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Engaging Students in the Land O'Lakes Global Food Challenge

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Engaging Students in the Land O'Lakes Global Food Challenge

Abstract

ASABE members have long recognized that the intersection of our dependence on energy, the stress on our water supply, our need to grow more food, and the resulting impact on our environment is the “grand challenge” of our time. Agriculture is at the heart of this intersection, relying on access to energy and a supply of fresh water to safely grow, process, and distribute our food. An increase in food production is required due to population growth, which includes an increase in meat consumption as more countries develop economically.

Keywords

Land O'Lakes, Global Food Challenge, Malawi, Zambia, Botswana, South Africa

Disciplines

Agriculture | Bioresource and Agricultural Engineering | Engineering Education

Comments

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Engaging Students in the Land O'Lakes Global Food Challenge

John Lumkes Jr., P.E., and Kurt Rosentrater

ASABE members have long recognized that the intersection of our dependence on energy, the stress on our water supply, our need to grow more food, and the resulting impact on our environment is the “grand challenge” of our time. Agriculture is at the heart of this intersection, relying on access to energy and a supply of fresh water to safely grow, process, and distribute our food. An increase in food production is required due to population growth, which includes an increase in meat consumption as more countries develop economically.

Previous issues of *Resource* have focused on the grand challenge of feeding our world while conserving resources and protecting the environment. Universities, corporations, cooperatives, government agencies, and foundations are active in this area, but few are specifically engaging the next generation. Getting youth globally involved is essential to feeding our world in this generation and the next.

Generally speaking, young people are not as interested in agriculture as their predecessors. Fewer than 2% of workers in the U.S. are classified as farmers, and most people are not

familiar with our food production systems. In the U.S. and similar economies, the trend toward urban living and a decreased agricultural workforce have led to highly mechanized agriculture, as robotics, unmanned aerial vehicles (UAVs), smart irrigation systems, and automated processing plants do more with less labor input.

The same has not been true in developing countries, where up to 80% of the workforce, including many women and children, is directly involved in small-scale agriculture. Farm incomes in developing countries are often at subsistence levels with no margin for droughts or pest problems, and labor shortages and lack of connectivity to markets lead to yield losses (due to underused land, few crop inputs, late planting, and limited plant care), post-harvest losses (due to late harvesting, poor storage, and lack of transportation), and reduced income. However, while the yields are currently a fraction of those in developed countries, developing countries also have significant potential for increasing their food production and feeding their growing populations.



Students and faculty learning from community members in Lifidzi, Malawi.

This article describes a partnership between five universities and Land O’Lakes, Inc., to engage undergraduate students in agriculture, domestically and internationally. Students from multiple majors, including agricultural and biological engineering, have participated in the program.

You’re probably familiar with Land O’Lakes—a member-owned agricultural cooperative known for dairy foods, animal nutrition, and crop inputs. Since 1981, the company has also been active in international development (<http://www.landolakes.org/>) by partnering with organizations such as the USDA, the U.S. Agency for International Development (USAID), and the Bill & Melinda Gates Foundation to support farming around the world. Many of these projects involve connecting smallholder farmers to technologies and markets through local cooperatives, capacity building, and programs focused on achieving self-sufficiency. Land O’Lakes has also sponsored many farmer-to-farmer training programs throughout the world.

The Global Food Challenge

In the fall of 2014, Land O’Lakes initiated the Global Food Challenge (<http://foodchallenge.landolakesinc.com>), partnering with faculty, staff, and students from Iowa State University, George Washington University, Northwestern University, Purdue University, and the University of Minnesota. Initial participation was limited to sophomore students from colleges of agriculture, business/management, and engineering at these universities. During the first year (2014-2015), ten faculty and staff members and ten students participated in the program. Agricultural and biological engineering was represented by several students and faculty members. For the second year (2016-2017), eligibility was expanded to include all sophomore students from the partner universities, regardless of their college or major.



A cassava demonstration and training plot in Mkaika, Malawi.

The goal of the program is to identify exceptional college sophomores and enable them to become emerging leaders for food security. Students apply to the program by first submitting a one-minute video. If selected, they move to the next round and are interviewed by Land O’Lakes program leaders. Each selected student is matched with a professor or academic mentor, as well as a Land O’Lakes mentor. During the academic year, teams of students work on challenges in agriculture and food security. The emerging leaders also receive an eleven-week paid summer internship at Land O’Lakes headquarters in Minnesota, which includes visits to domestic agricultural sites (farms, cooperatives, processing plants, marketing firms, etc.), to Washington, D.C. (to learn



A dairy and milk processing farm near Lilongwe, Malawi.



A bulk milk cooperative in Lumbadzi, Malawi.

about agriculture policy), and a two-week trip to rural African communities (to learn firsthand about international development and global food security).

