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CONTENTS

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TARI TO PARTNER WITH JSAFC IN IMPROVING AGRICULTURAL RESEARCH IN TANZANIA

TARI's Director General Dr Thomas Bwana (center) together with JSAFC chairman Mr. Jiang Zuping (second left), TARI Ukiriguru Centre director Dr Paul Saidia (left) pand other TARI Ukiriguru researchers during the visit to observe some research facilities of the Ukiriguru centre

The Tanzania Agricultural Research Institute (TARI), in collaboration with China's Jiangsu College of Agricultural and Forestry (JSAFC), is in the process of establishing the Shennong Institute of Agriculture in Tanzania as part of a collaboration between TARI and JSAFC.

This initiative was revealed in November during cooperative talks between the two institutions held in Mwanza. Dr. Thomas Bwana, the Director General of TARI, Chairman of the college Mr. Jiang Zuping, and Mr. Yang Guangrong, a dean at the college, were present during the discussions. The new institution is expected to be established at the Ukiriguru research centre in Mwanza Region.

A group photo soon after the iofficial nitiation of partnership talks between TARI and JSAFC

Areas of cooperation discussed include the use of drone technology for activities such as pest management (insects and diseases), irrigation, and soil fertilization. Another area of focus is agro-mechanics, as well as the exchange of experience and research skills in various agricultural fields.

Dr. Thomas Bwana also explained to the Chinese college leaders the major responsibilities of TARI in researching food and commercial crops through centres located in different parts of the country, stating that TARI will take the necessary steps to complete the cooperation process.

During the discussions, Dr. Bwana, along with the JSAFC college leaders, Ukiriguru Centre Director Dr. Paul Saidia, and heads of departments, visited various research infrastructures including soil and biotechnology laboratories, as well as a screen house for cassava seed multiplication at the TARI Ukiriguru.

TARI STRATEGIES IN ADDRESSING SORGHUM SEED SHORTAGE

Sorghum is important food crop with a significant feature of tolerating drought compared to other grains. However, in the Lake Zone and Western regions of Tanzania, sorghum production has been facing a seed shortage, which decreases its productivity.

To address this challenge, from 7th to 9th October 2024, the Tanzania Agricultural Research Institute (TARI) through its Ukiriguru and Ilonga research centres, in partnership with the Tanzania Official Seed Certification Institute (TOSCI) in the lake zone conducted a training program for 35 seed-producing farmers from the Lake and Western zone regions.

The training focused on modern seed production techniques, regulations, and market strategies and was held at the Ukiriguru Research Centre in Mwanza. It was part of the ACCELERATED and AVISA projects implemented by TARI in collaboration with CIMMYT, CIAT, and TOSCI.

Some seed producing farmers ttentively listening to Mr Emmanuel Mwenda National cordinator of sorghum research program who is also a reasearcher from TARI Ilonga

Speaking after the training sessions, TARI's National Sorghum Research Coordinator, Mr. Emmanuel Mwenda, highlighted the importance of scaling up the use of high-quality seeds developed through extensive research.

He emphasized the goal of increasing the uptake of improved sorghum varieties that have shown to deliver better yields compared to traditional seeds commonly used by many farmers.

Mr. Mwenda stressed the urgency of producing sufficient quantities of these seeds to meet the growing demand in the Lake and Western regions. He noted that there is a pressing need for sorghum seeds in these areas, and the training is a crucial step towards addressing that gap.

Mr. Mwenda also mentioned that the Lake and Western zones are experiencing a high demand for sorghum seeds, and the training would help address it while improving farmers' productivity and boosting yields.

On his part, TOSCI Inspector in the Lake Zone, Mr. Evance Kaganda, explained that in addition to educating farmers on the legal and procedural requirements for producing certified seeds, TOSCI will conduct regular inspections of their fields to ensure compliance with seed quality standards.

He said farmers must register their fields when they begin production, and TOSCI will inspect these fields two to three times to verify quality. After harvesting, samples will be collected for testing in TOSCI laboratories, and feedback on the quality of the seeds will be provided.

Seed inspector from TOSCI in the lake zone Mr Evance Kaganda giving explanations on the regulations regarding seed producing.

