

ZINGORE, SHAMIE

SEX: MALE
DATE OF BIRTH: 7 NOVEMBER 1976
NATIONALITY: ZIMBABWEAN

International Plant Nutrition Institute

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CORE AREAS OF EXPERTISE

- Extensive knowledge and experience in impact-oriented agronomic research for improving crop productivity in smallholder farming systems in sub-Saharan Africa.
- Good experience in soil fertility and multi-disciplinary farming systems research with a special interest in developing integrated soil fertility management (ISFM) options appropriate for heterogeneous biophysical, socio-economic and agro-ecological environments in smallholder farming systems.
- Good expertise in application of crop-soil and farm-scale modeling tools to explore processes affecting crop productivity and the interacting effects of water, organic and inorganic nutrient resources under variable soil fertility conditions.
- Capacity building activities, including ISFM knowledge synthesis, development of knowledge products and training programs.

EDUCATION

- B.Sc. Honors Degree, Soil Science, University of Zimbabwe, (1996 - 1999).
 - Published Bsc research project results in a refereed international journal.
- Master of Philosophy Degree, Soil Science, University of Zimbabwe, University of Zimbabwe, (2000-2002).
 - Published MPhil research results in a refereed international journal.
 - The research work focused on analysis of long-term changes in soil organic matter along cultivation chronosequences using C-isotope signatures and provided insights into problems of land degradation in SSA.

- Ph.D., Soil Science and Farming Systems Analysis, Wageningen University, (2002-2006).
 - Published research results in 5 refereed international journal articles.
 - Developed methods to analyze farm typologies and use farm typologies as a basis for developing ‘best-fit’ soil fertility management technologies.
 - Agronomic research results raised awareness of the profound effects of short-range soil variability within and across farms on maize productivity and nutrient use efficiencies, and the need to fine-tune fertilizer recommendation to field- and farm-specific conditions.
 - Contributed to the identification of degraded soils that give poor response to fertilizer application as major challenge for crop production intensification in SSA, with large investments of organic resources and fertilizer required over several season to restore productivity.

POSITIONS HELD SINCE TERMINAL DEGREE

2010 – Current, Africa Program Director, International Plant Nutrition Institute.

Achievements

- Supported the establishment of the IPNI Africa program as the first coordinated fertilizer industry research program to promote best fertilizer management practices in SSA.
- Established a regional research program in collaboration with international research institutions, Universities and the NARS system to assess nutrient-determined yield gaps, and evaluate balanced fertilizer management practices for crop production intensification in high potential production zones.
- Developed programs to promote good plant nutrition management practices through on-farm demonstration work, extension worker training, and training the NARS system.
- Developed decision support tools, publications and training material for best plant nutrition management practices in Africa. Main focus on the 4R Nutrient Stewardship, challenges related to plant nutrition, soil testing and plant analysis and technical bulletins for extension workers in government and fertilizer industry.
- Developed a program to transfer knowledge on best management practices for oil palm production from South-east Asia to West Africa.

2006 – 2010, Research, Tropical Soil Biology and Fertility Institute of CIAT.

Achievements

- Implemented research experiments to develop site-specific soil fertility management strategies for reversing soil fertility depletion and increasing productivity of a wide range of crops.
- Developed and promoted ISFM technologies linked to input and output markets in smallholder farming systems with the Enabling Rural Innovation CIAT Program.

- Developed an integrated modeling framework for evaluating the impact of ISFM options under variable soil fertility conditions
- Developed extension and training material and implement training programs to build research and extension capacity in plant nutrient management.

