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**SIEGLINDE SNAPP – PROFESSOR OF AGROECOLOGY**

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**EDUCATION**

Ph.D. 1992, Plant Physiology, University of California, Davis, CA  
 M.S. 1985, Crop Physiology, University of Minnesota, St. Paul, MN  
 B.S. 1983, Agronomy and Soil Science, Washington State University,

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**PROFESSIONAL EXPERIENCE**

**Associate Director**, Center for Global Change and Earth Observation and  
**Professor** of Soils and Cropping Systems Ecology, Department of Plant, Soil and Microbial  
 Sciences, Michigan State University **2015-Current**

*Interests: International agricultural systems, sustainable crop management for food security, and research on perennializing grain production, functional combinations of multipurpose crops for soil carbon, nitrogen fixation and nutrient cycling. Simulation modeling linked to on-farm experimentation, and long-term field trials on management, climate change adaptation and resilience. Participatory action research, and innovative extension approaches in Africa.*

**Professor**, Soils and Cropping Systems Ecology, Kellogg Biological Station and Department  
 of Plant, Soil and Microbial Sciences, Michigan State University **2011-2014**

**Associate Professor**, Soils and Cropping Systems Ecologist **2006-2011**

**Associate Professor**, Integrated Vegetable Systems, Departments of Horticulture and  
 Crop and Soil Science, Michigan State University **2004-2006**

**Assistant Professor** (1999-2004). Vegetable Integrated Crop Management, 50%  
 Research/50% Extension. *Departments of Horticulture and Crop and Soil Sciences,*  
*Michigan State University, East Lansing, MI.* Co-taught Plant Mineral Nutrition HRT 853,  
 and contributed lectures in: Hrt 341, CSS 101 and ANP859.

**International Crop and Soil Scientist** (1996-1999). International Crops Research Institute for the  
 Semi-Arid Tropics (ICRISAT), Lilongwe, Malawi.

**Soil Scientist and Agronomist Fellow, The Rockefeller Foundation** (1993 - 1996). Lilongwe,  
 Malawi. Adjunct Assistant Professor, University of Malawi, Taught graduate courses in soil biology  
 and fertility and cropping system ecology, co-supervised 3 graduate students. Visiting Research Fellow  
 (7/94-9/94) International Center for Tropical Agriculture (CIAT) Cali, Columbia.

**Post Doctoral Researcher** (1992-1993). **The Pennsylvania State University.**

**Research Assistant** (1987-1991). **Univ. of California, Davis.**

**NSF Fellow and Research Assistant** (1983-1986). **Univ. of Minnesota.**

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**CURRENT RESEARCH**

International agricultural system design and sustainable intensification of field crops for a changing  
 climate. Understanding factors driving land management in tropical Africa and processes that can be  
 harnessed for sustainable production. Integrated nutrient management through legumes, multipurpose

shrubs and cover crops for nutrient efficiency, carbon assimilation and soil function. Scaling out through participatory, adaptive extension and action education. Pioneered participatory research methods such as the mother/baby trial design for on-farm research and impact. Currently advise 5 graduate students, member of 8 graduate committees, and supervise two postdoc. research associates.

### ***CURRENT TEACHING***

Co-developed MSU Graduate specialization in Ecological Food and Farming Systems (EFFS) and multidisciplinary, university-wide undergraduate minor in Sustainable Agriculture and Food Systems (SAFS). Teach Agricultural Systems CSS431 and International Agriculture Seminar CSS 294, and occasionally teach Sustainable Agriculture Experience Seminar CSS/ACR 892B.

### ***HONORS AND PROFESSIONAL ACCOMPLISHMENTS***

- 2016 **Fulbright Fellowship**
- 2016 **Member of Editorial Board, Global Food Security**
- 2015 **International Service in Agronomy Award**, American Society of Agronomy
- 2015 Invited speaker, AAAS Sustainable Intensification Indicators Symposium, 12-14 Feb., San Jose, CA
- 2014 Invited speaker, AAAS Perennial Grains for Food and Environmental Security Symposium, American Association for the Advancement of Science Annual Meeting, 13-17 Feb., Chicago, IL
- 2013 E-conference lead discussant and author of a review on Sustainable Intensification for USAID new Innovation Lab on Sustainable Intensification, June 18-20.  
Keynote speaker, Launch, Global Center for Food Systems Innovation, MSU, March 21  
Invited speaker, AAAS Sustainable Intensification for Africa Symposium, 14-18 Feb., Boston, MA
- 2012 Plenary speaker at 40<sup>th</sup> Anniversary Science Symposium, ICRISAT, Hyderabad, India  
Multinational Exchange for Sustainable Agriculture, Board member
- 2011 USDA-ARS External reviewer for Systems Program 216  
USAID Co-led external review of CSISA rice-wheat conservation project
- 2010 Elected **Fellow of the American Society of Agronomy**
- 2009 **Fulbright Fellowship**
- 2008 **John K. Hudzik Emerging Leader in International Studies Award**, MSU  
USDA NRI- Managed Ecosystem Review Panel member
- 2006 - current **Associate Editor, Agronomy Journal**  
External Reviewer of long-term research for University of Uppsala, Sweden
- 2005 President, Soil Organic Matter Regional Research Committee, NCR59
- 2004 McKnight Foundation External Reviewer on Legume Biodiversity for Africa
- 2003 Chair, Organic Committee, American Society of Horticultural Science  
McKnight Foundation External Reviewer for Latin America Agricultural Projects
- 2002 - 09 **Associate Editor, Field Crops Research**
- 2000 External Reviewer for Zimbabwe Agriculture Program, The Rockefeller Foundation
- 1991 Outstanding PhD Graduate Student, Vegetable Crops Dept., UC Davis  
Storkan Disease Foundation Research Fellowship
- 1990 University of California Regents Fellowship
- 1989 John Moran Grant-in-Aid Scholarship; Jastro-Shields Research Scholarship
- 1983 - 86 National Science Foundation Predoctoral Fellowship  
Vice-President, Sustainable Agriculture Club, University of Minnesota
- 1983 Outstanding Agronomy Senior, Washington State University  
President, Agronomy Club; Alpha Zeta; Magnuson Scholarship  
President and Co-founder of Student Chapter of Tilth
- 1982 Washington State University undergraduate research award  
Scholarships: Frank Feenan, Lindahl Memorial, Max Hinrichs Sr.
- 1981 American Society of Agronomy National Undergraduate Essay Contest Winner

**BOOKS**

- Snapp, S.S.** and B. Pound (Eds.) 2016. *Agricultural Systems: Agroecology and Rural Innovation for Development*. Second Edition. Academic Press. 440 pp.
- Snapp, S.S.** and B. Pound (Eds.) 2008. *Agricultural Systems: Agroecology and Rural Innovation for Development*. Academic Press. 370 pp.
- Pound, B. S.S. **Snapp, C.** McDougal and A. Braun (Eds.) 2003. *Uniting Science and Participation: Managing Natural Resources for Sustainable Livelihoods*. Earthscan, U.K. and IRDC, Canada

