

Sustainable Agriculture Research & Education

FIELD NOTES



Does Open-Pollinated Corn Have a Place on Today's Organic Farm?

On 205 acres near the picturesque bluffs of the Mississippi River, Stanley Smith raises beef cows and grows organic corn in southeastern Minnesota. He grew up on this small farm in the rolling hills of Winona County, and worked in partnership with his dad until his dad retired. Smith and his wife, Vickie, purchased the farm, and by the year 2000 they began transitioning to organic, the same year that the USDA set up organic standards.

Since the year 2000, annual sales of organics have shown double-digit growth, and there's an increasing demand for organic livestock feed (USDA-ERS, 2018). For some organic livestock feed growers, open pollinated corn offers promise because producers can save seed and reuse it the next year, and they can develop their own adapted varieties that can be better suited to their own growing conditions. And while trials have shown that open pollinated corn yields are usually 15-20 percent lower on average than hybrid yields, open pollinated lines typically have higher protein content and utilize soil nutrients more efficiently (Rodale Institute, 2005). Smith became interested in open-pollinated corn because of the potential for higher nutritional value as organic livestock feed. **In 2017, Smith applied for and received an NCR-SARE Farmer Rancher grant to explore a number of key questions. His objective? To find a suitable open pollinated corn variety for southeastern Minnesota that could yield well enough with its higher nutritional traits so as to be to be financially feasible. He called his project, "Does Open-Pollinated Corn Have a Place on Today's Organic Farm?"**

"A selling point of open pollinated corn has always been that it is more nutritious," said Smith. "As part of this project I wanted to find out if it was true because usually the claim is not backed up with data. I was curious to look at the feasibility of growing open-pollinated corn, in part because higher protein, phosphorous, and calcium levels contained in open-pollinated corn would be

an important benefit for livestock producers." He added, "The economics are another factor. Open pollinated corn seed costs about one-third that of the more 'modern' corn varieties."

Nutritional value of open pollinated corn was Smith's major concern entering this project; he was particularly concerned with protein. With the SARE grant funds, Smith looked at six open pollinated corn varieties and one hybrid, comparing yields and protein content.

"Sellers have mentioned better nutrient values but I've never seen actual results from feed analysis," said Smith. "The laboratory results verify that the open pollinated corn I tested through this project all had higher protein levels compared to the hybrid I used in this trial. Most were close to two percent higher."

He found that all but one of the open pollinated corns in his plot had protein levels over 10%. The check tested the lowest at 8.41% protein. To make it more clear what a 2% difference in protein content would mean for a producer, Smith provided a brief analysis comparing the nutrient content and economics of organic corn livestock feed with an 8.2% protein level to feed with a 10.2% protein level.

"A 16% feed ration with soybean meal at 46% and corn at 8.2% protein would mean 20.6% meal and 79.4% corn," explained Smith. "This would produce feed costing \$21.54 per 100 pounds not counting other additives needed. A ration using corn with 10.2% protein would use 16.2% meal and 83.8% corn costing \$20.38 or a savings of \$1.16 per 100 pounds."

As for yields, the highest yielding varieties in Smith's trial were crosses of one or more different open-pollinated corns, and he intends to do more crosses going forward.

"My objective was to find an open pollinated corn that could compete with hybrids on today's market. This was achieved with finding a couple open pollinated corns that did well in southeast Minnesota," said Smith. "The other objective was to see if today's open pollinated

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Organic crop and livestock producer, Stan Smith, received SARE support to experiment with six open pollinated corn varieties on his Minnesota farm. Photo by Vickie Smith.

corns still held an advantage in nutritional value. This was also verified with all six varieties having higher protein levels than the check hybrid."

A field day at his farm and a video on NCR-SARE's YouTube channel have generated interest, and Smith's been fielding emails about the project. He hopes someone will look at his protein results, and take his project farther with a feeding trial. He says creating new open pollinated corn varieties should be pursued, especially for organic farmers.

