



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

FEED THE FUTURE INNOVATION LAB FOR THE REDUCTION OF POST-HARVEST LOSS 2018 ANNUAL MEETING

MAY 1-2, 2018

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



USAID
FROM THE AMERICAN PEOPLE



KANSAS STATE UNIVERSITY

IADMI ADM Institute for the Prevention of Postharvest Loss

TUESDAY, MAY 1

LEVIS FACULTY CENTER

8:00am	Registration begins
8:30am	Welcome and Introductions <i>Alex Winter-Nelson, Director of International Programs, College of ACES, University of Illinois and Director of the ADMI Institute for the Prevention of Postharvest Loss</i>
8:45am	Direction for the meeting <i>Jagger Harvey, Post-Harvest Loss Innovation Lab Director</i>
9:00am	Project Country Presentations and Mission Remarks Bangladesh Ghana Ethiopia Guatemala Nepal Honduras
12:20pm	Lunch
1:20pm	Humanitas Global Stakeholder Assessments Bangladesh and Ghana review and planning sessions <i>Nabeeha Kazi and Savanna Henderson, Humanitas Global</i>
	PHLIL Management Administration Essentials <i>Caroline Kolins, PHLIL Program Coordinator and Ben Kohl, Piestar</i>
2:35pm	Break
2:50pm	Humanitas Global Stakeholder Assessments Ethiopia and Guatemala review and planning sessions <i>Nabeeha Kazi and Savanna Henderson, Humanitas Global</i>
	PHLIL Management Administration Essentials <i>Caroline Kolins, PHLIL Program Coordinator and Ben Kohl, Piestar</i>
4:10pm	PHLIL Innovation Showcase <i>National Soybean Research Center; Agricultural Engineering Science Building</i>
6:00-8:00pm	PHLIL Reception <i>Murphy's Pub</i>



WEDNESDAY, MAY 2

LEVIS FACULTY CENTER

8:30am	Day 2 Opening Remarks
8:45am	Remarks from Dr. Germán Bollero <i>Associate Dean for Research and Director, Illinois Agricultural Experiment Station</i>
9:00am	Remarks from Ahmed Kablan <i>Agreement Officer Representative for PHLIL, Bureau for Food Security, USAID</i>
9:10am	Technical break outs Break out 1: Drying Break out 2: Pests and Pesticides Break out 3: Mycotoxins Break out 4: Storage
10:10am	Break
10:30am	Modelling for Risk Mapping <i>Ross Darnell, Commonwealth Scientific and Industrial Research Organisation</i>
10:50am	Improving educational effectiveness <i>Jon Ulmer, Associate Professor of Agricultural Education, Kansas State University</i>
11:20am	Strengthening Human and Institutional Capacity Building <i>Jagger Harvey, Post-Harvest Loss Innovation Lab Director</i>
11:40am	Cost, risk and resilience - asking the economic questions <i>Jisang Yu, Assistant Professor of Agricultural Economics, Kansas State University</i>
12:10pm	Lunch
1:10pm	Integrating gender and nutrition into post-harvest research and extension <i>Maria Jones and Katy Mosiman, AgReach; Dena Bunnel, PHLIL Assistant Director</i>
2:30pm	Engaging youth in post-harvest and agricultural markey systems <i>Joe Miller and Maria Jones, AgReach; Dena Bunnel, PHLIL Assistant Director</i>
3:10pm	Break
3:30pm	The funding and partner landscape <i>Jagger Harvey, Post-Harvest Loss Innovation Lab Director</i>
4:00pm	Identifying post-harvest research priorities (country teams)
4:45pm	External Advisory Council Reflections
5:00pm	Closing remarks and Adjourn

