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# TAAT news

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

April – June 2019 Vol 2


# TAAT Builds Resilience for Maize Productivity through Scale out of Fortenza Duo Seed Treatment Technology

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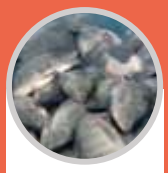
# TAAT Value Chain Compacts

**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.**

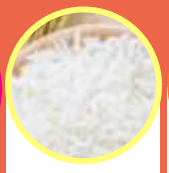
This Compact is led by the International Potato Center (CIP) with partnerships in eight countries located in Central, East, Southern and West Africa.



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.

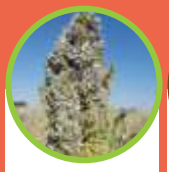
The Wheat Compact is led by the International Center for Agricultural Research in the Dry Areas (ICARDA) with activities in seven countries including the East African Highlands, Southern Africa Plateau and Sahel.



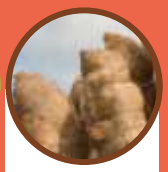
The Rice Compact is led by AfricaRice and has established partnerships in 16 countries, mostly in West Africa where massive importation of rice occurs.

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.



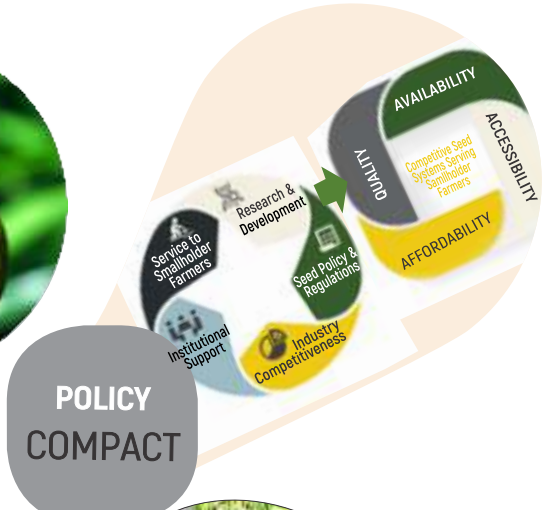
The Cassava Compact is led by IITA with partnerships in 15 countries of Central, East, Southern and West Africa.

# TAAT Enabler 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.

**Capacity Development COMPACT**

**Fall Army Worm Emergency Response COMPACT**




**POLICY COMPACT**

**Soil Fertility Management COMPACT**

**Water Management COMPACT**

**ENABLE TAAT COMPACT**

# TAAT Builds Resilience for Maize Productivity through Scale out of Fortenza Duo Seed Treatment Technology

Maize is a key cereal crop in the Sub-Saharan Africa (SSA) which is central to livelihoods of about 300 million people.

Maize accounts for approximately 50% of the calorie consumption in Africa.

However, a myriad of biotic and non-biotic factors threaten maize production, including climate change, diseases and pests; one of the most damaging being the recent attack by the ferocious Fall Armyworm (FAW) – Spodoptera frugiperda.

Indeed, Fall armyworms were first reported in Africa in 2016, in Nigeria.

They are known to feed on and damage about 80 different crop species, but particularly decimates maize crops, causing 50 - 100% grain yield loss, thus posing a major threat to maize productivity and food security in Africa.

Three years ago, when the first case of Fall Army worm (FAW) was reported in Africa, there was panic among farmers across Africa.

of Fall Army worm (FAW) was reported in Africa, there was panic among farmers across Africa.

Farmers watched in disbelief as the destructive caterpillars native to the Americas, caused havoc as they fed on their maize crops.

Despite efforts by farmers to employ various control mechanisms, the voracious effects of FAW continue to ravage farmers' fields in sub Saharan Africa. African farmers lost between 50-100% of their maize yields, which impacted on their social and economic well-being.

Mr. Basirio Mumbi, a farmer in Mpongwe District, Zambia, stated that since the emergence of the FAW pests in Zambia in 2016/2017, he has had no effective control mechanism as the pests increase in population very quickly.

It is very expensive to depend on pesticides alone,' another farmer in Masaiti District echoed during a separate occasion.

Masaiti District echoed during a separate occasion.

Researchers have worked tirelessly and availed technologies to combat the pests, but a major challenge is the delivery of these technologies to farmers. Scaling out use of these technologies is thus key to realizing their benefits at scale.

Fortunately, the support by the African Development Bank (AfDB) provided the much-needed facilitation that enabled the TAAT Maize Compact and FAW Enabler to jointly access Fortenza Duo (FD) chemical.

## Fortenza Duo Access

Fortenza Duo (FD) is a systemic seed treatment chemical developed by Syngenta for control of FAW.

This systemic seed treatment offers protection to maize crops up to 4 weeks after germination, which is a critical stage in maize growth. The technology also ensures that chemical sprays to control FAW by farmers are kept at a minimal.

The TAAT maize compact in partnership with the government program and select seed companies initiated the deployment of Fortenza Duo (FD) treated maize at scale in southern Africa, and in particular Zambia and Zimbabwe.

## Deploying the appropriate technology

In line with this effort, the Maize Compact of Technologies for

African Agricultural Transformation (TAAT) in collaboration with the Fall Armyworm Compact accessed and deployed over 36,000 litres of Fortenza Duo (FD) seed treatment to seed companies, where 17,440 litres were utilized to treat over 3,007 tons of 40 climate smart maize varieties in Zambia and Zimbabwe.

These seeds were deployed to over 300,000 farmers in these countries through National Programs (Farmer Input Support Programme - FISP in Zambia and the Command Agriculture/Presidential Schemes in Zimbabwe), agro-dealers and direct marketing in the two countries.

FD treated seed was distributed to farmers in 10 kg packages per farmer, hence ensuring that 300,700 farmers received the FD treated seed.

This will ensure that a total of 120,280 ha of farmland is planted with FD treated seed, estimated to yield over 360,840 tonnes of grain considering just 3 tons per ha yield by June 2019.

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 maize.

## Assessing the efficacy of Fortenza Duo

To ascertain the performance of the deployed FD treated maize seed in farms of small-scale farmers, the TAAT Maize team conducted efficacy missions in Zambia and Zimbabwe using an assessment tool to capture data on the performance of FD treated seeds in farmer fields in terms of resilience to FAW damage vis a vis non-treated seed.

A total of 186 farmers were randomly selected for field surveys. Since FD chemical's efficacy is expected to last for 4 weeks, the TAAT Maize team conducted monitoring missions within 4 weeks of the maize growth, between 9th December 2018 to 15th January 2019, to cater for different planting times.

Randomized Control Trials (RCT)

included two treatments arms and one Control.

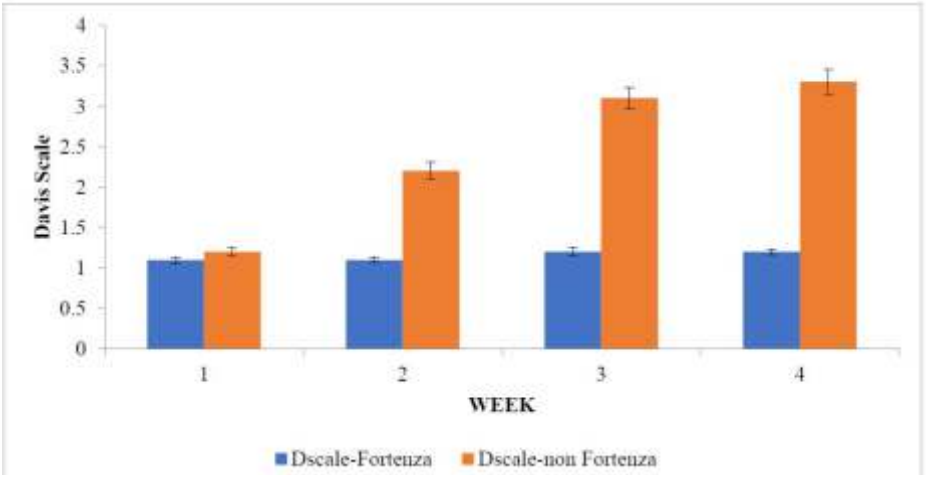
The first treatment arm (T1) included farmers who planted Fortenza duo treated seed only. The second treatment arm (T2) included farmers who planted Fortenza Duo treated maize seed and installed pheromone traps.

