



**UNIVERSITY OF NAIROBI**  
**FOOD SCIENCE NUTRITION AND TECHNOLOGY**  
NEWSLETTER/magazine

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JANUARY-DECEMBER 2021 ISSUE

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### **ABOUT THE DEPARTMENT**

The Department of Food Science, Nutrition and Technology (DFSNT) is one of the leading Departments in the Faculty of Agriculture, College of Agriculture and Veterinary Sciences (CAVS), University of Nairobi. The Department is located off Kapenguria Road, 15 Kms to the Northwest of the Nairobi Central Business District. DFSNT degree programmes have evolved from one to six; both in undergraduate and postgraduate with a certificate level course in Food Safety and Quality. The Department serves a wide range of students from Kenya and all over the world including countries such as: Nigeria, Malawi, Uganda, DRC, Somalia, Malawi, Cameroon, Ghana, Rwanda, Nigeria, Ethiopia, Sudan, South Sudan, Tanzania and Mozambique among others. This is attributed to the quality and competitiveness of the programmes offered the highly trained and competent teaching staff as well as the modern and fully-functional equipment and facilities.

Numerous research activities are carried out by staff and students in the fields of food security, applied human nutrition, sports nutrition, new products development, value addition, quality management and processing. DFSNT research and development activities address both national and regional issues which lend themselves to key aspects of Kenya's vision 2030 and important aspects of the Big Four Agenda.

The key Departmental objectives include to:

- i. Train students in Food Science, Technology, Human Nutrition and Dietetics and Food Safety and Quality.

- ii. Discover/transmit and preserve knowledge continuously and to organise academic fora.
- iii. Participate in workshops/conferences to share scientific knowledge.
- iv. Offer outreach and community services to the community once every year and to nurture start ups.
- v. Offer consultancy service.
- vi. Continuously enhance collaborations and links with other institutions of higher learning, research and development and the industry.
- vii. Promote environmental sustainability by ensuring proper management of water and energy resources.
- viii. Harness innovation in Food Science, Technology, Human Nutrition and Food Safety and Quality.
- ix. Continuously participate in mentoring and training students in leadership and soft-skills.

The Department of Food Science, Nutrition and Technology offers the following Programmes:

1. Certificate in Food Safety and Quality
2. BSc. Food Science and Technology
3. BSc. Food Science, Nutrition and Dietetics
4. Post-graduate Diploma in Food Safety and Quality
5. MSc. Food Safety and Quality
6. MSc. Food Science and Technology
7. MSc. Applied Human Nutrition
8. PhD Food Safety and Quality
9. PhD Food Science and Technology
10. PhD Applied Human Nutrition

All PhDs are currently being offered by Research and Thesis only.

### **Welcoming new students**



The University of Nairobi opened its doors to First Years who joined the various course programmes in September 2021. The Department of Food Science, Nutrition and Technology welcomed a total of 93 students who registered for courses in Food Science and Technology, Food Nutrition and Dietetics and Food safety and Quality both at bachelors and masters levels. The Department wishes the students a successful academic journey.

