

CONNECTIONS

ADJUSTING THE *sails*

South Centers charts new course during COVID-19,
better positioned to serve clientele post-pandemic

Bradford Sherman

CFAES/South Centers

"We cannot direct the wind, but we can adjust the sails."

This well-known quote, most often attributed to singer/songwriter Dolly Parton, is a perfect metaphor for how The Ohio State University South Centers continued to fulfill its mission amid the COVID-19 pandemic.

Program leaders in all four South Centers program areas, which include aquaculture, business development, soil and water, and specialty crops, transitioned to a model that placed a greater emphasis on online programming, distanced meetings, and work-from-home.

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Inside this issue of SOUTH CENTERS CONNECTIONS



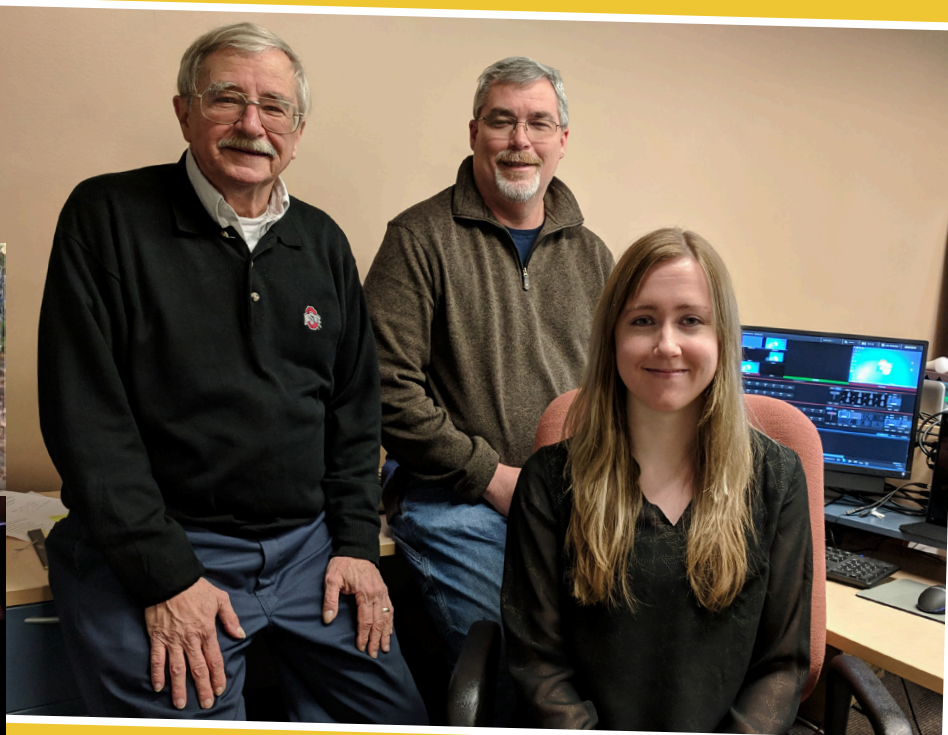
Fresh Ohio strawberries for the holiday season? **PAGE 4**



Updates from the Small Fruit Team **PAGE 6**



Routine work was anything but routine in 2020 **PAGE 10**



Pictured are members of the OSU South Centers video production team, from left, Patrick Dengel, Duane Rigsby, and Sarah Swanson. (Photo: Bradford Sherman/CFAES)

Putting the 'VID' in COVID

Video is the ideal way to reach clientele during pandemic

By Patrick Dengel

Business Development Specialist

Informational videos produced by The Ohio State University South Centers have provided an excellent avenue for various educational programs to serve clientele, particularly during the COVID-19 pandemic.

The team of Duane Rigsby, Sarah Swanson, and Patrick Dengel produce a variety of educational and promotional videos on topics related to agriculture, business, and community programs.

These videos range from 1-6 minutes, 10-15 minutes, and TV programming of 27-29 minutes. Several public educational television stations re-air these videos as well.

The South Centers YouTube channel can be viewed at youtube.com/southcenters

A variety of different programs throughout the year were completed on many College of Food, Agricultural, and Environmental Sciences topics (CFAES). Some of the main topical telecasts undertaken monthly and semi-monthly include:

- Healthy Living Resources – topics on healthy living, financial and social topics
- Food, Nutrition and Wellness – maintaining proper diets and exercise
- Marketing Matters – assisting farmers markets with promotional content and sustainability
- Healthy Aging Network – ways to increase security and productivity of elderly

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Cover Story: *Adjusting the Sails*

Welcome to the annual South Centers Achievements Edition. This is the issue that contains our best and brightest, the information that we most want to tell the world. The year 2020 was challenging, but because it was, our successes were even more rewarding.

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'Tis The Season for Strawberries.....Page 4

OSU researchers are working to bring fresh, Ohio-grown strawberries to higher market price periods. Early results are encouraging.

Commericalization of monosex fish is on the way.....Page 9

All-male bluegill and all-female yellow perch are preferred in the Aquaculture industry. OCARD has made monosex populations a reality.

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SAILS from Front

After nearly a year of operating in this fashion, the result is a South Centers that is more agile, innovative, and even better positioned to serve clientele in a post-pandemic world.

Each January, the winter issue of the South Centers Connections newsletter serves as our Achievements Edition. This is the issue that contains our best and brightest, the information that we most want to tell the world. The year 2020 was challenging, but because it was, our successes were even more rewarding.

Inside the pages of this Achievements Edition, you will read about the innovative methods our programs are using to reach the community, how our educators and counselors are helping Ohioans keep their businesses open and food on their families' tables, and how the important work and research that happens here continues.

Join us now as we take a look back at a most unique year, and look forward to better days ahead #TogetherAsBuckeyes.

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- Specialty Crops with Brad Bergefurd – hops farming and other vegetables
- Horticulture – Gary Gao and Ryan Slaughter on fruits, and South Centers' research farming topics
- Forage Focus – informational videos on pastureland
- Tree Talk – educational videos on trees, woodlands, and forestry
- Southern Ohio Matters – community topics relating to COVID-19 and community planning
- Health Warriors Series – topical areas on keeping physically fit via dietary and quality exercise
- Culture Cast – 4-H CFAES agricultural students visiting other countries
- Pike County Extension News Update - topical Extension programs geared toward communities
- Other topical areas on community and educational formats

In other areas, the video services completed six success stories: Rio Healthcare, Tree Care Specialist, Autostyz LLC, Clagg's Waste Disposal, Health and Wellness Bootcamp, and Kirchhoff Automotive.

Programming also included a number of educational "virtual ag day" telecasts in cooperation with the Pickaway County Farm Bureau and the Pickaway Soil and Water Conservation District. Some of the featured virtual ag day visits featured the Miedima Dairy Farm and the Wippel Family Berkshire Farm, a series on bees at Honeyrun Farm, and trips to the Ruff and Lamb Farms to learn about corn and soybean production.

Video Content is created both at the South Centers' Studio, located inside the Endeavor Center, and at home studios. Because of the COVID-19 Restrictions, many videos were created using the ZOOM platform with guests and hosts.



CFAES photo by Madeline Horvat



Conditioned plug plants, pictured above, were used in the trial and substrate bags were placed in the gutters, as seen below.



‘Tis the season for strawberries

OSU researchers aim to bring fresh, Ohio-grown strawberries to your table for the holiday season

**Bradford Sherman
and Brad Bergefurd**
CFAES/South Centers

Having fresh Ohio strawberries to enjoy over the holiday season? It may not take a Christmas miracle to make that a reality, say researchers at The Ohio State University.

Making fresh, Ohio-grown strawberries available during higher market price periods, like Thanksgiving and Christmas, is one of the objectives of a new Extension research trial being conducted by Dr. Chieri Kubota and Mark Kroggel from The Ohio State University Horticulture & Crop Science Department and Brad Bergefurd from the Department of Extension.

“Strawberries shipped in for the holiday season in Ohio are high-priced, have poor taste, and are limited in quantity,” said Bergefurd. “This opens up a great marketing opportunity for Ohio farms to produce off-season strawberries.”

“Picking your own strawberries at Christmas IS possible in Ohio,” he concluded.

This new research coalesces more than 30 years of combined strawberry research expertise of the three principal investigators in traditional field and high-tunnel strawberry production and modern greenhouse soilless off-season strawberry production.

See STRAWBERRIES Page 5



CFAES photo by Madeline Horvat

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Conducted at both the Columbus and Piketon OSU campuses, thanks to the support from the Ohio Department of Agriculture Specialty Crop Block Grant, the research thus far has yielded encouraging results.

“The greenhouse production has been going very well. We had our first harvest during the week of Thanksgiving and the month of December was a big production month,” said Dr. Kubota. “We could have planted 2-3 weeks earlier so that the big harvest would have occurred before Thanksgiving, but that is something to improve on next year.”

