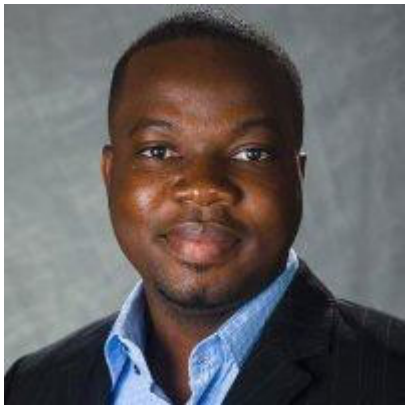
Borlaug LEAP- Past Fellows Directory (Spring 2015)

Abdelaziz Lawani



Country:
Benin

University:
University of Kentucky

Department & Degree:
Agricultural Economics, PhD Candidate

US Mentor institution:
University of Kentucky

CGIAR Mentor Institution:
AfricaRice Center

Research:
Storage, Behavior Price Stabilization, and Price Transmission in Rice Markets: Evidence from West-Africa

Email:
abdelawani@uky.edu

Abdelaziz Lawani joined the Borlaug LEAP Fellowship as a 2015 Spring Fellow while pursuing his PhD in Agricultural Economics at the University of Kentucky. He is interested in the social and economic impact of government institutions stockpiling food against future reduction in supply and increase in prices, focusing on the West African region. While government food storage is not a new concept, recent spikes in food prices have prompted sub-Saharan governments to being discussing the matter more seriously. Abdelaziz wants to investigate how large-scale government food storage will affect the people it is intended to help, focusing on rice in particular, given its enormous importance to much of the developing world. He hopes that his findings will help strengthen food security in the West African region and beyond, in line with Feed the Future's goals for the region.

Abdelaziz has long held an interest in agricultural topics, stemming from his experiences in the school garden at his local high school and in the Global Learning and Observation to Benefit the Environment (GLOBE) organization. While originally considering a career in medicine, he eventually decided on a career in agriculture as a way to help others. He earned a Fulbright Scholarship and a double Master's in Rural Development and Agricultural Economics. Abdelaziz has also been active in working with local Beninese organizations, including the Beninese Center for Environmental, Economic and Social Development (CEBEDES). From his early high school projects to his last position with CEBEDES, his ability to be proactive and a willingness to search for a solution distinguished him as having leadership potential. Even as a teenager, people were drawn to his ability to work well with others while searching for creative solutions to problems. He hopes to use both what he has learned in the past, and will learn as a Borlaug LEAP Fellow, to mentor young people looking to work in the agricultural sector.

Abdelaziz had two mentors during his year as a Fellow, Dr. Michael Reed and Dr. Rose Fiamohe. Dr. Reed is a distinguished professor of Agricultural Economics and the Director of

Graduate Studies at the University of Kentucky. He lent Abdelaziz his guidance in the area of commodity price determination and its impact on macro-economic policies. Dr. Fiamohe hails from Benin and is currently a researcher at the AfriceRice Center in Cotonou, Benin. She helped Abdelaziz focus his research on the economics of rice in sub-Saharan Africa and how it affects the small-holder farmer. He is expected to complete his PhD in 2017.

Adama Yahaya

Country:
Nigeria

University:
Ahmadu Bello University, Nigeria

Department & Degree:
Botany, PhD Candidate

US Mentor institution:
Texas A&M University, AgriLife Research and Extension Center

CGIAR Mentor Institution:
International Institute of Tropical Agriculture (IITA)

Research:
Molecular Characterization and Genetic Diversity Studies of Maize and
in the Savannah Region of Nigeria

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Spring 2015 Borlaug LEAP Fellow Adama Yahaya is pursuing her PhD at Ahmadu Bello University in Nigeria. The focus of her research is on the mosaic viruses of maize and related cereals in the Northern Guinea Savannah of Nigeria, which can and do cause a significant amount of crop loss globally, and can be particularly devastating to subsistence farmers. Her goal is to identify and characterize these viruses, track their distribution in the Savannah region, and help develop cost-effective diagnostic tools that can be used by those in the Nigerian agriculture sector. She hopes that, in the end, her research will help reduce the instances of disease in cereal and maize crops, thus boosting productivity and increasing food security in Nigeria and across Feed the Future-targeted countries in West Africa.

After initially considering a career in medicine, Adama was introduced to agriculture as a graduate assistant. She discovered that human well-being is intrinsically linked to the food systems to which people have access. By working to improve these food sources and people's overall nutrition, she could attempt to address health problems at the source rather than, as a physician, only treating the symptoms. In her interactions with students in the classroom and farmers in the field, she has come to realize that her ability to make a difference in her country by leading the way to help minimize the effects of crop diseases could have a huge impact. She hopes to show that as a woman working in science, she can make a difference outside the home as well as in. She would like to be an example to other girls and women looking to pursue their dreams in higher education and to help motivate them to success.

While in the US, Adama worked with Dr. Olufemi Alabi, currently at Texas A&M University, AgriLife Research and Extension Center. Dr. Alabi is an Assistant Professor in the Plant Pathology and Microbiology Department and has served as a Borlaug LEAP mentor in the past. Together, Adama and Dr. Alabi worked on virus characterization and gene mapping, as well as the progress and focus of her dissertation. Adama also worked with Dr. Lava Kumar, head of Germplasm Health/Virology and Diagnostics at the International Institute for Tropical Agriculture (IITA) in Nigeria. As a respected Plant Virologist, Dr. Kumar has done extensive research on plant viruses and maize mosaic viruses in particular. While working in his lab, Adama learned how to apply molecular diagnostic methods to viral plant disease identification. Her goal is to earn her PhD in Botany by 2017.

Debebe Lijalem Yilak

Country:
Ethiopia

University:
Bahir Dar University, Ethiopia

Department & Degree:
Integrated Water Management, PhD Candidate

US Mentor institution:
Cornell University

CGIAR Mentor Institution:
International Water Management Institute (IWMI)

Research:
Optimizing Groundwater Use for Irrigation: The Robit-Bata Watershed, Lake Tana Basin

Email:
dlijalem@yahoo.com

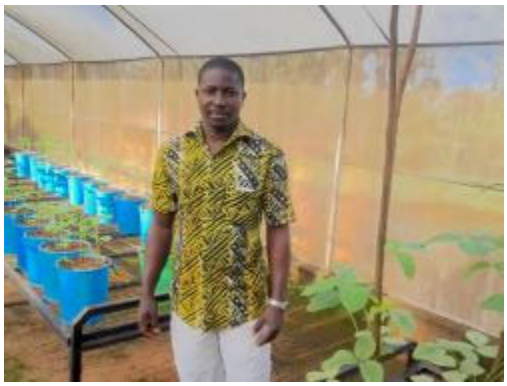
Debebe Lijalem Yilak joined the Borlaug LEAP Fellowship as a Spring 2015 Fellow and is working on his PhD research in the area of irrigation development in the Lake Tana Basin. The lake is recognized as one of Ethiopia's most important water sources, providing irrigation to many farmers throughout its watershed, and making sure the area is responsibly utilized while maximizing its impact is crucial. His main objectives are to assess the suitability of the groundwater in the region and to find sustainable methods for extracting it to use for irrigation purposes. This will hopefully help alleviate the need to rely almost exclusively on rainwater collected during the rainy season and may help farmers produce more during the dry seasons. As a Feed the Future country, Ethiopia is working with USAID to help improve food security and Debebe is hoping that his research will contribute to this important initiative.

Debebe received his Master's in Water Resource Engineering at Bahir Dar and has also been heavily involved in both governmental and non-governmental organizations dealing with water management and irrigation projects. He hopes to bring the knowledge he acquires during his Fellowship to concerned policy-makers that can affect change in Ethiopia. He believes that as a leader who is deeply rooted in seeing change happen with in his community and country, he can help guide those he plans to work with throughout his career. As an instructor and researcher,

he views the work Dr. Norman Borlaug accomplished as a shining example of what it means to lead by example and he would like to continue in that tradition.

Debebe worked with Dr. Tammo Steenhuis, a seasoned Borlaug LEAP mentor with a long history of collaborating with Bahir Dar University and its students. Dr. Steenhuis' main research focus is the management of soil and water within distinct landscapes. Debebe collaborated with the professor to collect, sort, and analyze data for his research while at Cornell University. In addition, Debebe worked with Dr. Petra Schmitter at the International Water Management Institute. Her interests and work lie in sustainable agriculture and urban development, which may have the potential to help reduce land degradation and boost responsible water conservation. She helped him create an action plan for his research and aided in implementing his findings. Debebe expects to complete his PhD in Integrated Water Management in 2018.

