

Jeremiah Mosioma Okeyo

Address: 06 (60100), Embu, Kenya. Telephone: (+254) 721706888.

Email: jmokeyo@outlook.com; okeyo.jeremiah@embuni.ac.ke

Bio data

Nationality: Kenyan

Date of Birth: 23rd August, 1974

Gender: Male

Education

PhD in Soil Science, University of Wyoming: August 2010 – May 2014

- **Thesis Title:** The Effect of Conservation Agriculture Practices on Soil Quality and Crop Productivity under Contrasting Smallholder Farming Systems in Western Kenya and Eastern Uganda.
- **Research Synopsis:** Sustainable farming practices are required to address the persistent problems of land degradation and declining crop productivity in sub-Saharan Africa. In this study, we assessed the impact of conservation agriculture (CA) practices in comparison to conventional farmer practices on soil quality indicators and crop yields under short- and long-term trials in western Kenya and eastern Uganda. Soils were sampled and analyzed for total and labile soil carbon and nitrogen pools, aggregate stability and infiltration capacity. Our results indicate that reduced tillage combined with crop residues enhanced physical soil quality but better targeting of CA approaches is necessary to enhance crop productivity.
- **Research Interests:** My research interests are in application of sustainable soil, water and nutrient management practices to smallholder farming systems in sub-Saharan Africa and other developing countries with the aim of meeting the dual goals of enhanced crop productivity for food security and resilience to climate change. In particular, I am interested on how we can adapt sustainable intensification practices to the highly diverse agro-ecological and socio-economic conditions within which smallholder farmers operate.

Master of Environmental Sciences, Kenyatta University: 2003 – 2006

- **Thesis Title:** Analysis of the Spatial Variability of Soil Fertility Gradients in Vihiga and Siaya Districts of Western Kenya using Geostatistical Techniques.

Bachelor of Science in Forestry, Moi University 1995 - 1999

Second Class Honours

Employment

Lecturer, Dept. of Land and Water Management, University of Embu, September 2014 - present.

- **Main Responsibilities:** Teaching and conducting research in the area of soil, water and nutrient management for sustainable agricultural production.

Assistant Scientific Officer, Tropical Soil Biology and Fertility (TSBF), Institute of International Centre for Tropical Agriculture (CIAT) 2006 – 2010

- **Main Responsibilities:** Provide technical backstopping for the implementation of African Network for Soil Biology and Fertility (AfNet) agronomic experiments, long-term trials and other project activities at the various benchmark sites across Africa; Prepare quarterly, semi-annual and annual technical reports for the various AfNet research projects; Contribute to writing of proposals and concept notes for funding; Organize and facilitate short-term training workshops on thematic areas of importance to AfNet members; and Facilitate data analysis, preparation, editing, review and publication of various AfNet books and other information dissemination materials.

Teacher, Mosoch Academy 1999 – 2002

- Teaching biology and agriculture. Other activities included guidance of students during various school activities.

Skills

General skills in agronomic research and experimental design and management including participatory research approaches.

- While at TSBF-CIAT, I worked closely with various multidisciplinary research teams.
- For over 15 years I have directly worked with smallholder farmers mainly in East and Southern Africa.
- Participated in training workshops, and made presentations in conferences and other workshops.

Computer skills

- Data management and analysis using various statistical and GIS software including SAS, Genstat, R, QGIS and ArcGIS.

Languages

- Excellent working skills in English and Kiswahili

Publications

Peer reviewed journals

Okeyo, J.M., Norton, J., Koala, S., Waswa, B., Kihara, J., Bationo, A., 2016. Impact of reduced tillage and crop residue management on soil properties and crop yields in a long-term trial in western Kenya. *Soil Research*, 54: 719-729.

Kihara, J., Bationo, A., Waswa, B., Kimetu, J.M., Vanlauwe, B., **Okeyo, J.**, Mukalama, J., Martius, C., 2012. Effect of Reduced Tillage and Mineral Fertilizer Application on Maize and Soybean Productivity. *Experimental Agriculture* 48(2), 159-175.

Tittonell P., A. Muriuki, K.D. Shepherd, D. Mugendi, K.C. Kaizzi, **J. Okeyo**, L. Verchot, R. Coe, B. Vanlauwe (2010). The diversity of rural livelihoods and their influence on soil fertility in agricultural systems of East Africa – A typology of smallholder farms. *Agricultural Systems Journal* 103: 83–97.

Okeyo J.M., Shepherd K.D., Wamicha W., and Shisanya C., (2006). Spatial Variations in Soil Organic Carbon within Smallholder Farms in Western Kenya; A Geospatial Approach. *African Crop Science Journal*, Vol. 14. No. 1, 27-36.

Books Chapters and Reviews

Okeyo, J.M., 2018. Conservation Agriculture: Can it safeguard our soils? Policy Brief: <https://www.slu.se/globalassets/ew/org/andra-enh/uadm/global/agrifose/outputs/briefs/ilri/dr.-jeremiah-m.-okeyo-brief-october-2018.pdf>

Okeyo, J.M., 2014. The Effect of Conservation Agriculture Practices on Soil Quality and Crop Productivity under Contrasting Smallholder Farming Systems in Western Kenya and Eastern Uganda. PhD Dissertation, ProQuest Publishing, 176 pp.

Bationo, A., Waswa, B., Kihara, J., Adolwa, I., Vanlauwe, B., Saidou, K., Bationo, A., Waswa, B., Abdou, A., Bado, B.V., Bonzi, M., Iwuafor, E., Kibunja, C., Kihara, J., Mucheru, M., Mugendi, D., Mugwe, J., Mwale, C., **Okeyo, J.**, Olle, A., Roing, K., Sedogo, M., 2012. Overview of Long Term Experiments in Africa, Lessons learned from Long-term Soil Fertility Management Experiments in Africa. Springer Netherlands, pp. 1-26.