Plants grown in the Columbus campus greenhouse seemed to benefit greatly from having supplemental heating and light. At Piketon, on the other hand, researchers wanted to observe the results of growing strawberries outdoors using a high tunnel system without climate control.

“We never harvested a red strawberry – we had some nice fruits set, but they never ripened for us,” explained Piketon campus Research Associate Thom Harker. However, Harker believes that an adjustment in planting time could have resulted in high tunnel-produced, ripened strawberries, at least during the month of November.

“If we had planted a month earlier, in August instead of September, I think we would have had success,” he said.

This kind of soilless substrate-based production system trialed in these experiments has been widely adopted by growers in countries such as Australia, Belgium, Japan, Korea, and the Netherlands and other Northern European countries. The tabletop production system was recently introduced in strawberry production in California and Ontario, Canada in order to mitigate issues of soil-borne disease, drought, and labor shortages.

The tabletop production systems allow workers to stand upright while conducting crop maintenance and harvesting.

Growing gutters were placed on the tabletop system within a 1,536 sq. ft. research high tunnel located on the Piketon campus of the South Centers in July and August. Clean substrate (growing media), which eliminates the need for soil fumigants, was used to allow for more highly managed irrigation and nutrient delivery, as well as discharge for improved yield and quality.

Bare-root Chandler and Camarosa cultivars were obtained in June and grown as plugs with substrate. Plugs were conditioned for flower bud initiation in August and planted on September 15. Following the fall harvest, plants have now been moved down to the ground with row covers applied to provide additional protection for overwintering. Spring harvesting is expected to begin in April and end in June.

A virtual field day is being planned in late winter early spring to highlight this new strawberry production system. For more information contact project managers Dr. Chieri Kubota Kubota.10@osu.edu 614-292-3175 or Brad Bergefurd Bergefurd.1@osu.edu 740-289-2071.



Our Season Extension Strawberry Team

GAO: OUR RESEARCH AND EXTENSION EFFORTS YIELDED MANY 'FRUITS' IN 2020

Dr. Gary Gao

*Professor and Small Fruit
Extension Specialist*

Ryan Slaughter

Research Assistant

Greek philosopher Heraclitus said,
"change is the only constant."

Extension professionals have seen many changes over the years and have managed to adapt to meet these challenges. However, this pandemic has been quite a bit different. When the last global pandemic of this magnitude occurred, most all of us (if not all) were not alive.

Thanks to the quick action of our administration at all levels at The Ohio State University, faculty and staff were able to respond quickly by learning new methods and technologies to meet the needs of Ohioans in research and Extension.

Indeed 2020 has been a very challenging year for everyone due to the COVID-19 pandemic, and the fruit research projects and Extension programs at OSU South Centers were no exception. The following is a look back at our small fruit program in 2020, as told by Dr. Gary Gao and Research Assistant Ryan Slaughter.

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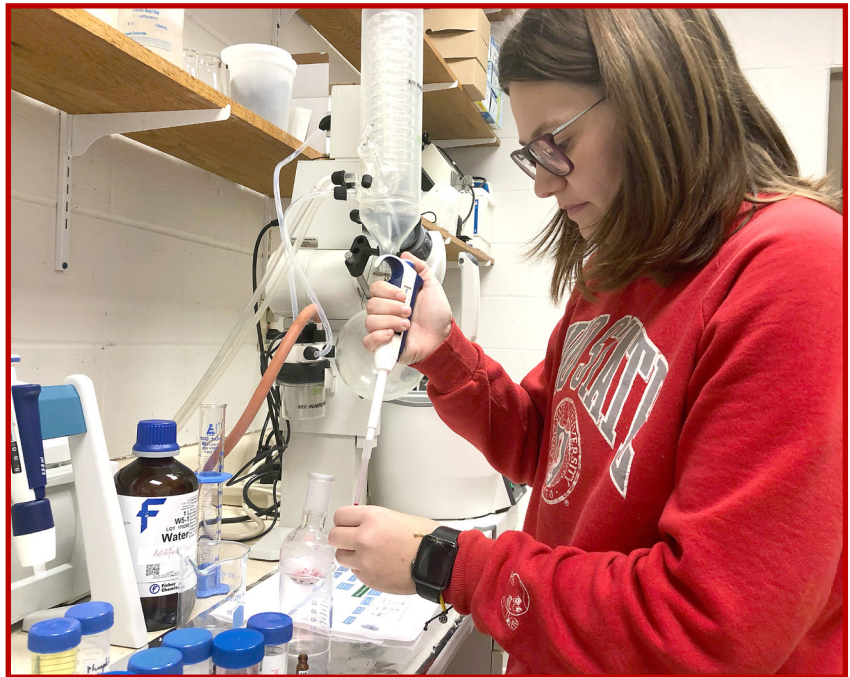
FRUITS from Page 6

Research

We managed to complete all the proposed objectives of our three funded projects in 2020. Our bramble, hardy fig, and hardy kiwi specialty crop block grant project was quite rewarding. The block grant was funded by the Ohio Department of Agriculture and the USDA Agricultural Marketing Service. We were able to produce delicious Chicago Hardy and Brown Turkey variety figs in the field and high tunnel. It is even more fulfilling that some of the growers were able to grow hardy figs and market them to consumers in Ohio. Some of the new bramble cultivars trialed in our project also showed a lot of potential. With the help of our grant funds, we were able to create a learning lab of these fruit crops to help us conduct more dynamic Extension programs for growers and gardeners in the years to come.

Our multistate project on intelligent sprayer technology through the USDA was also highly successful. Dr. Heping Zhu (USDA, the overall Principle Investigator for the project) and Dr. Peter Lin (OSU Project Investigator, Department of Food, Agricultural and Biological Engineering) provided excellent leadership to this project. We conducted the validation studies at the blueberry patch near Lexington, Ohio, and the Klingshirm Winery near Avon Lake. Many growers across the country have adopted the technology for their orchards (apple, citrus, peach, and pecan), vineyards, blueberry plantings, nurseries, and greenhouses. According to a report online by Sue Kendall, USDA ARS Office of Communications:

“Field tests demonstrated that this new technology can provide pest and disease control that is equivalent to conventional spray systems while reducing spray drift by up to 87 percent, ground loss by up to 90 percent, and pesticide use between 30 percent and 85 percent, thereby resulting in annual chemical savings of \$56 to \$812 per acre, depending on crop types. This cost saving does not include labor and fuel. Smart Guided Systems, LLC, in



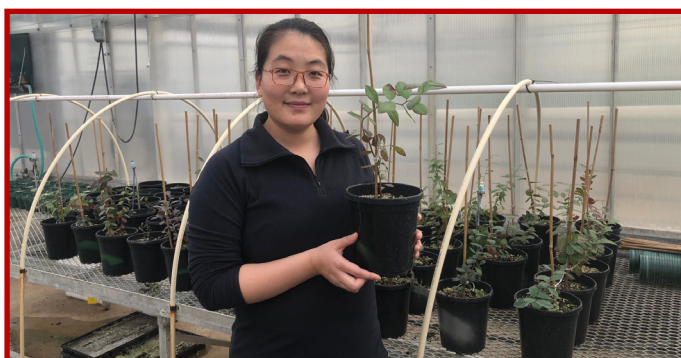
Emily Dean working in the small fruit lab.

Indianapolis, IN, commercialized the intelligent spray-control system in 2019 under the name “Smart-Apply.” Citrus, apple, grape, pecan, and nursery growers in the United States and other countries are now upgrading their sprayers with the commercial product. The pesticide-waste reduction made possible by the intelligent sprayer system is better for ecosystems and saves growers money, thus offering a sustainable and environmentally responsible approach to protecting crops.”

Visit this URL for the full article: ars.usda.gov/oc/dof/precision-sprayer-benefits-growers-and-the-environment. Growers are also encouraged to check out smartapply.com for information on purchasing kits to retrofit their sprayer or purchasing a new fully fitted sprayer.

Our third funded project was a Viticulture Extension project through the Ohio Grape Industries Committee (OGIC). Our project members provided timely information to grape growers throughout Ohio (ohiograpeweb.cfaes.ohio-state.edu). We also offered workshops in various formats. One of our biggest accomplishments was the 2020 Ohio Grape and Wine Conference. This pre-pandemic, two-day conference drew several hundred attendees with many presentations, a large trade show, and tastings of Ohio wines. Dr. Gary Gao served on the planning committee for this conference while Ryan Slaughter served as a moderator for viticulture sessions. Dr. Gao also conducted quite a few virtual vineyard visits as a part of the 2020 Ohio Vineyard Expansion Program. It was good to see that the grape and wine industry is alive and well. For more information on the Ohio grape and wine industry, check out findohiowines.com. You will be amazed by how much our industry contributes to Ohio's economy and how many jobs it generates.