To monitor FAW damage on the maize crops among other variables, the TAAT Maize team with the assistance of the Ministry of Agriculture Extension Officers, visited the plots and collected data using a designed tool based on the Davis Scale including FAW damage, number of plants with infested whorls, number of plants with fresh window panes and the number of FAW larvae in whorls.

Using statistically acceptable parameters, the TAAT Maize team assessed the fields of farmers with Fortenza Duo treated seeds and those with non-FD treated seeds based on the Davis Scale, specifically focusing on FAW damage, number of plants with infested whorls, number of plants with fresh window panes and the number of FAW larvae in whorls.

Results from the FD monitoring missions indicate that FD treated fields had insignificant to no FAW damaged foliar (Davis Scale 1 – Fig. 1), fewer number of FAW larvae, lower number of plants with fresh window panes and infected whorls, and generally good crop stand as compared to the non-FD treated.

Distinctively, in non-Fortenza duo




Graph showing the D-scale units on Fortenza and non-fortenza fields

Better maize fields

fields, there was a slight drop in the number of larvae in whorls from week 4, which is probably due to the use of sprays by farmers in the fields as shown in Figure 2.

Basirio Mumbi attests that "my fields (FD treated seeds) are better than others which have non-Fortenza Duo seed'. He however urged the government and relevant seed stakeholders to ensure sustainable availability of the seed treatment, to ensure more farmers benefit, for bumper harvests.

## Enhancing maize production systems

The first 4 weeks of maize seedling are critical as they determine the eventual grain yields expected by a farmer. The FD treated maize seed is protected up to 4 weeks after germination, hence better chances of getting higher yields, with proper farm management.

Harvest is due in end May 2019, and the indicative parameters including good crop stand, ear formation and grain size show that the over 300,000 farmers who planted FD treated seed will get increased yields.

It is anticipated that the farmers will be able to sell the surplus production, and keep the rest for food, hence, beginning the journey of transforming their maize production systems.


*Happy farmer in Mpongwe District Zambia displaying Fortenza Treated seed from MRI Seed*

## Towards a sustainable private sector-led spraying service

FAW have contributed to huge losses in maize production among smallholder farmers in Sub Saharan Africa. Research and farmers indigenous knowledge have demonstrated that for effective control of the damages caused by the FAW, adoption of Integrated Pest Management (IPM) is key

It is against this background that the TAAT Maize Compact, with facilitation from the African Development Bank in collaboration with Corteva Agriscience a member of Crop Life International Association, deployed "delegate" insecticide to be used in the control of FAW after the 4 weeks of FD treatment.

Ideally, only 2 sprays of delegate are needed after the fourth week to control for FAW infestation up to harvest. However, in highly infested areas the number of sprays can be increased to 3.

The Maize compact has tapped into the Crop Life platform which exists in over 80 countries, to enhance training farmers and agricultural workers in the responsible and effective use of crop protection products.

The Compact will continue to enhance its work with youth groups affiliated to the National Union of Farmers in Zambia, to

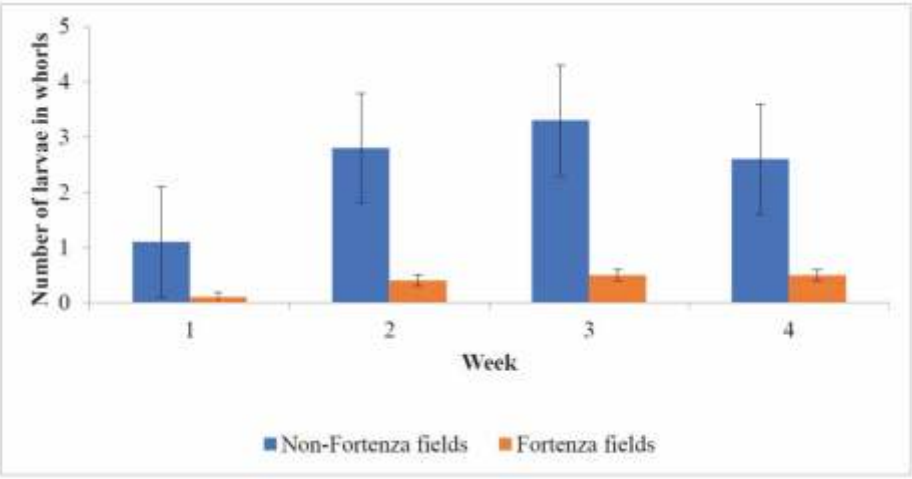



**Figure 2:** Number of Larvae in whorls for Fortenza vs non-Fortenza treated maize fields

expand coverage and reach of farmers with this toolkit. The TAAT maize compact in partnership with Corteva Agriscience recruited four youths, who were trained in provision of spraying and stewardship services among maize farms in Zambia.

With support from the agricultural officers, the youths were able to spray the maize fields twice for the November 2018 season in 2 districts of Zambia, namely, Chongwe & Mpongwe, after the 4 weeks of FD had elapsed (Fig. 2).

## Less FAW infestation

Currently, harvest is expected in May 2019, but initial presentation of the plants illustrated that fields with Fortenza + delegate had much less infestation of FAW than fortenza + non-delegate fields. Farmers were very receptive of this idea and efforts, and requested this service be made available to help more.

The advantage of working with private sector Crop Life program ensures access to select quality products, stewardship package from the partner companies and training, monitoring and registration of the participating youths.

The Project will further connect the trained youth SSPs with Agrovet outlets and farmer groups in the maize value chain.

## Public-Private Partnerships to drive technology adoption

Beyond effectively helping smallholder farmers to control FAW damage on their maize plants, the initiative also exposed youths to a business model that they could tap into and be involved in the maize value chain to improve their livelihoods while transforming farming in their communities.

With numerous technologies on the shelf for small-scale farmers in Africa amidst lack of sustainable access to these technologies, efforts to facilitate linkages and ensuring technology transfer with the private sector have become necessary in order to ensure that farmers adopt and use these technologies correctly and consistently.

farmers adopt and use these technologies correctly and consistently.

Government buy-in and support is important for any major progresses to be made. Hence, TAAT Maize compact is working with National Agricultural Research Systems (NARS) and National Commodity associations to ensure sustainable implementation of activities.

https://taat-africa.org/farmers-expect-bumper-harvest-as-taat-maize-technologies-tackle-fall-armyworm/

*TAAT Maize Affiliated Stewardship Service Provider*

# 5th TAAT Programme Steering Committee meeting holds in Abidjan

**The fifth meeting of the Programme Steering Committee (PSC) of Technologies for African Agricultural Transformation (TAAT) held at the CCIA building of the African Development Bank in Abidjan, Cote D'Ivoire.**

The meeting which began on the 15th and ended on the 17th of May 2019 is reviewed Compacts' Work Plans for 2019 and provided general guidance to the programme as it enters the second year.

The TAAT PSC Chairman and Minister for Agriculture, Livestock and Fishery of the Republic of Benin, Hon. Gaston Cossi Dossouhoui in his opening remarks commended the African Development Bank (AfDB) and all components of the TAAT programme for the successes achieved after the 4th PSC meeting in September 2018 at Yaoundé, Cameroon.

Hon. Dossouhoui used the opportunity to call for more concerted efforts at translating into tangible reality across Africa, the lofty objectives of the programme.
Ms Jennifer Blanke, Vice-President Agriculture, Human and Social Development at the African Development Bank Group who led the bank's delegation to the meeting reiterated the importance the bank attaches to the programme and the urgent need for TAAT to deliver technologies at scale across Africa.

"TAAT is a priority of the African Development Bank and we are all committed to scaling technologies to boost agricultural productivity in Africa," VP Blanke added.