Eric Agoyi



Country:
Benin

University:
Makerere University, Uganda

Department & Degree:
Plant Breeding and Biotechnology, PhD Candidate

US Mentor institution:
University of Illinois, Urbana-Champaign

CGIAR Mentor Institution:
International Institute of Tropical Agriculture (IITA)

Research:
Genetic Study of Promiscuous Nodulation in the Soybean

Email:
ericagoyi@gmail.com

Eric Agoyi, a Spring 2015 Fellow, hails from the West African country of Benin. His PhD research centered on the promiscuous nodulation of the soybean, an important crop in Benin, West Africa, and worldwide. Soybeans are used for both human and animal consumption and their continued cultivation is vital to food security in the area. He was particularly interested in the nitrogen fixation properties of soybean once it produces nodules with the help of the *Bradyrhizobium japonicum*. This nitrogen fixation is important to the nutrient-poor soils of Benin, however, *Bradyrhizobium japonicum* is not endemic to that country and, as a result, native soybean varieties tend to have poor nodulation rates. Eric, therefore, was looking to identify soybean cultivars that are better able to form these nodules "promiscuously," or more readily. His goal is that his research will help provide better soybean varieties to those people in Benin and West Africa who fall under the Feed the Future initiative and who could benefit the most from improved food security.

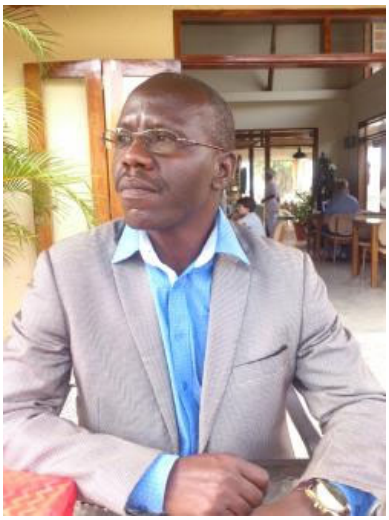
Eric began his academic career at the University of Abomey-Calavi in Benin, where he received both his Bachelor's and Master's degrees and did his research on some of the many properties

and usages of the Moringa tree. He feels that his drive and passion for seeing the agricultural practices in Benin shift from a more “agribusiness” approach to one focused on food production will help him contribute to the country’s improved food security. He sees his ability to be proactive, innovative and collaborative as examples of his leadership skills and he hopes to use them to help mentor the next generation of scientists and introduce them to new ideas. Although he chose to leave his country to pursue his PhD in Uganda, he feels his experiences there, and as a Borlaug LEAP Fellow, will help further his knowledge in his chosen field. He plans to share that knowledge with others back home in Benin and to policy makers across the West African region.

During his fellowship, Eric was mentored by Dr. Brian Diers of the University of Illinois, Urbana-Champaign, who is the Associate Head of their Crop Sciences Department and a Professor of Soybean Breeding. He also worked with Dr. Hesham Agrama at the International Institute of Tropical Agriculture in Zambia. Dr. Agrama is a Soybean Breeder and is currently working in collaboration with the USAID-funded Soybean Innovation lab. Through their mentorship, Eric gained expertise in the area of soybean breeding, conducting and supervising research, and learning about the broader implications that this field might present in the future. He completed his PhD in Plant Breeding and Biotechnology in Summer 2016 and is back at the University of Abomey-Calavi as a Researcher and Assistant Lecturer.

In March 2018, Eric was awarded a two year postdoctural fellowship by RUFORUM and the Carnegie Corporation of New York. He will use the fellowship opportunity to grow professionally through setting up a breeding program while supervising/mentoring three PhD students and two Master students. Eric’s fellowship proposal titled “Towards development of market-led kersting’s groundnut [Macrotyloma geocarpum (Harms) Maréchal & Baudet] varieties in Benin” will focus on kersting’s groundnut (Macrotyloma geocarpum), an orphan and underutilized crop species of high nutritional value and economic importance in Benin and West Africa.

Francis Onyilo



Country:
Uganda

University:
Makerere University, Uganda

Department & Degree:
Molecular Plant Pathology and Biotechnology, PhD Candidate

US Mentor institution:
University of California, Davis

CGIAR Mentor Institution:
International Institute of Tropical Agriculture (IITA)

Research:
RNA interference mediated gene silencing in ascomycetes Pseudocercospora fijiensis (Synonym Mycosphaerella fijiensis) black Sigatoka disease in Banana

Email:
francis.onyilo@gmail.com

Francis Onyilo was a Spring 2015 Borlaug LEAP Fellow and joined the program from the East African country of Uganda. He is currently a Lecturer at Muni University in Arua, Uganda, supporting the establishment of a Bachelor of Science in Agriculture programme. He is also awaiting his PhD thesis public defensein Molecular Plant Pathology and Biotechnology at MakerereUniversity. His research is focused on the use of genetic modification in African banana and plantain plants to help combat the black Sigatoka disease, caused by the Pseudocercosporafijiensis fungus. As bananas are an important crop across Africa, for both income and food, helping stem their loss due to disease is crucial to the livelihoods and well being of many people. His concern is that while Uganda's population is increasing, food production has seen an overall downward trend, bananas and plantains included. He identified genes that are responsible for development and virulence of Pseudocercosporafijiensis. He hopes this knowledge will help in developing banana cultivars for resistance to Pseudocercosporafijiensisand which could then help increase overall production.

Throughout his academic career, Francis has studied internationally across Africa, Belgium, and the United States. As a part of his Master's thesis, he did research on potato gene resistance to the potato cyst nematode. Francis worked as a Part-time Lecturer at Gulu University and Makerere University. He has also worked as a crop protection research supervisor with the Kinyara Sugar Company, where he designed and implemented field trials for pest and disease management. While his work is mainly focused on agriculture and food security, he knows first-hand just how interconnected poverty, poor education and food insecurity can be, having witnessed the destruction that 20 years of war and unrest brought to Uganda. As a Scout Leader, Francis has been a part of community mobilization efforts to bring better hygiene and sanitation knowledge to rural areas. He also created a farmer-to-farmer community extension program while working as an intern with Action Against Hunger. He hopes to continue to model good leadership skills while mentoring youth and other students.

During his fellowship year, Francis worked with Dr. Bryce Falk at the University of California, Davis and Dr. Leena Tripathi, currently at the International Institute of Tropical Agriculture (IITA) in Nairobi, Kenya. Dr. Falk is a distinguished professor in the Department of Plant Pathology and he mentored Francis on the technical aspects of plant breeding and genetic modification. Dr. Falk also helped him refine his goals and monitor his research progress. Dr. Tripathi is the team leader and senior scientist in biotechnology at IITA. She provided hands-on experience for Francis in her lab, in the area of transgenic research and experimentation. While there, he had the to opportunity to interact with many other young, international scientists who are currently working in similar fields. Francis completed his PhD research and published in (i)Front. Microbiol., 16 May 2017 | https://doi.org/10.3389/fmicb.2017.00830 and (ii)Front. Plant Sci., 13 March 2018 | https://doi.org/10.3389/fpls.2018.00291. He expects to finish his PhD by the end of 2018.

Kassahun Kelifa Suleman

Country:
Ethiopia

University:
University of the Western Cape, South Africa

Department & Degree:
Development Studies, PhD

US Mentor institution:
University of Montana

CGIAR Mentor Institution:
Bioversity International

Research:
Natural resources control trajectory: customary rights, coercive conservation and coal mining in the Yayo District, Southwest Ethiopia.

Email:
kassahunks@accentureethiopia.com

Kassahun Kelifa Suleman, an Ethiopian, received his PhD from the Institute for Social Development program at the University of the Western Cape in South Africa. Kelifa is interested in the wild coffee Arabica bean and its use in the rural household economy. He is even more interested in the social, environmental and economic phenomena that surround it as an ancient way of life struggles to stay viable in the face of competing interests. Arabica coffee's origins go back thousands of years to southwestern Ethiopia and it is currently a huge cash crop, generating income for a large portion of the population. However, today, its local cultivation and use is competing with conservationists looking to preserve the region for its rich biodiversity and the coal mining operations currently underway in the area, creating environmental, political and social upheaval. In the hopes of finding a way to create a working balance among differing resource use needs and priorities, Kassahun is looking to explore the historical use patterns of the crop, the socioeconomic impacts of its conservation, the implication of coal mining on the local livelihood and the relationships between the different actors in the region.

