ZANA CONSTANTIN SOMDA, MS, PhD

450 CARROL AVENUE, ATHENS, GA, 30606 (USA)
Phone: +1 706 206 9416 | Skype: fg-zsomda
Email: zanasomda@ymail.com

Nationality: Burkina Faso and United States of America

KEY QUALIFICATIONS

- A senior-level, multi-facet international development professional with extensive public and private sector experience in areas of public health, agriculture and agribusiness management.
- Over 10 years of experience in providing technical leadership, advisory and analytical support to public health and policy leaders to strengthen and implement their national and sub-national disease surveillance, HIV/AIDS, family planning, and reproductive health programs and services delivery systems. Well-developed programmatic knowledge, technical skills, and managerial expertise of all aspects of health systems strengthening, including health economics, health sector financing, monitoring and evaluation, training and capacity building. Demonstrated capability in expenditure and cost analyses, cost-effectiveness studies, program coverage monitoring and impact assessments, as well as providing technical and coordination support to health policies and strategic plans development and implementation.
- Highly experienced in sustainable agricultural research related to crop productivity improvements and food security in the West African region. Specialized expertise in cereal and vegetable crop production practices, soil fertility and plant nutrition, integrated crop and livestock farming systems, economic evaluation, and agribusiness management.
- Excellent communication skills in English and French with significant countries experience: USA; lived abroad in Burkina Faso, Ghana, Niger and Nigeria; worked in short term in Botswana, Eritrea, Mali, Namibia, and Zimbabwe.
- Donors experience: USAID, CDC, DFID, and World Health Organization (WHO)

- Available for Headquarters and field assignments

PROFESSIONAL EXPERIENCE

International Development Consultant, Athens, Georgia, USA **Apr. 2017 - Present**

- Providing consulting support to Amya Agro Plus, a smallholder Agribusiness company in the Brong Ahafo Region of Ghana. Developed an approach to high value agriculture involving cassava root production and processing into food-products for sale in Ghana and Burkina Faso, including expanding on-farm and off-farm opportunities through a cash for work program to strengthen the livelihood in rural communities.
- Providing valuable volunteer services to St. Mary's Health Care System in Athens, Georgia (USA) in the areas of registration and admission of patients,.

Palladium Group, Accra, Ghana **Feb. 2015 – Mar. 2017**
Health Financing Advisor

Worked with Palladium Group to support the Government of Ghana implement the DFID-funded £11.3 million Ghana Adolescent Reproductive Health (GHARH) project, a 3-year national leading pilot project that has being scaled up nationwide.

- Provided advisory and analytical support to the National Population Council, Ghana Health Service, Ghana Education Service, and National Youth Authority, including 6 NGOs and 27 Municipal/District Assemblies in the Brong Ahafo Region to manage and implement the program activities in schools, communities and within the health system. Over 200,000 adolescents received ASRH services and nearly 460,000 people were reached with ASRH behavioral change communication messages.
- Served primarily as a health economic and financing expert on the preparation and issuance of RFPs for grantee organizations, development of costed annual workplans, as well as field monitoring of program performance and financial compliance with the project requirements. Coordinated and implemented operations research studies, especially expenditure, cost and program coverage analyses. The findings from these studies have been used to improve program implementation, while also contributing to the evidence-base on the revision of ASRH policy and the inclusion of family planning services in the benefits package of the new National Health Insurance Scheme.
- Advised and supported the NPC in its leadership role in national population and reproductive health policy and other strategic planning processes, specifically the National ARH Policy and Operational Plan (revised ARH 2016 – 2030), National Condom and Lubricant Strategy (NCLS 2016-2020), and Costed Implementation for Family Planning (Ghana's CIP 2015). Served as a technical adviser for the interagency technical working group on assessing and forecasting modern conceptive requirements, including making long-term projections of resources for family planning commodities.
- Provided key technical and programmatic support to strengthening NPC institutional capacity to explore sustainable financing options for ASRH activities and monitoring of population dynamics, policy and socio-economic development issues. Advised NPC staff on secondary analysis of key indicator data from Ghana Demographic and Health Surveys (GDHS) and Population and Health Census (PHC) for the development of 3 policy briefs on population and economics, migration, and energy.

