



UNIVERSITY OF EMBU

STAFF PROFILE

Name: Phyllis Wambui Muturi

Title/Qualification: Dr.

Position: Senior Lecturer/Deputy Dean of Students

Department: Water & Agricultural Research Management

School: Agriculture

Area of Specialization: Plant Breeding & Biotechnology

Contact Address: P.O. BOX 6-60100 Embu

E-Mail: muturi.phyllis@embuni.ac.ke/mutuphy@yahoo.com

Google Scholar Account Link

<https://scholar.google.com.tw/citations?hl=en&user=M9jURGIAAAAJ>

Short Biography

Dr. Muturi holds a PhD in Plant Breeding and Biotechnology, MSc. in Crop Protection and BSc. Agriculture. She won scholarships for postgraduate training (MSc and PhD) from the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM). She has contributed to food security through and promotion of nutritious indigenous climate smart legumes and cereals. Dr. Muturi has been a Young Affiliate with The World Academy of Sciences (2020-2025). She's been a member of National Technical committees for example Biotechnology Technical Committee (2020-2022). In 2018, she was awarded a fellowship at Biosciences eastern and



central Africa (BecA) to study Bambara groundnut. In 2021, she was awarded Early Career Fellowship with Organization for Women in Science for Developing World (OWSD) to study sustainable management of Fall Armyworm. In 2019, Dr. Muturi was awarded a visiting scholarship at Swedish University of Agricultural Sciences, Uppsala Department of Ecology. In 2015, she was awarded a visiting scholarship by Dupont Pioneer and hosted by Iowa State University, Department of Agronomy. She has shown academic leadership by leading research projects seeking to improve food security. She has supervised PhD, MSc and BSc. students in areas of food security. She has more than six years of teaching/research experience. She is the Students' Academic Advisor for Plant Breeding/Biotechnology/Crop Protection programs at the University of Embu. In 2012, she was recognized by the African Women in Agricultural Research and Development Programme (AWARD) to be among the 70 impressively talented and motivated young women researchers in Africa and she was awarded a two year fellowship. Dr. Muturi was a Carnegie Fellow in 2013. Dr. Muturi has worked with rural communities and has presented research findings in conference and published her work in international peer reviewed journals. She is a mentor and participates in community development projects/programmes.

Research Interests

Agricultural Biotechnology, Crop Improvement, Crop Protection, Participatory Approaches, Dryland Agriculture, Indigenous Knowledge, Indigenous Crops and Sustainable Seed Systems.

Publications in Journals

1. Mumo, C. K., **Muturi, P. W.**, & Gichimu, B. M. (2024). A Modified Climate-Smart Push-Pull Technology for the Management of Fall Armyworm (*Spodoptera frugiperda*) in the Semiarid Lands of Kenya. *International Journal of Agronomy*, 2024(1), 8038142. <https://doi.org/10.1155/2024/8038142>
2. Mwithiga, G., Maina, S., **Muturi, P.**, & Gitari, J. (2024). Lemongrass (*Cymbopogon flexuosus*) growth rate, essential oil yield and composition as influenced by different soil conditioners under two watering regimes. *Heliyon*.
3. Chelangat, M., **Muturi, P.**, Gichimu, B., Gitari, J., & Mukono, S. (2023). Nutritional and Phytochemical Composition of Bambara Groundnut (*Vigna subterranea* [L.] Verdc) Landraces in Kenya. *International Journal of Agronomy*, 2023.