Other participants at this meeting include member of the Steering Committee, Experts from the African Development Bank (AfDB), and Staff of the TAAT Programme Management Unit and Clearinghouse.

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 Centers and specialized technical centers (e.g. AATF, IFDC), FARA, national agricultural research and extension systems and private sector partners.

While TAAT is not a research program; it seeks 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.

The TAAT programme 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/5th-taat-programme-steering-committee-meeting-holds-in-abidjan/

*AfDB VP Jennifer Blanke flanked by TAAT PSC Chair, Hon Gaston Dossouhoui at the meeting*

# New Entrepreneurs emerge as TAAT deploys Raised Pond Technology in Kenya

Mr. Wachira is a young entrepreneur who has had passion for fish farming.

He has visited many fish farms to learn how to keep fish with the limitation of land in mind. He says that space for keeping fish has been the main challenge.

This is because he does not own any land. He works with the catholic missionaries in Rongai, Nairobi Kenya.

He attended one of the many trainings organized by one of the beneficiaries trained through the Aquaculture compact of Technologies for African Agricultural Transformation (TAAT).

There he heard of the technologies available for fish production for the first time.

Wachira took keen interest in raised-pond technology and asked his boss in the Catholic mission to give him a small portion for rearing fish. He promised the Priest that he would not dig ponds in the piece of land given to him.

The Catholic priest who was also interested in the new technology gave Mr. Wachira the requested space and partly financed the venture.

Upon receipt of the support, Wachira then contacted Mr. James who is a beneficiary of the TAAT ToT training for him to construct the raised ponds for him.

"I have been looking forward to doing fish farming for so long but now God has answered my prayers," remarked Mr. Wachira.

The construction of the ponds commenced on 1stApril 2019 and completed on 7thApril 2019 having constructed six ponds measuring 3M x 2M x 1M. On 9thApril 2019, the ponds were stocked with 500 tilapia fingerlings in Rongai, Kenya.

The TAAT Aquaculture compact has exposed fish farmers to different Technologies in Kenya which was lacking in the past.

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

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

Previously, the popular belief was that you can only dig pond to keep fish. This has been

demystified by the new technologies deployed by TAAT Aquaculture Compact.

The available technologies which are currently being disseminated in Kenya include In-Pond Raceway System IPRS which aims at reducing the period of production from eight months to five months and Raised Pond System (RPS) has given women and youths who do not own land in Kenya, an opportunity to start fish farming, value addition, quality feed production and production of quality fast growing fingerlings.

The introduction of RPS technology through TAAT Aquaculture Compact, has encouraged people who do not own any land to venture into fish farming.

This has led to increased production with attendant impact on food security in the country. These technologies have been able to reach many prospective fish farmers through step down training from Aquaculture Compact beneficiaries.

Wachira is specifically thankful to TAAT for the new technologies since he can now do fish farming without owning a land.

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.

"I had lost hope of doing fish farming because land in Kenya is very expensive making it impossible for young people like me to acquire. But with this technology, land can be leased to start the business" Says Wachira

Wachira is using the knowledge acquired through TAAT Aquaculture compact stepdown training offered by Mr. Muchangi to produce fish for his community and in turn make money.

His vision is to lease more land and construct many of these ponds so that one day he can buy his own land.

Realizing that there are many people yearning for these technologies especially among youths and women, TAAT is already exploring possibilities of taking technologies to scale in several counties within Kenya.

https://taat-africa.org/new-entrepreneurs-emerge-as-taat-deploys-raised-pond-technology-in-kenya/

*Stocking of the Fingerlings at the Raised Ponds*

# TAAT targets food security in Mozambique through Maize Technologies

As part of the plan to ensure food security across Africa, Technologies for African Agricultural Transformation (TAAT) has launched its Maize Compact in Maputo, Mozambique.

The launch forms part of African Development Bank's plan to scale out water-efficient and climate smart Maize technologies in 14 African countries through the TAAT programme.

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) including Maize.

Speaking in Maputo, Sam Angwenyi, the TAAT Maize Compact Project Officer affirmed that "TAAT aims to scale out and promote the use of water-efficient and other climate-smart maize technologies in partnership with International Institute of Tropical Agriculture (IITA), public and private sector players, especially seed companies."

"Another key objective of TAAT Maize compact is to increase uptake of high-yielding climate-smart maize hybrids from breeding platforms like Water Efficient Maize for Africa (WEMA) by smallholder farmers," Angwenyi added.

Organised in collaboration with the National Agricultural Research Institute of Mozambique (IIAM), the two-day event which features an inception meeting holds in Maputo - Mozambique from 19 – 20 June 2019.

Present at the meeting today were key stakeholders in the maize value chain including representatives of the Mozambican Ministry of Agriculture and Food Safety, Africa Development Bank, African Agricultural Technology Foundation (AATF), IIAM, Seed Companies, Farmer organizations among others.

The stakeholders all commended the programme as it provided an opportunity to introduce TAAT Maize compact in Mozambique and bring on-board public and private sector partners across the maize value chain in the country who will play key roles in the implementation of TAAT Maize Compact project.

The African Agricultural Technology Foundation (AATF) is leading the implementation of the TAAT Maize Compact in 14 African countries and is collaborating with the National Agricultural Research Institute of Mozambique (IIAM), to implement activities in Mozambique.

https://taat-africa.org/afdb-targets-food-security-in-mozambique-through-maize-technologies/

# TAAT establishes Platform for Cassava Seed Producers in Burundi

A platform that will guarantee the production and dissemination of quality planting materials in a timely manner and in the required quantity has been established in Burundi.

The establishment of the platform came as part of the inception meeting activities of the cassava compact of Technologies for African Agricultural Transformation (TAAT) in Bujumbura, Burundi on the 2 April 2019.

TAAT is a programme funded by the African Development Bank (AfDB) to boost agricultural productivity and improve the business of agriculture in Africa.

The Director General of the National Office for Seed Inspection and Certification (Office National de Contrôle et de Certification des Semences [ONCCS]), Fidèle Gahungu, opened the ceremony on behalf of the Minister of Environment, Agriculture and Livestock, Dr Déo-Guide Rurema.

Over 20 stakeholders and representatives of research institutions, private sector players, policy makers, seed producers, farmer associations, and NGOs participated in the event.

IITA Burundi Country Representative, Emmanuel Njukwe, gave a presentation on TAAT goals and perspectives for the Cassava Compact in Burundi. These include capacity development for actors along the cassava value chain and the dissemination of high-yielding, pest and disease-resistant varieties that are tolerant to climate variability and rich in micronutrients.

In another presentation, the representative of the Burundi Institute of Agronomic Sciences (ISABU), Mr Simon Bigirimana, gave an overview of the status of cassava research in Burundi.

The Department of Seed and Plant Promotion (DPSP) and ONCCS presented on policies

Continued on Page 12

*Field technician displays big and bulky cassava roots harvests from IITA cassava trial Photo by IITA.jpg*

# TAAT seeks rice self-sufficiency in rice production through technologies

As at 2014, rice consumption in sub-Saharan Africa was estimated to be approximately 26 million metric tons (MT). Out of this figure, 13 million MT which represents about one-third of what is traded on the world market, came into Africa via imports.

As at 2014, rice consumption in sub-Saharan Africa was estimated to be approximately 26 million metric tons (MT). Out of this figure, 13 million MT which represents about one-third of what is traded on the world market, came into Africa via imports.

Rice consumption in Africa is projected to reach 34.9 million tons by 2025. Out of this figure, 12.6 million MT will be imported at a cost of about US$5.5 billion annually.

The demand for rice in Africa is growing as a result of population growth, increased per capita consumption, and a shifting preference toward 'premium' rice linked to increased urbanization.
The African Development Bank (AfDB) reckons that the rice sector has the potential to become an engine for economic growth across the continent. To achieve self-sufficiency in rice by 2025, Africa requires the production of nearly 13 million additional tons of premium rice per year.

This will then improve the livelihood of at least 3 million producers and lead to economic gains of about US$5.5 billion per year among African countries.

