



RESEARCHER TITLE: Dr.

SCOPUS ID:

ORCID No. 0000-0002-0440-1309

Position: Assistant Principal Research Scientist

1. PERSONAL INFORMATION

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| 1.1. NAME: | Michael M. Okeyo |
| 1.2. ADDRESS: | P. O. Box 87 – 90137, KIBWEZI |
| 1.3. PHONE: | 0722-233 644 |
| 1.4. EMAIL ADDRESS: | mokeyo@kefri.org mmairura2001@yahoo.com |
| 1.5. NATIONALITY: | Kenyan |
| 1.6. GENDER: | Male |

2. QUALIFICATIONS

2.1. Academic Qualifications:

- 2022:** Doctor of Philosophy in Natural Resources Management, Egerton University
- 2005 to 2009** Master of Philosophy degree in Seed Science, Moi University
- 1999 to 2003** Bachelor of Science Degree in Forestry (First Class Honours), Moi University, Eldoret
- 1985 to 1988** Diploma in Forestry, Egerton University

2.2. Key Competencies

- a. Forester with hands on in dryland, coastal and highland forestry,
- b. Seed science, management of seed sources, training seed collectors, tree seed handling, propagation and tree nursery management
- c. Bamboo propagation and management

2.3. Other Courses

- a. 2021: Phase 11 of the Public Service Internship Programme (PSIP) Capacity Building for Mentors and Coaches in Ministries, State Departments and Agencies,
- b. 2017/18: Trained internal auditor of the ISO 2015 QMS and EMS by a Consultant EIA lead expert No. 7470 by CETRAD / NEMA
- c. 2005: Certificate in Farmers Field Schools (FFS) by FAO / KEFRI,
- d. 2004: Three months post graduate diploma in Bamboo Technology, at China National Bamboo Research Centre,

3. EMPLOYMENT HISTORY

- a. 2019 to Date: Assistant Principal Research Scientist; Silviculture and Seed Science and Assistant Regional Director at Kibwezi Sub-regional Research Centre,
- b. 2013 to 2019: Research Officer in Silviculture, Seed Technology and Bamboo activities at Gede Regional Research Centre,
- c. 2009 to 2013: Research Officer in Tree Improvement, Seed Technology and Bamboo activities at Gede Regional Research Centre,
- d. 2008 to 2009: Assistant Research Officer in Silviculture, Seed Technology and Bamboo activities at Londiani Regional Research Centre,
- e. 2004 to 2007: worked at Marigat Research Sub-Centre as the Project Coordinator of the FAO / GOK funded Prosopis Control and management Project'
- f. 1988 to 2003: Worked as a forester seed at Londiani, Gede, Kitale and Kakamega, In-charge of Seed Collection activities/Centres,

4. ADMINISTRATIVE RESPONSIBILITY

- a. Oct. 2019 to date: Assistant Regional Director - Kibwezi
- b. 2011 to 2010: KCDP Project Coordinator, Coast Eco-region research Programme,
- c. 2004 to 2007: Project Coordinator of the FAO and GOK funded Prosopis Project, Marigat.

5. PUBLICATIONS

5.1. Journal papers

- a. Jackline Atieno, Gilbert O. Obwoyere, Dickson L. Makanji, Michael **M. Okeyo** (2021). Seed Borne Fungal Organisms Associated with Germination Success of *Terminalia brownii* (Fresen) in Kenya. Open Journal of Forestry, 2021, 11, 341-351.
- b. **Kamau, C. N.**, Luvanda, A. M. and Uchi, S. M. (2021). Determinants of distribution and utilization of *Terminalia brownii* (Fresen) in Eastern Kenya. Journal of Dryland Agriculture. Vol. 7(3), pp. 42-51, DOI: 10.5897/JODA2021.0065 <http://www.academicjournals.org/JODA>
- c. **Okeyo, M.M.**, G.O. Obwoyere, D.L. Makanji, J.W. Njuguna, J. Atieno (2020). Promotion of *Terminalia brownii* in Reforestation by Development of Appropriate Dormancy Breaking and Germination Methods in Drylands; Kenya. In Press, Journal Pre-proof, Available online 11 June 2020.
- d. **Luvanda, A. M.**, Kamau, C. N., Uchi, S. M., Bala, P. and Okeyo, M. M. (2019). Domestication of *Terminalia brownii* Among Smallholder Farmers in Eastern Kenya: A Double Hurdle Approach. Journal of Economics and Sustainable Development. DOI: 10.7176/JESD Vol.10, No.16, 2019. www.iiste.org**Okeyo, M.M.**, G.O. Obwoyere, D.L. Makanji, J.W. Njuguna and J.A. Omondi 2019. Fungal diseases attacking floral phenology of *Terminalia brownii* in drylands, Kenya. Poplar 2019, 203, 5-11, on-line journal, UDC: 582.776.7:632.4(676.2).

