

Ohio Beef Cooperative Measures Advertising ROI

NCR-SARE's
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The eight farmer-owners of Buckeye Valley Beef Cooperative pride themselves on their all-Ohio model; their animals are born, raised, and processed completely in southwest Ohio. This kind of supply chain is part of an estimated \$12 billion per-year local food market in the United States. According to the 2017 Census of Agriculture, almost 30,000 U.S. producers sell directly to retailers, institutions, and food hubs. Like Buckeye Valley Beef, more than 130,000 farmers and ranchers are selling their products directly to consumers.

But how do local food producers and entrepreneurs draw attention to their products when there's so much competition for people's attention? Advertising can help. With \$25,530 support from a SARE Farmer Rancher grant, the Buckeye Valley Beef Cooperative set out to gain insight on the return on investment (ROI) of four advertising channels of interest: billboard displays, radio ads, Facebook ads, and Google Ads.

"Marketing research can be just as important as determining best soil or manure management practices," said Lori Nethero of Buckeye Valley Beef Cooperative. "If you can't sell your product, ultimately those other practices fall to the wayside. In a world where there are so many ways to reach out to consumers, and now in a world where several of the traditional in-person methods have been stripped away, it is important to study what works and doesn't work."

For their project, their cooperative members divided responsibilities as they gathered baseline data, studied up on how to use the various marketing channels, consulted with advertising companies, and set up their marketing schemes. They allowed three months per method and then looked at the sales impact of each strategy.

Advertising ROI

Overall, the team determined that of the four methods Facebook ads was most effective, followed by radio ads, Google Ads, and billboards.

- **Success with Facebook:** Nethero said Facebook was the easiest, simplest, and quickest of the four advertising methods to implement. "We were told by marketing experts through the year that they were moving into different directions away from social media," said Nethero. "So we weren't expecting much out of it and yet, it was incredibly successful. A 10,900% ROI speaks volumes. We spent \$600 and made \$66,000 in sales."
- **Time investment:** Researching advertising ROI was a lot of work. The 8-person project team each devoted significant time and energy to figuring out which strategy made the most sense.
- **WOMM wins:** Word of mouth marketing (WOMM) was more effective than any of the new advertising strategies they tested (see chart).

Dig Deeper

Nethero shared more marketing insights in this video from Ohio State University: <https://youtu.be/sf7dmw1bdBc>. Learn more about this SARE Farmer Rancher grant project at <https://projects.sare.org/project-reports/fnc19-1186/> or contact the NCR-SARE office.



Buckeye Valley Beef Cooperative compared the effectiveness of four advertising channels, including Google Ads, billboards, radio advertisements, and Facebook ads. Their results are out now. Photo courtesy of Buckeye Valley Beef Cooperative.

	Cost	Customers	Sales	ROI
Google Ad	\$ 3,255.71	15	\$ 4,875.00	50%
Facebook	\$ 600.00	78	\$ 66,000.00	10900%
Radio	\$14,640.00	30	\$ 27,090.00	85%
Billboard	\$ 6,000.00	4	\$ 3,780.00	-37%
Total	\$24,495.71	127	\$101,745.00	
Other Notable Findings				
Word of Mouth	\$ -	153	\$129,150.00	
Google search	\$ -	143	\$156,240.00	



Online Marketing Resources

SARE recognizes that producers have been

navigating numerous sales and marketing strategies to comply with the physical distancing requirements associated with COVID-19. Our collection of online marketing educational resources are available here: <https://northcentral.sare.org/about/covid-19-sales-and-marketing-resources/>.

A Whole Farm Approach to Managing Pests

Join an NCR-SARE Committee

A flock of sheep is vital to the success of one particular vineyard in Winters, California. While many operations struggle to manage weeds, this vineyard used a SARE-funded grant to test grazing sheep as a pest management practice, and they are seeing many whole-farm benefits. The sheep were trained to avoid the grape crop's leaves and to instead graze only on weeds and other cover crops. Rather than apply potentially harmful pesticides or do time-intensive mowing, the vineyard uses the sheep to manage its weeds.

Producers using methods based on ecology to manage pests, like sheep grazing weeds in vineyards, are finding improvements and benefits across their farms. SARE's newly revised *A Whole-Farm Approach to Managing Pests* bulletin discusses ecological approaches to pest management and highlights cases in which farmers are using innovative methods to manage pests.