LEADERSHIP AND CONTRIBUTION TO MAJOR REGIONAL INITIATIVES

- 2002-2006: Supported Research Activities in the NUANCES (Nutrient Use in ANimal and Cropping systems – Efficiency and Scales) project led by Wageningen University and implemented in 6 countries in SSA.
 - The NUANCES integrated analytical framework developed has contributed to improved understanding of the impact of farm typology and soil fertility variability on the potential performance of soil improving technologies within the wider livelihood strategies of smallholder farmers in sub-Saharan Africa. The
 - Led the development of approaches to analyze farm and field typologies in Zimbabwe that were subsequently adapted in NUANCES project activities in other countries.
- 2006-2010: Provided ISFM technical assistance to the Chinyanja Triangle project established by USAID to improve coordination of agricultural research and development activities in Malawi, Zambia and Mozambique.
 - Developed and implemented an ISFM training program for agrodealers. The training program improved the capacity of agrodealers in Malawi, Zambia and Mozambique to provide ISFM extension services to farmers.
 - The training manual developed was adapted for use in CIAT agrodealer training programs in Kenya.
- 2009-2011: Contributed to the Africa Soil Information Services (AfSIS) project to develop the soil digital map for SSA.
 - Coordinated the development of protocols for agronomic trials to diagnose nutrient and non-nutrient factors limiting crop productivity in major cropping systems in SSA.
 - Supported implementation of the AfSIS trials in Malawi, Tanzania and Mali.
- 2009-2012: Contributed to the Africa Soil Information Services (AfSIS) project to develop the soil digital map for SSA.
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- 2010-2013: Founding member of the Africa Soil Health Consortium, which was established by the Bill and Melinda Gates Foundation to contribute towards improving in the understanding and use of ISFM technologies in sub-Saharan Africa, enabling smallholder farmers to improve their crop yields.
 - Contributed to the development of the \$4.5M proposal for the consortium that was funded by the Bill and Melinda Gates Foundation.
 - Was appointed the Chairperson of the Technical Assistance Group that was constituted to advise the project, and coordinated the development of the ISFM handbook developed by the consortium.

- 2010-2013: Member of the International Fertilizer Association (IFA) Africa Forum.
 - Appointed to the IFA Africa Forum task force responsible for development of the new IFA strategy for Africa.
 - Contributed to the development of the IFA Africa Forum position papers on fertilizer policy, research and development and extension.

- 2011-2013: Africa Nitrogen Initiative Advisory Committee Member
 - Supported the organization of the International Nitrogen Initiative to be held in Uganda in October 2013.
 - Supported the writing workshop for the African Nitrogen Centre Rapid Assessment Project.

- 2012-2013: Supported the CGIAR MAIZE Initiative
 - Awarded a grant to develop a framework for analysis of opportunities and constraints of households varying in resource endowment to intensify maize production in East and southern Africa.
 - Implemented a training program to build capacity in application of decision support tools to develop site-specific fertilizer recommendations for maize production in smallholder farming systems.

- 2012-2013: Sustainable West Africa Palm-Oil Program (SWAPP) Technical Support
 - Awarded a grant to provide Nutrient Management technical assistance to the SWAPP, which is supporting >500,000 smallholder oil palm producers in West Africa to intensify oil palm production.

- 2012-2013: Leadership to the Alliance for a Green revolution in Africa – Country Soil Health Consortia Project.
 - Co-developed the concept of country soil health consortia for coordinating management of ISFM knowledge and harmonizing dissemination efforts.

CURRICULUM VITAE – Shamie Zingore, PhD.

- Awarded a \$2.5M grant to lead and coordinate the Country Soil Health Consortia Project in 8 countries.
- 2006-2013: Supervised 9 Msc students and 2 PhD students.

AWARDS

- 2011 Excellence in Mentoring Award by African Women in Agricultural R & D (AWARD)
- Best Oral Presentation by a Graduate Student. Rockefeller Foundation Forum for Agricultural Husbandry Meeting, Entebbe, Uganda, 2002.

