

CURRICULUM VITAE

Summary

Dr. Richard N. Onwonga, PhD, is Kenyan citizen and holds a PhD in Natural resources and Life sciences (Dr. nat. techn) from the University of Natural Resources and Applied Life Sciences (BOKU), Vienna, M.Sc. in Soil Science, and B.Sc. in Agriculture Education & Extension from Egerton University. Currently a Senior Lecturer at the University of Nairobi - Department of Land Resource Management and Natural Resources (LARMAT) where he is involved in; Teaching and supervising both undergraduate and postgraduate students, and examining thesis on various soil and soil-environment related courses. This is in addition to carrying out research in areas of specialization. His current research interests are on (i) application of agroecological intensification approaches to enhance agricultural productivity under varied environments (ii) modeling the impact of climate change on agricultural production and (iii) Evaluating soil organic carbon dynamics for informed mitigation and accounting in agricultural systems of Kenya. Previously worked in the same department as a lecturer (2007- April, 2013). Between 1997 and March, 2007 he worked with the Ministry of Agriculture (MoA) in various capacities and served as the link person between the MoA and Kenya Agriculture Research Institute for the Kenya Agriculture Productivity and Sustainable Land Management Project and oversaw the implementation of the World Bank sponsored, work improvement initiatives including service charters and 100 days Rapid Result Initiatives (RRI) for the MoA. Dr. Onwonga has published and continues to publish soil and soil-environment related articles in refereed journals. He peer reviews papers for various local and international journals. Attended and presented in various local, regional and international conferences. Has attracted donor funding for soil, environment and Climate Change related research projects. Attended and participated in various retooling and professional enrichment short courses. He can be reached at; University of Nairobi, Faculty of Agriculture, P.O. Box 29053 – 00625 Nairobi. Email: richard.onwonga@uonbi.ac.ke/onwongarichard@gmail.com/, Mobile: +254736517545

PERSONAL DETAILS

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Tel (mobile): +254 736517545, Email: onwongarichard@gmail.com

Nationality : Kenyan
Language : English and Kiswahili
Profession : Soil Scientist/Agronomist

A: EMPLOYMENT AND EXPERIENCE

Currently a Senior Lecturer (since April 2013) in the Department of Land Resource Management and Agricultural Technology (LARMAT), University of Nairobi. Teaching and supervision of both undergraduate and postgraduate students on various soil and soil-environment related courses. This is in addition to carrying out research in areas of specialization. My current research interest are (i) on application of agroecological intensification approaches to enhance agricultural productivity under semi-arid environments (ii) modeling the impact of climate change on agricultural production and (iii) Evaluating soil organic carbon dynamics for informed mitigation and accounting in agricultural systems of Kenya..

Previously (October 2007-March, 2013) served as a lecturer in the same department with similar responsibilities.

Between May 1997-September, 2007 worked with the Ministry of Agriculture in various capacities; In Charge Soil fertility management and technology promotion, Divisional Extension Coordinator - National Agriculture and Livestock Extension Project, Lecturer (Baraka Agricultural College), among others. Served as the link person between the Ministry of Agriculture (MoA) and Kenya Agriculture Research Institute for the Kenya Agriculture Productivity and Sustainable Land Management Project and oversaw the implementation of the World Bank sponsored, work improvement initiatives including service charters and 100 days Rapid Result Initiatives (RRI) for the MoA.

Graduate teacher between August 1994 and January 1995– teacher and head of Agriculture/Biology Department.

B: EDUCATION AND TRAINING

PhD in Natural resources and Life sciences (Dr. nat. techn) - Evaluation of Smallholder Farming System Sustainability and Potential for Organic Farming in Nakuru District, Kenya - (2003-2005), University of Natural Resources and Applied Life Sciences (BOKU), Vienna.

M.Sc. in Soil Science, - The effect of incorporating chickpea residue on soil nutrient status, nitrogen availability and wheat yield in a chickpea - wheat rotation cropping system (1995-1997), Egerton University.

B.Sc. in Agriculture Education & Extension (1990-1994), Egerton University.

Kenya Advanced Certificate of Education (1988-1989), Cardinal Otunga High School – Mosochi.

Kenya Certificate of Education (1984-1987), St. Paul’s Gekano High School.

Certificate of Primary education (1983), Kineni Primary School

C: PUBLICATIONS

(i) Refereed publications in journals (submitted/published)

