cassava flour is used.

A total of sixteen persons (including nine women) participated in the training which comprised cassava processors, bread bakers, pastry producers, NGOs, and policymakers.

Institutions that participated at the 3-day training included ITRA, Higher School for Biological and Food Technology & Laboratory for Biological and Nutritional Analysis (ESTBA) Organisation



Some of the pastries produced using HQCF content at the training.

for Food and Local Development (OADEL), an NGO involved in food, nutrition and rural development advocacy), Programme for Food Security (ProSECAL), (a food security programme of the GIZ promoting food and nutritional improvements of grassroots communities based on the promotion of local diets), and the Togolese Chamber of Commerce.

The participants appreciated the TAAT Cassava Compact and Togolese Presidency for organizing the training and promised to transfer the knowledge to other bread bakers and pastry chefs across the country.

Led by International Institute of Tropical Agriculture (IITA), the TAAT Cassava Compact seeks to improve cassava yield

from 70 to 76 t/ha on nearly 70 million hectares, reduce production costs through mechanization and integrated crop management, and open globally competitive industrial and export opportunities.

<https://taat-africa.org/taat-scales-out-knowledge-of-hqcf-for-bread-and-pastries-in-togo/>

2019 International Women's Day: TAAT throws Spotlight on a Rice Processor Amazon in Africa

In celebration of the 2019 International Women's Day, TAAT Rice Compact has singled out for commendation, Mme Aichatou Camara, president of a 55-member women rice processors' association in Bouaké, Côte d'Ivoire.

A strong advocate for innovating for change, particularly in rice processing, Mme Camara, along with her association, is a trailblazer in seizing the benefits of new technologies, such as the new energy-efficient and gender-responsive parboiling system called GEM.

Rice parboiling is a process that involves partial boiling of rice in the husk before milling to protect the rice from breaking during milling, preserve nutrition and enhance quality.

The process is carried out mainly by rural women in Africa.

The demand for good quality parboiled rice is high in parts of Africa. But the traditional parboiling process is laborious, time-consuming and unsafe, producing rice with impurities, broken and burnt grains and undesirable smell. It also requires lots of firewood and water.

Recognizing the invaluable contribution of rural women to sustainable development, TAAT, through AfricaRice

has developed the GEM technology to reduce the drudgery of women rice processors, like Mme Camara, who are the backbone of food security for their families and communities.

The GEM is safer to operate and is equipped with hoists and rails to lift and move the heavy vessels in which the paddy is steamed with ease by women. It helps rural women produce cleaner and higher-quality rice that fetches higher price on the local market, enhancing their economic opportunities to build a better future.

GEM is more economical than traditional methods. It enables the women to process large quantities of paddy rice in a relatively short time. It also includes an eco-friendly stove that is fed by a solar-powered fan and runs on rice husk, which is a free and abundant fuel in rice-producing areas.

<https://taat-africa.org/2019-iwd-spotlight-on-a-rice-processor-amazon-in-africa/>



Mme Aichatou Camara and members of her women rice processors' association. Photo by AfricaRice.

TAAT, ACAI collaborate to deliver improved technologies to Cassava Farmers

The Technologies for African Agricultural Transformation (TAAT) and African Cassava Agronomy Initiative (ACAI) trained persons drawn from universities, research institutes, Oyo State Cassava Growers Association (OYSCGA), and other development partners on the use of the Six Steps to Cassava Weed Management toolkit.

The toolkit was developed by the Cassava Weed Management Project and has proven to help users to more than double the yield from the current African average of 9 tons per ha to more than 20 tons per ha.

The refresher training of trainers (ToT), which comes ahead of the 2019 cassava cropping season aims to equip partners with the necessary tools for successful delivery of technologies.

Addressing participants at the training, TAAT Cassava Compact Leader, Dr Adebayo Abass said the ToT would place the participants in a better position to deliver the technologies being outscaled by the TAAT-Cassava Compact program.

He noted that the Six Steps to Cassava Weed Management toolkit had been consolidated into a Cassava Technology Demo toolkit and is being disseminated across 15 African countries under the TAAT program.

