By Rafiq Islam, PhD, Soil Program Director

The French connection: Climate-smart agriculture and soil health workshop

Three representatives from the Ohio State University, Rafiq Islam, Vinayak Shedekar, and Alan Sundermeier, along with Jerry Grigar from USDA-NRCS were invited to organize a series of “Climate-smart agriculture and soil health” workshops by two large farmer organizations in France from March 12 to 18, 2017. This French connection is the result of the science-based knowledge exchange initiatives that brought a French delegation, David Brandt, a farmer from Fairfield County, and the Ohio State University together in 2015. As a result of continued dialogue and partnership, the associations BASE (Biodiversité, Agriculture, Sol & Environnement) (www.asso-base.fr/) and Soin de la Terre (www.soin-de-la-terre.org/) sponsored our trip to France. (continued on page 2)
The French connection... (continued)

Dr. Rafiq Islam is a soil scientist who has more than 20 years of national and international research, teaching and extension experience in climate-smart sustainable agricultural and organic cropping systems with a special emphasis on no-till practice, crop rotation with cover crops, soil amendments and nutrient recycling, and soil health assessments. Alan Sundermeier is an associate professor and Extension educator at the Ohio State University with national and international expertise on no-till organic farming, cover crops, and agroecosystem services with more than 30 years of outreach and engagement experience. By profession, Dr. Vinayak Shedekar is an Agricultural Engineer and has more than 5 years of experience in agricultural water management, soil organic matter dynamics, and advanced tools and techniques in modern agriculture. He is currently serving as a Research Associate in the Soil, Water and Bioenergy Resources Program at the Ohio State University South Centers at Piketon. Jerry Grigar serves as a State Agronomist for USDA-NRCS in Michigan and has more than 32 years of national and international experience in sustainable agronomic practices. He is also a successful no-till farmer, with vast practical experience in soil organic matter modeling, strip-cropping, and slow-release nitrogen fertilization techniques.

The team travelled more than 2,600 kilometers to organize four workshops in France: Monday March 13th in Alsace, in the northwest region of France on; Tuesday, March 14th in the Dijon area; Wednesday, March 15th in the Lyon area, and Friday, March 16th in Gironville, close to Paris. On March 16 the group visited a biodynamic lab in Cluny in the mountainous region of France.

Information was disseminated during day-long workshops through presentations and demonstrations, based on research findings and experience with organic, bio-dynamic and ecological farming systems. Topics included: organic farming and soil health management, selecting and incorporating cover crops in organic farming systems, no-till and cover crops impact on soil health and ecosystems services, soil health balancing with organic and inorganic amendments, using a soil organic matter calculator, farmer friendly soil health assessment tools, and economics of organic farming systems.

More than three hundred farmers, educators, professors, and students attended the workshops. Several farmers from other European countries attended the workshops as well. Post-workshop survey showed about 64% of the participants were farmers, with the remainder being university students, faculty, educators, consultants and trainers. More than 71% of the participants were very satisfied with the workshop. About 67% of the participants found the soil quality field test and soil organic matter calculator very relevant to their needs. More than 74% of the participants reported that they have improved their knowledge on no-till, cover crops, and soil health. About 48, 28, and 22% of the participants reported that cover crops, soil conservation, and crop rotation are the most important agricultural management practices to improve soil health. Among the workshop participants, 37% were motivated to use crop rotation/cover crops, 22% to practice no-till, 22% will use crop rotation, cover and no-till, and 19% of them will regularly perform soil quality tests in their future agricultural planning and management practices.

The French sponsoring organizations, BASE and Soin de la Terre, are nonprofit farmer associations that are striving to find suitable solutions, knowledge-based information, and simple, rapid and inexpensive tools for French farmers. This was a great opportunity for us at The Ohio State University to be involved in a knowledge exchange program at the international level, while expanding the college and university’s outreach to the European Union farming communities of France. The interactions with the French farmers and visits to their farms were a great learning experience for our team. This helped our team members to identify some of the local as well as global issues in relation to agricultural sustainability, socio-economic, and environmental quality. Furthermore, the interactions and feedback received from these workshops will help to assess the effectiveness of our outreach and educational methods, and help us improve upon them.
Urban agriculture: an emerging avenue