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Dr. Jiuxing (Lulu) Lu visited the United States and worked with the small fruits team at South Centers for a little over a year.



Ryan Slaughter talks to attendees of the Pruning Workshop held in early 2020.

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Extension Programs at South Centers and Beyond

We offered the 2020 Fruit Pruning Workshop on March 12, 2020. It was our last in-person workshop before COVID-19 restrictions kicked in. We were able to put our demonstration research plots to full use as a part of our hands-on pruning demonstration. We also brought in a few plants and tree branches as a part of our “show and tell.” Little did we know that would be our last in-person program for the year.

Our annual Fruit Field Night was revamped and turned into “2020 Fall Fruit Research Updates with Q&A.” This program was offered on September 9, 2020. The program drew nearly 100 registrants, with a large percentage of them attended the program live on Zoom, while others watched the recorded program later at their leisure. The program featured pre-recorded videos, live presentations, and a question and answer segment.

Dr. Gao gave two talks on brambles and grapes as a part of the virtual “Ag. Madness” through OSU Extension’s Ag. Natural Resources program area. He also gave talks to gardeners and master gardeners in several counties through Zoom. Dr. Gao and Slaughter also gave a presentation each for the 2020 Virtual Farm Science Review (FSR) presented by the College of Food, Agricultural, and Environmental Sciences at The Ohio State University. Over the years,

FSR has drawn hundreds of thousands of attendees each year. The Virtual FSR was well attended as well. We are just very glad that we made our contributions to this program.

Extension and Research Publications

We have put quite a bit of effort into developing our website, fact sheets, and videos. You can check out our fruit web pages at southcenters.osu.edu/horticulture/fruits. Bradford Sherman, Slaughter, and Gao have spent a lot of time over the years to make them look good. Quite a few growers and gardeners have found us online through our website. It is also interesting to note that our web pages on gooseberries and currants, and blackberries received the most hits among all web pages, excluding the home page, at South Centers.

Two new OSU Extension fact sheets on figs and kiwis were developed and published in 2020.

The “Growing Hardy Figs in Ohio” fact sheet can be found online at ohioline.osu.edu/factsheet/hyg-1439 The “Kiwifruit and Hardy Kiwi (Kiwiberries)” fact sheet can be found online at ohioline.osu.edu/factsheet/hyg-1426 We certainly hope these fact sheets are useful to you.

Dr. Gao is very happy to report that he co-authored a paper titled “Accumulation of Anthocyanins and Other Phytochemicals in American

Elderberry Cultivars during Fruit Ripening and its Impact on Color Expression” in *Plants* 2020, 9(12), 1721; (doi.org/10.3390/plants9121721). He was a co-correspondence author with Dr. Monica Giusti of the Department of Food Science and Technology, The Ohio State University. Ms. Yucheng Zhou is the lead author and a Ph.D. student of Food Science and Technology at OSU.

We recorded a few videos before COVID-19 hit. You can Google Gary Gao and Ryan Slaughter to view our YouTube videos on fruit growing. With the help of our grant dollars, we were able to get a few more pieces of video recording equipment. Hopefully, we will get to record more in the field when the pandemic is over.

A lot of growers have also emailed us or talked to us over the phone or Zoom. We were able to provide timely advice to growers about the spring freezes and frosts, cultivar selection, fertilization, fruit harvest, grafting techniques, irrigation, nuisance wildlife management, trellising, and other fruit crop management techniques. It is also great to see that a few growers planted blackberries and blueberries. We are certainly grateful for the grants from Ohio Department of Agriculture, Ohio Grape Industries Committee, and US Department of Agriculture (USDA). It is very rewarding for us to see that the fruit industry in Ohio is diverse and resilient. We are glad to be able help it grow.



Commercialization of fast-growing monosex fish on the way, says Wang

Dr. Hanping Wang

Aquaculture Program Leader

The Ohio Center for Aquaculture Research and Development (OCARD) at the Ohio State University South Centers has partnered with Sandplains Aquaculture farm to commercialize all-male bluegill and all-female yellow perch.

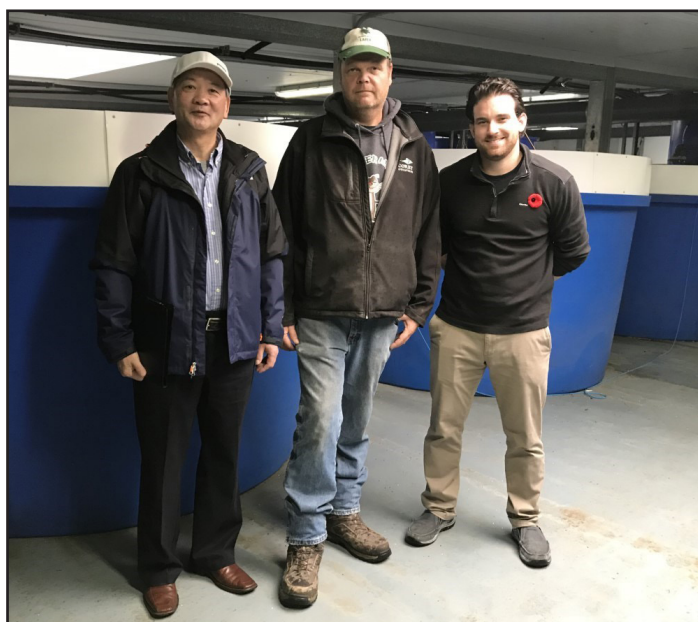
Sandplains Aquaculture, located in Ontario, Canada, is one of the largest aquaculture farms in the Great Lakes Region. Funded by USDA and NOAA-Sea grants, OCARD has developed technology for the production of commercial-scale, fast-growing monosex yellow perch and bluegill. Both species are the top aquaculture species in the Midwest and the Great Lake Region.

Sandplains Aquaculture wanted to first try bluegill, since this species has a unique market in Toronto and New York, and can be spawned out of season. Bluegill males grow significantly faster and larger than females, and all-male monosex populations are needed by the aquaculture industry. Through production and testing at Piketon's OCARD, researchers have created a technology that can generate large numbers of fast-growing, all-male bluegill populations.

Results from testing all-male or near-all-male bluegill populations at two locations showed: 1) weight gain and growth rate of all-male stock were 2.1 times that of regular stocks; 2) all-male groups had significantly uniform size and lower coefficient of variation; and 3) survival of all-male groups was significantly higher than that of mixed-sex groups, due to more uniform size.

Successful creation of genetically male bluegill strains could have a tremendous impact on the sunfish aquaculture industry by increasing the growth rate by 30-35% and saving energy expenditure by 20-30% due to increased growth due to having nearly-all-male populations.

In 2020, OCARD produced approximately 15,000 all-male



Dr. Hanping Wang, left, is pictured alongside facility managers at Sand Plains Aquaculture farm.

bluegill fingerlings for this commercialization project, and we are waiting for import authorization from the Canadian government for shipping the fingerlings to Sandplains Aquaculture farm.

We will perform research with yellow perch this summer. We are conditioning perch broodfish for producing all-female populations next spring. Yellow perch females grow significantly faster and larger than males. OCARD at Piketon has created a technology that can generate large numbers of fast-growing, all-female yellow perch populations. A growth performance test of the all-females vs. mixed-sex group showed that all-females grew 26.3% faster than the mixed group, and 66.0% faster than males.

We thank the College of Food, Agricultural, and Environmental Sciences and Dr. Gary Pierzynski for supporting this effort.

