



Solidarity

Equality

Sustainability

BioInnovate Africa

Improving lives through bioinnovations

Julius Ecuru, Ph.D.

Manager

Presented at the G20 Bioeconomy Initiative, 1st Meeting

Session 5: **Cost Effective Intervention Programmes for Supporting Bioeconomy Development in Africa and the Global South**

25 February 2025 (virtual)

<https://bioinnovate-africa.org>

WHO WE ARE

- BioInnovate Africa - a regional science & innovation-driven initiative stimulating a sustainable bioeconomy in eastern Africa.
- Supported by Sida & implemented by *icipe* (Cooperation Partners)
 - October 2016 – March 2022 (phase II);
 - April 2022 – December 2026 (phase III).
 - Burundi, Ethiopia, **DR Congo**, Kenya, Rwanda, **South Sudan**, Tanzania, & Uganda.
- A network of 130 organisations, 400 scientists, 50 postgraduate students, 34 Women Fellows (2017 – 2024).



Figure 1: Map of BioInnovate Africa Countries

OUR CONTEXT

Context

- 438m people (2021), 58% rural.
- US\$420bn GDP (2021 current \$); agriculture 27.1%); > 60% informal sector
- Depend directly on biological resources for food, fuel, housing, & medicine.
 - Bioresources are used in raw form; >40% is lost post harvest; >40% of biomass is disposed of as biological waste.

OUR CONTRIBUTION

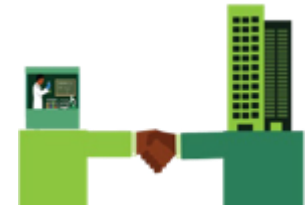
Contribution

- A framework for innovation, especially for universities, research institutes & firms.
- Sustainable biobased solutions:
 - Value addition.
 - Optimal & less polluting agro-processing.
 - Economic diversification & green jobs.

WHAT WE DO

Mission

- Enable scientists in eastern Africa to translate biological based research outputs (*discoveries, inventions – early stage but past proof of concept in lab or field*) into practical uses in society through appropriate business models.



Thematic areas



- Value addition to agroproduce & other bioresources



- Biowaste conversion



- Biobased healthcare products

Services



- Grants for innovation projects (from US\$ 100k to US\$ 750k) for 3 yrs.



- Bioeconomy policy analysis



- Professional bio-business incubation & acceleration services.