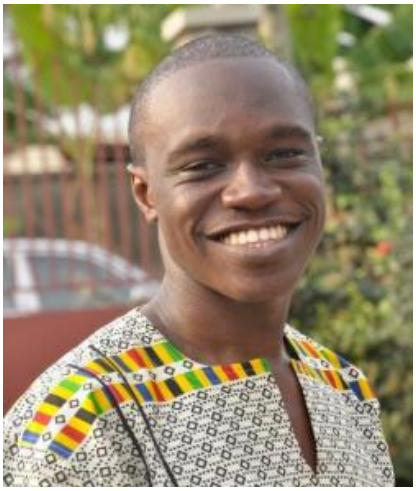
Dr. Kelifa has long been a leader in his community, as an organizer and tutor during his Middle and High School years. As an adult, he has worked with and led various community organizations as well as local and International NGOs to promote food security, sustainable agriculture/food systems and rural development. He sees the ability to problem solve, collaborate and communicate openly as hallmarks of a good leader and is pleased to have learned these skills from others throughout his career. He looked to continue his instruction as a Borlaug LEAP Fellow and extend the influence of Dr. Norman Borlaug's influence in the agricultural world.

During his yearlong fellowship, Dr. Kelifa was mentored by both Dr. Jill Belsky of the University of Montana and Dr. Ehsan Dulloo of Bioversity International in Rome, Italy. Dr. Belsky is a Professor of Rural and Environmental Sociology as well as the Director of the Bolle Center for People and Forests. Dr. Dulloo is the Leader of the Conservation and Availability Programme at Bioversity International and has done extensive research on the preservation of wild coffee

cultivars in Mauritius. Drawing from their experiences and skills, Dr. Kelifa received insights and expertise on qualitative research, particularly on data collection, analysis and the write up of his doctoral dissertation. In addition, Dr. Kelifa is grateful for the guidance of his PhD supervisor at the University of South Africa, Professor Julian May. Dr. Suleman completed his PhD in 2016 and is currently working as a freelance consultant and part time university lecturer in Ethiopia.

Dr. Suleman is also the founder and Managing Director of ACCENTURE Development Consult, which offers a comprehensive portfolio of consultancy, research and training services across key development and humanitarian sectors. Visit: http://accentureethiopia.com/

Kwame Owusu-Daaku



Country:
Ghana

University:
University of South Carolina

Department & Degree:
Geography, PhD Candidate

US Mentor institution:
University of South Carolina

CGIAR Mentor Institution:
International Center for Tropical Agriculture (CIAT)

Research:
A Comparative Study of the Narratives of Climate Change Vulnerability and Food Security in the Volta River Delta of Ghana

Email:
owusudaaku.kn@gmail.com

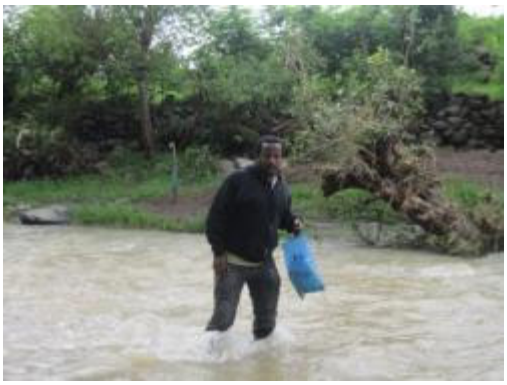
Hailing from West Africa, Ghanaian Kwame Owusu-Daaku joined Borlaug LEAP as a Spring 2015 Fellow as he pursued his PhD in Geography. His research is focused on the effects of climate change and its impact on the food security of the people in the Ghanaian Volta River Delta. Because of the complexity of the delta environment, climate change can often manifest itself differently depending on the physical and social characteristics of the area. In addition, many people depend on these delta regions for transportation, food and employment. Kwame hopes to discover what changes have occurred as seen through the eyes of the people that live there, how those changes have affected food security and what future options there might be. He will be interacting with people face to face, in the areas where they live and work, in hopes of gaining enough information to provide possible solutions to environmental and social policy-makers in the country and throughout West Africa. Ghana is also a Feed the Future identified country and his efforts will hopefully help them fulfill their in-country development goals.

As a social scientist, Kwame hopes to bring another perspective to the food security issue that the so-called “hard sciences” don’t often explore: the people’s perspective. By taking into account the personal narratives of two ethnically distinct people groups in the towns of Ada

Foah and Keta, he hopes to gain greater insight into how changes affect different parts of the population. He also plans to interview government officials and non-governmental professionals who work in the areas to see how their perspectives influence and are influenced by the perspectives of the local people. He defines leadership as “service” and, as such, he hopes that his work will help serve some of the more vulnerable populations in Ghana. Kwame has already spent much of his time serving in various organizations, starting with his leadership role on his high school’s editorial board. He has continued volunteering his time, serving his community, and hopes that he will be able to use his leadership skills to remain sensitive to the needs of others. He looks to use the knowledge he gains while gathering information for his degree to engage with decision-makers and bring about innovation and change.

As a student at the University of South Carolina, Kwame had the opportunity to continue his work with mentor and PhD advisor Dr. Edward Carr, an associate professor of Geography and the director of the Humanitarian Response and Development Lab. He assisted Kwame with his research design and methodology, and gave him advice on his dissertation. His Borlaug LEAP fellowship also enabled Kwame to work with Dr. Katherine Snyder at the International Center for Tropical Agriculture (CIAT). She is a Senior Social Scientist at CIAT and she specializes in Gender, Policies and Institutions. Dr. Snyder helped guide Kwame's efforts on any issues of gender and social status that came up during the course of his research. Kwame’s goal is to complete his PhD by 2017.

Mamaru Ayalew Moges



Country:
Ethiopia

University:
Bahir Dar University, Ethiopia

Department & Degree:
Integrated Water Management, PhD Candidate

US Mentor institution:
Cornell University

CGIAR Mentor Institution:
International Water Management Institute (IWMI)

Research:
Non-Point Source Pollution by Sediment and Nutrients in Lake Tana

Email:
mamarumoges@gmail.com

As the water quality in Lake Tana, Ethiopia slowly degrades, the ecosystem of the surrounding watershed is beginning to shift. Mamaru Ayalew Moges, a Spring 2015 Borlaug LEAP Fellow, is interested in studying these changes in order to perhaps reverse, or at least slow, this shift and employ safeguards to preserve water resources for the future. Using state of the art modeling and mapping techniques as well as on-site data collection, he hopes to find the nature of the pollutants in the watershed and how its effects can be minimized or removed entirely. He will be looking at chlorophyll and sediment levels as well as phosphorus levels to identify pollution

“hot spots” within the watershed. This data will hopefully aid in increasing food security within Ethiopia, as Lake Tana has important agricultural significance. In addition, Ethiopia is part of the Feed the Future USAID initiative and one of the mains goals of that initiative is to find sustainable ways of increasing food security through cooperation with local governments. Mamaru hopes to work with policy-makers to help further that goal using his current research.

Even prior to attending Bahir Dar University, Mamaru had significant experience in the Water Management field. He was the head of the Water and Irrigation Department in Agew, near Lake Tana, and worked in conjunction with a Finnish NGO to create sustainable water and irrigation projects. He first joined Bahir Dar University as a Master’s student and was made an assistant professor upon completion of his degree. After finishing his PhD he hopes to continue to teach at Bahir Dar and use his leadership skills and experience in the area of water management to instruct the future generation. Mamaru believes his vision, focus, and dedication to his field will help motivate those he instructs and will carry on the legacy of Dr. Norman Borlaug’s tireless work in Africa and around the world.

Mamaru headed over to Cornell University to work under the mentorship of Dr. Tammo Steenhuis. Dr. Steenhuis has worked with both Bahir Dar University and the Borlaug LEAP Fellowship in the past and has proven to be a tireless advocate of sustainable water engineering and management in developing countries. While at Cornell, Mamaru expanded his knowledge of modeling and data interpretation techniques in their Soil and Water Lab. He also working with Dr. Teklu Erkossa at the International Water Management Institute (IWMI), currently an International Researcher in their Productive Water Use department. As an Ethiopian national, Dr. Erkossa is well acquainted with the water issues facing the country and he helped Mamaru focus and direct his research efforts. Mamaru is expected to receive his PhD in Integrated Water Management in 2016.