Routine work was **not routine** in 2020, or now

Dr. Hanping Wang

Aquaculture Program Leader

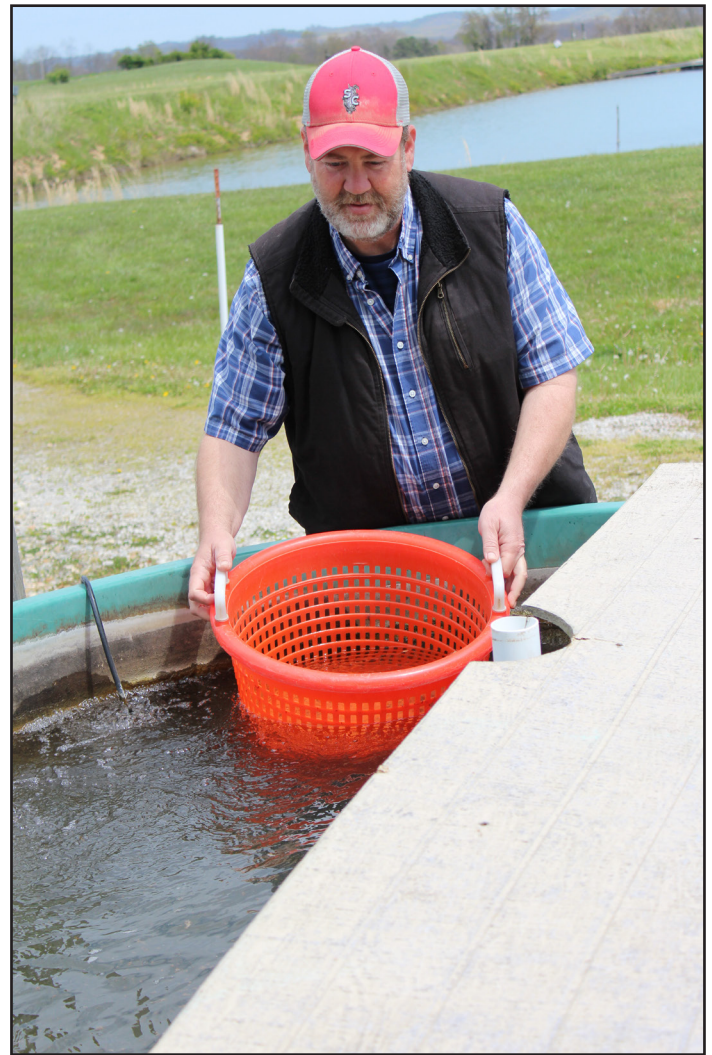
Feeding fish, monitoring oxygen levels, and measuring temperature appears to be routine work, but not in 2020.

The Aquaculture Research Center at OSU South Centers features a 3,000 sq. ft. wet lab/hatchery, a 4,500 sq. ft. broodfish building, and a 90-foot greenhouse that house around 40,000 research fish of multiple species in approximately 270 tanks and 15 ponds. Among them, thousands are genetically improved broodfish that can produce fast-growing improved perch, all-female perch, and all-male bluegill. Taking care of daily business and keeping those important research fish alive is a huge accomplishment in 2020.

When almost everybody at South Centers works from home most of the time – or all the time—during this pandemic, Paul O'Bryant and Dean Rapp go to the hatchery daily to take care of the “routine” for the aquaculture center.

They have also been conducting weekend checks for all the non-aqua buildings at OSU South Centers. Their hard work keeps our centers' facility safe and the fish alive.

In addition to their daily responsibilities, they have completed or assisted with four research or outreach projects: 1) breeding of yellow perch for producing all-female improved populations; 2) out-of-season spawning



producing 15,000 all-male bluegill fingerlings for commercialization; 3) effects of hormones and density on sex determination in bluegill, and 4) temperature effects on sex ratio of bluegill.

Big thanks go to research assistants Paul O'Bryant and Dean Rapp for all they do for aquaculture and all of South Centers.

Former aquaculture PhD student receives awards, promotion

Dr. Hanping Wang

Aquaculture Program Leader

Former aquaculture PhD student at OSU South Centers, Dr. Hiam Elabd, has recently been promoted to the rank of Associate Professor in the field of fish diseases and management by Benha University (BU), one of the top universities in Egypt.

She has also been awarded three of the university's 2019-2020 scientific excellence awards for papers from her research work at OSU South Centers. South Centers aquaculture staff Hong Yao, Paul O'Bryant, and Dean Rapp are co-authors of those papers and Dr. Hanping Wang was a corresponding author.

Advised by Drs. Hanping Wang (OSU) and Shaheen (BU), Dr. Elabd completed her entire dissertation research at the Ohio Center for Aquaculture Research and Development (OCARD) from 2013 through 2015 under a joint PhD training program and received her PhD in 2017.

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HIAM from Page 10

Through the program and partnership, The Ohio State University and Benha University signed a memorandum of understanding in research collaboration in 2018, and then she was nominated for the coordinator of international relationships for faculty of veterinary medicine by her university. Dr. Elabd was back at OCARD for her post-doc research in 2019, sponsored by the U.S.-Egypt Joint Board on Scientific and Technological Cooperation.

Through her dissertation and postdoc research in OSU South Centers, she has published six papers on reducing stress and disease in aquaculture using innovative approaches in prestigious international journals. In accordance with the progressive results and papers previously published and the OSU-BU signed MOU, Dr. Wang and Dr. Elabd recently developed a collaborative proposal. If it is funded, she will come to OSU to conduct more collaborative research.



Advised by Drs. Hanping Wang (OSU) and Shaheen (BU), Hiam completed her entire dissertation research in OCARD from 2013 through 2015 under a joint PhD training program and received her PhD in 2017.



Dr. Hiam Elabd (the 2nd from right) receives three of BU's 2019-2020 scientific excellence awards for papers from her research work at OSU South Centers under advising of Dr. Hanping Wang.

Dr. Hanping Wang's aquaculture book named one of the all-time best by BookAuthority.com

Bradford Sherman
South Centers/CFAES

Dr. Hanping Wang's latest book, *Sex Control In Aquaculture*, has been named one of the best aquaculture books of all time by the popular book recommendation and ranking website BookAuthority.com.

The 888-page, two-volume book is a comprehensive resource that covers all aspects of sex control in aquaculture, and was written by internationally-acclaimed scientists. Wang, who serves as the Principal Scientist and Director of the Aquaculture Research Center and Aquaculture Genetics and Breeding Laboratory at The Ohio State University South Centers, was the editor of the book alongside Francesc Piferrer and Song-Lin Chen.

The book's first edition was published in January 2019 by Wiley-Blackwell.

BookAuthority is one of the world's leading websites for book recommendations by thought leaders, and aids people in finding the best books on any topic. The site serves millions of book recommendations every month and has been featured on CNN, Forbes, and Inc.

BookAuthority describes its ratings as "objective and unbiased," as they are calculated based purely on data. A



proprietary algorithm uses public mentions, recommendations, ratings, sentiment, and sales history to rate each book.

In addition to Wang, South Centers staff members Zhi-Gang Shen, Hong Yao, Dean Rapp, and Paul O'Bryant also contributed to authoring chapters in the book. Sarah Swanson provided chapter coordination and Bradford Sherman, Joy Bauman, and Jordan Bostic contributed to the book by providing English language editing.

Additionally, *Sex Control in Aquaculture* also recognized as one of the best new aquaculture eBooks of 2020.



Dawn

of a New Career

STAFF PROFILE

(Editor's Note: The following is the latest in a series of feature stories highlighting Ohio State University South Centers Staff members)

Bradford Sherman
CFAES/South Centers

When Dawn Coleman accepted a part-time position with The Ohio State University at her local Extension office in December 2018 – little did she know it would be the first step toward a brand-new career.

“I didn’t accept that position expecting it to eventually lead to other opportunities down the road, but I was hopeful,” Coleman admitted.

Then hope became reality. From a half time Office Assistant to her new role as a Growth Advisor for the Manufacturing Extension Partnership (MEP), Coleman has been on a meteoric rise at OSU over the past two years.

See DAWN Page 13



Dawn and her faithful companion golden doodle, Murphy.

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She began her ascent by being hired as a Program Assistant for the MEP program at South Centers in 2019 and earned a promotion to her current post just 13 months later.

"It is great to know that when you put hard work and dedication into something, that you can be rewarded for it. The Ohio State University definitely promotes professional development and career growth, and I am so thankful to be part of it," she said.

The new gig appears to fit her well. In the relatively short time in her new job, she has already secured the largest ever project for MEP at South Centers by assisting Stirling Ultracold with a launch of ultra-low temperature freezers designed to transport doses of the COVID-19 vaccine. She has also brought in several new clients, closed first-time projects with existing contacts, and was appointed to serve on the Ohio MEP Board for its popular internship program.

"Dawn is outstanding," explained MEP Program Manager Doug Anderson. "She has brought the biggest wins to our program since South Centers has owned the MEP region for Southeastern Ohio. She models a level of excellence that keeps me sharp daily. The Ohio MEP Director, Susan Foltz has even recognized her accomplishments in the last four months - calling her a 'super star.'"

"I feel like I have found my calling," Coleman added.

The former fiscal officer for the Village of Coalton certainly knows the value of partnerships, as she worked closely with other state and local entities on a regular basis while in that role. She saw firsthand how partnerships with other entities could help a small business prosper, valuable experience on which she relies regularly for MEP.

"The manufacturing field has always sparked my interest. So, when the opportunity arose to become a part of the MEP team, I thought my experience with Coalton and with state and federal agencies could really help manufacturers in our area."

While now she is best known by her colleges for helping businesses, those who know her well can tell you that she is as adept at helping people. She can fly your aircraft, rescue you from a burning building, or save you from drowning. She is a pretty handy gal to have around.