1. Cecilia M. Onyango, **Richard N. Onwonga** and John W. Kimenju 2015. Assessment of Spider Plant (*Cleome gynandra* L.) Germplasm for Agronomic Traits in Vegetable and Seed Production: A Green House Study. *American Journal of Experimental Agriculture* 10(1): 1-10.
2. **Richard N. Onwonga**, Noel A. Templar, Joyce J. Lelei, Faith J. Toroitich, 2015. Combined Effects of Legumes with Phosphorus Fertilizer on Nutrient Balances and Gross Margins in Maize (*Zea mays* L.) systems of Kabete sub-County, Kenya. *Journal of Biology, Agriculture and Healthcare* 5:65-77. Available at <http://iiste.org/Journals/index.php/JBAH/article/view/25133/25737>.
3. **Onwonga, R.**, Namoi, N., Lelei, J2015. Influence of Organic Based Technologies on Soil Nutrient Status in Semi-Arid Yatta Sub-County, Kenya. *Journal of Agricultural Science* 7:56-80 Available at: <<http://www.ccsenet.org/journal/index.php/jas/article/view/48078>>.
4. A Fikir, **R Onwonga**, K Mwangi, James, W Oliver. V. 2015. Assessment of Shoreline Changes in the Period 1969-2010 in Watamu area, Kenya. *Global Journal of Science Frontier Research (GJSFR)* 14 (6), 19-31.
5. **Muli M. N., Onwonga R. N., Karuku G. N., Kathumo V. M., Nandukule M. O.** 2015. Simulating Soil Moisture under Different Tillage Practices, Cropping Systems and Organic Fertilizers Using CropSyst Model, in Matuu Division, Kenya. *Journal of Agricultural Science*. 7: (2) 15-36
6. Solomon Igosangwa Shibairo1, Oliver Nyongesa, **Richard Onwonga** and Jane Ambuko, 2014: Variation of Nutritional and Anti-Nutritional Contents in Finger Millet (*Eleusine coracana* (L.) Gaertn) Genotypes. *Journal of Agriculture and Veterinary Science*. 7 (11), 06-12.
7. Beldina A. Tunya, Joyce J. Lelei, P. Ouma, **Richard N. Onwonga** 2014. Effect of Triple Superphosphate and Minjingu Phosphate Rock Fertilizer application on Nutrient Content and Grain Yields of Sorghum in Various Cropping Systems. *International Journal of Research in Agricultural Sciences* 1 (6): 2348 – 3997.

8. **Onwonga R.N.**, Lelei J.J., Friedel J.K. and Freyer B. 2014. Soil Nutrient Status and Maize (*Zea Mays L.*) Performance under Contrasting Legume-Maize Cropping Systems and Soils in Central Rift Valley, Kenya. *Journal of Agriculture and Environmental Sciences*. 3: 241-263.
9. *Risper Nyairo, Richard Onwonga, Kipruto Cherogony, Eike Luedeling* 2014. Applicability of Climate Analogues for Climate Change Adaptation Planning in Bugabira Commune of Burundi. *Sustainable Agriculture Research* 3:46-62-10.5539/sar.v3n4p46 URL: <http://dx.doi.org/sar.v3n4p46>.
10. Ms Chepkemoi Janeth, **Dr. Richard N. Onwonga**, Dr. George N. Karuku and Dr. Vincent M. Kathumo 2014. Efficiency and interactive effects of Tillage Practices, Cropping Systems and Organic Inputs on Soil Moisture Retention in Semi-Arid Yatta Sub-County, Kenya. *Journal of Agriculture and Environmental Sciences* June 2014, Vol. 3, No. 2, pp. 145-156.
11. NL Namoi, **RN Onwonga**, GN Karuku, CM Onyango, VM Kathumo 2014. Influence of Selected Ecological Farming Practices on Soil Moisture Retention and Yield of Sorghum (*Sorghum bicolor (L.) Moench*) and Cassava (*Manihot esculanta Crantz*) in Semi-Arid Yatta Sub-County, Kenya. *Journal of Agricultural Science*; Vol. 6, No. 9; 2014 ISSN 1916-9752 E-ISSN 1916-9760.
12. Namoi N. L., **Onwonga, R. N.**, Onyango, C. M., . Karuku, G N., Kathumo, V M. (2014). Assessment of Soil Nutrient Balances in Organic Based Cassava (*Manihot esculenta Crantz*) and Sorghum (*Sorghum bicolor (L.) Moench*) Cropping Systems of Yatta Subcounty, Kenya. *American Journal of Experimental Agriculture* 4(12), PP. 1559-1578.
13. Lelei Joyce J; **Onwonga Richard N** (2014). White Lupin (*Lupinus albus L. cv. Amiga*) Increases Solubility of Minjingu Phosphate Rock, Phosphorus Balances and Maize Yields in Njoro Kenya. *Sustainable Agriculture Research* 3(3): 37-49.
14. Lelei, Joyce J. **Onwonga, Richard N.** and Macharia, Joseph K. (2014). Influence of Amendments Added to Acid Soils on Biochemical Properties, Nitrogen Uptake and Hybrid Maize Yields in Nakuru County, Kenya. *International Journal of Plant & Soil Science*, 3(5), pp.467-484.
15. Alemayehu, F., **Richard, O.**, James, K. and Wasonga, O. (2014). Assessment of Mangrove Cover Change and Biomass in Mida creek, Kenya. *Open Journal of Forestry*, **4**, 398-413. doi: 10.4236/ojf.2014.44045.
16. Liavoga B. A., V. M. Kathumo, **R. N. Onwonga**, G. N. Karuku, C. M. Onyango (2014). Assessment of Trends in Land Cover and Crop Type Change Over Two Decades in Yatta Sub County, Kenya. *International Journal of Agriculture, Forestry and Fisheries*. Vol. 2, No. 3, 2014, pp. 46-52.
17. Kudra, A., Chemining'wa, G.A., **Onwonga, R.N.** and Sibuga, K.P. 2014. Influence of fertilizers on *Striga asiatica* reproduction and sorghum grain yield in Dodoma, Tanzania. *East African Agriculture and Forestry Journal* 80(3): 149-156.
18. Joyce J. Lelei and **Richard N. Onwonga** (2014). Soil Fungal and Bacterial Populations in White Lupin (*Lupinus albus*) - Maize (*Zea mays L*) Cropping System Amended With Minjingu Phosphate Rock. *Journal of Agriculture and Ecology Research International* 1: (1) 1-17.
19. Godfrey Nakitare Nambafu, Richard Ndemo Onwonga, George Njomo Karuku, Emmanuel Safaris Ariga, Bernard Vanlauwe and Kristina Roing de Nowina(2014). Knowledge, Attitude and Practices Used in the Control of *Striga* in Maize by Smallholder Farmers of Western Kenya. *Journal of Agricultural Science and Technology* 4 (3): 237-248.
20. JJ Lelei and **RN Onwonga** (2014). Response of microbial populations, soil available, P and yield of Lupin (*Lupinus albus L cv. Amiga*) to application of Minjingu phosphate rock-A green house study. *Int. J. Curr. Microbiol. App. Sci*, 2014 3(4): 671-684.