Individual Consultant, Athens, Georgia, USA **Nov. 2013 – Jan. 2015**
Public Health & Agribusiness Specialist

- ***Centers for Disease Control and Prevention (CDC), Integrated Disease Surveillance and Response Program***: Provided English to French translation of an electronic surveillance (eSurveillance) tool developed for assessing public health and veterinary health surveillance data and information flow across health system levels, including data sources.
- ***Micro Macro International Inc. Analytical Laboratory***: Served as an agribusiness consultant to assist in the development of business and marketing plans and financial strategies for products and services of the laboratory. Provided management consulting services in reviewing and redesigning core functions and structures, operations manuals, and procedures for laboratory operations. Conducted laboratory analyses and independent research to evaluate products effectiveness and identify plant nutritional needs.

GRM/Futures Group, Washington, DC, USA **Mar. 2012 – Oct. 2013**
Senior Policy Analyst

Worked with Futures Group in collaboration with Futures Institute and the Centre for Development and Population Activities to implement the 3-year (20 million USD) USAID-funded Health Policy Initiative - Costing Task Order project in support to PEPFAR Country Teams in the areas of HIV, family planning, reproductive health, and maternal health.

- Managed all costing activities of HIV prevention in the general population, especially in Namibia. Coordinated with the USAID mission and the Namibia's National AIDS Coordination Program in the Ministry of Health and Social Services to conduct expenditure and cost analyses of behavioral change communication (BCC) interventions, namely mass media, community mobilization and interpersonal programs implemented by 10 FEPFAR supported organizations in Namibia.
- Performed a desk review of existing studies to document the cost of implementing HIV Testing and Counseling (HTC), antiretroviral therapy (ART), prevention of mother-to-child transmission (PMTCT),

voluntary medical male circumcision (VMC), condom distribution, and orphaned and vulnerable children interventions in the country.

- These data (http://pdf.usaid.gov/pdf_docs/pnaec291.pdf) were used to inform accurate budgeting and programming for effective and efficient delivery of BBC services for HIV prevention in Namibia and other countries with generalized HIV epidemic. They also identified persistent gaps in expenditure and cost data that can aid the Namibian Government's understanding of the cost of establishing and subsequently implementing a combination HIV prevention strategy.
- As part of my role, coordinated and supported costing different delivery models of HTC services in Botswana and family planning services in Ghana, directly managing 3 junior project staff and 5 local consultants, and trained 25 HIV program officers in costing and economic evaluation principles and techniques. These trained professionals are now in positions to better estimate the costs associated with scaling up HIV programs.

Micro Macro International, Inc., Athens, Georgia, USA **Aug. 2010 – Feb. 2012**
Senior Analytical Laboratory Manager

Micro Macro International, Inc., a private agribusiness company, provides a complete problem solving analytical laboratory solutions with the components of nutritional analysis, pathology, pesticide analysis, consulting and research, and publication of grower related information in one location.

- As Senior Manager of the Chemical Unit, coordinated and guided all laboratory analysis and scientific research activities to assist growers evaluate their crop and water quality and identify the cause(s) of crop damage. Also, worked closely with clients in fine-tuning new products to increase the product effectiveness as well as investigate nutritional and environmental factors to improve plant growth.
- My role was expanded to consulting activities to governments, corporations, companies, and individual growers throughout the United States and the world agricultural community to diagnose the most likely cause of plant growth problems and recommend appropriate nutritional and pesticide treatment solutions. One significant product was a developed laboratory operational procedure with strategic marketing plan in support to the financial growth of the company.

