

JANUARY-DECEMBER 2020 ISSUE 4

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ABOUT THE DEPARTMENT

DEPARTMENT OF FOOD SCIENCE, NUTRITION AND TECHNOLOGY (DFSNT) was established in 1973 as the Department of Food Science and Technology. This was later on changed to Department of Food Technology and Nutrition prior conversion to its current name in 2005. At the time of establishment, the department only offered Bachelor of Science Degree in Food Science and Technology. The first batch of students graduated in BSc. Food Science and Technology (FST) in 1976. The first Master of Science Degree programme, FST, was developed between 1982 and 1984 after which the first batch of students were admitted in 1984. In this same year, the MSc. Programme in Applied Human Nutrition (AHN) curriculum was developed and the first lot of students was admitted in 1985. The mounting of the MSc Degree in ANH led to the renaming of the department to Food Technology and Nutrition.

The Department administrative structures include Sections units headed by an academic member of staff although the Pilot plant is headed by a manager (Technologist). The five sections include;

- a. Food Microbiology
- b. Food Chemistry
- c. Food safety and quality
- d. Applied Human Nutrition
- e. Pilot Plant

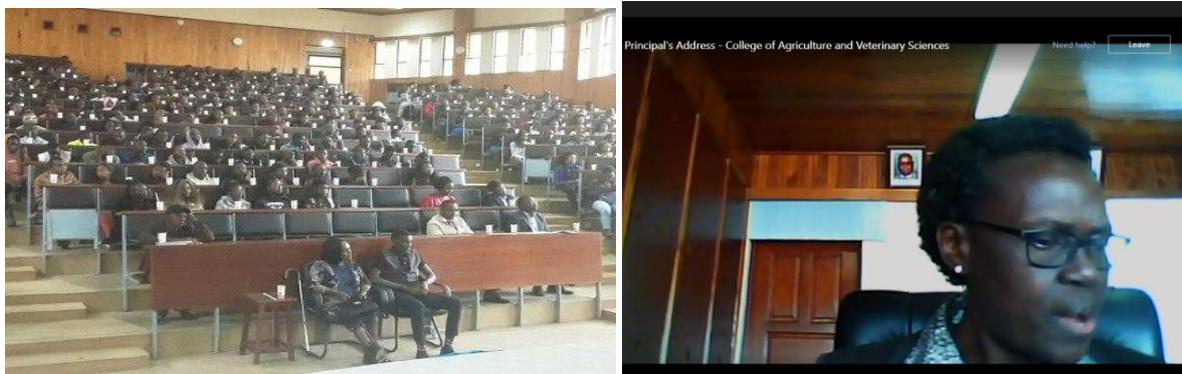
PROGRAMMES OFFERED

DFSNT offers nine-degree programmes:

- a) Bachelor of Science in Food Science and Technology (BSC-FST)
- b) Bachelor of Science in Food Nutrition and Dietetics (BSC-FND)
- c) Postgraduate Diploma in Food Safety and Quality (PGD-FSQ)
- d) Master of Science in Food Safety and Quality (MSC-FSQ)
- e) Master of Science in Applied Human Nutrition (MSC-AHN)
- f) Master of Science in Food Science and Technology (MSC-FST)
- g) Doctor of Philosophy in Food Safety and Quality (PHD-FSQ)

- h) Doctor of Philosophy in Applied Human Nutrition (PHD-AHN)
- i) Doctor of Philosophy in Food Science and Technology (PHD-FST)

WELCOMING NEW STUDENTS



The University of Nairobi opened its doors to First Years who joined the various course programmes in September 2020. The Department of Food Science, Nutrition and Technology welcomed a total of 85 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. In addition, two students enrolled for PhD. The Department wishes the students a successful academic journey.