4. Ombasa, E. M., **Muturi, P. W.**, Gichimu, B.M, Isaboke, H. N., Gitari, J. N. (2022). Factors Influencing Willingness to Adopt Recommended Bambara groundnut (*Vigna subterranea* L. Verdc) Agronomic Practices Among Smallholder Farmers in Semi-Arid Lands of Embu County, Kenya. *Journal of Experimental Biology and Agricultural Sciences*, August - 2022; Volume – 10(4) page 805 – 811
5. Mwithiga, G., Maina, S., Gitari, J., & **Muturi, P.** (2022). Rosemary (*Rosmarinus officinalis* L.) growth rate, oil yield and oil quality under differing soil amendments. *Heliyon*, e09277.
6. Njue, M., **Muturi, P.**, Nyaga, J., & Jonsson, M. (2021). Influence of drought on interactions between *Rhopalosiphum padi* and ground dwelling predators—A mesocosm study. *Journal of Applied Entomology*, 145(9), 934-938.
7. **Muturi, P. W.**, Mgonja, M., Rubaihayo, P., & Mwololo, J. K. (2021). QTL Mapping of Traits Associated with Dual Resistance to the African Stem Borer (*Busseola fusca*) and Spotted Stem Borer (*Chilo partellus*) in Sorghum (*Sorghum bicolor*). *International Journal of Genomics*, 2021.
8. Mugao, L. G., Gichimu, B. M., **Muturi, P. W.**, & Njoroge, E. K. (2021). Essential Oils as Biocontrol Agents of Early and Late Blight Diseases of Tomato under Greenhouse Conditions. *International Journal of Agronomy*, 2021.
9. **Muturi, P. W.**, Mgonja, M., & Rubaihayo, P. (2021). Genetics of dual resistance to african stem borer, *busseola fusca* and spotted stem borer, *Chilo partellus* in sorghum. *International Journal of Tropical Insect Science*, 41(4), 2373-2384.
10. Njue, M., **Muturi, P.**, Nyaga, J., & Jonsson, M. (2021). Influence of drought on interactions between *Rhopalosiphum padi* and ground dwelling predators—A mesocosm study. *Journal of Applied Entomology*. DOI: <https://doi.org/10.1111/jen.12904>
11. **Muturi, P. W.**, Mgonja, M., & Rubaihayo, P. (2021). Genetics of dual resistance to african stem borer, *busseola fusca* and spotted stem borer, *Chilo partellus* in sorghum. *International Journal of Tropical Insect Science*, 1-12. DOI: <https://doi.org/10.1007/s42690-020-00411-5>

12. **Muturi, P. W.**, Mgonja, M., Rubaihayo, P., & Mwololo, J. K. (2021). QTL Mapping of Traits Associated with Dual Resistance to the African Stem Borer (*Busseola fusca*) and Spotted Stem Borer (*Chilo partellus*) in Sorghum (*Sorghum bicolor*). *International Journal of Genomics*, 2021. DOI <https://doi.org/10.1155/2021/7016712>
13. **Muturi P.W.**, Mgonja M. and Rubaihayo, P. 2019. Gene action conditioning resistance traits to spotted stem borer, *Chilo partellus*, in grain sorghum. *International Journal of Tropical Insect Science*. <https://doi.org/10.1007/s42690-019-00020-x>
14. **Muturi P.W.** and P. Rubaihayo, 2018. Inheritance of Resistance Traits to the African Stem Borer in Grain Sorghum. In press; *African Crop Science Journal*
15. **Muturi, P.W.** Mgonja M. and Rubaihayo P, 2014. Identification of new sorghum genotypes resistant to the African and spotted Stem borers. *International Journal of Tropical Insect Science*, pp 1 of 9
16. **Muturi PW**, Rubaihayo P, Mgonja M, Kyamanywa S, Sharma HC and Hash CT, 2012. Novel source of sorghum tolerance to the African stem borer, *Busseola fusca*. *African Journal of Plant Science* Vol. 6(11), pp. 295-302
17. **Muturi P.W**, Rubaihayo P, Mgonja M, Kyamanywa S, Kibuka J and Sharma HC, 2012. New sources of resistance to spotted stem borer, *Chilo partellus* in sorghum. *Int. J. Agr. & Agri. R.* Vol. 2, No. 8, p. 18-28
18. Mwololo J.K., Mburu M.K.W., **Muturi P.W.**, 2012. Performance of sweet potato varieties across environments in Kenya. *Int. J. Agr. & Agri. R.* Vol. 2, No. 10, p. 1-11
19. **Muturi, P.W.**, Mwololo, J.K., Munyiri, S.W., Rubaihayo P., Munyua, J.K., Mgonja M., Manyasa E. and Kiarie N, 2010. A perspective on proteomics: Current applications, challenges and potential uses. *Agriculture and biology journal of North America*, Vol. 1, Issue 5: 916-918
20. J.K. Mwololo, **P.W. Muturi**, S.W. Munyiri and J.K. Munyua, 2010. An overview of advancement in bioinformatics and its application in functional genomics. *Journal of Animal and Plant Sciences*. Vol. 6, Issue 3:645-652

21. J.K. Mwololo, H.G Karaya, **P.W. Muturi**, S.W. Munyiri and J.K. Munyua, **2010**. Utilization of proteins and nucleic acids in the study of gene function: *A comparative review. Journal of Applied Biosciences*, 30: 1861-186
22. J. K. Mwololo, **P. W. Muturi**, M. W. K. Mburu, R.W. Njeru, N. Kiarie, J. K.Munyua E. M. Ateka, R. W. Muinga and R. E. Kapinga, 2009. Additive main effects and multiplicative interaction analysis of genotype x environmental interaction among sweet potato genotypes. *Journal of Animal & Plant Sciences*. Vol. 2, Issue 3: 148 - 155.