By Yogendra (Yogi) Raut, PhD, Soil Research Associate

The information provided in this report is based on a visit March 14-17, 2017 at University of Illinois Extension, Chicago. This meeting was sponsored by the NIFA-North Central IPM Centers and Great Lakes Urban Agriculture IPM Working Group that includes The Ohio State University Research Foundation, The University Director's Fund, and Sustainable Agriculture Research and Education (SARE). There were almost thirty participants attending this meeting from Ohio and Illinois. Each participant was requested to have two oral presentations; one status report and two about the future strategies about the problems and issues with Urban Agriculture Farming. Each day, an educational tour was scheduled visiting successful urban farming operations in the area to discuss one-on-one about the problems and issues pertaining to the operation, maintenance, and marketing aspects of the system. The objective of the meeting was to synthesize issues, problems, and learn about successes as well as measures to resolve some of the issues facing urban agriculture to guide future planning, monitoring, and evaluation systems.

While environmental advocacy groups are protesting urbanization and real estate development mainly because of shrinking farmland, and when the efforts are being made in favor of using these urban lands for agricultural purposes, they go hand-in-hand and serve the interest of both these groups. Urban agriculture can be defined as the practice of cultivating, processing, and distributing food in or around the village, town, or city. Urban agriculture can successfully incorporate several components. As suggested by the subject matter specialist during the meeting, these components must be cautiously undertaken on a small scale at the outset to be on the safe side financially. However, most of the sites we visited had over several million dollars invested, indicating that Chicago has successfully developed several urban agriculture enterprises.

Components of Urban Agriculture

• Aquaculture: The farming of finfish, shellfish and other aquatic animals has become big business during the past 20 years. Recent developments include production of aquatic plants, and fish/plant integrated systems.

• Aquaponics: A combination of fish and plant production using aquaculture and hydroponics systems, aquaponics is moving from the realm of experimental to commercial.

• Hydroponics: It is an enterprise growing plants in a nutrient solution root medium, is a growing area of commercial food production and also is used for home food production by hobbyists.

(continued on page 4)
Urban agriculture...(continued)

- Livestock Production: Grass-based livestock systems for meat and dairy production (i.e., grass-to-glass production system), raising free-range chickens and turkeys and pasturing hogs have become viable alternatives for U.S. farmers, as reported by the American Pastured Poultry Producers Association (APPPA). The system concept is based on biodynamics, an ancient practice developed in 1920s.

- Horticulture:
  - Vegetable and fruit production

- Beekeeping: well-known to all of us

- Vermiculture: A practice of using earthworms for making compost. Hundreds of small farms across the country are raising poultry on pasture, producing high quality meat and eggs and improving profitability because of low feed costs. However, productivity on these farms is typically limited by seasonal climate and waste management. In most U.S. climates, the chickens can be outdoors only in spring and summer, creating indoor production challenges during cooler months. At the same time, red worm composting, or vermiculture, has been shown to be an effective way to break down organic materials. The worms can eat 50 to 100% of their body weight in decaying wastes per day. A combination of pastured poultry and vermiculture provides a synergistic effect in the integrated small scale farming system; the worms providing a natural digester of chicken manure and a source of food for the chickens.

- Fundamental and Key Resources: Based on level of investment, energy and capital (i.e., fixed and liquid) are found be the key fundamental resources. Depending on the locality, the level of investment, and personal suitability, the following energy alternatives can be chosen.

Needs:
- Education and Research: As long as urban agriculture is limited to small garden scale, the need of research and education is somewhat limited. However, once the individual acquired basic understating and moved toward an urban agricultural farming system, the education and research sector becomes inevitable. The Chicago Urban Agriculture Meeting 2017 envisaged the need of this sector more than before. The policy makers (i.e. Federal, States, and Municipalities including cities) need to rethink and reshape understanding about urban agricultural farming systems since there may be multiple areas of research and education systems including needs assessment, program/planning, monitoring and evaluation.

- Subject Matter Specialists: Programs in urban agriculture are being guided by the Extension Educator personnel. Despite their knowledge, creativeness, and receptiveness, they disclosed the need for more subject matter specialists in the urban agriculture network, especially entomologists, pathologists, and soil scientists.

