

# Connections Newsletter

The Ohio State University South Centers

Summer | 2015



Professor Jintao Zhang, Director of the Sustainable Agricultural Technology Institute, Heilongjiang Academy of Agricultural Sciences Jiamusi Branch of China accompanied them to visit government farms and farmers' fields. Photo by Dr. Jintao Zhang.

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## Collaboration between The Ohio State University South Centers and Chinese Academy of Agricultural Sciences

***By: Rafiq Islam, PhD, Soil and Water Specialist***

Rafiq Islam and Wayne Lewis visited the Peoples Republic of China at the invitation of the Chinese Academy of Agricultural Sciences (Heilongjiang and Jiamusi Branches) from July 18 to 29, 2015. Rafiq Islam, the program director for Soil, Water and Bioenergy Resources at OSU South Centers, established an agricultural research, education and extension collaboration with the scientists at the Heilongjiang Provincial Academy of Agricultural Sciences – Jiamusi Branch in 2014. Wayne Lewis, the Farm Manager of the OSU South Centers, accompanied him to further bridge the collaboration. Dr. Larry Brown at the OSU Department of Food, Agricultural, and Biological Engineering, facilitated our collaborative research and educational trip to China. (continued on page 2)

## Collaboration...(continued)

Rafiq and Wayne visited Foreign Office of the Heilongjiang Provincial Academy of Agricultural Sciences and discussed future collaboration possibilities to exchange faculty members, scientists, and students to conduct applied research and educational programs on 21st century sustainable agriculture. Liu (Lily) Jingqi, a scholar from the Academy, accompanied them to OSU South Centers for advanced training on sustainable agricultural management practices to improve soil health for enhanced ecosystem services.

As part of their visit, Rafiq delivered several presentations on (1) Continuous No-till Planting Effects on Soil Carbon Sequestration; (2) Cover Crops, Microorganisms, and Tillage: the Biological Plow; and (3) Evaluation of Soil Quality to the faculty members, scientists, and students of the Academy of Agricultural Sciences. Wayne Lewis delivered a presentation on "Planting systems and machines for sustainable no-till farming." Moreover, Wayne Lewis provided demonstrations and hands-on training to Academy students and technicians for maintenance of farm equipment, such as repairing, setting planters and drills, adjusting harvesters for planting and harvesting corn, soybeans and cover crops.

The Chinese counterpart, Professor Jintao Zhang, Director of the Sustainable Agricultural Technology Institute, Heilongjiang Academy of Agricultural Sciences Jiamusi Branch, accompanied them to visit government farms and farmers' fields where they are researching with different planting techniques, tillage operations, and management systems for growing soybeans, corn and rice. They showed tremendous interest to learn more about our research on no-till, cover crop blends, crop rotation, soil health, and ecosystem services.

Based on their acquired experience on Chinese agricultural management practices and in-depth discussion, Rafiq and others developed a long-term research project entitled "Tillage and Cropping Systems Impact on Ecosystem Services" for academic and applied research activities for the Jiamusi Branch of the Chinese National Academy of Sciences. They are expected to visit China every year to further strengthen the collaborative research and educational programs between the Ohio State University and Heilongjiang Academy of Agricultural Sciences - Jiamusi Branch, China.



One of several presentations Rafiq delivered on the evaluation of soil quality. Photo by Dr. Jintao Zhang.



Wayne Lewis provided demonstrations and hands-on training to Academy students and technicians for maintenance of farm equipment. Photo by Dr. Jintao Zhang.



Wayne Lewis delivered a presentation on Planting systems and machines for sustainable no-till farming. Photo by Dr. Jintao Zhang.

# New visiting scholars joined Soil, Water and Bioenergy Program

Jingqi (Lily) Liu and Heba El Abd have been welcomed as visiting scholars after recently joining the Soil, Water and Bioenergy Program at the OSU South Centers at Piketon.