21. **Richard N. Onwonga**, Joyce J. Lelei, Joseph K. Macharia, 2013. Comparative Effects of Soil Amendments on Phosphorus Use and Agronomic Efficiencies of Two Maize Hybrids in Acidic Soils of Molo County, Kenya. Accepted for publication. *American Journal of Experimental Agriculture*, 3(4): 939-958, 2013.
22. Ibrahim Ahmed, **R. N. Onwonga**, D. M. Mburu and Y. A. Elhadi 2013. Evaluation of types and factors influencing adoption of rainwater harvesting techniques in Yatta district, Kenya. *International Journal of Education and Research*. Vol. 1 No. 6 June 2013 <http://www.ijern.com/journal/June-2013/17.pdf>.
23. Kudra Abdul, George N. Chemining'wa and **Richard N. Onwonga** 2012. Relationships between Agronomic Practices, Soil Chemical Characteristics and *Striga* Reproduction in Dryland Areas of Tanzania. *Journal of Agricultural Science and Technology A 2* (2012) 1134-1141.
24. Origa, O.L., **C.K.K. Gachene**, **G. Kironchi** and **R.N. Onwonga**. 2012. Effect of Different Supplemental Watering Regimes on Water Use Efficiency and Economic Returns of Onion and Tomato in Kibwezi District, Eastern Kenya. *East Africa Agricultural and Forestry Journal*, 78(2): 89-97.
25. Kirina T. Kitinya, **Richard N. Onwonga**, Cecilia Onyango, Joseph P. Mbuvi and Geoffrey Kironchi 2012. Climate Change and Variability: Farmers' Perception, Experience and Adaptation Strategies in Makueni County, Kenya, *Asian Journal of Agriculture and Rural Development*, Vol. 2, No. 3, pp. 411-421.
26. Cecilia Moraa Onyango, Jeremy Harbinson, Jasper Kathenya Imungi, **Richard Ndembo Onwonga**, Olaf van Kooten 2012. Effect of Nitrogen Source, Crop Maturity Stage and Storage Conditions on Phenolics and Oxalate Contents in Vegetable Amaranth (*Amaranthus hypochondriacus*). *Journal of Agricultural Science*, Vol 4, No 7 (2012)
27. Ricard O. Nyankanga, **Richard N. Onwonga**, Francis S. Wekesa, Dorothy Nakimbugwe, Dorothy Masinde, and Johnny Mugisha, 2012. Effect of Inorganic and Organic Fertilizers on the Performance and Profitability of Grain Amaranth (*Amaranthus caudatus L.*) in Western Kenya. *Journal of Agricultural Science* Vol. 4, No. 1; 223-232.
28. Jeiran Eyvazi, Hamid Irannejad, Mohammad Hussein Kianmehr¹, Mohammad Esmaeili, Qolam Ali Akbari¹ & **Richard N. Onwonga** 2010. The effect of Pellet fertilizer application on Wheat Yield and its Components. *International Research Journal of Plant Science* Vol. 1(6) pp. 163-171. Available online <http://www.interestjournals.org/IRJPS>
29. Richard N. **Onwonga**, Joyce J. Lelei, J.J. and Benson B. Mochoge, 2010. Mineral Nitrogen and Microbial Biomass Dynamics under Different Acid Soil Management Practices for Maize Production. *Journal of Agriculture Sciences*, Vol.2, No.1. PP 16-30.
30. **Onwonga**, R.N., Lelei, J.J, Freyer, B, Friedel, J.K and Mwonga, S.M. 2010. Short Rain Season Fallow: Window of Opportunity for Integrating Improved Fallow Legumes into the Farming System of Molo District, Kenya. *Journal of Agriculture and Biological Sciences*, Vol. 5 No. 2. PP
31. Lelei, J. J., **Onwonga**, **R. N.**, and Freyer, B. 2009. Organic based nutrient management strategies: Effect on soil nutrient availability and maize (*Zea mays L.*) performance in Njoro, Kenya. *African Journal of Agricultural Research* Vol. 4 (2), pp. 092-099. Available online at <http://www.academicjournals.org/AJAR>
32. **Onwonga**, R.N., Lelei, J.J., Freyer, B., Friedel, J.K., Mwonga, S.M., and Wandhawa P. 2008. Low Cost Technologies for Enhancing N and P Availability and Maize (*Zea mays L.*) Performance on Acid Soils. *World Journal of Agricultural Sciences* 4 (S): 862-873

33. Lelei, J. J., **Onwonga, R. N.** and Mochoge, B. O. 2006. Interactive Effects of Lime, Manure, Urea and TSP on Maize (*Zea Mays L.*) Yield and Nutrient Uptake in an Acid Mollic Andosol of Molo, Kenya. Egerton journal: science and technology series. Volume VI. No. 2, 2006.
34. Lelei, J.J., Mochoge B.E, and **Onwonga, R.N.** 2000. Effect of lime, urea and triple super phosphate on nitrogen and phosphorus mineralization in an acid soil during incubation. African crop Science Journal Vol.8. No.3, pp 329-338.