**JOURNAL PUBLICATIONS****Manuscripts submitted**

- Grabowski, P., L. Schmitt Olabisi, J.A. Adebisi, K. Waldman, S.S. **Snapp** and R. Richardson. Assessing the potential for agricultural technology adoption using system dynamics and choice experiments: The case of perennial pigeonpea in Malawi. *Ecological Economics*, Ms. in review
- Williams, A., M.C. Hunter, M. Kammerer, D. Kane, N. Jordan, D. Mortensen, R.G. Smith, S. **Snapp**, and A. Davis. Soil water holding capacity mitigates production downside risk and volatility in US rainfed maize: Time to invest in soil organic matter. *Nature Climate Change*, Ms in review.
- Williams, A., A. Davis, L. Jilling, A.S. Grandy, R. Koide, D. Mortensen, R. Smith, S. **Snapp**, K. Spokas, A. Yannarell, and N. Jordan. Reconciling opposing soil processes in row-crop agroecosystems via soil functional zone management. *J. of Applied Ecology*, Ms in review.
- Smith, A., S.S. **Snapp**, R. Chikowo, P. Thorne, M. Bekunda and J. Glover. Measuring sustainable intensification in smallholder agroecosystems: A review. *Global Food Security*, Ms. in review.
- Rogé, P., S.S. **Snapp**, M.K. Kakwera, L. Mungai, I. Jambo and B. Peter. Opportunities for perennial food crops in Malawi: A review. *Agronomy and Sustainable Development*, Ms. in review.
- Williams, A., A. Davis, P. Ewing, L. Atwood, A. Jilling, D. Kane, M. Li, Y. Lou, A.S. Grandy, S. Huerd, M. Hunter, R. Koide, D. Mortensen, R. Smith, S. **Snapp**, K. Spokas, A. Yannarell, and N. Jordan. Precision control of soil nitrogen cycling via soil functional zone management *Agric. Ecosyst and Environ.* Ms in review
- Rogé, P., T. Diarisso, F. Diallo, Y. Boiré, D. Goïta, B. Peter, M. Macalou, E. Weltzien and S.S. **Snapp**. Perennial grain crops in the West Soudanian Savanna of Mali: Perspectives from agroecology and gendered spaces. *International Journal of Sustainable Agriculture*, Ms in review.
- Droppelmann, K.J., S.S. **Snapp** and S. Waddington. Sustainable intensification technologies for smallholder maize-based farming systems in Sub-Saharan Africa *Food Security*, Ms. in review.
- Waldman, K.B., Ortega, D.L., Richardson, R.B., S.S. **Snapp**. Estimating demand for perennial pigeon pea in Malawi using choice experiments. *Ecological Economics*, Ms. in review
- Isaac, K. S.S. **Snapp**, L. Butare, and J. Kelly. Genotype by cropping system interactions in climbing bean and maize associations in Northern Province, Rwanda. *International Journal of Sustainable Agriculture* Ms. in review
- Isaac, K., S.S. Snapp, J. Kelly and K. Chung. Farmer knowledge identifies a competitive bean ideotype for maize-bean intercrop systems in Rwanda. *Agriculture and Food Security*, Ms in review.

**Published or in press (99 referred journal articles)**

- Kane, D., P. Roge, S.S. **Snapp**. 2016. Perennial grains: A bibliometric and topic modeling analysis of exisiting literature. *PLOSOne* In press.
- Jaikumar, N., S.S. **Snapp** and T.D. Sharkey. Older *Thinopyrum intermedium* (Poaceae) plants exhibit lower maximal photosynthetic capacity but superior photosynthetic acclimation to cold stress compared to young plants. *Journal of Experimental Botany*, in press.

- Isaac, K., S.S. **Snapp**, K. Chung and K. Waldman. 2016. Assessing the value of diverse cropping systems under a new agricultural policy environment in Rwanda. *Food Security*, in Press.
- Snapp**, S.S., T.S. Jayne, W. Mhango, T. Benson and J. Ricker-Gilbert. Coming to grips with fertilizer efficiency on researcher- vs. farmer-managed fields. *Global Food Security*, in press.
- Williams, A., Davis, A.S., Ewing, P.M., Grandy, A.S., Kane, D.A., Koide, R.T., Mortensen, D.A., Smith, R.G., **Snapp**, S.S., Spokas, K.A., Yannarell, A.C. and Jordan, N.R. 2016. A comparison of soil hydrothermal properties in zonal and uniform tillage systems across the US Corn Belt. *Geoderma*, 273:12-19.
- Guiying, L. J.P. Messina, S.S. **Snapp**. Mapping marginal land distribution in Malawi through assessment of agricultural land suitability. 2017. *Land Degradation and Development* Ms. in press.
- Ortega, D.L., Waldman, K.B., Richardson, R.B., Clay, D., and S.S. **Snapp**. 2017. Sustainable intensification and farmer preferences for crop system attributes: Evidence from Malawi's Central and Southern regions. *World Development*, Ms. in press.
- Messina, J.P. Suepa, T., **Snapp**, S., Olson, J.M., Nejadhashemi, A.P., Murray, S., Moore, N., Frake, A.N., Fan, P., and U. Adhikari. 2017. Food system resilience and sustainability in Cambodia. *International Journal of Applied Geospatial Research*, 8:3 Note 4
- Smith, A., S.S. **Snapp**, J. Dimes, C. Gwenambira and R. Chikowo. 2016. Doubled-up legume rotations improve soil fertility and maintain productivity under variable conditions in maize-based cropping systems in Malawi *Agric. Systems*, 145:139–149.
- Hossard, L., D.W. Archer, M. Bertrand, C. Colnenne-David, P. Debaeke, M. Ernfors, E.S. Jensen, M.H. Jeuffroy, N. Munier-Jolain, C. Nilsson, G.R. Sanford, S.S. **Snapp**, and D. Makowski. 2016. A meta-analysis of maize and wheat yields in low-input vs. conventional and organic systems. *Agronomy J.*, in press
- Williams, A., D. Kane, P. Ewing, L. Atwood, A. Jilling, M. Li, Y. Lou, A. Davis, A.S. Grandy, S. Huerd, M. Hunter, R. Koide, D. Mortensen, R. Smith, S. **Snapp**, K. Spokas, A. Yannarell, and N. Jordan. 2016. Soil functional zone management: a vehicle for enhancing production and soil ecosystem services in row-crop agroecosystems. *Frontiers in Plant Science* 7: In press. Doi:10.3389/fpls.2016.00065
- Adebisi, J.A., L. Schmitt Olabisi, S.S. **Snapp**. 2015. Understanding perennial wheat adoption as a transformative technology: Evidence from the literature and farmers. *Renewable Agriculture and Food Systems* In press doi:10.1017/S1742170515000150
- Negassa, W.C., S. Kravchenko, A. Basir, R. Price and S.S. **Snapp**. 2015. Cover crop and tillage systems effect on soil CO<sub>2</sub> and N<sub>2</sub>O fluxes in contrasting topographic positions. *Soil and Tillage Research Journal*. 154:64-74.
- Petersen, B. and S.S. **Snapp**. 2015. What is sustainable intensification: Views from experts. *Land Use Policy* 46:1-10 doi:10.1016/j.landusepol.2015.02.002
- Kurwakumire, N., R. Chikowo, S. Zingore, P. Mapfuma, F. Mtambanegwe, A. Johnston, and S.S. **Snapp**. 2015. Nutrient management strategies on heterogeneously fertile granitic-derived soils in sub-humid Zimbabwe. *Agronomy J.* 107:1068-1076. doi:10.2134/agronj14.0466
- Kane, D., **Snapp**, S.S. and A. Davis. 2015. Ridge tillage concentrates potentially mineralizable soil N in the crop row, facilitating maize N uptake. *Soil Sci. Soc. Am.* 79:81-88.
- Birge, H. E., Conant, R. T., Follett, R. F., Haddix, M. L., Morris, S. J., **Snapp**, S. S., Wallenstein, M. D., and Paul, E. A. 2015. Soil respiration is not limited by reductions in microbial biomass during long-term soil incubations. *Soil Biology and Biochemistry* 81:304-310.
- Snapp**, S.S. and M. Fisher. 2015. Filling the maize basket supports crop diversity and quality of household diet in Malawi. *Food Security* 7: 83-96. DOI 10.1007/s12571-014-0410-0
- Nin, H., Grandy, S., Wickings, K., S.S. **Snapp**, W. Kirk, J. Hao. 2015. Compost effects on potato productivity and quality are related to changes in soil microbial dynamics, *Plant and Soil* 386:223-236.
- Gallagher, M.E., Masiello C.A., Hockaday, W.C., Baldock, J.A., **Snapp**, S., and McSwiney C.P. 2014. Controls on the oxidative ratio of agricultural ecosystems. *Biogeochemistry* 121:581-594.
- Fisher, M. and S.S. **Snapp**. 2014. Can adoption of modern maize help smallholder farmers manage drought risk? Evidence from southern Malawi. *Experimental Agriculture*, 50:533-548.

