NCR-SARE Farmers Forum



www.northcentralsare.org

The North Central Region-Sustainable Agriculture Researchand Education (NCR-SARE) Farmers Forum is an annual 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.

This highlight is a summary of reports and presentations from NCR-SARE Farmers Forum held at the 2014 Ohio Ecological Food and Farm Association Conference. They featured speakers who received awards from NCR-SARE's five grant programs: Farmer Rancher, Youth Educator, Graduate Student, Professional Development, and Research and Education. The letters and numbers listed above the project titles are NCR-SARE project numbers (e.g., FNC10-809). The letters identify the grant program: Farmer Rancher (FNC), Youth Educator (YENC), Graduate Student (GNC), Professional Development (ENC), and Research and Education (LNC). To read the full reports, go to the national SARE website at www. sare.org and click on the "Project Reports" tab; then click on "Search the Database." Enter the project number or a topic you want to search for in the "Search String" box.

The next NCR-SARE *Farmers Forum* will be held on January 23-24, 2015 in Aberdeen, SD in conjunction with the Northern Plains Sustainable Agriculture Conference.

NCR-SARE is a United States Department of Agriculture–National Institute of Food and Agriculture (USDA-NIFA) program that supports and promotes sustainable farming and ranching by offering competitive grants and educational opportunities for farmers and ranchers, researchers, educators, students, institutions, organizations, and others exploring sustainable agriculture.

The *Farmers Forum* is one of many educational efforts NCR-SARE supports. Visit the NCRSARE website to see a calendar of events, educational resources, grant opportunities, and more.

FNC10-809 Marion, Michigan – Dan & Bonnie Blackledge

Growing, Processing, and Selling Omega-9 Canola Oil

OBJECTIVE: To grow, process, and sell Omega 9 canola oil.

RESULTS: B & B Farms has been a family operation for almost 100 years. Throughout that time, the farm has undergone many changes and transitioned from a small general

farm of 40 acres, to a dairy farm, to the 540-acre, largely croporiented farm operation of today.

The current owners, Dan and Bonnie Blackledge, have scaled up their canola operation, and are only the canola oil growers in Michigan that press, bottle, and market their own oil.

As the Blackledges became more involved in canola production, they learned that the nearest processing facility was in Canada. In response to this, they decided to attempt to process their

own canola into oil. In 2010, they applied for an NCR-SARE Farmer Rancher grant to support the work.

The Blackledges' original goal was to extract the oil from 1,500 pounds of Omega-9 canola seed and refine this to commercially acceptable standards. They wanted to market and sell the oil as a healthful, locally produced product. They purchased an oil press and rented space from a nearby commercial kitchen. In their first year operating, the Blackledges exceeded their goal and extracted oil from about 3,000 pounds of canola seed. This was refined and yielded about 120 gallons of canola oil. B & B canola oil is now marketed as a specialty product, which is locally grown and produced. The Blackledges continue to expand their canola oil production. They have developed a brand and website around their canola oil label. Their website shares information about growing



Dan and Bonnie Blackledge have started a canola oil business on their farm in Marion, Michigan. B & B Farms Canola Oil's first pressing was only about 50 gallons, but it stands out as the first canola oil grown and pressed in Michigan. - Photo by Marie Flanagan.

canola, canola research, their products, and the health benefits of Omega-9 canola oil.

Their farm continues to change. The Blackledges have created an on-farm commercial kitchen, built a new grain bin for food grade seed storage, and converted an outbuilding for seed cleaning. The Blackledges predict that they will need to expand their commercial kitchen to accommodate the growing business.

ENC10-118

The Ohio State University – Rafiq Islam

Training Professionals on Sustainable Agriculture for Enhanced Ecosystem Service from the Ground Up

OBJECTIVE: To conduct a series of trainthe-trainer workshops for educators and professionals to equip them with new information, practical knowledge, teaching materials and techniques, and assessment tools to assist farmers in shifting to sustainable agriculture practices to improve soil health and enhance ecosystem services.

RESULTS: Ecosystem services are the ways in which people benefit from wildlife and/or ecosystems. Cover crops can slow soil erosion, improve soil health, smother weeds, enhance nutrient and moisture availability, help control pests, and bring a host of ecosystem services. They have become an important part of organic cropping systems, but Rafiq Islam feels that many people still do not realize their full benefit.