A Whole-Farm Approach to Managing Pests describes ecological pest management strategies that focus on strengthening natural relationships throughout the farm to reduce pest pressures. These holistic strategies emphasize knowledge of cropping systems, biodiversity, and farm resource management. Practices that produce healthy crops and keep insects, weeds, and diseases away focus on:

- promoting biodiversity
- creating healthy crop habitat
- reducing disturbance to soil and non-crop vegetation, and
- minimizing off-farm inputs.

This newly updated technical bulletin is broken down into two parts. Part one examines how biodiversity and biological control drive management practices can boost the natural defenses of your farm. The second part puts those tools into practice



by providing reliable and profitable strategies to successfully manage pests.

Focusing on the farming system rather than on each individual pest can make pest control across the whole farm more effective and sustainable. Ecological strategies can be adopted incrementally to meet the unique pest management needs of every operation while providing other benefits such as improved soil health and biodiversity maintenance.

Get the New SARE Pest Management Bulletin

Find *A Whole-Farm Approach to Managing Pests* online at www.sare.org/resources/a-whole-farm-approach-to-managing-pests/.

Do you live and work in the North Central region and have an interest in sustainable agriculture? NCR-SARE has openings on our review committees.

Grant Review Committees

Serving on an NCR-SARE grant review committee can be a rewarding and educating experience. Each review committee has varying requirements, but generally, members review proposals, discuss the proposals, and make recommendations to the Administrative Council. To apply, visit <https://tinyurl.com/NCRSAREReviewCommittee>.

Co-Founder & President/CEO of No More Empty Pots in Omaha, Nebraska, Nancy Williams, served as Chair of the Administrative Council (AC) from 2015-2018. NCR-SARE's AC sets program priorities and makes granting decisions for the region. The AC includes a diverse mix of agricultural stakeholders in our 12 states.

"SARE and especially North Central Region SARE has made a huge impact on my professional and personal development," reflected Williams.



Nancy Williams, photo courtesy of Nancy Williams.

It is one of the most informative and patient spaces for learning to listen and hear perspectives. Serving with the AC gave me invaluable experience in learning to hear other opinions respectfully and get to a point of consensus or meaningful action.

The AC is full of caring leaders who meet you where you are and are not afraid to work through issues and change their opinions and actions to engage in the work of serving farmers, ranchers, and the greater community. I am a better person with lifelong friendships and am better prepared to lead with integrity and intention because of NCR-SARE."

SARE Grant Writing Assistance

Are you interested in writing a proposal for an NCR-SARE grant? NCR-SARE can provide assistance with grant applications, reports from other projects, lists of funded projects, and other sustainable agriculture information. To receive more information about the NCR-SARE grant program's proposal processes and timelines, contact the NCR-SARE office.

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.

The Michael Fields Agricultural Institute's (MFAI) has resources for finding funding sources, and writing successful grants, along with other valuable information. To learn more and to sign up for an e-list for program announcements, please visit the MFAI website at <http://michaelfields.org/grant-advising-resources/>, or contact MFAI Grants Advisor Martin Bailley at grants@michaelfields.org.

SARE has state coordinators in each state to 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. Find your SARE State Coordinator and learn about funded grants in your state by visiting NCR-SARE online at <https://northcentral.sare.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.



Dr. Touria Eaton is a Missouri SARE Co-Coordinator at Lincoln University, a Historically Black College and University founded in 1866.

Managing Insecticides and Cover Crops

At the University of Nebraska's Eastern Nebraska Research and Extension Center, Gabriela Inveninato Carmona is studying insecticide use and cover crops. Photo courtesy of Gabriela Inveninato Carmona.



Although wheat stem maggot has been a concern for some Nebraska farmers who plant corn directly into a growing cover crop, entomologists at the University of Nebraska-Lincoln (UNL) want farmers to scout their fields before adding an insecticide to the herbicide during cover crop termination.

With support from an \$11,716 SARE Graduate Student grant, farmers Dave Nielsen and Ron Sladky, were able to work with UNL graduate student Gabriela Inveninato Carmona to develop sustainable management strategies for their cover crop and corn systems. Nielsen and Sladky wanted to minimize pests while maximizing beneficial arthropods on their farms.