(ii) ***Books and Book Chapters***

1. Kirina T., **R. Onwonga** and G. Kironchi (2013). Modeling Potential Impact of Climate Change in Semiarid Areas: A Simulation of Sorghum and Cowpea Performance using APSIM Model. Lambart Academic. Publishing. ISBN: 978-3-31533-6
2. J.J. Lelei **R.N. Onwonga** B. Freyer. The Effect of Organic-Based Nutrient Management Strategies on Soil Nutrient Availability and Maize Performance in Njoro, Kenya, 2011. In: A. Bationo, B. Waswa, J.M. Okeyo, F. Maina, J.M. Kihara (Eds.) Innovations as Key to the Green Revolution in Africa: Exploring the Scientific Facts (2011). Springer, pp 299 - 309. ISBN 978-90-481-2541-8
3. Gachene CKK, Baru MW, Gathaara V and **Onwonga R.** 2015. Factors that influence Adoption of Soil and Water Conservation Technologies at Kathekakai Location, Machakos County. In: Zeinabu Khalifm Charles Gachene, Patric Gichere, David Mwehia Mburu and Christopher Gatama Gakahu (Eds). Sustainable Land Management in Drylands of Kenya: Improving Land Productivity through Participatory Research and Technology Transfer. PP 85-106

(iii) ***Papers presented in workshops/conferences***

- A. The 3rd African Organic Conference Nigeria: Achieving Social and Economic Development through Ecological and Organic Agricultural Alternatives. 5-9 October 2015. Sheraton Hotel and Towers, Lagos, Nigeria
 1. **Onwonga R.N.**, ²Lelei J.J. ¹Namoi N.L. 2015. Effectiveness of Agroecological Intensification Techniques in Enhancing Soil Nutrient Status, Moisture Content, and Crop Productivity in Semi-Arid Lands of Kenya.
 2. **Onwonga, N. R.**, ¹Genga Q, ¹Wahome²Jensen, H. H 2015. Application of Rock Phosphate, FYM and Chickpea (*Cicer arietinum L.*) Integration Enhances Soil Nutrient Balances and Kale (*Brassica Oleracea*) Yield in Kabete Sub-County, Kenya
- B. Sibusisiwe Caroline Kamanga, **Richard Onwonga**, Bernard Vanlauwe 2014. Effect of Mavuno and Manure Fertilizer Applied Singly or in Combination on Soil Properties, Striga Weed Density and Maize Yield. 20th World Congress of Soil Science, 2014.6, 436-436
- C. *Papers Presented at the 27th Soil Science Society of East Africa and 6th Africa Soil Science Society Conference Held From 21st -25th October 2013 - Hotel Cathay, Nakuru, Kenya*
 4. Kamanga C.S., **Onwonga R.N** and Vanlauwe. Effect of mavuno and farmyard manure fertilizer application on soil properties in western Kenya
 5. Lelei J.J., and **Onwonga R.N.** Interactive effects of soil amendments on soil exchangeable aluminium and ph of an acidic mollic andosol
 6. Nambafu G N., **Onwonga R.N.**, Ariga E.S., Karuku G., Vanlauwe B. and Nowina K.R. Effects of maize variety and nitrogen fertilizer on striga parasitism and maize yield in western Kenya

D. *Papers Presented at the 8th Egerton University International Conference 26th - 28th March, 2014*

7. Templer, N.A., **Onwonga, R.N.**, Lelei, J.J., Toroitich, F. 2014. Effect of minjingu rock phosphate and cropping systems on soil pH, available phosphorus and nitrogen at Kabete field station University of Nairobi.
8. Chepkemoi, J., **Onwonga, R.N.**, Karuku, G.N., Kathumo, V.M. 2014. Effect of tillage practices, cropping systems and organic inputs on soil moisture content in Yatta sub-County Kenya.
9. Madegwa Y.M., **Onwonga, R.N.**, Shibairo, S.I, Nyongesa, O. 2014. Constraints, status and opportunities in finger millet production in Lower, Eastern Kenya.
10. Ndukhu, K., **Onwonga, R.**, Genga, Q. 2014. Experiences challenges, coping and adaptation strategies to climate change and variability among small holder organic vegetable farmers of central Kenya.
11. Namoi, N.L., **Onwonga, R.N.**, Karuku, G.N., Kathumo, V.M., Onyango, C.M., 2014. Assessment of soil nutrient balances in organic based cassava (*Manihot esculenta* Crantz) and sorghum (*sorghum bicolor* (L.) Moench) cropping systems in Kitui sub-County Kenya.

