

THE OHIO STATE UNIVERSITY

## South Centers

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### ACHIEVEMENTS EDITION

The Ohio State University  
South Centers include:

- Piketon Research and Extension Center
- Endeavor Center for Business Incubation
- Enterprise Center
- OSU Learning Center South
- Small Business Development Center
- Manufacturing & Technology SBDC
- Ohio Cooperative Development Center
- Ohio Center for Aquaculture Research & Development
- International Trade Assistance Center
- Manufacturing Extension Partnership

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# Connection

## 2012 Achievements: A Year in Review

### BUSINESS & ECONOMIC DEVELOPMENT NETWORK

### The Endeavor Center has become a hub of business activity and training in Southern Ohio

*By: Jerry Driggs, Manager OSU Endeavor Center*

2012 was once again a successful year for the Ohio State University Endeavor Center. Open since 2005, the 27,000 square foot mixed-use business incubator has come to be recognized as a community leader in economic development, business training, and technological excellence.

The original 26 permanent office spaces have been expanded to 31 to satisfy demand for the flexible and professional office space provided in the facility for new and growing businesses. The latest 2012 renovation was completed to house the Manufacturing Field Engineer for the Manufacturing Extension Partnership – a position designed to provide assistance for small manufacturers in Southern Ohio.

Despite the difficult economy in the past year, Endeavor Center business partners flourished. With work proceeding on several projects at the Portsmouth Gaseous Diffusion facility, available space at the Endeavor Center was very difficult to find. The facility housed 22 individual businesses during the year and operated at more than 100% of its original occupancy capability. Endeavor Center business partners drove a surge in hiring, adding over 100 high-skill, high-wage positions during the year.

The facility had two businesses graduate in 2012, including Pro Case Management which opened an office in the Endeavor Center in 2009 with 1 employee. Having accumulated 10 full-time employees, the business graduated in April upon completing their own headquarters building.

Endeavor Center business partners have created over 800 new jobs since 2005 and assisted existing businesses in retaining more than 2,000 jobs. The new high-skill, high-wage jobs added by business partners of the Endeavor Center have contributed more than 30 million dollars of new business activity to the local economic community. Overall, the economic impact of new positions created by Endeavor Center partners since its opening has had a major impact on the economic vitality of the region.

In 2012 more than 200 business workshops, seminars, training events, and planning sessions were conducted in the Endeavor Center classrooms, attracting more than 2,000 participants.



## FARMS, FORESTS & STREAMS

### Horticulture Achievements and Impacts 2012

*By: Dr. Gary Gao, Extension Specialist and Associate Professor*

The horticulture program at OSU South Centers has traditionally focused on high-value fruit and vegetable crops. Dr. Gary Gao leads the research and extension programs in fruit production while Brad Bergefurd is in charge of vegetable crops. Fruits and vegetable crops are considered specialty crops and can be grown successfully in southern Ohio and the surrounding area as cash crop alternatives to traditional corn, soybeans, and tobacco traditionally grown in the region. There has been a much greater demand for locally grown fruits and vegetables. Our horticulture research and Extension programs have been designed specifically to help commercial growers meet this demand.

#### Wine Grape Research and Outreach

Wine grapes have been the main focus of Extension Specialist and Associate Professor Gary Gao's research and Extension efforts at OSU South Centers. There is a major shortage of Ohio-grown wine grapes due to a tremendous increase in the number of wineries. There are more than 170 wineries in Ohio. The total grape production area in Ohio is approximately 2,000 acres. The estimated economic impact of Ohio's grape and wine industry was \$582.8 million dollars based on a study commissioned by the Ohio Grape Industry Committee in 2008. Our wine grape (viticulture) research and outreach program was funded by the Ohio Grape Industries Program.

In addition to the wine grape cultivar evaluation and grower outreach, Dr. Gary Gao started an entomology project with Ohio Grape Industries Program. He and OARDC Horticulture and Crop Science Program Specialist Dave Scurlock started monitoring spotted wing drosophila, a new fruit pest in Ohio, in addition to helping growers with questions on insect management in the vineyard.

Three educational programs were offered in 2012. They were "Blueberry, Blackberry, and Grape Pruning Workshop," "Southern Ohio Summer Wine Grape Workshop," and "Commercial Grape and Wine Workshop – A Practical Approach." The combined attendance for these programs was 97. Dr. Gao also made presentations on wine grapes at the Farm Science Review and other Extension programs in Ohio. In addition, he answered many phone calls, email inquiries and made vineyard visits.

#### Evaluation of Cold-Hardy Blackberry Cultivars

Lack of cold hardiness in blackberry cultivars is a major limiting factor of blackberry production in Ohio. Four Polish blackberry cultivars were planted in a replicated study with three standard commercial cultivars of varying degrees of cold hardiness. This project was funded by a grant from the Ohio Vegetable and Small Fruit Research and Development program. The Polish



Berries on the Polish blackberry release #97521.  
Photo by Gary Gao.



Shown here are the grapevines covered with bird netting. The red bottle in the foreground is a trap for spotted wing drosophila, which is a type of vinegar fly.  
Photo by Gary Gao.

cultivars are 97521, GAJ202, Polar, and RUCZAJ while the standard commercial cultivars are Chester, Natchez, and Ouachita. Plants, trellis, weed fabric and trickle irrigation was installed in May 2012. The plot was weeded and plants were trained throughout the season.

Although certain varieties produced a few berries, most of them did not produce much fruit during the first year of planting. It is too early to know what the yield and fruit quality will be until the next two years' harvest seasons. Winter survival rates, growth, yield, and fruit quality data will be collected in 2013 and 2014. The new plot was featured at many open houses and field days at OSU South Centers in 2012.



## FARMS, FORESTS & STREAMS

### Horticulture Achievements and Impacts 2012 continued:

#### Comparison of Season-Extension Methods of Blackberries

A research and demonstration plot of high tunnel, rotatable cross-arm trellis, and open field production methods of blackberries has been established at OSU South Centers. So far, plants have grown quite well.

Ouachita and Natchez are two cultivars tested in this trial. Both varieties need winter protection if winter air temperatures dip below -10°F. Most of our plants did not produce any fruit in 2012 since this is their first year. This plot has been featured in many field days, open house and guided tours in 2012.