- Chikowo, R., Zingore, S., **Snapp**, S.S., and Johnston, A. 2014. Farm typologies, soil fertility variability and nutrient management in smallholder farming in sub Saharan Africa. *Nutrient Cycling Agroecosystems* 100:1-18.
- Robertson, G.P., K. Gross, S. Hamilton, D. Landis, T. Schmidt, S. **Snapp** and S. Swinton. 2014. Farming for services: An ecological approach to production agriculture. *Bioscience*. 64:404-415.
- Kurwakumire, N., R. Chikowo, F. Mtambanengwe, Paul M., S. **Snapp**, A. Johnston, S. Zingore 2014. Maize productivity and nutrient and water efficiency across soil fertility domains on smallholder farmers in Zimbabwe. *Field Crops Research* 164:136-147
- Smith, R., Davis, A., Jordan, N., Atwood, L., Daly, A., Grandy, S., Hunter, M., Koide, R., Mortensen, D., Ewing, P., Kane, D., Li, M., Lou, Y., **Snapp**, S., Spokas, K., and Yannarel, A. 2014. Structural equation modeling facilitates transdisciplinary research on agriculture and climate change. *Crop Science* 54: 475-483.
- Ollenburger, M. and S.S. **Snapp**. 2014. Model applications for sustainable intensification of African water-limited cropping systems in a changing world. *Advances in Modeling*. 5:375-398.
- Munoz, J.D., J.P. Steibel, S.S. **Snapp**, and A.N. Kravchenko. 2014. Cover crop effect on corn growth and yield in agricultural fields with diverse terrain. *Agric. Ecosystems and Environment* 189:229-239.
- Snapp**, S.S., R. Bezner Kerr, A. Smith, M. Ollenburger, W. Mhango, L. Shumba, T. Gondwe and G.Y. Kanyama-Phiri. 2014. Modeling and participatory, farmer-led approaches to food security in a changing world: a case study from Malawi. *Scheresse* 24:350-358.
- Jaikumar, N.S., S S **Snapp**, J. A. Flore, and W. Loescher. 2014. Source versus sink regulation of photosynthesis in annual rye, perennial wheat and perennial rye subjected to modest source/sink ratio changes *Crop Science* 54: 274-283
- Jaikumar, N., S S **Snapp**, T.D. Sharkey, and J. A. Flore. 2013. Life history and resource acquisition: Photosynthetic traits in three perennial cereal species compared to annual cereal relatives. *American J. Botany* 100:2468-2477
- Kadyampakeni, D.M., H.R. Mloza-Banda, D.D. Singa, J.H. Mangisoni, A. Ferguson and S. **Snapp**. 2013. Agronomic and socio-economic analysis of water management techniques for dry season cultivation of common bean in Malawi. *Irrig. Sci.* 31:537-544.
- Grandy, A.S., Salam, D.S., Wickings, K. McDaniel, M., Culman, S.W., and **Snapp**, S.S. 2013. Soil respiration and litter quality responses to nitrogen fertilization rate in no-till corn systems. *Agriculture, Ecosystem and Environment* 179:35-40
- Gallaher, C. and S.S. **Snapp**. 2013. Organic management and legume presence maintained phosphorus bioavailability in a 17-year field crop experiment. *Renewable Agriculture and Food Systems* 30:211-222.
- Gentry, L.E., S.S. **Snapp**, R.F. Price, and L.F. Gentry. 2013. Apparent red clover nitrogen credit to corn: Evaluating cover crop introduction *Agronomy J.* 105:1658-1664.
- Culman, S.W., S.S. **Snapp**, M. Ollenburger, B. Basso and L.R. DeHaan. 2013. Soil and water quality rapidly responds to the perennial grain Kernza wheatgrass. *Agronomy J.* 105:735-744.
- Culman, S.W., S.S. **Snapp**, L.E. Gentry and J. Green. 2013. Short and long-term dynamics of labile soil C and N pools reflect management and predict corn agronomic performance. *Agronomy J.* 105:493-502.
- Jaikumar, N., S.S. **Snapp**, K. Murphy, and S. Jones. 2012. A field assessment of the agronomic potential of two novel perennial cereal crops. *Agronomy J.* 104:1716-1726.
- Brainard, D., B. Henshaw, and S.S. **Snapp**. 2012. Hairy vetch varieties and bi-cultures influence cover crop services in strip-tilled sweet corn. *Agronomy J.* 104:629-638.
- Lunduka, R., Fisher, M. and S.S. **Snapp**. 2012. Could farmer interest in a diversity of seed attributes explain adoption plateaus for modern maize varieties in Malawi? *Food Policy* 37:504-510.
- Mhango, W. S.S. **Snapp** and G. Y. Kanyama-Phiri. 2013. Opportunities and constraints to legume diversification for sustainable cereal production on African smallholder farms. *Renewable Agriculture and Food Systems* 28:234-244.
- Culman, S., S.S. **Snapp**, Schipanski, M.E., Freeman, M.A. Beniston, J., Drinkwater, L.E., Franzluebbers, A.J., Glover, J.D., Grandy, S.A., Lal, R., Juhwan, L., Maul, J.E., Mirksy, S.B., Six,

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- Gallagher, M.E., Hockaday, W.C., Masiello C.A., **Snapp**, S., McSwiney C.P., and Baldock, J.A. 2011. Biochemical suitability of crop residues for cellulosic ethanol: disincentives to nitrogen fertilization in corn agriculture. *Environ. Science and Technology* 45:2013-2020.
- Snapp**, S. S. M.J. Blackie, R.A. Gilbert, R. Bezner-Kerr, and G.Y. Kanyama-Phiri. 2010. Biodiversity can support a greener revolution in Africa. *PNAS* 107: 20840-20845.
- Glover, J.D., Reganold, J.P., Bell, L.W., Borevitz, J., Brummer, E.C., Buckler, E.S., Cox, C.M., Cox, T.S., Crews, T.E., Culman, S.W., DeHaan, L.R., Eriksson, D., Gill, B.S., Holland, J., Hu, F., Hulke, B.S., Ibrahim, A.M.H., Jackson, W., Jones, S.S., Murray, S.C., Paterson, A.H., Ploschuk, E., Sacks, E.J., **Snapp**, S., Tao, D., Van Tassel, D.L., Wade, L.J., Wyse, D.L., Xu, Y. 2010. Increasing food and ecosystem security through perennial grain breeding. *Science* 328:1638-1639. (*plus response*: Glover et al., 2010. Additional implications of perennial bioenergy crops: hydrology and climate. *Science* 330:33-34.)
- Snapp**, S.S., L. Gentry, and R.R. Harwood. 2010. Management intensity - not biodiversity –the driver of ecosystem services in a long-term row crop experiment. *Agric. Ecosystems and Environment* 138:242-248.
- Gelfand, I., S. S. **Snapp** and G.P. Robertson. 2010. Energy efficiency of conventional, organic, and alternative cropping systems at a site in the US Midwest. *Environ. Science and Technology* 44:4006-4011.
- McSwiney, C.P., S.S. **Snapp** and L.E. Gentry. 2010. Use of N immobilization to tighten the N cycle in conventional agroecosystems. *Ecological Applications* 20:648-662.
- Beedy, T.L., S.S. **Snapp**, F.K. Akinnifesi and G.W. Sileshi. 2010. Long-term impact of *Gliricidia sepium* intercropping and inorganic fertilizer on soil organic matter fractions in maize-based cropping systems. *Agric. Ecosystems and Environment* 138:139-146.
- Po, E.A., S.S. **Snapp**, A.N. Kravchenko. 2010. Potato response to soil physical, chemical and spectral characteristics in intensively managed commercial fields. *Agronomy J.* 102:885-894. (selected as a Science in Action Press Release by American Society of Agronomy)
- Sirrine, D., C. Shennan, S.S. **Snapp**, G. Kanyama-Phiri, and B. Kamanga. 2010. Agroforestry, risk and vulnerability in Southern Malawi: improving recommendations resulting from on-farm research. *International Journal of Agricultural Sustainability* 8:290-304.
- Cichy, K.A., G.V. Caldas, S.S. **Snapp** and M.W. Blair. 2009. QTL analysis of seed iron, zinc, and phosphorus levels in an Andean bean population. *Crop Science* 49:1742-1750.
- Po, E.A., S.S. **Snapp** and A.N. Kravchenko. 2009. Rotational and cover crop determinants of soil structural stability and carbon in a potato system. *Agronomy J.* 101:175-183 (selected as a Science in Action Press Release by American Society of Agronomy)
- Cichy, K.A., M.W. Blair, C. Galeano, S.S. **Snapp** and J.D. Kelly. 2009. QTL analysis of root architecture traits and low phosphorus tolerance in an Andean bean population. *Crop Science* 49: 59-68
- Huang, J. and S.S. **Snapp**. 2009. Potassium and boron nutrition enhance fruit quality in Midwest fresh market tomatoes. *Communications in Soil Science Plant Nutrition* 40:1937-1952.
- Cichy, K.A., S.S. **Snapp** and M.W. Blair. 2008. Plant growth habit, root architecture traits and tolerance to low soil phosphorus in an Andean bean population. *Euphytica* 165:257-268.
- Snapp**, S.S., R. Price and M Morton. 2008. Seed priming enhances germination and emergence of winter annual cover crops. *Agronomy J.* 100:1506-1510
- Wilke, B.J. and S.S. **Snapp**. 2008. Winter cover crops for local ecosystems: Linking plant traits and ecosystem function. *J. Sci. Food Agric.* 88:551-557.
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- Cichy, K A., S.S. **Snapp** and W.W. Kirk. 2007. Root versus shoot genotype and root traits in common bean *Plant Soil* 300:233-244.
- Snapp**, S.S., K. Date, W.W. Kirk, K. O'Neil, A. Kremen and G. Bird. 2007. Root and shoot tissues of *Brassica juncea* and *Cereal secale* promote a healthy potato rhizosphere. *Plant and Soil* 294:55-72