E. *Papers presented at the Integrated Soil Fertility Management in Africa: From Microbes to Market. Safari Park Hotel, 22 to 26 October 2012, Nairobi, Kenya*

12. **Richard Onwonga** and Joyce Lelei. Nitrogen content and its uptake by two maize hybrids in soils amended with lime, rock phosphate
13. Margarida Simbine, Fredrick Baijukya and **Richard Onwonga**. Effect of planting density on yield of a soybean-maize intercrop in Western Kenya.
14. *Godfrey Nambafu*, Bernard Vanlauwe, Kristina Roing De Nowina and **Richard Onwonga**. Knowledge, attitude and practices of striga control in maize producing farms among small-scale farmers in Western Kenya.
15. Sibusisiwe Caroline Kamanga, Bernard Vanlauwe and **Richard Onwonga**. Effect of long term fertilizer application on striga density. *Ms Sibusisiwe Kamanga*

F. *Papers presented at the 2nd African Organic Conference 2012 May 2-4, 2012 In Lusaka, Zambia*

16. Ndukhu, O. H, **Onwonga, R.N.** Wahome, R.G. Jensen, H.H. 2012: Climate Change and Variability: experience, coping and adaptation Strategies among smallholder organic farmers of central Kenya.
17. Quintar Genga, **Richard Onwonga** and Henning Jensen 2012. Challenges Faced By Smallholder Organic Farmers of the Central and Rift Valley Province of Kenya.

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18. M. W. Baaru, C. K. K. Gachene, **R. N. Onwonga** and J. P. Mbuvi 2011. Effect of vegetative macro contour lines on soil moisture conservation and crop performance in Machakos district, Kenya Paper presented at the **10th African Crop Science Society Conference** —From Soil to Soul: Crop Production for Improved African Livelihoods and a Better Environment for Future Generations. Centro Internacional de Conferências Joaquim Chissano Maputo – Mozambique 10th – 13th October 2011.

G. *Papers presented at the RUFORUM Biannual conference: Building capacity for improved food and livelihood security in Africa; 20 – 24 September, 2010; Imperial Resort Beach Hotel, Entebbe, Uganda;*

19. **Richard N. Onwonga**, Joseph P Mbuvi and Geoffrey Kironchi, 2010. Modelling the potential impact of climate change on sorghum (*Sorghum bicolor*) and cowpea (*Vigna unguiculata*)

- production in semi-arid areas of Kenya using the agricultural production systems simulator (APSIM).
20. Baaru, M.W., Gachene, C.K.K., **Onwonga, R.N.**, Mbuvi, J. P. and Gathaara, V. 2010. Assessment of changes in natural resources: A participatory approach.
 21. Kudra, A., Chemining'wa, G.N., Sibuga, K.P. and **Onwonga, R.N.** 2010. Influence of soil fertility management on *Striga* seed bank dynamics and grain yield of sorghum in semi arid areas.
 22. Moyo, R., Kinama, J.M., Nyagumbo, I., **Onwonga, R.** and Keter, J. 2020. Climate variability and Tillage practices: Effect on soil moisture, carbon dynamics and crop productivity in semi arid Zimbabwe.
 23. Thomas K. Kirina, **Richard N.Onwonga**, Joseph P Mbuvi and Geoffrey Kironchi , 2010. Climate change: Farmers' perception, experience and adaptation strategies in Makueni County, Kenya.
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24. Joyce J. Lelei and **Richard N. Onwonga** 2010. Lime, Minjingu Rock Phosphate and Manure Effects on Soil Biochemical Properties and Yield of Maize Hybrid Varieties in Nakuru County. 1st Alexander Von Humboldt Alumni Kenyan Kolleg: Synergy and Networking to enhance Research and Development” Meridian Court Hotel, Nairobi, Kenya 24th – 26th November 2010
 25. Judith S. Mbau and **Richard N. Onwonga** 2009. Desertification in Kenya: Challenges and Management options. 5th Conference of the Africa Soil Science Society. Conference Theme: Soils and New Challenges for sustainable Development in Africa. 22 - 28 November 2009, Yaoundé – Cameroon
 26. **Richard N. Onwonga** and Joyce J. Lelei 2009. Limitations and Opportunities for Combating Land Degradation in Agricultural Fields of Kenya. 5th Conference of the Africa Soil Science Society. Conference Theme: Soils and New Challenges for sustainable Development in Africa. 22 - 28 November 2009, Yaoundé – Cameroon
 27. **Richard N. Onwonga**, Bernhard Freyer and Joyce J. Lelei (2008) Traditional soil fertility management strategies: Do they conform to recommendations in organic farming? A case study of the smallholder farmers of the Central Rift Valley Province of Kenya, In. "Global Issues, Paddock Action". Proceedings of the 14th Australian Agronomy Conference, 21-25 September 2008, Adelaide, South Australia. Australian Society of Agronomy ISBN: 1 920842 34 9
 28. J.J. Lelei, B. Freyer and **R.N. Onwonga**, 2008. Nutrient availability and maize performance on acid soil: Effect of legume residue, green manure and amendments on soil pH. Third Annual Research Week and International Conference. Theme: *Harnessing Scientific Knowledge for National Development*. 16th - 18th September 2008. Egerton University, Agriculture Resources Centre, Njoro, Kenya
 29. **Onwonga, R.**, Freyer, B., Wenzel, W., Lelei, J. 2007: Agricultural Biodiversity: Lessons from the Smallholder Traditional Farming Systems of the Central Rift Valley Province of Kenya. In: Tielkes, E. (Eds.), Tropentag 2007 - Utilization of diversity in land use systems: Sustainable and organic approaches to meet human needs. Witzhausen, 217-217.