Population Services International (PSI), Abuja, Nigeria **Apr. 2009 – Jul. 2010**
Technical Advisor – HIV/AIDS Monitoring and Evaluation

Worked with PSI in collaboration with Nigeria's Society for Family Health (SFH) and 6 other organizations to support the Government of Nigeria to implement a £100 million 6-year DIFD-funded Enhancing Nigeria's Response to HIV and AIDS (ERN) program in rural and urban communities in 8 States.

- Served as the technical lead for the M&E and knowledge management group. Organized and coordinated SFH staff participation in the training on PSI social marketing and franchising approaches and tools. Guided and supported the development of all program M&E frameworks, data collection tools, performance monitoring plans, operations research agenda, and 3-yearly costed workplans. Advised and coordinated expenditure and cost analyses and budgeting of operational plans for HIV/AIDS response.
- Provided technical and managerial support to 7 M&E Advisors to conduct state-level situational analyses of HIV/AIDS interventions, including SPECTRUM Modeling of HIV epidemics and Mode of Transmission, to identify peculiar attitudes, risky sexual behavior and practices of the key at-risk groups and factors affecting orphans and vulnerable children and people living with HIV. The results were used to inform the revision of the logframe and impacts of the project. Based on a 2012 "Value for Money" assessment, the program averted one million Disability Adjusted Life Years (DALYs) due to reduction in HIV transmission and gains in reproductive health, family planning and maternal mortality. The sale of condoms averted 33,485 HIV cases and prevented 577,178 unintended pregnancies.
- Participated in the national planning meetings and execution of the 2010 Integrated Biological and Behavioral Surveillance Surveys (IBBSS) in Nigeria. Provided support to the National AIDS Coordinating Agency and the Ministries of Health, Education, Women Affairs and Social Development to revise their sectoral HIV/AIDS strategic plans and M&E systems.

US-Centers for Disease Control and Prevention (CDC), Atlanta, Georgia Oct. 2004 – Mar. 2009
Health Economist Research Fellow

With funding from USAID's Africa Bureau, CDC has been the technical partner with WHO Regional Office for Africa (AFRO) and its partners in Ministries of Health in the design, development, implementation, monitoring and evaluation of Integrated Disease Surveillance and Response (IDSR) systems in Africa.

- Served as the technical lead for the development and implementation of IDSR economic research. Primarily designed and applied new methodologies and tools to perform costing and modeling the cost-effectiveness of the IDSR program in Burkina Faso, Eritrea and Mali.
- Advised and coordinated the collection of data pertaining to core IDSR activities, including meningitis outbreak and vaccination response, across the national, region/province, district, and community health system levels in each country.
- Analyzed and linked the program expenditure and cost data to epidemiology and program coverage. The economic modeling suggests that in an outbreak there will be a reduced number of sick patients, a reduced number of deaths, and a shorter time to the peak of an outbreak during an epidemic outbreak when there is enough capacity to carry out the IDSR skills and tasks that make up these capabilities.
- Prepared and published the key findings in two peer-reviewed scientific journals, PlusOne and Cost effectiveness and Resource Allocation to inform relevant audiences, especially for planning and budgeting for key IDSR and International Health Regulations (IHR 2005) activities in the AFRO countries.
- Produced a software tool developed in Excel visual basic format, called SurvCost, to estimate the cost of IDSR core activities at national, region/province, district, and health facility levels. SurvCost is available in English and French versions at http://www.cdc.gov/globalhealth/dphswd/idsr/tools/survcost.html.
- Provided French and English translation of IDSR framework, technical partners' meeting, and laboratory training documents.

Micro Macro International, Inc., Athens, Georgia, USA Nov. 1994 – Sep. 2004
Analytical Laboratory Quality Assurance/Control Manager

Micro Macro International, Inc. provides a complete problem solving analytical laboratory with the components of nutritional analysis, pathology, pesticide analysis, consulting and research, and publication of grower related information in one location.

