

# **TANZANIA AGRICULTURAL RESEARCH INSTITUTE**



## **Quarterly Report on Research, Management and Coordination Progress**

**For the period of 1<sup>st</sup> April to 30<sup>th</sup> June 2023**

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**12<sup>th</sup> July 2023**

## **1.0 Introduction**

In this 4<sup>th</sup> quarter, the institute planned to implement 11 planned activities using its own source and government development funds. The planned activities were:

1. Weeding and maintenance of coconut seedfarms and trials in Chambezi and Mkuranga sub stations
2. Planting of coconut seeds in the nursery to produce seedlings for planting in the short rains season 2023
3. Finalizing data taking, analysis and report writing for fertilizer efficacy evaluation trial, and projects final reports for SASSA na FRESH in collaboration with WorldVeg
4. Completion of the project 'Combating Arthropods Pest for food security and Climate Resilience' (CAP) activity on field surveys in 2 districts in Morogoro region Conducting training of trainers(TOT) on fruit flies and *T.absoluta* IPM in collaboration with scientists from *ICIPE*
5. Mass multiplication of sisal and pineapple seedlings using tissue culture technology
6. Monitoring the demonstration plots in three sites for pineapple seedlings
7. Provision of laboratory screening services to crop regulatory authorities
8. Analysis of laboratory results and report writing of oil palm fingerprinting
9. Establish four Results demonstration plots at the AgriTech(s)Hubs to disseminate technologies developed during Nane Nane show
10. Disseminate Agric. technologies to different stakeholders through various platforms

Thus, using the available support, the institute recorded significant achievements in its planned research activities in this quarter as detailed below

## **2.0 Achievement**

### **2.1 Crop Research Programmes**

#### **2.1.1 Agronomy section**

In this section, the planned activities in this quarter were :

1. Weeding and maintenance of coconut orchards in Chambezi and Mkuranga sub stations
2. Planting of coconut in the nursery to produce seedlings for short rains in Oct. 2023
3. Finalizing data taking, analysis and report writing for fertilizer efficacy a contracted service by Tanzania fertilizer Regulatory Authority (TFRA), and projects final reports for SASSA na FRESH in collaboration with WorldVeg.

## Achievements

1. A total of 64.5ha of coconut both germplasms, multilocation trials and Breeders test materials were weeded and maintained
2. A total of 19,068 nuts harvested from Mkuranga and Chambezi substations, 10,318 were selected for seeds and 8,750 were sold for domestic use.
3. Establishment of coconut mini-nursery with 300 seedlings at Mwl. Nyerere AgricHub at Morogoro for Nane Nane
4. Planting of vegetable results demonstration for Amaranths, night shade and *Solanum ethiopicum* at Mwl. Nyerere AgricHub Nane Nane ground at Morogoro

### 2.1.3 Finalizing data taking, analysis and report writing for fertilizer efficacy trials and collaborative projects

- Harvesting on fertilizer evaluation trial, data collection, processing and final report writing and submission to TFRA headquarter
- Completed final project reports for collaborative FRESH project with World Veg (*detailed report in TARI-MKN website*)
- Dissemination of vegetable seeds (3var for Mchicha nafaka, 2 var *S ethiopicum*, 1 night shade var.) to farmers in districts in DSM and Pwani (Ilala Kigamboni, Bagamoyo, Mkuranga) for adoption by a SASSA project

### Number of research projects formulated, submitted to donors

- One Consultancy proposal for fertilizers evaluation works with budget have been submitted to TFRA awaiting for MOU signing
- Coconut proposal was presented to Indonesia Councillor to Tanzania for fund soliciting

### 2.1.2 Pest control

#### Planned activities

1. Completion of the project 'Combating Arthropods Pest for food security and Climate Resilience' (CAP) activity on field surveys in 2 districts in Morogoro region to collect insect samples found within avocado, cucurbits and tomato fields
2. Conducting a training of trainers(TOT) on fruit flies and *T.absoluta* IPM in collaboration with scientists from *ICIPE*

## Achievements

- 274 insect samples from 53 fields **Table 1** collected and grouped according to their respective categories i.e. pest, pollinators and natural enemies they will be catalogue for references

District	Wards	No. of fields surveyed	Pest	Pollinators	Natural enemies	Total
Morogoro Municipal	Kingolwira	7	19	6	5	<b>30</b>
	Bigwa	5	35	5	5	<b>50</b>
	Mzinga	4	10	6	4	<b>20</b>

	Kauzeni	8	23	7	3	<b>33</b>
Mvomero District	Dakawa	12	33	8	6	<b>47</b>
	Doma	7	52	7	4	<b>63</b>
	Mlali	10	27	6	3	<b>36</b>
<b>Total</b>		<b>53</b>	<b>199</b>	<b>45</b>	<b>30</b>	<b>274</b>