- e. **Okeyo, M.M.**, G.O. Obwoyere, D.L. Makanji, J.W. Njuguna and M. W. Gathogo, 2019. Insects Associated with *Terminalia brownii* Growing in Kitui, Baringo and Homa Bay Counties, Kenya: Implications on Tree Species Domestication, *Topola/Poplar* 2019, 204, 5-15
- f. **Okeyo, M.M.**, G.O. Obwoyere, D.L. Makanji, J.W. Njuguna and J.A. Omondi 2019. Fungal diseases attacking floral phenology of *Terminalia brownii* in drylands, Kenya. *Poplar* 2019, 203, 5-11, on-line journal, UDC: 582.776.7:632.4(676.2).
- g. Bala, P., Giathi, G., Oeba V., Omondi, F. S., Luvanda, A. and **Okeyo, M. M.** (2017). Effect of seasonality, graft type and scion characteristics on propagation of *Vitex payos* in the drylands of Kenya. *Journal of Horticulture and Forestry*. Vol. 9(6), pp. 49-58.
- h. **Okeyo, M. M.**, Nicholus, J., Luvanda A., Mwamburi, A., Ndufa, J. K., Bor, N. and Munyao, D. (2016). Extension Approaches in the Promotion of *Melia volkensii* in Lower Eastern, Kenya, 2016. *International Journal of Applied and Pure Science and Agriculture* June, 2016. ISSN. Online – 2394-5532.
- i. Musingo T. E. M.; L. Wekesa; C. Wekesa; N. Leley; M. Ntabo; A. Eshitera; M. Karangi; L. Cheruiyot; P. Manyala; **M. M. Okeyo**; M. Sheikh; K. Kihara; M. Muchiri; P. Ongugo; A. Kala and B. Owuor (2016). Capability Map for Growing High Value Tree Species in the Coast Region of Kenya.
- j. Ndung'u K.W., Okalebo J.R., Othieno C.O., Kimenye L.N., Kifuko M.N., **Okeyo M.M.** and Kipkoech A.K. 2003. Effects of Residual Minjingu Phosphate Rock on Maize Production and Financial Returns in a Nutrient Depleted Soil of Western Kenya. *African Crop Science Conference Proceedings*, Vol. 6. 704-708 Printed in Uganda. All rights reserved. ISSN 1023-070X.

5.2. Books

- a. **Okeyo M.M.**, (2009). Master of Philosophy Thesis on the “A Study on the Germination and Dormancy of the African Satinwood Seed [*Zanthoxylum gillettii* (De Wild) Waterman]” September 2009.

5.3. Book Chapter

- a. Mbinga J. M., **Okeyo M.M.**, Njuguna C.J. and Kamondo B.M. 2013. The Main High Value Tree Species for Rehabilitation of Degraded Mau Forest Complex. In: Kigomo B.N., Kimiti J.M. and Tuwei P.K. (eds.), 2013. *Forest Restoration Handbook for Moist Forests in Kenya*, Nairobi, Kenya.
- b. Chapter on “Investigation on the Germination of the African Satinwood Seed (*Zanthoxylum gillettii*)” in *Innovations as Key to the Green Revolution in Africa - Volume II*, 2011
- c. Chapters on: “Natural Forest Restoration Options” and “The Main High Value Tree Species for Restoration of Degraded Mau Forests Complex” in the *Restoration Handbook for Moist Forests in Kenya Handbook* April 2010.