OUR APPROACH – ROUTE TO MARKET

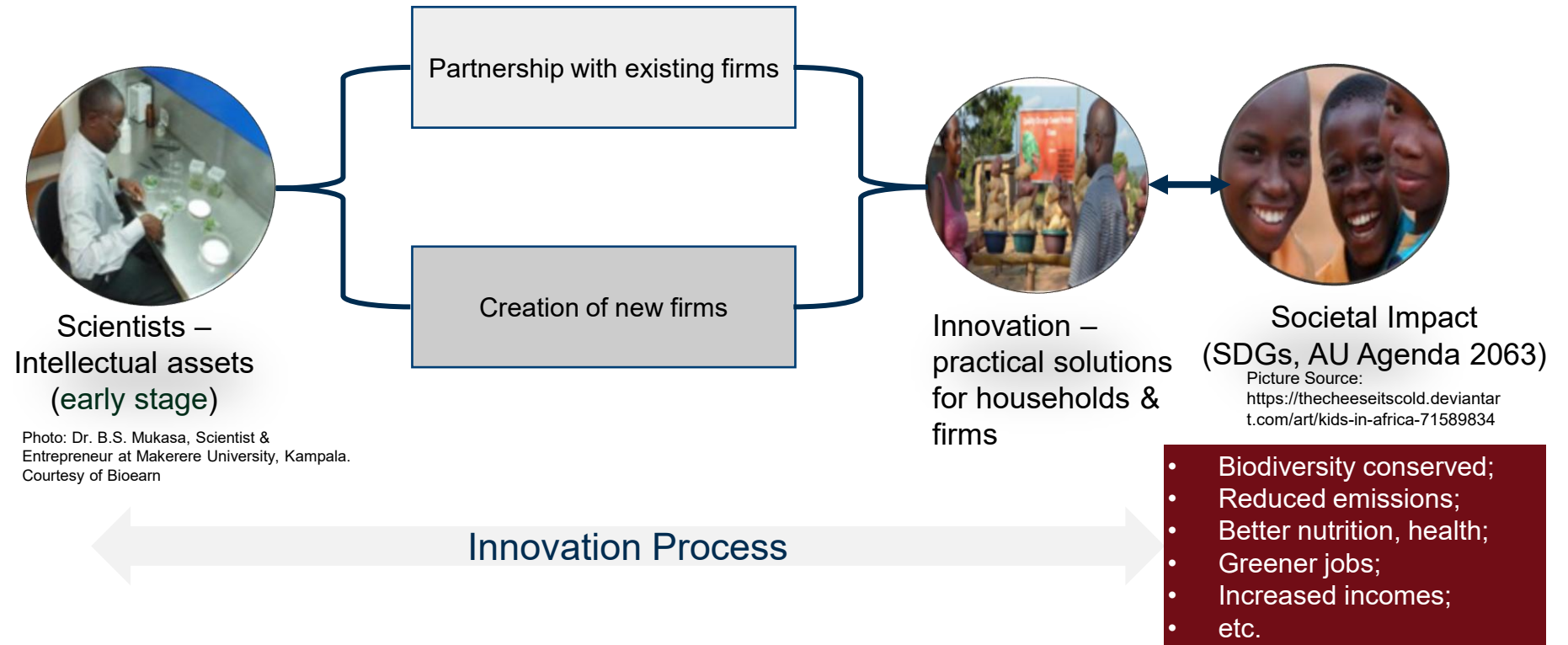


Figure 2: BiInnovate Africa innovation process

OUR APPROACH - GETTING PARTNERS