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- Kravchenko, A.N., G.P. Robertson, S.S. **Snapp**, and A.J.M. Smucker. 2006. Using information about spatial variability to improve estimates of total soil carbon. *Agron. J.* 98:823-829
- Douches, D.S., J. Coombs, R. Hammerschmidt, W.W. Kirk, C. Long, S. **Snapp**, B. Kudwa, D. Flannery and T. Bourgoïn. 2006. Beacon Chipper: A round white chip-processing potato variety. *Amer. J. Potato Res.* 83:241-247.
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- Snapp**, S.S., S.M. Swinton, R. Labarta, D.R. Mutch, J.R. Black, R. Leep, J. Nyiraneza and K. O'Neil. 2005. Evaluating benefits and costs of cover crops for cropping system niches. *Agronomy Journal* 97:322-332
- Snapp**, S.S. and H. Borden. 2005. Enhanced nitrogen mineralization in mowed or glyphosate treated cover crops compared to direct incorporation. *Plant and Soil* 270:101-112.
- Long, C., **Snapp**, S.S., D. Douches and R. Chase. 2005. Tuber yield, storability and quality of Michigan cultivars in response to nitrogen fertility and seed-piece spacing. *American Journal of Potato Research* 81:347-357
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### ***EXTENSION PROGRAMMING AND PUBLICATIONS***

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Developed and extend novel participatory research and extension methods including on-farm research trial designs which have been adopted by scientists and extension educators in more than 30 countries in Africa and Southeast Asia.

<http://globalchangescience.org/eastafricanode/>

**Web-based.** Participate in eXtension communities of practice for developing new crops, soil management and cover crops, and developed extension materials:

<http://www.extension.org/pages/61075/managing-for-soil-organic-matter>

**Founding member**, Perennial grain research and outreach community of the American Society of Agronomy

**Perennial grain website** <http://pwheat.anr.msu.edu/>

<http://www.fao.org/agriculture/crops/thematic-sitemap/theme/spi/fao-expert-workshop-on-perennial-crops-for-food-security/en/>

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#### ***GRANT SUPPORT (12 MILLION)***

2017	Fulbright Fellowship: 'Citizen science with East African farmers'
2016-2018	Jumpstarting soybean production: on-farm epidemiology of tillage, soil properties, plant stand and yield' S. Snapp and J. DeDecker, GREENE \$105,000 (including MSUE match)
2016-2018	CERES Trust 'Grain and forage from intermediate wheatgrass' S. Snapp, K. Cassida and University of Minnesota C. Sheaffer, \$39,900 (MSU)
2015- 2019	USAID Sustainable Intensification Innovation Lab, Kansas State University 'Raising crop response: bidirectional learning to catalyze sustainable intensification at multiple scales' \$996,764 (S. <b>Snapp</b> PI, T. Jayne and N. Mason MSU co-PIs, K. Giller Wageningen University, Jean-Claude Rubyogo CIAT, N. Kassim, NMAIST, and H. Tindwa, Sokoine University of Agriculture, Tanzania)
2015-2019	Strengthening Agricultural and Nutrition Extension Systems in Malawi (SANESA), USAID funded, Univ. Illinois lead, MSU subcontract (S.Snapp PI, T. Jayne Co-PI, \$800,500)
2015-2016	USAID Sustainable Intensification Innovation Lab, Kansas State University 'Sustainable Intensification Indicators: Are we there yet?' (S. <b>Snapp</b> PI MSU, C. Palm PI Columbia University, \$140,000 MSU)
2012-2017	Global Center for Food Security and Innovation (E Crawford PI, 8 co-PIs including S. Snapp) USAID \$24,919,790
2013-2015	Bill and Melinda Gates Foundation 'Systems analysis of perennial grain crops for African smallholder farming systems' \$1,498,000 PI S. <b>Snapp</b>