- d. Mbinga J.M., **Okeyo M.M.**, Kamondo B.M. and Njuguna J.C. 2010. Options for restoring degraded Mau Forest Complex. KEFRI- FOREAIM Information leaflet No. 1.
- e. Mbinga J.M, **Okeyo M.M.**, Njuguna J.C. and Kamondo B.M. 2010. High value tree species for rehabilitation of degraded Mau Forest Complex. KEFRI - FOREAIM Information leaflet No. 2.
- f. Mbinga J.M, **Okeyo M.M.**, Njuguna J.C. and Kamondo B.M. 2010. The main high value tree species for rehabilitation of degraded Mau Forests Complex. In: Kigomo B.N., Kimiti J.M. and Tuwei P.K. (eds.). Forest restoration handbook for moist forests in Kenya, Nairobi, Kenya.
- g. Mbinga J.M. and **Okeyo M.M.**, 2010. Natural Forest Restoration Options. In: Kigomo B.N., Kimiti J.M. and Tuwei P.K. (Eds.) 2010. Forest Restoration Handbook for Moist Forests in Kenya, Nairobi, Kenya.
- h. **Njuguna J.C.**, Kimiti J.M., **Langat D.**, Okeyo M.M, Kamondo B.M. and Mbinga J.M. 2010. Indicators of forest degradation in Mau Forest Complex. KEFRI – FOREAIM Information Leaflet No. 5.
- i. **Okeyo M.M.**, Ochoudho J.O., Muasya R.M. and **Omondi W.O.** 2011. Chapter on ‘Investigation on the Germination of *Zanthoxylum gillettii* (African Satinwood)’ Seed. In: Innovations as Key to the Green Revolution in Africa.
- j. Chapter on *Zanthoxylum gillettii* in **PROTA 7 (1): Plant Resources of Tropical Africa – Timbers - Volume I.** Leiden, Netherlands, 2008.

5.4. Technical Notes /Protocols/Guidelines

- a. *Terminalia brownii* propagation guidelines (editorial),
- b. *Melia volkensii* propagation guidelines (editorial),
- c. *Gmelina arborea* grafting and propagation guidelines (draft).

5.5. Policy Briefs

None

a.

6. RESEARCH

6.1. Completed

- a. *Terminalia brownii* seed germination studies,
- b. *Terminalia brownii* socio-economic studies.

6.2. Ongoing research

- a. PhD Studies on insects and disease affecting seed quality of *Terminalia brownii*,
- b. Storability and germination studies of *Melia volkensii* stored as seed or nuts,
- c. Propagation of low land bamboo species through tertiary branches.
- d. On-farm growth studies of *Melia volkensii* in Makueni County.

- e. Development of farmer guidelines on the propagation of prioritized dryland tree species

6.3. Mentorship and supervision

- a. Supervised and mentored a number of students on attachment from various universities while at Kitui and Kibwezi, many of them finished their BSc and diplomas successfully.
- b. New Scientist (Rufo G. Jillo and two foresters') at Kibwezi Sub-regional Centre

7. INNOVATIONS AND PATENTS (Intellectual Property)

None

8. CONFERENCES/SEMINARS/WORKSHOPS

8.1. Presentation of Papers at Academic and Professional Conferences

- a. **Okeyo, M.M.**, G.O. Obwoyere, D.L. Makanji, J.W. Njuguna and J.A. Omondi (2019), 'Promotion of *Terminalia brownii* in Agroforestry systems in the drylands of East Africa' – Poster presented at the 4th World Congress on Agroforestry from 20th to 22nd May 2019 at Le Corum Conference Centre Montpeiller, France.
- b. **Okeyo, M.M.**, G.O. Obwoyere, D.L. Makanji, J.W. Njuguna and J.A. Omondi (2018) Insects associated with *Terminalia brownii* growing in Kitui, Baringo and Homa Bay Counties, Kenya: Implications on tree species domestication. Presented at the 15th International Phytotechnology Conference, held at Novi Sad, Serbia, 2-3 October 2018
- c. **Okeyo M.M.**, Kamondo B., Wekesa C. and Otieno V. 2012. Germination and Dormancy of *Diospyros scabra* (Black ebony) Seed - June 2012; Poster presented at the IUFRO Conference in 2012 at Nairobi, Kenya.
- d. **Okeyo M.M.**, Angaine P.M. and Muchiri M.N. 2012. Germination performance of seed supplied by Kenya Forestry Seed Centre - June 2012; Poster presented at the IUFRO Conference in 2012 at Nairobi, Kenya.
- e. Kamondo B., **Okeyo M.** and Kigwa B. 2012. The right tree in the right place: it is not enough to pick the right species; you need the right provenance as well. In: Miti. The tree business magazine for Africa. A publication of Better Globe. Issue No. 14. April – June 2012. pp 8-9.
- f. Mbinga J.M. and **Okeyo M.M.** 2013. Natural Forest Restoration Options. In: Kigomo B.N., Kimiti J.M. and Tuwei P.K. (eds.), 2013. Forest Restoration Handbook for Moist Forests in Kenya, Nairobi, Kenya.
- g. Choge S.K and **Okeyo M.** 2005. Management and control of *Prosopis* in Baringo District in Kenya. Technical Progress Report for FAO/KEFRI.
- h. Choge S.K., Odee D. and **Okeyo M.** 2006. Management and control of *Prosopis* species in Baringo District of Kenya. Pilot project terminal technical report. FAO TCP/KEN/3002. KEFRI, Nairobi, Kenya. 18pp.
- i. **Okeyo M.M.**, Okalebo J.R., **Koech E.K.**, Othieno C.O. and Ndung'u K.W. 2003. Residual Effect of Minjingu Phosphate Rock and Short Fallow Biomass Incorporation on Maize Yields in Bumala,

