



**RESEARCHER TITLE: Dr.**

**SCOPUS ID:**

**ORCID No. 0000-0002-0440-1309**

**Position: Assistant Principal Research Scientist**

## **1. PERSONAL INFORMATION**

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

## **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**

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

### **2.3. Other Courses**

- 2021: Phase 11 of the Public Service Internship Programme (PSIP) Capacity Building for Mentors and Coaches in Ministries, State Departments and Agencies,
- 2017/18: Trained internal auditor of the ISO 2015 QMS and EMS by a Consultant EIA lead expert No. 7470 by CETRAD / NEMA
- 2005: Certificate in Farmers Field Schools (FFS) by FAO / KEFRI,
- 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](http://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 Kipkoeh 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 4<sup>th</sup> World Congress on Agroforestry from 20<sup>th</sup> to 22<sup>nd</sup> 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 15<sup>th</sup> 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 6<sup>th</sup> African Crop Science Conference at Hilton Hotel from 12<sup>th</sup> to 17<sup>th</sup> 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 23<sup>rd</sup> to 26<sup>th</sup> 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 2<sup>nd</sup> to 6<sup>th</sup> 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 2<sup>nd</sup> to 6<sup>th</sup> 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. Makanji, Senior Lecturer Egerton University; P. O. Box 536 – 20115; **EGERTON Mobile:** 0702115860; **Email:** lmakanji@egerton.ac.ke