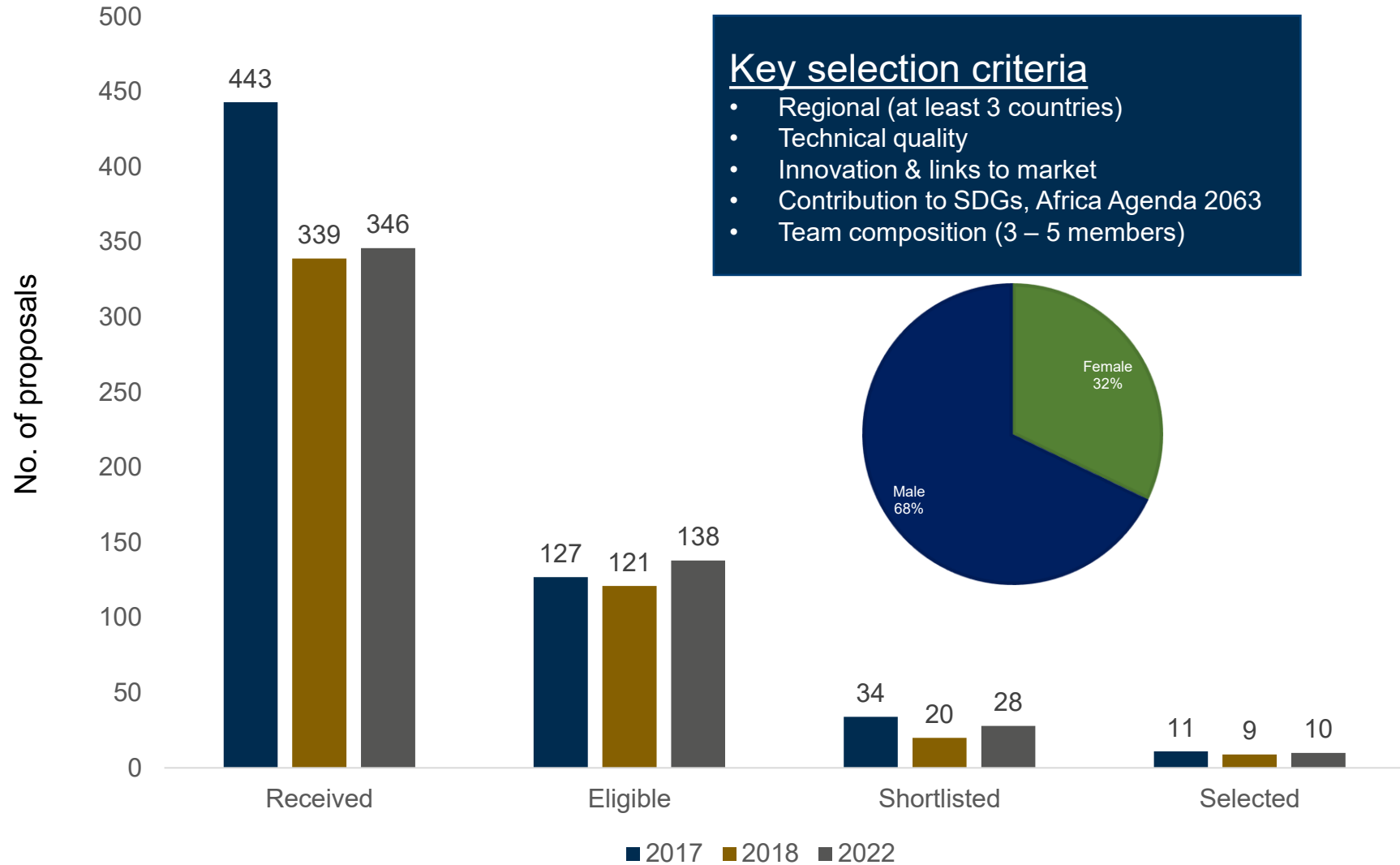


Figure 3: Proposals received vs awarded

OUR APPROACH – COLLABORATION & REGIONAL INTEGRATION

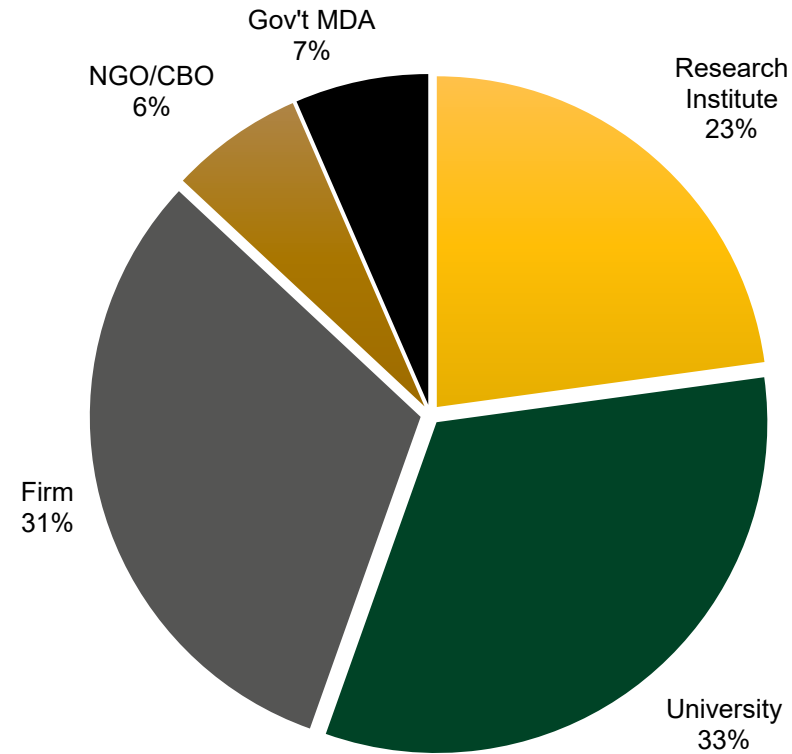