"When high protein, higher yielding open pollinated options become available, I would expect more small seed producers to sell locally grown seed, and some small growers to save their own seed, reducing production costs considerably," said Smith.

Read more about Smith's NCR-SARE Farmer Rancher Grant project or access the YouTube video about his project on the SARE project reporting website. Simply search by the project number, FNC17-1099 at <https://projects.sare.org/> or contact the NCR-SARE office for more information.

New SARE Resource: Farmers' Guide to Business Structures

Selecting the right business entity for your farm is like building the foundation of a house. Without the right foundation, the house will fracture. Choosing an appropriate business structure encourages you to follow good business practices in accounting and decision-making, and it protects your personal assets should your farm get into financial trouble. SARE's newest book, *Farmers' Guide to Business Structures*, provides practical tools to help you choose the best business entity for your operation.

Rachel Armstrong has worked on farms, with farmers, at local food restaurants, and for farm-related nonprofits from the time she graduated from college. Throughout her years of farm-related work, she repeatedly ran into legal questions; they were straightforward questions about forming businesses and hiring people, and she was surprised that she could not find reliable information about these basic issues.

Legal advocacy was needed, and Armstrong took action; she enrolled in law school and set out to start a nonprofit organization emphasizing legal education for farmers. Today, her nonprofit organization, Farm Commons, is working to foster the discussions and connections that build a strong legal backbone for farmers and their communities.

In 2013, Armstrong and Farm Commons received a \$158,660 NCR-SARE Research and Education grant to work on long-term solutions to address the scarcity of legal services for farmers. Her goals were to raise awareness, increase knowledge, shift

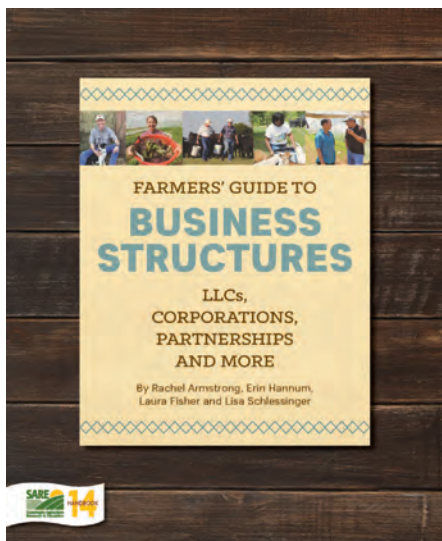
attitudes, change legal risk management and behaviors, train attorneys, and make connections between farmers and attorneys. Developed in conjunction with her NCR-SARE grant, *Farmers' Guide to Business Structures* explains business entity options available to farmers: Sole proprietorships/Partnerships, LLC's, C Corporations, S Corporations, Nonprofits, and Co-ops. Through a mix of checklists, flowcharts, sample organizational documents and more, farmers will be able to break down their

options and choose a business entity that is best suited for their unique farm operation. The guide also explores complex issues like anti-corporate farming laws, running multiple entities, and going into business with other farmers.

Farmers' Guide to Business Structures is available in print for \$26 plus shipping and handling or as a FREE download

in PDF, MOBI and EPUB formats. Call (301) 779-1007 or visit SARE's website to download or order at www.sare.org/Learning-Center/Books/Farmers-Guide-to-Business-Structures. Discounts are available for orders of 10 items or more.

Farmers' Guide to Business Structures is published by the Sustainable Agriculture Research and Education (SARE) program and was written by Farm Commons with support from North Central Region SARE. Farm Commons believes that strong, resilient sustainable farm businesses are built on a solid legal foundation, and provides proactive legal resources that farmers need to become the stable, resilient foundation of a community-based food system. Learn more at www.farmcommons.org.



NCR-SARE Grant Project Highlights

Learn more about exciting SARE-supported projects! Use the project number listed with the projects below to find more information at <https://projects.sare.org/> or follow NCR-SARE on Facebook or Twitter to receive regular updates like these.