However, to attain this feat, Africa requires holistic mechanisms which include widespread distribution and commercial adoption of high-yielding, climate-resilient rice varieties, accompanying technologies, and innovations.
It is in this light that the bank is supporting the Post-harvest, Processing and Value Addition Equipment Fabrication and Standardization Workshop which began today in Porto Novo, Benin Republic.

The one-week workshop brings together equipment fabricators from Benin, Cameroon, Cote d'Ivoire, Ghana, Mali, Nigeria, and Senegal to Improve the quality of locally fabricated rice processing equipment to respond to consumer preferences.

Organized by the Rice Compact of Technologies for African Agricultural Transformation

*Charles Frimpong presenting the Mini ASI Multi-Crop Thresher Cleaner being fabricated at the workshop*

(TAAT) in collaboration with AfricaRice and Technique de Construction Mecano Soudé (TCMS), the workshop is expected to harmonise the type and specifications of locally fabricated rice processing equipment earmarked under TAAT.

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.

Dr. Sidi Sanyang, TAAT Rice Compact Coordinator says the workshop will, in the course of one week, galvanise small and medium scale equipment manufacturers to build and install rice husk-fueled GEM systems and other equipment in TAAT target countries and elsewhere.

"Already, TCMS in Benin has signed a contract of FCFA19.5 million to manufacture and install rice husk-fueled GEM systems in six communities in the Glazoué rice hub in Benin," Dr. Sanyang added.

While speaking on behalf of the rice equipment fabricators at the workshop, Charles Frimpong, Managing Director of Hanigha Ltd says the increased collaboration between local fabricators in Africa, facilitated by the workshop, will not only enhance knowledge sharing but lead to uniformity in type and quality of equipment out-scaled under TAAT.

"It will also increase the availability of spare parts for locally fabricated rice processing equipment thereby, improving the quality of locally produced rice which will ultimately lead to increased consumer satisfaction." Frimpong said.

Led by AfricaRice, a member of the Global Rice Science Partnership that includes experience from Asia and Latin America, the TAAT Rice Compact is already engaging the private sector with a view to achieving rice expansion and intensification in Africa through quality rice seed production, marketing, and mechanization, fortification, packaging and branding.

https://taat-africa.org/african-development-bank-seeks-rice-self-sufficiency-in-rice-production-through-technologies/

Continued from Page 10

governing the seed sector (regulation, homologation, and registration) in Burundi while Mr Methode Ntibandye of Floresta Burundi spoke on the challenges associated with cassava processing and marketing in the country.

A follow-up workshop was organized on cassava seed systems in Gitega on 4 and 5 April. The objective was to initiate a platform for cassava seed producers that will guarantee the production and dissemination of quality planting materials in a timely manner and in the required quantity.

The workshop had participants from public institutions and private enterprises involved in cassava seed regulation and production. At the close of the workshop, the proposed platform for cassava seed producers was established at the national and the provincial levels, pending adoption and validation by government authorities.

Training of trainers on Good Agricultural Practices was organized from 9 to 10 April in Bujumbura.

IITA Principal Investigator, Sustainable Weed Management Technologies for Cassava Systems in Nigeria, Prof Friday Ekeleme, facilitated the training, which focused on the improvement of agricultural practices by integrating weed management through efficient and effective use of herbicides and planting of improved varieties for maximum production.

A field demonstration was conducted to highlight spraying techniques and calibration, including efficient and effective use of herbicides. After the practical session, participants agreed to establish demonstration plots in each province.

https://taat-africa.org/taat-establishes-platform-for-cassava-seed-producers-in-burundi/

# Nigerian government partners TAAT on HQCF for Livestock feeds

Aimed at turning cassava waste into wealth, the Oyo State Government in South West Nigeria, has partnered with African Development Bank (AfDB), through the Livestock Compact of Technologies for Agricultural Transformation (TAAT) and the Research Program on Roots, Tubers and Banana.

Led by International Livestock Research Institute (ILRI), TAAT Livestock compact is one of the commodity value chain compacts funded by the African Development Bank (AfDB) under the TAAT programme.

The programme'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).

TAAT increases agricultural productivity through the deployment of proven and high-performance agricultural technologies at scale along selected value chains which include livestock (small ruminants and poultry).

The partnership came to the fore at a stakeholders' forum involving cassava farmers, livestock farmers, feed millers, and cattle herders on equipment demonstration for cassava peels processing yesterday, at the International Institute for Tropical Africa, Ibadan.

The event organised on the auspices of Oyo state Special Adviser on Intervention funds and Development partners to harness the High-Quality Cassava Peels technology which has the potential to add around 15 million tons to quality livestock feed in the nation.

The Forum according to the Special Adviser on Intervention funds and Development Partners, Oyo state, Mrs. Bukola Adebusuyi was to avail farmers across the State, the opportunity to witness the practical demonstration of how to process cassava peels into livestock feed ingredients for ruminant and non-ruminant animals.

She added that the technology will also help improve farmers' livelihood by adopting the cassava waste as part of livestock ingredient.

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*Participants going through the process of turning cassava waste to wealth*

# Sorghum and Millet: TAAT Empowers Farmers to increase Yields

The Sorghum and Millet Compact of Technologies for African Agricultural Transformation (TAAT) has successfully concluded its 2019 inception and planning meetings in Mali and Senegal.

These meetings were in line with the objective of contributing to food and nutrition security in seven countries in the Sahel and to improve farmer livelihoods,

With a bold plan to link last-mile populations to value chains, the Sorghum and Millet Compact is an integral part of the African Development Bank's plan to transform agriculture in seven Sahelian countries — Burkina Faso, Chad, Mali, Niger, Nigeria, Senegal and Sudan — through the TAAT programme.

**Equipping farmers to improve yields**

Low yields of sorghum and millet are a major concern for farmers in the Sahel.

"A comprehensive management programme has been designed to assist farmers to invest an additional US$ 151 per ha in improved seeds, water harvesting and Integrated Soil Fertility Management. This will increase average yields to 1.8 tons per ha and steadily reduce Striga infestation, resulting in even greater mid-term gains," Dr. Dougbeji Fatondji said.

Fatondji, who coordinates the Sorghum and Millet Compact affirmed that the compact targets about 40% to 50% of African farmers with technologies relevant to boosting agricultural productivity and self-sufficiency by 2025.

In the Sahel, low agricultural productivity and lack of value addition are among the main causes of malnutrition, unemployment and poverty.

The agricultural sector accounts for 50% to 70% of employment in African countries, but produces only 25% of Africa's Gross Domestic Product (GDP).

Yields of sorghum and millet, the main staple food crops in the Sahel region, are low due to insufficient access to seeds of improved varieties, fertilizers and other agricultural inputs, inappropriate farming practices, declining soil fertility, lack of marketing and extreme weather events.

At the Bamako launch, six motorcycles were given to the Sorghum and Millet Compact partners.

*Mr Amadou Diarra, a beneficiary of the TAAT's Sorghum and Millet Compact in his Tiandougou-coura Sorghum variety production field in Missirila, Beleko, Mali*

"These motorbikes will help us reach the last mile where access is often difficult by car," said Dr Abdoulaye Diallo, Sorghum Breeder at the Institut d'économie rurale (IER) and Compact country Focal Point, on behalf of the beneficiaries.

In Thiès, Senegal, Dr Alioune Fall, Director General of the Senegalese Institute of Agricultural Research (ISRA), said that TAAT fits seamlessly into the country's existing government programs. "As part of the compact's early achievement, 1 ton of breeder seed, 40 tons of foundation seed and 70 tons of certified seed were produced," he added.

During a visit to the compact's seed multiplication site in Bambey, Dr Cyril Diatta, Sorghum Breeder at the Centre National de Recherches Agronomiques de Bambey (CNRA, Bambey), lauded the performance of the sorghum varieties being disseminated.