#### Blueberries – Keep Riding the “Blue Wave”

Blueberries have enjoyed a worldwide surge in popularity due to their high antioxidant content, great taste, and versatile uses. Based on a 2007 estimate, approximately 360 acres of blueberries are produced in Ohio. There is a major shortage of blueberries in Ohio. Though more difficult to grow than other fruits, blueberries can be an excellent crop to grow in Ohio due to their high productivity, high return, and relatively low pesticide input.

Dr. Gao applied for and was awarded a specialty crop block grant from United States Department of Agriculture (USDA) via the Ohio Department of Agriculture (ODA) as the principle investigator in 2012. The title of our blueberry project is “Revitalization, Expansion and Season Extension Blueberries in Ohio.” High tunnel blueberry production, a new blueberry cultivar trial, and a propagation project were some of the key components of the grant.

Dr. Gao gave talks on blueberry production, answered many questions, gave tours of the OSU South Centers’ blueberry planting, and made 20 farm visits in 2012. These farms represented more than 110 acres of blueberries. He offered “Introduction to Commercial Blueberry Production.” He also gave talks at the 2012 Farm Science Review, Southwest Fruit and Vegetable School, Eastern Central Fruit and Vegetable Update, and the Northern Ohio Blueberry Growers Meeting.

Blueberry bushes under the high tunnel promoted an earlier ripening than the bushes in the open field. Early fruit ripening will help growers garner higher prices and a greater profit.



Open field (front), rotatable cross arm trellis (middle) and high tunnel (back) production methods. Photo by Gary Gao.



‘Draper,’ a new mid-season blueberry cultivar, is being evaluated at OSU South Centers in Piketon, Ohio. Ten new cultivars were also planted. Photo by Gary Gao,



Ripe blueberries from OSU South Centers in Piketon, Ohio. Photo by Gary Gao.



Mature ‘Blue Ray’ Blueberry bushes under high tunnel at OSU South Centers in Piketon, Ohio. Photo by Gary Gao.



**FARMS, FORESTS & STREAMS****Horticulture Achievements and Impacts 2012 continued:****Currants, Gooseberries, and Jostaberries as New Cash Crops in Ohio**

Currants, gooseberries, and jostaberries are collectively grouped into the genus *Ribes*. Our *Ribes* Production and Marketing project was funded through a specialty crop block grant from the USDA via the ODA. Some of the currants and gooseberries produced their first crop in 2011. We were able to collect yield and fruit data in 2011 and 2012. A year-end report has been completed and submitted to the Ohio Department of Agriculture. The full project report was completed in 2012. There is a growing interest in currants and gooseberries in Ohio although the acreage of *Ribes* is still quite small. However, we do expect a growth in both demand and acreage. Gooseberry pies and currant juice are some of the common uses of *Ribes* fruits. A few growers in Ohio have planted currants and gooseberries due to our research and outreach efforts.



Ripe gooseberries at OSU South Centers in Piketon, Ohio.  
Photo by Gary Gao.

**OSU South Centers employees give back to the Community**

*By: Joy Bauman, Information Associate*

The employees at Ohio State University South Centers along with the business partners of the Ohio State University Endeavor Center in Piketon have once again used proceeds from their horticultural research trials to support the Pike County Outreach Council. To avoid competition with area producers, the fruits and vegetables raised as part of research at the OSU South Centers are not sold to the public. Instead, the produce is offered to the OSU South Centers employees and Endeavor Center business partners in exchange for donations to charitable causes supported by the employees. In addition, staff members organized several “Chow for Charity” lunches where in exchange for lunch, South Centers Employees and Endeavor Center partners made donations to support the South Centers’ charity outreach efforts.



Judy Dixon and Tom Worley

“The OSU South Centers employees are pleased to be able to give back to our local community,” said OSU South Centers Director, Tom Worley.

The 2012 employee contributions were used to make a cash donation to the food bank at the Pike County Outreach Council and also to donate 61 pair of boots to the Buckeye Boots for Kids drive and were distributed to children through the Pike County Children’s Christmas Fund.

Worley presented the food bank donation to Judy Dixon, Executive Director of the Pike County Outreach Council. Dixon expressed gratitude on behalf of the Council. “This contribution is much appreciated, the need for supplies to help families in need has increased drastically this past year”.

For more information about the OSU South Centers, contact Beth Rigsby at 740-289-2071. To learn more about the Pike County Outreach Council Food Pantry, contact Judy Dixon at 740-947-7151.



**FARMS, FORESTS & STREAMS****Horticulture Achievements and Impacts 2012 continued:**

*By: Brad Bergesford, Extension Specialist, ANR*

In a significant departure from past practices, the Ohio prison system has begun regularly purchasing Ohio-grown produce whenever available. Extension Horticulture Specialist Brad Bergesford provided assistance and expertise which led to the negotiation and acquisition of an innovative produce supply contract with the Ohio Department of Administrative Services/Ohio Department of Rehabilitation and Corrections to procure Ohio-grown produce for all Ohio prisons and institutional purchasers. Results from an IMPLAN economic analysis conducted by Nancy Bowen, Assistant Professor & Field Specialist, Community Economics for OSU Extension, Community Development concluded the economic impact for one year of produce sales from this project resulted in a total economic impact of \$10,777,758. That is over double the one year total direct produce sales of \$5.1 million. Additionally, almost 75 jobs were created or supported, and almost \$5.7 million in additional income was generated to support other businesses and industries throughout Ohio.

Bergesford helped develop and initiate a statewide Ohio Apprenticeship Council-approved Specialty Crop Grower Apprenticeship training program in cooperation with the USDA Cooperative Development Center at Piketon and the Non-profit Local Food Network. The Apprenticeship Program will train individuals to become both independent and collaborative agricultural entrepreneurs. The program requires 2,000 hours of on-the-job training, coupled with 144 hours of experiential and classroom learning. Beginning in April 2012, Bergesford taught a 4-hour session the first Wednesday of each month. The program is designed to equip participants with broad background knowledge they will need to start self-sustaining specialty crops farms, serve as managers of for-profit or non-profit specialty crops farms, or be highly capable farm employees.

As part of a \$1.1 million grant from the U.S. Agency for International Development (USAID) and Higher Education for Development (HED) Bergesford provided expertise, education, and recommendations for micro-irrigation and vegetable crop mechanization as a part of the OSU College of Food, Agricultural, and Environmental Sciences partnership with Senegal's Université Gaston Berger (UGB). The partnership purpose is to assist with the build-up of that West African nation's agricultural research and outreach capabilities.