With support from SARE, Iowa State University researchers are integrating chickens into vegetable production systems to test whether it can lead to greater efficiency and healthier soils. This is SARE project GNC17-236.

No-till on the Plains' SARE-supported study is looking at the effects of weed and insect pressure on sorghum interseeded with a cover crop mix. The goal is to see how well cover crops choke out unwanted weeds and attract beneficial insects that feed on pests like sugarcane aphids. This is SARE project ONC18-048.

With support from SARE, Sand County Foundation is working with six farmers to demonstrate how prairie filter strips work on Wisconsin farms with varying soil types, typographies, and management styles. This is SARE project LNC16-378.

SARE grantees at the University of Illinois found that tall fescue, an invasive grass species, is associated with nest failure in dickcissels, small grassland birds similar to sparrows. This is SARE project GNC15-201.

The Center for Integrated Agricultural Systems is working with Wisconsin cider businesses on a SARE project to assess and address the needs and challenges of the state's cider industry. This is SARE project ONC17-030.

Experts at Michigan State University are connecting U.P. farmers with secondary-school teachers to develop student-farmers who are well versed in sustainable agriculture practices in order to catalyze the growth of formal Agriculture, Food, and Natural Resource Education (AFNRE) programs. This is SARE project LNC17-394.

Developed with support from Wisconsin SARE, the systems in the Savanna Institute's new "Perennial Pathways: Planting Tree Crops" handbook can be scaled up and even be mechanized, making them practical for more farmers to implement. Download a FREE PDF or purchase a physical copy www.savannainstitute.org.

Grant-Writing Assistance for SARE Grants

For general advice on NCR-SARE grant applications, you can contact the SARE state coordinator in your state, such as Diane Mayerfeld, SARE State Coordinator in Wisconsin (right). Photo by Lori Compas.



Are you interested in writing a proposal for an NCR-SARE grant? Did you know that NCR-SARE can provide grant applications, reports from other projects, lists of funded projects, or other sustainable agriculture information? To receive more information about the NCR-SARE grant program's preproposal/proposal processes and timelines, contact the NCR-SARE office, or visit www.northcentralsare.org/Grants/Write-a-Successful-Grant.

Before writing a grant proposal, determine a clear project goal and explore previous research. It often helps to contact NCR-SARE, local agriculture groups, the Natural Resources Conservation Service, and/or Extension educators to share ideas and invite participation.

Michael Fields Grant-Writing Assistance

Did you know that the Michael Fields

Agricultural Institute's (MFAI) Grant Advisory & Resources can help you apply to grants and cost-share programs of state or federal sources that can help you achieve your farming or ag-related business goals? They have resources for designing sound projects, finding funding sources, and writing successful grants, along with other valuable information. For more information and to sign up for e-list for program announcements, please visit the website at <http://michaelfields.org/grant-advising-resources/>, or contact MFAI and Wisconsin Farmers Union's Grants Advisers Kitt Healy or Martin Bailley at grants@michaelfields.org.

Assistance from SARE State Coordinators

SARE has a network of state coordinators working in each state and island protectorate. They hold workshops and field days to share sustainable practices

and research results, and serve as agriculture resources in their state. SARE sustainable agriculture coordinators help train agriculture professionals in sustainable practices, share SARE project results, and work with SARE grant applicants. Your SARE state coordinator can provide advice and feedback as you work on your grant proposal.

If you have questions about SARE in your state or have a grant proposal idea your SARE state coordinator can help. Find your SARE State Coordinator and view documents about funded grants in your state by visiting NCR-SARE online at www.northcentralsare.org/State-Programs. You can also sign up to receive notifications when grant programs are accepting proposals; simply go to www.sare.org/About-SARE/Join-Our-Mailing-List, or contact the NCR-SARE office ncrsare@umn.edu or 612-626-3113.