PUBLICATIONS

REFEREED JOURNAL PUBLICATIONS

1. **Zingore S.**, Nyamugafata P., Mafongoya P. and Giller K.E. 2003. Nitrogen mineralization and maize yields following application of tree prunings to a sandy soil in Zimbabwe. *Agroforestry Systems* 57: 199-211.
2. **Zingore S.**, Manyame C., Nyamugafata P. and Giller K.E. (2005) Long-term changes in organic matter of woodland soils cleared for arable cropping in Zimbabwe. *European Journal of Soil Science* 57: 727-736.
3. **Zingore, S.**, Murwira, H.K., Delve, R.J. and Giller, K.E. (2007) Influence of nutrient management strategies on variability of soil fertility, crop yields and nutrient balances on smallholder farms in Zimbabwe. *Agriculture Ecosystems and Environment* 119: 112-126
4. **Zingore, S.**, Murwira, H.K., Delve, R.J. and Giller, K.E. (2007) Soil type, historical management and current resource allocation: three dimensions regulating variability of maize yields and nutrient use efficiencies on smallholder farms. *Field Crops Research* 101: 296-305.
5. Tittonell, P., **Zingore, S.**, van Wijk, M.T., Corbeels, M. and Giller, K.E (2007) Nutrient use efficiencies and crop responses to N, P and manure applications in Zimbabwean soils: Exploring management strategies across soil fertility gradients. *Field Crops Research* 100:348-368.
6. **Zingore, S.**, Murwira, H.K., Delve, R.J. and Giller, K.E. (2008) Variable grain legume yields, responses to phosphorus and rotational effects on maize across soil fertility gradients on African smallholder farms. *Nutrient Cycling in Agroecosystems* 80: 1-18.
7. **Zingore, S.**, Nyamangara, J., Delve, R.J. and Giller, K.E. (2008) Multiple benefits of manure: The key to maintenance of soil fertility and restoration of depleted sandy soils on African smallholder farms gradients on African smallholder farms. *Nutrient Cycling in Agroecosystems* 80: 267-282.

8. Njuki, J., Mapila, M., **Zingore, S.** and Delve, R.J. 2008. The Dynamics of social capital influencing use of soil management options in the Chinyanja Triangle of Southern Africa. *Ecology and Society* 13: 9-16.
9. **Zingore, S.**, Gonzalez-Estrada, E., Delve, R.J., Dimes, J., Herrero, M. and Giller, K.E. (2009) An integrated evaluation of resource use options for smallholder farms in Zimbabwe. *Agricultural Systems* 101: 57–68.
10. Gottschalk, P., Bellarby, J., Chenu, C., Foereid, B., Smith, P.; Wattenbach, M., **Zingore, S.** and Smith, J. 2010. Simulation of soil organic carbon response at forest cultivation sequences using ¹³C measurements. *Organic Geochemistry* 41: 41-54.
11. Masvaya, E.N., Nyamangara, J., Nyawasha, R.W., **Zingore, S.**, Delve, R.J. & Giller, K. E. 2010. Effect of farmer management strategies on spatial variability of soil fertility and crop nutrient uptake in contrasting agro-ecological zones in Zimbabwe. *Nutrient Cycling in Agroecosystems* 88:111–120.