### **Conducting a training of trainers(TOT) on fruit flies and *T.absoluta* IPM in collaboration with scientists from *ICIPE***

- 38 (16 male and 22 female) scientists trained on “Integrated Pest Management strategies for management and control of fruit flies and *T. absoluta* in tomato. The training was train trainers so that they can train extension staffs and stakeholders. In line with training field guides manuals and fliers were disseminated to trainees for reference

## **2.2 Biotechnology**

The section continued to implement the planned activities which include:

1. Mass multiplication of sisal and pineapple seedlings using tissue culture technology
2. Monitoring demonstration plots in three site for pineapple seedlings
3. Provision of laboratory screening services to crop regulatory authorities

### **Achievements**

#### **2.2.1 Mass multiplication of seedlings**

- At total of 12,015 seedlings of pineapple (MD2 variety) produced and weaned by TARI-Mikocheni and Crop Bioscience Solution lab, a collaborator of TARI-MKN
- A total of 12,234 sisal Hybrid (var. H. 11064) seedlings have been produced through TC lab

#### **2.2.2 Monitoring the demonstration plots in 3 sites for pineapple seedlings**

- Fertilizer application completed in 3 results demonstration trials at: Chambezi-Bagamoyo, Kinole-Morogoro and Madeke-Njombe. About 95% of all pineapple seedlings transplanted have established and continue well

#### **2.2.3 Provision of laboratory screening services to crop regulatory authorities**

- Field surveys for Cassava mosaic disease completed in Zanzibar South, Zanzibar and Pwani with a total of 717 leaf samples with CMD symptoms collected for lab analysis
- 3,075 oil palm leaf samples collected, and 2,879 analysed and preliminary report is being finalised
- A total of 200 cut flowers samples from TPHPA-Arusha screened for absence of a quarantine pathogen *Xylella fastidiosa*, report submitted to TPHPA.
- Data for cassava variety clonal evaluation with resistance to whitefly have been collected in 2 districts in Chambezi, Pwani na Bunda, Musoma.

- 3,000 Leaf samples from cassava elite F1s have been shipped to CIAT-Colombia for genotyping
- Refresher training to cassava stakeholders (extension agents and farmers) completed to 131 (80 male & 51 female) stakeholders in Pwani, Tanga, Mtwara and Ruvuma.

In this section 3 projects are ongoing, and 2 consultancy completed in 30<sup>th</sup> June 2023.

**Table 2. Ongoing project under the Biotechnology section by 30<sup>th</sup> June 2023**

SN	Project title	Year started	Year ending	Source of funds
1	Tissue culture-based massive production and unrestricted access of high-quality pineapple planting material	2022	2023	Govt./Costech
2	African Cassava Whitefly: Outbreak Causes and Sustainable Solution (ACWP-2)	2018	*2023	BMGF/NRI
3	Cassava Mosaic Disease Susceptibility and Resistance (CMD-II)	2018	2024	NCSU/BMGF
*4	Massive multiplication of Sisal planting materials using tissue culture technology	2023	2023	Govt/TARI-Mlingano
*5	Oilplam DNA fingerprinting and illegitimacy testing to Tenera seedlings	2023	2023	Govt/TARI-Kihinga

*\*Number 4&5 are consultancy from TARI-Mlingano and Kihinga completed on 30<sup>th</sup> June 2023.*

## 2.3 Technology transfer

Planned activities in this quarter

1. To establish four Results demonstration plots at the AgriTech(s)Hubs to disseminate technologies developed during Nane Nane show
2. To disseminate Agric. technologies to different stakeholders through various platforms
3. To attend meeting and conferences

### 2.3.1 To establish four Results demo plots at the Agri. Tech(s) to disseminate technologies developed

Four (4) results demo plots established in 4 Agric. Hubs in four zones to disseminate 6 technologies (**Table 3**).

300 coconuts, 112 African eggplants, 88 African nightshade seedlings transplanted, and 90 Amaranths seeds sown at Mwl. J.K. Nyerere Hub-Morogoro.