Currently, Lily is employed as a Research Associate at the Sustainable Agricultural Technology Institute, Jiamusi Branch of Heilongjiang Academy of Agricultural Sciences, China. Lily is a short-term (3-month) exchange scholar and will be working on lab and field-based research techniques, analysis and data interpretation related to sustainable agricultural management practices. Her research focus will be on soil health, conservation tillage, cover crops and ecosystem services.



Heba is a graduate exchange scholar from Egypt. Currently, she is employed as an Assistant Lecturer, Botany Department, Faculty of Agriculture, Banha University, Egypt. Her teaching focus is on plant morphology and physiology, as well as plant taxonomy. She will be pursuing her Ph.D. research work entitled “Plants’ response to nano- and chelated nutrients” under the supervision of Drs. Rafiq Islam and Gary Gao, and Brad Bergefurd, respectively.





A basket of fresh produce.

## Ohio farmers' markets increase Supplemental Nutrition Assistance Program (SNAP) redemption by offering incentives

*By: Christie Welch, Direct Marketing Specialist*

Over the course of 2014, OSU South Centers' Direct Agricultural Marketing Specialist collaborated with a diverse group of stakeholders to apply for USDA's Food Insecurity Nutrition Incentive (FINI) Program funds. The goal was simple, help Ohio Farmers' Markets increase the number of Supplemental Nutrition Assistance Program (SNAP; formerly the federal food stamp program known in Ohio as the Ohio Direction Card) benefits redeemed at participating Ohio farmers' markets. This not only increases sales for participating farmers, it also increases access to fresh, healthy, locally produced foods for food insecure Ohioans. The Ohio steering committee worked with Wholesome Wave; a national non-profit whose goal is to increase healthy food access across the United States, and many others to develop a proposal for this new funding. As a result, Ohio is one of 17 states participating in the \$7.4 million, three-year project. Fifty Ohio farmers' markets that accept SNAP benefits now have the ability to offer matching incentives to SNAP recipients to use to access fresh fruits and vegetables that are produced by Ohio farmers.



Former Ohio Direction card.

This program is having triple bottom line impacts for Ohio. Food insecure individuals can now increase the amount of fresh fruits and vegetables they purchase at farmers' markets; thereby increasing their health by increasing their consumption of fruits and veggies. According to Michelle White, Market Manager of the Clintonville Farmers' Market, "VeggieSNAPS (the incentive program) has been a wonderful addition to the farmers' market landscape around central Ohio. *(continued on page 5)*

## Ohio farmers' markets increase Supplemental Nutrition Assistance Program (SNAP) redemption by offering incentives *(continued)*

Now EBT customers have multiple opportunities to shop and double their dollars throughout the week. At Clintonville on Saturdays, we have a couple of people who split their mornings between us and Worthington FM, taking full advantage of the incentive dollars to put healthy food on the table." She goes on to highlight the benefits to the community, "The program has created a strong tie within the market community itself, with market managers and neighborhood organizations working together on a united front to increase food access."

Other collaborating organizations are seeing benefits as well. Jamie Sullivan, Vice President of External Affairs with the Greater Cleveland FoodBank said, "The clients we help through our Help Center are often looking for help applying for SNAP or finding other food resources. They are always very excited to know that they can double their SNAP benefits through the Produce Perks (incentive) program." And while the program is benefiting SNAP recipients in Ohio, producers are benefitting as well. Christie Nohle, manager of the farmers' market at the Franklin Park Conservatory said, "Our farmers' market has seen an influx of EBT (SNAP) users. EBT users and non-EBT users alike are commenting that they think the Veggie SNAPS (incentive) program is a great opportunity to put local fruits and veggies into the hands of low-income folks! Our farmers appreciate the program since it boosts their produce sales!"

The collaborators of this three-year project being led by Wholesome Wave include: OSU South Centers, OSU Extension Hamilton County, OSU Extension Cuyahoga County, Capital Crossroads Special Improvement District's Pearl Market, the City of Columbus, Ohio Department of Job and Family Services EBT Section, Ohio Department of Health, The Farmers Market Management Network, The Countryside Conservancy, Case Western Reserve University, Appalachian Center for Economic Networks (AceNet), Franklin Park Conservatory, The Greater Cleveland Foodbank, and many farmers' markets throughout Ohio. For a map of the participating Ohio farmers' markets, visit the Ohio Department of Job and Family Services website: <http://jfs.ohio.gov/ofam/OhioFMEBTDiretory.stm>. This website lists the Ohio farmers' markets that accept the Ohio Direction Card (SNAP) and whether or not they are participating in the incentive program.