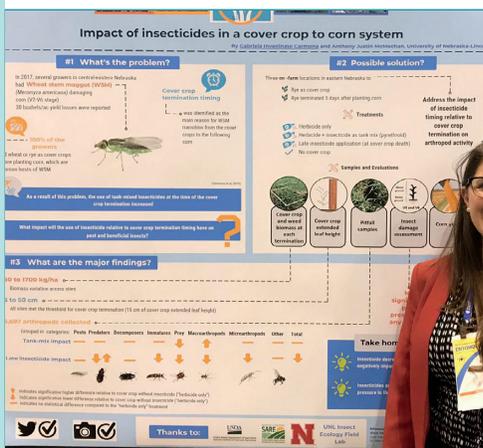
"The most common question is in regard to tank mixing an insecticide with a herbicide at the time the cover crop is terminated," said Carmona in a 2018 CropWatch report. "We do not recommend this practice for two reasons. First, an insecticide application without any knowledge of pest presence will likely kill beneficial insects in the cover crop that may provide a benefit to the subsequent cash crop. We encourage ag professionals to scout cover crops for wheat stem maggot adults or larvae prior to termination to assess pest pressure." She continued, "If farmers or consultants find high numbers of wheat stem maggots in their cover crop, we would suggest terminating the cover crop

at least 14 days prior to planting corn. If such practices are not possible, producers should consider making an insecticide application 11 days after a glyphosate application."

Ultimately, the project demonstrated the value of scouting as part of a pest management strategy. Carmona's faculty advisor on the project, Justin McMechan recently received an additional grant to keep working on the topic. The \$39,906 SARE Partnership grant increases the size of the study to four farmers, but still includes Nielsen and Sladky, the two farmers who contributed to Carmona's research project.

"Having the opportunity to work with growers and better understand the challenges they are facing when using cover crops has had a significant impact on my professional development and confidence as a scientist," said Carmona, who is now pursuing a Ph.D. at UNL. "We want to keep working closely with growers to reduce their reliance on pesticides and move towards a more integrated pest management strategy."

Read the UNL Cropwatch report, "Wheat Stem Maggot Adult Monitoring: A Pest of Cover Crop-to-Corn Transitions" online at <https://cropwatch.unl.edu/2018/wheat-stem-maggot-adult-monitoring-pest-cover-crop-corn-transitions>. Learn more about this NCR-SARE Graduate Student Grant project at <https://projects.sare.org/gnc18-258/>.



Gabriela Inveninato Carmona presents a poster about the impact of insecticides in a cover crop to corn system at the 2019 Entomological Society of America annual meeting in Saint Louis, Missouri. Photo courtesy of Gabriela Inveninato Carmona.



Elevated Strawberry System Benefits Labor & Fruit Quality

At Tanglewood Farm, Richard Barnes and Kelly St John have been experimenting with elevated cropping systems to reduce labor fatigue and improve fruit quality. Photo by Marie Flanagan.

Sore shoulders, aching backs, and stiff knees are all too familiar for folks who work on farms. Bending in a stooped position is unpleasant for workers, including Richard Barnes, who raises you-pick and ready-picked berries at Tanglewood Farm in Fort Wayne, Indiana. For years, Barnes has been tinkering with his version of an elevated strawberry growing system, one that would reduce physical stress, but also reduce plant disease and improve fruit quality.

With support from a \$22,474 SARE Farmer Rancher grant, Barnes finalized his prototype for an elevated strawberry cropping system. He was able to set up his prototype system at Tanglewood Farm, as well two nearby farms, Rhoads Farm and Indiana Springs Berry Farm, and experiment with various setups. The three farms tweaked the system, and came up with an elevated bench design that met their needs. Details include:

- **Bench frame:** They used galvanized steel to keep the frame lightweight, moveable, and weatherproof. A 12-foot section can hold 48 plants.
- **Growing cycle:** They plant bare-root in mid-June, have a 12-week first harvest from mid-August until mid-November, store the covered plants beneath the bench through the winter, bring them back up on the bench in April, and have a second 4-week harvest from mid-May until mid-June. Then, in June, they start the process again for the next year.
- **Growing medium:** Their ideal recipe was 45% coconut coir, 40% white peat, and 15%

vermiculite or perlite.