Potential impact of urban agriculture: It is an emerging enterprise which would be a win-win situation for both environmental advocacy and urbanization and real estate development groups. It is also envisaged to have a multiple positive impacts on social, health, economic, and environmental issues in urban areas.
Vinayak Shedekar visits FAO to attend the Global Symposium on Soil Organic Carbon

By Vinayak Shedekar, PhD, Soil Research Associate

The 2017 Global Symposium on Soil Organic Carbon (GSOC17) organized by the Food and Agriculture Organization (FAO) of the United Nations, was held in Rome, Italy March 21-23. Vinayak Shedekar, OSU South Centers Research Associate was invited to attend the prestigious conference and present the Soil, Water and Bioenergy program's research work related to on-farm assessment, prediction and management of soil organic carbon. Participants included representatives from FAO member states, UNCCD country Parties, organizing institutions, relevant panels, presenters whose abstracts were accepted, and scientists working in related fields. Over 450 participants from 111 countries were actively involved in both presenting results of studies demonstrating the potential and challenges of managing soil carbon (SOC) in different types of soil – such as peatland, black soils and permafrost soils, grasslands and livestock production systems and dryland soils - as well as discussing and developing key messages.

The first meter of soil across the globe holds an estimated 1,417 gigatonnes (Gt) of carbon – almost double the amount in our atmosphere and dozens of times the levels of man-made emissions each year. At greater depths, soil holds three times as much carbon as in the atmosphere. The overall aim of the symposium was to review the role and potential of soils and SOC in the context of climate change and sustainable development and build scientific evidence that could be adopted in policy making at national and international levels through the IPCC, UNFCCC, and UNCCD frameworks. The symposium had three main themes:

1. Measuring, mapping, monitoring and reporting SOC
2. Maintaining and/or increasing SOC stocks (fostering SOC sequestration) for climate change mitigation and adaptation, and Land Degradation Neutrality
3. Managing SOC in soils with a) high SOC - peatlands, permafrost, and black soils b) grasslands, and livestock production systems and c) in dryland soils

As part of Theme 2, Vinayak presented a novel approach that integrates field-based techniques of SOC assessment, and prediction tools based on long-term experiments for better decision making and assessing the impacts of SOC management on farm economics and soil health at farm scales. Dr. Rattan Lal, Director of the OSU’s Carbon Management and Sequestration Center was one of the keynote speakers during the second plenary session of the symposium, and discussed the “state-of-the-science of soil organic carbon sequestration.” He called for a global effort to encourage soil stewardship that is based on sound management practices and mechanisms to account for ecosystem services of soil organic carbon. Mr. José Graziano Da Silva, Director-General of FAO, H.E. Jioji Konousi Konrote, President of the Republic of Fiji, Ms. Elena Manaenkova, Deputy-Secretary General World Meteorological Organization (WMO), Mr. Stéphane Le Foll, French Minister for Agriculture, were among other notable speakers.

(continued on page 6)
Vinayak contributed significantly to the scientific and policy discussions during the symposium – stressing the need to consider the practicality of on-farm implementation of global SOC sequestration policies, and the need for mechanisms to train farmers, educators and policy makers. He and Dr. Rafiq Islam have been invited to contribute a research article to the symposium outcome – a scientific document (Proceedings of the Global Symposium on Soil Organic Carbon 2017) highlighting the role of soils and SOC management in meeting the climate change and sustainable development goals of different nations, as well as reporting to UNFCCC, UNCCD. A complete webcast of the symposium is available at the GSOC17 website.

Soil Organic Carbon: the hidden potential

The publication was launched at the Global Symposium on Soil Organic Carbon (GSOC). It provides an overview to decision-makers and practitioners of the main scientific facts and information regarding the current knowledge and knowledge gaps on Soil Organic Carbon. It highlights how better information and good practices may be implemented to support ending hunger, adapting to and mitigating climate change and achieving overall sustainable development.
Blueberry trees focus of Gary Gao’s University of Florida visit

By Gary Gao, PhD, Extension Specialist and Associate Professor

As a part of Gary Gao’s new specialty crop block grant, he travelled to the University of Florida in Gainesville to meet with professors Rebecca Darnell and Jeff Williamson. Together, they had a multi-year and multi-state USDA-SCRI grant to work on grafted blueberry trees. Dr. Darnell was the PI of the project. She showed Gary their grafted blueberry trees that were designed to improve harvest efficiency. Southern highbush blueberry cultivars were grafted on the sparkleberry, Vaccinium arboretum in their study.