While commending the work in Nigeria, Dr Abass reiterated that the aim of TAAT Cassava Compact was to scale out proven technologies across Africa with the view to achieving an African Green Revolution.

In his welcome remarks, ACAI Weed Scientist, Prof Friday Ekeleme said the training would contribute positively towards the implementation of demos this year.

He urged participants to adhere to the principles of the Six Steps to Cassava Weed Management toolkit for better results.

ACAI's Digital Extension & Advisory Services Specialist, Godwin Atser took participants through the theory and practice of the Six Steps to Cassava Weed Management.

He explained that the toolkit was a complete package that addresses all aspects of good agricultural practices

in cassava production, adding that farmers who used the toolkit had more than doubled cassava yield (>20 tons/ha) from the current national average of 9 tons per ha.

Topics covered during the training included: GAP: Harnessing Experiences/Results from Cassava Weed Management Project, Cassava Agronomy, Principles and Practices of the Six Steps to Cassava Weed Management toolkit, Calibration, and Safe Use and Application of Herbicides.

There was a video demonstration of the Six Steps to Cassava Weed Management toolkit. Participants were also introduced to the IITA Herbicides Calculator mobile App which allows farmers to know exactly the amount of herbicide to apply on any given field.

Participants at the training were drawn from the National Root Crops Research Institute (Umudike), University of Agriculture Makurdi, Federal University of Agriculture Abeokuta, Leventis Foundation, Psaltry, Oyo State Agricultural Development Program, Bestacor, Oyo State Cassava Growers Association, Justice Development and Peace Movement, Oyo; KOLPING in Abia, and Obafemi Awolowo University, Ile Ife.

Participants commended TAAT/ ACAI for conducting the training and promised to put the knowledge gained into practice.

<https://taat-africa.org/taat-acai-join-forces-to-deliver-improved-technologies-on-cassava-to-farmers/>



Dr Adebayo Abass TAAT Cassava Compact Leader at the training.

TAAT holds annual review meeting

Technologies for African Agricultural Transformation (TAAT) has convened a high-level partnership meeting to review its activities in 2018 and plan for the 2019 year.

The meeting which kicked off on the 5th of March 2019 at the Benin Marina Hotel, in Cotonou, Benin Republic, brings together ministerial level government representatives and experts from the government of Benin, African Development Bank (AfDB), International Institute of Tropical Agriculture (IITA) and the other implementing agencies of the TAAT program, and Coordinators of TAAT Compacts.

The meeting is expected to assess and review 2018 work plan viz successes, challenges, roles and activities; discuss 2019 work plan and implementation guideline; explore emerging pathways for scaling up adoption of TAAT technologies, based on the concepts of technology toolkit; and create a common understanding by all actors in the TAAT program regarding expectations to produce results that are measurable and in line with program goals and building commitment to the implementation of a robust program-wide Monitoring, Evaluation and Learning system.

Key speakers at the event include: Hon. Gaston Cossi Dossouhoui, Minister

for Agriculture, Livestock and Fishery, Republic of Benin; Dr. Ken Dashiell, Deputy Director General, IITA, Mr John Andrianarisata, AfDB Country Manager Dr. Jonas Chianu AfDB; Dr. Chrys Akem, TAAT Program Coordinator IITA.; Dr. Mpoko Bokanga, Head TAAT Clearinghouse among others.

The meeting ends on Thursday, March 7th.

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The program is implemented by IITA in close partnership with other CGIAR Centers and specialized technical centers (e.g. AATF, IFDC), FARA, national agricultural research and extension

systems and private sector partners. TAAT is not a research program; it is an initiative to promote and disseminate proven high-performance food production technologies to millions of farmers in a commercially sustainable way through a network of people and institutions forming a Regional Technology Delivery Infrastructure (RTDI) within an enabling environment.

It requires close partnership between the AfDB and other developmental partners such as the World Bank, IFAD, BMGF, AGRA, USAID, EU, DfID and others.

The TAAT program increases agricultural productivity through the deployment of proven and high-performance agricultural technologies at scale along selected value chains. TAAT operates as a network of interacting **"Compacts"** with nine devoted to specific commodity value chains, and six others serving as **"Enablers"** that provide needed specialist services.