- 2011-2016 USAID (subcontract with IITA) ‘Sustainable intensification of maize based systems in SE Africa’ \$1,800,000 PI **S. Snapp**
- 2011-2014 CERES Trust ‘Mycorrhizal role in organic row crop production long-term experimentation’ \$100,000 PI S. **Snapp**
- 2011-2015 USDA-AFRI ‘Precision zonal management systems for resilient cereal yields and ecosystem services under variable climates’ PI N. Jordan \$4,500,000 Univ Minn. (\$670,000 co-PI S. **Snapp**)
- 2010-2014 McKnight Foundation \$430,000 ‘Legume Best Bets Two: For a Changing World’ PI G. Kanyama-Phiri (\$140,000 Co-PI S. **Snapp**).
- 2009-2016 CERES Trust ‘Fostering complex soil food webs and building soil fertility with organic production: the potential of perennial wheat’ \$335,000 PI S. **Snapp**
- 2009-2012 EPA-Enhancing Ecosystem Services from Agricultural Lands. ‘Row-crop ecosystems in a changing climate: enhancing ecosystem services at field, farm, and watershed scales.’ PI A. Kravchenko. 485,000 (Co-PI S. **Snapp** \$47,000)
- 2009-2010 Fulbright Fellowship: Diversity Dimensions of Healthy Agroecosystems in Malawi
- 2009-2013 CSREES – USDA OREI \$1,050,000 ‘Practical Perennials: Partnering with farmers to develop a new wheat crop’ PI S. **Snapp** (Co-PI S. Swinton)
- 2008-2015 NSF funded Long-term ecological research LTER-Row Crop KBS \$35,000 annually to Snapp (1 million annually, PI P Robertson, Co-PIs S. **Snapp** and five others)
- 2009-2011 USDA Sustainable Agriculture Grant to MSU \$75,000 ‘Perennial wheat variety development for organic farmers’ PI J. Lewis (\$35,000 Co-PI S. **Snapp**)
- 2007-2009 USDA Sustainable Agriculture Grant to MSU \$55,000 ‘Living cover at scale: understanding variability to promote sustainable production practices’ PI A. Kravchenko (\$15,000 Co-PI S. **Snapp**)
- 2008-2010 GREEN Michigan Initiative \$95,000 ‘Best management practices for stover harvest in continuous and rotated corn cropping systems’ co-PIs L. Gentry and S. **Snapp**
- 2008-2010 USDA Sustainable Agriculture Grant to MSU \$55,000 ‘Decomposition dynamics and nutrient availability associated with organic and inorganic nutrient management’ PI A.S. Grandy (\$20,000 Co-PI S. **Snapp**)
- 2008-2010 USDA Sustainable Agriculture Grant to MSU \$50,000 ‘Energy conserving rye-vetch cover crop mixtures for strip-tilled sweet corn: quantifying weed and soil fertility tradeoffs’ PI D. Brainard (\$15,000 S. **Snapp**)
- 2008-2009 McKnight Foundation \$34,100 ‘Graduate student technical support to ALIVE Legume Diversification Project’ PI S. **Snapp**
- 2007-2008 Borlaug LEAP fellowship to African Scientists \$20,000 ‘Seeds Systems in Mali – Marthe Diallo’ PI S. **Snapp**
- 2006-2009 McKnight Foundation \$420,000 ‘Legume Best Bets to Acquire Phosphorus and Nitrogen and Improve Family Nutrition’ PI G. Kanyama-Phiri (\$170,000 Co-PI S. **Snapp**).
- 2004 – 2008 CSREES – USDA \$754,000 ‘Partnering to Cultivate Organic Agriculture in Michigan and the Midwest’ PI S. **Snapp** (Co-PIs D. Mutch, J. Bingen, J. Biernbaum, M. Ngouajio and M. Brewer).
- 2005 – 2009 NSF – Biocomplexity Program \$223,000 Co-PI S. **Snapp** ‘Understanding linkages between human and biogeochemical processes in agricultural landscapes’ (Lead PI Cornell University L. Drinkwater total \$1,380,000)
- 2005 - 2007 USDA Sustainable Agriculture Grant to MSU \$57,000 ‘Filling the niche: cultivars and management that improve winter cover’ PI S. **Snapp**
- 2001 – 2005 IFAFS - USDA \$488,000 ‘Reintegration of crop and livestock enterprises in three Northern states’ PI S. Snapp, Co-PI J.R. Black (Lead PI Univ. Maine S. Smith total \$1,650,000)
- 2003 - 2004 GREEN Michigan Initiative \$33,000 ‘Improving fruit quality and reducing tomato shoulder check defects by spraying calcium and boron solutions’ PI S. **Snapp**, Co-PI J. Huang

- 2003 - 2005 USDA Sustainable Agriculture Grant to MSU \$57,000 'Healthy roots for sustainable agriculture: Quantifying the effect of cover crops and composts on root traits, disease and nematodes' PI S. **Snapp**
- 2000 – 2003 Michigan Potato Industry Commission 'Optimizing nitrogen nutrition in potatoes – Is spoon feeding through manure or slow release fertilizers the answer?' 'Understanding potato yield variability' PI S. **Snapp**  
\$25,600 + \$18,000 + \$12,000 = \$55,600
- 2002 – 2003 USDA Sustainable Agriculture Grant to MSU \$52,000 'Best bet' cover crops: quantifying nutrient credits and performance for Michigan vegetable systems PI D. Mutch, Co-PI S. **Snapp** Collaborators R. Goldy, M. Hausbeck
- 2001 – 2004 GREEN Michigan Initiative \$69,000 PI S. **Snapp**, collaborators J. Brienling, D. Smucker 'Promoting cover crops for resilient and efficient vegetable systems'
- 2001 – 2004 GREEN Michigan Initiative \$70,500 PI S. **Snapp**, collaborators W. Kirk, J. Kelly 'Tackling soil-borne diseases in bean through integrated management'
- 2001 - 2003 USDA Sustainable Agriculture Grant to MSU (Ecological Integration of Soil, Plants and Animals Special Grant, USDA) \$44,700 'Quantifying benefits and costs of cover crops in irrigated systems' PI S. **Snapp**, Collaborator S. Swinton
- 2002-2003 Michigan SWMREC - \$7,600 'High quality fruit through improved nutrient regimes' Continued in 2003-2004 for \$10,200. PI S. **Snapp**
- 2001-2002 Michigan SWMREC \$10,000 'Superior spuds: cover crop systems and tuber protection for quality potato and processing vegetables.' PI S. **Snapp**
- 2000 – 2002 GREEN Michigan Initiative \$84,000 to **Snapp**, total of \$220,000; PI M. Hausbeck, Co-PIs S. Snapp Reducing Fruit Defects Affecting Fresh Market Tomatoes'
- 1999-2002 DFID, U.K. \$292,000 PI S. **Snapp** and Co-PI D. Rohrbach 'Will Women Farmers Invest in Improving their Soil Fertility Management?' DFID, U.K.
- 1997-1999 The Rockefeller Foundation \$264,000 PI S. **Snapp** "Soil Fertility Technologies to Improve Smallholder Productivity"
- 1995 - 1997 The Forum of Agriculture Resource Husbandry, The Rockefeller Foundation \$120,500 "Soil Resource Management and Agroforestry Systems to Improve Crop Productivity and Sustainability in Two Southern Malawi Watersheds" G.Y. Kanyama-Phiri, PI and S. **Snapp**, Co-PI.
- 1993 USAID (NCISE-IARC Linkages Program) US\$ 17,000 "Genetic Mapping of Root Architectural Traits Controlling Productivity of Beans in Low-P Soils". PI S. **Snapp**
- 1988 - 1991 California Tomato Research Institute \$35,000 "Resistance to Phytophthora Root Rot in Processing Tomato as Affected by Salinity and Calcium Nutrition " PI S. **Snapp**.
- 1987 - 1988 Interdisciplinary Research Project funding, \$22,000. University of California, Davis

### Academic Advising

*\*Student from underrepresented ethnic group*

### **International Agronomy Minor – Faculty coordinator**

#### **Undergraduate Student Research Interns and Honors Research Projects:**

\*Chiwimbo Gwenambira, \*Iman Sylvain (ESA – SEEDS fellow), Richard Price, \*Briana Shuford, Bryan Wallace, Rebecca Titus, Andrea Posigian, Jennifer Jenkins, Anne Scott

#### **Current, Graduate Committee Member:**

*Brad Peters (PhD, Geography), Sabra Gerdes (MS, CSS), Sarah Kooper (PhD, Ag Econ), Gana Adebijij (PhD, Comm Sust.), Alexia Witcombe (MS, CSS), Nzube Egboluche (MS, CSS) Leah Mungai (PhD, Geography), Watson, Jacob Paul (MS, Comm. Sust.)*

**Completed Degrees, Graduate Committee Member:**

*Mary Parr (PhD.), Maksym Ivanyna (PhD.), \*Ninh Hoan (M.S.), Megan Sheahan (M.S.), Ben Henshaw (M.S.), \*Shahwar Salam (M.S.), \*Paligwende Nikiema (Ph.D.), Devan Berry (M.S.), Terry Loecke (Ph.D.), \*Marcia St. Babtiste (Ph.D.), Jim Heilig (M.S.) \*Keston Njira (M.S., Univ. Malawi), \*Belinda Roman (Ph.D.), Katherine O'Neil (Ph.D.), \*Juan-David Robayo (Ph.D.) Michelle Hockett (M.S.), Erin Haramoto (Ph.D.), Shahlo Safarzoda (M.S.), Rich Price (M.S.)*