Figure 4: Triple helix of partners

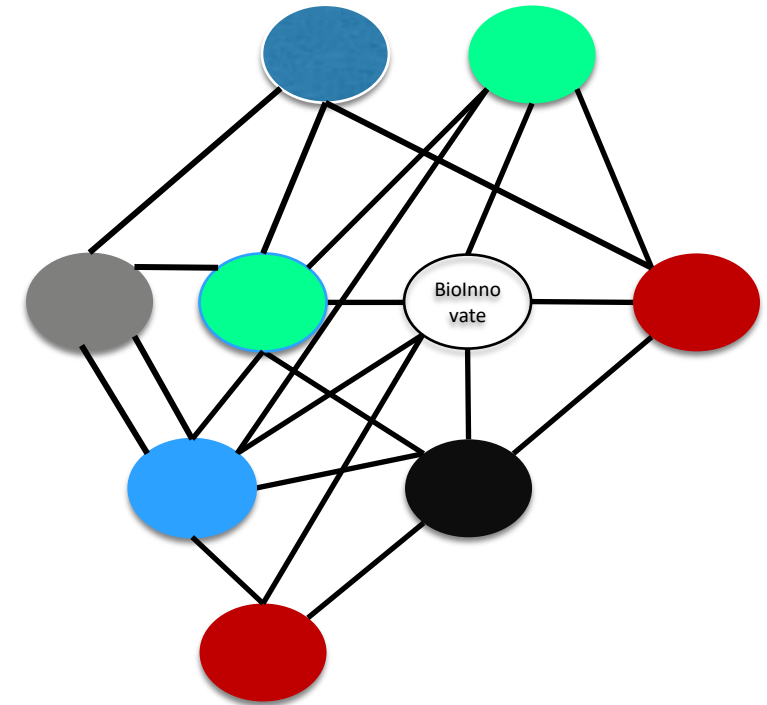


Figure 5: At least 3 countries in a single project

OUR RESULTS - 2017-2024 (PRODUCTS)