Meseret Belachew Addisie

Country:
Ethiopia

University:
Bahir Dar University, Ethiopia

Department & Degree:
Integrated Water Management, PhD Candidate

US Mentor institution:
Cornell University

CGIAR Mentor Institution:
International Water Management Institute (IWMI)

Research:
Assessment of Hydrological and Geotechnical Factors for Controlling Gully Erosion in the Humid Ethiopian Highlands

Email:
meseret.belachew21@gmail.com

Meseret Belachew Addisie, a Spring 2015 Fellow from Ethiopia, is concentrating his research on gully formation and erosion in the Ethiopian highlands. Gullies and the resulting erosion are highly destructive to arable lands and threaten food security by washing away valuable minerals and nutrients in the soil needed for crop production. He plans to investigate solutions through both field research and in-lab modeling in order to design locally produced measures capable of stopping gully formation. He hopes his work will help increase knowledge and understanding in this area of water management in order to begin repairing the damage. He also wishes to work with government policy-makers to advance the Feed the Future's goal of increasing food security and reducing poverty in Ethiopia and around the world.

Meseret is very passionate about improving food security and promoting economic growth in his home country. He feels motivated by a childhood spent seeing his father struggle to make a living as a teacher. Eventually his father's hard work paid off and he was promoted to a larger role within the community. This dedication to hard work and education was passed onto his son, Meseret, who continues to work hard to pursue his goals. He hopes to model being a leader through his pursuit of excellence and willingness to learn from others, while still offering guidance to those looking for advice and direction. In addition, Meseret sees Dr. Norman Borlaug as a shining example of what can be achieved through hard work, excellent leadership, and a dedication to service, and would like to use his Fellowship experience to increase his skills in those areas.

Meseret is currently a PhD candidate in Integrated Water Management at Bahir Dar University in Ehtiopia. During his fellowship, he worked with Dr. Tammo Steenhuis, of Cornell University, who has long shown a willingness and a desire to mentor developing country students looking to make a difference in their communities. He has strong ties to Bahir Dar University and currently working as an adjunct professor of Water Engineering, which brings him to Ethiopia for several months out of the year. He worked with Meseret to help guide both his studies and his fieldwork. Meseret also worked with Dr. Petra Schmitter, currently at the International Water Management Institute (IWMI) as an International Researcher of Agricultural Water Management. She worked with him to find innovative techniques for water conservation and management while he conducted research in her lab. He expects to receive his doctorate in 2016.

Mohamed Blango

Country:
Sierra Leone

University:
Njala University, Sierra Leone

Department & Degree:
Agricultural Engineering, PhD Candidate

US Mentor institution:
University of Illinois, Urbana-Champaign

CGIAR Mentor Institution:
International Rice Research Institute (IRRI)

Research:
The Performance of a Micro-Dam Rainwater Harvesting System in an Inland Valley Swamp

Email:
medbel2003@yahoo.com

As a Spring 2015 Fellow with Borlaug LEAP, Mohamed Blango did research for his doctoral thesis, titled "The Performance of a Micro-Dam Rainwater Harvesting System in an Inland Valley Swamp". He is interested in how the micro-dam system will help farmers with their irrigation needs in his home country of Sierra Leone. While Sierra Leone is one of the most humid countries in West Africa, seeing an average of 2.5 meters of rainfall per year, their rain-harvesting technologies are still in need of improvement. Micro-dams are small-scale rain-harvesting systems that will allow farmers to harvest and store rainwater for future use. He hopes that by using a combination of biochar and other collection and storage technologies along with these micro-dams, he will be able to help create a system that will contribute to Sierra Leone's agricultural goals: ensuring food security, reducing poverty and conserving ecosystems. Food security in particular is also in line with the goals of Feed the Future, a USAID funded initiative that works in collaboration with other West African countries in similar situations.

Irrigation technology is not only a very important area of study for Sierra Leone and to West Africa in general, it is also a subject that is personally significant to Mohamed. After having pursued a Masters in Soil and Water Engineering, he became interested in how his skills could be used in capacity-building and extension efforts as they related to agriculture. Just before becoming a Borlaug LEAP Fellow, he was the lead investigator for a three-year groundwater-tracking project spearheaded by the International Atomic Energy Agency. He has also been very involved in other field and lab research activities at the Magbosi Land and Water Research Center. He feels he has the ability to use these experiences in conjunction with his ability to manage and offer guidance effectively to help train and lead those looking to him for assistance.

Mohamed worked with mentors Dr. Richard Cooke of the University of Illinois and Dr. James Quilty of the International Rice Research Institute in the Philippines. Dr. Cooke is a respected professor and mentor whose research, among other topics, is focused on the design of rainfall harvesting systems. He is also an Adjunct Professor at Njala University in Sierra Leone. Dr. Quilty currently works at the International Rice Research Institute headquarters located in the Philippines. His research focuses on soil improvement and effective irrigation strategies. During his time with them, Mohamed hoped to refine and focus his research objectives while learning valuable techniques and strategies in the area of water management and engineering. He expects to receive his PhD in Agricultural Engineering from Njala University in 2017.

Borlaug LEAP- Past Fellows Directory (Fall 2015)

Adugnaw Tadesse Akale

Country:
Ethiopia

University:
Bahir Dar University, Ethiopia

Department & Degree:
Integrated Water Management, PhD Candidate

US Mentor institution:
Cornell University

CGIAR Mentor Institution:
International Water Management Institute (IWMI)

Research:
Assessment and Remediation of Water Quality in Agricultural Watersheds in the Ethiopian Highlands: A Case Study of the Tikurwuha Watershed

Email:
adugnawtadesse@gmail.com

The ecology and economic activities of Lake Tana and its surrounding watershed in the Ethiopian highlands are being affected by increasing population pressure and intensification of agriculture. Adugnaw Tadesse Akale, a Fall 2015 Borlaug LEAP Fellow, is interested in studying the assessment of water quality and the development of remedial action in the agricultural watershed. By modeling and on-site measuring of sediment and sediment-related nutrient concentrations from surface water as well as groundwater data, he hopes to identify the causes and the consequences of deterioration of water quality in the watershed. His goal is help design management options that can reduce the negative consequences of the degradation of the water quality in the headwaters of the Lake Tana Basin.

Adugnaw has Bachelor's degree in Irrigation Engineering and Master's degree in Hydrology Engineering. He gained practical experience in water resource management while working with CARE Ethiopia, an international non-governmental organization, as an Infrastructure Development team leader. He worked to improve the livelihood of chronically food-insecure rural women through access to safe drinking water, sanitation facilities, and different food security programs.

Adugnaw is enrolled in the PhD program in Integrated Water Management at Bahir Dar University and is working as a Water Resources Manager at CARE Ethiopia. During his fellowship, he was mentored by Dr. Tammo Steenhuis, a respected professor at Cornell University and Dr. Wolde Mekuria, currently serving as a researcher at the International Water Management Institute (IWMI). Upon completing his PhD, Adugnaw hopes to join an academic institution or an organization that focuses on doing applied research with practical implications for improved food security in Ethiopia.

Alie Kamara

Country:
Sierra Leone

University:
Njala University, Sierra Leone

Department & Degree:
Soil Science, PhD Candidate

US Mentor institution:
University of Illinois, Urbana-Champaign

CGIAR Mentor Institution:
AfricaRice Center

Research:
Modeling Soil Erosion and Nutrient Leaching in the Bolilands of Sierra Leone

Email:
kamaralie@yahoo.com

Fall 2015 Borlaug LEAP Fellow Alie Kamara currently holds a BSc degree in Chemistry and an MSc degree in Soil Science. He is pursuing his PhD at Njala University in his home country of Sierra Leone, working on modeling soil erosion and nutrient leaching in the Bolilands, one of the country's five agro-ecological zones. He is working on understanding the risks to nutrient loss through leaching and soil loss through water erosion, how agricultural practices in this region accelerate these processes, and their overall impact. He hopes to acquire theoretical and practical skills on modeling nutrient leaching in soils and the use of simulation models (e.g. the Erosion-Productivity Impact Calculator - EPIC model) for developing management scenarios, as well as acquiring additional skills in Geographic Information Systems (GIS) and remote sensing, particularly with applications to land cover mapping.

Alie has worked for Njala University for twelve years, along with a number of local and international research projects on agricultural research e.g. Urban and Peri-Urban Agricultural (UPA) Research, Organic Farming in West Africa, Agricultural and Environmental Benefits from Biochar Use in ACP Countries, Integrated Soil Fertility Management for Food Security. He has also served in different leadership positions: acting head of Department of Soil Science, Secretary General of the Njala University Society for Academic Advancement and as coordinator and team member of international research projects. Throughout his work as a soil scientist in Sierra Leone, he has come to realize that a potent threat to sustainable soil productivity and the achievement of food security in Sierra Leone is the combined effect of soil erosion and nutrient leaching. His vision is to ensure the sustainable use and management of soil resources of Sierra Leone for sustainable crop production and food security by identifying strategies for minimizing these issues.