Kenya. A Paper presented at the 6th African Crop Science Conference at Hilton Hotel from 12th to 17th October 2003.

8.2. Participation in Workshops/Conferences

- a. **M. M. Okeyo**, J. M. Kituku, Rufo. G. J and J. M. Kimiri (2021). Experience of on-farm commercial forestry in drylands: A case study of farmers' experiences in Kibwezi, Makueni County. A paper to be presented during the commercial forestry investment conference to be held at KEFRI, KENYA from 23rd to 26th November, 2021.
- b. **Okeyo M. M.**, Giathi G., Luvanda A., Okul V. A., Rufo G. J., Mwalewa S., Njuguna J. and Bala P. (2022). Promoting *Terminalia brownii* as a commercial indigenous tree species in drylands, East Africa. Accepted paper to be presented at the XV World Forestry Congress at Coex, Seoul, Republic of Korea from 2nd to 6th May, 2022.
- c. **M. M. Okeyo**, B. Kamondo, J. Njehu, Rufo. G. J and A. O. Mosongo (2022). Validating viability of *Melia volkensii* seeds stored as extracted seeds or nuts for production of high-quality germplasm in domestication and conservation of dryland tree. Accepted paper to be presented at the XV World Forestry Congress at Coex, Seoul, Republic of Korea from 2nd to 6th May, 2022.

8.3. Convening/Coordinating Conferences

9. PROFESSIONAL ENGAGEMENT

- 9.1. Training
- 9.2. Consultancies
- 9.3. Collaboration with external organizations

10. EXTERNAL AND INTERNAL RESEARCH GRANTS

Successful grants won

- a. 2017 to 2022 National Research Fund Grant (NRF), Principal Investigator on 'The Promotion of *Terminalia brownii* Propagation for Agroforestry, Livelihood Improvement and Resilience to Climate Change in the Drylands of Kenya.'
- b. 2021 to 2023 Kenya Climate Smart Agriculture Project (KCSAP), Co-Principal Investigator on 'Integrated Land and Water Management Strategies for Restoration and Protection of Water Resources in Agro-Pastoral Systems -Kenya (IMWaR).'
- c. Participated in two other grants which were not successful

11. LOCAL, REGIONAL & INTERNATIONAL APPOINTMENTS

- 11.1. Local
- 11.2. Regional
- 11.3. International

12. AWARDS AND RECOGNITION

13. CONTRIBUTION TO KEFRI'S ADVANCEMENT

- a. Secured 400 hectares research land through an MOCC and MoA at the University of Nairobi field station at Nyayo, Kibwezi,
- b. Meeting 95% of KEFRI Performance Targets assigned to me and Kibwezi, including compilation and timely submission of quarterly and annual PC and other reports,
- c. An IMS internal auditor, contributing to continuous improvement of the ISO 2015 QMS and EMS systems and operations within KEFRI.

14. MEMBERSHIP TO PROFESSIONAL BODIES

- a. **2011/2010 to date:** Member-Forest Society of Kenya (**FSK**)
- b. **2015/2016 to date:** Member-Environmental Institute of Kenya (**EIK**)

15. REFEREES

- a. Prof. Gilbert O. O. Obwoyere, Senior Lecturer Egerton University; P. O. Box 536 – 20115; **EGERTON Mobile:** 0725214510; **Email:** gobwoyere@egerton.ac.ke
- b. Mr. Joel Laigong, Senior Lecturer Moi University and now University of Eldoret, P.O. Box 1125 – 30100, **ELDORET, KENYA**, Mobile: 0729961419, Email: jlaigong05@yahoo.com
- c. Dr. Dickson L. Makenji, Senior Lecturer Egerton University; P. O. Box 536 – 20115; **EGERTON Mobile:** 0702115860; **Email:** lmakenji@egerton.ac.ke