

Beyond Borders

Highly Skilled Graduates

Highlighting Graduates of the MSc in Postharvest Management (PHM) Program, JUCAVM

Dalhousie University's Faculty of Agriculture and McGill University, together with Jimma University College of Agriculture and Veterinary Medicine (JUCAVM), located in southwest Ethiopia are implementing a capacity building project titled "**Post-Harvest Management to Improve Livelihoods (PHMIL)**" funded by the Department of Foreign Affairs, Trade and Development Canada (DFATD).

This project supports JUCAVM to become a leader in postharvest management (PHM) and technologies to improve the quality, value and availability of local agricultural products.

The PHMIL project began in July 2008, and will conclude after its eighth year in February 2016.

Increased Higher Education Training in Postharvest Management

A focus of the PHMIL project has been the creation of the Postharvest Management (PHM) Department in order to build the human resources and expertise in the field of postharvest management and value addition to effectively address challenges of Ethiopian agriculture. The training offered through the high quality curriculum of the PHM Department has



been designed to address an identified gap in qualified personnel, and thus ultimately to increase food security and generate more income within the country's agricultural sector.

Over the course of the project, high quality training in appropriate PHM has been designed and is offered at the BSc, MSc, and mostly recently introduced at the PhD level. Fusing opportunities to acquire theoretical knowledge and practical skills, training in the PHM Department integrates coursework in the areas of plant and animal sciences, engineering, business, and social sciences. Students in the programs tackle real-world PHM challenges to investigate their causes and pursue solutions through their coursework, assignments, research, and community-based education component.

The MSc program began in 2010, debuting a curriculum developed through a process of stakeholder consultation, and designed to incorporate the

feedback received on essential subject matter knowledge, skill sets and competencies postharvest management professionals should have. A research thesis based program, the MSc in Postharvest Management equips graduates with the ability to identify, design, and conduct demand driven and problem solving research in the field of postharvest management.

Graduates of the MSc in Postharvest Management are equipped with employable skillsets, and capable of working in public and private institutions and organizations as lecturers, advisors, entrepreneurs, product developers, quality controllers, safety inspectors, and many other positions.

To date, the MSc program has graduated 3 cohorts of students, 27 graduates, who have entered the workforce as PHM professionals. Four of those graduates were recently interviewed, and asked about why they chose the MSc in PHM, and opportunities post-graduation.

Haimanot Mitiku Tessema
MSc in Postharvest Management
Class of 2013

Research Centre. In this position he is tasked with the responsibilities of managing the center, conducting problem solving research on postharvest



Haimanot Mitiku Tessema (MSc'13) is an Associate Research Centre Director at the Ethiopian Institute of Agricultural Research Tepi National Spices Research Centre.

Recognizing the importance of postharvest management but a gap in professionals in the field, Haimanot Mitiku Tessema enrolled in the MSc in Postharvest Technology program at JUCAVM. He was interested in contributing to a field seeking to minimize postharvest loss and increase the shelf life of food crops, with the ultimate goal of offsetting a major source of food and income loss in Ethiopia. Haimanot sees the need to generate technologies aimed at inhibiting the growth of pests, providing proper storage facilities, generating appropriate packaging materials and transportation options for products postharvest. With a lack of professionals in the sector, overcoming postharvest challenges can be especially difficult, and he decided to enter the MSc in PHM program in order to play his part in improving the sector. He saw the program as an opportunity to acquire the fundamental theoretical and practical knowledge in properly handling, preserving, and adding value to agricultural products after harvest.

Haimanot is indeed contributing to the sector, currently working as an Associate Research Centre Director at the Ethiopian Institute of Agricultural Research (EIAR) Tepi National Spices

management/processing of spice and horticultural crops, consulting with institutions, both private and governmental, involved in spice production, and the training of farmers and development agents. Training in the PHM Department during his MSc study has provided Haimanot with the knowledge and skills for conducting spice and horticultural crop research in regard to the unique postharvest management, processing, and value addition processes for maintaining quality to meet export standards, as well as magnifying their value to support food security. His training was well placed, as he conducted his MSc research in the area of spices, focusing on *Aframomum corrorima*, also known as korarima or Ethiopian cardamom. He investigated "Morphogenetic and Phytochemical Characterization of Korarima (*Aframomum corrorima* (Braun) Jansen) Capsules Collected from Different Growing regions of Southern and Southwestern Ethiopia" for his thesis.