Future plans include further development of a statewide network of Ohio farmers' markets and stakeholders with the goal of applying for additional USDA FINI funding so that any farmers' market that accepts the Ohio Direction Card will have the ability to offer incentive funds to food assistance benefits recipients.

If you would like to learn more about the Wholesome Wave project you can do so at: <http://www.wholesomewave.org/wholesomewavefinigrantaward/>. If you have questions about the program, please contact Christie Welch via email to [welch.183@osu.edu](mailto:welch.183@osu.edu) or via telephone 740-289-2071 ext. 234.



## Ohio Local Foods Week



**Ohio Celebrates Local Foods Week Aug. 9-15, 2015**  
Ohio State University Extension's Local Foods Team has been working on celebrating the bounty of Ohio Local Foods. In an effort to raise awareness about the importance of Ohio agriculture, the team has developed resources for Ohio local food producers, marketers, and buyers to help celebrate the benefits of Ohio local foods. This year's local foods event includes a \$10 pledge and a website with an events calendar, resources, and event marketing tools that individuals can use to help spread the word. These resources can be found at: [localfoods.osu.edu/ohio-local-foods-week](http://localfoods.osu.edu/ohio-local-foods-week). Let us know how you are celebrating Ohio Local Foods week and take the pledge.



# OCDC Seed Grants assist cooperative development

**By: Hannah Scott, OCDC Program Manager**

The Ohio Cooperative Development Center (OCDC) Seed Grant program has wrapped up another successful year! The program, which enhances OCDC's mission of improving rural economies through cooperative development, provides critical resources to new and emerging cooperatives for exploratory or expansion projects. New and emerging cooperatives in Ohio and West Virginia can apply for a reimbursement, matching grant for feasibility and formation activities of groups exploring the cooperative model and for the implementation of expansion projects of already existing cooperatives. Applications are assessed by members of the OCDC advisory committee and OCDC personnel are available to provide assistance to the cooperatives as their plans progress. The program has supported numerous projects over the last five years, awarding grant funds totaling approximately \$68,000.



New awards this year total approximately \$22,000 to support 10 cooperative development projects throughout Ohio and West Virginia. Many of these projects are focused on the formation or expansion of local food cooperative businesses, including a farmers market, food hubs, and retail stores. Local food cooperatives directly contribute to development through job creation and business generation. They also serve a vital function of providing an outlet for agricultural producers to market products, often allowing these producers to realize economic benefits as well. Finally, these businesses create opportunities for community members to purchase locally-produced food, sometimes in areas with limited access to such products.

Seed grant projects funded this year include a membership loan and gift campaign to help generate financial resources for a new cooperative, a membership and financial campaign to support the expansion of an existing cooperative, work with legal and accounting professionals to develop articles of incorporation and service agreements, and the provision of marketing materials to help generate awareness of cooperatives in their community.

In addition, OCDC awarded a seed grant to the West Virginia Food and Farm Coalition (WVFFC) for use toward legal work, workshops, and network-building aimed at informing others of cooperative statute updates in the state.

OCDC plans to continue the successful seed grant program in the upcoming year, which begins on October 1, 2015, contingent upon funding. New and emerging cooperatives in Ohio and West Virginia that are interested in learning more about the program should contact Hannah Scott or Kimberly Roush at 740-289-2071 or at [scott.1220@osu.edu](mailto:scott.1220@osu.edu) or [roush.143@osu.edu](mailto:roush.143@osu.edu).

Funding for the OCDC seed grant program is made available through a Rural Cooperative Development Grant from the U.S. Department of Agriculture Rural Development agency.



Thom Harker described how the aquaponics system at the OSU South Centers operates as well as the different phases of production. Photo by Hongwei (Harvey) Liang.