12. Giller, K.E., Tiftonell, P., Rufino, M.C., Wijk, M.T.v., **Zingore, S.**, Mapfumo, P., Adjei-Nsiah, S., Herrero, M., Chikowo, R., Corbeels, M., Rowe, E.C., Baijukya, F., Mwijage, A., Smith, J., Yeboah, E., Burg, W.J.v.d., Sanogo, O.M., Misiko, M., Ridder, N.d., Karanja, S., Kaizzi, C., K’ungu, J., Mwale, M., Nwaga, D., Pacini, C., and Vanlauwe, B. 2011. Communicating complexity: Integrated assessment of trade-offs concerning soil fertility management within African farming systems to support innovation and development. *Agricultural Systems* 104 191–203.
13. Farrow, A., Risinamhodzi, K., Zingore, S. and Delve R.J. 2011. Spatially targeting the distribution of agricultural input stockists in Malawi. *Agricultural Systems* 104: 694–702.
14. Rufino, M.C., Dury, J., Tiftonell, P., Wijk, M.T.v., Herrero, M., **Zingore, S.**, Mapfumo, P., & Giller, K.E. 2011. Competing use of organic resources, village-level interactions between farm types and climate variability in a communal area of NE Zimbabwe. *Agricultural Systems* 104: 175–190.
15. Nyamangara, J., Makarimayi, E., Masvaya, E.N., **Zingore, S.** and Delve R. 2011. Effect of soil fertility management strategies and resource-endowment on spatial soil fertility gradients, plant nutrient uptake and maize growth at two smallholder areas, north-western Zimbabwe. *South African Journal of Plant and Soil* 28: 10–18.
16. **Zingore, S.**, Tiftonell, P., Corbeels, M., van Wijk, M.T. and Giller, K.E. 2011. Managing soil fertility diversity to enhance resource use efficiencies in smallholder farming systems: a case from Murewa District, Zimbabwe. *Nutrient Cycling In Agro ecosystems* 90: 87–103.
17. Mapila, M., Njuki, J., Delve, R.J., **Zingore, S.**, Matibini, J. 2012. Determinants of fertilizer use by smallholder maize farmers in the Chinyanja Triangle in Malawi, Mozambique and Zambia, *Agrekon* 51: 21–41.
18. Dunjana, N., Nyamugafata, P., Shumba, A., Nyamangara, J. and **Zingore, S.** 2012. Effects of cattle manure on selected soil physical properties of smallholder farms on two soils of Murewa, Zimbabwe. *Soil Use and Management* 28: 221–228
19. Fandika, I.R., Kadyampakeni, D., **Zingore, S.** 2012. Performance of bucket drip irrigation powered by treadle pump on tomato and maize-bean production in Malawi. *Irrigation Science* 30: 57–68.
20. Waswa, B.S., Vlek, P.L.G., Tamene, L.D., Okoth P., Mbalaya, D., **Zingore, S.** 2013. Evaluating indicators of land degradation in smallholder farming systems of western Kenya. *Geoderma* 196: 192–200.
21. Rusinamhodzi, L., Corbeels, M., **Zingore, S.**, Nyamangara, J., Giller, K.E. 2013. Pushing the envelope? Maize production intensification and the role of cattle manure in recovery of degraded soils in smallholder farming areas of Zimbabwe. *Field Crops Research* 147: 40–53.

