Small grains can be entry point to organic
By Nick Onde

If you want to grow corn and soybeans, abundant resources are out there to help you. Extension agents, seed sales reps, and co-op agronomists are all readily available to draw on decades of university and industry research and development to make recommendations.

Growing small grains is a different story. In parts of the country where small grains production is common, there are resources; Kansas has lots of good information about growing wheat, for example. But finding good information about local small grains agronomy—how to produce the crop in your region—can be challenging, especially if you want to grow small grains organically.

Paul Mugge, an organic farmer from northwest Iowa, has turned this lack of information into his own opportunity to learn, and he’s willing to share the knowledge he has gained. He has tried growing about every small grain crop that can be grown in his area.

“Tried to grow is right,” Mugge laughed. He has grown barley, oats, wheat, flax, canola, triticale, even grain amaranth, and has run into about every problem under the sun. But he has learned a lot from that process.

“Growing small grains gets you started thinking about the whole system, the whole rotation—and that’s pretty important for organic, much more so than for conventional,” he explained. “Each of them has its problems,” he added, referring to various issues such as weed pressure, grain quality, and marketing troubles he has run into over the years with various small grains crops.

Currently, Mugge’s go-to crop is winter triticale, which he grows for seed for Albert Lea Seed House in Minnesota. He likes growing the crop because it helps with weed management.

“Winter annuals [like winter triticale] will screw up the cycle of summer annual weeds,” he explained. “Anything you can do to prevent winter weeds from establishing the ground is a step.”

Farmers experiment with cover crop, no-till corn
By Margaret Smith

My husband, Doug Alert, and I have been intrigued with the idea of no-till organic. We see it as a sort of Holy Grail of organic cropping. Wouldn’t it be great to be able to grow crops with no herbicide and no tillage?

We have been following the work of Jeff Moyer and his crew at the Rodale Institute and Steve Groff of Cedar Meadow Farm, both in Pennsylvania. Steve pioneered the use of no-till with rolled cover crops for corn, soybeans, tomatoes and squash. Though not certified organic, he strives to minimize his use of herbicides.

The Rodale Institute has taken this work farther and has developed systems for rolling both rye and hairy vetch before no-till planting organic corn and soybeans.

We decided to try the no-till system in 2014. That growing season started with a very wet spring. Though we were able to rotate hoe the corn crop, we were only able to cultivate one fourth of the crop and only once. Thus has happened to us before, but only with one field in any given year.

Last year’s calamity was widespread, and our yield monitor convinced us that we needed alternative strategies for negotiating similar conditions in the future.

In mid-August 2014, we drilled hairy vetch and oats following a rye grain crop in preparation for planting organic corn this spring. Seeding rates were 40 lb/acre for the hairy vetch and about 70 lb/acre for the oats. This was more seed than the generally suggested 25 lb/acre for hairy vetch, but as a first-time look-see, we wanted to make sure to get a stand. Oats were included in the mix on Moyer’s recommendation to help with overwintering of the vetch.

In a nearby field following late corn harvest, we also broadcast 120 lb/acre rye where we had chopped stalks and worked the ground in preparation for planting organic soybeans. Both plantings were five acres for demonstration. There was no replication or randomization of plots that would have allowed statistical analysis.

Smart strategies help cut winter feeding costs
By Allen R. Williams, Ph.D.

Winter feeding is the costliest part of a cattle operation. What cattle eat accounts for an average of 73-75 percent of the total cost of an operation; 70-80 percent of that is the cost of feeding in winter. Therefore, managing the cost of winter feeding becomes a priority for controlling input costs.

In my work with farm and ranch clients throughout the U.S. and Canada, I have found that winter feed costs are a major expenditure everywhere. I reside in Mississippi where I personally raise cattle. When farmers from northern states say, “You can grow grass year round down there and don’t have to worry about winter,” I explain that the average cattle operation in the South feeds as much hay in the winter as the average northern cattle operation. In Mississippi, Alabama, Georgia, and even Florida, winter hay feeding can start as early as November and extend until late March. In years where the summer and fall are dry, hay feeding can start even earlier. That adds up to an average of 120 – 150 days of winter feeding. Seems ridiculous doesn’t it?

The primary reason for feeding hay that long in the South is because producers do not make adequate winter feeding plans. Many in the cattle business, even in the South, think that winter preparation is centered on putting up as much
From the Executive Director

Fall is almost here—already I can see a change in the colors outside. Change is good, and so is color. This issue of the Broadcaster includes both! We hope you like the newspaper’s new look.

At my farm, summer brought lots of rain, heat, weeds and a late blight that took down the tomatoes in just two weeks. The pasture is still growing like crazing, though. After reading Allen Williams’ piece on winter feeding of livestock (on the cover of this issue), I’m grateful our pasture is looking so nice. Allen has shared great ideas to help you reduce the cost of feeding your livestock this winter. We appreciate his expertise—his workshops at the MOSES Conference are always well received. You can listen to audio recordings from his workshops in 2014 and 2015. Find them at mosesorganic.net by searching “Williams.”

We’re lining up workshop presenters now and pulling together many of the details for the upcoming 27th MOSES Organic Farming Conference, set for Feb. 25-27, 2016 in La Crosse, Wis. I’m excited to share that this year’s keynote presenters are Eric Lee Mäder and Mary Jo Forbord. We’ll have more conference details in the next Broadcaster. Look for the conference registration guide in your mailbox at the end of November.

Our Organic Field Day season wraps up Sept. 15, with 15 a visit to Riverbend Farm in Delano, Minn., home of our 2015 Organic Farmers of the Year, Greg and Mary Reynolds. Like most organic farmers, they rely on cover crops to nurture healthy, productive soil. I’ve seen so much coverage on cover crops in all types of agricultural publications this year. Perhaps that’s because 2015 is the International Year of Soil (IYS) as declared by the United Nations General Assembly. The purpose of the IYS is to raise awareness worldwide of the importance of soils for food security, agriculture, as well as in mitigation of climate change and poverty. What a joy to see the widespread discussion on the many benefits of healthy soil and cover crops.

Many of our other 2015 field days focused on cover crops: Harriet Behar’s farm tour included information about 14 different covers she grows, and Standard Process farm manager Christine Mason showed how that operation increases soil fertility with cover crops. Highlights and tips from those events are on our website under “Organic Field Days” in the Events tab. Margaret Smith and Doug Alert shared their experience growing cover crops to nurture healthy, productive soil. I’ve seen so much coverage on cover crops in all types of agricultural publications this year. Perhaps that’s because 2015 is the International Year of Soil (IYS) as declared by the United Nations General Assembly. The purpose of the IYS is to raise awareness worldwide of the importance of soils for food security, agriculture, as well as in mitigation of climate change and poverty. What a joy to see the widespread discussion on the many benefits of healthy soil and cover crops.

This summer, the MOSES staff called many of our supporters to thank them for their donations. On nearly every call, we heard how much people appreciate getting the MOSES Organic Broadcaster. Your support is what makes this valuable resource available—we provide it without charge to readers. A big THANKS to the hundreds of individuals who have donated to MOSES! Your support really does make a big difference.

Happy fall harvest to you!
~ Faye Jones, MOSES Executive Director

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Mushroom grower expands business with guidance from expert-mentor

By Jennifer Nelson

Jeremy McAdams launched his mushroom farming business, Cherry Tree House Mushrooms, in 2009 in Minneapolis, but still considers himself a beginner who’s willing to learn from others with more experience. Through the MOSES Farmer-to-Farmer Mentoring Program, McAdams has been paired with mushroom expert Joe Krawczyk, who has been involved in small-scale spiritually inspired mushroom production since the late 1980s when he helped prepare the national guidelines for certified organic mushroom production. Krawczyk has provided McAdams with invaluable insights, saving him both time and money as he expands his small farm business.

McAdams has high standards for Cherry Tree House Mushrooms (CTHM). “I’ve made a special effort to build a farm business that will stay local, that uses organic practices, and that uses the least amount of embodied energy to grow our mushrooms,” he said. “We want CTHM and local mushroom production to continue for a long time in the future.”

CTHM has been growing for the past year at Sanford Cooperative, a new farm incubator in Ham Lake, Minn. CTHM sells shiitake, oyster, and nameko mushrooms to Twin Cities grocery stores such as the Seward Co-op and restaurants such as the Birchwood Cafe. McAdams also sells mushroom cultivation kits and teaches workshops.

In 2014, McAdams enrolled in the Land Stewardship Project Journeyperson Program, a two-year course that helps farmers move their operations to the next level. The Minnesota-based program works with MOSES to provide mentors to some of the Journeyperson farmers. MOSES Senior Organic Specialist Harriet Behar manages the mentor program.

“When I was trying to link up a shiitake grower with a mentor, the first person who came to mind was Joe,” Behar said. “His workshops at the MOSES Organic Conference get great evaluations because he really knows his stuff and is able to communicate information. I have also visited his well-run operation and couldn’t think of anyone better to help a beginning mushroom grower.”

Krawczyk and his wife, Mary Ellen Kozak, own and operate Packl and Forest Products in Peshtigo, Wis. In the USDA’s book Profitable Farms and Woodlands—A Practical Guide in Agroforestry for Landowners, Farmers and Ranchers, Field and Forest Product’s website is the first website resource listed under mushroom cultivation. Aspiring mushroom growers all over the U.S. frequently call Krawczyk and Kozak with production questions, which they’re happy to answer. “Mentoring puts you in the other person’s shoes,” Krawczyk said. “We’ve been doing this for so long, we assume everyone knows everything we do. It really makes us slow down and change how we present it. We’re still educating people, and it really benefits us; making us feel as if we’re doing something worthwhile as a company.”

When Krawczyk and Kozak began farming Kozak’s family farm land in 1983, they were committed to raising ecological awareness and improving the timber quality of their woodlands to result in the highest quality mushroom crop and spawn. Today, they are still committed to the same mission as they provide a wide variety of mushroom growing products and spawn shipped all over the U.S., and teach workshops and provide phone and email support to other mushroom growers.

Earlier this year, Krawczyk and Kozak took a “wonderful, long-anticipated trip” to Japan, learning a cutting-edge mushroom cultivation technique to share in the U.S., forming long-term business relationships, and simply enjoying Japanese culture. Krawczyk is excited to share what he learned with his mentee in the next year.

Mentor Relationship

Krawczyk and McAdams talk approximately every other week about production and business decisions. In early summer, McAdams and his wife visited Krawczyk and Kozak and felt so fortunate that the longtime, busy farmers dedicated a day to walking the mentees around the farm, teaching and answering questions. They have developed a good rapport.