# Aquaponics workshop... What a thumbs-up experience!

**By: Estefania James, MS, Program Assistant**

The OSU South Centers was the venue of the last Aquaculture Boot Camp (ABC) program event. This workshop brought together around 50 new and advanced aquaponics farmers from Ohio, Indiana, Michigan and New Jersey.

According to previous surveys conducted in 2014, aquaponics was the top topic requested among ABC intermediate and intensive students, and the Ohio Aquaculture Association (OAA) members. As a result, the OAA and the ABC program worked dedicatedly to offer a technical and hands-on aquaponics training workshop July 10-11, 2015.

The main purpose of this workshop was to offer the opportunity to network with local farmers to hear about their business experiences, and to learn from their challenges and obstacles. Furthermore, this workshop attempted to answer technical questions such as construction considerations, business aspects, economics, and the selection of plants and fish.

Successful aquaponics growers were invited to be part of this event. Ryan Chatterson from Chatterson Farms located in Clermont, Florida was one of the speakers. He described the technical considerations to build recirculating aquaculture systems (RAS), equipment and tools selections, as well as fish and plant production dynamics. Another collaborator was Allen Patillo from Iowa State University. Allen explained several experiments conducted to collect data from different production systems by using different growing media and lighting sources, among others. Jeni and Doug Blackburn, owners of Fresh Harvest Farms were also invited. They shared their strategies to successfully manage an aquaponics farm. They also spoke about several marketing approaches to build strong relationships with direct customers. Lori Klintworth and Mark Zody debuted for the first time as presenters. They own Local Sprouts Aquaponics from Apple Creek, Ohio. *(continued on page 8)*



# Aquaponics workshop... What a thumbs-up experience! (continued)

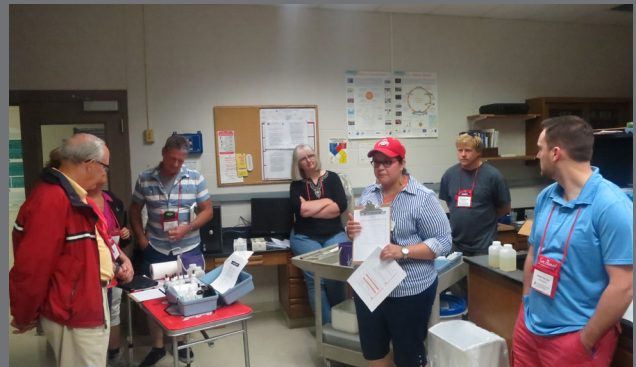
They shared their adventure of building their aquaponics farm while attending the ABC intensive class.

Participant evaluations of the workshop were very favorable, with 100% agreeing they would strongly recommend the aquaponics workshop to a colleague. New lessons were learned related to aquaponics crops and systems. Although there may be more questions to be answered, that was the purpose of this workshop...“to promote a higher and deeper interest in aquaponics farming.” Make sure to visit our website: [southcenters.osu.edu/aquaculture/aquaculture-extension/boot-camp/intensive/aquaponics-workshop-2015](http://southcenters.osu.edu/aquaculture/aquaculture-extension/boot-camp/intensive/aquaponics-workshop-2015) to revisit the presentations and pictures from the workshop. Please contact us with any further questions.

(Below) Group of participants and presenters at the Aquaponics Workshop. Photo by Beth Rigsby.



Ryan Chatterson taught the fundamental engineering considerations to build a functional aquaponics farm. Photo by Hongwei (Harvey) Liang.



Estefania James explained the dynamics of water quality parameters to manage aquaponics systems. Photo by Hongwei (Harvey) Liang.



The participants learned how to test pH by using the Hach Fish Farmer's Water Quality Test Kit. Photo by Hongwei (Harvey) Liang.





Over 1,000 people have visited the OSU hop research yards the past two years. Photo by Thom Harker.