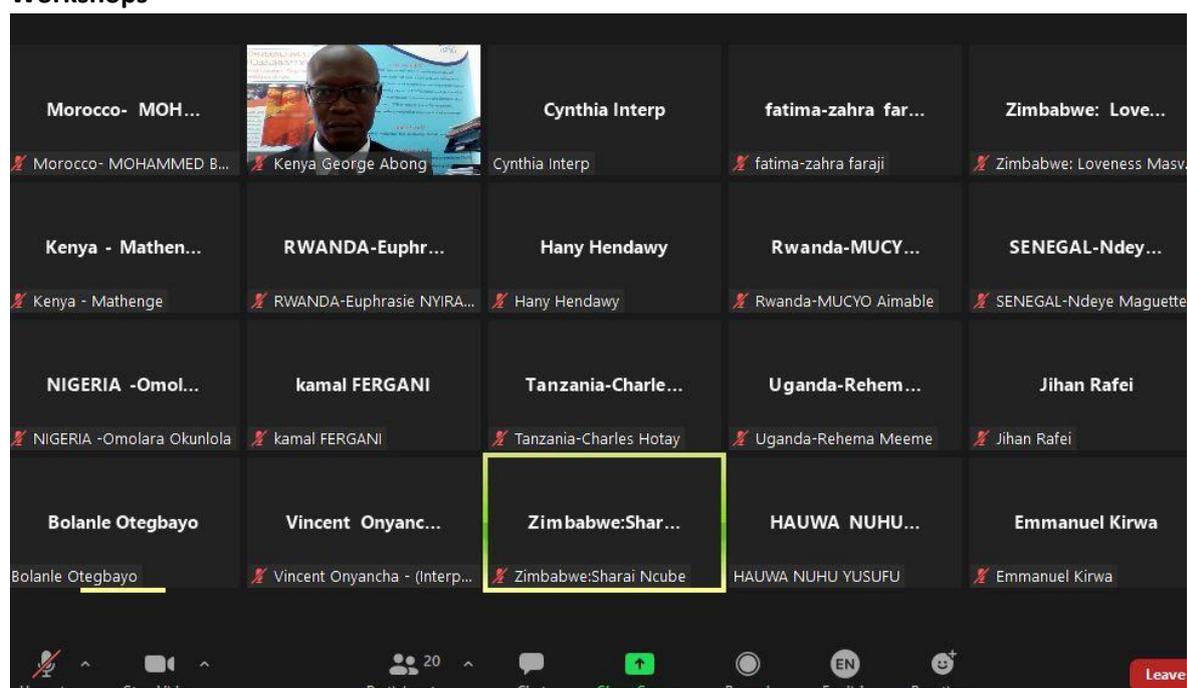
## GRADUATES OF THE YEAR 2021

Every year students from various colleges and universities strive to complete their courses which range between two and five years depending on the programme and a number of factors, mainly student based. It is therefore encouraging that the Department of Food Science, Nutrition and Technology feeds into the success of the university to see a good number of graduates finish their programmes on time. In 2021 the Department celebrated its graduates that included 86 bachelors, 12 masters and one4 PhD. The table below shows a summary of our grandaunts.

Course	September		December		Total
	Male	Female	Male	Female	
BSc. Food Science and Technology	5	19	2	10	36
BSc. Food Nutrition and Dietetics	2	31	5	12	50
MSc. Food Science and Technology	4	1		-	5
MSc. Food Safety and Quality	4	3			7
MSc. Applied Human Nutrition	1	4	2	1	8
PhD Food Safety and Quality	-	-	-	-	-
PhD Applied Human Nutrition		1	1		1
PhD Food Science and Technology	1	-	2	-	3

