

BIO KENYA RESEARCH PROJECT: TURNING AGRICULTURAL WASTE INTO WEALTH WITH BIOCHAR & INSECT-COMPOSTED FERTILISER

Financed by the French Embassy in Kenya, May 2024

Koitaleel University College, Kenya Agricultural and Livestock Research Organization (KALRO), International Centre of Insect Physiology and Ecology (*icipe*), University of Embu, French Institute for Research and Development (IRD) and the French Agricultural Centre for International Development (CIRAD) received a two-year (2024 – 2026) grant from the French Embassy in Kenya through the National Research Fund (NRF) to implement a project on **“Large scale validation and commercialization of Bio-char and Insect-composted Organic Fertilizers in Kenya”**.

The research grant worth **1.2 million Euros** (Kshs 170 million) has the objective to improve food productivity and income generation among smallholder farmers in Busia, Siaya and Kisumu counties through the adoption of biochar and insect-composted organic fertilizers (ICOF) and will be a game changer in innovative agricultural practices.

The 24-month research project,– abbreviated as **“BIO KENYA PROJECT”**, aims at adoption of the Biochar and Insect-Composted Organic Fertilisers (ICOF) value chain to the biophysical and social-economic environment of smallholder farmers. This initiative forms part of the bilateral cooperation between France and Kenya in agricultural development, food security, higher education and research, youth and women empowerment and job creation.

The grant also brings together a **consortium of researchers and experts** from the French National Research Institute for Sustainable Development (IRD), the French Agricultural Research and Co-operation Organisation (CIRAD) and the Latin Network of Biochar in Cuba. Additionally, two private French institutions the Kouros Bio-Kenchar project and Ungana Ltd join forces in this ground-breaking endeavour.

Revolutionising Agriculture in Kenya

The BIO Kenya Project aims to revolutionise smallholder farming by adoption of the biochar and insect-composted organic fertilisers (ICOF) value chain in agriculture development in Kenya. This Research Project forms part of the bilateral cooperation between France and Kenya in improving agricultural productivity, enhancing food security, promoting higher education and research, youth and women empowerment and fostering sustainable development. It’s multiplier effect, will greatly contribute to the attainment of global efforts of the UN Sustainable Development Goals (SDGs) and UN COP 28 agenda as well as the African Agenda 2063, the Kenyan vision 2030 and the BETA initiative.

From Waste to Wealth

At its core, the project transforms organic waste into valuable resource. By promoting biochar and ICOF value chain, it seeks to significantly boost crop yields, combat crop pests and diseases, reduce soil degradation and mitigate climate change through effective carbon sequestration- all at minimal cost. The organic waste will be used to make organic fertiliser to cure soils and increase soil productivity. This approach not only addresses waste management issues in the target counties but also promotes environmental conservation, sustainability, and climate change mitigation and resilience.



The project targets **three counties; Busia, Kisumu and Siaya** where there is abundant agricultural waste from sugar factories and rice schemes. The high cost of chemical fertilizers often leaves farmers with low yields and food insecurity. By introducing biochar and ICOF, the project aims to restore soil health, reduce production costs, and improve overall agricultural productivity. The benefits include better soil moisture retention, increased microbial activity, and balanced soil pH levels, which together enhance crop yields and economic outcomes for farming households.

Empowering Communities and Building a Sustainable Future

The BIO Kenya project will also undertake capacity building/training by offering nine (9) full Masters' scholarships (with seven reserved for young women) in the project areas in a bid to empower the next generation of agricultural champions. These scholars will lead the way in advocating for and commercialising biochar and ICOF, creating a ripple effect of expertise and innovation across the country. In addition, two female Masters' students from France will participate in the project through an exchange programme, fostering international collaboration and knowledge sharing.

The local research institutions and universities in the consortium - ICIPE, KALRO, University of Embu and Koitaleel Samoei University College (KSUC) will see their capacities strengthened through advanced training and cutting-edge technology. These will include equipping the researchers with skills in modelling and simulation of greenhouse emissions and advanced training on Biofunctool the latest technology for monitoring soil health and biodiversity. This will increase the capacity of such experts in the country and open up avenue for partnerships and collaboration for research.

The project extends its impact through capacity-building initiatives for agricultural extension workers, smallholder farmers, and agro-dealers. These partnerships will be reinforced with training in entrepreneurship and business development management, to ensure the sustainability of the project's outcomes. An online training module on biochar and ICOF value chain will be developed, alongside the establishment and mentorship of cooperatives in each target county to champion these innovations beyond the project's lifespan

Knowledge Sharing

The project's findings will be disseminated through peer-reviewed scientific and business journals and presented at local and international conferences. This knowledge sharing is crucial for scaling up the adoption of biochar and ICOF value chain, setting the stage for a widespread agricultural transformation.

In conclusion, the adoption of biochar and ICOF value chain promises to revolutionise and reinvigorate agriculture in Kenya. By creating jobs for youth and women and promoting gender inclusion in agricultural enterprises, the BIO Kenya Project will drive social and economic progress. This visionary project is not just about improving farming practices; it's about building a sustainable, prosperous future for Kenyans with its adept Motto "**Waste to Wealth**"

Written by: CPA. Bruno Ogama

Bio Kenya Project, CO – PI and KSUC Team Leader