GRADUATES OF THE YEAR 2020



PhD graduands 2020: Dr. C Muthike, Dr. JH Ngueti and Dr. E Ogumo

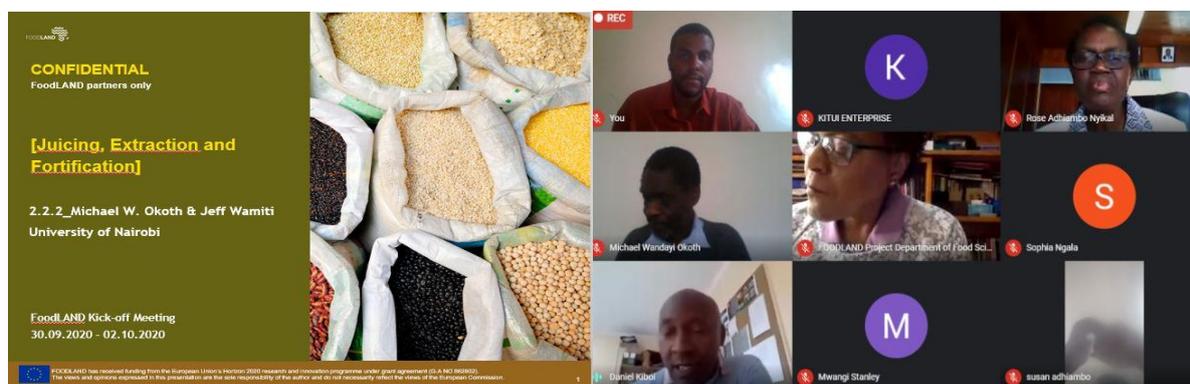
Every year students from various colleges and universities strive to complete their courses which range between two and five years depending on the programme and a number of factors, mainly student based. It is therefore encouraging that the Department of Food Science, Nutrition and Technology feeds into the success of the university to see a good number of graduates finish their programmes on time. In 2020, the Department celebrated its graduates that included 65 bachelors, 22 masters and 3 PhDs. The table below shows a summary of our graduands.

	December, 2020	COUNT
1.	Post-Graduate Diploma in Food Safety and Quality (FSQ)	0
2.	BSc. Food Science and Technology (FST)	33
3.	BSc. Food Nutrition and Dietetics (FND)	32
4.	MSc. Food Science and Technology (FST)	1
5.	MSc. Food Safety and Quality (FSQ)	10
6.	MSc. Applied Human Nutrition (AHN)	11
7.	PhD. Applied Human Nutrition (AHN)	1
8.	PhD. Food Safety and Quality	1
9.	PhD. Food Science and Technology	1
	TOTAL	90

WORKSHOPS AND CONFERENCES

The staff and student of the department took part in a number of high profile and informative workshops and conferences. Each of these events provided good avenues for productive learning as well as dissemination of research and innovations from the Department.

The FOOD and Local, Agricultural, and Nutritional Diversity (FoodLAND) Kick-off Meeting



The FOOD and Local, Agricultural, and Nutritional Diversity (FoodLAND) project aims at enhancing the diversity of food production and consumption in six African countries displaying different stages of the nutrition transition.

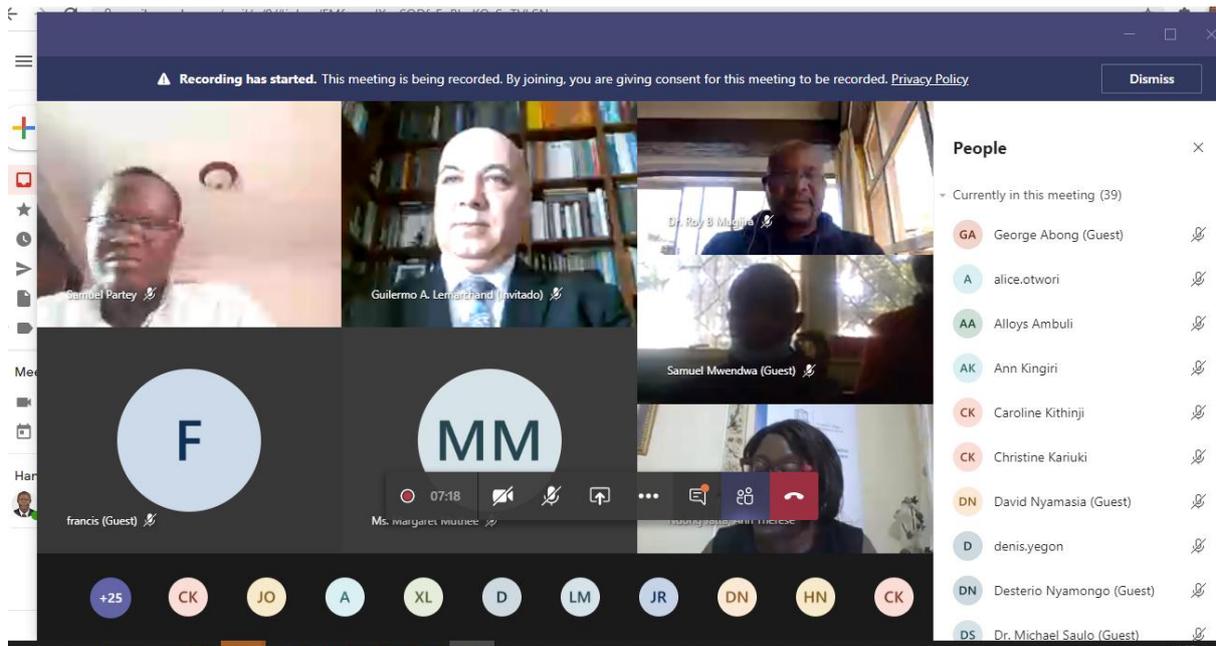
To this end, FOODLAND will create a network of 14 local Food Hubs that will aggregate relevant actors and serve as injection points for the introduction of innovations. FOODLAND has identified specific objectives addressing the organizational, technological, and nutritional needs of the local African food systems to be reached during the four-year