Dr. Rafiq Islam, a research scientist at The Ohio State University, received an NCR-SARE Professional Development grant to bring this information to a wider audience through multiple train-the-trainer workshops across the country. Islam's workshops targeted agricultural professionals in an attempt to disseminate information about cover crops to farmers on a large scale. More than 200 Extension educators, agricultural teachers, NRCS and EPA personnel, SWCD technicians and county officials, crop consultants, agricultural representatives, and producers participated in more than a dozen workshops. Each workshop contained three sessions where participants learned about agricultural practices, highly productive methods of sustainable agriculture, and management practices that influence ecosystem services.

Participants learned the advantages of using multiple cover crops, techniques and practical skills for determining which cover crops to use, and planting logistics. Each participant was offered a training manual and teaching materials to assist him or her as they teach others about practices to enhance ecosystem services. A web page (http://southcenters. osu.edu/soil) includes results, surveys, videos, photographs, and peer-reviewed and Extension publications.

Adding Value to Vegetables Through Live Fermentation

OBJECTIVE: To produce fermented vegetable products in a cost effective manner.

RESULTS: Fermentation is an ancient method of preserving fresh vegetables and other foods for later use. It is accomplished due to lactic acid-producing bacteria, which lower the pH of these foods.



process he worked with the Ohio Department of Agriculture's Food Safety Division to ensure that his fermenting practices were safe, and with consumers to ensure that the products would be satisfying and marketable. Chmiel

made adjustments to his process and kept meticulous notes, which he has shared at various workshops.

Workshops were held in conjunction with Community Food Initiatives and at two Ohio Pawpaw Festivals. These workshops reached more than 85 people in total and offered information on the basics of fermentation, taste testing, and a question and answer session.

This bottle is an example of the glass bottles Chris Chmiel used to package sauces and beverages such as Kaavas,, a fermented beet beverage.

Chris Chmiel, co-owner of Integration Acres Ltd., applied for an NCR-SARE Farmer Rancher grant and learned that fermentation could be profitable and add value to his vegetable production. While the idea of fermenting vegetables started because one of his employees had an interest, Chmiel now sells several fermented products, including kimchi, sauerkraut, and sour pickles.

Chmiel experimented with various crops, techniques, recipes, and marketing strategies to find the most profitable fermented products for further development. Throughout this



Chmiel stuggled to prevent brine from leaking from plastic deli containers.

On-Farm Organic Soybean Variety Trials

OBJECTIVE: To establish trials of organic soybean varieties, identify promising varieties for advancement into seed production, and disseminate information through field day events, workshops, and meetings.



With support from a SARE grant, Dan Rossman is conducting organic soybean trials and hosting field days at the growing sites.

RESULTS: Organic soybeans are commonly used for food grade products, yet these seed systems have struggled historically. According to the US Department of Agriculture, organic soybeans account for less than one percent of soybeans produced in the United States (agcensus.usda.gov, 2007). Michigan has significant organic food grade soybeans production, but non-GMO soybean varieties are becoming less available due to many factors including seed contamination, limited breeding programs, conflicting selection criteria, and lack of awareness and communication.

Michigan State University Extension Educator, Dan Rossman, is committed to growing and learning about organic soybean lines for production, and educating producers and buyers about organic soybean varieties. In 2012, he received an NCR-SARE Research and Education grant to both establish on-farm variety trials of organic soybeans and to stimulate conversation between organic soybean breeding programs.

Rossman has been working with an advisory group comprised of organic

farmers, buyers, seed producers, and a breeder from Michigan State University. Together they have identified challenges to the organic soybean system and are working to create opportunities for organic soybean production.

In a first attempt at comparing non-GMO

varieties on-site, the group found strong interest from farmers but lacked sufficient funding. Now, with the NCR-SARE Research and Education Grant, the group has seen larger success.

In 2012 and 2013 on-site trials were conducted on several certified organic farm sites throughout Michigan. Rossman used consistent planting techniques to compare 48 and 51 varieties, respectively. Three field day events were held in August and September 2013. This allowed the 75 farmer attendees to gain familiarity with the tested varieties by viewing them at different stages and taking notes and pictures.