Bergesford provided expertise, assistance, consultation, and teaching for four community garden projects in the Ohio Valley EERA, one of which began production in 2012. These community gardens have provided over 7 tons of fresh fruits and vegetables to local food pantries including the Salvation Army, God's Pantry at Second Presbyterian Church, Loaves & Fishes, Ohio Association of Second Harvest Food Banks and other area food pantries, and provided gardening education to over 200 citizens.

\$10,000 in funding was acquired from the Ohio Integrated Pest Management Program (IPM) to expand Ohio IPM Extension programming into south central Ohio with fruit and vegetable IPM education and implementation. By implementing IPM education and scouting activities in this area, data collected will assist Educators/growers in central and northern Ohio by providing them with early detector information to change production schedules and become more aware, better educated, and prepared to cope with economic crop damaging insect and disease pathogens.

Our \$45,900.00 USDA/ODA funded Southern Producer's Marketing Cooperative (SPMC) project was completed in 2012 which helped southern Ohio specialty crop producers diversify and increase their farming operations through facilitation and development of an extensive specialty crop distribution network. Partnering with cooperating Ohio food processing/brokering/distribution providers, this project facilitated the development, organization, and incorporation of a specialty crop growers Cooperative, the Our Harvest Cooperative Incorporated (OHCI), which was incorporated in 2012. Additional member benefits of the Cooperative's formation include group purchasing, GAP food safety grower training, third party certification training, networking, and equipment sharing. This project is being replicated in northern Ohio in 2013.

\$111,250 in USDA funding was acquired for a new specialty crop project "Hop Production to Enhance Economic Opportunities for Farmers & Brewers." This two-year field research, extension education, and marketing research project in cooperation with Dr. Mary Gardiner with the OSU Department of Entomology will evaluate the feasibility and profit potential of small-scale hops production by Ohio producers.

As part of a \$74,538 USDA North Central Sustainable Agriculture Research and Education funded project with the OSU departments of Entomology and Plant Pathology and Iowa State University, preliminary research findings suggest that applying row covers to newly planted melon fields can provide season-long protection against bacterial wilt, a devastating bacterial disease spread by cucumber beetles. This strategy looks to be an effective alternative for controlling bacterial wilt and cucumber beetles, possibly replacing or reducing the need for insecticide sprays.

In cooperation with the OSU Department of Entomology and twelve grower collaborators throughout Ohio, the OSU South Centers concluded an \$82,933 field research study funded by the USDA/NRCS Conservation Innovation program to determine if there is an effect of nectar-rich floral resources on the abundance and diversity of important crop pollinators. Results of this research have determined growing practices that can be adopted by farmers to encourage natural pollinators that can lead to increased yields and quality of pumpkin crops.



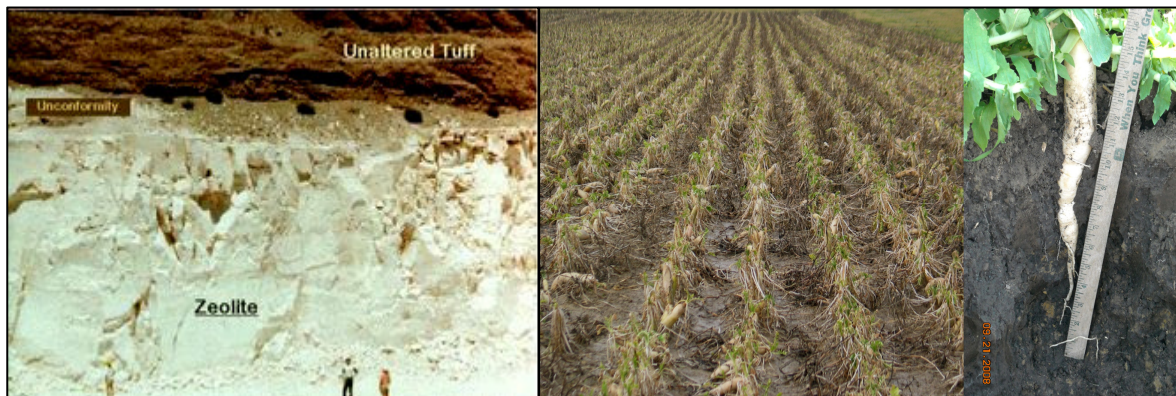
**FARMS, FORESTS & STREAMS****Soil, Water, and Bioenergy Resources Achievements and Impacts 2012**

*By: Dr. Rafiq Islam, Research Scientist*

The Soil, Water, and Bioenergy Resources program at OSU South Centers at Piketon develops and provides science-based knowledge regarding sustainable agricultural practices, advanced biofuels, and tools for accounting ecosystem services.

**RESEARCH IMPACT****Local, State, Regional, and National Impact****Organic Transition Research**

Maintaining soil health and productivity are on-going concerns in no-till organic crop production systems especially in Ohio. The Ohio State University received \$750,000 in funding from the USDA Organic Transition Project in 2012 to assess and maximize organic ecosystem services. OSU research showed that by planting only 2 lbs. of oilseed radish and 25 lbs. of winter pea with 100 lbs. of Zeolite per acre after crops are harvested, the radishes can grow more than 30" deep to break-up plow layer compaction, provide the required amount of Nitrogen, and facilitate infiltration. Oilseed radishes recycle more than 100, 30, and 30 lbs. of Nitrogen, Phosphorus, and Potassium, respectively, when applied with manure or biosolids. Zeolite was found to hold ammonium-N ( $\text{NH}_4^+$ ) and other nutrients and increase the nutrient-use efficiency by reducing Nitrogen and Phosphorus application needs. Furthermore, Zeolite was found to retain a higher volume of water and mitigate drought effects. OSU South Centers' research on the use of Zeolite and oilseed radish and winter pea as multi-functional cover crops in no-till organic systems could potentially save up to \$100,000 per year for organic farmers in Ohio.



Zeolite with radish and winter pea in organic transition system

**Drainage Ditches and Best Management Practices**

The Ohio State University received \$500,000 in USDA-National Integrated Water Quality Program funding to develop an integrated approach to foster science-based management of agricultural drainage channels in the western Lake Erie basin. The long-term goal of this integrated research, Extension, and education project is to inform and facilitate science-based management of agricultural drainage channels to protect and enhance water quality while meeting drainage needs essential for agricultural production.