During Alie's fellowship, he will be working with two mentors. Dr. Richard Cooke, at the University of Illinois, will help show him how to conduct non-point source nutrient modeling while Alie was in the US. Dr. Cooke is a professor and mentor, and is currently researching best practices for drainage systems to improve water quality and the design of water-harvesting systems in developing countries. With Dr. Sander Zwart, currently at AfricaRice in Benin, Alie is investigating land use and land-cover mapping using GIS and remote sensing. Dr. Zwart is the

Principal Researcher for remote sensing and GIS at AfricaRice and has extensive international experience. Alie expects to complete his thesis research and receive his PhD in 2017.

Azalu Alebachew Gessess

Country:
Ethiopia

University:
Bahir Dar University, Ethiopia

Department & Degree:
Integrated Water Management, PhD Candidate

US Mentor institution:
Cornell University

CGIAR Mentor Institution:
International Water Management Institute (IWMI)

Research:
The Effect of Breaking the Restrictive Layer on Hydrological Processes in the Birr Watershed, Upper Blue Nile Basin, Ethiopia

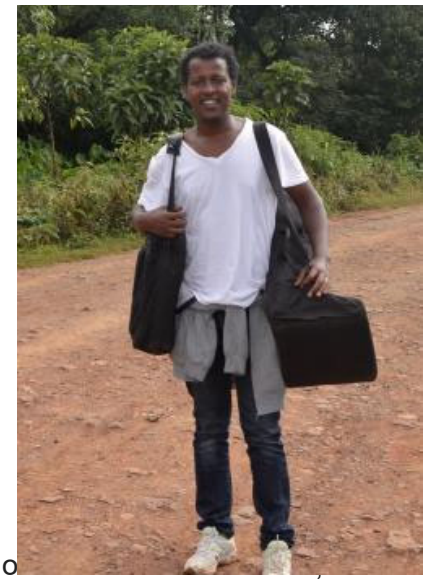
Email:
azalualebachew@yahoo.com

Azalu Alebachew Gessess joins Borlaug LEAP as a Fall 2015 Fellow and is pursuing her PhD in Integrative Water Management at Bahir Dar University. Her research focuses on the degradation of farmland in the Birr watershed due to the formation of hardpan that impedes water absorption into the soil and results in significant erosion. Ms. Alebachew will be doing field surveys to determine the variations in the hardpan depth in the study areas and experiments to see whether mechanical means, chemical soil amendments, or a combination of both are better suited to break up the compacted soil.

Ms. Alebachew developed an interest in sustainable environmental resource management as an extension of her work in land resource management. She received both a BS and an MS in Land Resource management and Environmental Protection and then went on to use her expertise to work with farmers and community members to help them manage their resources. She has also worked as a lecturer and researcher at various Universities in Ethiopia over the years, training others to work in the same field. She has used her position in leadership to not only supervise and train, but to inspire others to think critically and come together to obtain common goals. She is especially proud of being a woman a typically male-dominated scientific arena and she hopes to inspire other women to reach for their goals as well.

During her fellowship, Ms. Alebachew will work with her US mentor, Dr. Tammo Steenhuis from Cornell University. In addition, Ms. Alebachew will work with Dr. Petra Schmitter, a head researcher at IWMI and an authority in international sustainable agricultural water management. Ms. Alebachew expects to finish her degree in October 2016.

Debebe Moges Moshago



Country:
Ethiopia

University:
Jimma University, Ethiopia

Department & Degree:
Human Nutrition, PhD Candidate

US Mentor institution:
Oklahoma State University

CGIAR Mentor Institution:
International Maize and Wheat Improvement Center (CIMMYT)

Research:
The Implications of Caring Practice and Household Food Insecurity o
Growth, and Development of Infants in Nutrition Sensitive Intervention Areas in Southwestern Ethiopia

Email:
debebe2m@gmail.com

Agriculture and nutrition are closely linked and when one is lacking, the other tends to suffer as well, especially in developing countries. In conjunction with other agricultural and food production goals, the Ethiopian government introduced the National Nutrition Strategy (NNS) in 2008 to help address the issue of food security in the country. As a Fall 2015 Borlaug LEAP fellow, Debebe Moges Moshago studied how some of the messages this program are impacting their target populations. Malnutrition remains one of the biggest health concerns in developing countries like Ethiopia, especially among women and young children. He looked specifically at the "Implications of Caring Practices and Household Food Insecurity on the Nutritional Status, Growth, and Development of Infants in Nutrition Sensitive Intervention Areas in Southwestern Ethiopia", in order to help inform the national health agencies on the effectiveness of the programs and perhaps provide improvement suggestions.

Debebe has a Bachelor's degree in Applied Biology and a Master's in Applied Nutrition, both from Hawassa University in Ethiopia. As a part of his studies and his work, he has had the opportunity to collaborate with people in Canada and the US. He has served as the Human Nutrition Graduate Program coordinator at Hawassa University in addition to being a lecturer and researcher for that department. Debebe wants to use his influence as someone in a position in leadership to help guide those interested in helping bring about change in Ethiopia. He states that in his home country, being a leader is traditionally seen as being higher or above others, literally: those that are older, taller, and/or the firstborn tend to been looked to as leaders, whether or not they have the ability to lead. As he gains more experience, Debebe has discovered that these are not necessarily the traits that make a leader. He wants to not only use what he has already learned from his previous mentors, but also use what he gained during his Borlaug LEAP fellowship to enhance his leadership skills.

While in the US, Debebe collaborated with Dr. Barbara Stoecker, a professor at Oklahoma State University. Dr. Stoecker has years of experience working in the nutrition field and mentoring graduate students, including a recent Borlaug LEAP alumnus. She makes frequent trips to

Ethiopia and is well acquainted with the nutrition work going on over there. She helped Debebe analyze and interpret his data, along with guiding him in writing his dissertation. In addition, Debebe was mentored by CIMMYT researcher Dr. Moti Jaleta. Dr. Jaleta is an agricultural economist who recently co-authored a paper on the nutritional impacts of improved maize varieties in Ethiopian children and he helped Debebe with his data collection in the study sites. Debebe is on track to complete his PhD in July 2017.

Dessalegn Chanie Dagnew

Country:
Ethiopia

University:
Bahir Dar University, Ethiopia

Department & Degree:
Integrated Water Management, PhD Candidate

US Mentor institution:
Cornell University

CGIAR Mentor Institution:
International Water Management Institute (IWMI)

Research:
Adapting APEX (Agricultural Policy/Environmental Extender) Model for the Ethiopian Highlands

Email:
cdessalegn@yahoo.com

Dessalegn Chanie Dagnew was awarded a Borlaug LEAP Fellowship in Fall 2015 and is pursuing his PhD in Integrated Water Management at Bahir Dar University in Ethiopia. He is passionate about improving the lives of his fellow countrymen, especially those in rural areas, and he hopes that his work in the Ethiopian highlands will help contribute to this improvement. Dessalegn will be working with adapting an integrated decision support system tool called the Agricultural Policy/Environmental Extender (APEX) model to the Ethiopian highlands. This model helps to better simulate the effect of alternative land management practices on runoff, sediment and nutrient loads, and crop yield. Dessalegn hopes to use his research to advise decision- and policy-makers on the impacts of alternative conservation practices, tillage operations, cropping systems as well as better nutrient management practices for the depleted soil.

Dessalegn has two Bachelor's degrees (Economics and History/Geography) and a Master's in Integrated Watershed Management. During his fellowship he collaborated with Dr. Tammo Steenhuis, who will serve as his US mentor at Cornell University. Dr. Steenhuis has been working and teaching in Ethiopia for many years and is a very respected faculty member at both Bahir Dar and Cornell. Dessalegn also worked with Dr. Wolde Mekuria at IWMI in Addis Ababa. Dr. Mekuria has expertise in land resource management, and is working on a number of different topics, including the rehabilitation of degraded agricultural land, watershed management, and crop water productivity. Dr. Mekuria worked with Dessalegn to help him publish his data and with the final write-up for his dissertation. Dessalegn is expected to complete his PhD by the end of 2016.