The nine (9) value chain compacts are rice, maize, cassava, wheat, sorghum and millet, orange-flesh sweet potato, high-iron beans, Livestock, aquaculture compacts. The six (6) enabler compacts are soil fertility management, water management, capacity building, seed policy, fall army worm control and ENABLE TAAT compacts.

<https://taat-africa.org/taat-holds-annual-review-meeting/>



Participants at the TAAT annual review meeting.

Fish drying Technology transforms Zambian community

Mpeni farms was established in 2015. Situated in Ngwerere area of Lusaka the capital city of Zambia, the farm is which is owned by Mrs Joyce Tembo. The farm produces fresh tilapia and processed fish.

Since its establishment, the farm has been faced with a lot of challenges such as theft, predators and poor management practices.

Investment to enhance production and bringing the farm to standard was put in place such as installation of solar plant for water pumping and running of aerators, renovation of ponds, and currently constructing a cold room for fish storage to maintain the freshness of the fish.

To improve on the farm productivity, Mpeni farms realized a need to increase her skills on Better Management practices (BMPs) and the level of value addition for

increased profit and sustainability of the farm.

Technologies for African Agricultural Transformation (TAAT) through its Aquaculture Compact, identified Mpeni farm as a demonstration centre in Zambia and extended its training services to the farm.

The farm also received a facility upgrade with a solar tent fish drying technology.

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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.

Mpeni farms now serve as a central location for training of women and youth in fish value addition and product developed from fish.

These are fish fillets, sausages, mince fish, fish cakes and fish powder as an inclusion in baby food and pregnant women for the provision of essential amino acids.



Dried fish by Mpeni Farms.

This technology is now being disseminated to other women in the country as a source of livelihood to increase their income and consumption of fish products in the community.

According to Mrs Joyce Tembo “Value addition overcomes the problem of rapid fish spoilage and is more profitable than selling fresh fish”.

The technology has transformed the community in several ways.

Job creation

Employment opportunities have been created in the community leading to the mobilization of resources and providing opportunities for the impoverished in the society to escape poverty.

It has encouraged youths and women to come for contracts and training at Mpeni Farms leading to a more balanced resourceful community.

It has also provided a cheap source of protein for thousands of people.

A new-found business for women

Women in the community are now whole-sellers of fish, who sell to retailers and then the retailers sell to consumers.

Fish processing has now become a lucrative business in the community as women now order for fish on a large scale to resell to others.

Led by WorldFish, the Aquaculture Compact is one of the 9 agricultural value chains under the Africa Development Bank (AFDB) funded TAAT programme.

The compact aims to increase fish production and self-sufficiency through sustainable intensification of existing aquaculture enterprises.

The programme builds resilient small medium enterprise and large-scale aquaculture businesses throughout ten African countries, including the Democratic Republic of Congo, Ghana, Kenya, Nigeria and Zambia as focal countries, while Republic of Benin, Burundi, Cameroun, Cote d’Ivoire and Tanzania as satellite countries.

<https://taat-africa.org/fish-drying-technology-transforms-zambian-community/>



Fish sausages made at Mpeni Farms. Photo by Mpeni Farms.

Wheat farmers in Nigeria embrace smart irrigation practices

Wheat farmers in Kano, Nigeria, can now turn to water-saving irrigation practices for wheat production. This comes courtesy of modern pressurized water conveyance-distribution system that is introduced in combination with in-field furrow beds, check basins and narrow border strips.

The system saves water that was previously lost while conveying water in natural channels from tube wells to the cultivated fields. Improved in-field water distribution is essential to maximize crop yields.

Farmers in Alkamawah – translated as wheat people in Hausa – are

excited about the new technologies from the International Water Management Institute (IWMI) which leads the Water Enabler Compact of Technologies for African Agricultural Transformation (TAAT).

They noticed lower labour requirement, and lower pumping costs due to the reduction in water

losses. Moreover, they experienced more uniformed distribution of irrigation water in their fields resulting in higher yields.

Farmers expect that their investments will lead to higher profits.

Wheat is a major crop, processed into many food products in Nigeria.