project duration: 1. to detect behaviour and preferences of consumers and producers, in order to customize innovations to local sensitiveness; 2. to develop and implement organizational innovations, aimed at boosting coordination among food operators; 3. to develop, test, and validate (open) technological innovations in laboratory and in the field; 4. to disseminate knowledge of solutions towards malnutrition reduction and innovations.

Through participative approaches in the Food Hubs, FOODLAND will create and validate 12 prototypes for crop and fish farming and food processing systems that will deliver novel food products. FOODLAND will empower smallholder farmers and food operators, will foster nutrition-responsive and sustainable agro-biodiversity, will reinforce the productivity and resilience of food supply chains, and will create new market opportunities at both the local and global scales, thereby encouraging the flourishing of rural communities. These achievements will benefit both African and European consumers by providing them with traditional-based, healthy, nutritious foods, while encouraging the diffusion of African diets and aiding the fight against malnutrition, particularly in women and children.

The FoodLAND Kick-off Meeting (KoM) was held on September 30 – October 2, 2020 virtually on Microsoft Teams to commence project activities. Researchers in the project were allocated topics relevant to their research component to present on and also answer questions from other researchers. Members of the Department of Food Science, Nutrition and Technology (DFSNT) present were: **Prof Wambui Kogi-Makau, Prof Michael Okoth, Dr Jeff Wamiti, Dr Sophia Ngala, Dr Dasel Kaindi and Dr Lucy Njue**. This was a sequel to the international KoM for the FoodLAND project with a focus on project activities to be conducted in Kenya by the University of Nairobi and partners. Led by the principal investigator Prof Wambui Kogi-Makau the KKoM was held on November 5 – 6, 2020 virtually on Google Meet. The University of Nairobi and partners presented on their components in research and they also had an opportunity to ask questions related to the project. Members also discussed project deliverables, the Gantt chart and reporting of project activities to the funding body. Members of DFSNT present were: Prof Wambui Kogi-Makau, Prof Michael Okoth, Dr Jeff Wamiti, Dr Sophia Ngala, Dr Dasel Kaindi and Dr Lucy Njue. The opening speech was made by The Principal, College of Agriculture and Veterinary Sciences Prof Rose Nyikal.

DFSNT faculty and PhD students participate in the go-spin training program, October 2020