**Table 3: Technologies disseminated by TARI through AgriTech(s)**

Agri. Tech Hub Centre	Crop	Variety/technology disseminated
Fatma Mwasa, Tabora	Coconuts and cowpea	3 Coconuts(EAT) intercropped with cowpea
Nzuguni, Dodoma	Coconut	4 Coconuts(East African Tall)
Mwl. Julius Nyerere, Morogoro	Banana tissue culture and black turtle beans	5 Intercropping banana with leguminous crop
	Coconuts, Mangoes, Oranges	6 Intercropping with fruit tree

	and black turtle beans		crops and leguminous crop
	Vegetables	7	African eggplants(DB3 and Tengeru white),Amaranths(Poli, Nguruma and Akeri) and African night shade (Ambureni)
Nyakabindi, Shinyanga	Coconuts	8	Coconuts(East African Tall)

### 2.3.2. To disseminate Agric. technologies to different stakeholders through various platforms

- 25 farmers (18 Males and 7 Females) reached with Good Agronomic Practices (GAPs); on weeding and fertilizers application methods for pineapple in the demo plots at (1) Madeke in Njombe region, Kisambwa Tandai Kinole in Morogoro region and Chambezi station in Bagamoyo (Pwani).
- 280 farmers (153 Males and 127 Females) reached with technologies, of which 155 farmers (81 Males and 74 Females) at Chambezi sub-station and 125 farmers (72 Males and 53 Females) at Mkuranga sub-station. The main technology enquired was buying of coconut seedlings, and its GAPs and pest control in coconut farming.
- 300 leaflets on coconut and tissue culture where 83 leaflets were disseminated.

**Table 4. Packaged technologies and their medium of dissemination**

Numbers prepared/hired/made/received						
TV	Radio	Newspapers	Social media	Short Messages	Phone calls	Others specify
2	0	0	53	134	73	-

### 2.3.3 Meetings/conferences/ symposia/workshops

- Two researchers (2Males) from Biotechnology and Social Economic Units attended the meeting held at Saint Gaspar Conference Centre in Dodoma on 28<sup>th</sup> April where the main objective was to discuss on different matters pertaining TARI worker's performances.
- One Personal Secretary (Female) attended 5days annual Gen. meeting for Tanzania Personal Secretaries Association (TAPSEA), and symposium from 23<sup>rd</sup> to 27<sup>th</sup> May 2023 at State University of Zanzibar (SUZA), objective was to influence and encourage all secretaries within a country to transform on the basics of science and technology.
- Centre Manager and Centre Coordinator of Technology Transfer and Partnership attended meeting on 30<sup>th</sup> May 2023 at the Embassy of Indonesia Headquarters main objective was to solicit the possibility for research collaboration and funding for coconut research

- CTPP coordinator attended a conference on 5<sup>th</sup> to 8<sup>th</sup> June 2023 at Durban Conference Hall in South Africa, main objective was to discuss on issues pertaining Agribusiness in crop growers and how to use science in agriculture for African farmers.
- One researcher(Male) from Pest Control Unit attended meeting from 19<sup>th</sup> to 21<sup>th</sup> 30<sup>th</sup> June 2023 at La Mada Hotel in Nairobi main objective was to discuss on harnessing research outputs from different partners under CAP project.

## 2.5.2 Knowledge Management and Communication

In this quarter the achievement include:

- 3 Manuscripts submitted for publication in peer review journals
- Training manual for Extension agents "Udhibiti wa magonjwa muhogo yasababishwayo na virusi na kuenea kwake kupitia nzi mweupe wa muhogo Tanzania Mwongozo wa mafunzo kwa Mabwana shamba: Taasisi ya utafiti wa Kilimo Tanzania (TARI)
- 2 Final project report submitted (*details TARI-Mikocheni website*)

## 2.5 Research Infrastructure

One tractor at Mkuranga was successful repaired and replaced with complete set (2 front wheel and 2 rear tyres). The tractors significantly contributed in weeding and maintenance of coconut farm at Mkuranga substation.

### Civil Works

- None conducted in this quarter

### Research Facilities and Equipment procured

No procurement of lab chemical and equipment in this quarter

## 2.7. Management and Coordination

In this reporting period TARI-MKN received funds from two main sources: government as operation charges (OC) and development amounting to Tshs. 47,988,350 (19.22%), and from donors amounting Tshs. 201,611.094 (80.77%) (**Table 5**). The available funds were utilized primarily on research activities and normal operations

**Table 5. Total funds received from collaborative/contract projects by 30<sup>th</sup> June 2023**

No.	Source	Revenue Apr-Jun 2023
1	Government Other charges (OC)	16,282,000
2	Government development	30,400,000
3	Own source (Sales and collections)	1,306,350
4	Own source Donor projects-ACPW2	182,155,666

5	Cassava (CMD)	
6	FRESH	
7	SASSA	18,455,428
8	Other donors	1,000,000
	<b>Total</b>	<b>249,599,444</b>

### **Legal issues**

Still Chambezi land dispute with the Ruling Party (CCM) yet to be resolved

**Audit issues**-None

### **Staff matters**

The institute is still faced with huge debts of which large proportion is for staff claims. As per June 30th 2023, the debt accumulated to Tshs. 101,423,240, of which, the previous debt for financial year 2020/2021 was Tshs. 80,315,240. The current 2022/2023 financial year is Tshs. 21,108,000 kama yalivyoanishwa katika Jedwali Na.2