- Served as a senior scientist and quality control manager, interacted daily with the laboratory staff and clients, monitored the appropriate nutritional, pathology, and pesticide analyses to quickly identify the likely cause of the plant growth problems, and provided analytical solutions to agronomic and horticultural crop growth needs.
- Conducted scientific research for clients requiring independent evaluation of products being introduced into the market; maintained an electronic data tracking and nutritional history database of analytical results.
- Clients utilizing the professional advantages of MMI include governments, corporations, companies, and individual growers throughout the United States and the world agricultural community.

International Livestock Research Institute (ILRI) Nov. 1991 – Oct. 1994
International Crop Research Institute for Semi-Arid Tropics (ICRISAT) Sahelian Centers, Niger
Research Associate

ILRI and ICRISAT, as part of CGIAR partnership, work in West Africa to sustainably intensify smallholder crop-livestock production systems to improve agricultural productivity, food security and nutrition and reduce poverty.

- In collaboration with the ILRI and ICRISAT scientists, conducted research to develop improved technologies to enhance livestock, sorghum, pearl millet, and groundnut productivity.
- Specifically, coordinated research on integrated crop-livestock management to evaluate integrated natural resources, soil-water-crop and nutrient management options to improve agricultural productivity.

- Conducted randomized control and on-farm research studies on alternative uses of animal manure and crop residues as animal-feed, household fuel source, or soil amendment.
- Wrote reports and 8 peer-reviewed journal publications and made presentation at 3 international conferences on sustainable land management and environment in the Mixed Farming Systems of Sub-Saharan Africa.

University of Georgia, Agricultural Experiment Station, USA **Jan. 1990 – Oct. 1991**
Post-doctoral Research Associate

- As research coordinator in the Agronomy Department, designed and implemented research on conservation tillage and sustainable agriculture to develop integrated crop residue and legume cover crop management technologies for clean water, animal feeds, and soil amendments.
- Conducted a series of laboratory, greenhouse, and field studies to develop mathematical models for evaluating the impacts of environmental conditions on the decomposition of organic residues applied to soil and the nutrients released for crop uptake and leached into ground water.
- Lead the preparation of project reports, co-authored 8 peer-reviewed scientific papers, and 4 international conference proceeding abstracts.

ADDITIONAL EXPERIENCES

Athens-Clarke County School District, Georgia
Volunteer Substitute Teacher (2013 – 2014)
- Provided instruction, encouraged student progress and managed the learning environment in the absence of the classroom teacher.

The University of Georgia, Department of Agricultural and Applied Economics, Athens, Georgia
Graduate Research/Teaching Assistant (1999 – 2003)
- Taught undergraduate level Micro-economics courses; applied stochastic dominance criteria and linear programming approach to determine the profit optimizing system from different alternative dairy farming strategies.

Georgia Center for Continuing Education Athens, Georgia
Part-time Instructor (1996 – 1999)
- Developed modules and taught a Conversational French course to 10 to 15 area professionals and university students, on a quarterly basis.

The University of Georgia, Department of Horticulture, Athens, Georgia
Graduate Teaching Assistant (1986 – 1989)
- Planned and conduced quarterly greenhouse and laboratory exercises to identify and evaluate vegetable crop nutritional problems, pathological damages, and environmental conditions.

Université de Ouagadougou, Institute de Développement Rural (IDR), Burkina Faso
Part time Instructor (1985 – 1986)
- Taught Plant Physiology and Biology courses and English as a foreign language.

EDUCATION

- **Post-graduate training, Health Economics and Policy Analysis** **Sep. 2004**
  Centers for Disease Control and Prevention (CDC), Georgia, USA
- **PhD in Agricultural and Applied Economics** **Dec. 2003**
  University of Georgia, Athens, USA

- **MS in Environmental Economics** **Jun. 2001**
  University of Georgia, Athens, USA
- **PhD in Horticulture** **Dec. 1989**
  University of Georgia, Athens, USA
- **MS in Horticulture** **Jun. 1985**
  University of Georgia, Athens, USA
- **Diploma, Agricultural & Rural Development Engineer** **Jun. 1982**
  University of Ouagadougou, Burkina Faso
- **BS in Agricultural and Biological Sciences** **Jun. 1980**
  University of Ouagadougou, Burkina Faso