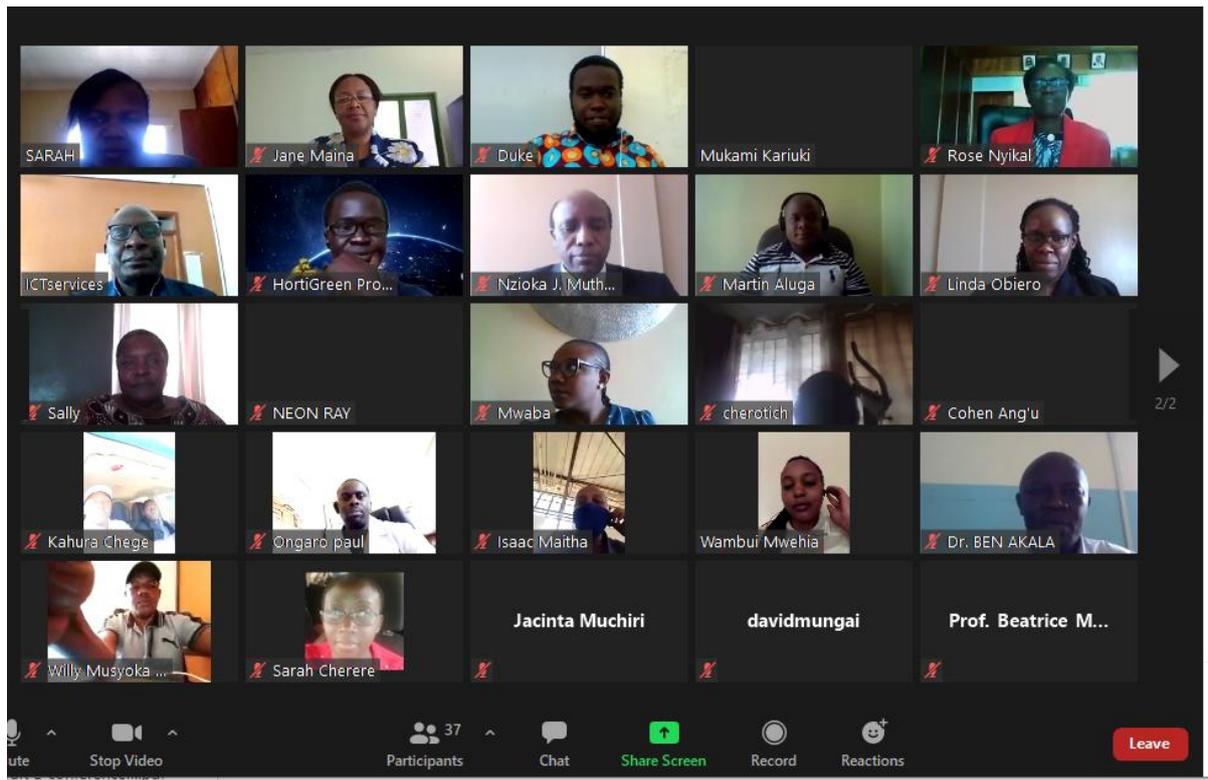


THE UNESCO's Global Observatory of Science, Technology and Innovation Policy Instruments (GO-SPIN) programme designed to expose —through the rigorous application of an assessment lens— usable insights about science, engineering, technology and innovation (SETI)

policies and their context launched a week-long training in Kenya that saw DFSNT faculty and students participate in this critical workshop. The purpose of this programme is to help UNESCO Member States to create local capacity for analysing SETI evidence-based policies in order to detect gaps and introduce reforms and upgrades to their national innovation systems and its governance.

It promotes building capacity to monitor and evaluate the policy performance, through a structural analysis (covering the explicit policy, the SETI national ecosystem, the legal framework and operational policy instruments), because such analysis points to implicit policies and gaps, and situates the performance of each individual national policy. In this way, the scope of standard SETI assessment can be widened, to consider country-specific contexts, as well as emerging knowledge of technological advances that contribute to sustainable development. While complementing efforts to promote evidence based SETI policymaking as well as efforts to evaluate policy performance, GO-SPIN offers a good baseline for the promotion of national scientific and technological foresight studies.

In this training, Dr George Abong (Senior Lecturer) and Mr. Joshua Ombaka (PhD student) from DFSNT participated



An e-conference on SCP practices in the horticultural sector was held virtually and hosted by the University of Nairobi on 5-7 October 2020. The conference brought together micro, small and medium enterprises currently under Hortigreen project, academia, NGO and other stakeholders in horticulture and related food sub-sectors. The key sub-themes that were tackled included: green financing opportunities, sustainable water and energy management, certification, eco-labelling and current innovation, consumer and civil mobilization, sustainable consumption and practices and zero waste economy. This conference was graced by among others, the dean faculty of agriculture, Director Wangari Maathai Institute and Principal of the College of Agriculture and Veterinary Science

DFSNT Participants: Prof. MW Okoth, Dr. GO Abong', Mr. D Gekonge, Mr. J Ouma

Practicum - at mama lucy Kibaki hospital



In the third year of study the FND students go for supervised experience in health facilities (equivalent of level 4 and above calibre) employing dietitians at which each student are placed for eight weeks to practice hospital based patients' diets, diet and food therapy in disease treatment including nutrition pharmacology and acquire skills in management of hospital/patients' and therapeutic diets.

Renovation of department labs and offices

The Department has carried out renovation of its laboratories, buildings and board offices to have conducive environment for learning.



