



**Dr. Robert Mugabi**  
**About/Introductory**  
**statement**

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**Qualifications**

I am a Food Engineer and Scientist by training. I have been working at the Department of Food Technology and Nutrition, Makerere University, Kampala Uganda since September 2010. My interests include: Food Engineering/Processing; Value-added processing of agricultural commodities; food certification; effects of processing on food quality and food safety; Post-harvest technology; Process control of food processing operations; Cereal Science and Technology.

- **Ph.D.**, Food Science and Technology, May 2017; University of Nebraska-Lincoln, USA
- **MSc.**, Food Process Engineering, December 2012; University of New South Wales, Sydney, Australia
- **B.Sc.**, Chemical and Process Engineering, December 2005; University of Dar Es Salaam, Tanzania

**Biography**

**Dr. Robert Mugabi** is trained as a Food Process Engineer. Robert attained a BSc. Chemical & Process Engineering from the University of Dar Es Salaam, Msc. Food Process Engineering from the University of New South Wales, Sydney and a PhD from the University of Nebraska-Lincoln. He is a Senior Lecturer at Makerere University where he has been since 2010. He is involved in training and supervision of both undergraduate and graduate students in the Department of Food Technology and Nutrition. His research interest areas are: value-added processing of agricultural commodities; effects of new process technologies on food quality and food safety; post-harvest technology fundamentals and applied aspects of grain storage and drying; process control of food processing operations; and design of food processing equipment and plant design. He has been involved in the design and construction of a milling machines, batch & continuous pasteurizer, and spray dryer among others. Robert also works with Agro-processors to facilitate their growth in production; specifically, in setting up their infrastructure and optimizing their processing chain. Dr. Robert is a member of Member of American Society of Agricultural and Biological Engineers (ASABE), Institute of Food Technologists (IFT) and the Nutrition Society of Uganda (NSU).

**Other Activities**

1. Graduate coordinator – Department of Food Technology and Nutrition
2. Examinations coordinator - Department of Food Technology and Nutrition

## Teaching

### Courses taught at Graduate level:

1. Graduate Seminars
2. Food Processing and Preservation
3. Food Process Engineering

### Courses taught at Undergraduate level:

1. Dairy Science and Technology
2. Food Processing and Preservation
3. Cereals, Legumes and Root Crop Technology
4. Food Engineering I & II
5. Fats and Oils Technology

## Research

Dr. Mugabi has led and conducted research in Food Engineering/Processing; Value-added processing of agricultural commodities; food certification; effects of processing on food quality and food safety; Post-harvest technology; Process control of food processing operations; Cereal Science and Technology; development of fortified food products from underutilized sources, generating new products from cereals; roots and legumes.

## Research groups and Centres

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## Community based work

- Volunteer Advisor for The Canada-Africa Innovation Fellowship (CAIF) 2021 program. Was advisor for four (4) fellows from Uganda and Canada. Coordinated by Engineers Without Borders Canada.
- Food Scientist/Technologist on the technical committee for the Enable Youth Program under the Farm Income Enhancement and Forestry Conservation: project-2 (FIEFOC-2) managed by the Ministry of Water and Environment (2018 - 2020).
- Technical member on the team to review the Agriculture Sector Strategic Plan (ASSP) 2015/16-2019/20 and formulation of the new ASSP 2020/21-2024/25. (Oct to Dec 2019).
- Member on the UNBS/TC2-SC2 Technical Committee on Edible oilseeds, fats and oils.
- Member on the UNBS/TC2-SC5 Technical Committee on Nutrition and foods for special dietary uses.
- David H. & Annie E. Larrick Memorial Travel Award by the Agricultural Research Division, UNL: to attend the ASABE Annual International meeting in New Orleans from 26-29 July, 2015.
- Borlaug Higher Education for Agricultural Research and Development (BHEARD) scholarship for Ph.D. studies (August 2013 to April 2017).
- Australian Development Scholarship – Masters studies (January, 2011 to December, 2012).
- Inter-University Council for East Africa (IUCEA) scholarship – Exchange student at University of Dar es Salaam, Tanzania (September, 2001 to June, 2005).