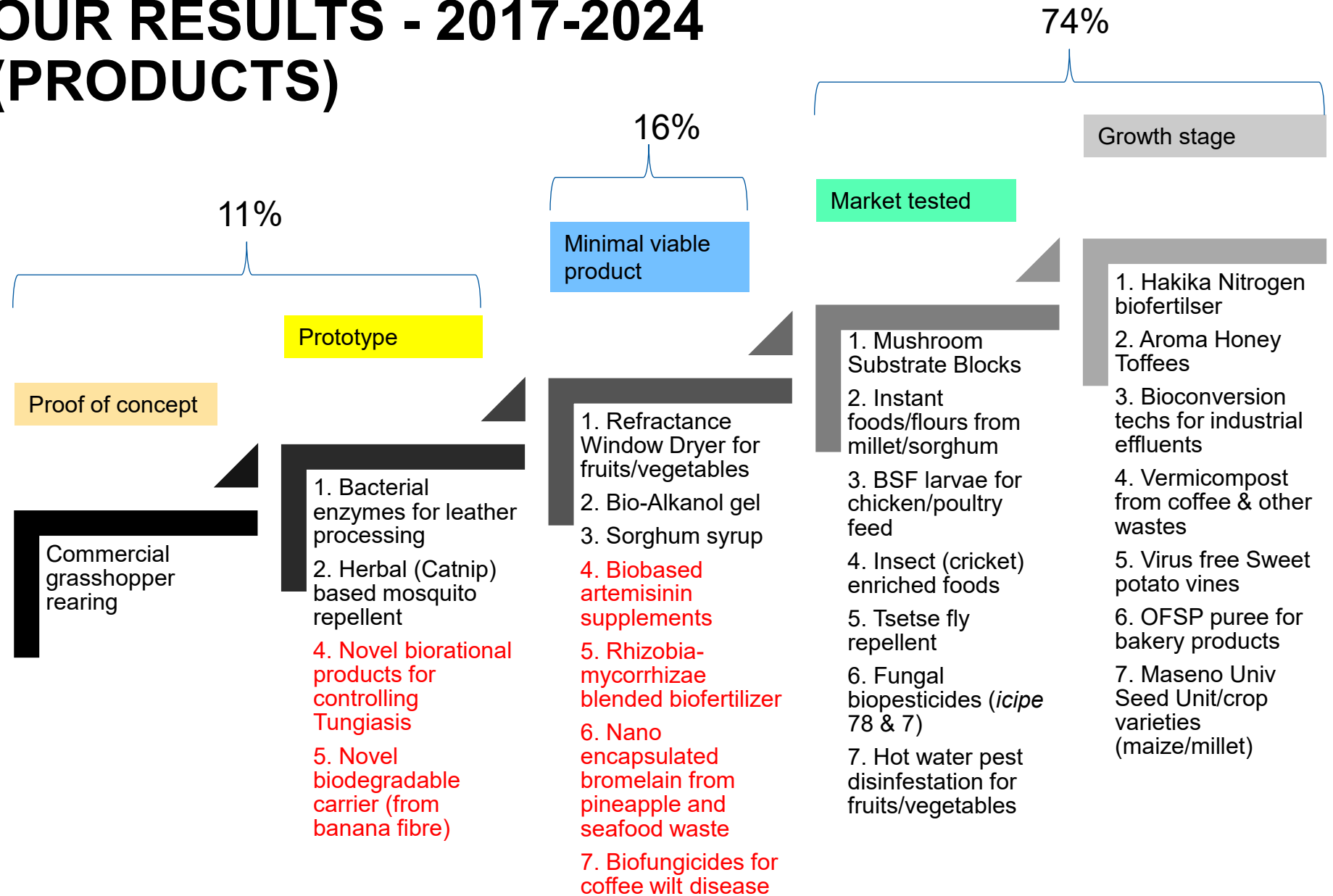


Figure 7: Products stages as at 21 April 2022

OUR RESULTS – REVENUE TO PARTNERS (JULY 2023)