The training involved farmers from Mwanza, Shinyanga, Tabora, Simiyu, and Mara regions. Farmers who participated in the training praised the initiative, highlighting how it opened their eyes to new opportunities in the seed production business. They also expressed optimism about applying the knowledge they had gained to improve their farming practices.

The training initiative is expected to significantly contribute to overcoming the sorghum seed shortage and improving overall agricultural productivity in the region and beyond.

TARI and ICIPE to come up with the Integrated Pest Management in boosting productivity on avocado, oranges and mangoes

Towards fruit pest suppression on avocado, mango, and orange fruits, TARI trained a total of 165 extension officers and leading farmers from 31 wards in Hai, Siha (Kilimanjaro region), and Muheza district in Tanga region on Integrated Pest Management (IPM) for such fruits.

The training was held from September 9th to 13th, 2024, by researchers from TARI's Ukiriguru (Mwanza), Tengeru (Arusha), and Mlingano (Tanga) research centres in collaboration with researchers from the International Centre for Insect Physiology and Ecology (ICIPE) located in Nairobi, Kenya, under the funding of the German Corporation for International Cooperation (GIZ) through ICIPE.

The four-day training was part of implementing the three-year Fruit Tree agroecological-based IPM project in the fruit-growing regions of Kilimanjaro and Tanga. Its main focus was to impart awareness to farmers on IPM technologies that minimize the cost of fruit production and increase fruit yield and quality. In the Hai and Siha districts, the training focused on avocado, while in Muheza district, the training was based on orange and mango.

Speaking during the first day of training held at the Hai district council hall, the project leader in Tanzania through TARI, Dr. Abdullah Mkiga, said the training was also meant to ensure that farmers are able to identify the fruit tree pests, especially fruit flies and False Codling Moth (FCM), and implement suppression measures using an integrated pest management approach.

On his part, Dr. Shepard Ndlela, the team leader from ICIPE, revealed that through integrated pest management, farmers will also be able to minimize the use of chemical pesticides for high productivity and quality while keeping human and environmental health safe.

The appearance of an orange that has been affected by pest while on the tree

Beneficiaries of the training commended the eco-friendly IPM technologies such as on-farm monitoring, use of biopesticides, male annihilation, baiting techniques, use of natural enemies including parasitoids, and orchard sanitation, especially the use of Augmentorium.

Charles Semagongo is a farmer in Mkinga Village, Muheza District-Tanga region who owns over 1,500 orange trees. He says the training has helped him in identifying pests that he previously didn't consider dangerous to his mango and orange orchards.

On her part, Fatuma Muhammed, an orange farmer in Mkinga Village, Muheza district, said that through the training, she can now differentiate natural enemies from pests. She has also learned how to integrate them with other compatible control techniques for higher productivity.

"We knew that these insects (Weaver ants) destroy our oranges, but experts from TARI and ICIPE have told us that they are friendly insects that prevent other insects from attacking oranges," she said.

Earlier during the opening of the training in the Hai District, Hai District Commissioner (DC) Mr. Lazaro Twange praised TARI for putting efforts into capacity building for agricultural experts and lead farmers in various parts of the country, including Hai. This initiative is part of implementing the government's goals to improve the agricultural sector.

Then again, Muheza District Executive Director Dr. Juma Mhina said the project has come at the right time and for the right people, referring to fruits as the major source of income for many farmers. He noted that, apart from being important to the district's economy, fruit production has been facing pest challenges for a while, and he believes the project will be a solution to such challenges and propel the economic growth of individual residents in the district and the nation as well.

UKIRIGURU CENTRE DIRECTOR'S VISIT AT THE CAMARTEC

On November 1, 2024, TARI Ukiriguru Centre Director Dr. Paul Sabas Saidia visited the Centre for Agricultural Mechanization and Rural Technology (CAMARTEC) in Arusha to follow up on the progress of the sunflower planting machine prototype mechanization and the multiplication of cotton seed planting tools (RAFIKI planter) at the centre. The mechanization process of the planting machine is under the supervision of Ukiriguru researchers.