Highlights of the 2014-2015 Program

In the program's first year, the selected students worked on a wide variety of projects, including the impact of food storage innovations on food security, vertical farming, communicating the global food challenge message, global education on GMOs, on-farm processing, reducing food waste, and improving logistics and transportation. The students had frequent Skype meetings and presented their projects to their peers and faculty mentors. Each project culminated in a final report and action plan that was presented to Land O'Lakes program leaders.

A highlight of the program for both the students and their mentors was the two-week trip to Malawi, Zambia, Botswana, and South Africa. Our international travel was full of new experiences. We had opportunities to see best practices for improving food security at the farm scale, cooperative scale, and factory scale. We also had opportunities to discuss international development efforts with in-country teams from Land O'Lakes International Development as well as USAID.

We started our trip in Malawi with cultural and Chichewa language lessons. After acclimating ourselves, we visited agricultural operations throughout the country. These operations included a maize farm, a permaculture farm, a GMO cotton field trial, a cassava test plot, a smallholder goat association, a smallholder dairy cow recipient, a dairy cooperative, a village savings and loan, a small-scale slaughterhouse, a water users association (that had built a dam and irrigation system for the local community), a large dairy farm, a commodity exchange, a large tobacco trading house, a tobacco processing factory, a dairy processing factory, and a farm-scale cassava processing operation. All of these visits were informative and inspirational. A common denominator of these operations was the strong desire of their owners to

improve their lives, to improve their families' lives, and to reinvest in their operations to increase their business. In other words, everyone was working to increase their food security and their financial security.

In Botswana, we spent time with a dairy cooperative, a seed grower, a field school for farmers, a goat farmer, and an agricultural research institute. We also spent a day at Victoria Falls as tourists. We wrapped up our trip in Zambia with safaris in the Chobe National Park, where we were immersed in African wildlife, including lions! We then spent a day in

Johannesburg, South Africa, where we visited Nelson Mandela's first and last homes, the Apartheid Museum, and learned about the history of South Africa.

Overall, our experiences in Africa were life-changing. Learning about food insecurity here in the U.S. is one thing; seeing its many dimensions and talking to the people who live with it every day is another. At the same time, all of us were inspired by the great strides that are being made in all the places that we visited.

Projects and Plans for 2016-2017

One of the assignments of this year's program was for students to organize food challenge awareness events on their home campuses. The events on each campus were creative and informative. At Purdue, the students organized a Global Food Insecurity Seminar and Organization Fair that included a short introduction by Gary Burniske, managing director of Purdue's Center for Global Food Security, followed by presentations from the ASABE student chapter, the National



Oswin Chackochan of Purdue University takes notes about cassava processing near Nkhotakota, Malawi.



Fields after harvest in Nakondwa, Malawi.

Agri-Marketing Association, Heifer International, ICA Future, Nourish International, the Purdue Utility Project Global Design Team, Swipe Out Starvation, Timmy Global Health, and UNICEF. The event drew over 100 attendees.

At Iowa State, several student clubs organized a canned food drive and participated in a canned food sculpture contest. Prizes were given for the club that collected the most canned food items—as well as the most creative sculpture. More than 1,600 canned food items were collected and donated to a local food pantry. The event also gave representatives from Land O’Lakes and the Salvation Army an opportunity to talk to students about hunger and food issues. In addition, Iowa State’s two emerging leaders from the 2014-2015 program talked with their fellow students about their experiences with the Global Food Challenge.

As in the first year of the program, the selected students, their faculty mentors, and Land O’Lakes representatives traveled to Africa in late June of 2016. We visited various farms, villages, and food cooperatives in Rwanda and Kenya and learned firsthand about international development efforts and best practices for improving global food security. (*Editor’s note: as this article goes to press, the authors are on their way home from Africa.*)



Fresh produce at a market in Lilongwe, Malawi.

Opportunities for Students and Others

The Land O’Lakes Global Food Challenge is a great opportunity to engage students in the grand challenge of global food security. We need students from all backgrounds to find solutions for feeding a growing population, using less energy, water, and labor, and using environmentally sustainable methods. Obviously, students in agricultural and biological engineering can bring unique strengths to this program. In addition, ASABE, ABE curricula, and much current ABE research are already focused on sustainably feeding the world. Here’s how you can get involved:

- If you are a student at one of the Global Food Challenge partner schools, apply to become an emerging leader! The application dates and instructions are available at <http://foodchallenge.landolakesinc.com>. This program is an incredible opportunity to immerse yourself in the global challenge, including a paid summer internship and international travel. It will be an unforgettable educational experience.
- If you are faculty member at one of the Global Food Challenge partner schools, let your students know about the program, and consider applying to be a faculty mentor. It’s a profoundly rewarding teaching experience.
- If your school is not a partner, contact the Land O’Lakes Global Food Challenge and let them know you are interested in being a partner school. We need to engage our students in the broader challenges of agriculture. Challenges create opportunities.
- If you have a corporate background, find ways to engage youth in agriculture. Work with your university partners and professional societies to inspire our next generation of problem solvers.

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