Presentation of Papers at Academic and Professional Conferences

1. **Muturi P.W** and Mgonja M, **2018**. Inheritance of Resistance in Sorghum to the Spotted Stem Borer, (Swinhoe) (Lepidoptera; Crambidae). Paper presented during Organisation for Women in Science for Developing Countries, regional conference – Africa on 5th – 7th September, 2018 at ICIPE, Kasarani, Duduvile campus, Nairobi, Kenya
2. **Muturi P.W**, **2017**. Linking Agricultural African Universities with Stakeholders to Build Resilience among Small Holder Farmers: Need for Attention, Collaboration and Support. Paper presented during ASA 60th Annual Meeting on 15-19th November, Chicago IL
3. **Muturi P.W**, **2017**. Feeding the forgotten and the underprivileged: The case of sorghum. Paper presented during African Studies Review Pipeline workshop for Emerging African Scholars in November 15th 2017, Chicago IL, USA.
4. **Muturi P.W**, **2016**. Enhancing Sustainable Livelihoods and Building Resilience in Semi-Arid Lands through Cultivation of Elite Sorghum. Paper presented during ASA 59th Annual Meeting in Washington, DC, December 1-3,

5. **Muturi P.W**, Rubaihayo P and Mgonja M, **2016**. Inheritance of resistant traits to the African stem borer in Sorghum. Paper presented at the Presented at RUFORUM Biennial conference held in Cape town, South Africa on 5-21 Oct. 2016
6. **Muturi PW**, Mgonja M and Rubaihayo P, **2015**. Morphological traits conditioning sorghum resistance to the African stem borer, *Busseola fusca*. Paper presented at the Entomological Society of America (ESA) conference in November 15 - 18, 2015 Minneapolis, Minnesota, USA
7. **Muturi PW**, Mgonja M and Rubaihayo P, 2013. Resistance of sorghum to indigenous stem borers. Paper presented in the 11th African Crop Science Society Conference held on 14 - 17 October 2013, Entebbe, Uganda
8. **Muturi PW**, Rubaihayo P, Kyamanywa S, Mgonja M and Sharma H C, 2012. Performance of Selected Grain Sorghum Genotypes for Improved Food Security and Livelihoods. Paper presented in the 3rd RUFORUM Biennial Conference, 24-28 September, Entebbe, Uganda
9. **Muturi P W**, Rubaihayo P, Kyamanywa S and Mgonja M, 2011. Sources of resistance to *Busseola fusca* and *Chilo partellus* in sorghum for improved food security and livelihoods. Paper presented at the 10th African Crop Science Society Conference held at Maputo, Mozambique on 10-13 October
10. **Muturi, P.W.** Mburu, M.W.K. Mwololo, J.K. Ateka, E. M. Njeru, R. W and Kiarie, N, 2011. Response of Sweet potato to whitefly resistance. Paper presented in aGRO 2011 University of Nairobi held at College of Agriculture and Veterinary Sciences on 26th-28th September
11. **Muturi P.W.**, Mburu M.W.K., Njeru R.W., Kiarie N., Munyua J.K., Ateka E.M., Muinga R.W., Kapinga R.E. and Lemaga B. "Screening for tolerance in selected sweetpotato germplasm to Sweetpotato Virus Disease in Kenya" Presented at the Regional Universities Forum Biennial Meeting, April 23rd - 27th, 2007, Mangochi, Malawi.
12. Mwololo J.K., **Muturi P.W.**, Mburu M.W.K., Njeru R.W., Kiarie N., Munyua J.K., Ateka E.M., Muinga R.W and Kapinga R.E. "Participatory evaluation of sweetpotato production in Kirinyaga and

Kwale districts in Kenya” Presented at the Regional Universities Forum Biennial Meeting, April 23rd - 27th, 2007, Mangochi, Malawi.

13. **Muturi P.W.**, Mwololo J.M., Mburu M.W.K., Njeru R.W., Kiarie N., Munyua J.K., Ateka E.M., Muinga R.W. and Kapinga R.E. Strategies for maintaining sweetpotato nurseries free from insect vectors that spread Sweet potato Virus Disease. African Crop Science Society Conference proceedings 2007, Vol. 8 pp 2071-2074.