Dr. Saidia was welcomed by CAMARTEC Acting Director General Eng. Godfrey Mwinama. During his visit, Dr. Saidia observed various technologies produced by CAMARTEC, including simple machines for drying grain.

The innovation of grain planting tools is part of TARI researchers' efforts to reduce the cost of planting crops for farmers and increase productivity

RESEARCHERS SEEK TO BOOST CASSAVA AND SWEET POTATO PRODUCTION.

Low productivity in cassava and sweet potato has been a stimulus for researchers from the Tanzania Agricultural Research Institute (TARI) to adopt technologies that will promote the production of quality seeds resistant to virus diseases.

According to researchers, virus diseases like sweet potato disease, cassava mosaic disease, and brown streaks are the reasons behind the low productivity of such crops.

This was noted during the training for researchers held from 4th to 7th November at the TARI Ukiriguru research centre in Mwanza Region.

The workshop, a result of TARI's cooperation with other institutions including the International Institute of Tropical Agriculture (IITA), International Centre for Tropical Agriculture (CIAT), and the German Collection of Microorganisms and Cell Culture (DSMZ), aimed at building capacity in virus screening and rapid seed production technologies.

It brought together researchers from TARI centres in Ukiriguru, Maruku, Kibaha, and Naliendele.

Researchers practising grafting potato seeds as a way to prepare quality seed resiliant to the viruses.

> "A farmer will get zero harvest from a sweet potato farm that is 100 percent affected by the virus".

According to Mr. Salum Kasele, a researcher in cassava at TARI Ukiriguru, Tanzania's cassava yields average 8.6 tons, significantly below the recommended 30 tons.

He highlighted that the process to research, register, and commercialize improved seed varieties currently takes up to 10 years, and with the training, this timeline will be reduced to 5 years.

"We want to ensure farmers receive improved seed varieties faster," he said.

"We want to ensure farmers receive improved seed varieties faster," he said.

Regarding sweet potatoes, the head of the research program in Sweet Potato, Dr. Hadija Ally, said statistics show that in 2022/2023, the demand for improved seed varieties in the lake zone was 23 million vines, while farmers used fewer than 5 million vines.

Dr. Hadija added that, sweet potato is among the most reliable food crops in many areas of Tanzania, and the increase in production will also help strengthen food security.

"A farmer can harvest nothing from a sweet potato farm that is 100 percent affected by the virus," she revealed adding that the workshop will play a vital role in virus management.

Tunnel system technology and its impact in seed multiplication.

Two tunnel systems that has been constructed at the Ukiriguru research centre to facilitate cassava and sweet potato seed multiplication

Tunnel system is a technology that aims to ensure rapid multiplication of vegetatively propagated crops. The technology was previously developed for cassava rapid seed multiplication with a rate of 1:100 compared to conventional field multiplication of 1:10 within a year. This is achieved by using short cuttings with at least two nodes planted horizontally, with a high possibility of each node developing into a stem under high temperature and humidity. Nowadays, the technology has been extended to other vegetatively propagated crops, including banana and sweet potato.

At the end of September, researchers from the Tanzania Agricultural Research Institute (TARI) participated in a two-day workshop that focused on the use of rapid multiplication tunnel technology for cassava seed production.
The workshop brought together researchers from the International Institute for Tropical Agriculture (IITA) in Dar Es Salaam and Nigeria-based centres, the National Root Crops Research Institute (NRCRI) in Nigeria, and the National Horticultural Research Institute (NIHORT) also from Nigeria. The workshop was supervised by Dr. Erick Delaquis and Dr. Roosevelt Perel, who are the founders of the technology, both from the Alliance Biodiversity International and CIAT based in Laos Republic and Colombia, respectively.

During the training, participants learned the concept of the technology, basic requirements for tunnel construction, and shared experiences on seed systems for banana, cassava, sweet potato, and yam.
Speaking at the official opening of the training, Mr. Peter Kasele, acting Regional Administrative Secretary in Mwanza, said the technology is going to revolutionize cassava and sweet potato production in the Lake Zone by increasing the timely availability of quality seed varieties.