## Workshops/outreaches/Trainings

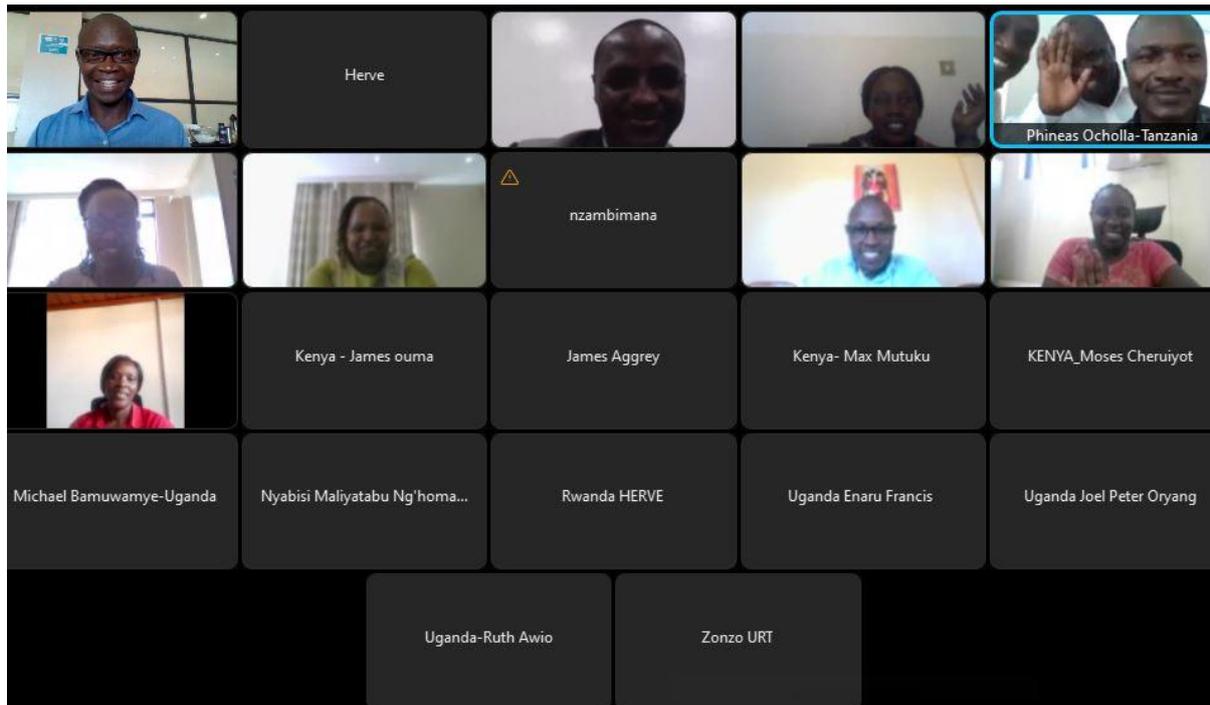
### Workshops



### 1. African Organization of Standardization (ARSO)

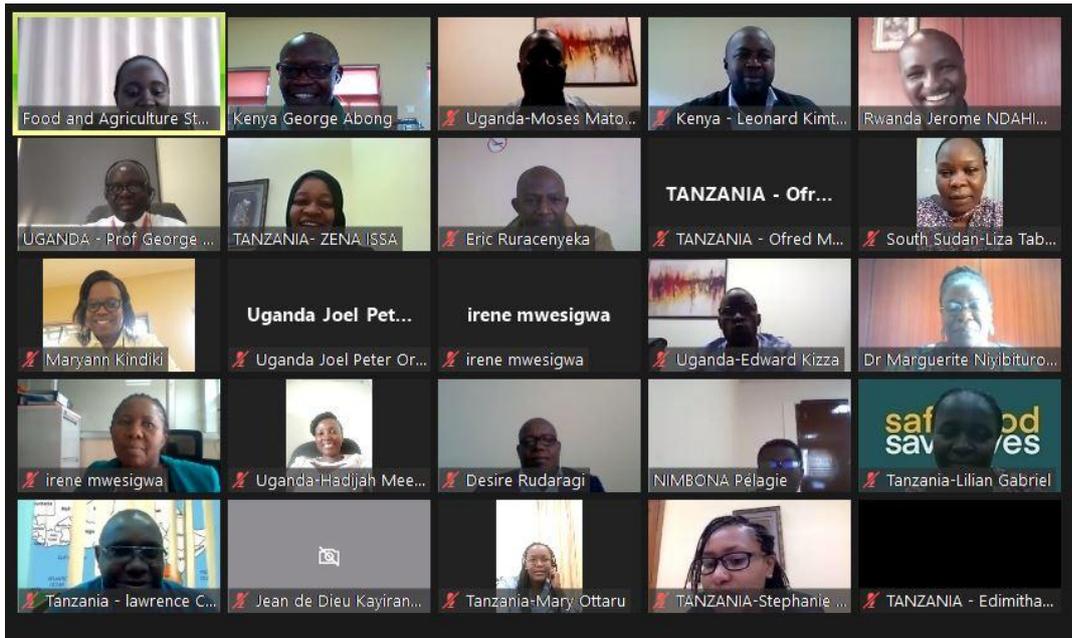
Virtual Workshop held on **January 24, 2022**. Dr Abong participated as an expert in harmonization of African Standards on meat and poultry products. The discussion revolved around grading of meat cuts. Participants were drawn from across Africa and they advanced the standards that would promote trade while assuring quality and safety of the products across the countries.

### 2. Harmonization of East African Standards (EAS) for Coffee and coffee products



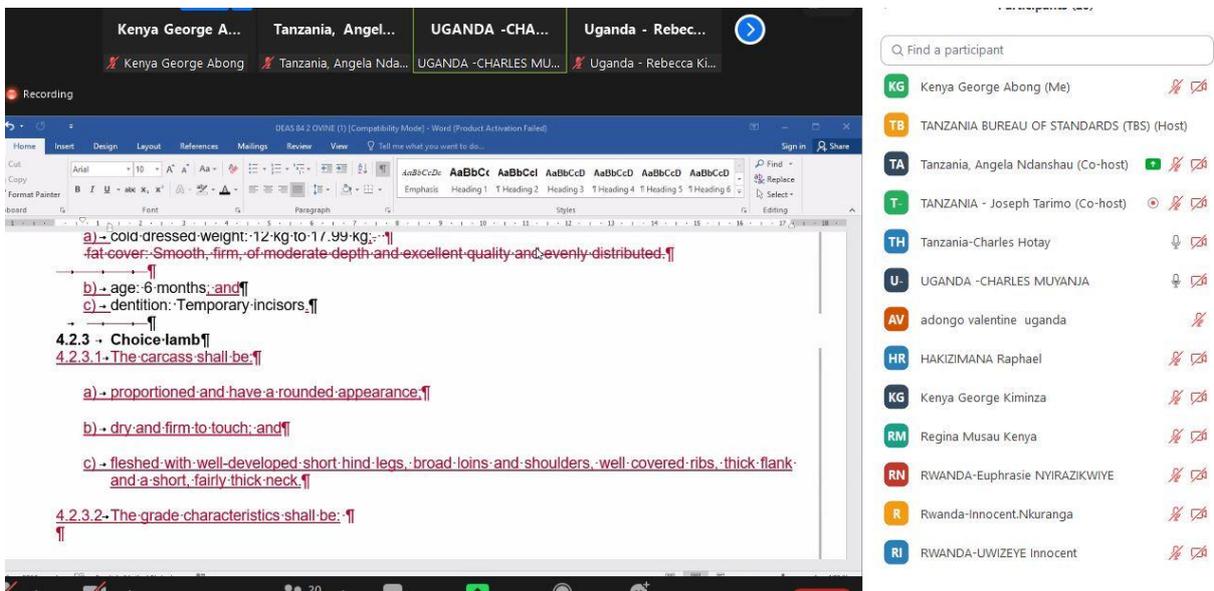
Virtual workshop held on **1-4 March 2022**. Dr Abong and Mr. James Ouma of the DFSNT represented the University in the harmonization meeting as experts. They made major contributions during the development of various products which included coffee concentrate, ready to drink coffee, flavoured coffee and code of practice for reduction of Ochratoxin A in coffee and coffee products. The standards were progressed following intensive and professional discussions.