## Developing the Ohio hops and malting barley industry

**By: Brad Bergefurd, MS, Horticulture Specialist and Extension Educator**

Statewide interest purchasing local malting barley and hops by Ohio brewers has Ohio State University moving ahead with research and educational programming on these crops. Ohio commercial beer manufacturers and craft brewers send an estimated \$30 million out of Ohio annually by purchasing hops from West Coast farmers. To help keep some of that economic activity within the state, the Ohio State University has developed a hop and malting barley research and education program focused on production and marketing. Dr. Mary Gardiner of the OSU Entomology Department and Brad Bergefurd of OSU South Centers and OSU Extension Scioto County are the Principle Investigators of the Ohio hops research and industry development program.

Agricultural statistics records indicate that in 1871, barley was planted on 81,000 acres in Ohio, producing approximately two million bushels total.

Today barley production ranks well below other small grains in Ohio with only 6,000 acres planted in 2014 compared to 620,000 acres of wheat planted. Most of the barley grain cultivated today is a six row winter feed barley variety used for livestock feed on-farm or sold at local elevators. Of the 6,000 acres of barley, less than 100 are estimated to be of the malting barley variety in demand by craft brewers.

Dr. Eric Stockinger of the Ohio State University Horticulture and Crop Science Department began growing and testing malting barley in the 2008–2009 growing season, cultivating malting type barleys at the Ohio Agricultural Research and Development Center (OARDC) in Wooster and throughout northern Ohio. (continued on page 10)



Malting Barley Field Research is being conducted at the OSU South Centers. Photo by Brad Bergefurd.



## Developing the Ohio hops and malting barley industry (continued)

In 2013 Bergefurd and Gardiner partnered with Stockinger to expand this malting barley research into southern Ohio and began evaluating malting barley in southern Ohio at the Piketon Research and Extension Center, exploring both fall and spring planted varieties.

The hop and malting barley projects are allowing Ohio State researchers and educators to develop sustainable production practices directly related to Ohio growing conditions that will develop these Ohio industries. Data collected from the field research trials allows us to educate growers about production, pest management practices, and marketing strategies to help them generate farm profits from these highly sought-after crops. The research is evaluating new cultivars, innovative production techniques, insect and disease control methods, harvesting, processing, and marketing techniques that can be adopted by Ohio farmers. The research will allow Ohio's beer manufacturers to spend their money in Ohio by purchasing Ohio-grown hops and malting barley and ultimately help create Ohio jobs, allowing Ohio growers to diversify into a high-value specialty crop.

Preliminary research results indicate hops and malting barley can be successfully grown and marketed throughout Ohio and are adaptable to most Ohio soil types.

There is an ever-increasing Ohio market for hops and malting barley with the expanding craft brewing industry. The Ohio Department of Liquor Control sees continued interest in applications for alcohol-manufacturing permits, a trend that continues into 2015. Hops and malting barley are main ingredients in beer manufacturing, and are highly sought by local craft and home brewers. The majority of hops and malting barley are sold on the open market, with the northwest United States supplying the majority of U.S. hops. Currently, Ohio has an estimated 100 acres of hops and 100 acres of malting barley being grown on small acreage.

The OSU South Centers Horticulture program has conducted several hops and malting barley educational programs and field days this summer for those interested in learning more about the hop and malting barley research that is being conducted by the Ohio State University. These events included monthly first Friday educational tours at both the Piketon and Wooster research locations with over 200 participants so far in 2015. Two Hops Field Nights were conducted at Wooster on July 23 and at Piketon on July 30 with 80 participants from 20 counties participating. An Ohio Hop Farm tour was conducted in partnership with the Ohio Hop Growers Guild, where over 500 people participated in all-day tours of nine commercial hop farms throughout Ohio. A hops workshop was taught in July in cooperation with OSU Extension Adams, Brown and Highland Counties for new and interested hop farmers.

For more information on the Ohio Hops and malting barley research and industry development program, visit our Ohio Hops Facebook page at <https://www.facebook.com/OhioHops> or the OSU South Centers website <http://southcenters.osu.edu/horticulture/other-specialties/hops> for more information. For information on the Ohio Hops Guild, visit OHGG.org. If you would like to be added to the Ohio Hops email list serve to receive Ohio hop updates and information contact Brad Bergefurd, [Bergefurd.1@osu.edu](mailto:Bergefurd.1@osu.edu) or call the OSU South Centers 1-800-860-7232 or 740-289-2071 ext.132.