When asked if he had any advice for current or future PHM students, Haimanot replied, "...nowadays, losses after harvest due to poor postharvest handling practices is a major food loss in

developing countries like Ethiopia. It is possible to assure food security in the country by minimizing postharvest loss and by properly following improved food processing and preservation methods of agricultural products. The main problem is that there are not enough postharvest management professionals and technologies in our country to reduce postharvest loss. In fact, our postharvest technology sector is also at its infancy stage. Therefore, it is we who can improve our postharvest management sector to a higher level. You have to make ready yourself to master the major postharvest management techniques so that you can play a big role when you face real situations after the training. Finally, I believe that reducing postharvest loss has major contribution on food security in our country."

Tirhas Mebratu Gebretsadikan
MSc in Postharvest Management
Class of 2013



Tirhas Mebratu Gebretsadikan (MSc'13) is a Quality Manager at the Global Inspection Survey Agency (GISA)

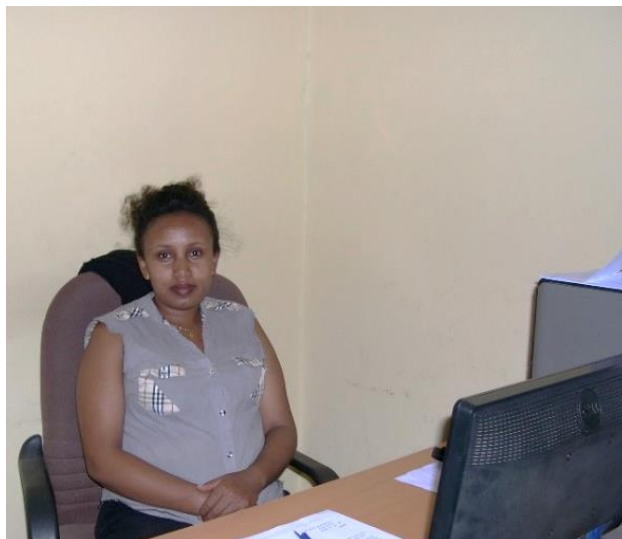
Tirhas Mebratu Gebretsadikan joined the MSc in Postharvest Management program because she wanted to be part of a solution.

The problem she wanted to be a part of addressing? What she sees as the “huge loss” of crop products from the already scarce amounts of production in Ethiopia.

Following her BSc program in Crop Science from JUCAVM, Tirhas pursued her concern for crop loss through the MSc in Postharvest Management program. Her studies and research enabled Tirhas to understand crop loss in Ethiopia—the causes of postharvest loss, and methods to manage and offset these losses. Her research and personal interests focused on processing methods for extending the storage period of perishable and seasonal plants, such as orange fleshed sweet potatoes. This led to conducting her thesis research on “Evaluation of the nutritional and sensory quality of orange fleshed sweet potato porridge enriched with soybean and moringa leaves.” The research concentrated on preparing a nutritious porridge for the most vulnerable groups (pregnant and breast feeding mothers) by using nutritionally rich and locally available plants. A paper that Tirhas and her co-authors wrote that highlights the findings of her research was recently accepted for publication in *Nutrition & Food Science Journal*.

Tirhas is originally from Tigray region, but grew up in Addis Ababa, which is where she currently works. She translated the theoretical and practical training in the proper management of agricultural products postharvest into a position as the Quality Manager at the Global Inspection Survey Agency (GISA). Her position with this private company based in Addis tasks her with maintaining a standard of quality control and the supervision of the quality inspection of agricultural products, including pulses, oil seeds, cereals, and spices. She credits her training from her MSc in PHM in building her confidence for carrying out her duties and responsibilities by equipping her with the knowledge in the proper management of the agricultural products at GISA. ■

Atikilti Tilahun
MSc in Postharvest Management
Class of 2013



Atikilti Tilahun (MSc'13) Manager in Quality Management and Pest Control, Management Representative for ISO Implementation at ACOS Ethiopia

Atikilti Tilahun graduated from the Postharvest Management Department, at JUCAVM with her MSc in Postharvest Management in 2013. She was supported by the PHMIL Project scholarships for female students. Atikilti's undergraduate degree in Crop Production and Protection is also from JUCAVM.