A modern pressurized water conveyance distribution system in demonstration site in Alkamawah, Kano State, Nigeria.

This results in high demand that local production is not able to meet.

In 2018-19 for instance, Wheat imports to Nigeria rose by 4% from the previous year to 5.4 million tonnes. This is according to a December 2018 Global Agricultural Information Network report from the U.S. Department of Agriculture (USDA).

In 2016, the African Development Bank (AfDB) launched the Feed Africa Initiative to make Africa self-sufficient in food production. One of the flagship programmes of the initiative is Technologies for African Agricultural Transformation (TAAT).

TAAT aims at productivity and production increase through scaling of proven agricultural technologies. Within this programme, the Water Enabler Compact (WEC) targets widespread adoption of irrigation and water management technologies by small-scale farmers so that their

fields will be more water secure and production more profitable.

As part of the effort to improve wheat irrigation in Nigeria, about 4,000 wheat farmers will receive training on three major irrigation technologies namely; pressurized water lifting and conveyance in combination with optimized in-field water distribution at the end of this project.

Through the recent farmer field schools for example, hands on demonstrations on some of the technology were conducted in order to bring these technologies to scale.

Prof. Henry Igbadun, the national coordinator for TAAT-WEC in Nigeria, describes major benefits: "This technology enables a farmer to productively use water when he irrigates and at the same time spend less time in the field. The combination of technologies that were introduced will contribute to more vigorous crop development and increased yields, as

well as a reduction in the cost of production".

Wheat farmer, Mallam Abdullah, like most of his colleagues, is optimistic about the future. "Modern irrigation technologies are essential to make our farming practices more sustainable, profitable, and attractive for our children. This is a first step and we are looking forward to see more to come in the period ahead".

The TAAT-WEC project is expanding its activities in Nigeria in the coming year, focusing on rice and sorghum production systems.

It is also scaling modern irrigation technologies in Burkina Faso, Ethiopia, Mali, Malawi, Sudan and Tanzania to improve the productivity of wheat, rice, sorghum, orange-fleshed sweet potato and maize value chains.

<https://taat-africa.org/wheat-farmers-in-nigeria-embrace-smart-irrigation-practices/>



Prof. Henry Igbadun National Coordinator for TAAT-WEC in Nigeria training farmers at farmer field school (FFS).

AfDB Vice President hails Youth Engagement in Agribusiness

Jennifer Blanke the Vice President, Agriculture, Human and Social Development at the African Development Bank (AfDB) has hailed youth engagement in agribusiness as the future for employment opportunities across Africa.

Ms Blanke stated this on Tuesday, March 26 when she visited the Youth in Agribusiness (YIA) office at the headquarters of the International Institute of Tropical Agriculture in Ibadan, Nigeria.

Accompanied by AfDB's Director of Agriculture and Agro-Industry Dr Martin Fregene, Ms Blanke remarked that though many young people do not desire to practice agriculture like their parents and grandparents, they are now more excited about being

agripreneurs – the new generation of entrepreneurs changing the face of the agricultural sector.

She highlighted the fact that the sector, though huge enough to accommodate a larger percentage of the population, the real benefit according to her, is to find new opportunities and move up the value chain.

"This is a huge opportunity for Africa. If you look around the continent, may

be 60 or 70 percent of the population is already working in the sector but the real opportunity is to find new opportunities and move up the value chain. It is not necessarily about harvesting cassava but make exciting things with cassava" she said.

Ms Blanke also interacted with some of the young people who were trained under the ENABLE-TAAT program but have now become independent agribusiness owners.

IITA through its Youth in Agribusiness office is the lead implementing institution of the ENABLE-TAAT project, an Enabler compact under the Technologies for African Agriculture Transformation funded by the African Development Bank (AfDB).

<https://taat-africa.org/afdb-vice-president-hails-youth-engagement-in-agribusiness/>



Ms Jennifer Blanke interacting with some of the Agripreneurs. Photo by ENABLE TAAT.



AfDB Vice President Jennifer Blanke flanked on the right by the DG IITA Dr Nteranya Sanginga and on the left by Dr Martins Fregene. Photo by ENABLE TAAT.