## Awards or special recognitions received

## Publications

### Peer reviewed papers:

1. **Mugabi R.** & Driscoll R. (2016). Study of Maize Drying in Uganda Using an In-store Dryer Weather Data Simulation Software. *International Journal of Food Processing Technology*, 3(1):18-26. <http://dx.doi.org/10.15379/2408-9826.2016.03.01.03>.
2. **Mugabi R.**, Eskridge K.M. and Weller C.L. (2017). Comparison of Experimental Designs Used to Study Variables During Hammer Milling of Corn Bran. *Transactions of the ASABE*, 60(2): 537-544. ISSN 2151-0032. <http://dx.doi.org/10.13031/trans.11656>.
3. **Mugabi R.**, Byaruhanga Y., & Weller, C. L. (2018). Challenges faced by small-scale local fabricators and millers in Uganda: A case study of hammer mill fabricators and users. *Journal of Advances in Food Science & Technology*, 5(2):63-71. <https://www.ikpress.org/index.php/JAFSAT/article/view/3759>.
4. **Mugabi, R.**, Byaruhanga Y.B., Eskridge K.M., & Weller C.L. (2019). Performance evaluation of a hammer mill during grinding of maize grains. *Agricultural Engineering International: CIGR Journal*, 21 (2):170–179.
5. Byakika S., Mukisa I.M., **Mugabi R.** & Muyanja C.K. "Antimicrobial Activity of Lactic Acid Bacteria Starters against Acid Tolerant, Antibiotic Resistant, and Potentially Virulent E. coli Isolated from a Fermented Sorghum-Millet Beverage," *International Journal of Microbiology*, vol. 2019, Article ID 2013539, 10 pages, 2019. <https://doi.org/10.1155/2019/2013539>.
6. Bukenya R., Ekesa B., Andrade J.M., Grigsby-Toussaint D.S., **Mugabi R.**, Muyonga J., & Andrade J.E. (2021). Reliability of the General Nutrition Knowledge Questionnaire among Head Teachers from Schools in Uganda. *Asian Food Science Journal*, 20(10):125-136. <https://doi.org/10.9734/afsj/2021/v20i1030368>.
7. **Mugabi R.** (2021). Effect of Particle Size on Color of Ground Coffee. *Asian Food Science Journal*, 20(10):137-144. <https://doi.org/10.9734/afsj/2021/v20i1030369>.
8. Nabubuya A., **Mugabi R.**, Kaggwa A., Ainebyona P., & Nalugya R. (2022). Influence of Roasting on the Proximate, Functional and Sensory Properties of Jackfruit Seeds and Amaranth Grain Composite Complementary Flours. *Tanzania Journal of Science*. 48(1):156-169. <https://dx.doi.org/10.4314/tjs.v48i1.15>
9. **Mugabi R.**, Byakika S. & Mukisa I.M. (2022). Effects of feed moisture content, soybean ratio and barrel temperature on physical and functional properties of extruded maize-soybean flour blend. *Tanzania Journal of Science*. 48(2):447-459. <https://dx.doi.org/10.4314/tjs.v48i2.19>.
10. Nakibuuka M.M. & **Mugabi R.** (2022). Ethnobotanical study of indigenous nutri-medicinal plants used for the management of HIV/AIDS opportunistic ailments among the local communities of central Uganda. *Scientific African*. 16, e01245. ISSN 2468-2276. <https://doi.org/10.1016/j.sciaf.2022.e01245>.
11. Kesselly S.R., **Mugabi R.** & Byaruhanga Y. (2022). Effect of Extrusion on the Functional and Pasting Properties of High-quality Cassava Flour (HQCF). *Journal of Food Research*. 11 (4):1-12. <https://doi.org/10.5539/jfr.v11n4p1>.