TOMORROW'S POST-HARVEST LEADERS

POST-HARVEST LOSS INNOVATION LAB GRADUATE STUDENTS



Md. Ashraful Alam

PhD Bangladesh Agricultural University, December 2018

BS Bangladesh Agricultural University

Md. Ashraful's research focuses on appropriate technologies for drying rice paddy and reducing qualitative and quantitative loss. As a scientific officer of Farm and Machinery and Post-Harvest Technology in the Bangladesh Rice Research Institute, Md. Ashraful works on farm machinery, postharvest technology and renewable energy development, evaluation, adoption and dissemination of appropriate technology to the rice farmers. He notes that the post-harvest process of paddy consists of a series of operations, which start just from harvest to make it storable or consumable. The post-harvest operation of paddy includes harvesting, field-drying, threshing, cleaning, drying, grading, storing, weighing, milling and transportation to the market or family for consumption. However, drying is the most critical operation after harvesting the rice crop for maintaining quality and minimizes storage and processing losses. This belief is what drives Ms. Ashraful in his research quest to help reduce post-harvest loss and food insecurity. He hopes

to share his research findings to create effective drying technologies and package the knowledge for farmers, increasing their economic development. His involvement with PHLIL has helped him improve his data collection and analysis abilities, as well as scientific report writing and project implementation skills.

Md. Ashraful's Publications

Alam, M., Saha, C., Alam, M. (2017). Field performance of BAU-STR dryer in rural area of Bangladesh. Asian Journal for Poverty Studies (Ajps), 3(2) Retrieved from <https://ejournal.unib.ac.id/index.php/ajps/article/view/2695>

Alam, A., Saha, C., Momin, M., Monjurul Alam, M., & Kanti Bala, B. (2016). Spatial distribution of temperature and moisture in grain bin and grain bin size effects on STR dryer performance in Bangladesh

Alam, M. M., Saha, C. K., & Alam, M. A. BAU-STR dryer: A noble technology to reduce post harvest loss of paddy drying. Bangladesh Agricultural University Journal,

Saha, C. K., Alam, M. M., & Alam, M. A. Appropriate paddy drying technologies for small traders and farmers. Bangladesh Agricultural University Journal



Aynadis Asemu

PhD Bahir Dar Institute of Technology, Bahir Dar University, June 2019

MS Chemical Engineering/Food Engineering, Addis Ababa University

BS Chemical Engineering, Bahir Dar University

Hometown: Debretabour, Ethiopia

Aynadis chose to do research on the thermal performance of solar grain dryer because of the free availability of high intensity of solar energy and the high percentage of post-harvest losses in Ethiopia. He believes his research is important because it could help Ethiopian farmers reduce their losses by changing their traditional drying methods for solar bubble dryers and storing their dried products in PICS and GrainPro bags. Working with PHLIL helped Aynadis fully understand the causes and consequences of post-harvest losses in Ethiopia. Upon finishing his studies, he plans to continue his research on different technologies related to reducing post-harvest loss.

Aynadis's Publication

Molla, A., & Zegeye, A. (2014). Effect of extrusion conditions on aflatoxin content of corn-peanut flakes. Journal of EEA, 32(4), 47-56. doi:10.1007/s12467-017-0019-y



James Danso

MS Crop Protection, Kwame Nkrumah University of Science and Technology, Ghana
BS Kwame Nkrumah University of Science and Technology, Ghana

James' research was inspired by the lack of effort expended on documenting indigenous knowledge of post-harvest management practices and the magnitude of maize post-harvest loss in Ghana. Information on maize post-harvest is critical in formulation of viable environmentally adoptable and socially acceptable and sustainable preventive strategies for reducing maize post-harvest losses to ensure food, feed and seed security. However, there is very little information on impact of these factors on food security and safety in Ghana, on maize. Adequate knowledge about these factors is required for implementation of mitigation strategies. When asked about his work with PHLIL, James remarked that it is "transformed" him and his perception toward scientific research. His involvement with PHLIL introduced him to new technologies and significantly improved his knowledge and experience in the field and in the laboratory. His graduate work prepared him to carry out independent scientific research in Entomology and empowered him

to train farmers and other stakeholders on sustainable strategies to attain food security while improving their health and economic well being. Upon finishing his master's degree, James worked as a Research Associate (Post-Harvest Technologist) at the International Institute of Tropical Agriculture. He is looking forward to pursuing a PhD in Entomology and hopes to be part of an organization that provides solutions to global food and feed security challenges.