Coleman once had her pilot's license and can still fly a single-engine aircraft to this day. She also has certifications for firefighting and swift water rescue. Though not as exciting, she can also help balance your budget thanks to nine years' worth of attending the Local Government Conference and training sessions.

If you ever find yourself in the Village of Coalton, be sure to swing by the pollinator park, a project that Coleman spearheaded in partnership with the Soil and Water Conservation District and was awarded with a Cooperator of the Year award in 2017.

Coleman is the mother of three grown children and currently resides in Wellston with her golden doodle, Murphy. In her spare time, she enjoys outdoor adventures such as camping and kayaking, and loves to travel and to paint Victorian era-inspired artwork.

BUSINESS NETWORK

VIRUS HAS TEMPORARILY CHANGED EC OPERATIONS

By Ryan Mapes

Endeavor Center Manager

The Endeavor Center business incubator continues to experience significant challenges during the COVID-19 pandemic. From the start of restricted operations in March 2020 through June, the facility doors were closed while OSU employees as well as the partner businesses' staff worked remotely.

Flexible payment terms were made available and fortunately most of the tenants remain in the Endeavor Center.

In July, based on better knowledge of the virus and safety protocols implemented, we were fortunate to re-open on a limited basis. With assistance from OSU and College of Food, Agriculture, and Environmental Sciences, we developed a very thorough plan to begin re-opening the facility. Our plans continue to be flexible, based on the ebb and flow of the virus and as more information becomes available. Highlights of this plan include increased daily cleaning and sanitizing standards, adhering to masking policies, and following all mandated social distancing guidelines.

The Endeavor Center remains closed to the general public, but some business tenants have resumed occupancy of their offices and are following all state, university, and local health guidelines. Meeting and training rooms are now being reserved based on an exemption approval process for business events, but the hours of operation are limited, and occupancy levels have decreased significantly.

Both 400 sq. ft. and 200 sq. ft. furnished office space is currently available for lease to entrepreneurs and start-up businesses. Easy access to a copier, printer, kitchen area, meeting rooms, and our Small Business Development Center counselors are just a few of the benefits when leasing an office in the Endeavor Center.

Please contact Jennifer Dunn at dunn.595@osu.edu or Ryan Mapes at mapes.281@osu.edu for any questions regarding usage of the facility.

2020 a busy year for SWBR

SOIL AND WATER

Rafiq Islam
SWBR Program Leader

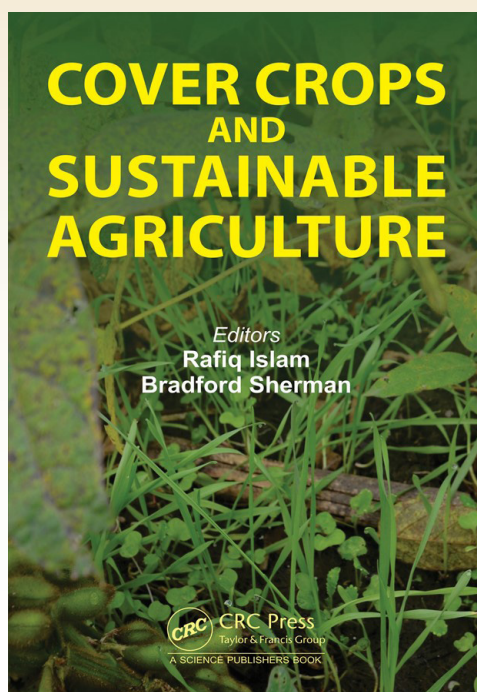
With our mission to develop and promote research, Extension, and educational programs for agricultural management practices that are environmentally compatible to sustain soil and water resources and are economically viable for producers and growers, the 2020 achievements of Soil, Water, and Bioenergy Resources (SWBR) program at The Ohio State University South Centers are summarized in the following sections.

Publications and books

While the COVID-19 pandemic adversely affected in-person academic, research, and Extension activities, the SWBR program team members proactively utilized their time working from home to publish a total 14 research articles in high-impact factored peer-reviewed SCI journals (impact factor 0.951 to 4.021 with a mean of 2.773), based on their national and international collaborations. The articles were published in *Soil and Sediment Contamination*, *Agricultural Water Management*, *Annals of Agricultural and Biological Research*, *Agricultural and Environmental Letters*, *Journal of Plant Nutrition*, *Journal of Soils and Sediments*, *Journal of Botanical Research and Applications*, *Journal of Soil Science and Plant Nutrition*, *Communications in Soil Science and Plant Analysis*, and *Eurasian Journal of Soil Science*.

Dr. Rafiq Islam, who leads the SWBR program, wrote and/or edited the 18-chapter, 320-page book titled “Cover Crops and Sustainable Agriculture” along with Bradford Sherman. The book is set to be published by the CRC Press, part of the Taylor and Francis Group (routledge.com). While this book was not written to serve as an encyclopedia of cover crop management — it certainly comes close.

Inside we discuss the benefits of a wide range of individual cover crops and blends/mixes for specific agronomic crop rotations and geographic locations. Descriptions, photographs, and illustrations (including those of plant height, leaf architecture, and rooting patterns) demonstrate to readers how cover crops should look in the field. Long-term benefits are described for soil health, water



quality, nutrient contributions, soil biodiversity, air quality, and climate change. In addition to the “whys” of cover crop use, this book also includes details on the “hows”: how to choose cover crops for specific applications and locations; how (and when) to plant; how to manage and maintain the cover for maximum benefit; and how (and when) to terminate. We hope this book will interest a broad audience including faculty members, students, farmers, agriculture researchers and educators, ecologists, economists, federal and state personnel, policy makers, and those who are looking for simple and illustrative information on sustainable agriculture.

Workshops, meetings, and symposiums

The SWBR program at South Centers organized a preconference workshop titled “Building Agricultural Resilience to a Changing Climate” along with Aaron Wilson (Byrd Polar & Climate Research Center; CFAES-OSU Extension/State Climate Office) and Alan Sundermeier (OSU Extension) at the Ohio Ecological Food and Farm Association (OEFFA) annual conference held in Dayton. Islam and Sundermeier also organized two more sessions at the OEFFA annual conference, one titled “Climate-Smart Organic Grains for Healthy Soils, Healthy Food, and Healthy People,” and another titled “Climate-Smart Organic Vegetables for Healthy Soils, Healthy Food, and Healthy People.” Islam delivered two presentations.

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Alan Sundermeier, Rafiq Islam, and Riti Chatterjee at the OEFFA Conference in Dayton.

These two sessions focused on current and future global climate change effects, organic grain and vegetable production in Ohio and the United States, degradation of soil health and water quality, chemical inducing of plants to improve water and nutrient-use efficiency, and conservation agriculture to enhance ecosystem services associated with improved food quality, nutrients, amino acids, and phytochemicals to support public health.

Riti Chatterjee, a visiting scholar of the SWBR program delivered an in-depth presentation entitled “Indian Experience on Organic Farming” and was included in the Building Agricultural Resilience to a Changing Climate session. In it, she discussed India’s rich and diverse heritage of agricultural traditions that makes it suitable for designing organic production systems, and its investment in applied research, Extension, and marketing infrastructure. Riti also touched on the constraints farmers are facing with special reference to small vegetable farmers.

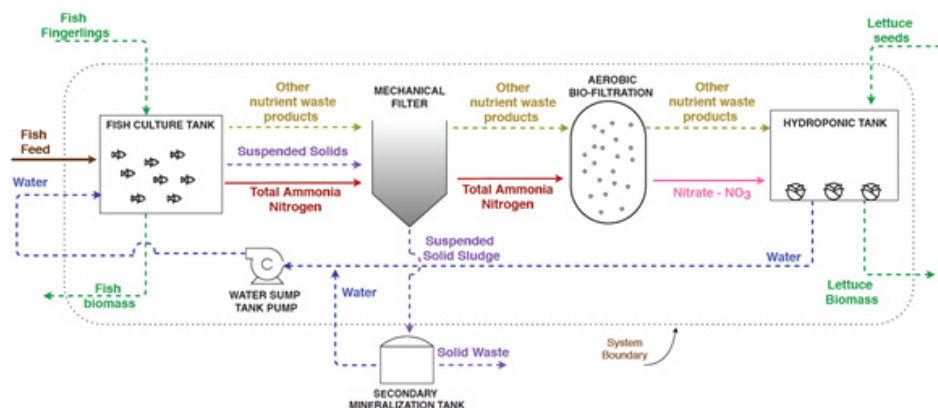
Islam was actively involved internationally, participating in virtual teaching for the training program “Growing organic crops in crop rotation with a focus on technical tomatoes” organized by the Institute of Water Problems and Land Reclamation of the National Academy of Agrarian Sciences of Ukraine, together with the European Bank of Reconstruction and Development (EBRD). The entire training program, in six different modules, was supported by the European Union in the framework of the EU4Business initiative “Ukraine: Training for Small and Medium Agricultural Enterprises.” As part of the training program, Islam and Dr. Nataliia Didenko delivered a two-hour PowerPoint presentation titled “Organic Production - Principles and World Experience.” Around 30 participants, mostly small-scale future organic farmers in Ukraine, attended the training course held at Mykolaiv in Ukraine. During and after their presentation, both Islam and Didenko emphasized Ukraine’s availability of vast areas of fertile lands that could be turned into alternate farming practices, especially organic production, compared to