“I really like Joe and Mary Ellen,” McAdams said. “It really helps me have that (positive) chemistry in the mentor/mentee relationship.”

Krawczyk and Kozak are planning a visit to McAdams’s farm in the next few months. McAdams said Krawczyk already has steered his farm in a better direction, both financially and with more appropriate production methods. From advising him not to waste time striking logs or chilling the water to helping him decide whether or not to buy packing boxes with holes, Krawczyk is a kind, but straightforward advisor to McAdams.

Like many beginning farmers, McAdams has studied books that contribute to his practical knowledge of growing mushrooms. Often the books have great ideas, he said, but his mentor has practical, tried-and-true knowledge. When McAdams has had questions about competing fungi or mold, or the inevitable seasonal pest challenges, Krawczyk has advised him through a quick phone call where to focus his energy, time, and money. McAdams has a vision that mill contamination, and others are not worth the worry, the seasoned grower has guided the newer one. With Krawczyk’s long-time experience, he is able to assess the situation quickly and efficiently, McAdams said.

He recalled one situation where Krawczyk’s advice saved him a lot of money and hassle. He was sterilizing all of his logs before introducing the mushroom culture. As he upped his production, he found himself spending thousands of dollars each year sterilizing logs, and was considering investing in an expensive power washer. Krawczyk talked him out of it, telling him that log cultivation is “crude agriculture,” which doesn’t require that level of sterilization.

McAdams also has turned to his mentor for financial advice. As his small mushroom farm business grows, he has needed to adjust his prices for bigger markets. Having experienced this same business growth, and developed a vast familiarity with the industry during 32 years of cultivating mushrooms, Krawczyk is an invaluable resource for McAdams. McAdams is preparing to buy his own farm land in the next year, and has been assessing what’s available on the market. Krawczyk’s seasoned input in this big and often overwhelming process is helping McAdams make the best land investment decision.

By Jennifer Nelson

Jeremy McAdams’ mushroom business is growing with help from Joe Krawczyk, a mentor in the MOSES Farmer-to-Farmer Mentoring Program. Photo submitted

By Jennifer Nelson

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“Is burning land or crop residues allowed in certified organic production?”

Answer by Harriet Behar

The National Organic Standards allow burning to suppress the spread of disease or to stimulate seed germination, such as in prairie burns or in pastures to remove thatch and allow for thicker grass and forbs for foraging livestock. The rule is explained in Section 205.203 (d) (3).

Note that burning of crop residues, such as burning off residues either before planting or after harvest—a typical non-organic practice in some crops such as wheat, cotton, sugar cane, and rice—is not approved under organic regulations and may be subject to further restrictions under state or local laws that deal with impaired visibility and air quality.

Burning branches from pruning your fruit trees or hedges would also be allowed, since disposal of these items would prevent the possible spread of disease.

If you plan to use the ash from your burning as a soil amendment or in potting soil to provide potash or for pest control on vegetable crops, the ash cannot come from a material that was treated or combined with a prohibited substance. This means that synthetics not listed as “allowed” on the National List or a natural product listed as “prohibited” cannot be part of the vegetative matter being burned or mixed with it.

Section 205.203 (d) covers the use of ash. Pay attention to the specific annotations for limited use, such as copper.

Do not burn treated lumber, since toxic chemicals can be produced in the smoke and the ashes.

“Where can I get practical information about organic farming?”

Answer by Jennifer Nelson

From MOSES, of course! When I began working as an Organic Specialist for MOSES in early July, I spent some time perusing our website. I was amazed by the breadth of quality resources available! I’m a farmer and understand the value of our time during the busy growing season. Often though, that’s also the time that we need production help or policy answers. If you find yourself finishing some late night or early morning bookwork or record-keeping, and have a moment to look for an answer to that day’s burning question, hop on over to our website where you’ll very likely find the answer you seek.

A great place to start is the Farming dropdown on the main menu bar across the top of the page. Go on down to By Topic, where you can choose from Farming (in general), Field Crops, Livestock, Market Farming, Orchard, Season Extension, Soils & Systems. If your question fits in any one of these categories specifically, it’s a nice way to narrow down your search. Within each of these specific categories are links to a wide range of resources from a variety of sources, including MOSES Fact Sheets, an archive of MOSES Ask a Specialist answers to previously asked questions, latest research and articles from other sources like the USDA and SARE, and archived Organic Broadcaster articles.

For example, season extension is something we all think about as we ease into fall. It’s on my mind, so I wanted to see what I could learn from our website—I found a plethora of information!

I started at the Farming dropdown on the main page, then clicked “By Topic” and chose the Season Extension link. From there I had the options of Resources, Research, Books, Funding, Suppliers and From the Organic Broadcaster. I also had the option of clicking on the Community Calendar button to look at various field days and events to see if any were focused on Season Extension information.

I decided to begin with ordering a book that I could put on my winter reading list. I clicked on The Winter Harvest Handbook by Eliot Coleman, and the MOSES Online Store popped open, making it easy for me to purchase the book I wanted. I also saw that this book was in the “Season Extension” category. When I clicked on the category link, I found more books plus several audio recordings from MOSES Conference workshops that covered growing in high tunnels.

Even if season extension might not be your burning issue, you can see what I mean about drilling down to find great resources on our website. If you don’t find answers for your specific topic, go over to the right side of the screen and click on the big question mark in the box that says “Questions about Organic Farming? Ask a Specialist.” This will direct you to the MOSES Organic Answer Line to call during business hours. If you’re on late night/early morning farmer hours, send a message by clicking the Ask an Organic Specialist button on that page. We’ll email or call you back with a response to your issue just as soon as we can.

At MOSES we strive to educate, inspire, and empower farmers to thrive in a sustainable, organic system of agriculture. We want to answer your questions, and support you in implementing those answers. Please take advantage of our website to ensure your organic farming success!
Tax planning helps farmers maximize farm earnings

By Scott Castell

Though income tax planning has been around as long as there has been a tax upon income, far too few farmers take advantage of the process. What exactly is tax planning and why is it important? It essentially revolves around the deferral or acceleration of income and expense items depending on the taxpayer’s current and projected tax situation.

The key to sound tax planning involves minimizing the amount of tax paid over time, not just in a single year. While tax planning can take place at various times during the year, it’s important that it’s accomplished no later than mid-December to allow you sufficient time to enact any necessary steps outlined by your tax preparer. Waiting until the year has ended is too late.

Following are examples of tax planning concepts for sole proprietor, cash-basis farmers who want to reduce taxable income—although most, if not all, are applicable to other farm entities.

**Income Deferment**

There are methods a farmer can choose to defer income that would otherwise be included as taxable income, subject to self-employment tax. Remem-ber that you are merely delaying the payment of tax, and be mindful of what you think your tax situation will be the following year when deferred income gets recognized. Could it put you into a higher marginal tax bracket? That’s not a good situation will be the following year when deferred income is actually paid. Be aware that not all dairy plants, grain elevator operators, and co-ops will write these contracts.

Farmers are also allowed to defer certain crop insurance proceeds. The deferral is limited to actual crop loss and can only be utilized if insurance proceeds were received in the year the loss occurred, and the farm has historically held these covered crops for sale in a subsequent year.

**Farm Expense Pre-payment**

Unlike other business owners, farmers are allowed to deduct certain pre-paid expenses in the current year even though the use of these items occurs the following year. Some common examples are feed, seed, organic fertilizers or other soil amendments, fuel, and certain supply items. Tax planning with your tax preparer will allow you to see the impact that pre-paying some, or all, of these items has on your tax liability for the current year. There are three caveats that must be met before deductibility is allowed. First, the payment must be made in full. Deposits do not qualify. Second, the payment must serve a legitimate business purpose, such as obtaining a favorable price, rather than just being made for tax avoidance. Lastly, the pre-paid items cannot exceed 50 percent of the total of all other non-pre-paid expenses on Schedule F.

**Long-term Capital Gains**

Long-term capital gains are taxed at separate, and lower, rates than the rates used on taxable income. The highest long-term capital gains rate is 20 percent for a farmer in the 0.0 percent tax bracket. More importantly, the rate is 0 for farmers in the 10 and 15 percent brackets. Livestock used for draft, breeding, dairy, or sporting purposes will qualify for long-term rates if held for the requisite time period; 12 months or longer for all livestock except cattle and horses which must be held for 24 months or longer. This applies to both purchased and raised livestock, but the gains realized on raised livestock will be much higher since there is no basis. I cringe when seeing that qualified livestock was sold before reaching the holding period since this subjects the farmer to the higher ordinary income tax rates. Livestock, just like crops, are commodities subject to price fluctuations. All things being equal, knowing when your livestock have met the holding period and selling accordingly should help you maximize cash flow and minimize tax.

**Spouse as Employee**

A self-employed farmer is allowed to deduct the cost of his/her family health insurance premiums covering a spouse and children/dependents under the age of 27. The deduction is taken on line 29 of Form 1040, however, so it does not reduce the amount of farming income subject to self-employment taxes. Employing your spouse to perform necessary services for the farm and having the medical insurance coverage written as a benefit can result in the cost to be deducted as medical expenses on Schedule F, reducing self-employment tax. These wages also help the spouse obtain social security retirement benefits. Assuming your farm had income for the year, it could also enable you to qualify for the Domestic Production Activities Deduction (DPAD), which can help further reduce federal tax liability. If you pay your spouse with commodities, the income is still taxable but is not subject to self-employment tax. Medical benefits for the employee-spouse and there is no matching requirement for the farm-employer. Commodity wages are not allowed as qualifying wages for purposes of DPAD and do not entitle the spouse credit toward social security benefits.

**Section 179**

This section of the tax code is probably the most widely known among the farming community and common in most tax planning strategies. It allows a farmer to deduct the entire purchase price (only the “boot” portion on even exchanges) of assets in the 5-15 year class lives categories in the year of purchase. The allowable maximum deduction (subject to other limitations) was $500,000. On July 21, 2015, the Senate Finance Committee passed a tax extenders bill that included maintaining this $500,000 limit through the 2016 tax year. This still needs to make it through both the House and Senate and be signed by the President, but the outlook looks promising.

A word of caution: Section 179 can be both a solution and a curse. It can significantly reduce both self-employment and regular federal income tax in a given year. The flip side is that, depending on the amount of Section 179 deduction taken, there will be less depreciation or none at all on the selected equipment/livestock in future years. In periods of rising commodity prices and increased farm income, this depreciation expense would have been useful. Do not fall into the trap of buying assets to lower your tax liability!

Ask about Section 179 or the other strategies mentioned earlier during a tax planning session with your tax preparer. Tax planning puts you in control of your tax situation and can help eliminate surprises at filing time. Take advantage of it before the year ends—you’ll likely be rewarded.