Ms Blanke at the fish pond.

TAAT Partners with Ghanaian College on Scaling out OFSP Triple S Technology

In July 2018 Issahaq Suleman, International Potato Centre's (CIP) "Triple S" scaling champion in Ghana, paid a visit to Damongo Agricultural College in the West Gonja district of Northern Ghana, with the goal of advocating for practical training on farming improved varieties of orange-fleshed sweetpotato (OFSP).

He also wanted to introduce the college to the use of Triple S technology, to conserve roots and generate quality planting material after a long dry season such as was experienced in Northern Ghana.

Damongo Agricultural College is one of the five colleges in the country that train agricultural extension agents. It offers both certificate and diploma courses and currently boasts of 224 students who undergo training over a period of two years.

The Orange-Fleshed Sweet Potato (OFSP) Compact of Technologies for African Agricultural Transformation (TAAT) is partnering with the "Triple S" scaling project in Ghana. "Triple S" is funded by the RTB Scaling Fund while TAAT OFSP is an

African Development Bank (AfDB) programme.

Led by the International Potato Center (CIP), the compact partners with stakeholders in eight countries located in Central, East, Southern and West Africa. The compact is presently leading efforts at strengthening sector-wide human and institutional capacity to integrate OFSP into African Food Systems and Markets for increased incomes.

The TAAT OFSP compact aspires to transfer post-harvest management of OFSP and innovative technologies to increase the availability of seeds in all areas including the dry areas that have a prolonged dry season. This, according to Suleman, can be achieved if the technologies

are taught as a curriculum to the extension agents.

"The agricultural extension agents (AEA) are government agents who work with farmers to continuously train farmers on good agricultural practice and new technologies," he added.

During Suleman's visit to Damongo college, he explained the advantages of OFSP for food and nutrition security, and the availability of improved varieties recently released by the national research institution, Council for Scientific and Industrial Research – Crops Research Institute (CSIR – CRI) with the support of TAAT.

These improved varieties increase yields when coupled with better agronomic technologies.



Issahaq Suleman and Richard Dantey from Damongo Agricultural College inspecting seed beds planted using material germinated using the Triple S technology. Photo T Van Mourik CI.

The Triple S technology

One of the biggest hurdles in sweet potato production is getting planting material at the onset of rainfall in sufficient quantities. The Triple S is one of the technologies that is being rolled out by TAAT to meet this challenge.

It allows farmers to have quality planting material in sufficient quantities, in time for the planting season. Traditionally, roots are conserved by burying them in the field which exposes them to weevils, this in turn affects the quality of the planting material generated.

Damongo Agricultural College was receptive to the technology and with a go-ahead from the Ministry of Food and Agriculture (MoFA), an initial training was conducted.

126 students and 8 tutors were involved in the training that was delivered through printed material, instructional videos and hands-on demonstration of the innovation.

The students cultivated an acre of OFSP on the College premises after the training in August 2018.

By November, the roots were ready for harvesting and sorting for storage. TAAT OFSP Compact then organized training on how to harvest, select and store OFSP in the sand (in a pit or a basin).

Storage pit with a capacity to hold 500 kilos, Damongo Agricultural College (Photo Credit: I. Suleman)

Recently, participants at the annual Triple S review and planning meeting, held in Tamale from the 22nd – 24th of January 2019, visited the institution as part of a learning journey to engage with the students and tutors on their experience with the Triple S technology.

“The course was very interesting and will have a good impact, because we watched videos, clearly describing the technologies, followed by practical training. This was the first time we were shown a video, which helped us to quickly understand the innovation and apply it practically. We learned a lot about the nutritional benefits of OFSP and how one can

store roots up to 4 months by sorting out the damaged roots, arranging the good roots in a sandpit or basin and monitoring them on a monthly basis” said Yakubu Muzanin, a second-year student at the College.

Richard Dantey, a tutor at the College, told the visiting group that they have developed courses which address OFSP and the Triple-S innovation namely: roots and tubers crops, post-harvest and storage technology, farm-led nutrition, and practical cookery.

