# Frank Kumi

Lecturer · Crop Science
University of Cape Coast

ORCID 0000-0001-6719-6413 · Homepage researchgate.net/profile/Frank_Kumi3 · Google scholar scholar.google.com/citations?hl=en&user=MHpqGPwAAAAJ · Growkudos growkudos.com/profile/frank_kumi · Google Scholar scholar.google.com/citations?user=QcyQzEEAAAAJ&hl=en · Profile scholar.ucc.edu.gh/staff/5ece9023-0a16-4485-b3e1-2bfa127ed21a

## RESEARCH

| | |
|---|---|
| Interests | Plant Breeding & Genetics · Plant Biotechnology · Plant Pathology Bioinformatics |
| Areas | Plant Science · Molecular Biology · Nutrition and Dietetics · Agronomy and Crop Science · Cell Biology · Genetics |

## RESEARCH SUMMARY

| 19 | 148 | 6 | 4 | 0.62 | 7% |
|---|---|---|---|---|---|
| Publications | Citations | h-index | i10-index | Field-weighted impact | World top 10% |

Counted from the 19 publications listed below, 2017–2026. Field-weighted impact is the mean over the 15 works scored for it; 1.00 is the world average for works of the same field, type and year. 1 of the 15 papers scored for it are among the world's most cited tenth for their field, type and year.

## POSITIONS

**Lecturer** 2009–present
Crop Science, University of Cape Coast, Cape Coast, Ghana

## EDUCATION AND QUALIFICATIONS

**PhD Plant Breeding and Biotechnology** 2014–2019
Crop Production, Makerere University, Kampala, Uganda

**MPhil Crop Science** 2011–2013
Crop Science, University of Cape Coast School of Agriculture, Cape Coast, Ghana

**Bachelor of Science** 2005–2009
Crop Science, University of Cape Coast, Cape Coast, Ghana

## PUBLICATIONS

### Journal articles 19

1. Kwame Agyei Frimpong, Yaw Sarfo, Isaac Kwasi Asante, Kwadwo A. Dompreh, Edwin W. Harris, **Frank Kumi**, James Lowenberg-DeBoer, Paula A. Misiewicz, Alexander Tetteh Kwasi Nuer, Sven Peets, Andrew Wilcox, Vincent O. Aduramigba-Modupe, Karl Behrendt (2026). Bespoke Precision Agriculture for Small-Scale Farming in Sub-Saharan Africa: Defining Potential Benefits and Pathways. *Food and Energy Security*. https://doi.org/10.1002/fes3.70310
2. Jianbin Li, Michael Ackah, Frank Kwarteng Amoako, Meina Zhu, **Frank Kumi**, Frank Kwekucher Ackah, Qiang Lin, Carlos Tettey, Changyu Qiu, Xueying Jin, Mengdi Zhao, Weiguo Zhao (2026). Jasmonic Acid-Induced Vacuolar Cation/Proton Exchanger 3 (CAX3) Expression Drives Tolerance to Manganese Toxicity in Mulberry ( Morus alba L.). *Plant Cell & Environment*. https://doi.org/10.1111/pce.70832
3. Jianbin Li, Michael Ackah, Frank Kwarteng Amoako, Justice Kwaku Addo, Xin Jin, **Frank Kumi**, Vailly Jubline Banzouzi Bouzika, Hao Wei, John Nelson Buah, Isaac K.A. Galyuon, Meina Zhu, Mengdi Zhao, Weiguo Zhao (2026). Magnesium-induced transporters remodel the ionome of mulberry leaves by

promoting the nitrate reductase (NIA) gene in nitrogen metabolism. *Plant Science*. https://doi.org/10.1016/j.plantsci.2026.113396