**Completed Degrees and Current Degrees, Major Advisor (Advised 12 PhD and 12 MSc students):**

DEGREE GRANTED	NAME	CURRENT POSITION
<b>UNIVERSITY OF MALAWI – CO-ADVISOR</b>		
1998, M.S.	*Rebbie Phiri (now Harawa)	Senior soil scientist at Alliance for a Green Revolution in Africa, Kenya
1998, M.S.	*Dickens Phiri	Conservation N.G.O., Mozambique
1999, M.S.	*Bernard Kamanga	Livinstonia University, Malawi
<b>MICHIGAN STATE UNIVERSITY – MAJOR ADVISOR</b>		
2002, M.S.	Heather Borden	Consultant
2003, M.S.	*Judith Nyiraneza	Scientist, Agriculture and Agri-Food Canada
2002-2005, Post doctoral scholar	*Dr. Jinsheng Huang	Research Scientist, Univ. of Florida
2004, M.S.	*Kanchan Date	Raising family
2005, M.S.	Courtney Gallaher	Assistant Professor, Univ. N. Illinois
2006-2008, Post doctoral scholar	Dr. Claire McSwiney	Lecturer, Kalamazoo College, Michigan
2008, Ph.D.	Edgar Po	Scientist, Xavier University
2008, Visiting Scientist	Dr. Alena Pivovaro	Assoc. Professor, Altai State Agrarian University, Russian Federation
2008, Ph.D.	Karen A Cichy	Plant Geneticist & Asst. Professor, USDA, East Lansing, Michigan
2009, Ph.D.	Tracy Beedy	Soil Scientist, World Agroforestry Center
2008 and 2009, Visiting Scientist	*Bessie Green	University of Maryland, Eastern Shore
2009, Ph.D.	*Marthe Diallo	Senior Science Advisor, Christian Aid Foundation, Bamako, Mali
2009-2012, Postdoc.	Dr. Steve Culman	Assistant Professor, The Ohio State University
2010, Ph.D.	Brook Wilke	Farm Manager, MSU Kellogg Biological Station
2010, Ph.D.	*Wezi Mhango	Assistant Professor, Univ. of Malawi
2012, Postdoc.	Dr. Ariene Peralta	Post doctoral scholar, Purdue
2012, M.S.	Mary Ollenburger	Ph.D. Studies, Wageningen Univ., The Netherlands



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2013, Ph.D.	Nikhil Jaikumar	Post doctoral scholar, Univ. Illinois
2014, Ph.D.	Krista Isaacs	Post doctoral scholar, ICRISAT
2014, M.S.	Sowmya Surapur	Private Industry
2012, M.S.	Sienna Tinsley	Extension educator, Vermont
2016, Ph.D.	*Placid Mpeketula	Assistant Professor, Univ. of Malawi
2013, M.S.	Dan Kane	PhD student, Yale University
2014, M.S.	Alex Smith	Farmer
2012-2015 Postdoc.	*Dr. Regis Chikowo	Assistant Professor, Plant, Soil and
Current, Ph.D.	*Princess Adjei-Frimpong	Microbial Sciences Crop and Soil Sciences
2015, M.S.	*Chiwimbo	PhD student, MSU
Current, Ph.D.	Gwenambira	Crop and Soil Sciences
Current, Ph.D.	*Erin Anders	Crop and Soil Sciences, EFFS
Current, Postdoc.	Dr. Paul Roge	Plant, Soil and Microbial Sciences
Current, Postdoc.	Dr. Phil Grabwoski	Plant, Soil and Microbial Sciences
Current, Ph.D.	Alison Nord	Plant, Soil and Microbial Sciences

***\*FROM UNDERREPRESENTED ETHNIC GROUP***

***TEACHING ACTIVITIES***

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Co-developed and Member of Steering Committee for Specializations in Sustainable Agriculture and Food Systems (undergraduate) and Ecology of Food and Farming Systems (graduate)

**Courses - Current**

Agricultural Systems, CSS 431, 3 credits, Spring

International Agriculture Topics Seminar, CSS 294, 1 credit, Spring

**Courses – Past**

Contribute lectures in HRT 893 and CSS 442.

Co-taught short course on Agroecology with Dr. Wezi Mhango and Dr. Anna Hull, University of Malawi, August, 2012 and January, 2014

Co-taught Ecological Food and Farming Systems Seminar CSS/ACR 892B, 1 credit, Fall  
'Eating Green in Michigan' UGS 101 Freshman Seminar, Fall 2008

Co-designed and co-taught in 2006 and 2007 a new course - Soil Biology 360 (3 credits)  
Organized Seminar on Soil Organic Matter (2004)

Co-taught CSS 893 Biogeochemistry of Sustainable Agriculture (2004)

Horticulture Graduate Seminar HRT 893 Sustainable Agriculture (2003)

Taught 4 to 6 lectures HRT 853 Plant Mineral Nutrition in 2001, 2002 and 2003

***SERVICE***

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**Professional memberships**

Fellow of the American Society of Agronomy (ASA), elected 2010  
 (Committees: Global Agronomy Board Rep, 2015-2017; Fellows Committee, Jan 2013 –  
 Dec 2015; Rapid Response Team Member, 2012-2015)  
 Co-leader of Perennial Grains Community Group, Global Agronomy Division, American  
 Society of Agronomy  
 International Committee member, Long-term ecological research (LTER) Executive Board  
 Member, Soil Science Society of America  
 Member, Ecological Society of America  
 Current Michigan Representative and Past President, North Central Region Technical  
 Committee on Soil Organic Matter and Soil Quality (NCERA59)  
 Chair, 2003, Organic Committee, American Society of Horticultural Science

### **Symposia: organized or invited speaker**

YEAR	SYMPOSIUM/TALK	ROLE	SOCIETY
2016	Perennial grains: Transformative or pipe dream?	Plenary Speaker	Contested Agronomy, IDS, UK
2016	Three Problems: One Priority	Invited Speaker	Climate Smart Agriculture, USAID
2015	Sustainable Intensification and the Future of Food Systems	Invited Speaker	American Society of Agronomy
2015	Sustainable Intensification	Invited Speaker	AAAS 2015 Annual Meeting
2014	Indicators	Invited Speaker	AAAS 2014 Annual Meeting
2014	Perennial grain systems	Invited Speaker	Tufts University
2013	Perennial grain systems	Keynote Speaker	Launch for Global Center for Food
2013	Sustainable smallholder ag.	Invited Speaker,	Systems Innovation, MSU
2013	Resilience and food security Ecological Intensification &	AAAS Symposium	AAAS 2013 Annual Meetings,
2012	Farmer-Researcher Partnerships	Invited Speaker	Iowa State University
2012	Crop and Soil Sci. Seminar Agrobiodiversity and	Invited Speaker	Virginia Tech, Blacksburg VA
2012	Participatory Approaches Resilient Farming Systems for a	Plenary Speaker	ICRISAT 40 <sup>th</sup> Anniversary Hyderabad, India
2012	Changing World Agrobiodiversity for	Invited Speaker	Mini-Symposium on Reinventing Conservation Agriculture, France
2011	Conservation Agriculture	Invited Speaker	Food Security Bureau, USAID
2011	Sustainable Intensification Long-term Lessons from LTER	Plenary Speaker	FAO Workshop on long-term ag experiments in Africa, Kenya
2011	Cropping Systems Trial	Invited Speaker	African Studies Association , DC
2011	Agroecology and Food Security	Invited Speaker	American Society of Agronomy
2010	Sustainable Intensification	Invited Speaker	Purdue University
2010	Practical Perennial Grains? Engaged Ecology	Invited Speaker	Ecology Society of America
2010	Green Revolution 2.0	Invited Speaker	American Society of Agronomy
2009	Agroecology for a Sustainable Future	Invited Speaker	Ecological Society of America
2009	Advanced Management of Soil Organic Matter	Invited Speaker	Midwest Organic and Sustainable Education, Wisconsin
2009	Partnerships and Agroecology	Plenary Speaker	Fourth World Congress on Conservation Agriculture, India
2005	Bio-indicators for soil quality	Workshop Organizer	Soil Ecological Society
2004	Predicting the threshold for sustainability	Invited Speaker	Center for Environmental Farming Systems, NCSU
2003	Participatory Research and	Invited Speaker	Center for International Potato