current industrial farming systems. Small-scale farmers could export organic produce to European and North American markets, thus improving farm stability and the livelihood of Ukrainian small and future farmers. There is a high demand for organic tomatoes, particularly in the United States and Europe. The economical profitability and healthy properties of organic crops can help provide great opportunities for small-scale, poor, and new farmers, and along with rural job creation and organic export marketing opportunities, can help minimize farming costs with recycling of natural resources, and reduce pollution and improve soil health and water quality. Ukraine has the land, water, technology, and motivated people to achieve these objectives, it just needs to remove Soviet-style old administrative roadblocks and create proactive business/marketing opportunities for farmers and entrepreneurs.

Rafiq Islam participated virtually in the International Symposium on Food Security and the Stand of Civilization: Agri-Horti-Livestock Dynamics in Changing Global Ecology, jointly organized by Bidhan Chandra Krishi Vishwavidyalaya, India; Lincoln University College, Malaysia; and University of Bengkulu, Indonesia. The more than 300 participants consisted of faculty members, scientists, professionals, and students, including personnel from several international organizations from Afghanistan, Bangladesh, Burma, Cambodia, India, Indonesia, Malaysia, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and other East Asian countries. Islam delivered a 45-minute keynote PowerPoint presentation titled “Climate-Smart Agricultural Renaissance and Global Food Security.” In his presentation, he spoke about conventional agricultural practices, population growth, climate change effects (including greenhouse gas emission, global warming, and solar dimming on freshwater resources), soil health and food production and quality, conservation tillage, cover crops, and precision chemigation with new technologies and chemical-inducing (to minimize drought and salinity impacts) as part of climate-smart agriculture. After the presentation, there was an interactive question and answer session to discuss sustainable agriculture, population growth, and climate change adaptation and mitigation with special reference to food security in Asia.

One of the program’s PhD students, Shib Nath Pattadar, participated in the 2020 World Aquaculture Society America Conference held in Honolulu, Hawaii in February as part of his PhD research work. He delivered one oral and one poster presentation at the conference. The title of his oral presentation was “Is Fish Quality Healthier in Aquaponics?” and was delivered as part of the Aquaculture Engineering Society session of the conference.

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The goal was to evaluate whether the fish produced in U.S. aquaponics systems are as healthy and nutritionally enriched as imported fish. He had an ample opportunity to meet with world-renowned aquaculture scientists and network with them as part of his professional development.

Jordan Maxwell, Research Assistant in the Soil, Water, and Bioenergy Resources program, also participated in the conference, delivering a pair of presentations. One poster presentation was titled “Aquaponic System Impacts on Lettuce Yield and Quality” and disseminated research findings of green leafy lettuce grown in a deep-water culture aquaponic system using Nile tilapia, and compared that data to a replicated hydroponics system. She gave an oral presentation titled



Shib Pattadar and Jordan Maxwell arrive in Hawaii for the World Aquaculture Society America Conference.

UPPER RIGHT: PhD student Shib Pattadar works on the aquaponics system, which is diagramed in the figure ABOVE. Lettuce produced by the system is shown in the photo to the RIGHT.

“Building Educational Capacity Through Collaborative Aquaponics Extension Education,” an overview of The Ohio State University South Center’s history of collecting research data, demonstrating, and transferring unbiased research-based aquaponics knowledge to expand educational outreach capacity.

Research and extramural funding

Soil, Water, and Bioenergy Resources program scientists wrote, submitted, and received several research grant proposals during the COVID-19 pandemic. In continuation of research, the team submitted 12 proposals to Warner Endowment, OSU-IGP, Farmers Advocating for Organic (FAFO), OSU-IGP for Ph.D. students, NC-SARE R&E (One with OSU and the other one with Lincoln University, MO), USDA-AFRI, and OSU Sustainability Institute. The research proposals and pre-proposals were focused on edge-of-field soil and nutrient loss; adsorption tools development to control soluble phosphorus loss (SRP) to control algal blooms; sustainable quinoa production; aquaponics education; soil health restoration of pasture lands; alternate energy feedstock production, especially Miscanthus; sweet sorghum; popular graduate student exchange programs, academic teaching, and research

capacity development; and advanced energy co-products utilization for aquaculture and horticulture to support circular economy. Some of the proposals have primarily focused on technological innovations.

Rafiq Islam was involved in writing and submitting several international research collaboration and science-based knowledge translation projects in several countries, notably Kazakhstan, Ukraine, and Uzbekistan. He wrote proposals with scientists and faculty members at Kazakh National Agrarian University (KazNAU) for Kazakh Government and private industry funding to conduct research on: 1) restoration of soil health for sustainable pasture production and 2) development of a KazNAU-OSU graduate student and faculty exchange program. In conjunction with Dr. Didenko at the Institute of Water Quality and Land Reclamation, Kyiv, Ukraine, Islam wrote a CRDF Global US-Ukraine alternate energy research development grant proposal to establish field research for the proactive recycling of biosolids to rejuvenate soil health of marginal and degraded lands for sustainable production of Miscanthus, sweet sorghum, and poplar energy bio-feedstocks in Ukraine.

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In addition, the Soil, Water, and Bioenergy Resources program joined with the Specialty Crops program at South Centers (Rafiq Islam, Arif Rahman, Bradford Sherman, and Gary Gao) to submit a project titled “Strengthening U.S. and Uzbek Scientific Capacity through Joint-Institutional Agricultural Teaching, Research, and Outreach Development” between OSU-Tashkent State Agrarian University with funding support from UniCen-American Councils for International Education and U.S. Embassy in Tashkent, Uzbekistan.

Graduate students and visiting scholars

The Soil, Water, and Bioenergy Resources program supported and supervised two students, Natalia Zappernick and Shib Nath Pattadar, for pursuing their graduate studies at The Ohio State University with its collaborative USDA-Capacity Building with the Central State University. Zappernick is a graduate student in the Food, Agricultural & Biological Engineering Department who completed MS degree in December 2020. Her research was focused on techno-economic analysis of a tilapia-lettuce aquaponics system, using data from both OSU and Central State University.

Pattadar, a PhD student in the School of Environment and Natural Resources, is currently pursuing his graduate research work on aquaponics and water quality at OSU South Centers at Piketon. The title of his PhD dissertation is “Moving toward sustainable food production: Aquaponics for healthy and nutritionally enriched fish and vegetable production.” The overarching goal of the research is to determine whether the quality of tilapia fish produced in aquaponics operations are as healthy and nutritionally enriched as imported, conventionally raised fish available in the U.S. markets in terms of amino acids profiling, fatty acids composition, and mineral nutrition to support public health. He is pursuing his PhD dissertation under the supervision of Drs. Brian Slater (SENR) and Rafiq Islam (OSU South Centers).

Dr. Emmanuel Compaore, head of the Soil Chemistry Division of Environmental Institute for Agricultural Research - Burkina Faso (INERA), as a short-term visiting scholar visited the Soil, Water, and Bioenergy Resources program for his professional development. He is one of the leading soil scientists in Burkina Faso.

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Dr. Emmanuel Compaore, pictured UPPER LEFT, head of the Soil Chemistry Division of the Environmental Institute for Agricultural Research in Burkina Faso, and Riti Chatterjee, pictured LEFT along with CFAES Dean Cathann Kress, were two of the visitors to the SWBR program in 2020.



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His professional development training was focused on conservation agriculture related to long-term, no-till cropping diversity with cover crops and soil amendments with agroecosystem services. Moreover, he received training on our sophisticated laboratory equipment and tools and vast resources of computing, statistical, and library facilities to improve his data analysis and interpretation capability. In return, we benefitted from his research experience and training, and cultural activities acquired in Burkina Faso.

South Centers visiting scholar Riti Chatterjee, a PhD candidate at Bidhan Chandra Krishi Vishwavidyalaya in West Bengal, India, also studied with the Soil, Water, and Bioenergy Resources program for several months in 2020. She is working on conservation agriculture as one of the Senior Research Fellows at the Center for Advanced Agricultural Science and Technology, Indian Council of Agricultural Research-NAHEP, and World Bank-funded project. She is pursuing her doctoral research on estimation of ecological services in terms of energy, climate, and knowledge management.