4. Xin Jin, Michael Ackah, Frank Kwarteng Amoako, **Frank Kumi**, Jianbin Li, Rurou Long, Carlos Tettey, Meina Zhu, Mengdi Zhao, Weiguo Zhao (2026). MicroRNA-mediated responses to magnesium-induced stress coordinate target genes involved in porphyrin and biosynthesis of secondary metabolites metabolisms in mulberry (Morus alba L.). *BMC Plant Biology*. https://doi.org/10.1186/s12870-026-08183-9
5. Rurou Long, Xueying Jin, Michael Ackah, Frank Kwarteng Amoako, Frank Kwekucher Ackah, **Frank Kumi**, Jianbin Li, Hao Wei, John Nelson Buah, Mengdi Zhao, Weiguo Zhao (2026). Transcriptomics and functional characterization identify CYP73A16 as a key regulator of flavonoid biosynthesis in mulberry leaves. *BMC Plant Biology*. https://doi.org/10.1186/s12870-026-08804-3
6. Patrick Twumasi, Paul Agu Asare, Sylvester NTT Addy, Godwin Amenorpe, **Frank Kumi**, Michael O Adu, Prosper D Lumorh, Emmanuel Afutu (2025). Harnessing Induced Mutations to Develop Superior Tiger Nut Varieties Using Ethyl Methanesulfonate (EMS) and Colchicine. *Acta Scientific Agriculture*. https://doi.org/10.31080/asag.2025.09.1474
7. Emmanuel Afutu, **Frank Kumi**, Paul A Asare, Michael O Adu (2025). Investigating the Genetics of Scab Resistance and Yield Components in Cowpea (Vigna unguiculata). *International Journal of Plant & Soil Science*. https://hal.science/hal-05068356/
8. A. Danquah, E. P. Otwe, I. K. A. Galyuon, **F. Kumi**, C. Napo (2025). Morphological and Physiological Responses of Sorghum to Drought: Implications for Development of Climate-resilient Cultivars. *Biotechnology Journal International*. https://doi.org/10.9734/bji/2025/v29i2767
9. Prosper D Lumorh, **Frank Kumi**, Paul Agu Asare, Godwin Amenorpe, Michael O Adu, Sylvester N T T Addy, Emmanuel Afutu (2025). Response of some cowpea genotypes to radiosensitivity using 60Co gamma radiation. *International Journal of Agricultural Research Innovation and Technology*. https://doi.org/10.3329/ijarit.v15i1.82798
10. Arfang Badji, Lewis Machida, Daniel Bomet Kwemoi, **Frank Kumi**, Dennis Okii, Natasha Mwila, Symphorien Agbahoungba, Angele Ibanda, Astere Bararyenya, Selma Ndapewa Nghituwamhata, Thomas Odong, Peter Wasswa, Michael Otim, Mildred Ochwo-Ssemakula, Herbert Talwana, Godfrey Asea, Samuel Kyamanywa, Patrick Rubaihayo (2020). Factors Influencing Genomic Prediction Accuracies of Tropical Maize Resistance to Fall Armyworm and Weevils. *Plants*. https://doi.org/10.3390/plants10010029
11. **F Kumi** (2020). Factors Influencing Genomic Prediction Accuracies of Tropical Maize Resistance to Fall Armyworm and Weevils. Plants 2021, 10, 29. *Advances in Cereal Crops Breeding*. https://www.academia.edu/download/110575552/pdf.pdf
12. A. Badji, D. B. Kwemoi, L. Machida, D. Okii, N. Mwila, S. Agbahoungba, **F. Kumi**, A. Ibanda, A. Bararyenya, M. Solemanegy, T. Odong, P. Wasswa, M. Otim, G. Asea, M. Ochwo-Ssemakula, H. Talwana, S. Kyamanywa, P. Rubaihayo (2020). Genetic Basis of Maize Resistance to Multiple Insect Pests: Integrated Genome-Wide Comparative Mapping and Candidate Gene Prioritization. *Genes*. https://doi.org/10.3390/genes11060689
13. **Frank Kumi**, Arfang Badji, Natasha Mwila, Thomas Odong, Mildred Ochwo-Ssemakula, Geoffrey Tusiime, Paul Gibson, Moses Biruma, Prom K. Louis, Hugo E. Cuevas, Symphorien Agbahoungba, Patrick Rubaihayo (2019). New sources of sorghum resistant genotypes to downy mildew disease in Uganda. *Biodiversitas Journal of Biological Diversity*. https://doi.org/10.13057/biodiv/d201136
14. **F Kumi** (2018). Biochemical constituents influencing the resistance to flower bud thrips in cowpea [Vigna unguiculata (L.) Walp] germplasm. *The Journal of Animal & Plant Sciences*. https://nru.uncst.go.ug/items/4ac0fa69-8512-49ae-b61d-011da1a400ca
15. N. Mwila, T. L. Odong, E. Nuwamanya, A. Badji, S. Agbahoungba, P. A. Ibanda, **F. Kumi**, M. Mwala, P. Sohati, S. Kyamanywa, P. R. Rubaihayo (2018). Gene Action of Cassava Resistance Metabolites to Whitefly (Bemisia tabaci). *Biotechnology Journal International*. https://doi.org/10.9734/bji/2018/43064
16. **Kumi Frank**, Agbahoungba Symphorien, Badji Arfang, Mwila Natasha, Ibanda Angele, Anokye Michael, Odong Thomas, Wasswa Peter, Ochwo-Ssemakula Mildred, Tusiime Geoffrey, Biruma Moses, Kassim Sadik, Rubaihayo Patrick (2018). Genetic diversity and population structure of Peronosclerospora sorghi

isolates of Sorghum in Uganda. *International Journal of Environment Agriculture and Biotechnology*. https://doi.org/10.22161/ijeab/3.5.11

17. **Kumi Frank**, Agbahoungba Symphorien, Badji Arfang, Odong Thomas, Edema Richard, OchwoSsemakula Mildred, Nakubulwa Dianah, Tusiime Geoffrey, Biruma Moses, Rubaihayo Patrick (2018). INCIDENCE AND DISTRIBUTION OF DOWNY MILDEW DISEASE (PERONOSCLEROSPORA SORGHI) OF SORGHUM IN UGANDA. *International Journal of Advanced Research*. https://doi.org/10.21474/ijar01/7117
18. Arfang Badji, Michael Otim, Lewis Machida, Thomas Odong, Daniel Bomet Kwemoi, Dennis Okii, Symphorien Agbahoungba, Natasha Mwila, **Frank Kumi**, Angele Ibanda, Stephen Mugo, Samuel Kyamanywa, Patrick Rubaihayo (2018). Maize Combined Insect Resistance Genomic Regions and Their Co-localization With Cell Wall Constituents Revealed by Tissue-Specific QTL Meta-Analyses. *Frontiers in Plant Science*. https://doi.org/10.3389/fpls.2018.00895
19. **Frank Kumi** (2017). ADDITIVE MAIN EFFECTS AND MULTIPLICATIVE INTERACTIONS ANALYSIS OF YIELD PERFORMANCES IN COWPEA GENOTYPES UNDER UGANDAN ENVIRONMENTS. *International Journal of Advanced Research (IJAR)*. https://nru.uncst.go.ug/items/11267d90-6117-4094-94c4-b419b7a79813