Scott Castell is Senior Tax Consultant at Badgerland Financial, a member-owned Farm Credit System Institution in southern Wisconsin.

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change things up will help you. You don’t want to let any one weed get a foothold.”

When farmers grow small grains, they learn a lot about the ecology and the agronomy of different crops. Seeing how cool season crops like oats can out-compete problematic weeds gives farmers a hands-on understanding of how different plants grow, Mugge said. And, that ecological and agronomic knowledge is precisely the knowledge that’s important for being a successful organic producer, he added.

“You have to understand weed ecology and crop ecology when growing organic,” Mugge emphasized. “In organic production, you don’t have the biochemical crutches. When growing conventional corn and soybeans, you don’t have to think about ecology. You don’t have to think about nearly as many factors. You just do what the fertilizer and chemical dealer tells you.”

For farmers who are transitioning to organic, weed management can be a scary prospect. Not having a pesticide safety net can be intimidating. Not knowing what the other person is going to say, or formulating a thoughtful, experienced answer.

McAdams appreciates Krawczyk’s accessibility—he’s able to call or email whenever he has a question. Farming is immediate work, and often a beginning farmer needs immediate help, McAdams explained. Krawczyk not only frequently advises McAdams in making wise practical decisions, he also simply listens. Sometimes all a beginning farmer needs is to be able to confide in someone who has been there before and understands. And all beginning farmers can always benefit from a mentor who has been there before and understands. And all beginning farmers can always benefit from a mentor who has been there before and understands.

“All farmers need is to be able to confide in someone who has been there before and understands. And all beginning farmers can always benefit from a mentor who has been there before and understands.”

Mugge started transitioning to organic in 1998, but for him, it had been a long process, one that was helped along by his participation in Practical Farmers of Iowa (PFI). He joined the organization in 1989, a few years after it was founded, and quickly became a leader, conducting on-farm research on late-germinating summer annual weeds. This is just one example of the wealth of ecological knowledge that can help reduce or eliminate herbicide use.

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Sterile landscape not solution to feeding world

By Harriet Behar

Challenges to our food system continue to grab headlines—avian influenza, bacteria in meat, contaminated produce, herbicide-resistant weeds. To manage these challenges, the non-organic world seems to want to sterilize our landscapes and food production system. Organic farmers know that strong immune systems in plants and animals are built through challenges, not in a sterile environment. Solutions to food system challenges must be holistic, not simplistic.

The outbreak this spring of highly pathogenic avian influenza virus in Midwestern chicken and turkey flocks resulted in the culling of tens of millions of birds to prevent its spread. The high number of birds killed reflects the size of some of these poultry operations. In Iowa, one of the states hit hardest, 31,723,300 birds were killed—on just 75 operations. The likelihood of disease spreading with this type of livestock concentration is extremely high.

The main response by our governmental veterinary experts was to encourage poultry operators to keep their birds indoors, if they were not already doing so. While I understand the seriousness and the need to manage this type of extreme emergency, I wonder why experts are not recommending ways to improve the immune systems of the poultry to help them combat this and other diseases. Is it too radical to consider having smaller flocks whose immune systems are highly developed due to their exposure to the outdoors? Wouldn’t the system be more resilient if smaller and more numerous houses were located across the U.S. rather than cramming hundreds of thousands of birds into one house and having just a handful of states be the major suppliers of eggs, chicken and turkey? I understand a vaccine that protects against this year’s virus may not work against this strain of avian flu is in the works.

The avian flu outbreak should be a warning that this model does not provide for a long-term healthy food supply, nor for the animals’ wellbeing. It’s not surprising that a recent study in Consumer Reports found higher levels of bacteria in beef from confined operations, nor that the findings made headlines.

Bacterial contamination of fresh produce also has been in the news recently. In this area, too, the trend is moving toward “sterile equals safe.” The FDA is putting together final regulations for the Food Safety Modernization Act, which governs handling of fresh produce. Even with research showing that multiple washes in potable fresh water removes pathogenic bacteria on produce as well as wash water solutions with sanitizers such as chlorine bleach or hydrogen peroxide, there’s a strong likelihood that fresh produce food production and packaging will look more like pharmaceutical production than farming. Hopefully, the new regulations will have flexibility and recognize that “one-size” does not fit all operations. A food safety plan should respond to the corresponding risk of problematic bacteria present on the food, and there are numerous ways to mitigate this risk. Food safety must be tied to practical and common sense solutions rather than redundant and pointless documentation that results in fewer farmers providing local and organic food.

This sterile-is-best mentality also is permeating our landscape. In the search for absolutely weed-free crop fields, agricultural suppliers and the farmers they serve are running faster on the GMO treadmill—but that doesn’t mean they’re getting anywhere. The biotech agricultural companies keep pushing the USDA and EPA to approve more genetically engineered crops on a fast track. Since glyphosate (brand name Roundup) no longer kills every weed in a field of crops genetically engineered to tolerate the herbicide, the biotech industry introduced 2,4-D plus glyphosate-tolerant corn and soybeans this spring (Dow’s Enlist crops). There are already numerous weeds that are resistent to 2,4-D, a long-used and problematic chemical. This “solution” to Roundup resistance will be short-lived.

Monsanto is now petitioning for genetically engineered dicamba and glufosinate-tolerant corn (Liberty and Liberty Link GMO corn). Since the non-organic crop producers in the U.S. appear to have become addicted to growing these GE crops, each new product seems to be eagerly awaited and adopted without any thought to negative primary and secondary environmental effects. Statistics show how false the initial promise was that claimed fewer herbicides would be used when GE crops were introduced. Instead, the biotech firms are stacking more and more herbicide-tolerant traits in crops to pair with even more toxic multi-ingredient cocktails of herbicides to knock down persistent weeds.

These solutions ignore an important aspect of weed- and insect-free fields. Numerous studies show if a plant is challenged by a little bit of insect feeding or competes with a few weeds for nutrients and sunlight, the plant’s immune system is boosted. A similar immune response occurs in people and animals. If we are not challenged by diseases and germs, especially in childhood, we do not develop strong immune systems and defenses that protect our vitality.

Plants with strong immune systems also contain more antioxidants, providing healthier food.

To Inside Organics on page 12
Hairy Vetch in Corn — from page 1

Both cover crops overwintered. We had a great stand of hairy vetch, but the rye stand was poor. We recognized that if rye is planted late, we will have to drill it to get an adequate stand. Too bad that with our poor stand, we decided to work the rye down and missed the opportunity in 2015 to try rolling it and no-till planting soybeans.

We had a beautiful red clover stand that had been frost-seeded into the rye grain the previous March. We always get a stand of red clover with this method and it always overwinters, so it’s a tough system to beat!

Recommendations are to let the hairy vetch come to full flower before terminating it by rolling and no-tilling corn into the mat. With a good stand and at full flower, there should be at least 6,000 lbs. of dry matter, which Moyer has observed in their many trials as the minimum necessary to suppress weeds. Our hairy vetch stand was waist-to-chest high, thick and matted—you had to fight your way to walk through the seeding. As this was a first-time demonstration, we did not take samples for dry matter determination, but my guess—and this is only a guess—is that we did have 3 T dry matter/acre.

We found the biggest challenge of this system to be the flower date of hairy vetch. We used VNS (variety not stated), which can be anything! We know that varieties that have thrived in the Upper Midwest and are winter hardy tend to mature later. This may be due to these varieties coming to full flower in the spring. Our hairy vetch stand didn’t fully flower until June 6, when changing weather patterns and the predicted future frequency of wet springs.

In addition, we need a different planter or modification to our typical no-till system in the Upper Midwest unless we can access this practice. The Rodale Institute’s experiences (http://rodalenstitute.org/our-work/organic-no-till) and Jeff Moyer’s book, Organic No-Till Farming: Advancing No-Till Agriculture, were invaluable to us. Steve Groff, at Cedar Meadow Farm (http://www.cedarmeadowfarm.com/default.html) also has a wealth of experience. Universities in Iowa, Wisconsin and Minnesota are now also researching this practice.

Margaret Smith works in Extension and Outreach at Iowa State University. She and her husband, Doug Alert, have a 950-acre organic grain and livestock farm near Hampton, Iowa.

With the above estimates, we can predict for further experimentation in 2016. We recommend you use several resources to help you gear up to try this practice. The Rodale Institute’s experiences (http://rodalenstitute.org/our-work/organic-no-till) and Jeff Moyer’s book, Organic No-Till Farming: Advancing No-Till Agriculture, were invaluable to us. Steve Groff, at Cedar Meadow Farm (http://www.cedarmeadowfarm.com/default.html) also has a wealth of experience. Universities in Iowa, Wisconsin and Minnesota are now also researching this practice.

Margaret Smith works in Extension and Outreach at Iowa State University. She and her husband, Doug Alert, have a 950-acre organic grain and livestock farm near Hampton, Iowa.

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**Table 1: 2014-2015 Production Costs at Ash Grove Farm, Franklin County, Iowa**

<table>
<thead>
<tr>
<th>Tilled</th>
<th>Operation</th>
<th>Date</th>
<th>$/acre</th>
<th>No-till</th>
<th>Operation</th>
<th>Date</th>
<th>$/acre</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Overseed red clover</td>
<td>4/8</td>
<td>$12.30</td>
<td>No overseeding</td>
<td>—</td>
<td>—</td>
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<tr>
<td></td>
<td>Disk</td>
<td>5/13</td>
<td>$14.65</td>
<td>Disk</td>
<td>5/13</td>
<td>$14.65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field finish</td>
<td>5/13</td>
<td>$14.75</td>
<td>Drill hairy vetch and oats</td>
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</tr>
<tr>
<td></td>
<td>Clip for weeds</td>
<td>5/21</td>
<td>$13.05</td>
<td>Clipback</td>
<td>5/21</td>
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<tr>
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<td>$18.50</td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td>$14.75</td>
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<tr>
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<td>Plant corn</td>
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<tr>
<td></td>
<td>Row cultivate</td>
<td>6/24</td>
<td>$14.65</td>
<td>Roll and clip hairy vetch</td>
<td>6/6</td>
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</tr>
<tr>
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<td></td>
<td>Total</td>
<td>$107.90</td>
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<td></td>
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</tr>
</tbody>
</table>

**Inputs**

| Med. Red clover (organic) | 15 lbs @ $3.20 | $48.00 |
| Hairy vetch seed (conventional) | 40 lbs @ $1.80 | $72.00 |
| Gat seed (org.) | 2 lbs. @ $14.50 | $29.00 |
| Manure—2 Ton | $70.00 |
| Corn seed—38,000 | $90.84 |

**Total** | $208.84 | $261.84 |

**Overall** | $349.79 | $363.54

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Research evaluates green manures as fertilizer in organic soybean-winter wheat-corn rotation

By Katja Koehler-Cole

To maintain soil fertility in soybean-winter wheat-corn rotations under organic management, it’s common to apply animal manure after winter wheat harvest in time for next season’s corn. Farmers without livestock can have a difficult time sourcing animal manure. In addition, animal manure can contain weed seeds, and pesticide and antibiotic residues if sourced from a non-organic farm.