**The OSU South Centers has 37 Varieties of Hops on test at its Piketon, Bowling Green and Wooster Research sites. Photo by Thom Harker.**



## Ohio brewing and hop production FAQ's

### What do Ohio brewers produce in a year?

Ten years ago, you could count all the Ohio's breweries on your fingers and toes! Today, 153 licensed breweries produce an estimated 1,097,955 barrels of craft beer annually.

### How much money do Ohio brewers spend to purchase hops out-of-state?

At 4 pounds per barrel, Ohio breweries require an estimated 4,000,000 pounds of dried hops annually, worth an estimated \$30 million. To meet current demands, an estimated 6,000 acres of hops are required by Ohio craft brewers at current use rates.

### How many growers produce Ohio hops?

In 2012 it is estimated that 10 commercial growers were managing hop yards; this has grown to 60 in 2015. In 2012 Ohio had 15 acres of commercial production; this has grown to 120 acres today.

### How much does it cost to install an acre of hops?

Establishing a hop yard will cost \$20,000 to \$25,000 per acre depending on whether a grower selects rhizomes or plants. This does not include land costs.

### What is the value of an acre of harvested hop cones?

Yield and price per acre depend on quality, variety and buyer. Wet hops are used for seasonal brewing and have a premium value. On average an acre will produce 3,000 pounds of wet hops valued at \$25 per pound = \$75,000 per acre. One acre will produce an average of 600 pounds of dry hops, valued at \$30 per pound = \$18,000.

### Are Ohio growers working together to move the industry forward?

Yes! The Ohio Hops Consortium was formed in 2014 and currently 48 growers are active members. The OSU Hops Research Program was actively involved in the formation of the consortium and also provides "first Friday" hop yard tours, summer field nights and a 2-day winter workshop. In 2013, 300 growers attended the winter workshop, this increased to 420 in 2014!

**Prepared by the OSU Hops Research Team:**  
Brad Bergefurd, Mary Gardiner, Chelsea Smith, and Thom Harker





In the foreground are Traminette vines. Photo by Gary Gao.

# Cold-hardy wine grape cultivars are the latest addition to our wine grape vineyard

**By: Gary Gao, PhD, Extension Specialist and Associate Professor and Ryan Slaughter, Research Assistant**

The polar vortexes in 2014 and 2015 have hit many of the tender wine grape cultivars in Ohio very hard. There are several different ways to deal with winter injuries. One approach is to plant super winter hardy grape cultivars. Whatever cultivars are selected, they still need to produce good quality wine. Several cultivars from the University of Minnesota grape breeding program seem to be a good fit. The wine grape cultivars that have shown good potential are Frontenac, Frontenac Blanc and Frontenac Gris. All of them are from the University of Minnesota grape breeding program. We planted a few of them in our demonstration vineyard at OSU South Centers in Piketon. *(continued on page 12)*



**Our newly planted Minnesota wine grape cultivars.**  
Photo by Gary Gao.



## Cold-hardy wine grape cultivars are the latest addition to our wine grape vineyard (*continued*)

One interesting cultivar is Traminette. The breeding work was done at the University of Illinois by Herb C. Barrett around 1965. He sent the cross to the New York State Agricultural Experiment Station grape breeding program at Cornell for development when he departed from Illinois. We planted several short rows of Traminette in 2014. This cultivar has done very well despite the cold temperatures in 2015. A few growers had reported significant winter injuries to Traminette in 2014.

Both Ryan Slaughter and Gary Gao extend our sincere appreciation to the Ohio Grape Industries Program for their financial support of our wine grape research and Extension program at OSU South Centers. Log on to <http://www.tasteohiowines.com/> for more information on Ohio wines.



**Our newly planted Minnesota wine grape cultivars.**  
Photo by Ryan Slaughter.



**Frontenac grapes growing on the vine.**  
Photo by Dwight Burdette.



## THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

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