- **Growing bags:** A 1-gallon felt-like fabric pot was best for keeping the growing medium and plant cooler.
- **Strawberry varieties:** Focusing on flavor, yield, and heat and disease resistance, they concluded that Albion, Seascape, and Evie2 worked best.
- **Nutrients:** With bare-root plants, they had the best results when they used slow-release fertilizer prills and injected N-P-K + micronutrients every week from the first blossom through harvest.
- **Pest management:** The system increased air circulation which reduced fungal disease. Other pests such as squirrels, chipmunks, and birds found it difficult to access the fruit.
- **Irrigation:** Wireless sensors monitored soil moisture and temperature and signaled the automated drip irrigation system, which can be solar-powered or not (solar option pictured above). For adequate and even flow and pressure, a minimum of 7 psi., was needed.
- **Return on investment:** By cropping a spring and late summer/fall crop, a less than 2-year return on investment was possible for a you-pick, a ready-pick, or combination of the two.

Improving Ergonomics and Yields

But Barnes said labor is where the system really paid off, saying labor time was reduced by at least half. The system also increased accessibility and ease of use for you-pickers.

“Raised beds are so popular, but it’s still stooped labor,” said Barnes. “With our system, you can wheel up in a chair, or pick without bending over. People pick more berries per hour because the berries are easier to pick. A one-time study with our professional pickers picking was 10 lbs. from the elevated bench and 4.2 lbs. on the matted rows.”

Barnes also noted improved fruit quality.

“We used to lose half our berries to disease, pests, and heavy rains,” said Barnes. “We had to spray more fungicide on the berries. With the bench berries, the quality of the fruit is much better. Your pack-out can be so much higher.”

After an open house in 2019, an agribusiness company, Bidyne USA, approached the team to jointly commercialize and market their elevated strawberry bench system. This new joint venture is IBEX Growing Systems. Together, they’ve set up commercial systems on other farms, including a 27-bench system in Iowa last spring.

“We’ve seen several instances where a 3,000-4,000 acre row crop farm can’t support two families,” said Barnes. “If a farmer can bring a system like this in and diversify, it can allow a son or daughter to come back to the farm. That’s great for a rural community.”

Learn more about this NCR-SARE Farmer Rancher project on the SARE project reporting website at <https://projects.sare.org/project-reports/fnc18-1111/> or contact NCR-SARE.

Dig Deeper

Watch a video about Tanglewood Farms’ elevated strawberry fruiting system here: <https://youtu.be/1FNEUfa9HUo>

Visit the IBEX Growing Systems website here: <https://ibexgrows.com/>

Photos courtesy of Andrew Saal.



Improving Water Quality & More with Prairie Strips

In southeast Wisconsin, Dan Stoffel grows soybeans, alfalfa, and oats on 800 acres of rolling terrain that's been in his family since the late 1870s. Stoffel's no stranger to conservation and sustainability. His farm's unique landscape, carved by various glaciation periods from 75,000 to 11,000 years ago, has lent itself to practices like contour cropping and no-till, put in place by his grandfather back in the 1930s. So when a conservation group brought up the idea of prairie strip plantings, Stoffel was open-minded.

Prairie strip plantings are strips of native perennial vegetation strategically planted within a farm field to hold soil, nutrients, and rainfall while also providing habitat for helpful pollinators. Previous SARE-funded research at Iowa State University has shown that prairie strips can improve water quality and reduce phosphorus and sediment loss with minimal impact on crop production.

On Stoffel's farm, two fields in particular had some problematic water flow areas. Conservation-minded experts at Sand County Foundation proposed prairie strips that would run perpendicular to the slope to reduce water flow.

Based in Wisconsin, Sand County Foundation works with private landowners to use sustainable land management practices. With a \$197,678 Research and Education grant from NCR-SARE, Sand County Foundation received support to extend and adapt the experience of Iowa State University prairie strips project into Wisconsin.

"Initially, I wanted to just get a sense how they look and how they work," said Stoffel in a 2018 interview with Sand County Foundation. "Two years into this I've found their root structures and plant residue really make a big difference. They really hold their own against the water."

But improving water quality and reducing runoff isn't the only benefit of prairie filter strips. They also provide food and habitat for pollinators, beneficial insects, and other wildlife, which Stoffel also appreciated.

"As a beekeeper, I was surprised at the number of (beneficial) insects these narrow strips of diversity attract amid a monoculture," said Stoffel. "I can't go three plants without seeing a native insect. It was amazing for just being established for two years."