Alternatively, farmers can grow a green manure crop between winter wheat harvest in July and corn planting the following May. Green manures are plants grown specifically to enrich the soil with N and organic matter (Cherr et al., 2006) and are most often legumes that fix atmospheric N which can be used by a subsequent crop. However, in drier areas of the Midwest, precipitation might limit green manure growth and N fixation. Growers in these areas are also concerned that green manure soil water use can negatively impact the next crop (Unger and Vigil, 1998).

Research Focus

High dry matter (DM) production is paramount for a green manure as DM production is highly correlated with N fixation and thus the green manure’s ability to meet corn N demand (Peoples et al., 2012). Extending the green manure growing season increases the potential for biomass production, so we wanted species that can be planted in early spring into winter wheat by frost-seeding (broadcasting seed on frozen ground).

We needed green manure species that would not jeopardize wheat yield or obstruct wheat harvest, be winter-hardy to provide winter ground cover and produce additional DM in the spring, be winter-hardy to provide winter ground cover and produce additional DM in the spring, and allow crop management to be carried out with field-sized equipment. To determine DM, all vegetation within a square foot was cut, sorted into green manures and weeds, dried and weighed. Presence of weed seeds, disease, and insects were recorded. This allowed us to control weeds and mowing, with the highest DM yields for mowed red clover (4700 lb/acre) and the lowest DM yields for unmowed white clover. Closers planted in the dry year of 2012 were not able to establish, producing less than 300 lb/acre at fall- or spring-kill.

Green manures undersown in 2013 benefitted from early summer rains, and alfalfa and sweet clover grew as tall as the winter wheat, obstructing wheat harvest. At termination in the fall, however, green manure yields were lower than in 2011, and they were significantly impacted only by species, not by mowing. The most productive species, red clover, yielded 3,100 lb/acre. Very cold temperatures and lack of snow-cover in the winter of 2013-2014 probably caused winter-kill of the green manures, with DM yields of less than 800 lb/acre for any green manure species in the spring of 2014.

Research questions

■ How much DM will red clover, white clover, alfalfa, and sweet clover produce when undersown into winter wheat in early spring and killed either in the fall or next spring before corn planting?
■ Will the species of green manure and whether it was mowed influence weed growth in the green manure?
■ How will yields of corn growing after undersown green manures compare to yields of corn growing after cattle manure applications?

Methods

Experiments were conducted on certified organic fields located at the Agricultural Research and Development Center near Mead, Neb. The 30-year mean annual temperature is 50 degrees F and precipitation is 27 inches. All fields were in a soybean-winter wheat-corn rotation.

Green manures were frost-seeded into winter wheat in March 2011, 2012, and 2013, at a rate of 20 lb/acre for red clover (Marathon), sweet clover (variety not stated), and alfalfa (Viking 3200), and 12 lb/acre for white clover (Rivendel). Alfalfa and sweet clover were planted only in 2013. Green manures remained in the field after winter wheat harvest.

Half of the green manure plots were mowed 40 days after winter wheat harvest, and all plant residue was left in place. Green manures were killed either in the fall of the establishment year or spring of the following year by two passes with a disk. Control plots were not undersown and were disked three times to control weeds. To compare corn yield after green manures to corn yield after cattle manure, some control plots were fertilized with cattle manure containing between 100 to 175 lb. total available first-year N per acre.

Plots were established in a randomized design, and were between 30 by 60 feet and 30 by 450 feet, allowing crop management to be carried out with field-sized equipment. To determine DM, all vegetation within a square foot was cut, sorted into green manure and weeds, dried and weighed.

Corn yields were taken in 2012, 2013, and 2014. Corn was harvested with a combine at maturity, weighed on the field and not adjusted for moisture. P-values were significant at α = 0.05.

Results

Figure 1 (on page 12) shows green manure DM yields at each termination time in each year. In 2011, clovers in the winter wheat canopy grew through most of April, DM yields were significantly impacted only by species, not by mowing. The most productive species, red clover, yielded 4,900 lb/acre. Clovers overwintered well, resuming growth early due to warm temperatures in the spring of 2012. At clover termination in April, DM yields were significantly affected by the interaction between type of clover and mowing, with the highest DM yields for mowed red clover (4700 lb/acre) and the lowest DM yields for unmowed white clover. Closers planted in the dry year of 2012 were not able to establish, producing less than 300 lb/acre at fall- or spring-kill.

Green manures undersown in 2013 benefitted from early summer rains, and alfalfa and sweet clover grew as tall as the winter wheat, obstructing wheat harvest. At termination in the fall, however, green manure yields were lower than in 2011, and they were significantly impacted only by species, not by mowing. The most productive species, red clover, yielded 3,100 lb/acre. Very cold temperatures and lack of snow-cover in the winter of 2013-2014 probably caused winter-kill of the green manures, with DM yields of less than 800 lb/acre for any green manure species in the spring of 2014.

To Green Manures on page 12
Ask questions, plan ahead for successful transition to organic dairy
By Sarah Flack

Dairy farmers making the transition to organic production today have some advantages over farmers who did so in the past. Organic farms now have a wider array of approved health care products, more sources of soil amendments and a greatly improved variety of organic seeds. There is better access to veterinarians and soil/crop specialists with knowledge of organic practices, and more organic farming peers to learn from.

There is also an increasing number of markets for organic fluid milk, and the organic milk pay price tends to be stable compared to conventional milk prices.

There still can be challenges along the transition path. In a few regions of the U.S., it can be difficult to find an organic milk market. The organic regulations and record-keeping requirements for dairy farmers can seem complicated, and the transition process can be expensive. It is also still possible to get incorrect information on the organic standards if you ask the wrong person, and in some areas, it may be challenging to find knowledgeable advisors. Additionally, there are many new organic livestock health care products, and it can take some effort to learn which ones are allowed under organic standards and which are actually effective.

To make a successful transition and get certified organic, it pays to ask the right questions ahead of time, come up with a plan, and know the costs before starting. This article will go over some of the key points to consider about transitioning to organic.

Key Questions
Before starting the certification or transition process, ask yourself these questions:

Are you sure someone will buy the organic milk once the transition is complete?
Certification does not guarantee a market. ■ Will the organic milk buyers help with the cost of transition if you sign a contract with them?
■ Which certifier will you use? Become familiar with the organic standards, transition process and timeline.
■ Will your record-keeping system meet organic requirements?
■ What fertilizers, seeds, minerals, forage and seed inoculants and health care products can you use?
■ How much money will you need during transition?
In addition to more expensive organic grain, the farm may also require a better winter outdoor access area, and fence or lanes to improve pastures.

The ease with which a dairy farm can be transitioned to organic varies depending on the details of a farm—the herd, feed sources and land base. Stop one in the transition process is assessing the farm to see if it is a good candidate for certified organic dairy production. It is also important to look at how much the transition will cost and the different transition timelines and options.

Farms already using organically approved health care products and management practices will have an easier and less costly transition with a lower cull rate. Farms that already have well managed grazing systems and are growing crops using organic management and inputs will also find the transition less challenging.

Transitioning a conventional confinement operation to certified organic can be done successfully. However setting up a new grazing system takes additional time, money and requires converting cropland near the milking facility to pasture. Rations will need to be changed, and the herd will take some time to adjust to a new system. These farms will need to spend money on pasture seeding, new cow lanes, pasture water systems and fence.

Conventional herds managed using a significant amount of hormones to breed cows, antibiotics to treat or prevent illness, treated milk replacer or medicated calf grain also face a more challenging transition. However, by working closely with a good veterinarian to create a preventive health care plan, and some careful culling and breeding, a successful transition can be done.

For farms in northern climates, it is also important to make sure there is outdoor access available during the non-grazing season for all animals over 6 months of age. This may require building new housing or barnyard areas, which must be managed to prevent any water contamination from runoff.

Organic standards require that the land be managed organically for at least three years, and the herd be managed organically and fed 100 percent organic feed for 12 months prior to certification. Purchased feed must be certified organic—this is the largest part of the transition cost for many farms.

Many organic milk buyers are paying transition incentive payments or a bonus. These usually don’t cover all the costs, but can be very helpful with the monthly grain bill or big infrastructure expenses. The most important reason to find a milk buyer before starting the transition is that being certified does not guarantee a milk market!

The demand for organic milk varies from year to year and regionally. Get a contract before spending money on the transition.

Certification Agency
Once the decision is made to transition, you’ll need to choose a certifier. Ask some nearby organic dairy farmers who their certifier is, what the cost is, and if they are happy with them. There are quite a few certifiers to choose from, and each manages certification and pricing differently. The Organic Resource Directory, published by MOSES, lists certification agencies. It is online at mosesorganic.org/publications/organic-resource-directory. There also is a list of organic certifiers on the National Organic Program (NOP) website: www.ams.usda.gov/AMSv1.0/nop. This website also has a full copy of the organic standards and other information.

Transition timing, steps and costs can vary among certifiers. Contact a certification agency and begin the process of certifying the land and livestock as early as possible. The agency will send you its guidelines and fee information, as well as application forms. The certifier may require a visit by an inspector to determine if you are ready to begin the transition process, which may involve an additional fee. But some certifiers won’t send an inspector to the farm until late in the final transition year. The more prepared the farm is for that first inspection, the better the chances of successfully getting certified.
it's a good idea to trial some varieties during transition so you become familiar with what's available.

Fertilizers must be natural (non-synthetic) materials such as mined rock powders or manure. Before using a fertilizer or other material, first ask your certifier if it is allowed. If a prohibited material is applied to the field, even by accident, it is likely that the three-year transition will have to be restarted for that field.

Keep records of crop harvest and all inputs. Labels and invoices will prove to the certifier that the materials you used are approved.

The year you will harvest your first organic crop, you must have a buffer zone between that crop and adjacent fields that are not managed organically to protect your organic crop from chemical drift. The size of the buffer will depend on how the adjacent fields are used.

**Organic Standards: Livestock**

The National Organic Standards require a 12-month transition period for livestock. During that time, all feed must be certified organic, and all medications, health management practices, and livestock housing must meet organic standards. There is an allowance for farmers to use their own feed grown on their own land in its third year of transition in addition to certified organic feed. This homegrown feed may only be fed during the 12-month livestock transition period, and may not be fed to any animals already certified.