30. J. J. Lelei, **R.N. Onwonga**, B. Freyer 2007. The effect of organic based nutrient management strategies on soil nutrient availability and maize performance in Njoro, Kenya. Innovations as key to the green Revolution in Africa: Exploring the Scientific Facts, Sept 17-26, 2007, Arusha
31. Lelei J.J., Freyer, B., **Onwonga, R.N.**, Fridel, J.K., and Mwonga, S.M. 2007. Appropriate and Sustainable Soil Management Practices for Enhancing Soil Nitrogen and Phosphorus Availability and Maize Performance under Sole and Intercropping Systems in Njoro, Kenya. Research for National Development. July 16-20, Agriculture Resource Centre, Njoro, Kenya.
32. **Richard Onwonga** and Bernhard Freyer, 2006. Impact of Traditional Farming Practices on Nutrient Balances in Smallholder Farming Systems of Nakuru District, Kenya. Conference on “Prosperity and Poverty in a Globalized World — Challenges for Agricultural Research” Tropentag, October 11-13, 2006, Bonn.
33. **Onwonga R.N.** and Freyer, B, 2005. Biodiversity in smallholder farms of Nakuru District, Kenya. 17th International Botanical Congress, Europe Austria Center Vienna, 17 – 23 July 2005.
34. **Onwonga, R.N.** and Freyer, B. 2004. Organic resource flows and nutrient balances in smallholder farming systems of Nakuru district, Kenya. Sustain Life, Secure Survival II. Socially and environmentally responsible Agribusiness. Prague, 22-25 September 2004.

D: SHORT COURSES/CONFERENCES ATTENDED

1. Training on application of nuclear techniques at the Ghana Atomic Energy commission (GAEC), Accra Ghana November 23 to December 4, 2015.
2. Training on **WOFOST** crop growth simulation model and its graphical user interface WOFOST Control Center (WCC). Held at Clinton Climate Foundation (Timau Plaza building) 2-4th February, 2015.
3. Capacity Development for Farm Management Strategies to Improve Crop-Water Productivity Using **AquaCrop**. KALRO-KAbete, Nairobi 24-28 November, 2014
4. Improving and Internationalizing Universities. June 10-12, 2014. Kasangati Resort Center Limited, Kampala-Uganda.
5. AGRA-wageningen ur workshop University of Nairobi Competence & skills training for PhD supervisors and established scientists Rise to the challenge (University of Nairobi, Faculty of Agriculture, 15-17 January 2014).
6. GIS and Spatial Analysis with a focus on Raster Analysis conducted at College of Agriculture And Veterinary Sciences, University of Nairobi, 18th March – 2nrd March, 2013
7. Agent Based Modeling in Ecological and Social Settings conducted at College of Agriculture And Veterinary Sciences, University Of Nairobi, 12th March – 23rd March, 2012
8. Scientific Data Management Training of Trainers Course for ECSA NARS, Lecturers and Scientists (15 – 27 August 2010),
9. Data flow workshop for East and Horn of Africa Community of Practice Held at Egerton University 1-6 February, 2010.
10. Climate Change and Transboundary Animal Diseases, 13-16 October, 2009, Imperial Resort Beach Hotel in Entebbe, Uganda

11. International Course on: Combating Desertification: Afforestation in Arid and Semi Arid Zones for Professionals from African Countries held in Israel (CINADCO's International Training Centre at Kibbutz Hotel Shefayim) on 3.12 – 19.12.2008
12. Drylands, Deserts and Desertification conference December 14-17, 2008, Sade Boqer Campus, Israel
13. "Conceptualization and Presentation of winning proposals" 2008. IFS/VLIR/UoN training course on "conceptualization and Presentation of winning proposals" held at the University of Nairobi, Kenya 22nd – 27th, 2008.

E: GRANTS

i] Principle Investigator

<i>Donor/Funder</i>	<i>Duration</i>	<i>Title</i>
1. RUFORUM	-2009-2011:	Modelling the potential impact of climate change on sorghum (<i>Sorghum bicolor</i>) and cowpea (<i>Vigna unguiculata</i>) production in semi-arid areas of Kenya using the agricultural production systems simulator (APSIM) (Funded)
2. McKnight Foundation	2009-2013	Towards Increased Agricultural Productivity and Food Security in East Africa through Capacity building in Agroecological Intensification.
3. AGRA	2010-2013	Capacity Building in Integrated Soil Fertility Management for enhanced agricultural productivity and food security in eastern and southern Africa

ii] Co-Researcher

<i>Donor/Funder</i>	<i>Duration</i>	<i>Title</i>
4. Egerton University Research Grant	-2009:	Response of maize to soil amendments on acid soils of the central Rift Valley Province of Kenya
5. DANIDA	- 2010-2014:	<i>Productivity and Growth in Organic Value-chains (ProGrOV)</i>
6. RUFORUM	-2011-2013:	<i>Soil conservation practices as climate change adaptation strategies in semi-arid districts of Kenya and Uganda</i>
7. RUFORUM	-2011-2013:	<i>Enhancing phosphorus release from rock phosphate using white Lupin (<i>Lupinus albus</i> l. Cv. Amiga) and chickpea (<i>Cicer arietinum</i> l.)</i>
8. RUFORUM	- 2011-2013:	<i>Screening finger millet varieties for adaptability to drought prone ecological regions of eastern Kenya as a strategy to combat food insecurity and climate change</i>
9. ASERECA	- 2014-2016:	Unlocking the potential of indigenous vegetables in East and Central Africa

iii] Current Research Project(s)