### 3. East Africa Harmonization meeting- developing common position on CODEX standards on Hygiene



Hybrid meeting held on **21-25 February 2022**. Together with National Codex Committee members, Dr Abong represented Kenya in the harmonization meeting which took part in Naivasha and online focusing on development of common positions in readiness for CODEX Committee meeting on Food Hygiene as well as fruits and vegetables. Key documents discussed included water, control of *E.Coli*, dates among others. The common positions would be considered fb EAC countries during the Codex meeting set for end of February and early March 2022.

#### 4. Harmonization of EAS on meat and poultry products



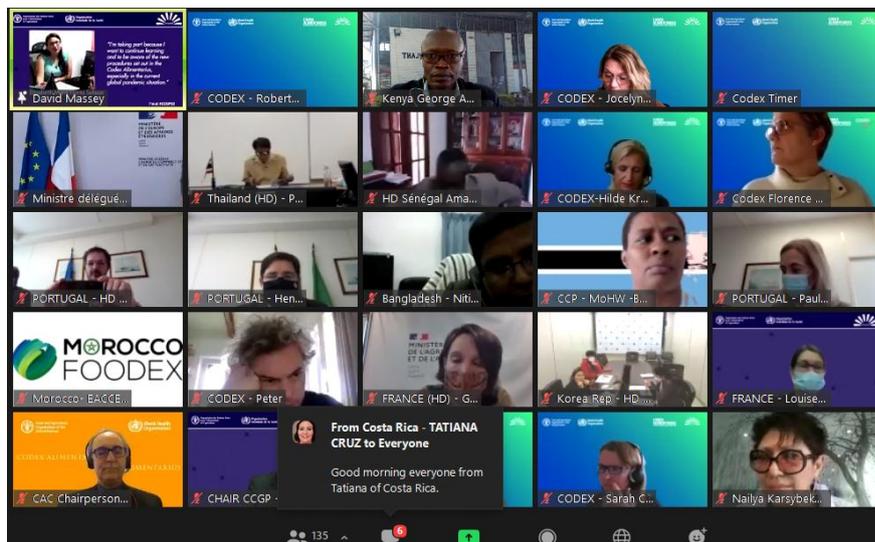
Virtual meeting held on **8-11 March 2022**. As and Food safety expert, Dr. Abong participated as a member of Kenyan technical committee in the harmonization meeting held to discuss meat cuts, and related products. The standards are meant to enhance safety and facilitate Trade in the East African Region.

## 5. Working group workshop-Harmonized guidelines for developing food laws in Africa



Meeting in Naivasha Enashapai on **1-4 September 2021**. As one of the key experts of National Codex committee in Kenya, Dr. Abong took part in the working group workshop to consider comments and refine the draft document before seeking comments from the global codex members. The harmonized document will form the framework from which all food laws will be developed in order to have basic elements applicable across the region.

## 6. CODEX CCGP23 MEETING



As part of the National Codex Committee, Dr. Abong' attended virtual CODEX CCGP23 on 8<sup>th</sup> February 2021, making contribution to the international food safety platform as food safety expert from African region.

## 7. EAC CODEX FORUM WORKING GROUP WORKSHOP 10-11 May 2022, Four Point By Seraton Arusha Tanzania



Dr. Abong attended this important meeting and chaired the working group that met to generate common EAC position on guidelines for developing food safety laws for the African region. The meeting under the sponsorship of GIZ brought together all EAC Codex member countries and had fruitful discussions that would advance the standard if adopted by CODEX meeting due late this year in Kampala Uganda.

#### **8. FOOD QUALITY MANAGEMENT AND FOOD LOSS/WASTE REDUCTION IN HOME-GROWN MEALS PROGRAMME WORKSHOP-KAJIADO, DECEMBER 7, 2021**



The workshop brought together stakeholders from Kajiado to discuss pertinent matters on the subject and was led by Dr. Abong, Prof. Ambuko and Prof. Mburu from the faculty of Agriculture. The key issues included identifying key stakeholders and map how the school meals programmes are currently managed, look at drivers and barriers and how the local solutions may be enhanced. The workshop was graced by County education and agricultural officers, school heads, NGOs and was opened by the Deputy County Commissioner of Kajiado.

## 9. FOOD QUALITY MANAGEMENT AND FOOD LOSS/WASTE REDUCTION IN HOME-GROWN MEALS PROGRAMME WORKSHOP-MACHAKOS, FEBRUARY 7, 2022



The workshop brought together stakeholders from Kajiado to discuss pertinent matters on the subject and was led by Dr. Abong, Prof. Ambuko and Prof. Mburu from the faculty of Agriculture. The key issues included identifying key stakeholders and map how the school meals programmes are currently managed, look at drivers and barriers and how the local solutions may be enhanced. The workshop was graced by County education and agricultural officers, school heads, NGOs and was opened by the Deputy County Commissioner of Kajiado.