As part of her ongoing PhD program on conservation agriculture, she received the World Bank fellowship for a period of six months to pursue her Extension outreach research at The Ohio State University under the supervision of Dr. Islam. She attended several meetings including Conservation Tillage and Technology Conference (CTTC) annual meetings and the Ohio Produce Growers & Marketers Association (OPGMA) annual conference in Ohio.

Recognition, awards, and services

In 2020, the Soil, Water, and Bioenergy Resources program was recognized with several awards and provided professional services in several areas.

- One of the program scientists, Dr. Mohammed (Arif) Rahman, was awarded his second patent for his outstanding research work.
- The program was listed on the OSU Laboratory Safety Dean's List.
- Rafiq Islam is serving as one of the academic editors of the PLOS ONE journal.



Mohammed (Arif) Rahman was awarded his second patent, shown BELOW, in recognition of his outstanding research work.

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(54) Title: FILTER ELEMENT SUITABLE FOR USE IN A SMOKING ARTICLE AND PROCESS FOR PRODUCING THE SAME

He is also serving as one of the editorial board members of the Journal of Botanical Research and Applications, American Journal of Plant Sciences, and Land Reclamation and Water Management. Islam also served as one of the technical review committee members of the National Research Council / National Academies of Sciences, Engineering and Medicine fellowships.

- In 2020, Islam reviewed USDA-FAS, CRDF Global, Ohio Academy of Sciences, and OSU internal grants, as well as Fulbright fellowship proposals and more than 25 peer-reviewed journal articles.



OSUE DIRECT FOOD & AGRICULTURAL MARKETING TEAM ACHIEVEMENTS

Christie Welch

Direct Agricultural Marketing Specialist

No one could have predicted the unrest the COVID-19 pandemic caused. Despite all we have been through, Ohio's local food producers are still producing.

Because of the relationships built over the years with Ohio's local food consumers, many producers are reporting some of their best sales ever. At the same time, many other small businesses throughout Ohio are struggling.

Ohio's agricultural producers were quick to pitch in and help. Whether they pivoted their entire business model to participate in the Farmers to Food Box program, or to online sales that could be fulfilled in socially distant manners, it once again proves that agricultural producers are flexible, resilient, and willing to do what they can to make sure everyone in their community has access to locally produced, healthy foods.

The Ohio State University Extension Direct Food & Agricultural Marketing team was proud to serve producers by assisting them with accessing the information needed to continue to provide foods to Ohioans as the pandemic began and continues still. We quickly partnered with the OSU Produce Safety Team to share science-based information on how producers could continue to operate in the safest possible manner.

We also offered a variety of presentations to help them evaluate and adopt online sales platforms, drive-thru markets, and nutrition assistance benefits for the many Ohioans who found themselves food insecure. Nearly 2,000 individuals viewed the presentations live or recorded. There were also 1,300 views of the team website where the COVID-19 resources were housed along with other marketing materials and videos.

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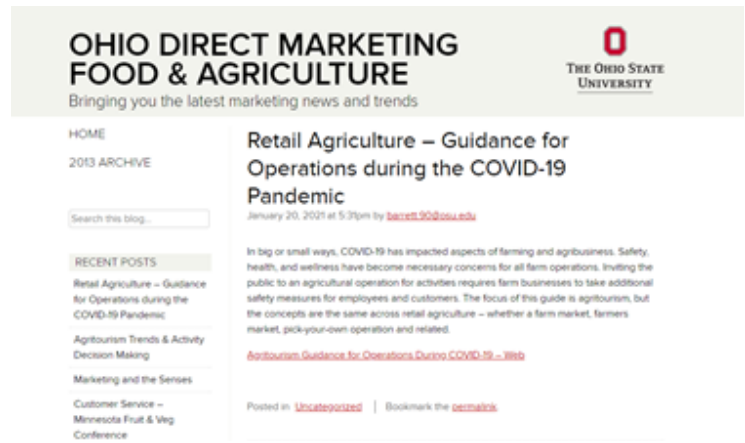
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The team also developed the Retail Agriculture – Guidance for Operations during the COVID-19 Pandemic bulletin to assist our producers with operating during the pandemic. You can download the bulletin by visiting go.osu.edu/operations.

While this has been a time unlike any other, we are looking forward to continuing to provide education and assistance to Ohio's local food producers moving forward. We have many events in the works in the coming months to help further the success of Ohio's local food producers.

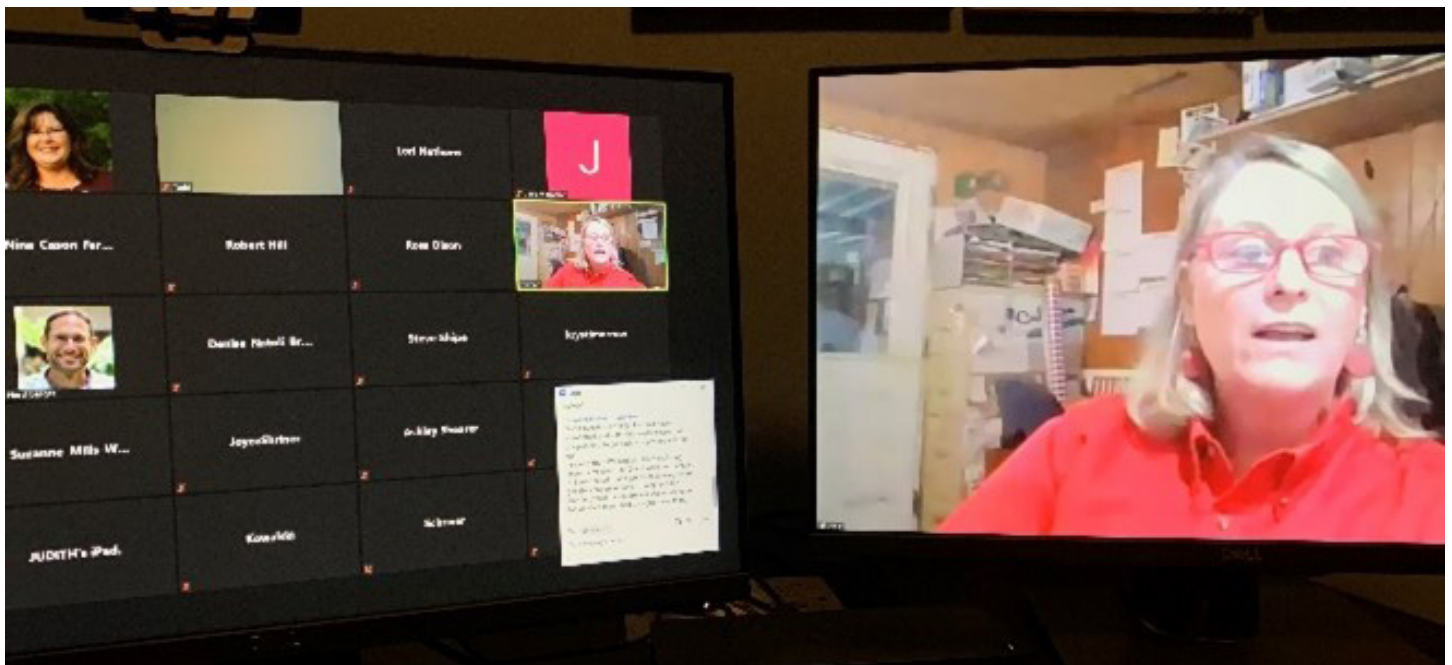
We are currently collaborating with the Farmers Market Coalition and the Ohio Farmers Market Network on a North Central Region SARE-funded professional development program to assist Ohio's farmers market managers, stakeholders, and Extension educators to better understand what resources are available to assist with data collection and analysis for decision-making. Farmers markets are an essential access point for locally produced foods. This was never more evident than during the pandemic. Having the resources necessary to collect and analyze data at the market level will go a long way toward ensuring our farmers markets remain successful access points for local food consumers and market outlets for our local food producers.

We are also in the planning stages for our annual AgirtourismReady conference. We missed the opportunity to gather with our agritourism operators last year, as it was canceled right as the stay-at-home orders were issued in Ohio. While we are planning to gather virtually this year, we are looking forward to providing the information and education our operators need to continue to successfully



provide a positive interaction with Ohio's citizens and our farmers. With the amount of time we have spent social distancing, we anticipate increased demand for on-farm activities and events this coming season. One method of helping to ensure sufficient social distancing while participating in on-farm activities has been for operators to offer pre-sale tickets online. This has helped them better control the number of visitors to their farms, reduced the number of staff needed, and help ensure a more pleasurable experience for all. We anticipate our agritourism operations will continue this new practice into the future.