Results of the test plots were compiled into a fact sheet and shared through multiple channels, including the Mid Michigan Crop Report, MSU websites, direct mailing to 250 organic producers, mailings to seed suppliers, and the Organic Marketing Update Meeting.

Three varieties that show desirable attributes - including yield, protein content, oil content, and maturity have been identified. These promising varieties have been identified to organic soybean farmers.



An organic soybean trial field before harvest.

FNC13-901

Fresno, Ohio – Don Brown & Craig Zimmerly

Training Farmers to Perform Artificial Insemination in Sheep

OBJECTIVE: To train farmers to perform posterior cervical artificial insemination of sheep.



Don Brown and Craig Zimmerly used a SARE grant to train farmers on artificual insemination techniques for sheep.

RESULTS: Artificial insemination (AI) has become widely popular in breeding livestock because it allows farmers to make faster genetic improvement in their animals, enhance biosecurity, and decrease breeding related costs of production. Despite these benefits, some farmers are hesitant to use sheep breeding becaue sheep have a complex reproductive anatomy. Farmer Don Brown and Dr. Craig Zimmerly received an NCR-SARE Farmer Rancher grant to test the success rate of AI and share information on AI techniques in sheep.

In conjunction with their grant, Brown and Zimmerly studied the intravaginal insemination method. They used three flocks of various breeds of sheep for study. The team utilized ewe synchronization to ensure that all of the flocks were in estrus at the same time. They collected semen with either an artificial vagina or through electroejactulation and then tested to ensure that it was viable and appropriately concentrated. They did ultrasounds on ewes approximately 40 days post insemination, and preliminary results indicated that the conception rate was 50-70 percent on each farm. As the team became more experienced they were able to complete the procedure more efficiently and productively. Farmers whose flocks were utilized for the experiment were taught the insemination process.

Information about the study and technique has been spread through workshops, conference, and social media. An enthusiastic Brown said. "A farmer can do this himself – he doesn't have to have a technician to do this ... You can do it vourself!"

LNC12-343

Michigan State University – Bo Norby

Non-Antibiotic Alternatives for Bovine Mastitis Therapy

OBJECTIVE: Assess the efficacy and safety of two traditional therapies, guava and honey, for use in treating bovine mastitis.

RESULTS: While mastitis is the most frequent disease condition in dairy cattle, the most common treatment for it –antibiotics- aren't used in organic milk production. Mastitis affects animal health, longevity in the herd, and the production of quality milk. Although non-antibiotic products for mastitis have been marketed, limited data is available regarding the safety and efficacy of these products.

Associate Professor and veterinarian at Michigan State University, Bo Norby, received an NCR-SARE Research and Education grant to assess the efficacy and safety of two commonly used and organically approved therapies, guava and honey, for use in treating bovine mastitis.

Norby's in-vitro work will establish antimicrobial activity of these compounds against common mastitis pathogens. Once candidate formulations of honey and/or guava are identified, limited intra-mammary infusions will be used in healthy cows to evaluate safety and pharmacokinetics (how the compounds move through the body). Finally, on-farm field trials on as many as 80 cows on organic and conventional dairy farms will assess the efficacy of candidate formulations for naturallyoccurring mastitis.

Efficacy of Naturally Occurring Anthelmintics in Fruit By-Products to Control Intestinal Parasites in Small Ruminants

OBJECTIVE: To examine the naturally occurring anthelmintic properties of certain fruit byproduct extracts against intestinal parasites in small ruminants, as well as to examine possible health benefits of these extracts.



Shirron LeShure is studying the effects of pomegranate husk and grape pomace to treat parasitic worm infections.

RESULTS: Anthelminitics are drugs that are used to treat parasitic worm infections. Among livestock producers, there is concern about the increased resistance of intestinal parasites to commercial anthelminitics, as well as concern about the inability to use commercial anthelminitics for

FNC09-780 Garrettsville, OH – Abbe Turner

certified organic food production.

To address this concern, Shirron LeShure applied for an NCR-SARE Graduate Student grant to extract potentially anti-parasitic bioactive compounds (e.g. tannins and polyphenols) from by-products of the pomegranate and grape industries. LeShure then investigated the effects of pomegranate husk and grape pomace on the lifestages of the helminth worm parasite.