2003	Extension for High Value Crops Designing cover crop systems for vegetable production	Organizer	Research, Lima Peru Great Lakes Expo, Grand Rapids, Michigan
2001	Quantitative Analysis of Data from Participatory Methods	Invited Speaker	University of Giessen and CIMMYT, Germany
2001	Cropping System Analysis and Integrated Soil Management	Invited Speaker	Farmer Participatory Research, CGIAR, Chiang Mai, Thailand
2000	On-farm Experimentation Design for the Rest of us	Invited Speaker	World Agroforestry Center and PRGA, Nairobi, Kenya
1999	Participatory Research and Extension in Soil Management	Organizer	ICRISAT, Zimbabwe
1998	Tools and Partnerships for Resource Management: farmer participatory research	Organizer	American Society of Agronomy
1990	Women in Agriculture	Co-chair, Student Symposium	Univ. California Davis

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### ***MICHIGAN STATE UNIVERSITY SERVICE***

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#### **Current:**

Mentor Committee Chair, Dr. Amos Ines, Assistant Professor, Agriculture Systems Modeler, Fixed Term Faculty, Plant, Soils and Microbial Sciences Dept. (2015- On going)  
Mentor Committee, Dr Karen Cichy, USDA and Adjunct Assistant Professor, Plant, Soils and Microbial Sciences Dept. (2013- On going)  
Mentor Committee, Dr Lisa Tiemann, Assistant Professor, Plant, Soils and Microbial Sciences Dept. (2015-On going)  
Graduate Crop and Soil Science committee, Department of Plant Soil and Microbial Sciences (2015-currently on leave)  
LTER Agronomy Committee Chair and member of LTER executive committee, W.K. Kellogg Biological Station (2006-On going)

#### **Past:**

Search committee member for an Associate Dean and Director for the Office of Diversity and Pluralism for the College of Agriculture and Natural Resources (2015)  
Chair, Search Committee for Agriculture Systems Modeler, Fixed term Faculty (2014)  
Agronomic Advisor to the W.K. Kellogg Biological Station Director (2006-2014)  
Search Committee for Soil Biologist, Plant, Soils and Microbial Sciences dept. (2014)  
College of Agriculture and Natural Resources College Advisory Committee member, KBS representative (2007 – 2009; 2011- 2014)  
KBS Seminar Committee (2011-2014)  
Department Advisory Committee, Plant, Soils and Microbial Sciences dept. (elected, 2011-2013)  
Plant Science Recruitment Committee, KBS representative (2008 – 2009; 2011-2012)  
KBS Site Use and Facilities committee member (2007 – 2009)  
Sustainable Agriculture and Food Systems Ad-Hoc CANR committee (2006 – 2008)  
Search Committee for Animal Science and KBS faculty member (2008-2009)  
Search Committee for Sustainable Ag. and Food Systems Academic Specialist, Chair (2007-2008)  
Search Committee for MSUE Extension Director, Southwest Region (2007-2008)  
Graduate Committee Member, Dept. Crop and Soil Sciences (2006 – 2008)  
Advisory Committee Member, African Studies Program (2005- 2007)  
Search Committee for Geography Faculty position, Geography Dept (2005-2006)  
Program Development Ad-Hoc Intra-college committee to plan a Production and Food Systems Ecology Program at Michigan State University (2003-2004)

Department Advisory Committee (DAC) for Horticulture Department (2001-2003)  
 Potato Committee, CSS Department (2001- 2006)  
 Search Committee for Vegetable Post-Harvest Faculty position, Horticulture Department (2002)  
 Search Committee for Vegetable Production Faculty position, Horticulture Department (2001)

### **Leadership of community ventures**

1. Organized workshops addressing women in agriculture and international development issues, 1987-1993 at University of California and The Pennsylvania State University
2. Initiated fundraising drive for farmer-to-farmer based development projects connecting Oregon and Central America, 1987-88
3. Officer of the University of Minnesota Sustainable Agriculture Association, 1984-85
4. Co-founded and President, Palouse Chapter of Tilth, a sustainable agriculture club, Washington State University, Pullman, WA 1982.

### ***INVITED AND VOLUNTEERED TALKS – SELECTED EXAMPLES***

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- ‘Perennial grains: Transformative option or pipe dream?’ Plenary talk, Contested Agronomy Meeting, Institute for Development Studies 23-25 February, 2016, Brighton, UK.
- Co-chair and Speaker ‘Designing sustainable agricultural systems with legumes’ Fifth International Farming System Design Course, Talk title: ‘Greener food production in Africa: intensification through multipurpose legumes’, August, 2015, Montpellier France
- ‘Sustainable intensification in a world of change’ Invited talk, Symposium on ‘Perspectives on sustainably supporting the human populace in the future’ American Society of Agronomy, Soil Science Society of America Annual Meeting, November 18, 2015, Minneapolis, MN.
- ‘Perennials and cover crops for future cropping systems’ Plenary talk, Penn. State University, Sustainable Agriculture 6<sup>th</sup> Annual Meeting, State College, PA, March, 2015.
- ‘Advance soil organic matter management for sustainable production’ Michigan Soil and Water Conservation Annual Meeting, March, 2014
- ‘Back to the future in Rwanda: Is agricultural intensification being pursued at the expense of food security’ with K. Isaacs, 2013. First International Conference on Global Food Security, Noordwijkerhout, The Netherlands, 29 Sept- 2 Oct., 2013
- ‘A greener revolution in Africa: Ecological intensification lessons’ Iowa State University, Ames, IA, December 6<sup>th</sup>, 2012
- ‘Advanced Soil Organic Matter Management’ Great Lakes Expo, Grand Rapids, MI, December 5<sup>th</sup>, 2012
- ‘Perennial cropping system redesign’ Purdue University, Department Seminar, 2012
- ‘Ecology and organic matter management: Lessons from Long-term experimentation’ Organicology Soils Intensive, Portland, OR Feb. 10, 2011.
- ‘Malawi through a different lens: remote sensing to farmer sensing’ CASID/GenCen Friday Forum, International Studies Program, MSU, January 21, 2011.
- ‘Biodiversity and a resilient green revolution: lessons for a changing climate’ Symposium on Green Revolution 2.0. American Society of Agronomy, Long Beach, CA. November 2, 2010.
- ‘Nitrogen fixation over the long-run: Lessons from organic and integrated grain production’ poster with L. Gentry, J. Green and S. Culman. American Society of Agronomy, Long Beach, CA. November 2, 2010.
- ‘Sustainability in row crop ecology - from Malawi to Michigan’ Washington State University, Dept. Crop and Soil Sciences, August 26, 2010.
- ‘What role crop diversity and conservation agriculture in an age of climate change’ University of Malawi, Dept of Crop Science, Seminar, October, 2009

**Talks ~ 5 per year** to Michigan growers, crop advisors, industry representatives, academic audiences (community college, MSU), Michigan Groundwater Stewardship Program, Michigan Extension, master gardeners and other community groups

**Recent examples:**

- ‘Managing more with biology in row-crop agriculture’ Invited talk, KBS LTER 2015 Symposium ‘Farming for Ecosystem Services: New Directions for Long-term Ecological Research in Agriculture’ April 15-17, 2015, East Lansing, MI.
- “Advanced soil organic matter management” Great Lakes EXPO, Grand Rapids, MI, December, 2015.
- “Perennial grains for dual use: livestock and grain?” MOSES, La Crosse, WI Feb 20, 2013
- “Adapting to a changing world: A Michigan field crop perspective” Climate change training workshop, March 14, 2011, Kellogg Biological Station, Hickory Corners, MI
- “Advanced management of crop residues and soils in a bioeconomy” Michigan Corn Marketing Board Meeting, January, 2009, DeWitt, MI.
- “Balancing nitrogen and organic matter for sustainable production” by Sieg Snapp, Dept of Crops and Soil & MSU Kellogg Biological Station. Building Healthy Soils in Vegetable and Grain Systems, Aug 21, 2008, Sears, MI.