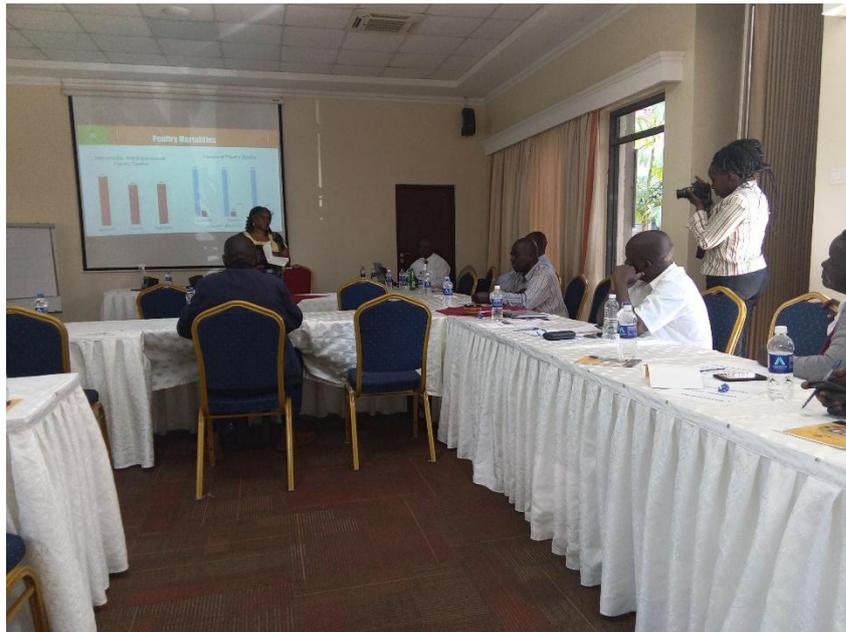
## 10. Final FRUVASE PROJECT WORKSHOP, NAIROBI KENYA 26-29 APRIL



The project that has run since 2018 held final workshop in Qaribu Hotel Nairobi. **Dean of Faculty of Agriculture, UoN, Prof Nyangito in his opening remarks** thanked the Government of Germany for the funds provided for this project. He intimated that the project has made a great contribution to the **Kenya 2030 vision** especially towards the **manufacturing** aspect of the vision. The faculty is determined to commercialize the products developed. They have retained Dr Gekonge at the faculty to work on the commercialization of the guava products and to have the products on the market within 12 months under an incubation programme. **Associate Vice Chancellor, Prof. Hutchinson** in her remarks given by the Dean of the Agriculture Faculty highlighted the notable achievements from the University of Nairobi team. This included the guava products that have received certification and the soup mix now in the process of being given an IP certification. He hopes that through the project and the products developed, **post-harvest losses** will be reduced. The **Vice Chancellor, Prof S Kiama Gitahi** expressed happiness that the project is helping solve development issues at the **community level** and thanked the project coordinators for successfully leading the project to where it is now. He also indicated that the products developed could help address critical **micronutrients deficiencies** –

which still exists in SSA although it is home to more than 3,000 fruits and vegetable species. In addition, seasonality is challenging, a lot of fruits and vegetables go to waste as there is inadequate capacity for preservation. This project has an important contribution especially through new products and thus, food supplies can be increased, and more income generated as well as food security ensured. He continued that he looks forward to the commercialization of the products that have been developed by the UoN team. Different teams engaged in fruitful discussions on project progress.

**11. Validation workshop on safety of poultry and dairy production May 31, Vittoria Hotel Kisumu.**



Dr. Abong attended and made a presentation on the antimicrobial use and current biosecurity practices of poultry farming groups in Migori, Homabay, Kisumu, Siaya, Elgeyo Marakwet, Nandi and Trans Nzoia Counties of Western Kenya. In his presentation, he noted the serious silent pandemic that is being developed unknowingly by farmers and he underscored the need for capacity building to change the current course.

**12. HORTIGREEN Project workshop for MSMEs, June 16-17, 2022-Qaribu Hotel Nairobi**



The Hortigreen Project that is locally coordinated by Dr. Abong held dissemination workshop where horticultural processing MSMEs had a chance to show case progress in implementing Environmental Management System (EMS) based on ISO 14001:2015 which was one of the key deliverables for the project. The current project that is coming to an end was implemented in collaboration with Wangari Maathai Institute for Peace and Environmental Governance (WMI), Kenya Bureau of Standards and Consumer Information Network. The project has made tremendous progress in imploring behaviour change and adoption of efficient management of water and energy as well as waste management.

### **13. HORTIGREEN engagement of policy makers 20, 22, 24 June 2022**



In order to advocate for policies that enable efficient and affordable business operations, the University of Nairobi (DFSNT and WMI) and the Kenya Burea of Standards who are two key partners in the HORTIGREEN project held a series of round table discussions with policy influencers to deliberate on how MSMEs can be supported in their endeavour to do their businesses efficiently and manage their wastes properly. There are six planned meetings across Kenya, so far, three meetings have been successfully held in Mombasa, Kisumu and Eldoret.

## **Community engagement**

### **1. Kangawa cluster C meeting and leadership with Dr. Abong in Ngong**



Ngong Kangawa community meeting on **December 22, 2021**. Dr. Abong took part in the community meeting to discuss security concerns and area developments in the place of residence. As group secretary, he is mandated to take records of all proceedings.

