

Kirkhouse Times



Issue 14 – Welcome to new KT projects

Last year was a busy time for the Kirkhouse Trust; we resumed travel with visits to Mozambique, Zimbabwe, Zambia, Malawi and Senegal, we ran a call for proposals, welcomed new PIs and changed the name of our long established WACC (West African Cowpea Consortium) to ACP (African Cowpea Programme) to reflect the current locations of our cowpea projects. This newsletter presents some of our new activities in 2022 and we look forward to an equally busy 2023!

Dr Fleur Geoghegan, Operations Manager



Welcome to Dr Celestina Jochua and her team at the Agricultural Research Institute of Mozambique (IIAM).

Celestina is the Principal Investigator for the new KT-funded bean improvement programme in Mozambique



Dr Celestina Jochua is a principal investigator based at Chókwè, and also acts as the regional director of the Southern Central Zone.

Why did you choose your current work?

'I grew up in rural area and my family used to grow different crops in a small field we had for home consumption and I used to help my mother in the field. From then I started to like to work with crops and animals. I also had a relative that worked in one of the agriculture research stations and liked his job and I got inspiration to work with agriculture research. Thus, when I finished my BSc, Chokwe Research Station was hiring an agronomist for rice research, I applied and got the position.'

Describe what you do on a typical day.

'On my typical day I usually in the morning help my son get ready to school and after that I go to work. Depending on the plan I go to the field first or directly the office. After work, I walk for 30-45 min, and then I prepare dinner, check if my son did his homework. I call my two daughters that live in Maputo to check if they are ok. After dinner, I check if I have urgent work (or emails) and then I go to rest.'

Why did you choose your current work?

'I come from an agricultural background family and my grandfather has influenced me to take care of the small farmer. I was trained in agriculture since secondary level and became passionate on it, then decided to work in Agricultural research with the main objective of acquiring scientific knowledge, as well as to use the experiences captured to support the family farm'

Describe what you do on a typical day.

'My typical day, after waking up, is to exercise for 45 minutes, then go to the field to monitor the trials and discuss with the technicians about the field issues. Later, usual from 10 a.m. I will go to the office, either to look data from trials, write reports, read papers or handle administrative work as a research station manager. Then, around 4 p.m., I will leave the office and go home for jogging about a hour, watch TV, sometime continue to work if there are things left that are urgent, and finally rest.'



Dr Samuel Camilo is the head of the Chókwè research station.



Dr Bento Filipe Francisco is a researcher based at Chókwè.

Why did you choose your current work?

'I choose to work in agriculture research work after being inspired by one lecturer during my BSc training, who was doing research in plant description and characterization. As I admired the work he did, I became passionate about researching plants, so much so that my final course work was on tomato characterization. From there, I thought that after finishing my BSc I would join an institution doing research. Two years after my graduation I managed to join IIAM. Thus, my passion for doing agriculture research was reactivated and I have been working in this area for the past 15 years.'

Describe what you do on a typical day.

'My typical day activities include going to work and when I return in the afternoon, I help my wife with her home chores, check my children's notebooks. Later, I watch TV or read the news in different sources. After dinner, sometimes I read a book and then go to sleep.'

Why did you choose your current work?

'During my undergraduate studies, I was exposed to agriculture research on groundnut. Later, I continued working on agriculture research. The daily activities with CGIAR, I could appreciate the beauty of research.'

Describe what you do on a typical day.

'I wake up at 04:30 am every morning. I work about 45 to 60 min. After this, I take shower and around 06:30 am, I take a cup of tea and make breakfast. I usually watch TV while I have breakfast. From 07:30 am to 15:30, I am in my office or in the field making observations on my trials.'



Dr Manuel Amane is a senior scientist acting as the grain legume coordinator for IIAM.

Visit to Mozambique by KT - by Celestina Jochua

In July 2022, a KT delegation came to Mozambique to visit IIAM. The main purpose of the visit was to view the Chókwè site where the new pilot project (Developing common bean varieties tolerant to high temperatures in Mozambique) funded by KT will be conducted, and to meet the relevant IIAM staff. The team was shown ongoing common bean field trials and seed multiplication, and met with the IIAM bean team to discuss ongoing activities of IIAM bean program and future activities of the project. While in Maputo, a visit was arranged to the IIAM biotechnology laboratory, where interactions took place with the researchers working in tissue culture, as well as with IIAM's general director Olga Fafetine, with the director of agronomy and natural resources (Dr Constantino Senete), with Manuel Amane (coordinator of the grain legume programme and with other bean team members.