James's Publications

Danso, J. K., Osekre, E. A., Opit, G. P., Manu, N., Armstrong, P., Arthur, F. H., et al. (2018). Post-harvest insect infestation and mycotoxin levels in maize markets in the middle belt of Ghana

Danso, J. K., Osekre, E. A., Manu, N., Opit, G. P., Armstrong, P., Arthur, F. H., et al. (2017). Moisture content, insect pests and mycotoxin levels of maize at harvest and post-harvest in the middle belt of Ghana doi://doi.org/10.1016/j.jspr.2017.08.007

Armstrong, P. R., McNeil, S. G., Manu, N., Bosomtwe, A., Danso, J. K., Osekre, E., et al. Development and evaluation of a low cost probe-type instrument to measure the equilibrium moisture content of grain.33(5), 61-62. doi:10.13031/aea.12266

Paudyal, S., Opit, G. P. Osekre, E. A., Arthur, F. H., Bingham, G. V., Payton, M. E., Danso, J. K., Manu, N., Nsiah, E. P. 2017. Field evaluation of the long-lasting treated storage bag, deltamethrin incorporated, (ZeroFly® Storage Bag) as a barrier to insect pest infestation. J. Stored Prod. Res. 70, 44-52.

Manu, N., Osekre, E. A., Opit, G. P., Campbell, J. F., Arthur, F. H., Mbata, G., Danso, J.K., et al. (2018). Population dynamics of stored maize insect pests in warehouses in two districts of Ghana doi://doi.org/10.1016/j.jspr.2018.01.001



Muez Berhe Gebremedhin

PhD Plant Breeding and Seed Systems, Mekelle University, Fall 2019

MS Biology, Bahir Dar University

BS Biology, Bahir Dar University

Hometown: Humera, Ethiopia

Muez is interests include genetic diversity and integrated storage pest management options, improving attributes of sesame and chickpea genetic traits, and reducing post-harvest loss in Ethiopia. When asked why he chose post-harvest loss as his area of research, Muez notes that he wants to help different actors in the value chain of sesame and chickpea to "stop feeding the insects". He believes his research is important because of the large amount of post harvest losses seen in Ethiopia, especially losses of sesame and chickpea, two of the largest exports for the country. His research findings will likely help decrease losses and have a positive impact on food security in Ethiopia and globally. He has enjoyed working with PHLIL and hope to scale out proven storage technologies to different stakeholders once he finishes his PhD.

Muez's Publications

Muez, B., Geremew, T., Behanu, A., & Melaku, W. Sesame harvest loss caused by sesame seed bug *elasmolomus sordidus* F. on at kafta-humera worda sesame field. Ethiopian Journal of Agricultural Science, 31(2), 147-151.

Berhe, M., & Abraha, B. The need for short term training on sesame seedbug (*elasmolomus sordidus* forsk) control to farmers and agricultural extension workers: A case study at kafta- humera sesame fields, northern Ethiopia. Journal of Stored Products Research and Postharvest Research, 7(8) doi:10.5897/JSPPR2016.0210



Mohammad Afzal Hossain

PhD Agricultural Engineering, Bangladesh Agricultural University, Summer 2018
 MS Farm Structure, Bangladesh Agricultural University
 BS Agricultural Engineering, Bangladesh Agricultural University
 Hometown: Gazipur, Bangladesh