SARE Grantees Share Experiences at Farmers Forums

The NCR-SARE Farmers Forum is an event that gives NCR-SARE grant recipients the chance to share information about sustainable agriculture practices with a regional audience. The talks focus on research, demonstration, and education projects that promote sustainable farming and ranching. The projects emphasize the three pillars of sustainable agriculture: environmental stewardship, profitability, and social responsibility.

The next Farmers Forums will be held at the 2019 Michigan Food and Farming Systems

Conference and the Nebraska Sustainable Agriculture Society's Healthy Farms Conference in February 2019. Find more information for the events online at www.miffs.org/michiganfamilyfarmsconference and www.sustainablenebraska.org.

Highlights and videos from past Farmers Forums can be found on our website at www.northcentralsare.org/Educational-Resources/Regional-Program-Materials/NCR-SARE-Farmers-Forum-Highlights.



Latino Producers Explore Sustainable Practices in Missouri

Through on-farm trainings (left and lower left) and classroom focus-groups (lower right), University of Missouri educators are working with Latino producers in Missouri to help answer their questions about sustainable practices. All photos by Eleazar Gonzalez.

When Eleazar Gonzalez was a child, raising crops and making cheese on his family's small farm in Mexico, he often pondered the career he would pursue. At the age of fifteen, he received a scholarship that allowed him to study high school agriculture and eventually pursue a bachelor's degree in agronomy. This pivotal time allowed Gonzalez to start working with programs that focused on agricultural marketing and organizing farmers. He began to wish he understood more about the socioeconomic part of the farm, and how farmers might be able to increase their capacity to compete in specialized markets. He envisioned producers becoming savvy entrepreneurs, reducing their dependence on government programs. As he worked on his Master's degree in agriculture economics at the Colegio de Potgraduados in agricultural sciences in Mexico, had an opportunity to connect with the graduate school at the University of Missouri (MU). Today, his family still has the farm in Mexico and still produces cheese on a small scale, but you'll find Gonzalez at MU, where his life's work has led him to building Latino producers' financial and community capacity.

"I was lucky to have good mentors at an important stage in my career, which allowed me to get involved with the rural sociology program at MU," said Dr. Gonzalez, research associate and rural sociologist at MU. "That program was a tipping point for me in mixing economics and sociology, with an emphasis in working with communities consisting of small to medium farms and ranches, and studying their survival and their sustainability within rural communities."

The number of producers of Spanish, Hispanic, or Latino origin in the U.S. increased by 11,430 between 2007 and 2012 (NSAC, 2014). Gonzalez says the increase in Latino farmers in Missouri was 26% during the same time period. Gonzalez wanted

to explore Latino farmers' and ranchers' perceptions about sustainable agriculture and enhance their knowledge of sustainable production methods. In 2015, Gonzalez applied for and received \$163,227 to document Latino producers' awareness about current sustainable production methods and develop a curriculum based on their needs.

"The majority of Latino operations are small farms with limited acreage and their success depends on careful planning and decision-making, so that they can protect their natural resources and reduce the need for costly inputs such as fertilizers or pesticides," explained Gonzalez. "Though their preference for conventional methods is strong, when Latino producers attended a class that compared conventional methods to sustainable methods for small acreage farms, they showed a strong interest in learning more about sustainable methods. Targeted training to this audience has the potential to give them the tools needed to adopt production methods that are both environmentally and financially sustainable."

With support from the SARE grant, Gonzalez and his research team held producer focus groups and conducted surveys reaching 122 Latino producers in Missouri. Then, they developed a curriculum that met the producers' educational needs. During that process, the team noticed an opportunity to build soil, conservation, and specialty crop knowledge so they reached out and involved the Natural Resources Conservation Services (NRCS) and the Center for Urban Agriculture

in program development and outreach. The curriculum was delivered to 46 producers through four panel workshops and four on-farm workshops. They even developed an online Facebook group for Latino producers in Missouri. It is a closed group and currently has 74 members.