Seminars/Workshops

1. **Muturi P.W, 2023.** Seminar on utilization of herbs in Embu County on 17th February 2022. Presentation done to ASFAN Board Members Training.
2. **Muturi P.W, 2022.** Status of herbs and spices in Embu County. Presented to stakeholders on 20th July 2022, at University of Embu.
3. **Muturi P.W, 2021.** Guest Lecture on weeds with emphasis on international perspective. Presented via zoom to Swedish University of Agricultural Sciences (SLU) students, Uppsala on 1st December 2021.
4. **Muturi PW. 2021.** Seminar on utilization of herbs presented to farmers during Herbs and Essential Oils workshop on 21st July 2021 at University of Embu.
5. Ombasa EM, **Muturi PW**, Gichimu BM, Isaboke H.N and Gitari J.N, 2021. Adoption of Bambara groundnuts in Embu County. Paper presented on 3rd June during the School of Agriculture Research Findings Dissemination Meeting. Theme: Enhancing Farm Incomes through research.
6. **Muturi P.W, 2020.** Seminar lecture on beneficial effects of weeds with emphasis on international perspective. Presented via zoom to Swedish University of Agricultural Sciences (SLU) students, Uppsala on 20th Nov. 2020.

7. **Muturi P.W, 2019.** Seminar lecture on characteristic of weeds with emphasis on international perspective. Presented to SLU students in the Department of Agricultural Production, Uppsala on 27th November 2019 at BioC C213.
8. **Muturi P.W, 2019.** Seminar lecture on economic importance of weeds with emphasis on international perspective. Presented to SLU students in the Department of Agricultural Production, Uppsala on 11th December 2019 at BioC C213.
9. **Muturi P.W, 2019.** Seminar lecture on Beneficial effects of weeds with emphasis on international perspective. Presented to SLU students in the Department of Agricultural Production, Uppsala on 27th November 2019 at BioC C213
10. **Muturi P.W, 2019.** Role of women in food security: experience from Kenya. Presented to SLU students in the Department of Urban and Rural Development, SLU, Uppsala on 11th November 2019 at BioC C213
11. **Muturi P.W, 2019.** Enhancing Community Resilience to Climate Change through Participatory Evaluation and Selection of Bambara Groundnut in Semi-Arid Lands of Kenya. Paper presented during Department of Crop Production Research Seminar Series, at SLU on 12th December 2019 at F salen
12. **Phyllis Muturi, ABCF Seminar Series, 2018.** Entry seminar on genetic diversity of elite Bambara groundnut in Kenya using Single Nucleotide Polymorphism markers at Ndama lodge, IRLI, BecA Hub. June 15th, 2018.
13. **Phyllis Muturi, ABCF Seminar Series, 2018.** Exit seminar on Diversity Analysis and Genome Wide Association Studies of Seed Weight in Bambara Groundnut Using DArT Markers. Venue Info Centre, IRLI, BecA Hub. 17th August, 2018.

Research Grants and Collaborations

- **Co-Principal Investigator** for a project on Characterization and sustainable management of root knot nematodes affecting tomatoes in Embu County, Kenya. Project funded by Ecospray, UK
- **Co-Principal Investigator** for a project on Evaluation of efficacy of selected organic pesticides on *Tuta absoluta* in tomato under green house and field conditions. Project funded by Ecospray, UK
- Principal Investigator in a multidisciplinary and multi-institutional project titled ‘Integration of Smart Sustainable Integrated Pest Management Strategies from Selected Local Plants for Improved Food Security among Small Holder Farmers in Semi-Arid Lands of Eastern Kenya’ Project funded by Organization for Women in Science for the Developing World (OWSD), a UNESCO programme, hosted by The World Academy of Sciences (TWAS).
- Principal Investigator in a multidisciplinary and multi-institutional project titled ‘Enhancing community resilience and adaptation to climate change through participatory evaluation and selection of elite Bambara groundnut genotypes for improved food and nutrition security in semi-arid lands of Eastern Kenya funded by University of Embu Vice-Chancellor’s Research Fund.
- Co-principal investigator in a multidisciplinary and multi-institutional project entitled ‘Enhancing The Industrial Production of Essential Oils In Kenya For Improved Livelihoods’ funded by National Research Fund, Kenya.
- Principal investigator for Dryland Cereals Research of the CGIAR Research Program.
- Carnegie Fellow with Carnegie Corporation of New York, USA.