"Farmers are very appreciative of the 'Darou' variety (ISRA-S-622B) because it produces quality grains without tannin, quality fodder and sweet grain for human consumption. We have developed this variety for large-scale dissemination in the Sudano-Sahelian zone where the rainfall is between 600 mm and 800 mm. In Senegal, this zone includes Kaolack, Kaffrine and the North of Tambacounda regions," said Dr Diatta.

Dr Ousmane Sy, Millet Breeder, CNRA, Bambey, harped on the preference of farmers for short-duration millet varieties such as GB 8735 (Origin: ICRISAT).

"GB 8735, bio-fortified with Zinc and Iron, is preferred because of its earliness; also, its white and big grains are suitable for processing. In addition, the good exertion of the head prevents millet headminer attacks," said Dr Sy.

The inception meetings in Bamako (16-17 April) and Thiès (23-24 April) brought together experts and stakeholders from key areas including research, extension, seed production, farmers and women groups, development partners, processing and agricultural input suppliers, civil society and the media.

**Sorghum and Millet Compact**

TAAT is a flagship program of the "Feed Africa" initiative alongside with other four initiatives that make up the "High-5s". 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) including sorghum and millet.

Led by the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) the Compact aims to scale up proven technologies, sustainable intensification, and improve profitability of sorghum and millet.

https://taat-africa.org/sorghum-and-millet-taat-empowers-farmers-to-increase-yields/

Continued from Page 13

"Oyo State Government will keep developing agriculture to make it more sustainable, profitable and veritable alternative to liberate farmers from the threat of famine and hunger," Adebusuyi said.

Also speaking, the Commissioner for Agriculture, Natural Resources and Rural Development, Prince Oyewole Oyewumi, said the state government entered the collaboration as to eliminate cassava peels waste and transform them into useful feeds for ruminant animals, non-ruminants and fishes in Nigeria.

Oyewumi added that the venture will engender food security, job opportunities and creation of wealth for the citizen.

Speaking on behalf of TAAT, ILRI and other development partners, the Country Representative of ILRI, Dr Tunde Amole, noted that the transformation of wet cassava peels into High Quality Cassava peels would reduce the current import bills on maize, reduce environmental pollution, create employment, and increase wealth for cassava processors, especially women who work in the value chain.

He urged farmers and all stakeholders to harness such gesture, which would be an uptake of proven technologies, with Oyo State being the first to benefit such.

He revealed further that with this technological development, cassava crops are not only raw materials for products like garri and other cassava-based staple food, but would create additional employment and income from the peels considered to be wastes and create about U$2 billion yearly in the livestock feed industry in Africa.

https://taat-africa.org/nigerian-government-partners-taat-on-hqcf-for-livestock-feeds/

# TAAT: Leveraging Technology for Inclusive Agripreneurship Development in Africa

*About 60 youths from across Africa gathered in Accra, Ghana, from 2-4 May 2019 for an agricultural engagement workshop on the theme: "Strategic Engagements and Capacity Development of Youth in Agripreneurship for Technology Adoption," aimed at leveraging shared experiences of youths to develop a framework for youth engagement with a focus on inclusive agripreneurship development.*

According to the United Nations Food and Agriculture Organization (FAO), over 800 million people across the world are undernourished, with Africa accounting for more than 25% of the figures.

Africa`s population currently stands at 1.1 billion with youths constituting more than 50% of the continent's total population, which is projected to rise to about 2.4 billion by 2050.

Although young people constitute majority of the continent's population, most young Africans are either unemployed or underemployed and seldom consider agriculture as a means of livelihood.

Agriculture holds enormous potential for jobs creation among Africa's burgeoning young population and consequently transforming the continent's economy. However, African youths are yet to realize the profitable opportunities agriculture offers, as a source of earning sustainable livelihoods, hence the low-level of youth involvement in agriculture.

Hence, the Capacity Development and Technology Outreach compact (CDTO) of Technologies for African Agricultural Transformation (TAAT) – aims to bridge existing gap in the involvement of youths in agriculture through the implementation of youth engagement programmes focused on addressing issues of employment and agripreneurship in Africa.

On this basis, about 60 young professionals in agriculture from across 26 African countries gathered in Accra, Ghana for a 3-day continental youth engagement workshop on the theme: "Strategic Engagements and Capacity Development of Youth in Agripreneurship for Technology Adoption."

Led by the Forum for Agricultural Research in Africa (FARA), the CDTO compact undertakes capacity building at all levels within partner institutions and within the TAAT Priority Intervention Areas (PIAs) and their value chains.

Funded by the African Development Bank (AfDB) as part of its 'Feed Africa' strategy and focused on the transformation of Africa's agriculture and scaling up of agribusiness opportunities, 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.

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

*Participants brainstorming at the youth engagement workshop on the role of technology in agripreneurship*

potato, small ruminants as well as fish (aquaculture).

Amongst others, the objectives of the capacity building event was developing a set of guidelines for strategic engagement and capacity development for youths focused on agripreneurship as well as scaling up technologies for increased agricultural productivity in Africa.

The workshop was hosted by FARA jointly with Young Professionals in Agricultural Research for Development (YPARD), and the West and Central Africa Council for Agricultural Research and Development (CORAF).

Irene Annor-Frempong, director in charge of research and innovation at FARA, who welcomed participants to the workshop said: "youths are the innovative power required to drive the transformation of Africa`s agriculture."

She noted that "Technologies for African Agricultural Transformation (TAAT) will look at proven technologies, get them adapted, adopted and scaled by building the capacities of youths [in Africa]."

Although agriculture is the mainstay of Africa`s economy and accounts for about 70% of employment on the continent, it contributes only 25% of Africa's gross domestic product (GDP). Consequently, millions of dollars are being spent annually on food importation.

"The TAAT programme is funded by the African Development Bank (AfDB) as part of its 'Feed Africa' strategy aimed at doubling agricultural productivity in Africa by 2025, in line with the United Nations Sustainable Development Goal 2 (SDG): 'Zero Hunger,' and also the African Union's Agenda 2063 seeking to ensure food and nutrition security on the continent," says Krishan Bheenick, lead specialist on capacity development at FARA cum coordinator of the CDTO Compact.

"We are here to support in terms of capacity development and technology outreach through the development of agripreneurship so this workshop is about the process of agripreneurship development," said Bheenick.
"There was an essay competition among youths in Africa, last year. In specific terms, the YPARD network asked them to describe their experiences on youth engagement in agriculture. The idea [was] to identify what works best for youths in Africa. We therefore selected 35 initiatives [based on the essays] and we are here to utilize those initiatives that have been used to engage the youths."

The Young Professionals for Agricultural Research Development (YPARD), a network of about 30, 000 youth members spread around the globe, is being hosted by the Global Forum on Agricultural Research and Innovation (GFAR) at the United Nations Food and Agriculture Organization (FAO) headquarters in Rome, Italy. It was launched in 2006 as a movement by the youths and for the youths to contribute towards innovative agricultural development.

"We are working to ensure that young people identify and seize opportunities across various agricultural value chains. TAAT is one of such opportunities for youths to exploit and we will capitalize on the experiences of the youths to develop strategies for engaging institutions to mainstream youths in agriculture," says Sokhna Gaye Rokhaya, YPARD's country representative in Senegal.

Pius Lutakome, a young Ugandan agricultural researcher, was one of the participants in the 3-day youth in agricultural entrepreneurship regional workshop. While working at the Gates Foundation-funded East Africa Dairy Development (EADD) program – designed to boost the milk yields and incomes of small-scale farmers in Africa (Kenya, Uganda and Tanzania) so they can lift their communities out of hunger and poverty.

"I observed that many young people in Uganda were unemployed and they`re not directly involved in agriculture. So, I came up with an idea to train youths in agricultural service provision. Last year, I wrote an essay describing my experiences, it was titled: Equipping youths with skills to start service provision enterprises (SPE`s) along the dairy value chain," says Lutakome.

While speaking about his experience at the workshop, Lutakome said they had been taken through "the process of experience capitalization and framing. I have learnt how to frame my experience in terms of being clear and precise so that other young Africans can model my experience and embrace agriculture as a cool career because it is where the future lies for us."