KT moves East in Africa to improve local cowpea production

Long a food staple and economic driver in West Africa, cowpea cultivation is experiencing an increase throughout the African continent as the high temperature tolerance and drought resilience of the crop becomes more valuable in the face of the consequences of climate change gripping the continent. Building upon its successes of rapid genetic improvement of local germplasm using marker-assisted selection and breeding by KT-supported projects in Nigeria, Ghana, Burkina Faso, Cameroon and Mali, as part of its West African Cowpea Consortium (WACC), KT has now set its sights on achieving similar gains in East Africa. With the launching of a more inclusive African Cowpea Programme (ACP), KT is now engaging researchers in Malawi, Zambia, Mozambique, and Zimbabwe with the hope of transferring molecular tools, breeding materials, and technical know-how to speed the development of improved genotypes for the region.



Patrick Attamah, PI from the KT-funded cowpea project in Ghana



Since cowpeas cultivated in East Africa are not only an important source of grains, but also green vegetables and leaves for human consumption, the ACP is looking to first identify preferred varieties and landraces that are capable of growing in the marginal locations where food security is an issue and to improve these varieties for traits that will provide greater growth stability under stress, higher yields and better nutritional quality. By engaging local breeders for the identification of both suitable recipient genotypes and key production constraints, the lessons learned through the implementation of the KT model for focused, outcome driven breeding strategies provides the best path to rapid release of improved varieties for local farmers. Among the targeted goals are improving the aphid resistance of local genotypes in Malawi and Zimbabwe, increasing the micro-nutrient levels (such as Zinc, Iron, Potassium, Magnesium and B vitamins), of leaves and grains in Mozambique, and identifying new sources of drought and heat tolerance in Zambia.

With changing climate comes changing trends in the growth, consumption and utilization of cowpea. The ACP aims to make a difference by providing new and improved varieties quickly to the cowpea producing farmers and consuming households in Africa.

Welcome to Dr Edmore Gasura and his team at the University of Zimbabwe.

Edmore is the Principal Investigator for the new KT-funded cowpea improvement programme in Zimbabwe



Professor Edmore Gasura, PI from the KT-funded cowpea project in Zimbabwe.

Why did you choose your current work?

'I was motivated by my high school agriculture teacher who encouraged me that agriculture has greater academic growth opportunities than most fields. My MSc work resulted in me getting the Second Prize Award of the Africa-Wide Young Professional in Science Competition while part of my PhD and post-PhD work enable me to scoop the 2020 Japan International Award, which is given yearly to only three people selected from Africa, Asia, and South America.'

Describe what you do on a typical day.

'Since I became the Head of Department, my day is highly unpredictable as I attend to many issues of students, parents, staff, partners, and the university. I normally leave my office late, to allow me to recover time for research and publications. In the morning, I jump up early, wash my car and then proceed to the office. I enjoy going to church and watching news. I want to greatly contribute to national business, and to the establishment of the University of Zimbabwe seed company. I am a father of two, a girl and a boy.'



Dr Rose Tafadzwa Masekesa, co-PI from the KT-funded cowpea project in Zimbabwe.

Why did you choose your current work?

'I was inspired to become a Molecular Biologist by the late famous Dr Ian Robertson, a former Senior Lecturer in the Department of Crop Science (now Plant Production Sciences and Technologies) who used to talk about tissue culture and genetic engineering. His lectures taught me to dream big and see that if a problem exists on a phenotypic level, the likelihood is high that that problem can be addressed at the genomic level.'

Describe what you do on a typical day.

I usually start my day by taking my sister's kids to school, and then back to campus for my usual duties in the lab or teaching. My hobbies include playing lawn and table tennis. I wish to become a well-known research scientist contributing to the field of molecular biology in solving common problems in agriculture especially in Africa to enable the continent to feed its self. My workmates likely do not know that I was a serious soccer and rugby player in High school and as an undergraduate student. I was even tempted to pursue soccer professionally but I loved science more.'