10. Department of Climate Change, Austria Government 2013-2016: Modeling soil organic carbon dynamics for informed mitigation of climate change and development of a national carbon accounting system for Kenya

11. *National Academy of Sciences – USAID 2015-2017: NAS-PEER PROJECT: Using integrated modeling framework to evaluate the impact of human-induced land use/land cover change on carbon dynamics in Upper Ewaso Ngiro River Basin, Kenya*
12. Department of Climate Change, Austria Government 2015-2018 : System for Land Based Emission Estimation for Kenya (SLEEK) Scholarship training (PhD and MSc level) Programme

F: SUPERVISION

a) Internal Supervision

i] PhD

Year and Topic Supervised

Completed

1. 2009-2012: Vegetative macro contour lines: Effect on soil properties, crop performance and terrace development in Machakos district, Kenya
2. 2009-2012: Influence of soil fertility management on *Striga* seed bank dynamics and grain yield of sorghum in semi-arid areas
3. 2012-2015 Crop growth and soil nutrient dynamics under different cropping systems and organic inputs in central Kenya
4. 2012-2015: Effect of land use change on shoreline erosion and mangrove dynamics in Watamu/Mida creek, Kenya

Continuing

5. 2012-2015: Growth and yield response of Sesame (sesame indicum L.) to crop residue and fertilizer application in North Eastern Uganda
6. 2013-2016: Influence of Selected Land Use Practices on Soil Quality in Agro-pastoral Semi-Arid Karamoja-Uganda
7. 2015-2018: Parameterization, calibration and validation of a crop insurance models for estimating bean (*phaseolus vulgaris l.*) Performance under selected environmental stresses and production risks
8. 2015-2018: Modelling carbon fluxes in agroforestry practices in western Kenya
9. 2015-2018: Modelling of SOC Stocks In Wooded Grassland of Riftvalley, Kenya: Linking Rothc Model to Gis Databases
10. 2015 - 2018: Using integrated modeling framework to evaluate the impact of human-induced land use/land cover change on carbon dynamics in Upper Ewaso Ngiro River Basin, Kenya

ii] MSc

Name and Topic

Completed

1. 2007-2010: Response of grain amaranth (amaranthus caudatus l.) to fertilizer application and intercropping with maize and beans in Kisumu West District, Kenya.
2. 2007-2010: Investigating the Effect of Road Design on Gully Erosion: A Case Study of the Rural Access Roads of Embu District, Kenya
3. 2008-2011: Effects of supplementary irrigation on Growth and Yield of Tomatoes (*Solanum lycopersicum*) and Onions (*Allium cepa*) in semi-arid Eastern Kenya

4. 2009-2011: Modelling the potential impact of climate change on sorghum growth and nutrient dynamics in Makueni, County.
5. 2010-2012: Effect of varying soybean planting density on maize (*Zea Mays*) and soybean (*glycine max*) yields in a maize- soybean intercrop system in western Kenya
6. 2010-2012: Efficacy of Farmers' Soil Fertility Management Practices in the control of *striga hermonthica*: A case study of smallholder farmers of western Kenya.
7. 2010-2012: Soil Fertility Gradients: Effect of Fertilizer Application on Soil Properties, Striga Density and Maize Response and Yield to Fertilizer
8. 2010-2012: Modelling effects of climate change on growth and development of Sorghum and Cassava in Yatta District, Kenya
9. 2011-2013: Influence of agroecological intensification techniques on soil nutrient status, moisture and yields of sorghum (*sorghum bicolor* L. Moench) and cassava (*maniholt esculanta crantz*) in yatta dictirct, Kenya
10. 2010-2012: Organic based soil fertility management strategies for production of marketable quality kales (EGD - 2014)
11. 2012-2014: Applicability of climate analogues for climate change adaptation planning in Bugabira Commune, Burundi
12. 2012-2014: Influence Of Tillage Practices and Organic Cropping Systems on Soil Moisture, Nutrients and Yield of Sweet Potatoes (*Ipomea Batatas* L.Lam) and Sorghum (*Sorghum Bicolor* L.) in Yatta Sub County, Kenya
13. 2012-2014: screening finger millet [*eleusine coracana* (l.) Gaertn.] Genotypes for drought adaptability and nutritional factors under different soil fertility regimes in eastern Kenya
14. 2012-2014: Modelling growth development and nutrient dynamics of finger millet (*eleusine corocona*) in semi-arid eastern Kenya using the agricultural production systems simulator (APSIM) model (submitted 2014)
15. (submitted 2014) 2012-2014: Simulation of Soil Moisture, Sorghum (*Sorghum bicolor* L.) and Sweet potato (*Ipomea batatas* L.lam) Yields using CropSyst Model in Matuu Sub-County, Kenya
16. 2013-2015: Effectiveness of Legume Integration and Application of Organic Fertilizers on Soil Available N, P and Kale Yields in Kabete, Kenya
17. (submitted – 2014) - 2012-2014: enhancing phosphorous release from minjingu rock phosphate through integration of legumes in maize based cropping systems of Kabete, Kenya

Continuing

18. (2014/2015) – 2016/2017 Four students at various stages (coursework, proposal dev and thesis writing)

b) External supervision

19. (Kenyatta University, 2012-2013) Investigation of Rainwater Harvesting Techniques in Yatta District, Kenya

G: THESIS EXAMINER

(i) Internal Examiner

MSc.