Dr. Jeff Williamson was one of the co-PIs of the project. He showed Gary some of the advanced selections of sparkleberry plants. It was very interesting to see the wide range of plant heights and forms. Although the USDA project ended a couple of years ago, the blueberry tree project will continue, many thanks to some of the new state specialty crop grants that Drs. Darnell and Williamson have received.

Gary Gao also reached out to Dr. Wei Qing Yang of Oregon State University for help. Dr. Yang was able to send Gary Gao some sparkleberry plants from his rootstock selection program. He is in the process of patenting several of his selections. Hopefully, Gary Gao and his team will be able to find a few good selections for growers in Ohio.

Gary Gao and Ryan Slaughter would like to extend our sincere appreciation to the Ohio Department of Agriculture and the USDA for a new specialty crop block grant. The grant will support a two-year study on grafted blueberry trees and evaluation of processing blueberry cultivars.
Ohio’s first AgritourismReady conference a success

By Christie Welch, Direct Agricultural Marketing Specialist

On April 5, 2017 nearly 70 individuals gathered for the Ohio AgritourismReady Conference in Waldo, Ohio. The attendees were there to learn about Ohio’s new agritourism law, liability management, profitability, adding an activity to an agritourism operation, and more. The attendees heard from industry experts, extension educators, and agritourism operators.

The first such event held in Ohio, the workshop was sponsored by OSU Extension’s Agriculture & Resource Law Program, the OSU Extension Direct Agricultural Marketing Program, and Wright & Moore Law Company LPA. Guest speakers included Ben King, Risk Management Consultant with Nationwide Insurance, Ryan Conklin, Attorney with Wright & Moore Co., and representatives from Richwood Marketing.

This one-day workshop was designed to assist Ohio’s agritourism operators to ensure they have the necessary information to effectively manage risks, market their enterprises, and better manage their agritourism business. The event allowed agritourism operators the opportunity to learn from experts and peers in an effort to increase the profitability of Ohio’s agritourism operations.

One attendee said it was “Nice to have concrete examples with people who do this. Would like more examples of tips they implement to make it easier for tours/teachers,” referring to a breakout session that focused on school tours and working with teachers. Another attendee referred to the breakout session on Adding an Activity to Your Agritourism Operation, “Good brainstorming of potential issues and things I haven’t thought of.” This session was led by Eric Barrett and Rob Leeds, OSU Extension Educators and members of the OSUE Direct Ag Marketing Team.

Overall, the participants indicated the information presented was very helpful and would recommend having such a workshop annually. There are also plans to hold a similar event in the southern part of the state for those agritourism operators that were unable to attend the April 5th event.

If you would like more information about this or upcoming workshops, check out the OSUE Direct Agricultural Marketing Program’s website at southcenters.osu.edu/marketing or contact Christie Welch, Direct Ag Marketing Specialist via email to welch.183@osu.edu.
The Ohio Cooperative Development Center and OSU Department of Agricultural, Environmental, and Developmental Economics prepare the next generation of cooperative leaders

By Ivory Harlow, Ohio Cooperative Development Center Program Specialist

Agricultural cooperatives have demonstrated steady growth and stable financial performance in recent years. They make strong contributions to the U.S. economy and create new employment opportunities for college graduates with degrees in agriculture. In 2015 there were 2,047 agricultural cooperatives in the United States, with a net income of $7 billion dollars and 136,300 full-time employees (USDA, SR79 Agricultural Cooperative Statistics).

The Ohio State University has a long history of supporting cooperative education, including a long-offered undergraduate agricultural economics course that focuses specifically on the cooperative model. The Ohio Cooperative Development Center (OCDC) collaborates with Dr. Tom Worley and Dr. David Hahn of The Ohio State University Department of Agricultural, Environmental and Developmental Economics (AEDE) to facilitate components of the course. AEDE 3141 develops students' understanding of the cooperative business model and cooperative principles as they relate to the organization and management of agribusinesses.