While we do not have data to know all the impacts of the pandemic on our farmers and food consumers, we look forward to continuing to reach out and serve Ohio's local food producers, direct marketers, and agritourism enterprises. If you would like to learn more about the OSUE Direct Food & Agricultural Marketing Program, email Christie Welch welch.183@osu.edu or Anna Adams adams.2061@osu.edu. Recorded trainings can be viewed at southcenters.osu.edu/direct-marketing.



Diane Riehm of Riehm Produce Farm sharing information about their online sales platform.

Programs designed to assist small businesses have been reopened

Brad Bapst
SBDC Director

The Small Business Development Center (SBDC) at The Ohio State University South Centers is continuing to serve the needs of businesses in our region. The SBDC is monitoring the ongoing coronavirus (COVID-19) pandemic and, with the information and guidance provided by the university, state, and federal government, is taking all necessary precautions to reduce the spread of the virus.

“The safety and well-being of our clients, training attendees and staff is of utmost importance to us. We are continuing to offer one-on-one advising services with our clients in situations where meetings can be conducted safely,” said South Centers SBDC Director Brad Bapst. “We also continue to utilize telephone, e-mail, social media, and video conferencing to conduct counseling with clients. Our training events, however, continue to be conducted exclusively online.

Bapst added that the program’s top priority is to help businesses survive throughout this challenging time, and he and his team continue to provide information to businesses that might be applicable to their financial needs. Recently, Congress extended access to some programs designed to help businesses financially survive the current economic crisis. Below are highlights of those programs. Please contact the SBDC if you have any additional questions concerning these programs or if you have other business needs.

Paycheck Protection Program

The U.S. Small Business Administration has recently reopened the Paycheck Protection Program (PPP) for new borrowers and certain existing PPP borrowers as of the week of January 11, 2021.

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MEATING A NEED



Resource kit available for those exploring a meat processing business

Joy Bauman
Co-ops Program Specialist

A team of Ohio State business and meat science specialists have compiled a Meat Processing Business Tool Kit for people who are exploring the meat processing business. Designed as a decision-making aid for people exploring investing in or expanding a meat processing facility, this online tool kit can help entrepreneurs evaluate the business and navigate business planning. The Meat Processing Business Tool Kit is available in the Business section at the OSU South Centers webpage and at the OSU Extension Meat Science webpage.

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With the COVID-19 pandemic, consumers saw shortages of meat in large supermarkets caused by disruptions in large packing plant operations. “As a result, consumers started shopping at smaller, local meat shops, that didn’t have shortages of meat,” explained Lynn Knipe, PhD, associate professor of food science and technology at Ohio State who worked with the team to develop the meat processing business tool kit. “This, in turn, increased business for the smaller meat processors to a point that people who were used to taking animals to their local slaughterhouse, had to schedule their animals much farther out than normal,” Knipe said.

Knipe explained that entrepreneurial people who either raised livestock or had some past experience with slaughter or cutting of meat, have decided to consider opening their own meat businesses. Knipe and his colleague, Lyda Garcia, PhD, assistant professor of animal science, began receiving more calls than usual, with people finding them either through their Extension Meat Science website or by referral from meat inspection people they had contacted.

Likewise, many of the same people were reaching out for guidance from the business development specialists at OSU South Centers and the specialists at the CFAES Center for Cooperatives, which is also based at the OSU South Centers. While gathering information to assist clients in summer 2020, the Center for Cooperatives team members reached out to OSU Extension meat science specialists Knipe and Garcia. Soon, a working group was formed with team members from the CFAES Center for Cooperatives, the Small Business Development Center at OSU South Centers, the Extension Meat Science Program, and the OSU Department of Agricultural, Environmental, and Development Economics. Together, the group developed and compiled resources to help guide entrepreneurs interested in the meat processing business.

“It only made sense that we work together as Ohio State colleagues to better serve our clientele,” said Garcia. “Instead of individuals contacting one OSU source and getting a bit of information and then needing to contact another OSU source for more information, we can all point them toward this fantastic online resource that will help answer their questions and guide them in the decision-making process,” Garcia explained.

On the webpage housing the tool kit, users will find information to help get started, including understanding the capacity for such a business, maps of federal and state inspection facilities and auction sites, as well as

livestock inventory. To aid in decision making regarding business models, there are samples of cooperative and corporate business models, with business planning templates, financial worksheets, and information about funding sources. Contacts are also listed for those using the tool kit and seeking additional assistance with their business planning.

“The materials lead entrepreneurs to investigate critical considerations during the planning process, including collecting livestock data, gathering financial information, financial modeling, and business planning. That means that the tools are adaptable and intended to be changed to the user’s unique circumstance,” said Ryan Kline, Cooperative Program Specialist for the CFAES Center for Cooperatives.

A business plan is helpful as a decision-making tool for entrepreneurs and it becomes a tool they can use when talking to potential lenders, investors, or future key employees. CFAES Center for Cooperatives program manager Hannah Scott explained, “In our experience, entrepreneurs don’t usually look forward to business planning, but many of them are already going through the business planning process mentally as they consider a new business or ways to expand their current operation. We encourage entrepreneurs to write down their plans — and to use tools and coaching that can help them approach the process in a systematic way without being overwhelming — because it can help them identify potential issues and consider topics they might not have before.”

“There is lots of assistance for entrepreneurs going through the business planning process, from templates like the ones in this tool kit to assistance from business development specialists like our team at the CFAES Center for Cooperatives or the OSU South Centers Business Development Network, which houses a multi-county Small Business Development Center (SBDC),” Scott said. The SBDC program is a nationwide network of business development specialists who provide no-cost business consulting for entrepreneurs. Readers can locate their nearest SBDC [here](#).

“We hope that the tool will be intuitive as entrepreneurs move through the planning process,” Kline said. “When visiting the website, people will find a self-guided and self-paced exploration of meat processing that we hope will help anyone interested in starting a meat processing facility.”

To find the Meat Processing Business Tool Kit online, visit: southcenters.osu.edu/meat-processing-business-toolkit or meatsci.osu.edu.

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These small business (< 500 employees) loans are designed to support payroll and certain other expenses. Loans are available for up to 2.5 times (and 3.5 times for restaurants) the average monthly payroll of a business during the year preceding the application, with a maximum loan of \$10 million.

If all employees are kept on payroll, SBA will forgive the portion of the loans used for payroll, rent, mortgage interest or utilities – for up to eight weeks after the loan is issued and up to 100% of the loan.

This round of the PPP continues to prioritize millions of Americans employed by small businesses by authorizing up to \$284 billion toward job retention and certain other expenses through March 31, 2021, and by allowing certain existing PPP borrowers to apply for a Second Draw PPP Loan.



Key PPP updates include:

- PPP borrowers can set their PPP loan's covered period to be any length between eight and 24 weeks to best meet their business needs.
- PPP loans will cover additional expenses, including operations expenditures, property damage costs, supplier costs, and worker protection expenditures.
- The program's eligibility is expanded to include 501(c)(6)s, housing cooperatives, direct marketing organizations, among other types of organizations.
- The PPP provides greater flexibility for seasonal employees.
- Certain existing PPP borrowers can request to modify their First Draw PPP Loan amount.
- Certain existing PPP borrowers are now eligible to apply for a Second Draw PPP Loan.

A borrower is generally eligible for a Second Draw PPP Loan if the borrower:

- Previously received a First Draw PPP Loan and will or has used the full amount only for authorized uses.
- Has no more than 300 employees.
- Can demonstrate at least a 25% reduction in gross receipts between comparable quarters in 2019 and 2020.

Economic Injury Disaster Loan (EIDL)

The U.S. Small Business Administration (SBA) announced that the deadline to apply for the Economic Injury Disaster Loan (EIDL) program for the COVID-19 pandemic disaster declaration is extended to December 31, 2021.

The deadline extension is part of the recent bipartisan COVID-19 relief bill passed by Congress and enacted by former President Trump on December 27.

To date, the SBA has approved \$197 billion in low-interest loans, which provide working capital funds to small businesses, nonprofits, and agricultural businesses to make it through this challenging time.

EIDL loan applications will continue to be accepted through December 2021, pending the availability of funds. Loans are offered at very affordable terms, with a 3.75% interest rate for small businesses and 2.75% interest rate for nonprofit organizations, a 30-year maturity, and an automatic deferment of one year before monthly payments begin.

Every eligible small business and nonprofit are encouraged to apply to get the resources they need.

For more information on SBA's assistance to small businesses, visit www.sba.gov

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THE OHIO STATE UNIVERSITY

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