

**DEPARTMENTAL RESEARCH PERFORMANCE EVALUATION FOR THE
PERIOD 2007-2012 AND THEMATIC AREAS FOR 2013-2018**



**DEPARTMENT OF FOOD TECHNOLOGY, FACULTY OF SCIENCE,
KYAMBOGO UNIVERSITY**

JANUARY 2014

1. BACKGROUND

Food Processing Technology (FPT) program was initiated under Chemistry Department, School of Science, in the former Uganda Polytechnic Kyambogo in 1997 at both Certificate and Diploma levels. Following the establishment of Kyambogo University, FPT program was adopted in the new Faculty of Science in 2001 and the program was then upgraded to a degree level. FPT is a natural science and was developed to solve issues of post-harvest food losses, food wastage and product development. Food Technology programmes therefore have potential for expansion, based on the increasing demand for science-based programmes in Uganda. In addition, the agricultural sector is endowed with high production of organic foods which is important for human health. At the moment, the Department is in the process of developing programmes for advanced research in Food Science and Technology. MSc. and PhD programmes have been proposed and await approval by the University Council.

2. CURRENT STATE

Food Technology Department comprises three programmes namely; Bachelors, Diploma and Certificate courses averaging to more than 60 students per academic year. The courses are run under both day and evening programmes. Most universities in Uganda including Makerere University and Gulu University have Food Science and Technology at Bachelors level and all running as day programmes only. Most Ugandan universities train less than 50 students of Food Science per year. At Kyambogo University, similar numbers of students enroll for both day and evening programmes. In the last two academic years (2011/12 and 2012/13), the number has suddenly doubled. Most of our students are from Uganda, Kenya, Tanzania, and a few from Rwanda. This could point to the fact that Food Science and Food Technology has become popular in the East Africa. Ultimately, the Department has embarked on expansion of infrastructure and human resource development. Also, there is the need for programme review to include training of graduate students in order to strengthen research in the Department.

3. VISION

To be the centre of training, research, community outreach and consultancy services in Food Science and Technology through food processing, bio-processing technology, product development and analysis in order to deliver safe foods of high quality on the market.

4. MISSION

To advance and promote knowledge and development of skills in Food Science and Technology, and nutrition & health with contribution to food security, food safety and quality for better health through value addition and natural resources management.

5. CORE VALUES

The Department of Food Technology is committed to realizing its vision and mission by:

- Upholding professionalism and ethics in all dealings with the stakeholders.
- Upholding integrity, honesty and quality in training and all other activities.
- Promoting participatory management and effective teamwork in all activities and operations.
- Promoting and maintaining linkages with industry, other institutions and alumni.
- Advocating for dignity of all members of staff and students.

- Recognizing ideas and innovations.

6. OBJECTIVES

OVERALL OBJECTIVE

To develop a Food Laboratory Building comprising of relevant Technological Pilot Plants, Analytical Laboratories and Staff offices with capacity to increase and strengthen human resource, students and academic staff, in Food Technology.

STRATEGIC OBJECTIVES

- 1- To improve hands on experience in technological agro-processing of food raw materials.
- 2- To strengthen the capacity for analysis of organic and non-organic food products and reduce incidences of food wastage, poisoning and spoilage.
- 3- To improve and strengthen qualifications and performance through planned staff recruitment and development by further training, academic exchanges, research and publication in Food Science and Technology.
- 4- To increase the facilities for research, particularly research funds, to enable innovations that support the commercialization of the products and technologies developed at the Department.
- 5- To improve and expand on the necessary infrastructure for better training.
- 6- To expand on student enrollment, student-staff ratio and maximize human resource output.
- 7- To create an income generating unit through food product development and marketing.

7. THEMATIC AREAS 2013-2018

- Food Product development
- Food Microbiology
- Food Chemistry
- Food Safety and Quality
- Food Analysis
- Food Engineering
- Biotechnology
- Human Nutrition

8. RESEARCH AGENDA/FIVE YEARS RESEARCH FOCUS

Research programme of the Department includes an applied research oriented on design of new methods for determination of chemical and biological contaminants and food quality in general.