Because of the high cost of buying organic feed during the transition year, some farms decide not to transition the whole lactating dairy herd. Instead they sell the dairy herd and buy an organic herd or transition a group of heifers so they don't need to buy so much organic grain.

An organic herd or transition a group of heifers that time, all feed must be certified organic, medications, health management practices, and livestock housing must meet organic standards. Some certifiers will provide farms with a list of allowed health care products. All products must be approved for use before using them. When it comes to organic certification, ask for permission not forgiveness!

Farms are required to have an animal ID system and up-to-date herd list. They must keep records on herd health as well as all feeds made, purchased and actually fed to the herd. When purchasing organic feed, all invoices and a copy of the organic certificate for feeds must be kept to show the certifier. Minerals and feed supplements need to be pre-approved by the certifier and the labels kept.

**Inspection**

The first inspection will take place two to four months before your first organic milk shipment. It will include a visit to all the fields, pastures, buildings and animals. The inspector will look at livestock health care records as well as sales and purchase receipts for livestock, health care products, feed and supplements, pest products, teat dips and cleaning products, milk, and crop records of seed used, harvests, and fertilizer and manure spreading. Pasture and feeding records need to verify that all animal groups meet the pasture requirement. Housing records need to show that all animals over 6 months have daily outdoor access during the non-grazing season.

During the non-grazing season, livestock must have outdoor access. There are exemptions that allow producers to keep animals indoors temporarily during winter or off pasture in the grazing season. These exemptions are allowed in specific situations like inclement weather, risk to soil and water quality, healthcare treatment, breeding, and milking.

During the transition year and once certified, all health care practices and materials must meet organic standards. Some certifiers will provide farms with a list of allowed health care products. All products must be approved for use before using them. When it comes to organic certification, ask for permission not forgiveness!

Certification Cost Share

The National Organic Program provides reimbursement for payments of up to 75 percent of certification costs with a maximum of $750 per certification category (crops, livestock, processing, or wild harvest). The applicable period typically runs from September through November. The program is managed through state departments of agriculture. For details, see mosesorganic.org/organic-certification.

Minnesota also supports farmers who are transitioning to organic by paying part of the cost to work with a USDA-accredited organic certifying agency during the transition period. The maximum payment is $750 per year for three years or until they achieve organic certification. The National Organic Program provides reimbursement for certification-related expenses to help farmers maintain organic certification. Farmers can apply for payments of up to $750 per certification category (crops, livestock, processing, or wild harvest). The applicable period typically runs from September through November. The program is managed through state departments of agriculture. For details, see mosesorganic.org/organic-certification.

The inspector's job is to verify that the farm is operating according to the information provided by the farmer in the application. It is not the inspector's job to make the certification decision—inspectors actually are prohibited from giving advice that may help the farm overcome potential barriers to certification.

At the end of your farm inspection, the inspector will do an “exit interview.” This is when they provide a list of any potential non-compliance issues that came up during the inspection. The inspector then returns the application and a report to the certifier. The certifier then makes a decision on certification of the farm.

Once a farm is certified, the farmer must notify the certifier before making any management changes, adding new fields or using a new product. Every farm is inspected yearly and, when necessary, financial and marketing audits are performed to ensure employees are complying with the organic standards.

Sarah Flack is a consultant specializing in grass-based and organic livestock production. She is the author of Organic Dairy Production, and co-author of The Organic Dairy Handbook and Transitioning to Organic Dairy – A Self-Assessment Workbook. Her website is sarahflackconsulting.com.
Inside Organics — from page 7

for the humans and animals who consume these crops. Many researchers have found antagonists in organically grown foods are significantly higher than in their non-organic equivalents. The fact that organic plants do not grow in a sterile environment contributes to the presence of these antagonists. Less nutritious food is the unintended consequence of striving for that absolutely weed-, disease-, and insect-free field. Growing products that lessen soil biological life and leave the plants in a sterile environment. Another “unintended” consequence is the loss of biodiversity—fewer pollinators, frogs and reptiles, birds, and mammals results in less resilient ecosystems. While not every insect, bird, mammal, or aquatic animal provides agricultural services, many do. Everyone understands the need for a strong and diverse population of pollinators. Birds eat problematic insects; predatory birds consume rodents that eat crops. The web of life is interdependent. When one strand of the web is weakened, the entire system falls out of balance, allowing for problematic insects, diseases and animals to become more prevalent. Our loss of biodiversity also negatively affects our quality of life.

There are more and more humans on the planet, and we are challenged to provide food and fiber for all. Industrialized agriculture, which seeks sterile conditions to deal with the numerous problems of concentrated and large-scale production and processing, must be challenged as the only model to feed the world.

Harriet Behar, MOSES Senior Organic Specialist, answers farmers’ questions about certification and organic practices. Email her at harriet@mosesorganic.org.

Green Manures — from page 9

The amount of N accumulated by green manures was highest in 2011-2012, up to 128 lb/acre of the high DM yields in that year. We did not measure how much of this N was from the soil and how much was from fixation, but N fixation rates of approximately 70 percent have been reported (Schipanski and Drinkwater, 2011). Thus, as cowpeas at fall-terminating in 2011-2012 probably fixed N at 89 lb/acre, but much less N was fixed at the other termination times when green manure DM yields were much lower. Assuming half of the N is mineralized in the year after green manure termination, relatively moderate amounts of N can be expected to become available to the corn.

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<tr>
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<td>At spring termination</td>
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<tr>
<td>Red clover</td>
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<tr>
<td>White clover</td>
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Weed dry matter production

In 2011, clover was the least wheat harvest and weeds were able to compete with clover after winter wheat harvest, resulting in overall high weed DM at fall termination (Figure 2). Mowing significantly reduced weed DM in both clover species. In the fall, however, the spring-mowed white clover plots had 2.700 lb/acre of weed DM whereas both mowed and unmowed red clover plots had virtually no weeds. In 2013, green manures grew much more rapidly until winter wheat harvest than in previous years, gaining a competitive advantage over weeds and reducing weed DM compared to 2011-2012. At fall-kill in 2013, red clover contained significantly less weed DM than the other green manures. At spring-kill, weed DM was low in all green manures, because the cold temperatures delayed germination and emergence of weeds. We did not identify weed species, but noticed that almost all weeds in white clover stands were volunter wheat. This could lead to the transfer of virus diseases to newly planted wheat fields if disease vectors take refuge in volunteer winter wheat growing in green manure stands.

Corn yields

As expected, corn yields were higher after cattle manure than after green manures in each year (Figure 3). However, in 2012 and 2013, corn yields after the control were surprisingly high and not significantly different from corn yields after cattle manure. Two main factors limited corn yields during our study: water availability and N availability. In 2012, drought conditions affected both plant growth and productivity in all plots, but corn growing in previous clover plots was hit hardest. We estimated that the highly productive red clover stands in 2011-2012 used up to 30 inches of water, based on water use efficiency values from Badaruddin and Meyer (1989). With drought conditions starting in early summer of 2012, soil water was not recharged, resulting in very low corn yields after red and white clover.

In 2013, N availability limited corn yields in the green manure plots because of the failure of the previous year’s clover crop. Yet, corn yields after the control were significantly higher than corn yields after clovers. This is surprising. Green manures did not receive any additional N from either fertilizer or N fixation. Control plots were plowed three times between when wheat was harvested and corn planting, which stimulates mineralization of organic soil material, and likely increased the availability of N in the control plots. In 2014, water was not limiting corn growth. The previous year’s green manure used about 11 inches of water, and rainfall during corn growth was about four inches above normal. The yield gap between corn grown after green manures and after cattle manure was much smaller.

Conclusions

Extremely variable precipitation and temperatures are common in Eastern Nebraska and characterized the weather during this study period. Green manure species, especially red clover, that were undersown into winter wheat in this organic soybean-winter wheat-corn rotation yielded high amounts of DM in years with precipitation totals close to normal without affecting wheat yield. The high soil water use of clovers decreased the following year’s corn yield by about 50% in one year. When the green manure stands failed, the following corn yield was reduced to the lack of available N. The highest corn yields were obtained with cattle manure in each year, because cattle manure had much higher amounts of available N and did not require soil water. Our results showed that undersown green manures could help producers without access to animal manure. Red clover was the most productive species tested, and accumulated N between 67 and 128 lb/acre in years with high DM production, half of which is available to the next crop. At 876 acre, red clover is cheaper than white clover ($144/acre) or alfalfa ($94/acre), but more expensive than sweet clover ($44/acre). Care must be taken to avoid excessive green manure soil-water use, for example, by killing the green manure in the fall of the establishment year, rather than allowing it to overwinter. A fertilizer to supplement N should be available in case the green manure crop fails.

Red clover also provided the best weed suppression, especially when mowed, while white clover was not competitive with weeds. Alfalfa and sweet clover contained intermediate amounts of weed DM. Other studies have found that the repeated use of green manures can improve soil water-holding capacity and soil organic matter, and help stabilize yields in drought years. However, farmers might not have the financial freedom to wait several years for this system to work. Future research on increasing the N availability and yields in this type of rotation and region should explore strategies that combine green manuring and animal manuring to balance their advantages and drawbacks.

Katja Koehler-Cole recently graduated with a PhD in Natural Resources from the University of Nebraska-Lincoln and is working as a post-doctoral research associate at the Department of Agronomy & Horticulture at UNL. This study received first place in the poster competition of the Organic Research Forum at the 2015 MOSES Conference. This research had funding from the Organic Agriculture Research and Extension Initiative of the National Institute of Food and Agriculture, USDA.

**Figure 1.** Red mow = red clover, mowed. Red not = red clover, not mowed. White mow = White clover, mowed. White not = white clover, not mowed. Sweet = sweet clover. Sweet clover and alfalfa were only grown in 2013-2014 and were not mowed.

**Figure 2.** Weed DM in the green manure at fall termination time

**Figure 3.** Cattlemen = Cattle manure. Control = no fertilizer whatsoever. Red = undersown red clover. White = undersown white clover. Alfalfa = undersown alfalfa. Sweet = undersown sweet clover.
Book explains all aspects of growing medicinal herbs

By Harriet Behar

As a small-scale organic medicinal herb farmer myself, I was intrigued when I saw this recently published Chelsea Green book, The Organic Medicinal Herb Farmer. For the past 14 years, I have grown, dried and sold culinary and medicinal herbs from my own farm, referring to books, other growers and lots of trial and error to learn appropriate and practical information for this unique farming system. This encyclopedic volume covers not just the growing aspects, but also lays out a complete roadmap to aid growers who wish to develop their farm either dedicated to organic medicinal herbs, or as a side line to a vegetable, fruit or crop operation.