Two-stages ditch

**FARMS, FORESTS & STREAMS****Soil, Water, and Bioenergy Resources Achievements and Impacts 2012 continued:****Renewable (Bioenergy) Research**

Since bioenergy is one of the important sectors in future energy investment to replace imported fossil fuels, applied research was focused on advanced energy. However, using the best land to grow biofuel crops is not a logical choice, marginal quality land such as reclaimed strip mine land and low-quality sloping pasture or brushy land is relatively low priced and may be suitable to grow perennial grasses as bioenergy crops. As municipalities nationwide face growing populations, and therefore produce more waste, they are pleased with any opportunity to dispose of sewage sludge in a positive, productive way. Electric utilities with coal-fired power plants face a similar problem with flue gas desulfurization (FGD) gypsum. Applying sewage sludge and FGD gypsum on marginal land as amendments to grow feedstock will provide a valuable use of the waste products.

Presently, we are managing seven bioenergy experiments on miscanthus, warm-season grasses, willow, sudan-sorghum grass, and sweet sorghum. These projects are funded by a collaboration with: NE Sun grant (through the Department of Energy); Mendel Biotechnology, Inc., Hayward, CA; Repreve Renewables (Giant Miscanthus), Soperton, GA; Speedling, Inc. Ornamental and Energy Crop Divisions, Ruskin, FL; Konza Renewable Fuels, LLC, Meriden, KS; and New Polymer Systems, Inc., New Cannan, CT.



Two-year-old *Miscanthus giganteus* plantation on biosolids applied land.

Long-term research at the OSU South Centers has suggested that growing perennial warm season grasses for biofuels on marginal land amended with sewage sludge and FGD gypsum could produce more than 8 to 10 tons of dry biomass feedstock/acre annually. Likewise, miscanthus produces 15 to 20 ton/acre of biofeedstocks. Because the grasses are not grown for food, applying sewage sludge and FGD gypsum to improve soil quality for growing biofuels will not pose danger to human health.

**International Impact**

Over the years, the OSU South Centers has developed a national and international reputation in soil, water and bioenergy research. As a result, internationally funded graduate students, scientists, and professionals as visiting scholars from Bangladesh, Brazil, India, Pakistan, Turkey, Uzbekistan, and Yemen, have joined our program for research, education, and Extension activities. In 2012, we have hosted 5 visiting scholars from Pakistan, and Turkey. One of them was a Fulbright scholar. All of them have successfully completed their work and returned home. Several of the scholar's (Drs. Ekrem Aksakal and Kenan Barik) high-quality research projects were presented and displayed at the International Research Exposition organized by the Vice-President of Research of the Ohio State University .

## FARMS, FORESTS & STREAMS

### Soil, Water, and Bioenergy Resources Achievements and Impacts 2012 continued:

#### Tools and Technology

We have received two grants (NC SARE PDP and Corn Growers Association of Michigan) to develop soil health tool and a user-friendly soil organic matter calculator for farmers. New energy feedstock markets have emerged for crop residues, and this poses challenges for farmers attempting to weigh potential economic benefits and risks associated with crop residue removal from the farm.

A simple and inexpensive soil quality field test kit for routine evaluation of field soils by farmers, producers, Extension Educators, and citizens was developed at the OSU South Centers several years ago. This test helps farmer and others to determine on-farm soil quality, soil organic matter content, plant available N, biological activity, and soil tilth, and to predict crop yields. On average, Ohio has 78,000 farms for growing corn, soybeans, wheat and other crops. Farmers spent at least \$10-20/year for routine analysis of soil. Our soil quality test costs less than a \$1 per year. Collectively, this test can potentially save Ohio farmers more than \$350,000 to 700,000/year. Our soil test has also been made available for international shipment, with test kits sold outside the United States in 2012. We are at the last stage to apply for patent on soil health test kit.

The opportunity to sell corn stover is present with bioenergy conversion plants being built across the Midwest. Farmers are aware that soil organic matter remains the foundation upon which sustainable, and profitable agricultural systems are built. Farmers, Extension Educators and NRCS staff, as well as industry need a simple and easy-to-use tool, in order to understand how management influences soil organic matter. The funded project involved development of a user-friendly tool for predicting long-term effects of the cropping system and management practices on the dynamics of soil organic matter.

We have developed the “Soil Organic Matter (SOM) calculator tool” based on the impacts of stover removal, crop rotation, drainage, manure and organic amendments, fertilizers, conservation tillage and cover crops. The outputs of the calculator consist of total, active, and passive soil organic matter, total nitrogen, CO<sub>2</sub>-C sequestration, and overall soil health. The tool also helps to calculate the revenue from residue sales. This tool is available on the Soil, Water and Bioenergy website (<http://www.southcenters.osu.edu/soil>) and is ready to convert into “software” for commercial use by farmers, NRCS and other clientele.



Soil quality test kit color chart for field evaluation of soil quality



**frmCropRotation**

**SIMULATION PERIOD**  
 Start Year  End Year  No. of Years   
  
☐ SKIP (Use Years from Previous Run)

**CROP ROTATION**  
☐ SKIP (Use Inputs from Previous Run)  
 Please enter information for crop#1 in your crop rotation  
 Crop:  continuously for  years, with  bu/ac  
 Based on crop and yield, suggested Plant Residue Equivalent is  lbs/ac  
 If you would like to change the PRE, just change the value in the text box above  
 Select Tillage  
 Tillage Type:  Plow depth (optional)  in  
☐ Use the same Tillage Type and depth for all crop rotations  
 OR Enter weight of Furrow Slice (lbs/ac) - Optional   
 MANURE APPLICATION  
 Manure type:   tons/ac  
☐ Use the same manure type and rate for all crop rotations

**ORGANIC MATTER BASELINE**  
☒ Use same crop rotation for 5 years before  SKIP ☐  
☐ Use different crop rotation for 5 years before   
 Soil OM in Start Year  %  
 Old OM decay rate  % per year

**Management** | **Fertilizers** | **Cover Crops** | **Erosion**  
 You have selected Tillage Type   
 What best describes your cropping system?   
 How would you describe your soil?   
 Select Drainage Type

**SCENARIO & MODEL RUN**  
 Annual Residue Removal Rate  %

**Review your Crop Rotation**

Rotation #	1	2	3
Years	1	1	1
Crop	0-NONE	0-NONE	0-NONE
Yield (bu/ac)	0	0	0
PRE	0	0	0