Emmanuel Mgonja

Country:
Tanzania

University:
Ohio State University

Department & Degree:
Plant Pathology, PhD Candidate

US Mentor institution:
Ohio State University

CGIAR Mentor Institution:
AfricaRice Center

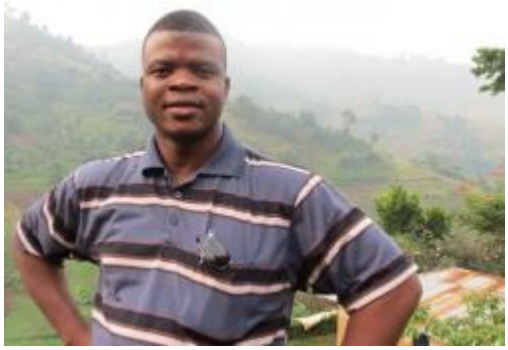
Research:
Molecular Analysis of Host Resistance and Pathogenicity of Rice Blast in East Africa

Email:
mgonja.1@osu.edu

Tanzanian native Emmanuel Mgonja is working on his PhD in Plant Pathology, which is focused on helping curb the effects of rice blast, caused by the fungus *Magnaporthe oryzae*, which has been know to cause up to a 70% yield loss among farmers in East Africa. In addition, rice is a major staple crop in the diet of most East Africans, creating significant food insecurity in areas that are most affected. Emmanuel used his Fall 2015 Borlaug LEAP fellowship to continue his research in Uganda, Kenya, and Tanzania. He will be working to characterize and map the genes of certain strains of the fungus, in the hopes of creating more resistant rice varieties that will help meet the needs of both farmers and consumers alike. Emmanuel has already worked and studied in Japan, a huge rice producer, and is looking forward to continuing his work in the US with the highly-regarded Plant Pathology department at Ohio State. He is also hoping to refine his leadership skills by learning from others in his field and working in collaboration with other plant pathologists.

While attending Ohio State University, Emmanuel worked with his graduate advisor and mentor, Dr. Guo-Liang Wang. Dr. Wang is a Plant Pathologist with extensive experience in the molecular analysis of disease resistance in rice. He has and will continue to guide Emmanuel in his gene-mapping research in the lab. Emmanuel also worked with his CGIAR mentor, Dr. Drissa Silue, currently at AfricaRice in Benin. Dr. Silue has worked in Europe and Africa on gene mapping, disease resistance, and gene modifications in rice. He provided Emmanuel with valuable insight into the hands-on work needed to complete his research. Emmanuel plans to complete his PhD by the end of 2016.

Festus Amadu



Country:
Sierra Leone

University:
University of Illinois, Urbana-Champaign

Department & Degree:
Natural Resources and Environmental Sciences, PhD Candidate

US Mentor institution:
University of Illinois, Urbana-Champaign

CGIAR Mentor Institution:
International Food Policy Research Institute (IFPRI)

Research:
The Linkage Between Agricultural Extension and Sustainability in Uganda

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amadu2@illinois.edu

Hailing from the West African country of Sierra Leone, Festus Amadu joins us as a Borlaug LEAP Fellow in Fall 2015. His area of study is the Link Between Agricultural Extension and Environmental Sustainability. He is interested in how the messages presented to rural farmers coincide with the environmental and natural resource conservation goals in Uganda. He will specifically be looking at the rate of adoption for these practices and what their long-term effectiveness potential might be. He is looking to find out what is working and, hopefully, to improve on those messages that may need to be adjusted. He will then use that information and extend it to his future work in Sierra Leone, tackling both the issue of food security and sustainability in West Africa at the same time.

Since receiving his Bachelor's degree in Agricultural Economics, Mr. Amadu has worked with the Ministry of Agriculture, Forestry and Food Security in Sierra Leone and at Njala University and, in addition, completed his Master's degree, also in Agricultural Economics. He is currently studying at the University of Illinois, where he is currently pursuing his PhD in Natural Resources and Environmental Sciences and where he received an additional Mater's degree. His vision for Sierra Leone is improved food security through increased food production and self-reliance, while still working to maintain environmental sustainability. He has witnessed firsthand the struggles his home country has had in trying to feed its citizens due to limited resources and antiquated agricultural practices. More recently, the Ebola outbreak has dealt another blow to the already disadvantaged country, and Mr. Amadu is hoping that his work will allow him to help start to bring them closer toward self-sufficiency. He feels that his previous experiences in leadership will help him to guide others to leadership roles in their own respective communities, moving them towards common objectives.

Mr. Amadu will be working with Dr. Paul McNamara, who will serve as his US mentor at University of Illinois. Dr. McNamara is an Associate Professor at the University's Department of Agricultural and Consumer Economics and has worked all over the world, including Sierra Leone, to improve extension services and the information being provided to rural farmers. He will be helping Mr. Amadu to conduct a literature review of data pertinent to his research. Mr. Amadu will also be working with Dr. Kristin Davis, currently a Research Fellow at IFPRI in South

Africa. She is an expert in international extension systems and will mentor Mr. Amadu's work in Uganda through her Development Strategy and Governance Division at the IFPRI office in Kampala where he will be doing his internship. Mr. Amadu is expected to graduate in 2018.

Mavis Owureku-Asare

Country:
Ghana

University:
Kwame Nkrumah University of Science and Technology (KNUST), Ghana

Department & Degree:
Food Science, PhD Candidate

US Mentor institution:
Purdue University

CGIAR Mentor Institution:
International Institute of Tropical Agriculture (IITA)

Research:
Storage Stability, Functional Properties, and Consumer Acceptability of Dried Tomatoes Produced Using an Optimized Solar Dehydration Technique

Email:
mowureku.asare@gmail.com

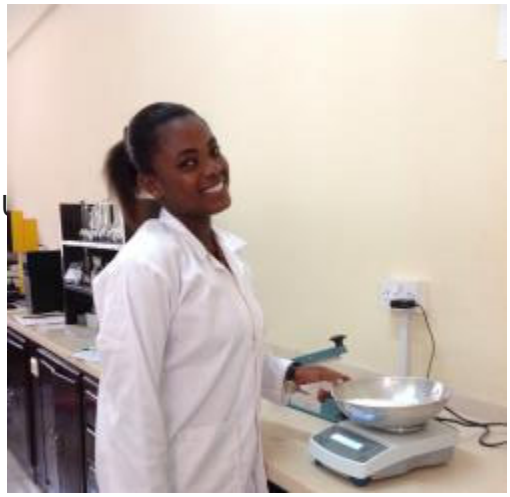
Mavis Owureku-Asare has been working as a Food Scientist for several years now and has a wealth of experience in product development and post-harvest management of fruits and vegetables. Her current research focuses on providing solar dehydration technology to African women, especially in Ghana, that can be employed right at the farm level and in homes to preserve tomato. As an African Women in Agricultural Research and Development (AWARD) fellow, her research is gender responsive and focused on promoting practical agricultural technologies and solutions, which will benefit farmers and improve livelihoods of women in Ghana and throughout West Africa. The findings generated from her PhD research will help enable the design of sustainable solutions that can be replicated to help reduce post-harvest losses and enhance the tomato value chain.

Tomato production is mainly a smallholder farmer activity in Ghana. At the peak of the harvest season, farmers lose about 20-50% of produce due to the lack of adequate processing facilities and that can result in severe price fluctuations. Mavis has observed that attempts to solve the problem of seasonal gluts and scarcity through commercial processing have not been successful and would like to work to be a part of the solution. Improving domestic tomato processing would both absorb excess supply and strengthen the value chain. It would also reduce the country's dependence on imported tomato paste and provide employment opportunities. Mavis believes that if food security is to become a reality in Africa, there is the need for a new generation of African agricultural leaders, including highly skilled, well-positioned women who can influence emerging research. Her wish is to see a more vibrant food industry that meet the nutritional need of Ghanaians. As an emerging leader in the field of food and Agriculture, her leadership drive is commendable. Through her company Kasmalink Consult,

Mavis works with women entrepreneurs to position and stimulate local demand for their products. She believes that given the chance and support, women can contribute substantially to the development of the food processing industry in Ghana. She serves as a volunteer for Moringa Community of Ghana, an NGO in the Central region of Ghana, which trains women in food processing techniques. She is also the Innovations and Impact Coordinator of the 4H club in Ghana which promotes a sustainable school feeding program through the Enterprise garden projects in first and second cycle schools.

As a Borlaug LEAP Fellow, Mavis worked with Dr. Kingsly Ambrose, an agricultural engineer with expertise in cereal grain drying at Purdue University. Through Dr. Ambrose's involvement with USAID's Feed the Future Innovation Lab on Post-Harvest Loss reduction, he is co-leading an effort to develop optimized solar dryer designs for Ghana. Dr. Busie Maziya-Dixon, Mavis' CGIAR mentor, is an experienced food scientist from International Institute of Tropical Agriculture (IITA) in Nigeria has wealth of experience working on product development of various agricultural produce and he offered expert technical assistance for her research work. Mavis expects to complete her PhD in 2017.