According to LeShure, the larval studies showed that the extracts of both pomegranate husk and grape pomace could have potential use in decreasing the activity of helminth larvae. Looking ahead, Leshure's thinks that grape pomace and pomegranate husk could both potentially have practical application in becoming a natural anthelmintic for small ruminants, but LeShure says more in-depth studies need to be conducted to verify and finalize application parameters.

Ohio Sheep Milk and Cheese Initiative

OBJECTIVE: To determine the feasibility of the production of sheep milk in Ohio and to explore value added processing of this milk into local artisan sheep cheeses.

RESULTS: Abbe Turner is a cheese maker with Lucky Penny Farm, LLC. She and four other farmers, from diverse agricultural backgrounds, started the Ohio Sheep Milk and Cheese Initiative (OSMCI) and applied for an NCR-SARE Farmer Rancher grant to determine interest and opportunities for sheep dairy products in Ohio.

Turner conducted surveys to determine local interest. She asked producers, consumers, vendors, and restaurants to participate with specific questions for each group. Of the 263 survey responders, 51 percent were consumers, 35 percent were farmers, 10 percent were food industry personnel, and 4 percent retailers. According to Turner, results of the survey indicated that this market is viable. One hundred percent of respondents were somewhat likely or very likely to purchase Ohio-made products. The survey also indicated that 45 percent of farmers were somewhat or very interested in adding a sheep or sheep cheese enterprise.

With knowledge of this interest, OSMCI presented workshops and other educational offerings to teach producers and consumers



This sheep's milk feta cheese is made at Lucky Penny Creamery in Kent, Ohio.

about sheep dairying. At one symposium of 85 attendees, 84 percent of participants said that the information from the program impacted their decision on starting a sheep dairy or cheese making enterprise, and 100 percent of respondents said that they would recommend the program to others. In 2010 OSMCI started a blog with educational materials for those interested in sheep dairying (http://ohiosheepdairy. wordpress.com). OSMCI is continuing their work by training producers, creating internship opportunities, and producing cheeses and other quality products.

Sustainable Sweet Corn Production

OBJECTIVE: To compare the production of sweet corn varieties in organic and conventional systems.



With support from an NCR-SARE grant, Marissa Kruthaup compared different sweet corn production systems.

RESULTS: Marissa Kruthaup and her brother started selling produce at the farmers market when their family's home garden produced too many melons one year. Today, they own and run Kruthaup Family Farm CSA (Community Supported Agriculture), which operates on their parents' 70-acre farm.

In order to keep her family business thriving, Marissa wanted to compare different sweet corn production systems. In 2012, she received an NCR-SARE Farmer Rancher grant to compare different varieties of heirloom and hybrid seed under two treatments, conventional and organic production. She evaluated each variety for both grower and customer satisfaction.

Kruthaup tested six sweet corn varieties, three hybrid and three heirloom, in white, yellow, and bi-color. Each of these was varieties was planted in its own section of an organic and conventional plot. Sections consisted of four rows, each 150 feet long.

The heirloom varieties used were: Stowell's Evergreen, a white variety; Golden Bantam, a yellow variety; and Blue Jade, a blue colored variety. The hybrid varieties used were: Silver Queen, a white variety; Bodacious, a yellow variety; and Peaches and Cream, a bi-color variety.

Data on each of these sections was collected throughout the season. Kruthaup recorded labor differences, insect population, plant health, population planting, ear length, plant height, and overall production of plants to determine grower satisfaction. She recorded data on flavor, texture, ear length, sweetness, and overall satisfaction to determine consumer satisfaction. Consumer data was compiled using a blind test where each variety was assigned a letter to prevent bias.

Results of this study indicate that there was little difference in labor time or consumer satisfaction between organic and conventional production systems. There were differences in productivity between these systems, but this depended on variety.

The hybrid Bodacious grown in an organic system was a favorite in terms of grower satisfaction due to its uniform maturity and lack of pressure from weeds, insects, and diseases. This variety ranked second in consumer satisfaction, following the hybrid Peaches and Cream variety.