Mohammad’s research was inspired by Bangladesh’s challenges in paddy storage. With warm temperatures and high ranges of relative humidity, (43% to 89%), Bangladesh favors rapid insect infestations. Storage loss is at 6%, but losses can be minimized through proper technology adoption, which is why Mohammad chose to research appropriate paddy storage technology for small farmers. Traditional methods of paddy seed storage cause deterioration of seed health and thereby seed quality through the activities of insects, mites, and rodents. Mohammad is also interested in how losses not only have effects on a social and economic scale, but how they also represent a waste of resources used in production such as land, water,

energy and other inputs globally. However, such losses can be reduced by using hermetic bags to control O2 and high CO2 atmosphere produced through respiration processes of biological agents. His work with PHILIL has opened an avenue for further research, and he looks forward to continuing his research upon completion of his PhD.

Mohammad’s Publication

MA Hossain, M A Awal, M R Ali, & MM Alam. (2016). Use of moisture meter on the post-harvest loss reduction of rice. *Progressive Agriculture*, 4(27), 511-516.



Karta Kalsa

PhD Bahir Dar University, Institute of Technology, July 2018
 MS Seed Science and Technology, Haramaya University
 BS Plant Sciences, Haramaya University
 Hometown: Arba Minch, Ethiopia

Karta is currently pursuing a PhD at Bahir Dar University in Ethiopia, and the topic of his research is Evaluation of Integrated Management Tactics to Protect Stored Wheat and Maize from Insect Damage. His understanding of post-harvest losses, especially losses related to insects and the challenges associated with residual chemicals and fumigants inspired his current research. When asked what motivated his research, Karta mentioned that significant amount of losses in stored wheat and maize. He also noted that the loss of seed is the loss of food security, and as a seed technologist, protecting seed was a natural research topic to select for his research. He believes that pest research is important because it will provide

the opportunity to identify feasible and safe strategies to be scaled among smallholder farmers. His work with PHILIL has provided him with the opportunity to work with high profile scientists from the US, as well as teaching him how to focus on specific societal problems that affect the poor. Upon graduation, Karta hopes to be involved in capacity building through the effective transfer of his knowledge. He also plans to continue with research and technology development in the area of post-harvest protection of seed and grain.

Karta’s Publications

- AAtilaw, D.Alemu, Z.Bishaw, T. Kifle, & K.Kalsa. Early generation seed production and supply in Ethiopia: Status, challenges and opportunities. *Ethiopian Journal of Agricultural Sciences*, , 99-119.
- Kalsa, K., Geleta, T., & Geleti, D. (2015). Storage period, husking and seed treatment effects on germination of rhodes Grass (*chloris gayana* L.) seeds. *Science, Technology and Arts Research Journal*, 4(3), 58-60. doi:10.1111/odi.12277
- Kalsa, K. K., Subramanyam, B., Demissie, G., Mahroof, R., & Gabbiye, N. Efficacy of Filter Cake Against *Sitophilus granarius* L. and *Rhyzopertha dominica* F. in Stored Wheat. pp. 118-120.
- Kaske, K., Atilaw, A., & Esatu, A. (2015). Lower seed rates favor seed multiplication ratio with minimal impact on seed yield and quality. *Ethiopian Journal of Agricultural Sciences*, 26(1), 49-58.



Abebie, B., & Kalsa, K. K. (2012). Influence of seed priming on seed germination and vigor traits of *vicia villosa* ssp. *dasycarpa* (ten.). *African Journal of Agricultural Research*, 7(21), 3202-3208. doi:10.5897/AJAR11.1489

Kalsa, K., P, S. T., & Abebie, B. (2011). Effects of storage duration and hydro-priming on seed germination and vigour of common vetch. *Journal of Science and Development*, 1, 65-73.