Atikilti's interest in the MSc in Postharvest Management grew from a desire to understand the entire value chain in agricultural product production. She felt that her degree in Plant Science had allowed her to learn about the processes from land preparation to harvest, and that studying postharvest management would enable her to learn about the remaining processes of harvest to consumption.

In the past having worked with tea, table grapes, haricot beans, and various other fruits and vegetables, Atikilti chose to conduct her MSc research on coffee. Her research focused on the impact of both natural and artificial drying methods on coffee quality. Also as part of her MSc, Atikilti had the opportunity to take a number of certificate courses and short-term trainings, including those offered by

NSAC/Dalhousie University and McGill University.

Topics included ISO Standards, gender mainstreaming, food processing and value addition, and postharvest management of fruits and vegetables, amongst others.

Atikilti currently works for ACOS Ethiopia, a company focused on the raw export of more than eight varieties of haricot bean. The company, employing 350 people, is designed to satisfy the most stringent hygiene and health requirements, and is in line with European standards for food and farm industries. Atikilti works at the management level in Quality Management and Pest Control, and as a Management Representative for ISO Implementation. The

certificates in ISO Quality management system requirement and Internal Audit Training and ISO System Implementation Training she received as part of her MSc in PHM at JUCAVM enabled her to take on this ISO related position.

Atikilti suggests to current and future students in the PHM Department to read, listen, learn and take as many trainings as they can; she recommends transferring theoretical training into practical whenever possible.■

The PHMIL Project has provided scholarships to approximately 30 female and in-need male students to pursue their studies in Post-Harvest Management at the Masters level. The scholarships will continue on after the PHMIL project concludes through the establishment of a social enterprise on the JUCAVM Campus, a store making and selling value-added products to the campus community.

Esa Abiso Godana
MSc in Postharvest Management
Class of 2014

Esa Abiso Godana sees reducing food loss and waste as the way to feed the world. He posits that with finite resources to increase production, the focus needs to be on making the most of what is produced; reducing the percentage of

a mechanical refrigerator for maintaining tomato quality and extending shelf life.

Holding an MSc also enabled him to apply for his current position as Head of the Department of Horticulture at Samara University. Postharvest is a growing field, but with a gap in the availability of professionals. Esa, as a graduate of the MSc in PHM, was able to fill such a gap at Samara University,



Esa Abiso Godana (MSc'14) is Head of the Department of Horticulture at Samara University

production that is lost postharvest. Reducing this loss will result in more food available for consumption by the world's population. Through his MSc research and his current position at Samara University, Esa is contributing to the important field of PHM.

During his BSc in Dryland Crop and Horticultural Science at Mekelle University, Esa became interested in the topic of postharvest. It was this interest that led him to study his MSc in PHM at JUCAVM. He conducted his thesis research on the "Effect of different storage methods on postharvest quality and shelf life of tomatoes." The research focused on testing alternatives to mechanical refrigerators that could be used by farmers and retailers in developing countries without the capital resources to afford a mechanical refrigerator. Three evaporative cooler storage options—zero energy cooling chamber, pot-in-pot storage, and a desert cooler storage system—were investigated as part of his research. Each showed great promise as alternatives to

where there were few lecturers available with PHM expertise. As Head of the Horticultural Department, Esa is responsible for teaching undergraduate classes, monitoring all teaching and learning activities in the department, scientific research activities, and community service activities.

Esa is also in a position to support growth in the field of postharvest management, still in need of an increased number of professionals. When asked if he had advice to offer for current or future PHM students, Esa asked them to keep helping their communities! "Currently on the globe we have limited resources (land, water, labour...) to increase production. But if we reduce the food loss and waste, which is about one third of total production (estimated about 1.3 billion tons of food), we can feed the world population, which will be 10 billion by 2050. So, all PHM graduates, you are lucky to be part of this area of study to solve this serious issue of our globe!" ■

For more information about the PHMIL international development project, led by Dalhousie's Faculty of Agriculture, please contact:

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Please visit **dal.ca/phmil** for more details.