Repeat this Crop Sequence for rest of the period

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## FARMS, FORESTS & STREAMS

### Soil, Water, and Bioenergy Resources Achievements and Impacts 2012 continued:

#### Extension Impact

The OSU South Centers research fields and experiments have been exhibited numerous times to farmers and researchers in 2012. Soil, Water and Bioenergy staff have presented papers and posters at national and international meetings, and demonstrated our tools to various clients. Using our NC Sustainable Agriculture Research and Education (NCR SARE) professional development grant, we have organized train-the-trainers workshops on soil quality and 21st century agriculture at the annual Conservation Tillage and Technology Conference in Ohio; Soil and Water Conservation International Meetings at Fort Worth in Texas; Carbon, NC SARE Energy and Environment Meetings in Michigan; and NRCS Soil and Water Conservation Meetings in Ohio. So far, more than 450 professional and educators in Ohio, Michigan, Minnesota, Texas and other states have been trained on soil quality and 21st Century agriculture.

In our soil quality post-workshop evaluation, it is reported that each of the professionals and educators who received practical education, knowledge and teaching materials from our workshops have each, in turn, provided training and outreach to more than 10 people in 2012. This outreach and education by professionals is equivalent to 4,500 people.

In 2012, the Soil, Water, and Bioenergy Resources team organized 6 field days, 3 field workshops, and 2 regional meetings. Team members gave 18 presentations, published 5 peer-reviewed papers, and one fact-sheet (<http://fabe.osu.edu/sites/fabe/files/imce/files/Soybean/SoybeanFactSheet.pdf>).

## BUSINESS & ECONOMIC DEVELOPMENT NETWORK

### The Ohio State University South Centers Small Business Development Center (SBDC)

*By: Ryan Mapes, Director, District 7 Ohio Small Business Development Center*

The Ohio State University South Centers Small Business Development Center (SBDC) counselors provided 4,976 hours of business counseling to 411 clients throughout the year. The efforts of the Small Business Development counselors resulted in the creation of 194 new jobs, assisted with the retention of 472 jobs, and assisted with the startup of 24 businesses in 2012. The businesses the Center served were able to acquire \$6.6 million in loans and \$2.6 million in other capital. In addition, these businesses invested \$892,928 of their own money into new projects or ventures. During the year, the SBDC held or assisted with 24 training events, provided training to 351 attendees and provided a total of 3,592.50 training hours for the businesses in Southern Ohio. These trainings covered many topics ranging from basic business start-up courses, to learning about social media outlets to various computer trainings.

At the Ohio SBDC annual conference, OSU South Centers business counselor and International Trade Assistance Center director Kelly O' Bryant received recognition for having the best performing ITAC in the state. Since 2012 was the first full year of operation of the ITAC at the OSU South Centers, this is quite a commendable accomplishment.



Small Business  
Development Center

### The International Trade Assistance Center (ITAC)

*By: Kelly O'Bryant, Director ITAC at OSU South Centers*

The International Trade Assistance Center (ITAC) at the Ohio State University South Centers in Piketon serves as southern Ohio's first point of contact for information, resources, referrals and consultation for the new-to-export, new-to-import, and businesses expanding their current exporting capacity. Helping to connect Ohio entrepreneurs and small businesses with new buyers and new markets abroad is the ITAC's primary focus. In 2012, The OSU South Centers ITAC invested over 600 hours assisting forty-two companies to enter or expand their markets internationally. These companies sold over \$8 million in products/services to more than 10 countries worldwide.

The ITAC staff assists companies by providing no-cost, in-depth and confidential counseling, including:

- assessment of your company's global readiness
- securing international market research and regulatory information
- development of an international business plan
- international transaction assistance
- networking with service providers
- introduction to federal and state government agencies that provide services, programs, and financial resources to companies seeking to export
- training opportunities



Small Business  
Development Centers  
International Trade Assistance Center

## FARMS, FORESTS & STREAMS

### Ohio Aquaculture Research and Development Integration Program (OARDIP) Achievements and Impacts 2012

*By: Dr. Hanping Wang, Senior Research Scientist, and Dr. Laura Tiu, Aquaculture Specialist*

**Summary of Achievements:** In 2012, in collaboration with the OSU Department of Animal Sciences, the OSU Department of Food Science, the OSU South Centers Business Development Network, the Ohio Soybean Council, and several international institutions, OARDIP accomplished eight research studies and projects, published four journal articles and six proceedings papers, received three grants for a total of \$900,000, trained four graduate students, post doctoral fellows and scholars, generated six new grant proposals, conducted five workshops, two on-farm research projects, one state-wide bus tour and made 24 presentations to audiences around the state and at national and international conferences. The OSU South Centers received funding from the USDA young farmer and rancher development program to conduct an Aquaculture Boot Camp program, and have successfully launched the project.

**Economic and Scientific Impact:** Ohio aquaculture has an estimated impact of \$50 million annually. Aquaculture sales in Ohio have tripled from \$1.8 million to \$6.6 million in recent years. Nationally, Ohio ranks first in sales of yellow perch for food and is the number one bluegill producing state. Ohio also ranks fourth in sales of baitfish and largemouth bass sold for sport, and fifth in number of baitfish farms. Sixty-four journal articles and proceedings papers have been published by OARDIP, including four journal publications and six proceedings papers in 2012.

**O'GIFT (Ohio Genetic Improvement of Farmed-fish Traits) Program:** The O'GIFT program is expected to increase aquaculture production of perch, bluegill and largemouth bass by 35-50% through the development of genetically improved broodstock for producers.

**Yellow Perch Breeding:** Multiple improved lines of yellow perch have been developed, and over one million genetically improved fish have been distributed to fish farms. An additional third generation of improved fish was produced in 2012 through the crossing and mating of more than 100 families. Evaluation of 1-stage and 2-stage selection was completed, and the results have been published by the Journal of Animal Science. Three male populations with a female genotype have been developed, which could produce fast-growing all-female populations for the aquaculture industry. Three projects related to sex-control and breeding were completed and three manuscripts on these projects are in preparation or in revision.

**Bluegill Breeding:** Nineteen families of all-male populations, which would grow 40-50% faster than a mixed-gender population, have been successfully produced through selective breeding. Three experiments related to sex-control and genotype by environment were completed. The results from these experiments provide a valuable base for developing all-male broodstock for bluegill.