Millicent Yeboah-Awudzi



Country:
Ghana

University:
Kwame Nkrumah University of Science and Technology (KNU

Department & Degree:
Food Science and Technology, MPhil

US Mentor institution:
Louisiana State University

CGIAR Mentor Institution:
AfricaRice Center

Research:
Formulation and Characterization of Rice Bambara-Groundnut Snack Product

Email:
myawudzi@gmail.com

Millicent Yeboah-Awudzi joins the Borlaug LEAP Fellowship from her home country of Ghana. As a 2015 Fall Fellow, she will be working on obtaining a Master's of Food Science and Technology degree from Kwame Nkrumah University of Science and Technology (KNUST). Her focus is on the utilization of under-valued crops to help increase the nutritional value of certain prepared foods. Her goal is to create a prepared food snack that will help boost the nutrient consumption of a targeted population while promoting local agriculture systems, reducing post-harvest loss, and creating a sustainable product. She will be working in particular with the Bambara groundnut, a local legume that is high in protein and other nutrients, and lower-grade milled rice. Millicent will work to identify the combination of ingredients that offer both the highest nutritional content along with the best flavor, all while focusing on local, sustainable, and non-imported ingredients.

Millicent has seen firsthand what donations and handouts have done for the community and is disillusioned with the culture of dependence it has created. She feels strongly that what the people of Ghana, and across Africa, need is not more donations, loans and other forms of “assistance”, but a greater emphasis on education and innovation. She is hoping to contribute to a movement towards self-reliance and self-determination, one project at a time. Her passion for food and science came together in her decision to pursue her degree in the food technology field and she hopes to use her findings to teach others and to help improve the field of nutrition in general. She would also like to be an example to girls interested in pursuing their degrees in higher education.

During her time as a Borlaug LEAP Fellow, she worked with two different mentors, one at a US institution and one at a CGIAR center. Dr. Joan King, a professor at the School of Nutrition and Food Sciences at Louisiana State University (LSU), helped Millicent to analyze her food products for nutrient content. Dr. King is currently working on ingredient development with sweet potatoes and rice and the oxidation products produced by processed and stored foods. She will also worked with Millicent to conduct studies on identifying the best tasting of all the samples. In addition, Millicent was mentored by Dr. John Manful, a Grain Quality Scientist and head of the Grain Quality, Nutrition and Post Harvest unit. His work is focused on the addition of value to local, lower quality rice by developing new food products. He assisted Millicent in creating her snack products in a way that is both nutritionally dense and relatively low-cost. She completed her degree in 2016 and will be pursuing a PhD in Food Science at LSU in fall 2017.

Paul Kachapulula

Country:
Zambia

University:
University of Arizona

Department & Degree:
Plant Pathology, PhD Candidate

US Mentor institution:
University of Arizona

CGIAR Mentor Institution:
International Institute of Tropical Agriculture (IITA)

Research:
Aflatoxin Contamination of Native Foods in Zambia

Email:
paulwkachapulula@email.arizona.edu

Paul W. Kachapulula is a Plant Pathologist and a member of the faculty of the University of Zambia. Mr. Kachapulula earned his Bachelor's degree in Agricultural Sciences from the University of Zambia and a Master's degree in Crop Sciences and Plant Pathology from Makerere University in Uganda. He is currently on study leave pursuing a PhD in Plant Pathology at the University of Arizona. His doctoral research is aimed at reducing aflatoxin contamination in maize and groundnuts, important staples in his home country Zambia. This

entails understanding the process by which crops become infected, characterizing the etiologic agents and evaluating the efficacy of biological control strategies. He hopes that his research will help contribute to the improvement in production, income, and food security among smallholder farmers and their communities.

Mr. Kachapulula believes that food security is not just tied to increasing yields but also reducing losses in quality and quantity of agricultural produce. He has conducted research on various disease diseases with the aim of preventing losses and is also interested in reducing mycotoxins, which are fungal metabolites associated with liver cancer, immune suppression, stunted growth and can also result in trade reduction. As a lecturer at the University of Zambia, his role was training future researchers and providing solutions to diseases problems faced by farmers. He plans on working with his mentors during his fellowship to enhance his leadership skills and expand his knowledge base so that he can serve as an example to those currently studying and working in his field of study.

During this fellowship, Mr. Kachapulula will be working with top mycotoxin researchers Dr. Peter. J. Cotty of USDA/University of Arizona and Dr. Ranajit Bandyopadhyay of IITA in Nigeria. Dr. Cotty is a Research Plant Pathologist and Lead Scientist for the Agricultural Research Service at the USDA and lead researcher at the USDA laboratory-based School of Plant Sciences at the University of Arizona, where he also serves as an Adjunct Professor. He will provide vast insights into population biology and physiology of aflatoxin-producing fungi and the management of aflatoxin contamination. Dr. Bandyopadhyay is a senior plant pathologist at IITA who is focusing on, among other things, a broad spectrum of plant diseases and possible biological controls, policy and institutional issues, and diagnostics and integrated management of aflatoxins. Paul Kachapulula expects to complete his PhD in May 2017.

Stanlee Juma

Country:
Malawi

University:
Lilongwe University, Malawi

Department & Degree:
Soil Science, MSc

US Mentor institution:
University of Maryland

CGIAR Mentor Institution:
International Center for Research in Agroforestry (ICRAF)

Research:
Soil Carbon and Nitrogen Dynamics and Maize Yield Changes in Maize-Forage Legume Cropping Systems in Malawi

Email:
sjuma86@yahoo.co.uk

Stanlee Juma joined the Norman Borlaug LEAP as a 2015 Fall Fellow. He holds a BSc in Agriculture (crop science) and is currently pursuing an MSc in Soil Science at Lilongwe University of Agriculture and Natural Resources (LUANAR) in his home country Malawi. His research focuses on the development of sustainable mechanisms for enhancing maize-dairy integration production systems as a part of conservation-farming technology. He is looking to understand the soil nitrogen and carbon dynamics in maize-forage legumes cropping systems in order to establish the determinants of crop residue use for feeding livestock and soil fertility management. Specifically, the study will be investigating the potential for improving nutrient availability through inter-cropping maize with forage legumes, manure addition and crop residue retention. The project aims to contribute towards the improvement of maize – dairy integrated production systems for enhanced productivity through development and/or identification of suitable and adoptable production technologies leading to improved food security and livelihoods in Malawi.

Stanlee worked on soil research during his BSc studies and published a few papers on his findings. Since then, he has focused on improving soil productivity after observing the production challenges farmers are facing. He feels that, with the changes in climate and the ever increasing human population, smallholder farmers will have to be able to produce food more sustainably on smaller plots of land, hence a need for more sustainable production systems that can protect and preserve the soils. Stanlee spent time as an Operations Support Analyst at Exagris Africa Limited, a commercial farming company in Malawi where he worked on fertilizer recommendations for the company's production activities and also conducted several trials as a part of their research and development programs. He believes that Malawi food status can improve if there is an improvement on the linkages between research, policy, and extension. This belief led him to team up with friends to establish an agronomy society; one of its objectives is to act as an umbrella platform to address the gaps that exists within the agricultural sector in Malawi.

Stanlee worked with US mentor Dr. Raymond R. Weil, a professor of Soil Science at the University of Maryland, and CGIAR mentor Dr. Jeremias Mowo, a senior scientist and the Regional Coordinator for East and Southern Africa at ICRAF. Dr. Weil has over 40 years experience in soil fertility research, much of it in Africa. He assisted and guided Stanlee in defining his research goals and refining the methods of achieving them. Dr. Weil assisted Stanlee during his his time in the US, introducing him to other scientists in the field and developing his skills as a researcher. Dr. Mowo worked with Stanlee to implement his research in Malawi. He mentored Stanlee through the ICRAF regional offices in Malawi and Kenya where he did a portion of his internship. Stanlee expects to complete his degree in April 2017.