The Kruthaups have switched the varieties of white sweet corn they grow from the hybrid Silver Queen to the heirloom Stowell's Evergreen because of improved yields, plant health, and consumer satisfaction. Kruthaup believes that this study has benefitted her farm. She says that it was a great value getting shareholders involved in trying varieties of sweet corn, both for choosing which variety to grow and simply to inform consumers.



Small sweet corn plants sprouting.

YENC13-067

Cincinnati, Ohio – Kevin Savage & Gary Delanoy

Sustainable Ag: Instruction, Application, and Community Outreach Utilizing Recirculating Aquaponics Systems

OBJECTIVE: To use an aquaponics system to teach and reinforce science concepts that are intimately related to sustainable agriculture, all within a traditional high school course sequence.

RESULTS:

Students at Cincinnati Hills Christian Academy are being exposed to their core science concepts in a new way. They are learning biology, chemistry, physics, and other core scientific concepts through hands-on modules based on an aquaponics system.

Through an NCR-SARE Youth Educator grant, instructors Kevin Savage and Gary Delanoy have created a curriculum that meets science standards and school benchmarks while giving students a handson learning experience. The curriculum has less emphasis on memorization and more on connecting with concepts and applications. Students monitor ammonia and nitrate levels to ensure proper nutrient recycling; learn fish anatomy through harvesting, dissecting, and fileting; and learn about plant harvesting, seed recovery, and seed saving.

The school currently has three aquaponics tanks of different designs. Students learn through classes and have the opportunity to conduct independent research projects. They learn to share a research proposal, test various parameters through experimental design, create posters, and present their results.

Cincinnati Hills Christian Academy has assisted with aquaponics projects at other schools as well. They've participated in developing aquaponics systems in locations such as the Cincinnati Zoo and Botanical Gardens and the Krohn Conervatory.

FNC10-799

DeMotte, Indiana - Dan & Julie Perkins

Scaling Up Production by Improving Worker Comfort and Efficiency in No-Till Organic Seed Garlic Production Systems

OBJECTIVE: To design and build a prototype of a cart specific to garlic production.

RESULTS: Perkins' Good Earth Farm is a small family farm that operates on 19 acres. They currently grow only one-quarter acre of organic garlic but hope to increase their productivity in this area by 50 percent. Two major challenges in achieving this goal are the cost of additional labor and worker comfort during planting and harvesting.

On their farm, the Perkins plant all of their garlic by hand, which is strenuous physical labor. When they assessed their practices, they found that 59 percent of total labor cost and time are spent planting, harvesting, and mulching. Since planting is the most difficult physically demanding aspect of the work, the Perkins applied for an NCR-SARE Farmer Rancher grant to explore a way to reduce discomfort and prevent injury.

The Perkins decided that a cart could ease labor fatigue and increase productivity without the need of additional staff. They worked with students from Purdue University to complete a literature and industry review of current sustainable agriculture solutions to labor efficiency, which related to lying down, sitting-harvest, and planting carts. From this information, the Perkins and students designed a cart specific to garlic production.

Purdue students found that cart options did exist but the type that suited garlic production was cost-prohibitive. They started planning a garlic cart that could work with a tall living cover crop, could handle a small to medium scale operation, and could be used in multiple tasks of the production process.

The design and prototype of this garlic planting and harvesting cart have been created, but it is not yet fully functional. When the cart is in operation the Perkins expect to see great improvement in decreasing worker fatigue and planting time.

Niche Nut Processing Project: Collaborating to Establish Nut Crop Production, Processing and Marketing in the North Central Region

OBJECTIVE: To create a regional-scale nut processing prototype facility that will be replicable for areas where nuts are a viable crop.



According to Ag Marketing Resource Center, Oregon grows 99% of America's Hazelnuts. Kurt Belser is working to grow and wild harvest more nuts like hazelnuts in Ohio.

RESULTS: According to the United States Department of Agriculture, America's top nut producers are California, producing nearly 90% of tree nuts in America; Georgia, New Mexico, and Texas, raising 75% of America's pecan crop; and Oregon, raising the majority of America's hazelnut crop.