Many folks are attracted to growing medicinal nials to surround themselves with plants they use themselves, or because of an affinity for herbal medicine. It takes more than a love a plants to live your dream of growing medicinal herbs, though. Beyond just growing plants (and medicinal herbs have special needs), it is necessary to retain as much of the herb’s medicinal activity throughout harvesting and post-harvest handling as possible. Drying herbs on rusty screens in a barn with pigeons roosting is not a good idea. This is the first book I have seen that takes the reader through all aspects that need to be considered, and offers numerous practical suggestions from seed to a variety of finished products and possible markets.

The organization of this book, starting out with finding land and setting up a business model, provides a strong foundation for entering this niche market. The second third of the book covers numerous considerations for management of fertility, weeds, disease, and pests as well as the very important harvest, processing, storage and marketing of these herbs. The last third covers the specifics of growing, harvesting, processing and using 50 different herbs. While many folks might migrate to the end of the book to learn more about the growing of specific herbs, it is the first two sections of this book that provide the information needed to produce an abundance of quality herbs.

As with all farming operations, knowing your market, your capabilities and the profitability of what you want to grow are important aspects to developing a successful operation. Medicinal herb markets are somewhat more fickle than other horticultural crops with high-demand herbs hav very good prices one year and crashing in subsequent years, mostly due to influx of lower-priced organic imported crops. However, by building relationships with stores and herbal practitioners who seek out local and organic high quality herbs for their businesses, you can be successful.

Depending on your inclination, you can focus on one or a few herbs to grow in volume for a known wholesale market, or grow numerous herbs in very small quantities and produce your own tea blends, salves, tinctures and more. The authors discuss harvesting methods ranging from hand harvesting leaf and flower to harvesting root mechanically. This helps the novice grower understand the time, labor and equipment needed to get the crop out of the field in an efficient manner.

Since medicinal herbs are a mixture of annuals, biennials and perennials, and the crop harvested includes roots, stem, leaves, flowers, barks and fruits, there are many considerations in order to plan for efficient planting, weeding and harvesting. This book covers a wide variety of options, with pros and cons for each. This gives you enough information to select a method that will work best for your growing conditions.

I greatly appreciated the authors’ approach to seed and pest management. They use foundational organic methods that improve soil and plant health, producing healthy plants that can handle some pest pressure.

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Winter Feeding — from page 1

hay as possible in the summer to feed back to cattle all winter.

Since winter feeding is such an expensive proposition, we need to examine ways to lower the winter feed bill and still keep adequate nutrition in front of our cattle. In light of that, preparing for winter feeding starts long before winter comes.

Cost of Hay

First of all, let’s look at the true cost of hay. In spite of what many think, hay is not a cheap feedstuff. As a matter of fact, hay can often be one of the most expensive feedstuffs we use, especially when you factor in the nutritional value of most hay. Let’s face it, the majority of hay being made out there is average quality at best.

When I was a university faculty member, one of my responsibilities was managing the Integrated Resources Management program. We would collect economic and production data from farms throughout the Southeast and then compare that to data collected from farms throughout other regions in the U.S. Once this data was collected, we would perform a Standardized Performance Analysis. We found that the typical cost per round bale of hay exceeded $70 per bale (for an average 1,000-lb. bale), and often exceeded $80 per bale. Those were direct costs in machinery, equipment, supplies, fuel, repair and maintenance, labor, fertilizer, lime, etc. You have to include not only the cost of harvesting and storing that hay, but also the cost of feeding it back to the cows in the winter. When you consider average feed quality of the hay and spoilage, the price of hay goes even higher.

So, what can we do to better manage winter feeding and to reduce our input costs directly related to feeding our cattle? It all starts with how we manage our forage supply during the active growing season. In other words, our year-round grazing and forage management has everything to do with what our winter feeding costs will be.

Start with Soil

One of the first statements I make in almost all of my presentations is, “It starts with the soil.” We need to always be in a “soil-building” mindset as that is the foundation which determines how much forage we can grow each year and its nutritive quality. When I work with producers, we always start with detailed soil fertility and biology analysis. You cannot formulate a plan for feeding our cattle without knowing where you stand.

We cannot formulate a plan for feeding our cattle without knowing where you stand. You cannot grow forages until you know where you stand. You cannot formulate a plan for feeding our cattle without knowing where you stand. You cannot grow forages until you know where you stand. You cannot formulate a plan for feeding our cattle without knowing where you stand.

Once you know where you stand with soil fertility and biology you can begin to formulate a strategy for improvement. This can include the addition of organic fertilizers (manures, composts, fish hydrolysates, raw milk, etc.), soil amendments, foliar feeds, and soil microbes. Remember that none of these are free, and you must know what you are applying, their fertility contribution, how much is needed, and when to apply for best results.

The difference in productivity between pastures with high microbial activity and those with low microbial activity can be expected in terms of cattle average daily gains (ADG) with differing brix values. This directly translates into animal performance on hay as well. High-brix hay results in significantly better animal performance relative to the actual value you receive.

How do you know which products to trust? Keep in mind, there are no “silver bullets.” Be wary of a product that promises more than what appears logical. Ask for data from field trials with a product, detailed analysis of its nutrient value, a detailed description of the ingredients in the product, and for references you can contact who have used the product. If you have friends or neighbors who have used it, talk to them about their experience with it.

Manage your grazing program during the active growing season to build soil health. We have found that Adaptive High Stock Density (AHSD) grazing, rapidly builds new soil OM, increases forage biomass or dry matter (DM) production per acre, and enhances the nutritive value of those forages. This management strategy also improves soil water infiltration rates, enhances soil aggregation, and builds soil microbial populations.

With AHSD or AMP grazing, we have been able to build soil OM at a rate between 0.5 and 1.0 percent annually with the most rapid progress coming in the first five years. Figure 1 shows the value of increased soil organic matter related to soil water-holding capacity. This is absolutely critical in determining the total forage biomass you can grow in an active growing season. You cannot grow forages without water, and the more water our soils can effectively hold in the root zone, the better our forages and soil microbes will perform.

Plant Brix

In addition to increased water-holding capacity, when we utilize AHSD or AMP grazing we also significantly improve plant brix. Brix is a measure of total nutrient density and sugars in the dissolved solids of a plant. It is best measured using a simple instrument called a refractometer (available online for $80-$130—I like the Atago Master T model). Our research has shown that as you increase plant brix value you significantly improve animal gains and performance as well as plant health and productivity. Improving soil health improves plant brix.

In the U.S., brix values range from 2 and 5 percent. That is quite low. Animal performance on low brix pastures and hay/haylage will be marginal at best, especially without additional supplementation. Figure 2 shows what can be expected in terms of cattle average daily gains (ADG) with differing brix values. This directly translates into animal performance on hay as well.

Microbial Impact on Forage DM Yield

Variable High Microbial Activity Low Microbial Activity
Dry Matter (lb/ac) 8573 2559
Crude Protein (%) 11.9 7.9
TDN (%) 69.4 55.7

Source: USDA NRCS Mandan, ND.
Winter Feeding — from previous page

In addition, the nutritive value of that forage is greater. This means that cattle have more to eat in the high microbial activity fields, but need fewer bites since it’s more nutritious.

So, grazing high-brix pastures during the active growing season puts your cattle in better body condition in the spring and can also provide for an extended grazing season. Published studies indicate that higher brix forages, when coupled with proper grazing strategies, can add as much as 60-75 more days of grazing each year. High-brix forages can provide grazing up to 30 days earlier in the spring and 30+ days in the late fall. By adding an additional 60+ days of active grazing, winter hay and supplement feeding can be dramatically reduced.

Stockpile Grazing

Stockpiling forages during late summer and into fall is one of the most effective ways to reduce winter feeding costs. Stockpiling can be accomplished anywhere in the U.S. and Canada.

We have been able to successfully stockpile both warm and cool season annuals and perennials for winter feeding. The key is to start stockpiling by late August, allowing forages to stockpile into early December before starting to graze. Unless there is significant icing, cattle can burrow down through snow to reach the stockpile.

Another key to effective stockpiling utilization is to tightly control access. I have found that it is best to use strip grazing techniques with stockpiled forages rather than the normal summer rotation pattern. With strip grazing, you would set up an electric polywire along one side of a stockpiled field and allow cattle enough access for only one day at a time. The next day, move the polywire to allow cattle access to the next strip. This prevents excess trampling and stockpile loss. It also controls consumption rates.

We have stockpiled fescue, Bermudagrass, mixed native pastures, warm season annual cocktails and cool season annual cocktail mixes. All have been effective and productive when managed properly. North Dakota farmer Gabe Brown has been able to use stockpiled grazing to significantly extend winter grazing and reduce hay feeding.

Stockpile grazing saves real money since: 1) you’re grazing instead of hauling hay to cattle; 2) most properly stockpiled forage is higher in feed value than hay; 3) it requires less labor, fuel, equipment, etc.; 4) it reduces the volume of hay and soil loss, and other feed supplements that must be fed during the winter months. If you do not have enough grass available to stockpile a pasture or two for winter grazing, then you are overstocked and need to reduce cattle numbers.

In addition to stockpiled forages, producers can take advantage of row crop residue for winter grazing. By grazing the residue you will not only take advantage of row crop residue for winter feeding so that you can make sure you are meeting the nutritional needs of your cattle through the winter months. Your local Extension Service or NRCS personnel can assist you with this. Most land grant universities offer hay sample analysis for constituents in their respective states.

I recommend using Relative Forage Quality (RFQ) rather than Relative Feed Value (RFV) for a more accurate assessment of hay feed value. RFV was primarily developed for alfalfa forages and is not very reliable for predicting cattle performance on grass-based rations. RFV is calculated from Acid Detergent Fiber (ADF) and Neutral Detergent Fiber (NDF). ADF is an estimate of digestible dry matter (DDM) content and NDF is an estimate of potential dry matter intake (DMI) of the forage. The problem with RFV is that you can have different hay crops that have the same RFV and cows will perform well on one and not the other.

RFQ was developed as a replacement for RFV for forages. It provides a better index of how a forage (hay) will perform in an animal’s diet. One of the primary differences between RFQ and RFV is that DDM (Total Digestible Nutrients) replaces DDM in the RFQ index calculation. Currently, RFQ is available only on hay, mixed hay, and haylage. A test for corn silage will soon be available.

It is important to note that there are several factors that can affect digestible fiber in hay and haylage: region of the country, elevation, and temperature at cutting. Greater leaf material in the hay or haylage often results in a higher RFQ. However, heat damage tends to lower RFQ.