Why did you choose your current work?

'My journey in academics started when I joined the University as a Junior Technician. I was stimulated by other ladies who were advancing their studies. I started studying while working. I rose from the certificate to a PhD. I start my day with prayers, and then take my kids to school.'

My hobbies are going to church and cooking for my family. I wish to be one of the most humble women helping the disadvantaged societies by proving research solutions to their problems. I am a mother of six girls and one boy. I am humbled to be recently promoted to a Lecturer Grade after graduating with a PhD.'



Dr Annia Matikiti, molecular biology and field technician from the KT-funded cowpea project in Zimbabwe.



Mr Martin Sanyamuwera, molecular biology technician from the KT-funded cowpea project in Zimbabwe.

Why did you choose your current work?

'My current role started when I worked on a part time basis as a junior technician in the Department of Crop Science, University of Zimbabwe. My typical day usually starts with housekeeping at home and then media preparation at campus for culturing micro-organisms and tissue-cultured plants. My mid mornings are filled up with preparation of student practicals which are mostly done in the afternoon till evening.'

I enjoy reading and growing oyster mushrooms. I aspire to be a successful Biotech entrepreneur. I have been in the first cohort of the first biotechnology incubator in Southern Africa.'

Why did you choose your current work? *'I wish to become someone who can contribute to developing knowledge in the science of agriculture to make people succeed in business. Agriculture stands out as the major vehicle through which food security and poverty alleviation can be fostered. Putting factual propositional and let lay persons and other researchers understand certain issues and increase public awareness on anything.'*

'Describe what you do on a typical day. 'Early in the morning, I go out for running and some exercises. I also read publications by other research scientists. My hobbies are watching and playing football, watching plays, site seeing and travelling. My aspirations are to become an academic and a researcher who can help alleviate poverty through agriculture research as more than 80% of the people depend on it for a living, and do crop protection related research. I wish people to know that I can spend at least 6 hours working on my small field.'



Mr Yeukai Mashura, molecular biology and field technician from the KT-funded cowpea project in Zimbabwe.

Cowpea with ground Kapenta - Recipe and accompanying text/photo kindly submitted by Dr Annia Matikiti, Dr Tafadzwa Rose Masekesa, and Gaudencia Kujeke, University of Zimbabwe



Complimentary feeding in poor countries is used to reduce malnutrition and growth faltering in children. Cowpea based feeds are used in most cases in combination with other supplementary nutritional interventions to curb kwashiorkor cases. In Zimbabwe, ground kapenta Matemba (small fish) can be mixed with cowpea and used to feed children who are under acute malnutrition. The meal is also good for adults.

Ingredients

- 200g cowpea (soaked overnight and boiled)
- 250g fresh or dried Kapenta (Matemba, small fish)
- 3 tablespoons cooking oil
- 1 onion chopped
- 2 ripe tomatoes
- 1 tablespoon Paprika
- 1 garlic clove

Method

- Fry onions and garlic in oil until tender in a saucepan.
- Add the tomatoes, paprika and salt.
- Cook for about 5 minutes then add the boiled cowpea and blend in a blender.
- Take the dried or fresh Kapenta, blend using a blender or ground it in a traditional grinder (duri).
- Add the ground Kapenta and mix with the cooked cowpea let it simmer for 15 minutes.
- Serve with a cup of soup or glass of milk.

Cowpea leaf - Recipe and accompanying photo kindly submitted by Dr Celestina Jochua, Mozambique

Ingredients

- 0.5 kg of cowpea leaves
- 1.5 to 2 cups of peanut flour
- About 3 to 4 cups of milk of 2- 3 coconuts
- 2 medium onions
- 1 to 2 medium tomatoes (optional)
- Salt (to taste)

Method

- Cut cowpea leaves in small portions, after washing put in a pan and boil for few minutes (10-15min).
- Add the coconut milk mixed with the peanut flour in the pan.
- Also add onion, salt and mix constantly to avoid overspill of the coconut milk, reduce the heat and cook for about 30-40 minutes.
- It can be eaten with white rice or xima (corn flour meal).