Kurt Belser is the owner of the The Wingnuttery in Albany, Ohio, where he grows and produces and wild harvests hickory nuts, black walnuts, chestnuts and hazelnuts. In 2012, he received a SARE Farmer Rancher grant to create a prototype regional-scale nut production, processing, and value-adding system in Southeast Ohio. His goal is to create a regional-scale nut processing facility that will be replicable for other areas in the region, and wherever nuts are a viable crop.

Belser's facility will pay prices that will create an incentive for landowners to manage their nut producing woodlots and plant cultivars in their fields; which, in turn, will promote ecologically sound farming practices such as forest farming, alley-cropping, and silvopasture. So far, Belser has established relationships with the Northern Nut Growers Association (NNGA), the Ohio Nut Growers Association (ONGA), and Greg Miller at the Empire Chestnut Company. With his project partners, he hosted a grafting workshop for black walnuts and hickory nuts at Solid Ground Farm, an educational farm. He has tested machinery on and off site, provided educational material at events, and has recruited growers interested in nut

production.

"By initiating growers and landowners into further cultivation of perennial forest products, we hope to be a driving force behind sustaining this staple food source," said Belser.

Urban Farmers Marketing Cooperative

farm is distinct in

size, location, and

personality, but

all share similar

IndyGrown farms

practices such as

and organically

approved pest

use only sustainable

compost, cover crops,

philosophies.

farming practices and

OBJECTIVE: To create an IndyGrown brand and a membership organization to help individual farms market their goods and a sustainable message.

RESULTS: With support from a SARE Farmer Rancher grant, six urban farms in Indianapolis are working together to create IndyGrown, a collaborative marketing presence. Each



With SARE support, Matthew Jose is developing IndyGrown.

controls. They believe that creating green space in the urban core and repurposing vacant land increases their positive environmental impact.

The IndyGrown farmers have worked with the director of the Business Ownership Initiative (BOI) in Indianapolis to develop a mission statement

FNC13-899 Wooster, Ohio – Monica Bongue

and set of shared values for IndyGrown, followed by a series of common goals and objectives that will allow the group to begin working as a supportive and influential presence for new and existing urban farms. Each member farmer was paid for participating in these discussions.

They've created an IndyGrown brand with a website, logo, and marketing materials. They've also established standards of IndyGrown relating to safe soils, organically based growing practices, and post-harvest practices focusing on food safety. These standards will be used to determine farmer membership for IndyGrown, as well as a marketing tool to communicate with their customers. In addition to solidifying the organizational structure and marketing presence for IndyGrown, the member farmers are also working on collaborative sales and distribution efforts.

IndyGrown farm tours provide Indianapolis residents with an opportunity to visit the IndyGrown farms, to talk with the farmers about the unique aspects of their operations.

Development of a Cooperative Food Distribution Model for Small Farms

OBJECTIVE: To bring small-scale farmers together for better markets and easier distribution.

RESULTS: In 2013, Monica Bongue received an NCR-SARE Farmer Rancher grant to develop a small farm cooperative food distribution model in Wooster, Ohio. By 2014, Bongue and a group of farmers formed a not-for-profit cooperative registered in the state of Ohio as Farm Roots Connection Cooperative.

The multi-farm Farm Roots Connection Cooperative CSA (Community Supported Agriculture) delivers weekly shares of high quality, fresh produce, dairy, eggs, meat, honey, maple syrup, and bread. They ensure that all of their producer members follow strict production and packaging guidelines, and adhere to health and licensing requirements. Growers are selected for the quality of their products, reliability and a commitment to sustainability, including treating animals humanely with unlimited access to the outdoors and pasture. The distribution and delivery system of their products is owned and managed cooperatively by the farmers.

The Farm Roots Connection Cooperative board of directors meets once a month to discuss progress and future direction of the cooperative. They developed producer documents that establish guidelines, membership rules, bid sheets,



Member farmers of the Farm Roots Connection Cooperative.

contracts, and grower interest cards. They also established a program where customers donate CSA shares to People to People ministries, a local food bank.

Bongue believes this new model of cooperative distribution and marketing for small-scale growers will help their community of farmers thrive and protect valuable agricultural lands.

"We have succeeded in bringing farmers together to develop our own distribution system, owning and managing the organization as a not-for profit," said Bongue. "We are very pleased that we were able to incorporate a sharing component with the food bank."