SELECTED PUBLICATIONS AND TECHNICAL PAPERS (Complete list available upon request)

Somda, Zana, Jasper S, Bashiru B, David L. *Cost of Delivery of Reproductive Health Services and Behavioural Change Communication Interventions to Adolescents in Brong Ahafo Region, Ghana*: Palladium, Ghana Adolescent Reproductive Health (GHARH) Project; National Population Council, Accra, Ghana, 2016

Castle, S., Awusabo-Asare, K., Adams, B. and **Zana. S**. Situational and *Cost Analyses of Youth Corners delivering Reproductive Health Services to Adolescents and Young People in Brong Ahafo Region, Ghana*: Palladium, Ghana Adolescent Reproductive Health (GHARH) Project; National Population Council, Accra, Ghana, 2016

Marian Kpakpak, Bashiru Adams, David Logan, **Zana Somda**, Sean Mulkerne. *Strengthening multi-sectorial collaboration to implement an adolescent sexual reproductive health programme in the Brong Ahafo region of Ghana*. Abstract accepted for preformed panel (ID 120) presentation, Youth sexual and reproductive health information, service seeking, and experiences in Ghana; International Conference on Family Planning, Nusa Dua, Indonesia, 9-12 November 2015

Somda, Zana, Katuta F, Gweshe J, et al. *Cost of Behavior Change Communication Interventions for HIV Prevention in Namibia: Mass Media, Community Mobilization and Interpersonal Communications*. Washington, DC: Futures Group, Health Policy Initiative, Costing Task Order, 2013 http://www.healthpolicyinitiative.com/index.cfm?ID=publications&get=pubID&pubID=1557.

Somda, Zana, Datar A, Forsythe S, and Alkenbrack S. *Combination HIV Prevention Interventions in Namibia: A desk review of cost studies of non-behavior change communication HIV prevention interventions*. Washington, DC: Futures Group, Health Policy Initiative, Costing Task Order, 2013.

Zana C. Somda, H.N. Perry, et al. Modeling the cost-effectiveness of the integrated disease surveillance and response system: Meningitis in Burkina Faso. PLoS ONE 5(9), 2010.

Zana C. Somda, M.I. Meltzer, et al. Cost analysis of an integrated disease surveillance and response system: case of Burkina Faso, Eritrea, and Mali. *Cost Effectiveness and Resource Allocation*, 7:1, 2009.

Zana C. Somda, M.I. Meltzer, H.N. Perry. *SurvCost* 1.0: a manual to assist country and district public health officials in estimating the cost of the implementation of Integrated Disease Surveillance and Response systems (Beta test version). Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, 2007; http://www.cdc.gov/globalhealth/dphswd/idsr/tools/survcost.html.

Ranti Olademde, G. O. Adeniji, **Zana Somda**, et al. HIV Modes of Transmission in Ogun State, Nigeria: Analysis of the Distribution of New Infections and Recommendation for Prevention. Ogun State Action Committee on AIDS, No. 4 Kemta Idi-Aba, off Olabisi Onabanjo Road, Abeokuta, 2010.

Richard Fakolade, O. Ezire, **Z. Somda**, D. Ogunbowale. Measuring access to male and female condoms in Nigeria: implications for HIV prevention in a generalised epidemic Abstract no. WEPE0192, International HIV/AIDS Conference, Vienna, Austria, 18-23 July 2010.

S.A. Adebayo, O. Idogho, **Z. Somda**. Comparison of different approaches to National Strategic Plan development -a case study of five Enhancing Nigeria's Response to HIV/AIDS progamme implementing states. Abstract no. TUPE0933, International AIDS Conference, Vienna, Austria, 18-23 July 2010.

Zana C. Somda, J.R. Allison, L. O. Ely, G. L. Newton, and M.E, Wetzstein. Economic and environmental evaluation of dairy manure utilization for year-round forage production. Selected paper presented at the SAEA annual meeting, Mobile, Alabama, 1-5 February 2003.