Although the project just wrapped up, changes in practices are already evident. Producers who never did a soil test before have started doing soil testing on their farms and ranches. As a result of being exposed to the NRCS EQIP program, three producers were granted contracts to build high tunnels. One producer, who installed his high tunnel in October 2018 has been motivated to start a CSA program. Additionally, a few of the ranchers involved in the project are more focused on improved management practices such as managing the number of paddocks on their ranches, and reducing the number of animals and the time they spend in each paddock. As for Gonzalez, he is inspired to continue work in this area.

"We need continued momentum in this direction, not only with Latino producers but also with other small farm minority and non-minority producers who have inherited farming as a way of life," said Gonzalez.

Learn more about this NCR-SARE Research and Education project on the SARE project reporting website. Simply search by the project number LNC15-368 at <https://projects.sare.org/> or contact the NCR-SARE office for more information at ncrsare@umn.edu.



Youth Hit the Road to Learn about Sustainable Livestock Production in Wisconsin

Jessie Oberlin is no stranger to the 4-H'ers in Jackson County, Wisconsin. Whether she's providing coaching for the 4-H Livestock Judging Contest, setting up livestock production tours, or prepping youth for the 4-H Quiz Bowl, Oberlin has spent most of her adult life introducing rural young people to new livestock opportunities in a county known for cranberry and strawberry production. Oberlin grew up showing sheep with 4-H. She studied Animal Science at University of Wisconsin (UW) in River Falls, where she worked in the animal science labs after graduation. 4-H remained near and dear to Oberlin, and she eventually became a volunteer with 4-H specializing in livestock. Fast forward 30 years, and you'll find Oberlin serving on the Jackson County Livestock Education Committee for 4-H. It was in 2016 when she heard about NCR-SARE's Youth Educator grant program at a workshop, and decided to check it out.

"This group of Jackson County livestock exhibitors that I work with have beef, sheep, or hogs as their 4-H projects," explained Oberlin. "They already had an interest in livestock, and I knew there was an opportunity to expose them to some of the innovative and interesting concepts of sustainable agriculture."

Oberlin and her dedicated team of parent volunteers started digging deeper to see what they could find near Jackson County; they tapped into their network for workshop presenters who could teach the youth about livestock and sustainability. Then they identified some livestock operations they could visit to demonstrate the topics addressed in the workshops. Finally, Oberlin applied for an NCR-SARE SARE Youth Educator grant and received \$1,796 to fund their program that showcased sustainable livestock operations, both in the classroom and on the farm. Working with 14 youth participants ranging in age from 5th graders to juniors in high school, the program consisted of four, 1.5 hour-long workshops held in February, March, April and May of 2017. The project culminated with a tour of five farm operations in western Wisconsin in June 2017.

Workshop presenters included Trisha Wagner, a UW Extension Agriculture Agent from Jackson County, beef cattle producer Dwight Carlisle, pastured pork producer Ryan Mickelson, and sheep producers Jill Johnson and Deanna and Duane Klindworth. In conjunction with the workshops, youth were also asked to interview two family members from different generations and ask them to define sustainable livestock production. This allowed families to explore their various definitions of "sustainable," and they were able to apply the concepts to their personal experiences. Their two-day tour stops included Organic Prairie Meats, the UW Research Station in Lancaster, UW-Platteville's Swine Unit and Farm, Gaffney Family Cattle, and Gene Schrieffer's beef and sheep operation.

"This grant allowed us to bring in knowledgeable and inspiring workshop presenters and to take kids to places that they didn't even know existed," said Oberlin. "We knew that this entire project was a winner when participants were asking where we were going next year before we even got home from the two-day tour."

Oberlin was pleased that many of the participants' families adopted more sustainable practices after the project. A family that was already rotationally grazing and out-wintering their sheep are now fine tuning their program to make smaller paddocks and get better control of weed growth.