FNC12-850

Indianapolis, Indiana – Nick Carter Commercial Meat Rabbitry Feasibility Study

OBJECTIVE: To determine whether a commercial distribution channel could be created for rabbit meat that would be profitable for small-scale producers.

RESULTS: Rabbit meat is high in protein and low in fat, cholesterol, and sodium when compared to most of the meats eaten in the U.S. Rabbit meat has great potential to feed people in developing countries and could be promoted in the U.S. as a healthful, natural meat and a small farm asset (Fanatico, Anne. "Rabbit Production." ATTRA. October 2005).

On his family farm in Indianapolis, Nick Carter wanted to know whether meat rabbitries could be a new revenue opportunity for small family farms. He applied for an NCR-SARE Farmer Rancher grant to conduct a feasibility study.

Working with Moody Meats of Ladoga, they determined the price required for processing and packaging of the product at a point they knew to be profitable. Meanwhile, Carter charted the income and expenses required to start and operate a new rabbitry. He learned that capital expenses for land or buildings would effectively eliminate any projected income, and that the single highest overhead cost in establishing a rabbitry was feed.

Carter collected feedback from retail and collected sales numbers. He discovered that retail sales were low, and the consumer surveys he conducted indicated that many shoppers were not adventurous enough to take the rabbit home and prepare rabbit. However, he discovered that area chefs were interested in locally grown rabbit. Nearly 75 percent of their sales during the course of this project were to restaurants.

Through his work with Moody Meats and the Indiana Board of Animal Health, Carter helped to conduct the first ever state-inspected rabbit slaughter in Indiana, opening the door to other processors in the state. He now has several chefs in Central Indiana excited about the potential of rabbit on their menus, and producers excited to expand their operations to meet the current demand.

Having discovered the temperament of the consumers in the marketplace toward rabbit meat, especially in the Midwest, Carter believes that the method they used to determine a market in Indianapolis could be reproduced in similar metropolitan areas around the Midwest.

Farmers Forum HIGHLIGHT **7**

Low Tunnel Strategies for Microclimate Modification and Early Vegetable Production

OBJECTIVE: To develop and validate new low tunnel technologies and conduct an economic analysis of the production systems.

RESULTS: Producers have few options when challenged by climate limitations. One frost can substantially damage a crop, but farmers need to plant as early as possible to obtain the maximum growing



Rebekah Struck Faivor poses with her completed low tunnel installation.

degree days for their crop to produce well. As a graduate student at Michigan State University, Rebekah Struck Faivor wanted to help improve profitability of fresh market vegetables in Michigan and the North Central region, so she applied for an NCR-SARE Graduate Student grant to develop, test, and demonstrate new low tunnel strategies for frost protection and early harvest in Michigan.

Struck Faivor designed her study to estimate the costs and benefits of various low tunnel systems for cucumber and tomato production in Michigan. She also analyzed the

profitability of the low tunnel configurations, and then compared their costs to those of standard, plasticulture systems in Michigan.

Her study tested various perforated plastic materials (clear and white) used for low tunnels either alone or in combination with a spun-bond material for benefits including: frost protection, earliness in planting and harvesting, and season extension.

All of her low tunnel configurations provided 1-7 degree F of frost protection compared to the ambient temperature in the no cover, early planting date treatment, and her low tunnels resulted in significant heat accumulation at the beginning of the growing season. Based on her research, Struck Faivor thinks tomatoes and cucumbers planted under low tunnels can successfully be planted one month prior to the last frost date in Michigan, low tunnels can accumulate up to twice as many growing degree days, and that tomatoes and cucumbers under low tunnels can be harvested up to two weeks sooner than a typical harvest time in Michigan.

She conducted an economic analysis of the production systems, and delivered information to growers and the scientific community. She learned that the control with no cover treatments had the least amount of revenue compared to the low tunnel treatments in 2011. She believes this is due, in part, to low



Simultaneous installation of plastic and row cover.

tunnel growers being able to take advantage when prices are high at the beginning of the season, and is optimistic about the opportunity there for growers.

"By creating new cropping systems that overcome climate limitations, Michigan's commercial fresh market production can grow and bring more revenue to the state," said Struck Faivor.

To find out more about NCR-SARE's educational programs and grants, please contact:



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