Stoffel's positive experience with prairie strips is not unique. Sand County Foundation alone has provided direct assistance with prairie strips to seven farmers in total, with another three farmers who are interested as well. The goal is to fit prairie strips conveniently within a farm's existing annual row crop operations.

"I like how the practice strives to be compatible with existing systems, fitting with current crops and farming equipment," said Sand County Foundation program director, Craig Ficenc. "And yet it's a little bit radical, converting just a fraction of cropland back to prairie. And most of all, done right it's effective and potentially a less costly way to protect water quality compared to some of the traditional structural practices. And it provides wildlife habitat at the same time. Farmers who convert strategically selected areas of annually cropped ground to permanent and diverse vegetative cover can potentially meet rising expectations for water quality protection with minimal impacts on farm profitability."

Dig Deeper

Early prairie strip adopters like Dan Stoffel are influencing their farming neighbors through field days, workshops, and presentations at conferences. Watch a video of Stoffel in the field talking about his prairie strip plantings at www.sandcountyfoundation.org/prairiestrips

View more videos and read more about this NCR-SARE Research and Education grant project online at <https://projects.sare.org/project-reports/lnc16-378/>. Read about Iowa State University's 2009 SARE-supported research on prairie strips online at <https://projects.sare.org/project-reports/lnc09-314/> or contact the NCR-SARE office for more information.

Improve farm water quality and biodiversity with prairie strips

Prairie strips are strategically placed strips of native perennial vegetation (grasses and forbs) within farm fields to retain rainfall while capturing soil and nutrient runoff.

Research at Iowa State University (ISU) began in 2007 with a watershed-scale field experiment called STRIPS (Science-based Trials of Row-crops Integrated with Prairie Strips) to evaluate whether prairie strips can deliver ecosystem benefits at a scale greater than the land area that they occupy. The research identified that relative to other structural practices, prairie strips provide a lower-cost conservation option for farmers seeking to reduce sediment and nutrient losses with minimal impact on crop production, while also improving soil quality, water quality, site hydrology and biodiversity.

Sand County Foundation (SCF) works with landowners on voluntary adoption of conservation practices. That work includes expanding the success of ISU's STRIPS project onto Wisconsin farms. SCF's prairie strip efforts began in 2017 with the implementation of six demonstration sites funded through the North Central Region Sustainable Agriculture Research & Education (SARE) program.

Together with the University of Wisconsin, ISU, and American Farmland Trust, SCF is advancing the efforts into other Midwestern states. Our goal is to validate the capability of the practice to reduce erosion and improve water quality, while identifying benefits and potential barriers to farmer adoption.

Design and management: The layout of a prairie strip is customized to fit the cropping pattern and farm machinery, but positioned to be relatively consistent with the field contour while minimizing the potential to be considered an obstacle during field management. Ideally, the prairie strips should be at least 15 feet wide, though width varies based on the number installed, field topography and runoff potential.

Even the native seed mix is selected with the farmer's objectives in mind. Planting a diverse seed mix with a 1:1 ratio of forb to grass species will improve the capacity to capture water, resist weeds and provide pollinator habitat.

It may take three years to fully transform a prairie strip into a prairie habitat. They require mowing for weed control in the first two years, but in subsequent years the maturing native vegetation will crowd out weeds with minimal maintenance. Herbicide spot treatment or prescribed burning may also be necessary.



Prairie strips can retain soil, nutrients, and rainfall on farmland with diverse habitat for pollinators and grassland birds.



Dan Stoffel (above center) worked with Sand County Foundation to plant prairie strips on his farm in southeast Wisconsin. With support from a SARE grant, Sand County Foundation was able to work with several producers to implement this practice which helps reduce runoff and attract pollinators. Read more about it in Sand County Foundation's Conservation Brief: www.sandcountyfoundation.org/uploads/publications/SCF-Prairie-Strips-2-Page-WEB.pdf (pictured above).

Boosting Organic Sweet Potatoes with Cover Crops

When Waana Kaluwasha was just a child, she decided she was going to grow up and help small-scale farmers.

“I come from Zambia, a country in Southern Africa where agriculture employs more than 85% of the population, with the majority being small holder farmers who are faced with various challenges,” said Kaluwasha.