In 2014, Annet Nannono, another participant from Uganda, started vegetable farming on an acre of her family's land.

After two consecutive farming seasons, she failed to make any profit from her agribusiness, partly due to lack of adequate knowledge of business management, pests and insects' control.

Following a failed attempt to secure funding for her business, Nannono joined the Uganda National Young Farmers Association (UNYFA), a youth-based capacity building platform on entrepreneurship and agribusiness which proved a turning point in her life.

"Being here has helped me to understand the critical importance of data in agriculture. As a technology savvy youth, I am interested in using ICT for agriculture but data has been a huge challenge for me. I don`t have enough data to be able to improve my work. So, being here is a big plus for me because I have learnt about data and I will commit myself to partnering with relevant organizations that will help me get the data I need," says Nannono who works as operations officer at EZYAgric, an ICT-for-agriculture firm based out of Kampala, Uganda.

"This workshop has changed my perception about youth participation in agriculture. I [now] understand that sharing my experience can motivate many other young people to embrace agriculture. So, I am going to capitalize on and share my experience when I go back home," added Nannono.

Achieving food and nutrition security in Africa as envisioned by the 2030 United Nations Sustainable Development Goals (SDGs) must necessarily involve the deployment of science, technology, and innovations (STI) in agriculture.

TAAT-CDTO`s engagement with youths involved in agricultural entrepreneurship is definitely a right step in the right direction, as a strategy for encouraging young Africans to embrace agriculture and leverage modern agricultural technologies for enhanced food productivity on the continent.

https://taat-africa.org/taat-leveraging-technology-for-inclusive-agripreneurship-development-in-africa/


*Young professionals in agriculture from across 26 African countries during the workshop (Photo Nawsheen Hosenally)*

# Harmonised Regional Seed Regulation: TAAT collaborates with CORAF on Implementation Assessment

Major actors of the seed industry in West Africa are met in the Senegalese capital, Dakar from June 11 to 12, 2019, to assess progress made in the implementation of the harmonized regional seed regulation.

The Harmonised Regional Seed Regulation was adopted in 2008 by the Economic Community of West African States (ECOWAS) and in 2009 by the West African Economic and Monetary Union (WAEMU).

The primary goal is to create a favorable environment for the growth of the seed industry. All ECOWAS member countries, including Chad and Mauritania, have adopted the law.

The meeting was organised jointly by the Policy Enabler Compact of the Technologies for African Agricultural Transformation (TAAT) and the West and Central African Council for Agricultural Research and Development (CORAF).

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 value chains within eight Priority Intervention Areas.

The TAAT Policy Enabler Compact is led by the African Agricultural Technology Foundation (AATF) AATF. The compact operates to strengthen economic, trade, and institutional policies that contribute to higher productivity, competitiveness, and processing intensity across value chains and agro-ecological zones by working closely with national and regional partners.

The Dakar meeting is expected to assess the state of implementation, identifying bottlenecks as well as developing a road map to speed up implementation.

Specifically, the discussions will address five broad areas namely certification for variety dissemination, quality control and certification of seeds, phytosanitary certification of seeds, (d) institutional arrangements for the implementation of the seed policy, and (e) private sector participation in the implementation of seed policy.
The close to 50 participants of the workshop were drawn from the national seed systems of the 17 participating countries, the regional economic communities, peasant organizations, research institutions and funding partners. Representatives from the Common Market for Eastern and Southern Africa (COMESA), the Southern African Development Community (SADC) and the East African Community (EAC) have also been invited to share their experiences.

*Dr Jonas Chianu of the AfDB leading discussions at the workshop*

As a key technical partner of ECOWAS and other regional economic commissions, ECOWAS designated CORAF in 2013 to facilitate and coordinate the implementation of the harmonized regional regulation for seeds and seedlings in the Member States.

AATF on the other hand, was founded in 2003 to address Africa's food security outlook through agricultural technology. AATF responds to the need for an effective mechanism that would facilitate and support negotiation for access to technologies and the provision of appropriate partnerships to manage the development and deployment of innovative technologies for smallholder farmers in Sub-Saharan Africa.

https://taat-africa.org/harmonised-regional-seed-regulation-taat-collaborates-with-coraf-on-implementation-assessment/

# Nigerian rice farmers to double income through double cropping

Rice farmers in Nasarawa State, North-Central Nigeria, can now cultivate rice all year round – thanks to the introduction of modern rice technologies.

Collaborators from the Water Enabler Compact of the Technologies for African Agricultural Transformation (TAAT) programme demonstrated to rice farmers how modern limited investments in water-efficient irrigation systems allow dry season cultivation.

The irrigation system – that is designed of shallow tubewells, petrol pumps, and a pressurized PVC pipe conveyance system – permits lifting ground water resources that are available year-round and distributes water to the fields with zero losses.

"The relatively low investment costs make this a very attractive opportunity for farmers to intensify agriculture and significantly increase their income", says Professor HenryIgbadun, the national coordinator of the TAAT-WEC program in Nigeria.

"Farmers now cultivate rice as a second crop during the dry season, but possibilities for cultivating alternative and more lucrative crops – such as tomatoes and other vegetables – are numerous," he added.

Farmers in the region are delighted about the new technologies brought by TAAT-WEC as they realize it has good prospects for expansion of agricultural activities and new income generation. Prior to the introduction of this system, farmers were discouraged from pursuing dry season cultivation due to the high costs involved as well as lack of knowledge on good water management practices.

Chairman of the Bukan-Sidi Rice Innovation Platform, Mr. Joshua Jonathan commended TAAT-WEC for the initiative in Nasarawa State. "The gesture is a solution to the lingering water management challenges faced bydry season rice farmers in the state," he said.

Although there is high potential for rice production in Nigeria, low yields have caused local production to lag behind rising demand, resulting in a large rice import bill for Africa's most populous country.

Limited access to water is a principal reason for low production in Nasarawa and adoption of such technologies could contribute to increase of production in Nigeria and lowering of rice imports.

The innovations are brought by the Water Enabler Compact (WEC) of the Technologies for African Agricultural Transformation (TAAT) programme.

Believing that Africa should feed itself, the African Development Bank (AfDB) launched the Feed Africa Initiative with TAAT as one of the seven cardinal programmes of the Initiative.

Drawing from this initiative, the TAAT Water Enabler Compact promotes the widespread adoption of proven irrigation

Continued on Page 21

*Pressurized PVC pipe distribution system in Nasarawa State, North-Central Nigeria*

# ENABLE TAAT Engages Togolese Youths on Agribusiness Opportunities

As part of its effort in extending agribusiness opportunities to more youth in Africa, ENABLE-TAAT, the youth enabler compact of the Technologies for African Agricultural Transformation (TAAT) in collaboration with the Togolese government, organized a 4-day comprehensive training for trainers at Centre Pilote des Techniques Agricoles du Togo (CPTA), in Lomé Togo from 11th - 14th June.

The training which was a follow up on the sensitization and awareness creation carried out by ENABLE-TAAT at the National Farmers' Forum organized by the Togolese government in April 2019 is the first step leading to the implementation of TAAT youth program in Togo.

It was organized to ensure that trainers, who would be training youths during the ENABLE-TAAT pilot phase, are well-equipped with the necessary skills needed to run an incubation program, and also enlighten them on the technologies promoted by TAAT.

With this expansion, ENABLE-TAAT will develop agribusiness skills, change counter-productive mindsets and provide economic opportunities to rural youth in agribusiness, including young women.

The compact will also work with some other TAAT commodity value chains to establish a range of innovative, youth-led agricultural enterprises and consolidate the gains along value chains, including higher-value crop production, marketing, value addition and a range of agricultural services.
Also, it will support rural enterprise networks that provide youth-led initiatives with interactive agribusiness and financial information and raise the creditworthiness of aspiring youth agribusiness persons.

Addressing the participants at the training, the Head of TAAT Clearinghouse, Dr. Mpoko Bokanga stated that the training marks the beginning of agricultural transformation in Togo.