Present research and ongoing work

- Chemical characterisation of cassava (*Manihot esculenta Crantz*) varieties grown in Uganda for commercialisation.
- Isolation, characterisation, and identification of pathogenic, spoilage and beneficial microorganisms using conventional and molecular protocols in order to enhance safety and quality of food products.
- Health risk index of highly toxic metals associated with consumption of offal meats.
- Determination of chemical process breakdown products from deep fried carbohydrate-rich foods (acrylamide, furans, peroxidation and secondary end products).

- Formulation of cereal-based products for supplementary feeding of infants and young children.
- Determination of reduction of risks related to *Fusarium* mycotoxins and their bound form in crops.
- Strategies to safeguard chemical safety of thermally processed products from potatoes and cereals.
- Effect of industrial processing of foods on levels of vitamins and key compounds in fresh foods.
- Characterization of banana wine fermented with recombinant wine yeast strains.

9. KEY RESEARCHES UNDERTAKEN BY LECTURERS

		Award	Author
2013	Nannyonga, S., Kiremire, B.T., Ogwok, P., k, P., Nyanzi, S.A., Sserunjogi, M.L. and Wasswa, J. (2013). Organochlorine pesticide residues in skin, flesh and whole carrots (<i>Daucus carota</i>) from markets around Lake Victoria basin, Uganda. International Journal of Environmental Studies 70: 49-58.	MSc.	Ogwok, P.
2013	Amegovu, A.K., Ogwok, P., Ochola, S., Yiga, P., Musalima, J.H. and Mutenyo, E. (2013). Formulation of sorghum-peanut blend using linear programming for treatment of moderate acute malnutrition in Uganda. J. Food Chem. Nutr. 01 (02) 2013. 67-77.	PhD	Ogwok, P./ Musalima, J.
2013	Nannyonga, S., Kiremire, B., Ogwok, P., Nyanzi, S. A. and Mugampoza, D. (2013). Assessment of Pesticide Residues in Raw Cucumbers (<i>Cucumis sativus</i>) from Lake Victoria Basin, Uganda. International Journal of Research in Chemistry and Environment Vol. 3 Issue 1 January 2013(327-333) ISSN 2248-9649.	MSc.	Ogwok, P./ Mugampoza, D.
2013	Byarugaba-Bazirake, G.W., van Rensburg, P. and Kyamuhangire, W. (2013). The influence of commercial enzymes on wine clarification and on the sensory characteristics of wines made from three banana cultivars. American Journal of Biotechnology and Molecular Sciences ISSN Print: 2159-3698, ISSN Online: 2159-3701, doi:10.5251/ajbms.2013.3.2.41.62 © 2013, ScienceHuß, http://www.scihub.org/AJBMS .	PhD	Byarugaba-Bazirake, G.W.
2013	Byaruagaba-Bazirake, G.W., van Rensburg, P. and Kyamuhangire, W. (2013). Characterization of banana wine fermented with recombinant wine yeast strains American Journal of Food And Nutrition Print: ISSN 2157-0167, Online: ISSN 2157-1317, doi:10.5251/ajfn.2013.3.3.105.116 © 2013, ScienceHuß, http://www.scihub.org/AJFN .	PhD	Byarugaba-Bazirake, G.W.
2013	Mugampoza, D., Byarugaba-Bazirake, G.W., Nyonyintono, A. and Nakitto, P. (2013). Occurrence of <i>Escherichia coli</i> and <i>Salmonella</i> spp. in street-vended foods and general hygienic and trading practices in Nakawa Division, Uganda. American Journal Of Food And Nutrition Print: ISSN 2157-0167, Online: ISSN 2157-1317, doi:10.5251/ajfn.2013.3.3.167.175 © 2013, ScienceHuß, http://www.scihub.org/AJFN .	BFPT	Mugampoza, D./ Byarugaba-Bazirake, G.W.