Samuel Alemayehu Lapiso

PhD Plant breeding and seed systems, Mekelle University, 2019

MS Applied Microbiology, Hawassa University

BS Biology, Haramaya University

Hometown: Tunto, Ethiopia

Samuel's research on both sesame and chickpeas, the two most widely grown cash crops in Ethiopia, was inspired by the reports of mycotoxin contamination, negative health effects of unsafe food, and the lack of knowledge about proper storage structures and techniques. The lack of information and research on grain moisture content, traditional storage methods, and the effectiveness of different storage technologies (PICS, Grain pro bags and metal silos) also encouraged Samuel to research the topic. With his research, he hopes to predict allowable safe storage technologies, which would help ensure food security for Ethiopia and feed the ever-increasing population of a country where more than 85% of the population earns its livelihood

from agriculture. The need for maintenance of the grain nutritive and other inherent qualities through improved storage technologies is unquestionable and timely. Samuel's study will generate quantitative data on the diversity and management options of storage molds and mycotoxins associated with sesame and chickpea. His experience with PHLIL enabled him to build a successful professional career, build critical thinking skills, and taught him to work both autonomously and in a team and to participate applied research at Universities, research institutions, government, and private institutions. Upon finishing his PhD, Samuel's dream is to work with professors and manage a basic research institution that contributes to the teaching-learning processes and research activities at Mekelle University in Ethiopia.

Samuel's Publications

Alemayhe, S., Tomass, Z., Dejene, T., Kiros, S., Mouz, M., & Equar, G. (2015). Physicochemical quality of pre-harvest vegetable irrigated with urban wastewater in Mekelle and southern zones of Tigray region, Ethiopia; *Middle-East Journal of Scientific Research*, 23(3), 529-532. doi:10.5829/idosi.mejsr.2015.23.03.22121

Chala, A., Getahun, M., Alemayehu, S., & Tadesse, M. (2014). Survey of mango anthracnose in southern Ethiopia and in-vitro screening of some essential oils against *colletotrichum gloeosporioides*. *International Journal of Fruit Science*, 14(2), 157-173. doi:10.1080/15538362.2013.817899

Adigo Setargie, Sefnew Tilahun, Samuel Alemayehu, Tadesse Dejenie, & Solomon Kiros. Isolation and phenotypic characterization of phosphate solubilizing bacteria from lentil (*lens culinaris*.) rhizosphere soils from southern parts of Tigray, Ethiopia. *International Journal of Microbiological Research*, doi:10.5829/idosi.ijmr.2015.6.3.95222

Alemayehu, S., Asmelash, T., & Alemayehu, T. (2015). Microbial and parasitological quality of pre-harvest vegetables irrigated with urban wastewater and water from microdams in Mekelle and southern zones of Tigray, region, Ethiopia. *Applied Journal of Hygiene*, 4(2), 18-24. doi:10.5829/idosi.ajh.2015.4.2.9468



Naomi Manu

PhD Entomology, Kansas State University, Spring 2022
 MS Entomology, Plant Protection, Kwame Nkrumah University of Science and Technology
 BS Agriculture, Kwame Nkrumah University of Science and Technology
 Hometown: Agona, Ghana

During Naomi's time as a graduate student at Kwame Nkrumah University of Science and Technology, Naomi researched insect infestation, moisture content, and mycotoxin levels in the northern region of Ghana. She chose this topic because of her affiliation with the Innovation Lab and due to her belief that the information on maize losses is needed for international development projects around the globe. Upon completing her master's degree in Ghana, Naomi applied and was accepted to a PhD program at Kansas State University. Her work with PHLIL inspired her PhD research, which focuses on *Tyrophagus putrescentiae*, also known as ham mites. Her involvement with the PHLIL Ghana project helped her gain

confidence as a scientist, develop technical skills, and empowered her to work independently to produce informative research results. She also gained invaluable skills while organizing workshops and giving presentations as a graduate student for PHLIL. She plans to continue seeking more applicable knowledge in solving post-harvest loss issues due to insect infestation in a post-doctoral position.