In summary, winter feeding preparation starts during the active growing season and involves deliberate planning for the harvesting of high-quality hay and haylage, stocking of forages for winter grazing, and bale grazing. The foundation for successful summer and winter nutrition starts with soil health. Strategies that build soil health will increase plant brix, expand the active grazing season, and produce higher quality hay and haylage.

Allen Williams is a consultant with Grass Fed Insights, LLC, and a sixth-generation family farmer who raises grass-fed beef on his farm in Mississippi.

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Gabe Brown’s stockpiled forage provides significant nutritive value during the winter grazing period. Millet in the field on the left provides 9 percent crude protein (CP) and 30 percent total digestible nutrients (TDN), while the sorghum-sudangrass on the right provides 12 percent CP and 72 percent TDN. The stockpiled hairy vetch on the right provides 18 percent CP and 70 percent TDN.

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Update on avian influenza
By Jennifer Nelson

Earlier this year, highly pathogenic avian influenza (HPAI) affected mainly conventional confinement poultry farms, prompting intense media attention for poultry all along the farm belt. Due to warm summer temperatures and prevention measures, there have been no outbreaks of the virus since mid-June. However, the USDA has cautioned that the virus could be active again on the Mississippi flyway this fall. The most recent USDA potential solution involves vaccine creation. According to a news brief by the USDA Animal and Plant Health Inspection Service (APHIS) released on August 18th, they are preparing for a potential recurrence of the virus and have issued a request for proposals from “vaccine manufacturers with the interest and capability to supply a variety of RA H5 vaccines in sufficient numbers to establish the emergency stockpile.” The USDA will evaluate the vaccine proposals according to a number of factors, and will only be used following an environmental assessment comparing the impact of factors, and will only be used following an environmental assessment comparing the impact of factors.

The National Organic Coalition (NOC) also issued a statement of recommendations outlining the benefits of outdoor access for poultry flocks in response to HPAI. While the NOC recognizes that organic regulations do allow temporary quarantine for organic flocks during an emergency, they clearly make a case for the inefficacy of keeping poultry indoors consistently. Research shows that the mutation of the HPAI virus occurs almost exclusively in crowded indoor poultry houses. The low pathogenic avian influenza (LPAI) virus that affects wild birds is almost never harmful to poultry. Only in densely filled poultry houses does LPAI mutate into HPAI, spreading quickly and fatally. The virus is also spread by flocks and does not easily survive sunlight, indicating that outdoor access and more room to move is a part of the solution. In the case of an outbreak, they point out that wild birds only get sick from indoor poultry containment operations, not conversely, and often it is people, with infected clothes or footwear, or even flies, that have been proven to spread the HPAI virus.

While specific conditions might require a short-term quarantine indoors, it is an ineffective long-term system for caring for a healthy flock. The NOC proposes that in order to address the “root of the problem”, a deeper, systemic solution including outdoor access, room to move, and poultry with healthy immunities is essential. The full National Organic Coalition recomm is available on our website at https://mosesorganic.org/farming/farming-topics/livestock/#HPAI.

For more information on good biosecurity practice, an essential piece of all livestock farming, read the article from the July/August edition of the Organic Broadcaster, “Common sense biosecurity steps help keep organic livestock healthy,” by Jen Burton, DVM, and Guy Jodarski, DVM. The American Pastured Poultry Producers Association also offers experienced insight on their blog at www.apppa.org.

4-day course teaches new concepts for greater profits
By Rhonda Dybec, Crop Health Consultant - Agriculture Solutions Inc.

Are you getting the results you want? As a crop consultant, I talk with organic growers, none of whom tell me, “no”. I always ask them what they are doing to maximize quality and production and I am finding that many still lack a full understanding of Nutrition Farming - the soil-to-plant relationship and how to balance minerals for optimal uptake and production.

Balancing soil nutrients sometimes means adding inputs. Some growers say that inputs are too expensive but, I beg to differ. There are some really fabulous options that can produce measurable gains in productivity and marketable yield. Understanding where and when to apply inputs can really make a huge difference in yield and quality and can award other benefits such as nutrient chelation, better water management, weed control, improved disease resistance, and more.

One “no-brainer” to boost nutrient availability is to apply a microbial inoculant. One product in particular, Nutri-Life Platform™, offers a boost in mycorrhizae and trichoderma which can increase broad-spectrum nutrient availability and improve access to water through the virtual extension of roots. Seaweed and kelp are absolutely amazing inputs because of their growth promoting, stress reducing, and growth regulating properties...a triple whammy for boosting health and production. Study after study shows that applying seaweed extract improves both quality and yield.

Cover crops improve nutrient availability as they scavenge and store nutrients and keep your soil life alive and working. Multi-species blends are proving to be a nutritious forage for livestock, producing better quality, more nutritious complete, meat, eggs, and milk.

To learn more about these and hundreds of other ideas that will make your organic production easier and more profitable, attend the 4-Day Certificate in Nutrition Farming course November 2-5 in Niagara Falls, Ontario or November 9-12 in Portland, Oregon. This course, taught by sustainable agriculture legend, Graeme Sait, is a favorite of thousands of farmers around the world. Having taken the course, I can personally attest to the intensity and quality of the course and to the vast knowledge and amazing passion that Graeme brings to the classroom. What you learn, you can take back and use immediately on your farm.

It will be the most valuable four days you will have spent this year. For more information, visit www.agriculturesolutions.ca/events or call me at 226-821-5354 (Canada) or 614-326-9686 (USA).
Beginning Farmer Project

MOSES has been awarded a USDA Beginning Farmer and Rancher Development Program grant to create and implement trainings for beginning farmers through New Organic Stewards, a project with Minnesota-based Renewing the Countryside. The grant provides $310,000 over three years. The foundation of the project will be a series of two-day trainings focused on financial planning, farm management, and organic farming practices. Titled New Farmer U, these trainings will take place in Wisconsin, Minnesota, Iowa and Illinois starting in late 2016. The project also will include workshops and activities at the annual MOSES Organic Farming Conference and summer field days, all with the unifying goal of meeting the unique challenges of beginning farmers and creating opportunities for their success.

Certification Cost Share

Certified organic producers and handlers can apply now for reimbursement of certification-related expenses from Oct. 1, 2014 to Sept. 30, 2015. Payments may be up to 75 percent of certification costs with a maximum of $750 per category of certification. The certification cost-share program is managed through state departments of agriculture. Apply by the deadlines shown:

- Illinois — Nov. 2, 2015
- Iowa — Sept. 30, 2015
- Minnesota — Oct. 31, 2015
- North Dakota — Nov. 16, 2015
- South Dakota — Nov. 13, 2015
- Wisconsin — Nov. 30, 2015

Whole-Farm Revenue Protection

The USDA’s Risk Management Agency (RMA) Whole-Farm Revenue Protection will be available in all counties in the U.S. for 2016. The USDA also has made changes to the policy to provide better coverage for beginning, organic, and fruit and vegetable growers with diversified operations. Beginning Farmers and Ranchers - RMA has reduced the required records from five to three historical years, plus farming records from the past year. Additionally, any beginning farmer and rancher may qualify by using the former farm operator’s federal farm tax records if the beginning farmer or rancher assumes at least 90 percent of the farm operation.

Livestock Producers – RMA has removed the previous cap that limited participants to those who received 35 percent or less of their income from livestock production. Producers will now be able to insure up to $1 million worth of animals and animal products. Expanding Operations – RMA has increased the cap on historical revenue for expanding operations to 35 percent from its previous 10 percent to better allow growing farms the opportunity to cover their growth in the insurance guarantee.

Whole-Farm Revenue Protection includes a wide range of coverage levels, coverage for replanting annual commodities, provisions that increase coverage for expanding operations, and coverage of market-readiness costs in the cover-age. For more information, see the RMA Whole-Farm web page: http://www.rma.usda.gov/policies/wfpr.html.

National Organic Farmers Group

Over the past year, organic farming organizations, including MOSES, have been discussing how to build a more effective and clear voice for certified organic farmers at the national level. (See the Inside Organics blog, “Organic farmers need unified ‘voice’ as organic sector grows,” online at mosesorganic.org/policywork/inside-organics/blog/farmers-need-unified-voice.) The organic sector has grown so much in recent years, the organizations involved want to create an opportunity for farmers, who are at the core of organic’s success, to establish a focused and strong national voice. To ensure that farmers want this as well, the group has created a short survey online at bit.ly/organicsurvey to get feedback from certified organic farmers. Paper surveys are available to those without internet access. Contact Kate Mendenhall, kate.mendenhall@gmail.com, 585-944-2503 for information on how to be part of the larger discussion.

Organic Processing Institute

The Organic Processing Institute (OPI) recently announced that Barth Anderson has joined the organization as executive director following the retirement of Carla Wright, the executive director since the institute was formed in 2012. Anderson of Minneapolis has 20 years of retail grocery experience as a produce buyer, marketer, and social media specialist, and has acted as a retail representative on the Minnesota Department of Agriculture’s Organic Task Force. Anderson also wrote the first USDA Organic handling plans for retail grocery and wholesale operations in the state of Minnesota and has served on the boards of MOSES, Sustainable Farming Association of Minnesota, and Mill City Farmers Market in Minneapolis.

USDA EQIP Sign-up

The sign-up deadline for the 2016 Environmental Quality Incentives Program (EQIP) in Wisconsin is Oct. 2, and Oct. 16 in Iowa and South Dakota. Other states did not have dates set. EQIP is the primary program available to farmers for farm and woodland conservation work, offering payments for over 90 basic conservation practices, including the Organic Initiative, which provides financial assistance to certified organic producers to meet conservation goals. Organic producers applying through this initiative can receive up to $20,000 per year or $80,000 over six years. Farmers may also compete for the larger pool of EQIP funds that allow for up to $300,000 over six years. Details about the program are online at www.nrcs.usda.gov/wps/portal/nrcs/main/wi/programs/financial/equip.

Agricultural Urbanism Guide

Iowa State University and the Leopold Center for Sustainable Agriculture are sharing their Agricultural Urbanism Toolkit, a 100-page guide covering the planning process that has helped Iowa communities explore ag-related resources and needs to make fresh, local food products more widely available to residents. See www.leopold.iastate.edu/pubs-and-papers/2015-07-agricultural-urbanism-toolkit.
NOSB Meeting
The National Organic Standards Board (NOSB) will meet Oct. 26-29 in Stowe, Vermont, to discuss substances petitioned for addition to or deletion from the National List. A PDF of the items on the list is available at www.ams.usda.gov/rules-regulations/organic-national-list.