2013	Byarugaba-Bazirake, G.W. (2013). Risks and benefits associated with alcohol-A Review Paper, July 2013: In: Proceedings of the 9 th Biennial Conference for African Association for Health, Physical Education, Recreation, Sport and Dance. pp. 79-81. Kyambogo University.	Non award	Byarugaba-Bazirake, G.W.
2013	Ocen, D. and Xu, X. (2013). Effects of citrus orange (<i>Citrus sinensis</i>) by-product dietary fiber preparations on the quality characteristics of frozen dough bread. American Journal of Food Technology. ISSN 1557-4571 / doi: 10.3923/ajft.2013	MSc.	Ocen, D.
2013	Nikoo, M., Benjakul, S., Ocen, D., Yang, N., Xu, B., Zhang, L. and Xu, X. (2013). Physical and chemical properties of gelatin from the skin of cultured Amur sturgeon (<i>Acipenser schrenckii</i>). Journal of Applied Ichthyology. doi: 10.1111/jai.12238.	MSc.	Byarugaba-Bazirake, G.W.
2013	Bashari, M., Lagnika, C., Ocen, D., Chen, H., Wang, J., Xu, X. and Jin, Z. (2013) Separation and characterization of dextran extracted from deteriorated sugarcane. International Journal of Biological Macromolecules 59, 246- 254.	MSc.	Ocen, D.
2013	Byarugaba-Bazirake, G.W. (2013). Risks and benefits associated with alcohol-A Review Paper, July 2013: In: Proceedings of the 9 th Biennial Conference for African Association for Health, Physical Education, Recreation, Sport and Dance. pp. 79-81. Kyambogo University.	Non award	Byarugaba-Bazirake, G.W.
2013			Kaggwa, J.N.
2012	Amegovu, A.K., Sserunjogi, M.L., Ogwok, P. and Makokha, V. (2012). Nucleotide degradation products, total volatile basic nitrogen, sensory and microbiological quality of Nile perch (<i>Lates niloticus</i>) fillets under chilled storage. Journal of Microbiology, Biotechnology and Food science. 2 (2): 653-666 Slovakia.	MSc.	Ogwok, P.
2012	Byarugaba-Bazirake, G.W., Van Ransburg, P. and Kyamuhangire, W. Characteristics of enzyme-treated banana juice from three cultivars of tropical and subtropical Africa. African Journal of Food Science and Technology (ISSN: 2141-5455) Vol. 3(10) pp. 277-290, December, 2012 Available Online http://www.interestjournals.org/AJFST Copyright©2012 International Research Journals.	PhD	Byarugaba-Bazirake, G.W.
2011	Masa, J., Ogwok, P., Muyonga, J.H., Makokha, V., Kwetegyeka, J. and Ocen, D. (2011). Fatty Acid Composition of Muscle, Liver, and Adipose Tissue of Freshwater Fish from Lake Victoria, Uganda.	MSc.	Ogwok, P.