***TECHNICAL REPORTS AND ARTICLES FOR NEWSLETTERS, EXTENSION ALERTS, PROCEEDINGS – 61 TOTAL – SELECTED EXAMPLES***

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- Snapp, S.S.** 2008. Is it possible to build soil organic matter while simultaneously decomposing soil organic matter to supply nitrogen? Field Crop Advisory Team Alert, MSUE and New Agriculture Web-based Newsletter <http://www.ipm.msu.edu/new-ag.htm>
- Gentry, L.E. and S. S. **Snapp**. 2008 Soil organic matter in a continuous corn cropping system Field Crop Advisory Team Alert, Michigan State University Extension
- Snapp, S.S.** and L. Gentry. 2007. Is nitrogen a moving target? Lessons from a 15-year corn rotation trial. Field Crop Advisory Team Alert, Michigan State University Extension
- Wilke, B. and S.S. **Snapp**. 2007. Perennial wheat: A new crop for Michigan? New Agriculture Web-based Newsletter <http://www.ipm.msu.edu/new-ag.htm>, MSU IPM
- Oneil, K. and S.S. **Snapp**. 2005. Time Travel and Soil Quality, Vegetable CATAlert Newsletter.
- Snapp S.S.** and K.U.Date. 2004.Strategies to suppress root rots in snap beans. Great Lakes Expo Proceedings, December, 2004.
- Snapp S.S.** and K.U.Date. 2004. Mustard, rye and fumigation for healthy potato roots. The Michigan Potato Industry Commission. MPIC Newsline, November.
- Snapp, S.S.** 2004. Organic approaches to improve root health and nutrition in a wet year. New Agriculture Web-based Newsletter <http://www.ipm.msu.edu/new-ag.htm>, MSU IPM.
- Snapp, S.S.** 2004. Evaluating nitrogen availability in organically managed fields. New Agriculture Web-based Newsletter <http://www.ipm.msu.edu/new-ag.htm>, MSU IPM.
- Snapp, S.S.** 2003. Managing covers for improved nutrient supply to vegetables. Vegetable CAT Alert 2003, Vol 18, No. 14
- Snapp, S.S.** 2003. Is all manure created equal? Vegetable CAT Alert 2003, Vol 18, No. 11
- Snapp, S.S.** and D. Warncke. 2003. Strategies to improve color and quality of tomato fruit. Vegetable CAT Alert 2003, Vol 18, No. 8
- Nyiraneza J. and S.S. **Snapp**. 2003. Cover crops and manure help rebuild and improve soils. The Vegetable Grower News. Vol.37. No. 6. pp. 23-24.  
[http://www.vegetablegrowersnews.com/pages/issue\\_03\\_06/03\\_06\\_rebuild\\_soil.html](http://www.vegetablegrowersnews.com/pages/issue_03_06/03_06_rebuild_soil.html)
- Snapp, S.S.**, D. Warncke and M. Ngouajio. 2003. Managing cover crops to optimize nitrogen supply and vegetable crop establishment. Vegetable Crop Advisory Team Alert, Michigan State University Extension. Vol. 18, No. 2 [http://www.ipm.msu.edu/CAT03\\_veg/V05-07-03.htm#6](http://www.ipm.msu.edu/CAT03_veg/V05-07-03.htm#6)
- Snapp, S.S.** and E.A. Po. 2003. Can site-specific farming improve potato yields. Vegetable Crop Advisory Team Alert, Michigan State University Extension. Vol. 18. No 5

- Snapp, S.S.** 2003. Planning ahead for soil tillage that optimizes vegetable yields and quality. Vegetable Crop Advisory Team Alert, Michigan State University Extension. Vol. 18. No 4
- Snapp, S.S., J. Nyiraneza, K. O’Neil.** 2003. Managing manure in potato systems, Quad State Potato Report, University of Wisconsin, Madison, WI.
- Ngouajio, M., R. Goldy, S. **Snapp** and B.H. Zandstra. 2003. Effect of colored polyethylene mulches on fresh market tomato growth and yield. Proceedings of the 31<sup>st</sup> Agricultural Plastic Congress Proceedings. Grand Rapids, MI. pp. 100-105.
- Snapp, S.S.** 2003. Managing manure in potatoes. Great Lakes Expo, December, 2002 (Article reprinted in The Ontario Farmer).
- Mutch, D., **Snapp, S.S., M. Hausbeck, and R. Goldy** 2002. Cover Crops Effects on Fresh Market Tomatoes and Summer Squash. SWMREC Annual Report. <http://www.msue.msu.edu/swmrec/AnnRpt99/reportindex.htm>
- Snapp, S.S. J. J. Nyiraneza, K. O’Neil.** 2003. Managing manure in potato systems, Quad State Potato Report, University of Wisconsin, Madison, WI.
- Snapp, S.S., J. Nyiraneza, and K. O’Neil.** 2002. Improving productivity and soil quality in short potato rotations. In: Michigan Potato Research Report, Vol. 34. Michigan State University, Agricultural Experiment Station in cooperation with The Michigan Potato Industry Commission, E. Lansing, MI. pp. 139-143.
- Snapp, S.S. and J. Huang.** Oct. 2002. Keeping Shoulder Check in Check. American Vegetable Grower. Vol.50. No. 10. 46
- Snapp, S.S.** 2002. Targeting manure application to vegetables. Vegetable Crop Advisory Team Alert, Michigan State University Extension. Vol. 8, No. 20, Sept. 25, 2002.
- Snapp, S.S.** 2002. The latest on potatoes and manure: Do they mix? Vegetable Crop Advisory Team Alert, Michigan State University Extension. Vol. 17, No. 9.
- Snapp, S.S., J. Huang, and D. Warncke.** 2002. Improving quality of fresh market tomato fruit. Vegetable Crop Advisory Team Alert, Michigan State University Extension. Vol. 17, No. 16 p.2.
- Snapp, S.S. and Jinsheng Huang.** 2001. Possible cures for shoulder checking. Great Lakes Expo, Dec. 4-6, 2001, Grand Rapids, MI
- Snapp, S.S. and C. Long.** 2001. Calcium Nutrition – The Key to Improving Quality and Storage of Potato Tubers? 2001 Potato Research. Michigan Potato Industry Commission and Michigan State University Extension. East Lansing, MI.
- Snapp, S.S. and M. Ngouajio.** 2001. Conservation tillage revisited. Vegetable Crop Advisory Team Alert, Michigan State University Extension. Vol. 16, No. 18 pp. 2-3.

### ***INTERNATIONAL RESEARCH AND OUTREACH IMPACT***

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1. **Over 25 years experience in Africa**, including as a Fulbright sub-Saharan Africa Scholar in 2010, based in Lilongwe Malawi with Univ. of Malawi, researching biodiversity in agricultural ecosystems.
2. I currently lead a five year **sustainable intensification of agriculture project in Malawi** through a contract with IITA on the ‘Africa RISING’ five country project funded by USAID and a two year systems scoping grant funded by the Gates Foundation on ‘**Perennial grain crops for African smallholder farming systems**’
3. **As a Co-PI for 8 years on the ‘Soils, Food and Healthy Communities’ project in Malawi** we have fostered adoption by over 10,000 farm families of multipurpose legumes, such as the pigeonpea-groundnut doubled up legume technology. Recent evidence from USAID study of widespread adoption of doubled up legumes into the neighboring country of Zambia and this technology is now **officially approved by the Malawi government, announced in Feb. 2016 by the Malawi Ministry of Agriculture**, Technology Release Committee.

4. **As an international scientist for ICRISAT in the 1990s** I was based in Malawi and Zimbabwe, and led regional efforts on fertilizer recommendations and organic matter technologies for integrated nutrient management.

5. **Developed a trial design and extension approach ('mother and baby trial')** that has been adopted by scientists in over 30 countries. This quantitative method to systematically integrate farmer assessment and stakeholder input into research programs has led to development of agronomic recommendations and adoption of improved maize, rice, wheat and legume genotypes in SE Asia, Africa and the Americas.