Kihara, J., Mukalama, J., Ayuke, F.O., Njoroge, S., Waswa, B., **Okeyo, J.**, Koala, S., Bationo, A., 2012. Crop and Soil Response to Tillage and Crop Residue Application in a Tropical Ferralsol in Sub-humid Western Kenya. In: A. Bationo, B. Waswa, J. Kihara, I. Adolwa, B. Vanlauwe, K. Saidou (Eds.), Lessons learned from Long-term Soil Fertility Management Experiments in Africa. Springer Netherlands, pp. 41-57.

Bationo, A., Waswa, B., **Okeyo, J.M.**, Maina, F. and J.M. Kihara. 2011. Innovations as Key to the Green Revolution in Africa: Exploring the Scientific Facts (Vol 1 & 2). Springer, Dordrecht, The Netherlands, 1363.

Bationo, A., Waswa, B., **Okeyo, J.M.**, Maina, F., Kihara, J. and U. Mkwunye. 2011. Fighting Poverty in Sub-Saharan Africa: The Multiple Roles of Legumes in Integrated Soil Fertility Management. Springer, Dordrecht, The Netherlands, 246.

Kihara J. A. Bationo, B. Waswa and **J. Okeyo** (2009). Tillage, rotation and surface residue effects on crop water productivity in Nyabeda, western Kenya, as modeled using DSSAT. In: Humphreys, E. and Bayot, R.S. (Eds). Increasing the productivity and sustainability of rainfed cropping systems of poor smallholder farmers. Proceedings of the CGIAR Challenge Program on Water and Food International Workshop on Rainfed Cropping Systems, Tamale, Ghana, 22-25 September 2008. The

CGIAR Challenge Program on Water and Food, Colombo, Sri Lanka. 311pp.
Presented during CPWF workshop in Tamale Ghana in September 2008.

Bationo A., Tabo R., **Okeyo J.**, Kihara J., Maina F., Traore PCS., and Waswa B., 2008. General Characteristics of the Volta Basin. In: Bationo A., Tabo R., Waswa B., Okeyo J., Kihara J. and Kabore S., (eds) Synthesis of soil, water and nutrient management research in the Volta Basin. EcoMedia.

Conference and workshop presentations

Okeyo, J., Norton, J., Omondi, E., Norton, U., Odhiambo, J., Ngosia, D., 2014. Effect of conservation agriculture practices on total and labile soil carbon and nitrogen pools under contrasting agroecosystems in eastern Uganda and western Kenya. In: Proceedings of the 1st biennial international conference on bridging the gap between society, science and industry, held on 30th November to 5th December, 2014, Kenyatta University.

Okeyo, J., Norton, J., Omondi, E., Norton, U., Ngosia, D., Odhiambo, J., Ashilenge, D., 2014. Impact of conservation tillage on soil quality under smallholder farming systems in eastern Uganda and western Kenya. Paper presented at the Annual SANREM global workshop, 19-21 May 2014, Arlington, Virginia, USA.

Okeyo, J., Norton, J., Miller, S., Omondi, E., Ngosia, D., 2014. Estimation of soil erosion under conservation tillage systems using RUSLE model. Paper presented at the SANREM global workshop, 19-21 May 2014, Arlington, Virginia, USA.

Okeyo, J., Norton J., Koala S., 2013. The effect of tillage and crop residue application on total and labile soil organic carbon and nitrogen pools in a long-term conservation tillage trial in western Kenya. Paper presented at the ASA, CSSA, & SSSA International Annual meetings, 3-6 November, 2013, Tampa, Florida, USA.

Student Supervision

1. Franklin Mairura Somoni (PhD student): Green House Gas emissions estimation under smallholder cropping systems in Tharaka-nithi County, Kenya
2. Judith Wafula (PhD student): Title: Optimizing agronomic practices for improvement of chickpea performance in clahyey soils of Mwea, Embu County.
3. David Muigai Ngumi (PhD student): Silvicultural techniques for domestication and conservation of East African Sandalwood provenances in Kenya

4. Harriet Okal (Msc student): Title: Drought Characterization of the Upper Tana River Watershed, Kenya
5. Vennah Bitengo Nyakangi (Msc student): Title: Assessing The Spatial Distribution And Above-Ground Biomass Of Terminalia Brownii, And Effect On Soil Microorganisms, In Mbeere North Sub-County, Kenya

Awards

Norman E. Borlaug International Agricultural Science and Technology Fellows: Leadership Enhancement in Agriculture Program (LEAP) Award, 2011.

The IFAR's Professional Development Program Award for 2009. Title of research topic: Spatial Variation of Soil Physical Properties in a Long-term Conservation Tillage Experimental Field.

References

Dr. Jay B. Norton,

Associate Professor and Soil Fertility Specialist,

Department of Ecosystem Science and Management,

College of Agriculture and Natural Resources,

University of Wyoming.

1000 E. University Avenue,

Laramie, WY 82071, USA.

Office phone: 307-766-5082, Cell: 307-760-5781

Email: jnorton4@uwyo.edu

Prof Chris Shisanya

Dean, School of Humanities & Social Sciences,

Kenyatta University

P.O. Box 43844-00100 Nairobi, Kenya.

Office phone: +254 20 811948, Cell: +254 722 312 767

Email: chris.shisanya@gmail.com