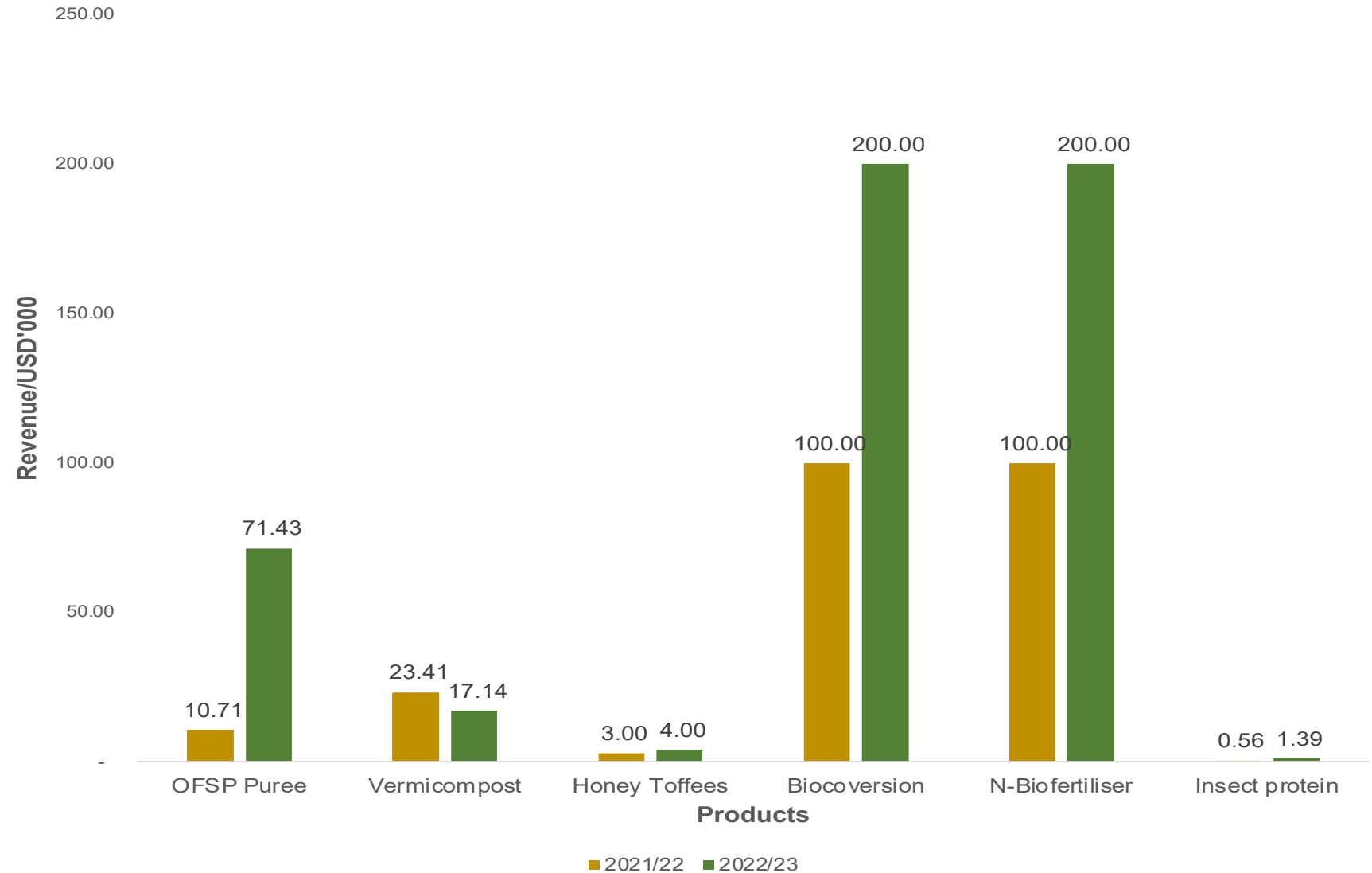


Figure 6: One year post funding survey of BioInnovate Africa supported projects (Kidoido, M. et al. (2023))

OUR RESULTS - SOME EXAMPLES



Improving nutrition

- BioBuu (K) Ltd, providing more nutritious, environmentally friendly & affordable insect proteins feed supplement to millers/farmers.
- Providing healthier options for sweets to middle income families through Aroma Honey Toffees (U) Ltd.



Reducing postharvest losses

- Hot/warm water disinfestations facility to be installed at JKIA, providing 100% pest-free solution enabling fresh fruit exports to the EU.



Managing Biowaste

- BIOCON (T) Ltd/EnvSol (T) Ltd, providing tailor made solutions for industrial waste water management.
- Guavay Co. (T) Ltd, providing nitrogen enhanced biofertilizer (Hakika™) to organic avocado growers/exporters



Scientifically skilled youth are instrumental in growing these ventures.

Figure 7: BiInnovate Africa new products/ventures

OUR RESULTS – EXAMPLE OF HAKIKA



Societal benefits

Environment

1. Ensure a clean environment by converting agricultural waste in cities in a biofertilizer.
2. Reduce CO₂ emissions by providing alternative soil nutrients.
3. Maintain soil stability; conserve biodiversity

Economic

1. Increase avocado yields for farmers;
2. Improve the value chain for horticultural crops
3. Increase incomes for farmers through export of their crop.

Social

1. A better quality of life for farming communities
2. Youth employment opportunities
3. Transition from peasant to commercial farming

Product: Hakika™ Organic Fertilizer

Price: USD17 for 50Kgs pack.

Profile: Natural growth promoters, beneficial microbes, preserves soil moisture, up to 25% yield increase

Customers: Horticulture (fruits/vegetables – mainly Avocado) farmers – approximately 150,000 farmers and 48 agrodealers in South West, Tanzania.

Size: 5 staff in 2017, 33 staff in 2024 (22 Full time; 11 part time).