Naomi's Publications

Manu, N., Osekre, E. A., Opit, G. P., Campbell, J. F., Arthur, F. H., Mbata, G., et al. (2018). Population dynamics of stored maize insect pests in warehouses in two districts of Ghana doi://doi.org/10.1016/j.jspr.2018.01.001

Danso, J. K., Osekre, E. A., Manu, N., Opit, G. P., Armstrong, P., Arthur, F. H., et al. (2017). Moisture content, insect pests and mycotoxin levels of maize at harvest and post-harvest in the middle belt of Ghana doi://doi.org/10.1016/j.jspr.2017.08.007

Paudyal, S., Manu, N., Opit, G., P., Osekre, E., Arthur, F., H., Bingham, G., Payton, M., et al. (2017b). Field evaluation of the long lasting treated storage bag, deltamethrin incorporated, (ZeroFly® storage bag) as a barrier to insect pest infestation

Armstrong, P. R., McNeil, S. G., Manu, N., Bosomtwe, A., Danso, J. K., Osekre, E., et al. Development and evaluation of a low cost probe-type instrument to measure the equilibrium moisture content of grain.33(5), 61-62. doi:10.13031/aea.12266

Danso, J. K., Osekre, E. A., Opit, G. P., Manu, N., Armstrong, P., Arthur, F. H., et al. (2018). Post-harvest insect infestation and mycotoxin levels in maize markets in the middle belt of Ghana



Jose Rodrigo Mendoza

PhD in Food Science and Technology, Minor: Agronomy. University of Nebraska-Lincoln, Fall 2019
 MS in Food Science and Technology, University of Nebraska, Lincoln
 BS: Food Engineering, Universidad del Valle de Guatemala

Hometown: Guatemala City, Guatemala

Rodrigo's research is centered on safety and quality of maize and encompasses multiple aspects of its storage and pathology, focusing broadly on limiting post-harvest loss of corn to insects, molds and mycotoxins. He believes his research is important because knowing where there is the possibility of improper practices in the production of staples makes it possible to understand which strategies are best suited to help those affected. When asked what inspired him to choose this topic of research he responded by saying he has always had an interest in grains, especially corn since it is a staple in his native country of Guatemala. His work with PHLIL allowed him to meet experts from different areas and help his country

through his studies. Upon graduation, he looks forward to continuing his work on food security and food safety projects.

Rodrigo's Publications:

Traditional maize post-harvest management practices amongst smallholder farmers in Guatemala. Publication date: Jan 2017. Journal of Stored Products Research.

Understanding the mycobiota of maize from the highlands of Guatemala, and implications for maize quality and safety. Publication date: Jul 8, 2017.

Crop Protection. Safety and Quality Assessment of Smallholder Farmers' Maize in the Western Highlands of Guatemala. In press. Food Protection



Abena Ocran

MS Entomology and Plant Pathology, Oklahoma State University, December 2017
BS Agricultural Biotechnology, Kwame Nkrumah University of Science and Technology
Hometown: Accra, Ghana

Abena's research topic is *Liposcelis obscurus* Broadhead (Psocoptera: Liposcelididae) Ecology and Dehumidification for Psocid Management. Her research also focuses on the effects of low RH on psocid survival. The results showed how psocids can be managed using dehumidification (a physical control method) with the help of a commercial dehumidifier. At 43 or 50% RH, at least 8–16 d will be required to control all developmental stages of the four notorious species of psocids (*L. bostrychophila*, *L. decolor*, *L. entomophila*, and *L. paeta*) depending on the species. This is the first study that provides industries (warehouses/ storage facilities and tools) with the knowledge on how to manage psocids using dehumidification. My research provides ecological tools that will facilitate the development of strategies

that can play a significant role in the integrated management of psocids globally. Abena chose this research topic because of her affiliation with the PHLIL project. Psocids survive over a wide range of environmental conditions and my research can help with psocid management around the world and reduce their infestation in grains as well as storage facilities. Working with PHLIL has taught Abena to critically look at issues with a global perspective, and broadened her horizons to realized that many food security and human health challenges plague the world-over, not just Africa. Abena plans to pursue a PhD in Entomology in the future.