"This family also markets their wool and produces some arts and crafts," said Oberlin. "Since learning about ways to market using social media, they have set up a Facebook page for their farm and are having success using this marketing format."

Read more about Oberlin's NCR-SARE grant project online, and view videos from the workshops on the SARE project reporting website. Simply search by the project number YENC16-102 at <https://projects.sare.org/> or contact the NCR-SARE office for more information at ncrsare@umn.edu.

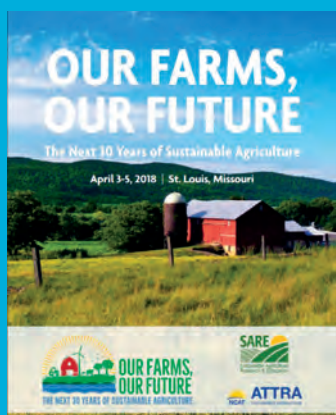


With support from an NCR-SARE Youth Educator grant, youth who participated in 4-H livestock projects in Jackson County, Wisconsin had an opportunity to visit five farms and businesses in southwest Wisconsin to learn more about sustainable livestock production. Photos by Jessie Oberlin.

Cover Crops at Work: New Resources on Ecosystem Services

Resulting from a synthesis of scientific literature documenting the impacts of cover crops on water quality and soil health, SARE's new resource series about cover crops provides a look at cover crops' impact on soil erosion, water infiltration, nutrient losses, soil organic matter, and water quality.

SARE's new Ecosystem Services from Cover Crops resources include a series of fact sheets, three infographics, and one PowerPoint slide set. Together, these resources address the role of cover crops in nutrient management, erosion, infiltration, soil organic matter, supporting wildlife and beneficial insects, and carbon sequestration. They are available for use by educators, farmers, and others interested in sharing information about the role of cover crops in protecting water quality. Download them for free online at www.sare.org/Learning-Center/Topic-Rooms/Cover-Crops/Ecosystem-Services-from-Cover-Crops.



Our Farms, Our Future Conference Materials Now Online

"Thank you for organizing what turned out to be my favorite conference," was one participant's response to the Our Farms, Our Future Conference held by SARE and NCAT/ATTRA in April of this year. The three-day event featured over 35 different breakout sessions, bringing close to 110 speakers together to share their diverse ideas about the future of sustainable agriculture.

Now, all of the conference materials are online and available for free to the public, to allow everyone access to the resources and perspectives shared at the event.

- Browse the plenary session videos to listen as USDA leaders, agribusiness professionals and farmers discuss what their organizations are doing to create a sustainable future.
- View one (or all!) of the 60 breakout session videos covering

topics ranging from soil health to the social impacts of sustainable agriculture.

- Learn from emerging researchers and scientists about their work in the fast-paced Sustainability in 180 Seconds program.
- Listen to the Our Farms, Our Future Podcast Series, recorded at the conference and featuring new episodes every two weeks.
- Understand the research being conducted by SARE grantees across the country by seeing the projects that were featured in the poster session.
- Get inspired by learning about the farmers that hosted tours at the conference.

Please join the conversation today by learning, exploring, and sharing the resources from the event online at www.sare.org/Events/Our-Farms-Our-Future-Conference.

COVER CROPS AT WORK

Keeping the soil in place & increasing infiltration

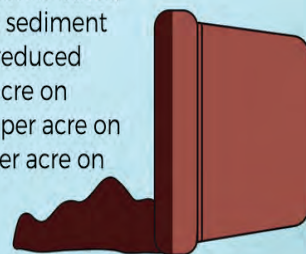


THE TOOLKIT

Cover crops are tools to keep the soil in place, improve soil health, and reduce nutrient pollution from farm fields. The cover crop toolkit includes grasses, brassicas, legumes, and other broadleaf species.