Taiwo Ayinde

Country:
Nigeria

University:
Ahmadu Bello University, Nigeria

Department & Degree:
Agricultural Economics and Rural Sociology, PhD Candidate

US Mentor institution:
Cornell University

CGIAR Mentor Institution:
International Livestock Research Institute (ILRI)

Research:
The Economics of Sustainable Tree-Crop-Livestock Intensification Amongst Smallholder Farmers in Northwestern Nigeria

Email:
taiyeayinde2006@yahoo.com

Taiwo Ayinde, a native of Nigeria, will be joining the Borlaug LEAP Fellowship as a Fall 2015 Fellow. She will be working on research for her PhD in Agricultural Economics and Rural Sociology, which she will receive from Ahmadu Bello University, located in Zaria, Nigeria. She is studying the Economics of Sustainable Tree-Crop-Livestock Intensification Among Smallholder Farmers in Northwestern Nigeria. As the population grows, finding effective yet sustainable ways of not only maintaining, but increasing productivity, will be very important in the future, and Ms. Ayinde hopes to address some of these issues. Her goal is to document the characteristics of the current production systems in Northwestern Nigeria, to develop a model that will allow farmers to optimize their outputs, income, and productivity. Once a model is identified, she hopes to try and implement it systematically in order to study its effectiveness. She would like her research to eventually lead to an improvement in food security not only in Nigeria, but across West Africa and beyond.

Ms. Ayinde has used her interactions with farmers throughout her studies to spur her on to finding solutions to socio-economic and gender based problems. She has seen how the combination of poor agricultural practices, climate change, and environmental degradation has led to malnutrition, income loss, and a general lowered quality of life in Northern Nigeria. As a scientist, she hopes to find ways of mitigating the destruction these issues have caused. As a woman, she hopes to be able not only relate those women most affected, but to inspire other female scientists to join in making a difference in their own communities. She has already mentored numerous students in her positions as a lecturer and extension worker and she plans to continue to do so after she completes the Borlaug LEAP Fellowship and her doctoral studies.

Taiwo Ayinde will be working with two mentors, Dr. Charles Nicholson and Dr. Augustine Ayantunde, for the duration of the Fellowship. Dr. Nicholson is an Adjunct Professor for the School of Applied Economics at Cornell University. He has worked on the analysis of food systems in developing countries and has partnered with ILRI, where Ms. Ayinde's CGIAR mentor currently works. Dr. Nicholson will help her create an effective modeling tool for her research along with introducing her to a wider pool of researchers in her area of study. Dr. Ayantunde is currently at ILRI as the Senior Animal Scientist, where he works on agro-pastoral systems in West Africa. He will be working with Ms. Ayinde to fill in the gaps in her knowledge and help her gain practical field knowledge as she works on her surveys. She is on track to receive her PhD at the end of 2016.

Victoria Bulegeya

Country:
Tanzania

University:
Ohio State University

Department & Degree:
Horticulture and Crop Science, MSc

US Mentor institution:
Ohio State University

CGIAR Mentor Institution:
International Maize and Wheat Improvement Center (CIMMYT)

Research:
The Effect of Potyvirus Resistance to Maize Lethal Necrosis (MLN)

Email:
bulegeya.1@osu.edu

Hailing from Tanzania, Victoria Bulegeya joined the Borlaug LEAP fellowship in Fall 2015 to enhance her work towards a Master's in Horticulture and Crop Science at Ohio State University. She studied the effects of potyvirus resistance to Maize Lethal Necrosis (MLN), which can cause stunted growth, sterility, and malformed or rotten cobs in the maize plant. MLN is widespread in East Africa and has caused significant crop loss, which can lead to malnutrition and income reduction, both significant hallmarks of food insecurity. Victoria worked with maize populations bred to resist these viruses and she evaluated the strength of their resistance along with their agronomic viability. Her aim is to help identify new varieties of the maize crop with MLN resistance to be used by farmers in East Africa, including those countries where USAID's Feed the Future initiative is working to help improve food security.

Tanzania is a country that employs nearly 75% of its population in the agricultural sector to produce more than 50% of the GDP, making agriculture the economic backbone of the country. As a part of her work with the Ministry of Agriculture, Victoria has already began to find ways to introduce innovative technologies to farmers, who make up the bulk of her clients. She hopes to continue and to build on that work by contributing to breeding programs in Tanzania and using the leadership skills she learns to help others. Her research is a major milestone towards serving maize farmers in Tanzania who are currently devastated by the MLN disease.

Victoria continued her research work with Dr. Margaret Redinbaugh, an adjunct professor at Ohio State University in the department of Plant Pathology. Dr. Redinbaugh's work focuses on viral diseases in maize as well as several insect vectors for some of those diseases. Dr. Redinbaugh worked with Victoria to focus her research objectives and lend her expertise in the area of plant pathology, and she continued to do so throughout the fellowship.
Victoria also worked with her CGIAR mentor, Dr. Biswanath Das, currently at CIMMYT in Kenya. He used his real-world expertise as a maize plant breeder and his efforts to identify virus-resistant maize plants to help her to hone her skills in that line of research. Victoria competed her program and received master's degree in August 2016.

Vine Mutyasira

Country:
Zimbabwe

University:
Colorado State University

Department & Degree:
Agricultural and Resource Economics, PhD Candidate

US Mentor institution:
Colorado State University

CGIAR Mentor Institution:
International Center for Agricultural Research in Dry Areas (ICARDA)

Research:
Understanding Sustainable Intensification in Smallholder Crop-Livestock

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As a part of an Africa RISING project, in conjunction with USAID's Feed the Future initiative, Vine Mutyasira is working on exploring the challenges faced by smallholder crop-livestock farmers in the Ethiopian Highlands. As a Fall 2015 Borlaug LEAP Fellow, he was able to further identify improved technology and management practices that will help increase productivity among the farmers, which will, in turn, help improve food security in the area. The main goal of his research is to identify to what extent existing farms are sustainable on a variety of levels, and then develop a model that can simulate different sustainable intensification scenarios that can then be used to educate the public and inform policy makers. He then hopes to use what he learns and extend that information in his home country of Zimbabwe. Vine feels that the best work is accomplished when a team of people is dedicated to accomplishing a common goal, and so he is looking to gain more experience in leadership as he meets and works with an inter-disciplinary team of people who are all committed to improving the lives of others.

Vine worked with his current mentor and advisor at Colorado State University, Dr. Dana Hoag. Dr. Hoag is a well-respected professor and researcher in the field of Agricultural Economics, with many years of international experience, including in sub-Saharan Africa. He worked with Vine to refine his research data and finialize his thesis. Vine also collaborated with CGIAR mentor Dr. Girma Kassie, a senior scientist and socio-economist at the International Center for Agricultural Research in the Dry Areas (ICARDA). He has experience working in Africa and the Middle East and he helped Vine with the hands-on research needed for his project. Vine expects to complete his degree by the end of 2016.

Yilikal Anteneh

Country:
Ethiopia

University:
Addis Ababa University, Ethiopia

Department & Degree:
Environmental Planning, PhD Candidate

US Mentor institution:
Oklahoma State University

CGIAR Mentor Institution:
International Water Management Institute (IWMI)

Research:
Integrated Catchment Management (ICM) for Improved Agricultural Productivity through Upstream-Downstream Functional Ecosystem Linkages in Akaki river basin, Ethiopia

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Yilikal Anteneh would like to address the problem of poor natural resource management and conservation in Ethiopia, and is driven to make a positive impact in this field. His research project aims to support integrated water management systems for improved agriculture activities on the Aki River Basin. This basin is one of the major water supplies for Addis Ababa. His impetus for undertaking this research is to encourage better management programs, particularly those dealing with soil and water conservation issues. Yilikal believes agriculture is the backbone of Ethiopia's economy as it makes up 50% of the economy and 70% of its natural resources. However, in recent years, Ethiopian agriculture has fallen behind national targets due to land grant issues, unsustainable farming practices, pollution, and climate change. Yilikal has worked for the Works and Urban Development Bureau on urban management and capacity building projects, and is currently serving as a lecturer and department chair at Arba Minch University.

Yilikal was awarded a Fall 2015 Borlaug LEAP fellowship for his research titled: *Integrated Catchement Management* (ICM) *for Improved Agricultural Productivity through Upstream-Downstream Functional Ecosystem Linkages in the Akaki River Basin*. He worked with Dr. Phillip Alderman at Oklahoma State University and Dr. Wolde Mekuria Bori, who is currently conducting research at the International Water Management Institute (IWMI) in Ethiopia. Dr. Alderman is professor in the University's department of Plant and Soil Sciences and his research is focused on characterizing the climate's impacts on agricultural systems and on developing strategies to improve the resilience of these systems. He assisted Yilikal in developing and utilizing various simulation techniques in order to estimate soil loss rates and the effects of erosion in small farm-based settings. Dr. Mekuria is a researcher specializing in land resource management, and has published several papers that focus on a variety of topics concerning land use and productivity. He assisted Yilikal with data collection and surveying in Ethiopia. Yilikal expects to complete his research and defend his thesis by 2017.