OCDC works with teams of students to develop cooperative leadership multi-media projects. First, students choose a cooperative topic of interest on which to focus their project. Students may choose topics like the unique aspects of managing a co-op compared to investor-owned firms; the concept of the patronage refund and its role in the cooperative business model; or the roles and responsibilities of co-op members in the success of their business. Next, OCDC and course instructors are available to connect students with current cooperative managers, directors, or officers who share operational knowledge and real-world experience of the topic. Students interview the cooperative leader and compile interviews and background materials to create a 3-5 minute multimedia presentation.

Students complete AEDE 3141 with a comprehensive understanding of agricultural cooperatives from coursework, lectures, and face-to-face discussions with cooperative leaders. The multimedia project helps students build skills in digital production and fosters meaningful connections with industry leaders.

“Access to engaging cooperative education materials for developers of new cooperatives, stakeholders of existing cooperatives, and students of cooperatives is one of the major challenges OCDC faces when providing education and technical assistance to the public and start-up cooperatives,” said Program Manager Hannah Scott. The benefit of the student multi-media projects reaches far beyond their personal learning, providing public education in an accessible and engaging format.

The Center showcases students’ multimedia projects on the Ohio Cooperative Development Center’s website and utilizes students’ videos in OCDC’s cooperative education and outreach efforts. Past student projects can be viewed at southcenters.osu.edu/cooperatives/cooperative-resources.

The center also plans to feature student projects in OCDC’s upcoming online training, Co-op Mastery: Beyond Cooperatives 101. The training will be housed in the public access version of Canvas, The Ohio State University’s online learning management system. The course will be available to the public in 2018.

Dr. Hanping Wang honored by *Fisheries Advance Magazine of China*

Dr. Hanping Wang, principal scientist and director of aquaculture research and development at Ohio State University South Centers was recently honored by Fisheries Advance Magazine, an aquatic time magazine of China, for his influential activities and significant contributions in establishing an international platform for perch and bass research and development collaboration. This publication is a monthly circulated magazine featuring Chinese and global aquaculture and fisheries news and influential people in aqua-related fields. The magazine selects an individual to be featured on the cover of the magazine monthly. Dr. Wang was selected to be on the cover of the first issue of 2017. The issue included an article highlighting Dr. Wang's contributions and achievements on establishing an international platform of research and development collaboration in perch and bass, and the development superior yellow perch.

Perch and bass have worldwide importance as food and recreational fish. Global production of perch and bass is around 1,000,000 ton, with 70% produced in China. The economic value of perch and bass is comparable to cold water species salmons and trout. Aquacultural production of perch and bass is in the early stages of development and expanding rapidly. Therefore, there is much potential for expansion of perch and bass aquaculture. In perch and bass aquaculture, global collaboration is still in an infant stage when compared to salmons and trout. Particularly, collaboration between China and developed countries, e.g., U.S.A, Europe, and Australia, is insufficient. Even though China ranks first globally in perch and bass production, their aquaculture outreach with research results and information has been mostly limited to Chinese publications.

In order to speed up the advancement of the perch and bass aquaculture industry, establishing an international platform of research and development collaboration is necessary. For this purpose, Dr. Wang in collaboration with Huazhong Agricultural University (HZAU), an official partner of OSU, organized the first International Symposium of Perch and Bass at HZAU in Wuhan, China, in September 2013, focusing on the industry development of perch and bass in China and the U.S. In October 2016, Dr. Wang organized the 2nd International Symposium of Perch and Bass at HZAU. Scholars from the United States, China, Spain, Belgium, United Kingdom, Singapore, and Australia attended the Symposium. As the Editor-in-Chief, Dr. Wang with his colleagues completed a bilingual book “World Perch and Bass Culture: Innovation and Industrialization” based on these two symposiums. The book manuscript has been submitted to a publisher and will be published by the end of 2017.