On his part, TARI Ukiriguru Centre director Dr. Paul Saidia assured that the technology will reduce the use of poor-quality seed, hence increasing production and improving farmers' livelihoods in the Lake Zone and Tanzania in general.
At present, two tunnel systems have already been constructed at the Ukiriguru Centre, one for cassava and another for sweet potato seed multiplication.

TARI UKIRIGURU INNOVATES SUNFLOWER PLANTING MACHINE

At the end of November, Ukiriguru Centre Director Dr. Paul Saidia officiated the reception of the Sunflower Rafiki Planter prototype, which was innovated and designed by the centre's researchers in collaboration with the Centre for Agricultural Mechanization and Rural Technology (CAMARTEC). The reception also involved some members of the centre's management.

Speaking during the reception of the prototype, Dr. Saidia commended the government through the Ministry of Agriculture for supporting various innovations carried out by TARI researchers aimed at promoting agricultural growth in the country.

On his part, the leading innovator of the prototype, Mr. Dausoni Malela, said the innovation of the machine is part of initiatives to support farmers in simplifying sowing activities while saving time and costs. Malela noted that the operation of the prototype will attract youths to participate in agricultural production, just like how the government has been doing to attract youths through different projects such as the famous Build a Better Tomorrow (BBT).

Lead innovator of sunflower rafiki planter prototype Mr Dauson Malela (centre) in a group photo with some members of TARI Ukiriguru management

The Acting Coordinator of Research and Innovation at the centre, Dr. Alfonce Mutiba, revealed that the sunflower planting prototype will contribute to speeding up the government's efforts to strengthen the availability of cooking oil in the country. After the innovation of the prototype, innovators will take it to trials in different regions to test its efficiency before its multiplication.

On his part, Acting Coordinator of Technology Transfer and Partnership Dr. Abdullah Mkiga praised the innovation while insisting that researchers complete the trials timely. Once the test is completed, the technology will be distributed to farmers who are the main target of the innovation.

PHOTO GALLERY

Training to 31 extension officers from Mwanza, Tabora, Katavi, Morogoro and Simiyu on water and land management and better uses of cotton agricultural machinery. The training was facilitated by trainers from the Brazilian Federal University of Lavras (UFLA) under the Cotton Victoria project funded by the Brazilian government through Brazilian Cooperation Agency (ABC).

A group photo of TARI Ukiriguru and Maruku researchers, investigators from other TARI centres and other participants from government institutions during the Internal Program Review (IPR) meeting held at TARI Ukiriguru recently

Misungwi District Commisioner Ms Johari Samizi (second from right) accompanied with Ukiriguru Centre Directork Dr Paul Saidia (right) cotton cordinator Mr. Mohamed Shemahonge (center) Acting cordinator of Technology Treansfer and Partnership Dr. Abdullah Mkiga (Second from left) and Coordinator of research and Inovation Dr. Deusdedith Mlay (left). Ms Samizi arrived at the research centre to officiate the training to extension officers from cotton zone regions on issues related to cotton.

A group photo of leading researchers in the PROSSIVA project after the annual meeting to evaluate the progress of project's implementation on sweet potato, cassava and banana crops and to find ways of strengthening such crops' seed system.

Researchers displaying various research products during the national tourch ceremony held at the Misasi grounds in Misungwi districts, Mwanza regions.

A group photo between TARI Ukiriguru researchers and Director of Nuclear Technology and Technical Services from the Tanzania Atomic Commission (TAEC) Dr Regimius Kawala (wearing a coat) and Plant breeder from the International Atomic Energy Agency (IAEA) Ms Cinthya Zorrilla Cisneros (third from right) checking the green house facilities form cotton research activities. The partnership between TARI, TAEC and IAEA aims to facilitate TARI researchers with atomic technology in cotton breeding.

Cassava seed interpreneur Mr. Edward Misungwi (left) after being handed over with TARICASS 4 seed that he procured from TARI Ukiriguru recently. Others are senior researcherss in cassava Mr Innocent Ndyetabura (center) and Mr Zakayo Machunde (right).

TARI Ukiriguru centre director Dr Paul Saidia (centre) in a photo with lead cotton farmers from Geita region.

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