1. (2013) Awareness and use of Kenya Agricultural Commodity Exchange (KACE) information services: The case study of smallholder farmers in Bungoma County, Western Kenya
2. (2011) “Effect of Land Use System on Soil Carbon and Nutrient Stock in Elgon Ecosystem, Kenya.
3. (2009) influence of soil organic matter quality on response of soil organic matter decomposition to variation in soil temperature and moisture
4. (2015) Effects of Holistic Grazing Management on Soil Physico-Chemical Properties and Hrtbaceous Vegetation Production in Naibunga Conservancy, Laikipia County, Kenya

PhD

1. (2015) *Influence of Indigenous Trees on Soil Macrofauna and Soil Organic Matter Dynamics in Tropical Agricultural Landscapes*

(ii) External Examiner

Kenyatta University

1. (2013). Assessment Of Water Demand Management Practices And Their Effects On Water Usage In Households Of Ruiru Municipality - MSc
2. (2014). Analysis of Limiting Factors in Soil-Water Management Practices of Smallholder Farmers in Magamba sub-Catchment of Lushoto District, Tanzania – MSc.
3. (2014) Analysis of Run-off and Plant nutrient drain from four vegetation types in south Kinangop Forest (Abardare Catchment) Nyandarua County – MSc.
4. (2014) Effects of varietal Differences, plant spacing and weeding regimes on weed density and yields of upland Rice in Uganda – MSc
5. (2015). Effect of *B. Japonicum* on Soyabean Nodulation and Indigeneous AMF Colonization and their Survival in Walungu Peat under Different Storage conditions – MSc.
6. (2015). Water Stress Effect on Antioxidant Activity and Phenolic Content of African Nightshades and their distribution in Kisii and Siaya Counties of Kenya – MSc.
7. (2015). Seed Quality of Soybean (*Glycine Max (L) Merrill*) Genotypes under varying Storage and Priming Methods, Mother Plant Nutrition Profiles and Agroecologies in Kenya – PhD

Egerton

8. (2015). Effect of Crop Rotation on Soil Bacterial Wilt (*Ralstonia Solanacearum*) and Potato (*Solanum tuberosum*) yield – MSc.
9. (2015): Effect of P-Fortified Manure on Growth and Yield of Maize in Smallholder Mixed Farming System of South Nandi District

H: FACULTY/DEPARTMENTAL RESPONSIBILITIES

Teaching/Courses Taught

1. MSc

- a. ALM 604: *Land degradation and Rehabilitation*
- b. AFS 607: *Crop Production and Food Safety*
- c. ALM 604: *Nutrient Cycling, Monitoring and Modelling*
- d. ALM 607: *Integrated Soil Fertility Management and Nutrient Cycling in Agroecosystems*
- e. ALM 601: *Soil and Water Relations*
- f. AEM 602: *Evergreen Agriculture and Organic Farming*

2. BSc.

- a. AEM 204 Principles and practice of Organic Farming/Agriculture
- b. ASS 407 Recycling and Bioconversion of Org. Wastes
- c. AEM 401: Modelling of Agroecosystems
- d. ASS 403: *Land Degradation and Management of Problematic Soils*
- e. ASS 404: *Soil Erosion Assessment and its Impacts on Land Productivity*

Faculty Committees

1. Member Faculty Environmental Committee – 2011 to date
2. Convener Seminars and Special projects – 2011 to date
3. Ag. Chairman - Faculty of Agriculture ROFORUM committee - 2009
4. Member Faculty Timetabling and Examination Committee – 2008 - 2010
5. Convener Postgraduate/special projects presentations – Department of LARMAT – 2008-2009
6. Convener Postgraduate/special projects presentations – Department of LARMAT – 2015 to date

Others

7. Coordinator – International Training Course in Organic Agriculture (ITCOA) - Since 2008

J: AWARDS:

1. 2015: International Atomic Energy Agency Fellowship to undertake Nuclear techniques studies at Ghana Atomic Energy Commission
2. 2003: OAED scholarship to undertake PhD. studies at the BOKU, Austria.
3. 1995: Egerton University Scholarship to undertake Masters Studies (MSc. Soil Science) at the Department of Soil Science, Egerton University.
4. 1990: Government of Kenya Scholarship to undertake undergraduate studies (BSc. Agriculture Education and Extension) at the Egerton University

K: MEMBERSHIP TO PROFESSIONAL BODIES

African Network for Soil Biology and Fertility (AfNet)
Soil Science Society of East Africa
Kenya Organic Agriculture Network

L: CONSULTANCIES

1. Conducted curriculum analysis: a case study of AGRA supported delivery universities for the alliance for a green revolution in Africa (AGRA)
2. 2011-2012: Conducted a synthesis on technologies that are suitable to address productivity constraints in the horticulture value chain (Fruits and vegetables) in Kenya. Client: Regional Strategic Analysis and Knowledge support system (ReSAKSS).
3. 2015 Development of training manual and training on Agricultural Biodiversity: Client DVL – Plant

M: REFEREES

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