## **2. Goyo Primary and Secondary Hygiene and sanitary standards in schools**



Goyo Primary and secondary school support with sanitary and hygiene products to enhance their productivity during learning. Mobilized funds from friends of Goyo to support the exercise which happened on January 21, 2022.

## **3. Pastoral ministry, Training on social life in marriage, December 2021**



## **4. Field research, antibiotic use in poultry and dairy production and impact on food safety, January 2022**



## Outreach activities

### 1. CONNECTING KARURUMO MANGO PROCESSORS WITH EMBU COUNTY



The University of Nairobi through the departments of food science, Nutrition and Technology and Plant Science and crop protection have been supporting local groups to add value to fruits and vegetables including mango. Karurumo group has been funded through efforts of University activities lead by Prof. Jane Ambuko while Dr. G Abong has been instrumental to ensure proper quality of processed products. To counter the challenge of marketing, the University team was able to link the processors with County team, on 3<sup>rd</sup> December 2021, they met Governors team and this collaboration is envisaged to enhance marketing of the produce to schools especially with nutritious mango nectar.

### 2. Supporting and Training MSMEs, July 22, 2021



In Hortigreen project, Dr. Abong supported by training and offering onsite guidance of banana products processor (Nyangorora) based in KIRDI Kisii County. The project equips horticultural products processors with knowledge on efficient use of water, energy and waste management in their production system to ensure sustainability

### 3. Supporting and Training MSMEs, August 24, 2021



In Hortigreen project, Dr. Abong supported by training and offering onsite guidance of banana products processor (WEDO) based in Nkubu in Meru County. The project equips horticultural products processors with knowledge on efficient use of water, energy and waste management in their production system to ensure sustainability

#### 4. Supporting and Training MSMEs, August 16, 2021



In Hortigreen project, Dr. Abong supported by training and offering onsite guidance of honey and cactus products processor (Laikipia Permaculture) based in Nanyuki in Laikipia County. The project equips horticultural products processors with knowledge on efficient use of water, energy and waste management in their production system to ensure sustainability

#### 5. Supporting and Training MSMEs, September 9, 2021



In Hortigreen project, Dr. Abong supported by training and offering onsite guidance of Mango products processor (Kalamba) based in Makueni County, an initiative by the County Government. The project equips horticultural products processors with knowledge on efficient use of water, energy and waste management in their production system to ensure sustainability

**6. Training of Masii farmer groups in mango fruit processing and value addition, February 2021**



The University of Nairobi through the Department of Food Science, Nutrition and Technology in collaboration with Department of Plant Science and Crop protection conducted on site training to Masii farmer group to support their efforts in earning livelihoods from mango fruit farming through value addition and post-harvest handling. Dr. Abong and Prof. Jane Ambuko lead the team of trainers that included Duke Gekonge and Emmanuel Amwoka this noble course. Training involved processing mangos into pulp, crisps, leather, nectars of different preference. The training also focused on proper hygiene and safety during handling and processing of wet and dry products.

**7. Training of Karurumo farmer groups in mango fruit processing and value addition, February 2021**



The University of Nairobi through the Department of Food Science, Nutrition and Technology in collaboration with Department of Plant Science and Crop protection conducted on site training to Karurumo farmer group to support their efforts in earning livelihoods from mango fruit farming through value addition and post-harvest handling. Dr. Abong and Prof. Jane Ambuko lead the team of trainers that included Duke Gekonge and Emmanuel Amwoka this noble course. Training involved processing mangos into pulp, crisps, leather, nectars of different preference. The training also focused on proper hygiene and safety during handling and processing of wet and dry products.

## 8. Competence training of CAPWELL IND LTD on lab analysis for food quality assurance, April 2021



The Department was engaged by Capwell Industry and conducted training of quality assurance and product development team in lab analysis of phosphatase and specific quality assessment of processed cereal products. The training was conducted by competent laboratory technologists lead by Chief Technologist, Jacinta Muchiri, James Ouma, Jared Jobor, Catherine Ngunju, Edith Cheruyot and Monicah Njoroge. We acknowledge the negotiation team lead by the Chairman, Dr. Abong and Jacinta Muchiri. We also take special note of CAPWELL Industry team lead by Charity Magwenzi.

## 9. Tree planting at WMI, May 2021



## 10. Tree Planting at Upper Kabete Campus May 2022



As an ardent supporters of switching Africa green, Dr Abong and colleagues ensured that this year did not pass without planting a tree.

## 11. Training of fruits and vegetables Business communities in processing and value addition, May 2021



The SAP project and Dept. of Food Science, Nutrition and Technology in collaboration with Department of Plant Science and Crop Protection conducted a training to mango business communities to enhance knowledge and understanding on post-harvest handling and value addition of mango fruits and common vegetables. Dr. Abong and Prof. Jane Ambuko lead the team of trainers that included Duke Gekonge and Emmanuel Amwoka this noble course. Training involved processing mangos into pulp, crisps, leather, nectars of different preference. The training also focused on proper hygiene and safety during handling and processing of wet and dry products.