John R. Allison, Lane O. Ely, G. Larry Newton, and **Zana C. Somda.** A Management Tool to Optimize Total Dairy Farm Operation. Workshop on Large Farm Management, Institute of Agricultural Development in Central and Eastern Europe (IAMO), Halle (Saale), Germany 26-28 November 2003.

Zana C. Somda, J.R. Allison, L. O. Ely, G. L. Newton, G. Vellidis, and M.E, Wetzstein. Economic analysis of dairy manure utilization for year-round forage production. Selected paper presented at the SAEA annual meeting, Feb. 3 – 6, 2002, Orlando, Florida.

Somda, C. Zana, W.J. McLaurin, etc. Jerusalem artichoke growth, development, and field storage. II Carbon and nutrient element allocation and redistribution. *J. Plant Nutr. 22(8): 1315-1334*, 1999.

McLaurin, W.J., **Z.C. Somda**, and S.J. Kays. Jerusalem artichoke growth, development, and field storage. I. Numerical assessment of plant part development and dry matter acquisition and allocation. *J. Plant Nutr. 22(8): 1303-1313*, 1999.

Chance III, W.O., **Z.C. Somda**, and H.A. Mills. Effects of nitrogen form during the flowering period on zucchini squash growth and nutrient uptake. *J. Plant Nutr. 22(3): 597-607*, 1999.

Powell, J.M., F.N. Ikpe, and **Z.C. Somda.** Crop yield and the fate of nitrogen and phosphorus following application of plant material and feces to soil. *Nutrient Cycling in Agroecosystems 54:215-226,* 1999.

Somda, C.Z. and J.M. Powell. Seasonal decomposition of sheep manure and forage leaves in soil. *Comm. Soil Sci. Plant Anal. 29(19 & 20): 1253-1268,* 1998.

Powell, J.M., **Z.C. Somda**, et al. Urine effects on soil chemical properties and the impact of urine and dung on pearl millet yield. *Expl. Agric. 34: 259-276*, 1998.

Somda, C.Z., J.M. Powell and A. Bationo. Soil pH and nitrogen changes following cattle and sheep urine deposition. *Comm. Soil Sci. Plant Anal. 28(15&16): 1253-1268,* 1997.

Zana Somda and André Bationo. "Gestion de la Fertilité des Sols", Chapitre 11 in Hoogmoed, W.B. and M.C. Klaij (editors), Le Travail du Sol pour une Agriculture Durable, FAO/ICRISAT Publication AGL/MISC/21/97 (http://www.fao.org/docrep/W7304F/w7304f0b.htm), 1997.

Zana Somda, André Bationo. "Interaction entre le Bétail et la Productivité des Sols au Niveau de L'Exploitation Paysanne", Chapitre 12 in Hoogmoed, W.B. and M.C. Klaij (editors), Le Travail du Sol pour une Agriculture Durable, FAO/ICRISAT Publication AGL/MISC/21/97 (http://www.fao.org/docrep/W7304F/w7304f0b.htm), 1997.

Somda, Z.C, J.M. Powell, S. Fernandez-Rivera, and J.D. Reed Feed factors affecting nutrient excretion by ruminants and the fate nutrient when applied to soil. In : Powell J.M., Fernandez-Rivera S., William T.O. and Renard C. (eds), Livestock and Sustainable Nutrient Cycles in Mixed Farming Systems of Sub-Saharan Africa, Vol. 2. ILCA, Addis Ababa, Ethiopia, pp. 227 – 243, 1994.

Somda, C.Z., A. Bationo, and J.M. Powell Livestock factors affecting soil productivity in semi-arid West Africa. In Proc. International Colloquium on Sustainable Land Management and Environment in Inter-Tropical Africa, West and Central African Soil Science Association, Ouagadougou, Burkina Faso, 1993.