PUBLICATIONS FOR 2020

S/No.	AUTHOR	TITLE	JOURNAL	PERIOD*
1	George Ooko Abong, Jackline Akinyi Ogolla, Michael Wandayi Okoth, Bruno De Meulenaer, Jackson Ntongai Kabira, Paul Karanja, Jacxsens Liesbeth	Dietary acrylamide intake by potato crisps consumers: A case of Nairobi County.	<i>Open Agriculture</i>	December 2020
2	George Ooko Abong', Tawanda Muzhingi, Michael Wandayi Okoth, Fredrick Ng'ang'a, Phillis E. Ochieng', Daniel Mahuga Mbogo, Derick Malavi, Machael Akhwale, and Sita Ghimire	Processing methods affect phytochemical contents in products prepared from orange-fleshed sweetpotato leaves and roots.	<i>Food Science and Nutrition</i>	December 2020
3	Aftin HA, Abong GO and MW Okoth.	Quality characterization of bread retailed in nairobi county, kenya: physico-chemical and microbial profiles.	<i>African Journal of Food, Agriculture, Nutrition and Development.</i>	October 2020
4	Jere GM, Abong' GO, Njue LG, Masamba K and DG Omayio.	Exposure of school children to aflatoxins and fumonisins through maize-based diets in school meals programme in Salima district, Malawi.	<i>African Journal of Food, Agriculture, Nutrition and Development.</i>	October 2020
5	Jeff Wamiti, Wambui Kogi-Makau, Sophia Ngala and Francis E. Onyango	Development and packaging of a leucine-rich composite flour for treatment of moderate wasting in children aged 6 – 24 months.	<i>African Journal of Food, Agriculture, Nutrition and Development.</i>	January 2021
6	Ouma JO, Abong' GO and Ngala S	Contribution of cassava and cassava-based products to food and nutrition security in Migori County, Kenya.	<i>African Journal of Food, Agriculture, Nutrition and Development.</i>	January 2021
7	Sanya Emmaculate, Okoth Michael Wandayi, Abong George Ooko and Mugalavai Violet Kadenyeka.	Consumers' acceptability of extruded maize-sorghum composite flours fortified with grain amaranth, baobab and orange fleshed sweet potatoes	<i>African Journal of Food Science</i>	October 2020

8	Sanya Emmaculate, Okoth Michael Wandayi, Abong George Ooko and Mugalavai Violet Kadenyeka	Nutrient and Anti-Nutrient Composition of Extruded Cereal Flours Fortified with Grain Amaranth, Baobab and Orange-fleshed Sweet Potato Powder	<i>Journal of Food Research</i>	October 2020
9	Derick Nyabera Malavi, George Ooko Abong', Tawanda Muzhingi	Effect of food safety training on behavior change of food handlers: A case of orange-fleshed sweetpotato pur'ee processing in Kenya.	<i>Food Control</i>	July 2020
10	Duke Gekonge Omayio, George O. Abong', Michael W. Okoth, Charles K. Gachuri & Agnes W. Mwang'ombe.	Trends and Constraints in Guava (<i>Psidium Guajava</i> L.) Production, Utilization, Processing and Preservation in Kenya. July 2020.	<i>International Journal of Fruit Science</i>	July 2020
11	Samuel O. Onyango, George O. Abong, Michael W. Okoth, Dora Kilalo and Agnes W. Mwang'ombe	Physico-chemical properties and sensory quality of cassava-cowpea-millet composite flours.	<i>African Crop Science Journal</i>	October 2020
11	Beinah, A., Kunyanga, C., & Ngugi, K	Utilization and Processing of Sorghum by Small Holder Farmers in Drought Prone AgroEcological Zones of Kenya.	<i>Advances in Social Sciences Research Journal</i>	November 2020
12	Ogumo EO, Kunyanga CN, Kimenju JW, Okoth MW	Performance of a fabricated solar-powered vapour compression cooler in maintaining post-harvest quality of French beans in Kenya	<i>African Journal of Food Science</i>	November 2020
13	Gichure, J. N., Kunyanga, C.N. Imungi, J.K.	Processing Variations, Nutritional and Sensory Quality of Ethnic Deep-Fried Meats from Kenyan Pastoral Communities.	<i>African Journal of Food, Agriculture, Nutrition and Development</i>	2020
14	Vila-Real, C., Pimenta-Martins, A., Magu, J., Kunyanga, C., Mbugua, S., Katina, K., Pinto, E.	A culture-sensitive semi-quantitative FFQ for use among the adult population in Nairobi, Kenya: Development, validity and reproducibility.	<i>Public Health Nutrition</i>	2020
15	Mbugua, M., Nzuma, J., Muange, E. & Kunyanga, C.N.	Social networks and household food consumption smoothing in the presence of idiosyncratic shocks: insights from rural Kenya	<i>Development in Practice</i>	2020