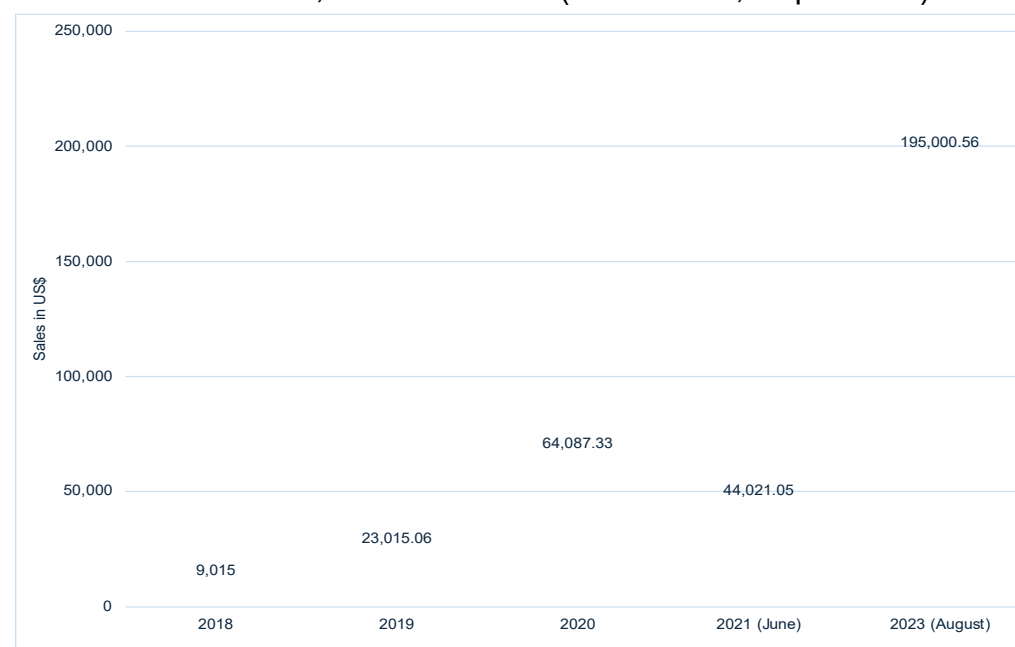


Figure 8: Hakika Biofertiliser Annual Sales

Partners

1. University of Dar es Salaam, Tanzania
2. Sokoine University of Agriculture, Tanzania
3. Makerere University, Uganda
4. Tanzania Commission for Science and Technology
5. Guavay Company Ltd, Tanzania
6. Tursam Investments Ltd, Uganda

POLICY DIALOGUES; PROMOTING REGIONAL & INTERNATIONAL COOPERATION



Dr Kevit Desai, Permanent Secretary, Ministry of East African Community (EAC), Kenya, giving a closing statement at the 2nd Eastern Africa Bioeconomy Conference



*Dr Sylvance Okoth, Executive Secretary of EASTECO, Eng. Steven Mlote, Deputy Secretary General, EAC, Dr. Julius Ecuru, head of Bionnovate Africa and SEI Executive Director Prof. Måns Nilsson launch the *State of the Bioeconomy in Eastern Africa: 2022 report*. Photo: Lawrence Nzuve / SEI. **23 June 2022, EAC Secretariat in Arusha, Tanzania***



Dr Andrew Karanja, Minister of Agriculture and Livestock Dev't, Kenya, HE Amb. C Viciini, Embassy of Sweden in Kenya, Hon. Claudia Muller, Parliamentary State Secretary, Federal Ministry of Food and Agriculture, Germany, Dr A. Tenkouano, Director General, icipe, & Prof C. Lang, CO-Chair of the IACGB at the opening session of Global Bioeconomy Summit 2024 in Nairobi, Kenya.

CHALLENGES

1. Clarifying and getting the right incentives for biobased innovations.
2. Designing innovative financing models for biobased startups, which are often too risky for the conventional financing mechanisms through banks.
 - Innovation funds, philanthropy funds, patient capital, etc., are very helpful. However, they should be consistent, sizeable & sustained over long time periods (5 to 10 years).
3. Developing competitive firms & products requires a skilled workforce, more investment in R&D, strengthening market access and value chains, etc.

EMERGING OPPORTUNITIES FOR THE AFRICAN BIOECONOMY

- Food, nutrition & healthy lifestyles
 - Novel foods (proteins); Biopharmaceuticals; Safe drinking water & clean air.
 - Bioinputs (including feed) from agricultural and other biowastes
 - Indigenous knowledge valorization
- Urban design, construction & green cities
 - Biomaterials for construction, packaging; Regenerative forestry; Precision urban farming.
- Sustainable businesses
 - Biomanufacturing, biorefineries, e.g., precision fermentation; energy from renewable bioresources, e.g., from multipurpose crops (cassava, sorghum)

CONCLUSION

- Regional innovation collaborations between academia, industry, and government can advance bioeconomy development.
- Using biological resources, these bioinnovations foster a sustainable bioeconomy as a new growth pathway, consistent with SDGs 2030, climate goals and AU Agenda 2063.



G20
SOUTH AFRICA 2025



Solidarity

Equality

Sustainability

Thank you