Dr. Wang as a keynote speaker at the 2nd International Symposium of Perch and Bass.
Endeavor Center and Small Business Development Center

By Ryan Mapes, Business Development Network Program Leader and Endeavor Center Manager

The Endeavor Center continues to operate at near 100% capacity. We currently have 17 partner companies that occupy 25 office and light industrial bay spaces. We also have three virtual partners that occupy the building on a part-time basis but do not have a physical office space. At present time, we have a 200 sq. ft. office and a 400 sq. ft. office available, however in the last 3 weeks, have had three inquiries to lease those spaces.

One of the unique assets of the Endeavor Center is the composition of training, classroom and computer lab space. These rooms are set up to accommodate meetings of up to 72 participants. During the last quarter, our meeting rooms were rented 165 times. You can view individual room set-up and capacity at the following link: southcenters.osu.edu/endeavor-center

The Small Business Development Center also had a very active first quarter. Our counselors have been working with many clients and have assisted with more than twenty new business starts since October. We celebrated the first ever National SBDC Day along with SBDCs from around the country by promoting the OSU South Centers SBDC via use of social media. Jim Laipply, the State SBDC Director shared, “This was a great opportunity for us to come together as a statewide network and as a national program to share the impact and reach of SBDC. Additionally, Ohio was represented incredibly well across social media platforms with nearly a dozen Ohio SBDCs or SBDC host organizations posting on #SBDCDay. This was a great opportunity to see the power that social media can have in providing exposure to our program.”

The SBDC partnered with Community Action of Pike County Business Development to host a “Starting Your Business from Dream to Reality” course at the Endeavor Center. This class met twice a week for five weeks. Counselors for the SBDC taught segments in the areas of cash flow, financing, marketing, and social media. There were 13 individuals who completed the class.

A Gap Lending Roundtable was held in February to link lenders with potential gap lending resources. The audience consisted of area lenders and the program featured speakers from a dozen gap lending or alternative lending resources available in our region. The intent of this workshop was to make introductions, network, and develop relationships between the lenders and lending resources in the area.

OSU South Centers SBDC counselors partnered with Ohio University and participated in a series of entrepreneurial promotion events in Scioto, Ross, Jackson and Pike counties. The PORTSFUTURE Entrepreneurship Roundtable series events were held at the Shawnee State University, Ohio University Chillicothe, the Ohio State University Extension office in Jackson and at the Endeavor Center.

The Ohio Export Assistance Network program was recently recognized nationally for utilization of the IMAGE Grant. Kelly O’Bryant, the Export Assistance Network counselor at the OSU South Centers was recognized for this award along with other export counselors from around the state at the NASBITE conference in Spokane, Washington. The following paragraphs from the Ohio SBDC Newsletter describe the IMAGE Grant, it’s successes and export metrics obtained as a result.

“The Ohio Development Services Agency’s International Marketing Access Grant for Exporters (IMAGE) program was recently honored with the 2017 Advancing International Trade State Award by the National Association of Small Business International Trade Educators (NASBITE) at its annual conference in Spokane, Washington. (continued on page 12)
Endeavor Center and SBDC (continued)

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“The Ohio Development Services Agency’s International Marketing Access Grant for Exporters (IMAGE) program was recently honored with the 2017 Advancing International Trade State Award by the National Association of Small Business International Trade Educators (NASBITE) at its annual conference in Spokane, Washington.

In 2016, Ohio exported nearly $50 billion worth of goods and services worldwide. The IMAGE program, a state and federal grant, helps marketing internationally more affordable to Ohio small businesses.

“Ohio consistently ranks as one of the top ten exporting states in the U.S.,” said David Goodman, director of the Ohio Development Services Agency. “By helping small businesses market internationally, Ohio remains competitive in a global marketplace.”

For the last four years of the program, IMAGE has provided a total of 441 grants to Ohio small businesses to assist with international marketing activities. Participating companies reported a total of $188.4 million in expected global sales generated from the activities supported by the IMAGE program.

Also, to increase the rate of success for Ohio small businesses in the global economy, the State of Ohio also offers programs to help small businesses hire an export intern, conduct market research and improve export processes. For more information, visit: www.exportassistance.development.ohio.gov

The IMAGE program supported by the Ohio Development Services Agency (DSA) and the U.S. Small Business Administration (SBA) through the State Trade Expansion Program (STEP) offers financial assistance to small businesses to promote their products and services into international markets.

For information about the IMAGE program, visit: www.image.development.ohio.gov”