**On-station and on-farm tests of improved fish:** Year2 of the on-station and on-farm tests of genetically improved yellow perch was conducted on three sites in two states using both separate rearing and communal rearing methods. This is an important step for commercialization of genetically improved strains. The testing results showed improved fish exhibited 42.1 – 59.4% higher production, and 25.5% - 32.0% higher growth rates, and even have 12.3% - 27.8% higher survival than local strains.

**Aquaculture Genetics and Breeding Lab (AGBL):** This is the first lab of its type in the Midwest and is crucial to the success of the GIFT program and improvement of farmed-fish traits. In this lab, genetic relatedness charts and genetic pedigrees of selected broodfish have been constructed for breeding programs for the past years. Family identification technology using DNA for selective breeding in yellow perch and bluegill has been established. A first genetic linkage mapping of bluegill has been completed for selective breeding and published in Aquaculture International. Genotyping for 800 yellow perch from the testing sites was finished for performance evaluation. The data from the lab has generated ten papers in prestigious international journals and proceedings in 2012.

**Fish Muscle Growth and Nutrition Program:** The muscle and nutrition program has continued breakthrough research demonstrating the effect of wheat gluten-based diets supplemented with lysine on muscle growth, gut development, and amino acid transport in yellow perch. The research could result in a cost savings of 10-15% in feed costs and would reduce the impact on the natural resources. The results have been published in Aquaculture Research and Reviews in Fish Biology and Fisheries.

**Aquaculture Technology Transfer (AT2) and Dissemination:** In 2012, OARDIP personnel toured over 200 clients through the research and demonstration facilities in Piketon, Ohio including: potential fish farmers, high school and college students, agency personnel, university guests, Congressional Assistants and Armenian, Georgian, and Chinese visitors. Staff made over 15 presentations to audiences around the state, in the Midwest, and in China. Five intensive workshops: Introduction to Aquaculture Perch Day, Pond Management, Business Success, eXtension Annual Aquaculture Virtual Workshop, and an Ohio fish farm bus tour were conducted in the past year. Twelve clients received individual business assistance designed to enhance the success of their aquaculture business ventures. Two on-farm demonstration projects with aquaponics and freshwater prawn were conducted. Three aquaculture Extension proposals were submitted to enhance services available.

**International training program:** OARDIP's reputation as a scientific leader in aquaculture genetics and breeding has attracted more than twenty scientists and international scholars to work in the Aquaculture Research Center and Genetics Lab at Piketon. In 2012, OARDIP trained four visiting Ph.D. students and scholars. Two of them received their Ph.D. in 2012. They also significantly contributed to OARDIP's success.



## BUSINESS & ECONOMIC DEVELOPMENT NETWORK

### Direct Marketing Achievements and Impacts 2012

By: Dr. Julie Fox, Program Director

#### OSU Team Impacts

Each year, direct marketing educational sessions and materials reach more than 5,000 professionals including small and medium scale producers, food processors, farmers' market managers, grocery store managers, chefs, winery operators, beekeepers, aquaculture farmers, Christmas tree growers, garden center owners, community leaders, tourism professionals, economic developers, entrepreneurs, scholars, international visitors and OSU students. Some of the highlights from 2012 include:

- 194 entrepreneurs participated in social media marketing webinars and seminars
- 50 nursery, garden center and landscape professionals participated in a hands-on marketing workshop
- 35 entrepreneurs from 5 states participated in an on-farm field day and workshop on Agritourism Emergency Preparedness
- 70 beekeeping professionals joined in a marketing webinar
- 210 people learned about Farm to School

The team also secured funding to develop the Maps and Apps program to help producers improve market access through mobile media marketing. Requests for Direct Marketing Team members to present on a national level continue to increase. 2012 presentations include:

- National Women in Ag Educators Conference
- Community Development Society 2012 Conference
- National Extension Assn. of Family & Consumer Sciences Annual Conference
- National Farm to Cafeteria Conference
- National Assn. of Community Development Extension Professionals
- Great Lakes Expo

#### Market Ready Program

Through five full-day workshops and six conference presentations, 289 Ohio food producers learned what it takes to sell to grocers, restaurants, schools, and through other direct marketing channels. This program not only educates attendees on best marketing practices, but it takes it a step further by facilitating a panel of buyers who share their insight when sourcing local products.

The first specialized MarketReady program was launched in 2012 targeting the unique needs of selling Ohio wines. Working in partnership with the Ohio Grape Industries Committee, MarketReady developer, Tim Woods, from the University of Kentucky, worked with the Ohio wine industry leaders to develop this custom program targeted to expand Ohio wine selections in stores and restaurants. Over 50 wineries took advantage of this training. Due to its success, additional specialized MarketReady programs are being developed, with an Aquaculture MarketReady program being developed in 2013.

#### Ohio MarketMaker



With more than 5,900 visitors per month and close to 500 farmer profiles, 194 farmers' markets, 65 agritourism enterprises, 89 wineries, 16 fisheries, 1,500 wholesalers, 12,000 food retailers and more than 27,000 eating and drinking listings, the Ohio MarketMaker program plays an important role in connecting Ohio's food producers and local buyers. This web-based industry resource would not be possible without the support of the growing national MarketMaker network and our Ohio partners: the Ohio Department of Agriculture/Ohio Proud, Ohio Farm Bureau/Our Ohio, Ohio Grape Industries Committee, the Center for Innovative Food Technology (CIFT), Ohio Produce Growers and Marketers Association (OPGMA).

## FARMS, FORESTS & STREAMS

### Farm to School Achievements and Impacts 2012

*By: Dr. Julie Fox , Program Director*



OSU Extension (OSUE) began providing statewide leadership for Farm to School (F2S) at the end of 2011. With direction from the OSU South Centers, a core OSUE working group formed to develop a program presence, establish a diverse stakeholder advisory group, and connect with the national F2S network. As part of the new OSUE Local Foods Signature program, multidisciplinary components focus on nutrition (Family Consumer Sciences), youth development (4-H), food production and distribution (Agriculture and Natural Resources), and local food systems (Community Development).