"Africa has to feed itself; we cannot wait for other continents to feed us. We have the land mass, climate, and weather, but what is hindering us I believe is the technology, hence, TAAT has come to introduce improved agricultural technologies so that there can be an agricultural transformation in Africa and in Togo especially" he said.

The representative of the Minister of Agriculture in Togo, Mr. Kpadenou Kodjoga advised the trained youth to be dedicated and tap into the vast agricultural technologies being promoted by TAAT through the young people working under ENABLE-TAAT.

The training had in attendance about 54 participants who were trained on topics ranging from youth marginalization, its negative impact on the economy and ENABLE-TAAT as a solution, Agripreneurs movement, Youth Incubation and Agribusiness rural enterprise which covers topics on Agribusiness and Incubation, Value Chains, Mentorship, Financial management, ICT in agribusiness, Marketing, to mention a few.

One of the participants, Tsibi Blakeur, a trainer at Institut National de Formation Agricole (INFA) said the training has enlightened him about the available opportunities along the agricultural value chains focusing on improved technologies. He further said that he is ready to transfer the knowledge to other youths.

*ENABLE TAAT Training in Lome Togo*

# TAAT highlights Agricultural Transformation at Togolese Farmers Forum

*A visit to the TAAT Stand by Togolese Prime Minister H.E Komi Selom Klassou during the 11th Togolese Farmers Forum in Kara*

With more than 3.4 million hectares of land available, the Togolese government is worried that only 45% is being used presently.

The government is equally concerned that despite Togo's natural comparative advantage in agriculture when compared to other countries, its inability to maximise technologies that will increase productivity and diversify into higher-value-added products has held back the sector's performance and the country's economic growth.

## Togolese farmers forum

These and many more concerns dominated Hon. Noël Koutéra Bataka's speech as the Togolese Minister for Agriculture, Animal Production and Fisheries declared opened the 11th National Farmers Forum in Kara, north of Togo.

This year's edition of the forum, which holds under the theme "agricultural transformation hubs to promote Togo's potentials", brings together high-level representatives of governments, donor agencies, experts from Technologies for African Agricultural Transformation (TAAT), farmers and women groups from across Togo, Benin and Burkina Faso.

"This forum is intended to show the agricultural sector in all its facets and diversity. The government's ambition for the sector is the attainment of a modern, sustainable and technology-driven agriculture with active value chains leading to food security and a strong, inclusive economy, "the minister said.

## Technologies for agricultural transformation

Hon Bataka, during a visit to the TAAT stand admitted that the National Farmers Forum remains the best avenue to position Togo's on-going and new agricultural projects to benefit from TAAT's proven technologies.

Dr Mpoko Bokanga, Head of TAAT Clearinghouse in his response, informed the minister of the active engagement of experts from nine TAAT compacts in the forum. These compacts include aquaculture, maize, livestock, high iron beans, orange-fleshed sweet potato, soil fertility, rice and youth in agribusiness.

This engagement, Dr Bokanga said, "is the first of its kind in the implementation of the TAAT programme as it provides an opportunity for TAAT Compacts to link up with funded agricultural development programmes in Togo and leverage their resources to enable TAAT technologies to reach millions of smallholder farmers."

Technologies for African Agricultural Transformation (TAAT) is a programme initiated by the African Development Bank (AfDB) as part of its Feed Africa Initiative.

The programme aspires 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).

With presence in about 31 African countries, TAAT is already increasing agricultural productivity through the deployment of proven and high-performance agricultural technologies at scale along selected value chains. These include rice, maize, cassava, wheat, sorghum and millet, orange-flesh sweet potato, high-iron beans, Livestock, aquaculture.

The programme also provides needed specialist services through six enabler compacts for soil fertility management, water management, capacity building, seed policy, fall army worm control and youth involvement in agribusiness.

### Agriculture in Togo

Agriculture is the most important sector to most Togolese as over 50% of Togo's estimated seven million people is engaged in agriculture, accounting for nearly 30% of economic activity over the past five years.

It employs two-thirds of the active population, who predominantly work on small land holdings. Food crops (mainly cassava, yams, maize, millet, and sorghum) account for two-thirds of production, and are mostly used domestically.
Togo's cash crops are mainly cocoa, coffee, cotton, and to a lesser extent, palm oil. These cash crops provide a valuable return for small farmers, and they provide 40 percent of exports. While urban areas have been growing rapidly, notably in and around Lomé, some 60% of the population continues to live in rural areas, with over 65% of these households (about 2.8 million out of 4.2 million) living in poverty.

Given Togo's high rate of rural poverty—with 55% of households living below the poverty line in 2015 and a majority being in rural areas, the theme of the 11th farmers forum cannot but be apt. the Togolese government is desirous of using agricultural transformation hubs to revive the economy of the country.

https://taat-africa.org/taat-highlights-agricultural-transformation-as-national-farmers-forum-begins-in-togo/

*Farmers at the Kara Forum (PHOTO; TAAT / Atayi Opaluwah)*

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and water management technologies by small-scale farmers across Africa.

The compact is coordinated by the International Water Management Institute (IWMI).
In Nigeria, IWMI partners withthe Institute of Agricultural Research (IAR) and the activities are coordinated by Professor Henry Igbadun. TAAT-WEC further engages the TAAT Rice Compact with a view to boosting the productivity of rice farmers by using modern rice varieties and good agricultural practices. The TAAT rice compact is represented in Nigeria by Dr. Samuel Bakare of the National Cereals Research Institute (NCRI).

https://taat-africa.org/nigerian-rice-farmers-double-income-through-double-cropping/

# From Waste to Wealth: How cassava peels processing technology is improving livelihoods in Nigeria

Nigeria is the world's largest producer of cassava, with a yearly output of about 50 million tonnes.

*Cassava peels*

Cassava production is projected to increase to up to 150 million tons by 2020. Nearly half of the quantity of cassava produced are processed into *garri, elubo* and other cassava-based staple foods.

For every ton of cassava processed, 10%-15%~125kg/tons, are lost in form of wet peels, which are poorly utilized, dumped as waste or burnt.

Hundreds of thousand women spend up to ten hours a day in various cassava processing centres, peeling cassava and earning less than $2.5 dollars a day.

## From waste to HQCP

Cyanide from cassava waste peels significantly reduces soil microbial population, increases soil acidity and heavy metal content of soils around processing cites. This huge waste can be converted to useful livestock feed through the High-Quality Cassava Peels (HQCP) technology.

With funding from the African Development Bank (AfDB), the Livestock Compact of the Technologies for African Agricultural Transformation (TAAT) is working with International Institute of Tropical Agriculture (IITA), Synergos Nigeria and Business Innovation facility (BIF), to promote the uptake of the HQCP mash technology.

The partnership contributes to improving the economic life of rural women, enhancing value-addition of cassava peels in livestock and fish feeds and reducing the menace of environmental degradation.

In 2015, Consultative Group on International Agricultural Research (CGIAR) scientists, led by the International Livestock Research Institute (ILRI) developed low-tech methods which involve sorting, grating, pressing, pulverizing, sieving and drying, wet peels to transforming it into high quality, safe and hygienic animal feed.

The transformation of wet cassava peels into HQCP mash was an

*HQCP fine mash at Ojapata factory in Kogi state*

outcome of a multi-centre CGIAR collaboration including ILRI, (IITA) and the International Potato Center (CIP) and several CGIAR research programs: Roots, Tubers and Banana, Humid tropics and Livestock and Fish.

A demonstration and training centre for this technology was then established at ILRI, Ibadan. The technology is simple and builds on existing machines already being used in cassava tubers processing.

Grating and pressing facilitates rapid water loss and accelerate the elimination of hydrocyanide; further achieved during physical dewatering and overnight fermentation. The intermediate product, semi-dry mash (40% dry matter, down from 70% in fresh peels), is free from deterioration and contaminants and safe as animal feed.
This can be sun dried or flash dried, in a regular cassava processing factory using the conventional drying process, to a storable product 10-12% dry matter. Sun drying of wet peels poses the risk of high hydrocyanide content and mycotoxins contamination and discourages commercial use of the product.