	Journal of Aquatic Food Product Technology, 20(1), 64-72.		
2011	Mugampoza, D., Muyanja, C., Ogwok, P., Serunjogi, M.L. and Nasinyama, G.W. (2011). Occurrence of <i>Listeria monocytogenes</i> in bulked raw milk and traditionally fermented dairy products sold in Kampala district, Uganda. African Journal of Food, Agriculture, Nutrition and Development, 11 (2), 4611-4622.	MSc.	Mugampoza, D. /Ogwok, P.
2011	Wanyama D., Kiremire, B., Ogwok, P. and Murumu, J. (2011). Indigenous plants in Uganda as potential sources of dyes. African Journal of Plant Science, 5(1), 28-39.	PhD	Ogwok, P.
2011	Wanyama, P.A.G., Kiremire, B.T., Ogwok, P. and Murumu, J.S. (2011). The Effect of Different mordant on strength and stability of colour produced from selected dye-yielding plants in Uganda. International Archive of Applied Sciences & Technology, 1(2) 82-92.	PhD	Ogwok, P.
2010	Okullo, A., Temu, A.K., Ntalikwa, J.W. and Ogwok, P. (2010). Optimization of Biodiesel Production from Jatropha Oil. International Journal of Engineering Research in Africa, 3, 62-73.	PhD	Ogwok, P.
2010	Wanyama, D., Kiremire, B., Ogwok, P. and Murumu, J. (2010). Characterization of potential dye yielding plants in Uganda: Potential sources of food pigments! Journal of Pure and Applied Chemistry, 4(10), 233-239.	PhD	Ogwok, P.
2009	Ogwok, P., Muyonga, J.H. and Sserunjogi, M.L. (2009). Pesticide residues and heavy metals in Nile perch (<i>Lates niloticus</i>) belly flap oil. Bulletin of Environmental Contamination and Toxicology, 82 (5):529-933. DOI: 10.1007/s00128-009-9668-x. Springer Science + Business media, LLC 2009.	PhD	Ogwok, P.
2009	Mallemo, R.C.J., Ogwok, P., Makokha, V., Mugampoza, E. and Ugen, M.A. (2009). Effect of banana peel-ash-extract on cooking time and acceptability of hard to-cook beans (<i>Phaseolus vulgaris</i> L.). International Journal of Tropical Agriculture and Food Systems, 3 (1): 1-6.	BFPT	Ogwok, P./ Mugampoza, D.
2009	Ogwok, P., Muyonga, J.H. and Sserunjogi, M.L. (2009). Variation in chemical composition of oils from Nile perch (<i>Lates niloticus</i>) belly flaps with capture site and season. Journal of Aquatic Food Product Technology, 18 (4), 331-344.	PhD	Ogwok, P.
2009	Byarugaba-Bazirake, G.W. (2009). The Effect of Enzymatic Processing on Banana Juice and Wine, VDM-Publishing House, December, 2009. ISBN 13-978-3639223507	PhD	Byarugaba-Bazirake,

			G.W.
2008	Ogwok, P., Muyonga, J.H. and Sserunjogi, M.L. (2008). Fatty acid profile and stability of oil from the belly flaps of Nile perch (<i>Lates niloticus</i>). Food Chemistry, 108 (2008): 103-109, DOI:10.1016/j.foodchem.2007.10.050. Elsevier.	PhD	Ogwok, P.
2007	Sauda, W., Ogwok, P., Sserunjogi, M.L. and Mugampoza, E. (2009). Risk assessment for occurrence of <i>Escherichia coli</i> 0157:H7 in indigenous fermented <i>milk lee naga a agbora</i> produced in Uganda. International Journal of Tropical Agriculture and Food Systems, 3(2): 68-74, 2009. www.tapasinstitute.org/journals/ijotafs	MSc.	Ogwok, P./ Mugampoza, D.

FULL-TIME ACADEMIC STAFF

NAME	QUALIFICATION
Head of dept Dr. Patrick Ogwok	PhD
Dr. George W. Byarugaba - Bazirake	PhD
Dr. Edriisa Mugampoza	PhD
Dr. Jane N. Kaggwa	PhD
Mr. John Manano	MSc
Ms. Juliet H. Musalima	MSc
Mr. Samuel Gafuma	MSc
Ms. Phoebe Kaddumukasa	MSc

PART-TIME ACADEMIC STAFF

NAME	QUALIFICATION
Mr. Andrew Muhame	MSc
Mr. Denis Ocen	MSc
Ms. Margaret Achola	MSc
Mr. Michael Bamuwamye	MSc
Ms. Prossy Bangi	MSc
Mr. Isabirye	MSc
Ms. Suzan Acham	MSc
Ms. Esther Musiime	MA
Mr. Phillip Lutaaya	MSc
Mr. Charles Bongomin	MSc
Mr. Julius Ngolobe	MSc
Mr. Jacob Tenggi	MSc
Mr. Peter Wefafa	MSc
Mr. Peter Yiga	BSc