New Sweet Corn
Two new varieties of open-pollinated sweet corn will be available in limited quantities for 2016. Top Hat and Tuxana were developed by Oregon farmer Jonathan Spero through a research grant from the Organic Farming Research Foundation, with the goal of increasing organic farmers. Yellow-eared Top Hat is a stabilized version of the hybrid Tuxedo. Tuxana is a white-hued blend of Tuxedo and Anasazi parentage. Both varieties were selected over 7 generations for sweetness, size and vigor, quick growth to outrace weeds, tightly-wrapped husk to deter pests and ability to thrive in lower-fertility soils. Spero’s research report is at ofrf.org/research.

Cover Crop Resources
Cover Crops for Sustainable Crop Rotations, a new four-page overview from SARE, offers research-based tips on cover crop selection and management. It summarizes cover crop economics, establishment, soil fertility, rotations, and pest and water management with links to more detailed resources online. The publication is available free at www.sare.org.

The MOSES Organic Fact Sheet “How to Choose Cover Crops” provides guidance for selecting a cover crop for a specific goal, such as controlling weeds. This free resource is #3 on the fact sheet list at mosesorganic.org/publications/organic-fact-sheets.

Sustainable Farming Grants
NCR-SARE’s Farmer Rancher Grant Program application period closes Dec. 3, 2015. The program helps farmers and ranchers explore sustainable solutions to problems through on-farm research, demonstration, and education projects. See www.northceralsare.org/Grants.

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218-253-4907
www.ocia.org • www.mnocia.org

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FARMS/LAND
FOR RENT: Best farmland in world on Rock Prairie, Rock County, Wisconsin. Looking for low chemical or no chemical farmer. 80 acres. Telephone: 608-290-0510.


MOSA Organic Certified Big Round Bales. First and 2nd Crop. Contact Ed Rudberg at 952-212-6576 or ed@organicspheric.com and visit www.organicspheric.com.

Organic Barley- Pea grain and Organic Barley-pea round bales of straw. 763-682-1389.


MOSA certified Alfalfa hay large square, Newark, IL. Cheryl, 815-405-5375.

Organic Alfalfa 3 x 4 x 8 Bales. Tested. Lance at lrice@grcrom.net, 402-430-0986.

MISCELLANEOUS
Driftless Organics is currently seeking fall/winter employment to help out in the field and packing shed. Work will go until the end of the January and possibly into the new season. Visit our website to fill out an application: www.driftlessorganics.com/employment.

Internship available for 2016 season on berry farm for interested single or family. Please contact The Honeybury Farm, PO Box 512, Bagley, MN 56621, tel. 218-694-3071, info@honeyburyusa.com, www.honeyburyusa.com.

FARMS/LAND
Beautiful Country Home, 2100 s.f., 5 acres organic land, extensive landscaping, birds, sheds, 20 min to Hudson. Steve W. 715-246-5584. 1/4” - 3 1/4” diameter. 4-5 heads/pound. Asking 513/ pound and offering volume discounts. Call Jason at 608-625-2238.

For Sale: MOSA Certified Organic Seed Garlic:

CERTIFIED ORGANIC SEED GARLIC! Armenian, Asian Tempest, German Red, Hardheads, and BIG (2 1/4” - 3 1/4” diameter, 4-5 heads/pound). Asking 513/ pound and offering volume discounts. Call Jason at 608-625-2238.

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**Minnesota Organic Dairy Farm Tour**

Sept. 15 | 9 a.m. | St. Cloud, Minn.
Tour two Stearns County organic dairy farms. Depart from the Stearns History Museum in St. Cloud at 9 a.m.
RSVP to Adam Warthesen at 1-888-809-9297 or adam.warthesen@organicvalley.coop.

**MOSA Organic Vegetable Farm Field Day**

Sept. 16 | 10-3 p.m. | Free – RSVP | Northfield, Minn.
Tour Gardens of Eagan, a large-scale organic vegetable farm serving the Twin Cities. RSVP by 608-637-2526.

**Field Day: Integrated Poultry-Perennial Crops**

Sept. 17 | 1-4 p.m. | Northfield, Minn.
Main Street Project has developed a scaleable integrat-ed whole farm system that utilizes free range chickens, perennial plantings of hazelnuts and elderberries, and annual vegetable crops. bit.ly/1L8BeBu

**Field Day: Fencing, Livestock & Cover Crops**

Sept. 18 | 10 a.m.-3:30 p.m. | Free | Manhattan, Minn.
Join Kent Solberg. SFA Livestock & Grazing Specialist, as he installs a semi-permanent fence. Solberg will also lead a discussion of the cover crops planted and how Deutz intends to use them to build soil health and improve his farm profitability. sfa-mn.org/greapest

**Breeding Corn for Organic Farmers**

Sept. 18 | 10 a.m.-3:30 p.m. | East Troy, Wis.
The Mandazin Institute will show how they develop corn hybrids and varieties. Field day includes three farm tours with discussions on test plots and yields, cover crops, soil and grain quality and weed control. bit.ly/1vXQDXD

**NDSU Specialty Crops Field Day**

Sept. 18 | 11 a.m. | Fargo, N.D.
See cucumber management options, specialty crop varieties going into fall, and taste carrots highlighting well as nationally and internationally. bit.ly/1hGxy kd

**Farm Aid 2015 MOSES Organic Farmers of the Year, Greg and Mary Reynolds, welcome you to their 30-acre farm to learn about fresh market organic vegetables, seed production and saving, farming efficiency, and soil health. mosesorganic.org/events/organic-field-days/vegetables**

**MOSES Vegetable Field Day**

Oct. 2 | 10 a.m. | Free – RSVP | Northfield, Minn.
Hosted by the OR and Minn. Dept. of Agriculture, instruction will cover organic qualifications, processing both organic and conventional in one facility, the organic certification process, organic system plans, ingredients and processing aids allowed in organic, and cleaning agents allowed. bit.ly/1vAASE

**Climate Change Adaptation Convenings**

Sept. 21 | 5:30-8:15 p.m. | Free | Mankato, Minn.
Sept. 24 | 5:30-8:15 p.m. | Free | Virginia, Minn.
Oct. 12 | 5:30-8:15 p.m. | Free | Rochester, Minn.
Nov. 2 | 8:30-11:30 a.m. | Free | Detroit Lakes, Minn.
Nov. 2 | 5:30-8:45 p.m. | Free | Brainerd, Minn.
U of MN hosts a series of climate change adaptation convenings on how climate change has and will impact us. Learn about local resources and organizations focused on energy efficiency, sustainability, and other efforts to address climate change. bit.ly/1LwWN23

**Webinar: Environmental Benefits of Organic Agriculture—Water Quality**

Sept. 23 | 2 p.m. | Central
NCRS presents scientific research examining the water quality benefits of organic farming practices, which can optimize soil nutrient release and plant nutrient uptake, and subsequently improve water quality. bit.ly/1vA4W4s

**Field Day: Cover Crops & Livestock Integration**

Sept. 25 | 10 a.m. | $10 | Vendale, Minn.
The Sustainable Farming Association tours four central Minnesota farms and shares results of a three-year Minnesota Department of Agriculture Sustainable Ag Demonstration Grant project. sfa-mn.org/sfa-field-days

**Growing Food and Just Initiative All Initiative Gathering**

Sept. 25-27 | Chicago, Ill.
This year’s theme is “The A.L. Our Food System,” and features hands-on and interactive workshops and activities, showcasing the work being done locally in Chicago, as well as nationally and internationally. bit.ly/1hGy9ld

**Tractor & Implement Field Day**

Sept. 27 | 9 a.m. | Marine on the St. Croix, Minn.
Land Stewardship Project offers a basic introduction to the safe operation and routine maintenance of a stand-ard tractor and implements. The second session offers a more advanced discussion on diagnosing tractor problems in the field and repair of basic components. Contact Don Eder (612-578-4497) to register.

**Field Day**

Sept. 28 | 1-4 p.m. | Fonville, Mich.
The Trevor Nichols Research Center will host a research field day and Extension event focusing on the insect and disease research and pesticicyd applications conducted by MSU AgBioResearch scientists. bit.ly/1U6JHW

**Fall Biodynamic Weekend Overnight Intensive**

Oct. 2-4 | $265 | Osceola, Wis.
The Trevor Nichols Research Center will host a research field day and Extension event focusing on the insect and disease research and pesticicyd applications conducted by MSU AgBioResearch scientists. bit.ly/1U6JHW

**On-Farm Energy Audit and Ecologicals of Org. Dairy**

Oct. 3 | 9 a.m. | Decorah, Iowa
Practical Farmers of Iowa host a field day on the USDA dairy farm, discussing on-farm energy audits, and or- ganic beef and dairy production. bit.ly/1Piffledays

**Webinar: Climate Change and Organic Agriculture**

Oct. 6 | 2 p.m. | Central
Oregon Tilth and NCRS discuss practices that maximize carbon fixation and how organic agriculture can seques-ter carbon. Address the most effective practices: cons-ervation tillage, cover crops, enhanced crop rotations, residue retention and the use of compost. bit.ly/1HGxGr

**Sheep and Floor Farm Tour**

Oct. 10 | 9-11 a.m. | Minnesota
Visit two farms and see farm demonstrations. Self-guided, free tour. naturalliberalliance.nationbuilder.com

**Fall Crops Without a High Tunnel**

Oct. 18 | 3-5 p.m. | Mt. Vernon, Iowa
Hosted by Practical Farmers of Iowa, tour a 200-share CSA farm that provides food from the gardens until the end of October – and sometimes beyond – without requiring the use of a high tunnel. bit.ly/1Piffeldays

**Biodynamic Composting Class**

Oct. 26 | 9:30 a.m.-3:00 p.m. | $35 | Roseville, Minn.
Learn how composting works in a biodynamic system. Contact Tal Smichioni at tsimchioni@yahoo.com or 320- 429-2145.

**Tile Outlet Treatment Train and Soil Health**

Oct. 27 | 2-4 p.m. | Free | Granada, Minn.
Field day focus will be on the University Research and demonstrations being done at the Rocksy Roberts Research Site Two. Discuss the Tile Out-let Treatment Train demonstration, soil health, saturated buffers, bioreactors, root ball instream weirs and cover crops. bit.ly/1MLUBP

**WFAN Conference**

Nov. 6-7 | Davenport, Iowa
Sessions will focus on creating and protecting habitat for native pollinators, as well as building robust local food systems in our communities and supporting women farmers and landowners. wfan.org/conference

**Deep Winter Production of Greens and Livestock**

Oct. 18 | 3-5 p.m. | Free | Decorah, Iowa
Women farmers and landowners. wfan.org/conference

**On-Farm Practices at The Mind</p>