The students now have a full understanding of the technology and have identified income generating opportunities they can engage in such as producing vines for sale to farmers and roots for sale to processing plants. Interestingly, the male students are more inclined to the production of vines while the female students favor roots production.

Richard Annobil, Director of Human Resources and Capacity Building at MoFA, who was also one of the participants in the learning journey; has become an advocate for OFSP and Triple-S at the national level. He proposes adaptation and dissemination of course materials to the three other agricultural colleges, as well as five farming training institutes in Ghana. This will help in the sustainable integration of OFSP and Triple-S into the national education system.

He promised to support the International Potato Center (CIP) led TAAT OFSP project and Damongo Agricultural College participate in the national revision of curricula for agricultural training, an exercise scheduled for July 2019, so that they would make the case for incorporation of the Triple S technology to other stakeholders.

Getting OFSP and Triple-S into the national agricultural training curricula is key to encouraging self-scaling of this technology without additional financial support from projects. Another key factor for success is getting these innovations into the annual work plans of the regional and district levels development plans, so that budget is available for dissemination in the future.

“With such a strong partnership and clear benefits of OFSP and the Triple S innovation for food and nutrition security, as well as business opportunities in Ghana, the sky is the limit!” concluded Richard Annobil (MoFA).

<https://taat-africa.org/taat-partners-with-ghanaian-college-on-scaling-out-ofsp-triple-s-technology/>



Storage pit with a capacity to hold 500 kilos at Damongo Agricultural College. Photo by I. Suleman.

Fortenza™ Duo shows it has more to offer Farmers than reduced FAW Leaf Feeding

The 2018/19 summer season in Southern Africa was characterized by an El Niño-induced drought which led to the bulk of the maize crop being planted from end of December to mid-January 2019. While most early-planted maize crops established using Fortenza Duo-treated seed had low to moderate incidence of Fall Armyworm (FAW), some January-planted crops had higher-than-expected incidences of FAW.



FAW larvae feeding on rolled-up whorl leaves (left) and characteristic ragged leaves and window-paning caused by FAW larvae on maize (right).
Photo by P. Chinwada.

One such locations where this was witnessed was at International Institute of Tropical Agriculture (IITA-Zambia) where demos of Fortenza Duo-treated maize and non-treated maize had been planted on 11 January 2019.

To illustrate that it was an unusual pest, FAW infestations by medium to large-sized larvae were recorded at exactly one day after emergence across all demo plots. The source of this infestation was inferred to be a December-planted crop which was about 50 m away.

From 1 to 4 Weeks After Emergence (WAE), far from showcasing the benefits of a “treatment-in-the-bag” technology, the demos seemed to highlight the folly of creating so much hype on a seed treatment chemical insecticide to control a leaf-chewing insect.

Most systemic seed treatments are known to control sap-suckers rather than herbivores. Thus, assessments of FAW incidence of infestation and damage severity from 1 to 4 WAE seemed to indicate that Fortenza Duo was only slightly better than the untreated control and thus not worth the monetary investment.

However, a dramatic transformation occurred after conclusion of the 4 WAE assessment when follow-on sprays of Ampligo® (a.i. chlorantraniliprole+lamba cyhalothrin), DenimFit® (emamectin benzoate+lufenuron) or Neconeem® (neem) were applied in rotation across the demos (except for the untreated control plots) after every 2 weeks. To counter the dry conditions and debilitating heat, the plots were irrigated regularly.



Evident differences in FAW larval infestation on potted maize plants established from untreated (left) and Fortenza Duo-treated seed (right). Photo by P. Chinwada.

By end of March, plants in the Fortenza Duo plots had not only compensated for the FAW-holed leaves but also displayed a level of vigour which was different from other plots where FAW damage had been nipped in the bud from 1 WAE through application of Ampligo.

This vigour was also replicated in greenhouse-grown potted maize plants that had been established from Fortenza Duo-treated and untreated seed in March. These plants were artificially-infested using 5-8 newly-hatched FAW larvae.

Besides having very little or no FAW-induced "window-panes" at all, plants established from Fortenza Duo-treated seed were also healthier and appeared to have been established earlier than the "control" plants.