SOIL LOSS

Cover crops decrease, and in some cases, completely eliminate soil and sediment loss. On average, cover crops reduced sediment loss by 21 tons per acre on conventional-till fields, 6 tons per acre on reduced-till fields, and 1 ton per acre on no-till fields.



INFILTRATION

Studies have shown that cover crops can increase water infiltration to the soil profile by two to sixfold. This improves soil water conditions and prevents excess runoff and erosion.

HOW DO THEY DO IT?

Cover crops are able to provide these benefits to the soil because they:

- Cover and protect the soil surface from wind and water erosion
- Root into the soil profile, making channels for water flow
- Improve the soil structure
- Prevent the soil surface from sealing



By keeping the soil in place and improving soil conditions, cover crops are mitigating pollution risk while also boosting the productive capacity of the soil.

All data comes from a bibliography compiled by the Sustainable Agriculture Research and Education Program (SARE) and the University of Missouri. This graphic was developed under Cooperative Agreement No.83695601 awarded by the U.S. Environmental Protection Agency. EPA made comments and suggestions on the document intended to improve the scientific analysis and technical accuracy of the document. The views expressed in this document are those of the authors and EPA does not endorse any products or commercial services mentioned in this publication.



The American Kestrel: an IPM Friend for Michigan's Fruit Growers

Researchers at Michigan State University are learning more about the American Kestrel and its potential benefit to cherry and blueberry growers. Photo by Megan Shave.

Cherry producers across the region are all too familiar with starlings, finches, voles, pocket gophers, and other animals that can wreak havoc on a cherry orchard by feeding on ripening fruit and developing roots or shoots. These little pests can be a big problem for Michigan's cherry growers, who grow 75 percent of all tart cherries and 20 percent of sweet cherries in the U.S.

Natural predators such as raptors will feed on some of the smaller bird and mammal species, and American kestrels are among the raptors that some growers are working to attract. Although they offer potential usefulness for fruit growers, the National Audubon Society and the Raptor Population Index indicate that American kestrels have experienced a 47 percent decline across North America. In Michigan, their numbers have been reduced by 28 to 43 percent, depending on the region.

"The American kestrel is a widespread species of falcon that has shown long-term population declines due in part to loss of natural nesting cavities," explained Michigan State University (MSU) graduate student Megan Shave. "However, kestrels readily use nest boxes, which allow for breeding in areas that may provide valuable hunting habitat, such as agricultural areas."

Shave was first introduced to raptors as an intern at the Manomet Bird Observatory, where she banded a number of sharp-

shinned, Cooper's and red-shouldered hawks. She had never worked with American kestrels previously, but saw an opportunity with kestrel nest boxes in the cherry-growing region of Leelanau County, Michigan. A few folks had installed nest boxes in the region previously, and some growers were already interested in them for pest management.

With a \$9,959 NCR-SARE Graduate Student grant, Shave and her team worked directly with eleven cherry growers in Leelanau County to explore the effectiveness of habitat enhancement for kestrels. They installed 25 new nest boxes and monitored kestrel and prey abundances. They tracked kestrel and orchard pest behavior with a variety of technologies including weatherproof cameras with night vision and GPS data loggers. The kestrels provisioned their young with a variety of orchard pests, including grasshoppers, voles, and fruit-eating birds. Although the kestrels did not bring birds to their nests as frequently as small mammal and insect prey, Shave found that fruit-eating birds were less abundant in orchards with active kestrel boxes, perhaps because they were deterred by the presence of kestrels. All of this was good news for growers.

"I've had a nesting pair of kestrels for many years now, and I just don't have bird problems nearly as bad as I did before," said Jim Nugent, chair of the Michigan Tree Fruit Commission and owner of Sunblossom Orchards in Leelanau County. "I absolutely recommend them (nesting

boxes), especially for sweet cherry orchards. I always felt they were effective, but now, with the MSU study, we have data to back that up."