## 12. Training/Sensitization of Industry players on sensory evaluation of foods May 2022



The DFSNT experts Dr. George Abong and Dr. Ctherine Kuyanga who also belong to the national technical committee on sensory evaluation took part as main experts in training of industry players. The training that was organized by Kenya Bureau of Standards brought together more than 100 industry players at the Panari Hotel, Nairobi. The participants were taken through key differences between sensory science and organoleptic evaluation, sensory techniques, requirements for sensory room and sample preparation.

### 13. Mentorship of High school students, Goyo Secondary June 2, 2022



Dr. Abong, together with ICT expert Mr. Peter Owino visited Goyo Secondary School, paid courtesy call to the Principal **Mr. ....** and interacted with current form fours to give career guidance as well as encourage them to plan and work hard for their future. He implored the students to have achievable dreams that they can work towards since all dreams are valid and are not limited with who they are and where they come from.

## Collaborative Trainings

### 1. Training and Meat Products Standards Sensitization Workshop May 31-June 1, 2022, Imperial Hotel Kisumu



As an expert and a member of the National Meat and Poultry Standards Committee, Dr. Abong participated in training county livestock officials on the need for standards. He also took time to sensitize them on different standards already developed in Kenya, East African region and International level. The standards cut across codes of practice, guidelines and specific carcasses and cuts and dried meat.

## **2. Training and Meat Products Sensitization Workshop June 6-8, 2022, Comfy Inn Hotel Eldoret**

As an expert and a member of the National Meat and Poultry Standards Committee, Dr. Abong participated in training county livestock officials on the need for standards. He also took time to sensitize them on different standards already developed in Kenya, East African region and International level. The standards cut across codes of practice, guidelines and specific carcasses and cuts and dried meat.



## **3. Training and Meat Products Sensitization Workshop June 13-15, 2022, Empolos Hotel Nakuru**



As an expert and a member of the National Meat and Poultry Standards Committee, Dr. Abong participated in training county livestock officials on the need for standards. He also took time to sensitize them on different standards already developed in Kenya, East African region and International level. The standards cut across codes of practice, guidelines and specific carcasses and cuts and dried meat.

## **4. Follow up training and handing over EMS gadgets at Vert Ltd, August 2021**

The UoN team, DFSNT followed up companies undertaking ISO14001:2015 on EMS and delivered key metering equipment to facilitate data collection. The company was upbeat and readied itself for implementation and internal audit.



## Visits/ receptions

### 1. Field visits by trainees, Karurumo May 2021



In order to expose participants to field situations, the trainers lead by Prof. Ambuko and Dr. Abong lead post-harvest trainees to Karurumo spoke in order to have first-hand experience from farming group that has been groomed by the University of Nairobi team on post-harvest management of mangoes and processing marketable fruit products. The trainees from different sectors and part of Africa appreciated the work done by the farmer group.

### 2. Visit by Kiambu member of parliament



Chairman, DFSNT welcomed to his office, **Kiambu women Rep, Hon. Gathoni Wa Mchomba** as she made consultations on environmental management in processing facility at the department. The discussions revolved around key considerations and aspects to assure environmental sustainance in processing activities within the university. The Honourable member who was undertaking short course in the university also inquired on ways to collaborate on value addition of products from Kiambu County.

### **3. Receiving gift from West pokot county May 20, 2022**

Dr. Andago and project colleagues presented a gift of dehytray donated by the County of West Pokot that was received by the Chairman of DFSNT. When receiving the gift, the chairman noted the important role of processing, value addition and preservation of fruits and vegetables in assuring food and nutrition security. Dehydration is critical in assuring availability of fruits and vegetables all year round and ought to be adopted and encouraged for both small scale and large scale processing.



**4. Project meeting May 24, 2022**



DFSNT joined other project team members to discuss progress and alignment of ..project that focuses on improving nutrition outcome and behavioural/cultural changes in the ASAL communities by adopting new mindset and production practices. While joining other project team members, Dr Abong and Dr Andago indicated the commitment of DFSNT by providing expertise and research facilities for the project.

**5. HORTIGREEN Project evaluated May 25, 2022**

The Hortigreen project anchored in the DFSNT and WMI has been running for the last 3.5 years and is currently on the last lap. Auditors from the European commission visited the project team to understand the progress made so far and future prospects from the gains of the project. The project has been championing adoption of sustainable production and consumption (SCP) and certification

of horticultural processing MSMEs in Kenya with ISO 14001:2015 on Environmental Management System (EMS).



6. Engaging with Industry, Twiga Foods, February 2022



7. Industry Visit by MSc and BSc Classes, April 2022 CAPWELL INDUSTRIES LTD



### Celebrating milestones with students



**Celebrating performance, best academic staff in the faculty of Agriculture March 2022**



Prof. M W Okoth and Dr. Abong from DFSNT and Prof. J Ambuko from PSCP

**JAPANESE AMBASSADOR TO KENYA VISITS DFSNT MAY 2022**



DFSNT welcomed Japanese Ambassador and Vice Chancellor who paid a courtesy call to the Department. The delegation made a tour of laboratories and processing units while sampling what the Department had to offer. DFSNT remains active in research, training and food product development.