Alejandro Morales-Quiros

MS Grain Science and Industry, Kansas State University, Fall 2017
BS Agronomy, University of Costa Rica
Hometown: San Jose, Costa Rica

Alejandro began working with PHLIL's Guatemala project as a graduate student and currently serves as a Research Assistant for the Guatemala project. He assists with research related to evaluating improved technologies for drying and storage of maize in the Western Highlands of Guatemala. His continued involvement with the Guatemala research is due to his area of expertise and his personal interest in the topic. He believes this research is important because it will reduce post harvest losses for smallholder farmers that barely have enough to feed their families. Additionally, he hopes the research will help reduce issues of malnutrition in the region by decreasing the mycotoxin contamination of maize, a staple in the Guatemalan highlands. His involvement with PHLIL inspired him to continue his career in international development, and to be involved in solving global challenges related to feeding a growing population.



Luis Sabillón

PhD Food Science and Technology, University of Nebraska-Lincoln, August 2018

MS Food Science and Technology, University of Nebraska-Lincoln

BS Food Science and Technology, Zamorano University

Hometown: San Pedro Sula, Honduras

Luis studies food safety and applied microbiology as it relates to cereals, such as wheat and corn. He chose this area of study because cereal safety is an area of food safety that has been understudied, as cereal products generally are perceived as safe. He has a passion to improve the safety, quality, and security of the food chain worldwide. Luis's research on cereal grain safety, specifically on the risk factors for microbial contamination and potential interventions to mitigate that risk, could help improve the safety of products that constitute a large fraction of people's diets worldwide - cereal grains. Luis truly desires to enrich the lives of people; he plans to pursue a faculty position in the near future, so that he can share his passion for food safety to students in a way that it contributes to the entire community. Though his work with

PHLIL, Luis has expanded his knowledge in areas such as mycotoxin detection techniques, mold identification, and improved post-harvest practices. He has also had opportunities to collaborate with multi-disciplinary and multi-institutional research teams that helped him grow personally and professionally.

Luis's Publications

Mendoza, J. R., Sabillón, L., Martínez, W., Campabadal, C., Hallen-Adams, H. E., Bianchini, A., et al. (2018). Safety and **quality** assessment of smallholder farmers' maize in the western highlands of Guatemala. *Journal of Food Protection*, doi:10.1016/j.jspr.2016.12.007

Sabillón Luis, Bianchini Andréia, Jayne, S., & Rose, D. J. (2017). Effect of saline organic acid solutions applied during wheat tempering on flour functionality. *Cereal Chemistry*, 94(3), 502-507. doi:10.1094/CCHEM-07-16-0197-R

Mendoza, J. R., Sabillón, L., Martínez, W., Campabadal, C., Hallen-Adams, H. E., & Bianchini, A. (2017). Traditional maize post-harvest management practices amongst smallholder farmers in Guatemala doi://doi.org/10.1016/j.jspr.2016.12.007

Sabillón Luis, Jayne, S., Rose, D. J., Flores, R. A., & Bianchini Andréia. (2016). Reduction in microbial load of wheat by tempering with organic acid and saline solutions. *Cereal Chemistry*, 93(6), 638-646. doi:10.1094/CCHEM-05-16-0153-R

Sabillon, L., Stratton, J., Rose, D. J., Regassa, T. H., & Bianchini, A. (2016). Microbial load of hard red winter wheat produced at three growing environments across Nebraska, USA. *Journal of Food Protection*, 79(4), 646-654. doi:10.4315/0362-028X.JFP-15-424 [doi]

Sabillón Luis, & Bianchini Andréia. (2015). From field to table: A review on the microbiological quality and safety of Wheat-Based products. *Cereal Chemistry*, 93(2), 105-115. doi:10.1094/CCHEM-06-15-0126-RW