16	Muthike, C., Imungi, J., & Makau, W. K.	Cancer Chemoprevention through Consumption of African Leafy Vegetables: A review	<i>Journal of Nutrition and Dietetics</i>	January 2020
17	Joyce W. Wanjiru, Jasper K. Imungi, Lucy G. Njue	Moisture and Aflatoxin Contents of Kenyan Market Peanuts and Decontamination with Water, Lime and Ultraviolet Radiation Treatments	<i>Asian Food Science Journal</i>	2020
18	Gibson Mapopa Jere, George O. Abong', Lucy G. Njue, Kingsley Masamba and Duke G. Omayio	Postharvest Handling Knowledge and Practices among Food Handlers on Mycotoxigenic Molds Contamination in Maize Based Diets in School Meals Programme Salima District, Malawi	<i>Asian Food Science Journal</i>	2020
19	Beatrice J. Birgen, Lucy G. Njue, Dasel W.M. Kaindi, Fredrick O. Ogutu and Joshua O. Owade	Quantitative versus qualitative risk assessment of meat and its products: what is feasible for Sub-Saharan African Countries?	<i>Critical Reviews in Food Science and Nutrition</i>	August 2020

CORPORATE SOCIAL RESPONSIBILITY, ENVIRONMENTAL AND OUTRIEACH ACTIVITIES

Tree planting Exercise

Members of the department participated in tree planting exercise



CONSULTANCIES

SUN Business Network - Basic Nutrition training

The Global Alliance for Improved Nutrition's (GAIN) Marketplace for Nutritious Foods (the Marketplace) is a platform that strengthens networks, fosters innovations and promotes investment to transform local agriculture into accessible and nutritious foods. The Marketplace offers networking and knowledge sharing opportunities, business planning support, and access to financial grants and investment to local companies looking to turn their innovative and nutrition-enhancing

concepts into sustainable products. The ultimate goal of the Marketplace is to create local markets full of diverse, nutritious, and affordable foods for the consumers.

To contribute towards this goal GAIN developed a curriculum of training content that was delivered between June 3rd – June 5th 2020 through joint training, to small and medium-sized enterprises (SMEs) involved in the production of nutritious foods. Members of DFSNT involved were Dr Catherine Kunyanga and Dr Jeff Wamiti.



Selected Papers Presented at Conferences

S/No.	Invited Staff	Theme	Place	PERIOD*
1.	Benson Ouma. N, Michael W. Okoth, Nzioka J. Muthama, George Abong', M. Villacampa	Capacity building influence on waste management among horticultural processing medium and small microenterprises in Kenya	Virtual-Zoom	5-7 October 2020

2.	Benson Ouma. N, Michael W. Okoth, Nzioka J. Muthama, George Abong', M. Villacampa.	Knowledge, attitudes and practices synthesis of waste management among horticultural processing msmes in Kenya	Virtual-Zoom	5-7 October 2020
3.	Obiero L. Maryanne, George Abong', Michael W. Okoth, Nzioka J. Muthama, M. Villacampa.	Energy and water use for processing by horticultural processing micro, small and medium enterprises in Kenya	Virtual-Zoom	5-7 October 2020
4.	George Abong', Gekonge Duke, Elmah Geoffrey, Marion Villacampa	Energy and water use for processing by horticultural processing micro, small and medium enterprises in Kenya	Virtual-Zoom	5-7 October 2020

Lab activities

OTHER ACHIEVEMENTS

DFSNT staff ranked among the top 500 authors in Kenya



The web of science ranking that featured Kenyan authors between 2014 and 2020 saw three of the departmental staff ranked among top 500 authors. Prof. Michael Wandayi Okoth, a food process engineer with lots of experience ranked 299 with 21 peer reviewed publications, Dr. George Abong, Chair of the Department and Senior lecturer (Food Chemistry) ranked 387 with 18 peer reviewed publications and The late Mr Peter Lamuka.

Food processing hub official commissioning

The DFSNT in conjunction with Department of Plant Science and Crop Protection launched a food processing hub, expanding capacity for research and food product development. The hub which was funded by Rockefeller Foundation and Purdue University was championed by Prof. Jane Ambuko and Dr. Catherine Kunyanga.