BOOKS

Africa Soil Health Consortium. 2012. Handbook for Integrated Soil Fertility Management. T. Fairhurst (ed). CABI, Nairobi, 2012.

SELECTED BOOK CHAPTERS, CONFERENCE PROCEEDINGS & OTHER SCIENTIFIC ARTICLES

1. **Zingore S.**, Chikowo R., Nyamadzawo G., Nyamugafata P. and Mafongoya P.L. 2008. Developments in the Research of the Potential of Agroforestry for Sustaining Soil Fertility in Zimbabwe. In: D.R. Batish, R.K. Kohli, S. Jose and H.P. Singh (eds) Ecological Basis of Agroforestry, CRC Press, Florida, pp 217-238.
2. **Zingore S.**, Manyame C., Nyamugafata P. and Giller K.E. 2006. Elucidating the fate of soil organic matter in woodland-cropping transitions using isotopic techniques. Proceeding of the FAO/IAEA Technical Meeting on “ Combating Soil Degradation to Enhance Food Security in Africa: The Role of Nuclear Techniques in Developing Improved Soil, Water and Nutrient Management Practices, 10-12 October 2005, ICRAF Headquarters, Nairobi, Kenya.
3. **Zingore S.** and Giller K.E. 2006. Long-term Dynamics of Soil Organic Matter and Its ¹³C Signatures along Cultivation Chronosequences on Contrasting Zimbabwean Soils. Proceeding of the FAO/IAEA Workshop: Use of Nuclear Techniques in Addressing Soil-Water-Nutrient Issues for Sustainable Agricultural Production, World Congress of soil Science, Philadelphia, USA.
4. **Zingore S.**, Gonzalez-Estrada, E., Delve, R.J., Herrero, M., Dimes, J.P., Giller, K.E. 2007. Evaluation of resource management options for African smallholder farms using an integrated modelling approach. *Farm System Design Conference Proceedings*,
5. Giller K.E., de Ridder N., Rufino M.C., Tittonell P.A., van Wijk M.T., **Zingore S.** 2006. Manure as a key resource to sustainability of smallholder farming systems in Africa: An introduction to the NUANCES framework In: 12th RAMIRAN conference Technology for recycling of manure and organic residues in a whole-farm perspective, Aarhus, Denmark, 11 - 13 September, 2007, Horsens, Denmark, pp. 1-6.
6. Magreta R., **Zingore S.** and Magombo T. 2010. When the Weak Win: Role of Farmer Groups in Influencing Agricultural Policy Outcome; a Case of Nkhate Irrigation Scheme in Malawi. Proceeding of the African Association of Agricultural Economists 48th Conference, September 19-23, 2010, Cape Town, South Africa.
7. Magreta R., **Zingore S.** and Magombo T. 2010. Analysis of Effective Market Linkages in Promoting Investments in Natural Resource Management in the Rice-Based Farming System in Malawi: A Case of Nkhate Irrigation Scheme. Innovation and Sustainable Development in Agriculture and Food Conference – ISDA, 28 July-1 August 2010, Montpellier, France.
8. **Zingore S.** 2011. Maize Productivity and Response to Fertilizer Use as Affected by Soil Fertility Variability, Manure Application, and Cropping System. *Better Crops* 95: 4-6.
9. Vanlauwe B. and **Zingore S.** 2012. Integrated Soil Fertility Management: An Operational Definition and Consequences for Implementation and Dissemination. *Better Crops* 95: 5-7.

10. **Zingore S.** and Giller K.E. 2012. Optimizing Phosphorus and Manure Application in Maize-Soybean Rotations in Zimbabwe. *Better Crops* 96: 23-25.
11. Johnston A. and Zingore S. 2012. IPNI Approach to Nutrient Management in sub-Saharan Africa. Proceedings of the Arab Fertilizer Association International Annual Fertilizer Forum & Exhibition, 7-9 February 2012.

SELECTED ORAL PRESENTATIONS AT MAJOR INTERNATIONAL MEETINGS (2010-2013)

1. **Keynote Address:** Integrated Soil Fertility Management: A basis for sustainable smallholder farming systems. Kenya Agricultural Research Institute Biannual Science Conference, 12 November 2010.
2. **Keynote Address:** *Smart fertilizers and farmers' fertilizer needs.* Global soil fertility seminar: The role of Next generation smart fertilizers. Wageningen University, 21 March 2011.
3. **Keynote Address:** *A farming systems and nutrient management perspective to sustainable biomass for fuel production in Africa.* 10th Africa Crop Science Society - Opportunities and Constraints for Biofuel Production in Africa Workshop, Maputo, 11 October 2011.
4. Effects of fertilizer & organic resource management practices on crop productivity & NUE in Africa. 5th International Nitrogen Conference, Delhi, 6 December 2010.
5. Diagnosis and Correction of Soil Health Problem in sub-Saharan Africa. Africa Fertilizer Conference & Exhibition, Marakesh, 11 March 2011.
6. *The 4R Nutrient Stewardship in the context of smallholder farming systems in Africa.* Consortium for Improving Agriculture-based Livelihoods in Central Africa (CIALCA) International Conference, Kigali, 17 October 2011.
7. *The IPNI Africa Program.* IFA Africa Forum Meeting, Doha, 24 May 2012.
8. *The status of cereal crop yields, potential yields and yield gaps in sub-Saharan Africa.* European Agronomy Society, Helsinki, 20 August 2012.
9. *Maize productivity and response to fertilizer use as affected by soil fertility variability, manure application and cropping system in Africa.* Tropentag Conference, Gottingen, 1 September 2012.
10. Building Fertilizer Recommendations to Support ISFM Nutrient Expert Decision Support System. Integrated Soil Fertility Management Conference, Nairobi, 24 October 2012.