Most smallholder farmers who planted Fortenza Duo-treated seed in Zambia testified to the efficacy of the "treatment in the bag" against FAW and its added benefit of producing healthier plants.

Under conditions where rainfall is not limiting, higher yields are assured when Fortenza Duo-treated maize seed is planted.

One key lesson from the use of Fortenza Duo-treated seed are that the seed treatment chemical is an important technology within the FAW IPM toolkit.

However, in late-planted crops, interventions with follow-on technologies may be necessary as infestation can be initiated by ground-crawling older larvae which need to consume much higher concentrations of chemical — translating to greater leaf damage — before they succumb to the treatment.

<https://taat-africa.org/fortenzatm-duo-shows-it-has-more-to-offer-farmers-than-reduced-faw-leaf-feeding/>



Plots established from Fortenza-treated maize seed (right) and untreated seed (left) at IITA-Zambia. Photo by P. Chinwada.



Some of the participants to the IITA-Zambia Field Day (29 March 2019) at the FAW demo plots. Photo by Jonsen, IITA-Zambia.

New irrigation technologies intensify rice production in Mali and Burkina Faso

Rice Farmers in the lowland areas around Bobo Dioulasso in Burkina Faso and Sikasso in Mali can now extend the agricultural season to the dry season thanks to technologies brought by the Water Enabler Compact of the Technologies for African Agricultural Transformation (TAAT) program.



Rice farmers in Sikasso, Mali participate in the installation of tube wells. Photo by Kalifa Traoré.



A shallow tube well was installed with farmers and yields water in Bobo Dioulasso, Burkina Faso. Photo by Adebayo oke.

Rice farmers can now tap from shallow ground water aquifers using the tube wells and motor pumps brought by the compact.

Efficient conveyance systems of PVC pipes and valves are also demonstrated as a technology to increase profitability by reducing unnecessary water spills and associated expenditures for fuel.

The set of technologies has already yielded positive impacts in Nigeria, where it is being demonstrated for wheat production systems.

Farmers on both sides of the border are thrilled about the new technologies because of its prospects for income generation and reduction of labour.

Traditionally, some farmers irrigate vegetables and other crops by excavation wells by hand and lift water using buckets. Participating farmers plan to expand their irrigated land during the dry season with rice and other crops that are suitable in the lowland environment.

Like most of his colleagues, Ibrahim Issah, a rice farmer from Bobo Dioulasso is hopeful about the positive outcomes of the newly introduced tubewells. "There can be no farmer without water and without the introduction of modern irrigation technologies, farmers cannot properly harness available groundwater to expand production. We are very grateful to the new initiative"

In Burkina Faso, International Water Management Institute (IWMI) which leads the Water Enabler Compact of TAAT partners with the Institut de l'Environnement et Recherches Agricoles (INERA), and the compact activities are coordinated by Dr. Aïssata Delphine Nati to scale out irrigation and water management technologies for rice and sorghum.

Mali's partnership with TAAT-WEC is led by Dr. Kalifa Traoré from Institut d'Economie Rurale (IER). Both INERA and IER have a national mandate to promote irrigation development in their respective countries, and maintain strong links with water user and farmer associations, extension services and the private sector.

TAAT Water Enabler Compact engages the Rice Value Chain compact that is led by the Africa Rice Center to assure farmer further boost their productivity by using modern rice varieties and good agricultural practices.

Technologies for African Agricultural Transformation (TAAT) is a program initiated by the African Development Bank (AfDB) 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).

The program is implemented by CGIAR Centers, specialized technical centers, national agricultural research and extension systems, and private sector partners.