**Welcoming Uganda Christian University VC and his team from Uganda, March 2022**



Assuring food availability and nutrition through kitchen gardening, godan gardens donated by GODAN through collaboration



### New collaborations



### Lishe Living CEO



### Miyonga fresh CEO

### Industrial visits 2022



### Nairobi Innovation week



Innovations from the department were showcased ranging from value added juices, wines, chapatis, doughnuts, milk products. Fruit wine innovation by Dr. Gekonge and Dr. Along won a price as an emerging innovation with potential commercialization.

PCPB visit by MSC FST/FSQ, April 2022

Mentorship-UKCCU and staff fellowship April 2022



Products developed during outreach trainings





Our lab activities





Practical training of students



Training future dieticians



Receiving potential student



Dr Abong posing for a photo with parents and aspiring student who made courtesy call to the DFSNT

## PUBLICATION LIST

1. Duke G Omayio, **George O Abong'**, Michael W Okoth, Charles K Gachui & Agnes W Mwangombe. Physicochemical and Processing Qualities of Guava Varieties in Kenya. February, 2022. International Journal of Fruit Science, Vol 22, (1): 329–345. <https://doi.org/10.1080/15538362.2022.2039342>.
2. Judith Oyoo, **George Abong'**, Michael Okoth, Moses Nyongesa. Assessment of pesticide multiplicity in potato production and storage in bomet, Kenya. May, 2022. East African Agricultural and Forestry Journal, Vol 85, 1-4: 336-346.
3. Njenga Peninah, Edema Richard, Kamau Joseph & **Abong' George**. Agronomic Performance and Carotenoid Content of Kenyan Yellow-Fleshed Cassava Clones. Journal of Agricultural Science. April 2022, 14, 5: 128-133.
4. Linda Maryanne Obiero, **George Ooko Abong**, Michael W. Okoth, Nzioka J. Muthama. Knowledge, Attitude and Practices of Horticultural Processing Micro, Small and Medium Enterprises on Energy and Water Use in Kenya. European Journal of Sustainable Development Research. April 2022, 6(3), em0187.
5. Nelly C. Maiyo, Fathiya M. Khamis, Michael W. Okoth, **George O. Abong**, Sevgan Subramanian, James P. Egonu, Cheseto Xavier, Sunday Ekese, Evanson R. Omuse, Dorothy Nakimbugwe, Geoffrey Ssepuuya, Changeh J. Ghemoh and Chrysantus M. Tanga. Nutritional Quality of Four Novel Porridge Products Blended with Edible Cricket (*Scapsipedus icipe*) Meal for Food. March 2022. *Foods*, 11, 1047. <https://doi.org/10.3390/foods11071047>.
6. Duke G Omayio, **George O Abong'**, Michael W Okoth, Charles K Gachui & Agnes W Mwangombe. Effect of pulping methods on the physicochemical properties of the Kenyan red and white-fleshed guava pulp. February 2022. JSFA Reports, 1–12. DOI: 10.1002/jsf2.35.
7. Holi Kevin, Lucy Njue, **George Abong**. Hygienic knowledge and practices of milk vending machine handlers in the informal settlements of Nairobi, Kenya. *F1000Research* 2021, 10:957 Last updated: 28 MAR 2022. <https://doi.org/10.12688/f1000research.72937.1>.
8. Joshua Owade, **George Abong**, Michael Okoth and Agnes Mwangombe. Trends and constraints of utilization of preserved cowpea leaves among households in arid and semi-arid lands in Kenya. A convergent mixed method study. *CABI Agriculture and Bioscience*, (2021) 2:44. <https://doi.org/10.1186/s43170-021-00064-5>.
9. Chaoqun Chen, **George O Abong**, Sebastian Hartwig and Gudrun Keding. Sustainable packaging materials for processed fruits and vegetables in East Africa: a case study of Nairobi, Kenya. *Journal of Consumer Sciences*, Vol 49, 2021.
10. **George Ooko Abong'**, Mukani Moyo, Elmah Odhiambo Geoffrey and Tawanda Muzhingi. Profiling of processors for baked and fried wheat-based products in Nairobi Kenya. July 2021. *African Journal of Food Science*, Volume 15(7): 281-288.
11. Juvenal Djangwani, **George Ooko Abong'**, Lucy Gicuku Njue, Dasel Wambua Mulwa Kaindi. Sero-prevalence and risk factors of *Brucella* presence in farm bulk milk from open and zero grazing cattle production systems in Rwanda. *Veterinary Medicine and Science*, 2021: 1–15.
12. **Owade, J.O.**, Abong, G.O., Okoth, M.W., Mwang'ombe, A.W. (2021). Cowpea leaves: Feasible solutions to overcome seasonal availability. *Published Kenya Policy Briefs* 2, 71–72.

**ON GOING PROJECT**