Ohio Farm to School collaborators launched several new farm to school grant programs and educational resources. Here are a few highlights:

- The Ohio Department of Education awarded \$100,000 to Ohio schools for farm to school projects.
- OSU, the Ohio Department of Education, and an advisory committee of foodservice directors created 'Menus that Move' - a set of seasonal cycle menus to help schools serve tasty meals that fit within the United States Department of Agriculture's (USDA) new meal guidelines.
- The Ohio Department of Health developed a "Seed to Salad" Salad Bar Toolkit.
- The Ohio Action for Healthy Kids launched a Breakfast at School Toolkit and Taste Testing Toolkit for schools.
- ODA and OSU completed a Specialty Crop Block grant program that included \$20,000 in farm to school grants for schools.
- OSU Extension awarded the F2S program an Innovative Grant to strengthen statewide outreach and support.
- Various guidebooks were developed to help schools, producers, and other community leaders to design and maintain successful F2S programs.
- In the first round of USDA farm to school grants, the Cleveland Municipal School District received a \$45,000 planning grant to engage the technical services and expertise of the Ohio State University Extension in Cuyahoga County.
- Cuyahoga County OSU Extension team partnered with the Food Service program in Cleveland public schools, making Ohio part of the national School Food FOCUS Upper Midwest Regional Learning Lab (UMRLL), with the goal of leveraging the procurement power of large urban school districts to purchase more healthful and sustainable foods from regional producers and food manufacturers.
- There were more than 1,800 visits to the Ohio Farm to School website, <http://farmtoschool.osu.edu>.



## BUSINESS & ECONOMIC DEVELOPMENT NETWORK

### The Ohio Cooperative Development Center is helping improve the economy in rural Ohio and West Virginia

By: Christie Welch, Program Specialist



The Ohio Cooperative Development Center at the OSU South Centers has been successful in assisting clients develop new cooperatives, develop other legally structured businesses, create jobs, retain jobs, and avoid costs to businesses in 2012.

In addition, OCDC has assisted many individuals in exploring the cooperative business model through presentations at workshop and conferences, the OCDC website, and many hours of direct client contact. Over the course of 2012, the OCDC assisted with the incorporation of five new cooperatives, helped businesses save 59 jobs, and helped create 106 new jobs as a result of OCDC assistance. In addition, the cumulatively assisted businesses avoided over \$1.19 million in costs.

The OCDC is well-integrated with teams and programs of the OSU South Centers such as the Business Development Network, to provide complementary technical assistance for cooperative formations and technical support services addressing targeted economic development related rural business sectors. ***In fact, the clients assisted by the OCDC have formed a total of 35 new businesses in the last five years.*** The OCDC assisted clients by investing ***on average per year*** over 1,400 hours of directed client services representing over 200 face-to-face sessions with potential new and emerging cooperatives, and formal training for over 550 individuals each year from 2009 to 2012. Results were accomplished using various technical assistance tactics, including direct one-on-one assistance, workshops and conferences, a seed grant/loan program for emerging cooperatives, feasibility and business plans, and a Web site start-up concept.

#### Most recently, OCDC has:

Facilitated the development of Extension partners in Ohio and West Virginia: Twenty Extension partners were recruited and included in a new team approach to enhance economic development in rural areas of Ohio and West Virginia by supporting business and cooperative development through the collaborative efforts of OSU and West Virginia University Extension and OCDC to establish new and strengthen existing cooperatives targeting local foods enterprises and small farms.

Development and implementation of a Specialty Crop Growers Apprenticeship Program: Expanding access to nutritious, locally grown and healthy food is important not only to the health of consumers, but also plays an important role in decreasing unemployment and improving rural economies. In response to the escalating demand for locally grown specialty crops, the Non-Profit Local Foods Network (NPLFN), local producers and community growing projects, and OSU South Centers have partnered to address the lack of new growers needed to keep up with increasing demand for locally produced foods. As part of that plan, a Specialty Crop Growers Apprenticeship Program was submitted to and approved by the Ohio State Apprenticeship Council for implementation. The first apprenticeship classes began in April 2012 in two areas of Ohio. Upon program completion, each apprentice will receive a certificate of completion from the Ohio Apprenticeship Council and the Bureau of Apprenticeship and Training, U.S. Department of Labor. Participants who complete the apprenticeship program will continue to be supported by the NPLFN and OCDC through technical support. OCDC is providing technical support, an incubator web site, board training, strategic planning leadership, WebEx meeting services, assisting the Training/Incubator Farm/Co-op Work Team, and making seed grants available for early formation activities.

## BUSINESS & ECONOMIC DEVELOPMENT NETWORK

### Ohio Farmers' Markets are Growing!

By: Christie Welch, Program Specialist

The **Growing!** Ohio Farmers' Markets program continues to work with farmers' market managers, vendors/producers, and collaborating organizations to provide training and technical assistance to this industry. Ohio currently ranks 5th in the nation for the number of farmers' markets in a state. Of these 264 markets, 56 currently accept Supplemental Nutrition Assistance Benefits (SNAP, formerly the federal food stamp program). The **Growing!** Ohio Farmers' Markets program has provided trainings and worked extensively to enable farmers' markets to accept SNAP benefits.

One of the highlights of 2012 was the 3rd Annual Ohio Farmers' Markets Conference. The conference was held at the Ohio State University Nationwide and Ohio Farm Bureau 4-H Center and welcomed more than 100 farmers' markets managers and market vendors to the two-day conference. The conference featured a diverse selection of speakers offering expertise on such topics as the State of Farmers' Markets around the US, Market Ready, Food Safety, Branding Your Business, Starting a Farmers' Market, Conflict Management, an Update on the Ohio Produce Marketing Agreement, a number of round table panel discussions, and much more.

Featured speaker, Bernadine Prince, President of the Farmers Markets Coalition and co-founder and co-executive director of FRESHFARM Markets was a huge success. Ms. Prince shared information about the growth of farmers' markets throughout the United States as well as shared best practices from many of the markets she has managed and visited. Attendees commented that she was an energetic, dynamic speaker with a passion for the industry. They also mentioned that it was good to hear about what has been happening across the country.

Conference feedback from one first-year attendee stated, "This is my first year as a market manager. I was not sure what to expect from the conference, it was so helpful. I got so many great ideas and learned so much." Another attendee noted "I have attended this conference for all three years; this is the best so far!"