12. Wandeka C.M., Kigozi J., **Mugabi R.**, & Ainebyona P. (2022). Optimization of raw materials for production of a nutritious snack bar for children aged between 5 to 13 years. *International Journal of Scientific Advances*. 3(4):679-688. <https://doi.org/10.51542/ijscia.v3i4.40>.
13. Kesselly S.R., **Mugabi R.** & Byaruhanga Y.B. (2023). Effect of soaking and extrusion on functional and pasting properties of cowpeas flour. *Scientific African*. 19, e01532. ISSN 2468-2276. <https://doi.org/10.1016/j.sciaf.2022.e01532>.
14. Bukenya R., Laborde J.E.A., Mamiro P., **Mugabi R.** & Kinabo J. (2023). Assessment of nutrient adequacy of complementary foods for infants and young children in Morogoro, Tanzania, *Scientific African*, 19, e01567. ISSN 2468-2276. <https://doi.org/10.1016/j.sciaf.2023.e01567>.
15. Khakasa E., Muyanja C., **Mugabi R.**, Bugaud C., Forestier-Chiron N., Uwimana B., Arinaitwe I.K., & Nowakunda K. (2023). Sensory characterization of the perceived quality of East African highland cooking bananas (matooke). *Journal of the Science of Food and Agriculture*, 10.1002/jsfa.12606. Advance online publication. <https://doi.org/10.1002/jsfa.12606>.
16. Birungi S.W., **Mugabi R.**, Nabubuya A., Mukisa I.M., Wambete J. & Tibagonzeka E.J. (2023). Nutritional composition of least-cost staple food sources of nutrients in eastern Uganda. *African Journal of Food, Agriculture, Nutrition and Development*. 23(7):23975-23993. <https://doi.org/10.18697/ajfand.122.23100>.
17. Birungi S.W., **Mugabi R.**, Nabubuya A., Mukisa I.M., Wambete J. & Tibagonzeka E.J. (2023). Low-cost nutrient-dense composite flours for children aged 1-5 years developed from locally available foods. *African Journal of Food, Agriculture, Nutrition and Development*. 23(8):24177-24196. <https://doi.org/10.18697/ajfand.122.23100>.
18. Soumaya A.S., Mukisa I.M., **Mugabi R.** & Muyanja C. (2023). Preservation of Chayote (*Sechium Edule* L) using different drying methods. *Journal of Food Research*. 12(4):45-55. <https://doi.org/10.5539/jfr.v12n4p45>.
19. Nakibuuka M.M. & **Mugabi R.** (2023). Determination of total antioxidant activity & target micronutrient contents of the selected nutri-Medicinal plants. *Journal of Advances in Food Science & Technology*, 10(4):42–53. <https://doi.org/10.56557/jafsat/2023/v10i48407>.
20. Khakasa, E., Muyanja, C., **Mugabi, R.**, Mukasa, Y., Babirye, M. P., Balikoowa, B., Namanya, P., Kubiriba, J., Arinaitwe, I.K., & Nowakunda, K. (2023). Internal Quality Assessment of East African Highland Cooking Banana (*Musa* spp.) Flour: Significance for Breeding and Industrial Applications. *Foods*, 12(23):4323. MDPI AG. <http://dx.doi.org/10.3390/foods12234323>.
21. Meeme R., Mukisa I.M. & **Mugabi R.** (2023). Kombucha Production in Uganda: Quality Aspects and Compliance with Standards. *Food ScienTech Journal*, 5(2):145-165. <http://dx.doi.org/10.33512/fsj.v5i2.19880>.

#### Conference papers:

1. **Mugabi R.**, Curtis L.W. & Byaruhanga Y.B. (2015). Performance Evaluation of Locally Fabricated Hammer Mills in Rural Uganda: Crafting a Test Protocol. ASABE Paper No. 2180215. ASABE, St. Joseph, MI.
2. **Mugabi R.** & Driscoll R. (2015). In-store drying as an alternative for corn drying in Uganda. ASABE Paper No. 2189396. ASABE, St. Joseph, MI.
3. Newgard E.C., Pushpadass H.A., Weller C.L., Eskridge K.M., Hanna M.A., **Mugabi R.** & Flores R.A. (2015). Hammer Mill Size Reduction Comminution Law Coefficients for Corn and Grain Sorghum. ASABE Paper No. 2189398. ASABE, St. Joseph, MI.
4. Natocho J., Muyonga J. & **Mugabi R.** (2023). Utilization of orange fleshed sweet potatoes in production of noodles. NARO-MAK Conference Abstract No. 7.11. 14-16 March 2023, Speke Resort Hotel Munyonyo, Kampala, Uganda.
5. Khakasa E., Muyanja C., **Mugabi R.**, Kabiita I.A., Uwimana B., Namanya P. & Nowakunda K. (2023). Instrumentation predicts fruit colour associated with consumer acceptance of cooking bananas (Matooke). NARO-MAK Conference Abstract No. 5.16. 14-16 March 2023, Speke Resort Hotel Munyonyo, Kampala, Uganda.
6. Bukenya R., Ekesa B., Grigsby-Toussaint D., Andrade J., **Mugabi R.**, Muyonga J., & Laborde J.A., P28-008-23. Factors Associated With School Health and Nutrition Programs in Uganda. Current Developments in Nutrition, Volume 7, Supplement 1, 2023, 101265, ISSN 2475-2991, <https://doi.org/10.1016/j.cdnut.2023.101265>.

## Profile – Robert Mugabi