Pérez-Carrillo, E., Luisa Cortés-Callejas, M., Sabillón-Galeas, L. E., Montalvo-Villarreal, J., Canizo, J. R., Georgina Moreno-Zepeda, M., et al. (2011). Detrimental effect of increasing sugar concentrations on ethanol production from maize or decorticated sorghum mashes fermented with *saccharomyces cerevisiae* or *zymomonas mobilis*. *Biotechnology Letters*, 33(2), 301-307. doi:10.1007/s10529-010-0448-9



Tesfaye Tadesse

PhD Grain Science and Industry at Kansas State University, Fall 2018

MS Biology, Addis Ababa University

BS Biology, Addis Ababa University

Hometown: Debra-Elias, Ethiopia

When Tesfaye Tadesse was a boy in Debra-Elias, Ethiopia, he would walk two hours each morning to attend school. Many years later, his education journey would lead him to Kansas State University where he conducts research on alternative ways to protect grains from insect pests without using pesticides that are harmful to human health. Tesfaye chose this topic for his research after he witnessed a participant in a local training carrying a test tube of Phosphine, a commonly used fumigant which will ignite when it interacts with air, without any protective gear or concern for potential reactions. His dissertation research is testing Triplex and filter cake, two inert dusts that are industrial bi-products from detergent and aluminum

sulfate production, respectively, and are locally available in Ethiopia. The two powders were tested on multiple insects with various concentrations on corn and wheat, two of Ethiopia's most important grains. Filter cake in particular was found to be highly effective in killing stored product insects. He has been selected for numerous awards including the Outstanding PhD Student Award, the Anheuser-Busch Fellowship, and the Kansas State University 2018 Extraordinary Students Award. Upon finishing his PhD, Tesfaye plans to return to Ethiopia and test his research in the field.

Tesfaye's Publications

Tadesse, T., & Subramanyam Bhdrraju, a. (2018). Efficacy of filter cake and triplex powders from ethiopia applied to concrete arenas against *sitophilus zeamais*:doi:10.1016/j.jspr.2017.12.006

Shewit, G., Minwyelet, M., Tesfaye, M., Lewoye, T., & Ferehiwot, M. (2017). Land use change and its drivers in Kurt Bahir wetland, north-western Ethiopia. *African Journal of Aquatic Science*, 42(1), 45-54. doi:10.2989/16085914.2017.1292178



Afruz Zahan

PhD Plant Pathology, Bangladesh Agricultural University, December 2018

MS Agricultural Extension, Sher-e-bangla Agricultural University, Dhaka, Bangladesh

BS Agriculture, Sher-e-bangla Agricultural University,

Hometown: Gazipur, Bangladesh

Afruz is researching detection of quantification of aflatoxins and fumonisins in paddy during post-harvest operations in Bangladesh. The hot and humid weather create an enabling environment for grains and seeds to be infected by molds (storage fungi) such as *Aspergillus* spp, *Penicillium* spp and *Rhizopus* spp, which are known to produce mycotoxins. Little research has been done in Bangladesh on mycotoxin contamination in paddy, which is why Afruz chose to research the topic. She hopes to join a research institution and continue her research upon completion of her PhD. Her work with PHLIL helped her gain professional research skills, which she believes will take her far in her professional life.

Afruz's Publications

Zahan, A., Ali, M., Alam, M. (2017). Probability of mycotoxin contamination during post harvest operations of boro paddy. *Journal of the Bangladesh Agricultural University*, 14(2) Retrieved from <https://www.banglajol.info/index.php/JBAU/article/view/32686>

**Graduate student biographies were included as submitted by the individual students. Apologies for any students not included.*



FEED THE FUTURE INNOVATION LAB FOR THE REDUCTION OF POST-HARVEST LOSS



2017 Annual Meeting

Kansas State University

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