Powell, J.M, F.N. Ikpe, and **Z.C. Somda** Nutrient cycling in low external input millet-based farming systems of West Africa. In Agronomy Abstracts, ASA, Madison, Wisconsin, pp 254, 1992.

Somda, C.Z., P.B. Ford, and W.L. Hargrove Decomposition of and nitrogen recycling from cover crops and crop residues. In: W.L. Hargrove (ed.), Proc. Intern. Conf. on Cover Crops for Clean Water, Soil and Water Conservation Society, West Tennessee Exper. Station, Jackson, Tennessee, pp. 103 -105, 1991.

Somda, C.Z., H.A. Mills, and S.C. Phatak. Influence of biocides on nitrification, denitrification, and tomato N uptake. *J. Plant Nutr. 14:1187-1199*, 1991.

Somda, C.Z., M.T. Mohammed, and S.J. Kays Analysis of leaf shedding and dry matter recycling in the sweet potato. *J. Plant Nutr.14: 1201-1212*, 1991.

Somda, C.Z., Hargrove, and P.B. Ford. Tillage and environmental effects on crop residue decomposition in the field. In Agronomy Abstracts, ASA, Madison, WI, pp. 278, 1991.

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Hargrove, W.L., P.B. Ford, and **Z.C. Somda.** Two-pool exponential model for describing crop residue decomposition. In Agronomy Abstracts, Madison, WI, pp. 266, 1991.

Somda, C.Z., H.A. Mills, and S.C. Phatak. Growth and elemental composition of tomato as affected by fungicide and nitrogen source. *J. Plant Nutr.13: 1167-1177*, 1990.

Somda, C.Z., H.A. Mills, and S.C. Phatak. Nitrapyrin, terrazole, atrazine, and simazine influence on nitrification and corn growth. *J. Plant Nutr. 13:13:1179-1193*, 1990.

Somda, C.Z., S.C. Phatak, and H.A. Mills. Nitrapyrin, terrazole, atrazine, and simazine influence on denitrification and corn growth. J. Plant Nutr. 13: 1195-1208, 1990.

Somda, C.Z. and S.J. Kays. Sweet potato canopy architecture: Branching patterns. *J. Amer. Soc. Hort. Sci. 115:33-38*, 1990.

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Somda, C.Z., H.A. Mills, and S.C. Phatak. Effects of nitrapyrin, terrazole, and simazine on soil nitrogen transformation and corn growth. *Comm. Soil Sci. Plant Anal. 20: 2177-2199*, 1989.

Mahotiere S., **Z.C. Somda**, R.M. Ouedraogo, and P.H. Culliers. Corn and peanut response to triple superphosphate and Kodjari rock phosphate under semi-arid conditions of Upper Volta, West Africa. In Agronomy Abstracts, Madison, Wisconsin, pp. 46, 1983.

THESES AND DISSERTATIONS

Zana Constantin Somda. *Economic and environmental evaluation of dairy manure utilization for year-round crop production, 2003;* PhD Dissertation, Department of Agricultural and Applied Economics, University of Georgia, Athens, Georgia (USA).

Zana C Somda. *Economic analysis of dairy manure utilization for year-round forage production, 2001;* M.S thesis, Department of Agricultural and Applied Economics, University of Georgia (USA).

Zana C Somda. *Effects of agricultural chemicals on nitrification and denitrification, 1989;* PhD Dissertation, Department of Horticulture, University of Georgia (USA).

Zana C Somda *Sweet potato canopy architecture: branching patterns and leaf distribution, 1985;* M.S. thesis, Department of Horticulture, University of Georgia (USA).

Zana C Somda. *Influence des phosphates naturels de Kodjari et du triple superphosphate sur le maïs et l'arachide sous les conditions semi-arides de Haute-Volta, 1982 ; Mémoire* d'Etude, Ingénieur de Développement Rural, Université de Ouagadougou, Burkina Faso.

ADDITIONAL INFORMATION and REFERENCE (Available upon request)