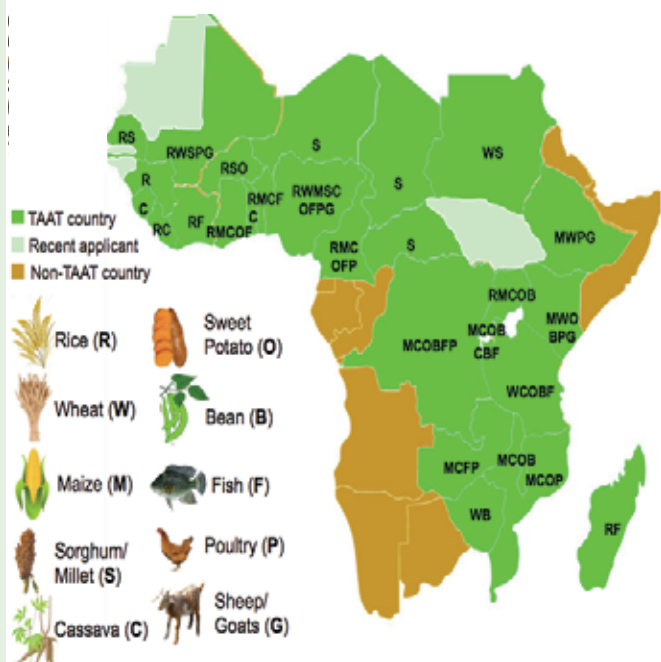
The TAAT program increases agricultural productivity through the deployment of proven and high-performance agricultural technologies at scale along selected value chains. TAAT operates as a network of interacting Compacts with nine devoted to specific commodity value chains, and six others serving as Enablers that provide needed specialist services like the water enabler compact led by IWMI.

<https://taat-africa.org/taats-new-irrigation-technologies-in-mali-and-burkina-faso-intensify-rice-production/>

TAAT'S footprints in Africa

143 technology interventions
in 27 countries

Gambia, Guinea Bissau, Mauritania and
South Sudan have recently applied to join TAAT



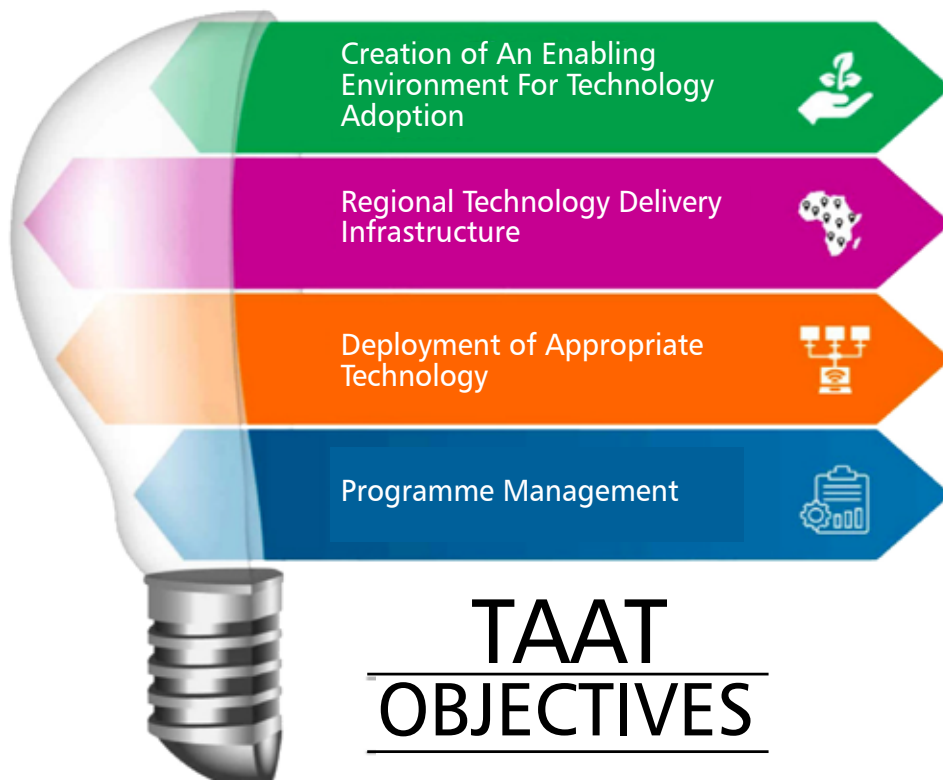
With 143 interventions in 27 countries in its first year, TAAT has embarked on a continent-wide effort to modernise agriculture and promote agribusiness by scaling up proven agricultural technologies to increase crop and livestock productivity; ensure food self-sufficiency; create jobs and wealth; and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

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
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



A programme of the African Development Bank

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