In contrast, the HQCP technology, developed and packaged by ILRI, is a product that is safe and hygienic as livestock feed.

## Prototype factories

Prototype HQCP factories have been established by Synergos in partnership with ILRI and the International Fund for Agricultural Development (IFAD) in Benue and Kogi States.

The HQCP wet cake, fine and coarse marsh are the key market products serving as ingredients in animal feed. Up to 25% maize in poultry feed can be replaced with HQCP fine mash.
There is a growing need in Benue and Kogi states, North-Central Nigeria, where the products have been promoted through the Oracle farm in Makurdi.

*Clarias fish being fed on Premium Fish Feed made from HQCP mash*

To gain commercial acceptance for the product, ILRI worked with Amo-Byng, Amo farm Sieberer Hatchery Ltd, in 2018 to conduct independent evaluation of the quality of cassava peels mash on broiler and layer chickens and beef cattle.

Layer and broiler birds fed the HQCP mash at a replacement rate of 60kg/ton, performed similarly on feed intake, conversion efficiency, egg production, growth rate and achieved 10-12% lower feed costs compared with control birds on maize based diet.
Rams fed 591g/d coarse cassava peels and cassava leaves attained average weight gain of 66.5g, while growing pigs receiving 30% HQCP mash diet achieved feed conversion ratio of 5.97.

## HQCP mash as Fish Feed

Synergos market linkages support for the HQCP flagship product (fine marsh) led to identifying Premium Fish Feed limited, at Ikorodu in Lagos state, South-West Nigeria.

Premium Feed incorporates up to 60% of HQCP into the fish mash to produce excellent quality, 100% floating, non-leaching fish feed.

According to Premium feeds, fish fed with the fine mash feed have achieved a feed conversion ratio (FCR) of 1:1, compared with 1: 0.5 on conventional feed. Premium fish feed currently have a production capacity of 6,000 kg of feed daily with ample room for further expansion.

The company off-takes up to 6 tons of HQCP fine marsh weekly.
ATT Farms Makurdi, Benue State, is a livestock farm rearing pigs, chicken, fish and turkey. The farm buys HQCP from Oracle farms for livestock feeding.

The pigs are, fed an average of 50kg coarse marsh weekly while the turkey birds are fed on the fine marsh.

Another initiative of the TAAT livestock

compact was the training of Certified Master Trainers by BIF and Synergos, for Quality Assurance and more organized HQCP mash production.

To date 120 entrepreneurs and 20 certified trainers have been trained at the ILRI HQCP model centre at IITA, Ibadan. Synergos and ILRI are leading efforts to establish three additional cassava peels processing facilities in Kogi, Benue and Ogun states of Nigeria

## More hectares of cassava from Governments

Bolstered by the opportunity that the processing of cassava peels offers for poverty alleviation and women empowerment, the Benue and Kogi state governments have supported entrepreneurs to establish 10,000 hectares of cassava farm.

In an effort to create more awareness of the HQCP mash technology, the Oyo State government in collaboration with the ILRI and the Raw Materials Research and Development Council (RMRDC), Nigeria, convened a stakeholders forum tagged "Waste to Wealth: Cassava Peels Utilization" in 2018.

In addition, Five Nigerian states including Abuja have been mapped with potentials to process cassava peels to HQCP.

## HQCP as win-win technology

If properly harnessed, the technology has the potential to add around 15 million tons of quality feed to the livestock sector. The economic potential to the feed industry in Africa hovers around U$2 billion a year.

According to Sam Yuuha of Oracle farms Ltd in Benue state,"our cattle now eats processed cassava peels" One cannot think of a better way to use the cassava peels in livestock feed, other than this initiative of processing the peels into High Quality Cassava Peels (HQCP)."

"Coarse marsh is very effective as an ingredient," Yuuha added.

At Ojapata processing cluster in Kogi state, Ali, a male farmer appreciates the use of HQCP as a component of livestock feed. "It allows us to use cassava waste (raw materials) that are available everywhere in cassava processing communities." "Also, we are learning new ways to use the HQCP as animal feed," Ali added.

It will also contribute to reducing current import bills on maize, mitigate current tension of grazing resource access in some countries, reduce environmental pollution from wet peels and create employment and incomes for cassava processors mostly women in the unorganized sector.

The impact on environmental pollution can be significant and requires an impact assessment study to be conducted.

The HQCP technology has enhanced increased utilization of wet cassava peels. With production currently at 10 tons wet peels per week in the few factories, when fully operational, the targeted factories in Nigeria will produce up to 20 tonnes of high-quality animal feed ingredients annually.

The new processing factories will improve income and the livelihood of 60,000 women, through higher income from selling processed wet peels.

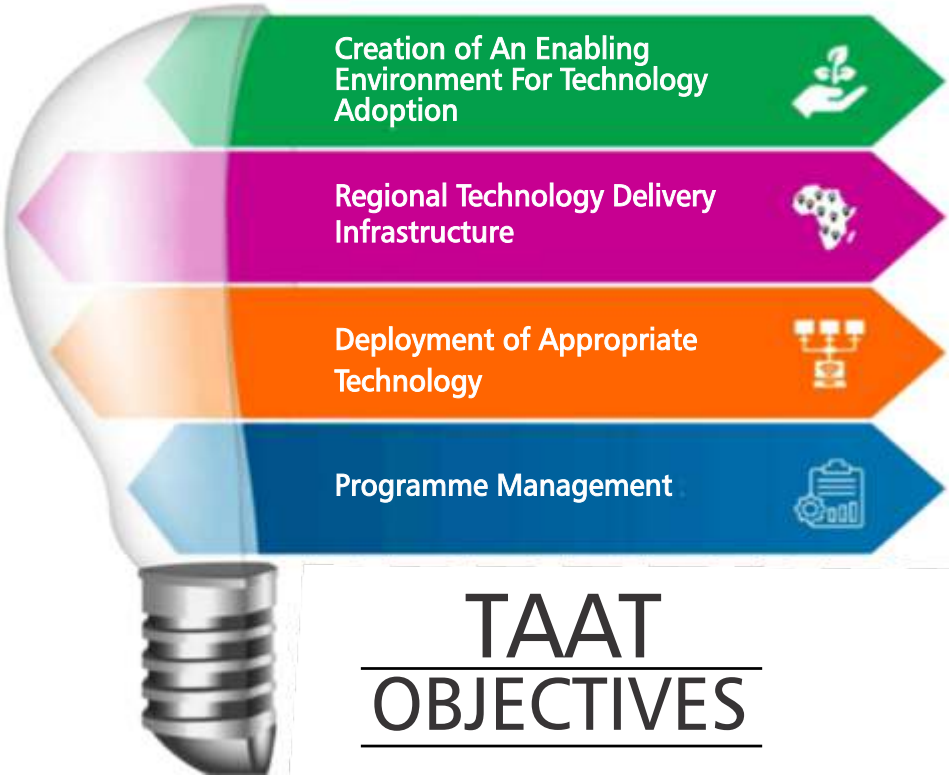
Increased household income becomes noticeable, as more women peeling cassava are also the ones selling the fresh cassava peels for at least NGN 10 (Nigerian Naira) per kg. "I have tried to sell the HQCP cake and the market demand is rising". Jumai, a female cassava peel worker at Ojapata Processing Cluster in Kogi state said.

The cost of unprocessed wet peels is currently at $1.4 per kilogram, compared with $2.7, $4.2 and $7 respectively for the semi-dry, dry coarse and the fine mash respectively.

The TAAT programme is supporting women cooperatives to own the HQCP processing machines so that they can reap the full benefits of the technology.

https://taat-africa.org/from-waste-to-wealth-how-cassava-peels-processing-technology-is-improving-livelihoods-in-nigeria/

*HQCP fine mash at Ojapata factory in Kogi state*




# TAAT OBJECTIVES

*A programme of the African Development Bank*

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