Kaluwasha got an undergraduate degree in agricultural sciences at the University of Zambia before beginning her Master’s degree at the University of Missouri in 2015. Organic sweetpotato production sparked her interest because they are an important crop worldwide, and she was curious about whether cover crops could benefit organic sweetpotato production.

“Organic sweetpotato growers are challenged by sustainable soil management, which impacts the occurrence of soilborne disease, weed competition, and other pest issues that reduce storage root yield and/or quality,” said Kaluwasha. “Being organic, their options are limited for pest control.”

With support from a \$11,956 SARE Graduate Student grant, Kaluwasha worked on a strategy for using cover crops in organic sweetpotato production. She teamed up with Jim Thomas from Share-Life Farms, a central Missouri farm that has been certified organic since 2004. Overall,

they determined incorporating cover crops as green manure before transplanting sweetpotato slips resulted in decreased weeds, healthier sweetpotato plants, and ultimately 1.5 to 2.4-times marketable root yield compared to plots without cover crops. Together, they discovered:

- Cover crop varieties: both cereal rye and rapeseed can be cover crops in organic sweetpotatoes, where weed control practices are minimally implemented; cereal rye appeared to promote storage root production more so than rapeseed after tillage.
- Managing weeds: tilling cover crops into the soil suppressed weeds during the early growing season, resulting in dependable and elevated root yield.

“It was a rewarding experience working with farmers and a huge learning experience for both my advisor and I, as this was our first time working with cover crops as relating to organic sweetpotato production,” said Kaluwasha. “I learned so much interacting with Mr. Jim Thomas regarding organic production, it was good to see things from the farmer’s perspective.”

Kaluwasha is currently a Ph.D. student at Louisiana State University, where she is working on another SARE-supported research project to identify ways to prevent and/or manage Rhizopus Soft Rot (RSR) of sweetpotato.

Dig Deeper

Watch Kaluwasha discover some benefits of incorporating cover crops in sweet potatoes.

Watch Kaluwasha talk about her findings online at <https://youtu.be/qqO-vlHw4E?t=1540>

Read a full case report about this project online at <https://tinyurl.com/SARE-CCSP>

Read more about Kaluwasha’s SARE sweet potato projects online at <https://projects.sare.org/project-reports/gnc16-226/> and https://projects.sare.org/sare_project/gs19-200/



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:



Field and Forest Products in Wisconsin received a SARE grant to study Wine Cap mushrooms and

their role in soil health. They are creating a video series to share the information on their project. This is SARE project FNC20-1208.



Using Radio Frequency Identification (RFID), Rocky Knob Farms in Ohio has a SARE grant looking

at their lambing cycle efficiency. This is SARE project FNC20-1239.



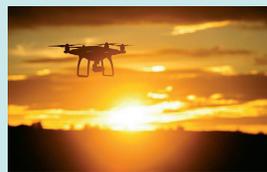
The Savanna Institute’s apprenticeship program was launched in 2019 to help aspiring

agroforestry farmers. With SARE support, they’re making their apprenticeship materials available to a wider audience. This is SARE project ONC20-081.



Roscommon Berry Farm in rural Dallas County, Iowa is evaluating different types of growing media for vertical

strawberry growing systems. This is SARE project FNC20-1222.



With support from SARE, a couple of Wisconsinites are developing curriculum for using unmanned-aerial

vehicles (drones) for grazing management. This is SARE project FNC20-1210.

Ohio Growers Mad About Saffron

Prized for the unique flavor it adds to rice dishes like paella and risotto, saffron is a legendary spice with global appeal. Saffron is harvested from the flower of *Crocus sativus*. The bright red stigma, also known as threads, are collected, dried and sold to chefs and home cooks worldwide. Grown primarily in southeastern Asia and the Mediterranean, saffron's low yields and significant labor requirements can be daunting, but that is balanced out by its selling price, around \$5,000/lb retail (North American Center for Saffron Research and Development, 2020). The price point and uniqueness of saffron attracted Rachel Tayse, who grows perennial berries, annual vegetables, and seedlings in central Ohio.

"Produce growers are faced with the challenge of harvesting enough highly-valued crops to create a financially sustainable farm," said Tayse. "Saffron could be perennially profitable because both threads and mature bulbs can be sold."