In addition to the conference, the **Growing!** Ohio Farmers' Markets program continues to provide technical assistance to the Farmers' Market Management Network (FMMN); a cooperative of Ohio farmers' market managers and vendors/producers who have come together to improve the industry for all of Ohio's farmers' markets. Working with FMMN includes continuing the relationship with the Ohio Department of Agriculture's Division of Food Safety to help provide information and education about the food safety regulations for farmers' market vendors/producers.

Finally, the **Growing!** Ohio Farmers' Markets program works with local food-related businesses such as Celebrate Local at Easton Town Center in Columbus, OH and the Wild Ramp in Huntington, WV to provide linkages to local food producers who can use these outlets to extend their selling season and increase access to local food consumers. This past holiday season, Celebrate Local had its best monthly sales to date. The store is moving to a permanent location at Easton Town Center, and now is an outlet for nearly 200 of Ohio's local food producers. These season extension selling opportunities are allowing Ohio local food producers to increase their income, create jobs, and contribute to Ohio's economic development.

### Manufacturing and Technology Small Business Development Center (MTSBDC)

By: Brad Bapst, Director MTSBDC at OSU South Centers

The OSU South Centers partners with Ohio Development Services Agency in the Ohio Region 7 Manufacturing and Technology Small Business Development Center. The MTSBDC provides one-on-one confidential consulting and workshops on relevant topics for Ohio's small manufacturing businesses and technology industries. The MTSBDC serves as the initial point of contact for information, resources, referrals, and counseling for small manufacturing businesses and technology industries that are seeking to enhance current practices or develop and commercialize new technology. The primary customers of the program are a small to mid-size manufacturers with less than 50 employees seeking counseling and education services in the following areas:

- Lean manufacturing
- Business process improvement
- Strategic and business planning
- Intellectual property issues and marketing
- New product development and commercialization strategies
- Basics of patenting, trademarks, and copyrights
- Financial analysis/access to capital resources



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**BUSINESS & ECONOMIC DEVELOPMENT NETWORK****Manufacturing and Technology Small Business Development Center (MTSBDC) continued:**

The MTSBDCs have long been identified as the resource within the Ohio Small Business Development Center network that serves the needs of clients seeking assistance in commercialization and technology. The combination of the MTSBDC network and the local SBDCs working in harmony provides rapid access to the specialized expertise needed to assist with business planning, marketing and sales, developing financing options, and accessing state and federal assistance programs including the SBDC network's International Trade Assistance Centers (ITACs), and Ohio's Procurement Technical Assistance Centers (PTAC).

A recent addition to the MTSBDC program has been the enhancement of services provided by a strong partnership with the Ohio Manufacturing Extension Partnership (MEP). The MEP program provides manufacturers access to education, applied research and technical assistance to enhance growth, improve productivity, and expand capacity. A MEP Field Engineer was also hired at the South Centers and will work in close collaboration with the MEP Incubator partners, MEP Field Engineers in other parts of Appalachian Ohio, and Project Managers from the Appalachian Partnership for Economic Growth (APEG). The Field Engineer will work to develop business relationships with decision makers to gain an understanding of issues facing the manufacturer, and then identify creative strategies to help transform the company to higher growth and performance. As opportunities for growth become apparent through interactions with manufacturers, the Field Engineer will connect companies with APEG Project Managers who link companies with financial capital and other resources and programs to help implement the growth opportunities.

The Manufacturing and Technology Small Business Development Center provided 495 counseling hours to 17 client companies during 2012. Those companies reported an \$8.3 million increase in sales as a result of the assistance the center provided. The counseling efforts of the MTSBDC also resulted in the creation of 31 new jobs and the retention of 112 jobs in Southern Ohio.



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**OSU South Centers and Queen City Angels receive ARC funding**

*By: Meagan Barnes, Program Leader Business Development Network*

The absence of angel capital in the southern Ohio region is a gap in the entrepreneurial ecosystem. The Appalachian Regional Commission (ARC) has determined that access to capital and credit has historically been major factors limiting business creation, expansion, and growth in the Appalachian Region. If southern Ohio is to become a more active contributor to the state's economic performance and help improve economic conditions, then new fundamental approaches are necessary to create an environment that nurtures entrepreneurial innovation. Access to equity capital will help in the creation of companies and assist with the expansion of high-tech industry within the region.

Angel funds represent one potential antidote to this problem. Angel investors are an important source of capital for growing firms: The Center for Venture Research at the University of New Hampshire estimates that in 2011, U.S. angel investors provided \$22.5 billion to more than 66,000 ventures. Many of the investments were in start-up or very-early-stage companies. The number of active investors in 2011 was estimated to be 318,480 individuals. Many more people could become angel investors; the potential number of "angels" is 4 million, based on a net worth of \$1 million or more.

Queen City Angels and The Ohio State University South Centers partnered and received funding from the Appalachian Regional Commission and technical assistance from RAIN Source Capital to form an angel investing chapter in the mid-south region of Appalachia. ARC is providing \$235,000 in grants to stimulate capital formation by the selected applicants, which, along with the technical assistance underwritten by ARC, is projected to result in \$5 million in new angel fund capital available for business investment. Queen City Angels and The OSU South Centers received \$30,000 for formation of the new group during the 2013 year.

The selected applicants were formally announced by ARC Federal Co-Chair Earl F. Gohl at the Ohio State University South Centers, in Piketon, Ohio, on September 27. "This is an opportunity for folks who have 'made it' to capitalize on the opportunity to invest in their own communities, in their own region, to ultimately help their own children and grandchildren as well as others," said Gohl.

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The Ohio Agricultural Research and Development Center (OARDC) and Ohio State University Extension embrace human diversity and is committed to ensuring that all research and related educational programs are available to clientele on a nondiscriminatory basis without regard to age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, sexual orientation, or veteran status. This statement is in accordance with United States Civil Rights Laws and the USDA.

*Keith L. Smith, Associate Vice President for Agricultural Administration; Associate Dean, College of Food, Agricultural, and Environmental Sciences; Director, Ohio State University Extension; and Gist Chair in Extension Education and Leadership.*

*Steve Slack, Ph.D., Associate Vice President for Agricultural Administration and Director, OARDC*

For Deaf and Hard of Hearing, please contact Ohio State University Extension or OARDC using your preferred communication (e-mail, relay services, or video relay services). Phone 1-800-750-0750 between 8 a.m. and 5 p.m. EST Monday through Friday. Inform the operator to dial 614-292-6181 (Extension) or 330-263-3700 (OARDC).