Through subsequent outside grant funding, the team was able to conduct a benefit-cost analysis of nest box installation. They concluded that for every dollar spent on nest boxes, \$84 to \$357 of sweet cherries would be saved. Expanding on that, regional economic modeling predicted that increased sweet cherry production from reduced bird damage would result in 46–50 jobs created and \$2.2 million to \$2.4 million in increased income for the state of Michigan over a 5-year period.

Their findings have prompted an expansion of the nest box program into the blueberry-growing region of southwestern Michigan. Additionally, ongoing research will use a national survey of fruit growers and in-person interviews, along with modeling approaches, to determine the factors that influence growers to use predator nest boxes as a pest management practice.

"Kestrel nest boxes in sweet cherry orchards provide a highly cost-effective ecosystem service with potential reverberating benefits for a regional economy," said Shave. "Given the low cost to install and maintain a kestrel nest box, I think our results could encourage more growers to start considering habitat improvements as a part of their integrative pest management strategies."

The team has presented their results at the North Central region at expos and workshops, and at the 28th Vertebrate Pest Conference in California.

Read more about Shave's NCR-SARE Graduate Student grant project on the SARE project reporting website. Simply search by the project number, GNC15-211 at <https://projects.sare.org/> or contact the NCR-SARE office for more information.



Farmers can install low-cost nest boxes to attract breeding kestrels, which can help control pests like rodents and fruit-eating birds. Photo by Megan Shave.



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Did you know NCR-SARE is on Facebook, YouTube, Instagram and Twitter? Keep track of our grant opportunities, projects, events, and more. Search for North Central Region SARE and follow us!



ABOUT NCR-SARE

NCR-SARE funds cutting-edge projects every year through competitive grant programs, and has awarded more than \$74 million worth of grants to farmers and ranchers, researchers, students, educators, public and private institutions, nonprofit groups, and others exploring sustainable agriculture in the 12 states of the North Central region.

Are you interested in submitting a proposal for an NCR-SARE grant? Before you write the grant proposal, determine a clear project goal, and look for sustainable agriculture research on your topic. Need help determining which program is best suited for your project? Go to www.northcentralsare.org/Grants for more information, or contact the NCR-SARE office.

For more information about any of the NCR-SARE grant programs, go to www.northcentralsare.org or contact the NCR-SARE office at 612-626-3113 or ncrsare@umn.edu.

NCR-SARE GRANT TIMELINES*

Farmer Rancher*

Mid August - Call for Proposals Released
Early December - Proposals Due
February - Funding Decisions
Spring - Funds Available to Recipients

Graduate Student*

February - Call for Proposals Released
April - Proposals Due
Late July - Funding Decisions
September - Funds Available to Recipients

Research and Education*

August - Call for Preproposals Released
October - Preproposals Due
Late January - Full Proposals Invited
April - Full Proposals Due
Late July - Funding Decisions
Fall - Funds Available to Recipient

Professional Development Program*

February - Call for Proposals Released
Early April - Proposals Due
August - Funding Decisions
October - Funds Available to Recipient

Youth Educator*

Mid August: Call for Proposals Released
Early November: Proposals Due
February: Funding Decisions
Spring: Funds Available to Recipients

Partnership*

Early August: Call for Proposals Released
Late October: Proposals Due
February: Funding Decisions
March: Funds Available to Recipients

*Timelines are subject to change.

NORTH CENTRAL REGION
SUSTAINABLE AGRICULTURE RESEARCH AND
EDUCATION PROGRAM

CONTACT INFORMATION

Main Office Phone: 612-626-3113
Email: ncrsare@umn.edu
Online: www.northcentralsare.org



As the Farm Director for Hendrick House, Ann Swanson is realizing her big dream to provide farm-to-table education to foodservice providers, youth, farmers, and the local community in Urbana, Illinois, with support from The Land Connection and NCR-SARE. This is SARE project FNC17-1101. Photo courtesy of Champaign Urbana Schools Foundation.