With support from a \$14,927 SARE Farmer Rancher grant, Tayse worked with Kate Hodges of Foraged and Sown Farm to document and evaluate growing, weed management, harvesting, and storage practices for both in-ground and bench-grown saffron over two growing seasons.

Saffron grows from corms. Similar to a bulb, a corm is an underground stem which must be dug and divided every three to five years. Saffron corms require an average of four seasons to produce daughter corms of a size to harvest from or sell. Proper harvest, storage, and replanting of corms is part of the process of growing saffron.

Growing and Selling Saffron

Key Findings:

- Container production: Organic container production was preferred to field production. Saffron field production was more susceptible to weather and weed pressures. Container production yielded 3.5 times more flowers than field-grown.
- Weeds and pest pressure were minimal in container production.
- Harvest was simpler in containers raised to bench height.

- Yields: 2018 container production yielded 590 flowers from approximately 400 corms in 18 crates and 2019 containers yielded 796 flowers from 500 corms in 20 crates. An average yield per crate of 25 corms in container production, therefore, is 38 flowers (114 stigmas) in the first year. Each flower yields 3 stigmas/threads.
- Costs: Cost of production is slightly more than potential income in the first years. After year-one daughter corms have matured to productive size in year four, harvests will increase and the potential income will likely exceed cost of production.
- Marketing: They sampled saffron rice and handed out recipe cards at a farmers market demo. Purchases of saffron increased around the winter holidays, and anecdotal conversations suggested customers most often purchased saffron as a gift. They charged \$4 per package of 15 cured saffron threads, which is about 5 flowers worth.

"As a farm that was growing all niche, high-value, high-flavor products, expanding saffron into the farm's production was a natural fit to explore," said Hodges. "We were further convinced by saffron's harvest season—it peaks just after the final harvests of our frost-sensitive herbs. The small amount of space required was another huge selling factor as a land-limited urban operation."

Hodges says Foraged and Sown plans to continue offering saffron as a product.

"Our harvest in 2020 was just a handful of blossoms as the new corms of 2017-2019 continue to size up," Hodges continued. "Next year, we'll add new extra large corms and hopefully those older corms will be large enough to provide blossoms."

Dig Deeper

Read more about this SARE saffron project and view Tayse's "Saffron Growing Guide" (pictured above right) online at <https://projects.sare.org/project-reports/fnc18-1146/>.

Mad About Saffron CONTAINER GROWING

Quick Guide by Rachel Tayse

PLANT Late Summer (August – September) Space corms 2-3 inches apart, no less than 3 inches deep, in container filled with potting soil.

TEND Early Autumn (September – October) Water regularly. If keeping containers in hoop-house or other covered structure, use shade cloth to lower temperature.



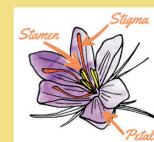
HARVEST Autumn (October – December) Flowers emerge daily. Harvest whole flowers and transfer to processing area.

PROCESS Autumn (October – December) Remove petals and stamen. Trim all white and yellow from stigma to create three all-red pieces.

CURE Autumn (October – December) Reduce mass 90-80% by dehydrating for a short time at low heat. Then, store in cool dark place for several months.

MAINTAIN containers after flowering by watering regularly until leaves die back in dormancy. Protect from burrowing rodents.

DIG corms, size, and replant annually.



FORAGEDANDSOWN.COM/SAFFRON

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Dig Deeper

With support from SARE, growers in Ohio are exploring growing, harvesting, and marketing saffron.

Watch two videos to see what they learned about this unique, high-value spice.

Growing Saffron in the Midwest:
<https://youtu.be/znRwipYk3MA>

Saffron Harvesting and Processing:
<https://youtu.be/LRCzalKqyp8>

UNIVERSITY OF MINNESOTA



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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 <https://northcentral.sare.org/Grants/> for more information, or contact the NCR-SARE office.

For more information about any of the NCR-SARE grant programs, go to <https://northcentral.sare.org> or contact the NCR-SARE office at 612-626-3113 or ncrsare@umn.edu.

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
Mid-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

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Podcast Plays
NDsoilsense.com



The Soil Sense podcast from North Dakota State University Soil Health has reached more than 50,000 listeners with SARE support. Join other producers, educators, agricultural researchers, agronomists, and consultants who are learning more about putting soil health principals into practice while you limit in-person contact or work remotely at <https://www.ndsu.edu/soilhealth/soil-sense/>