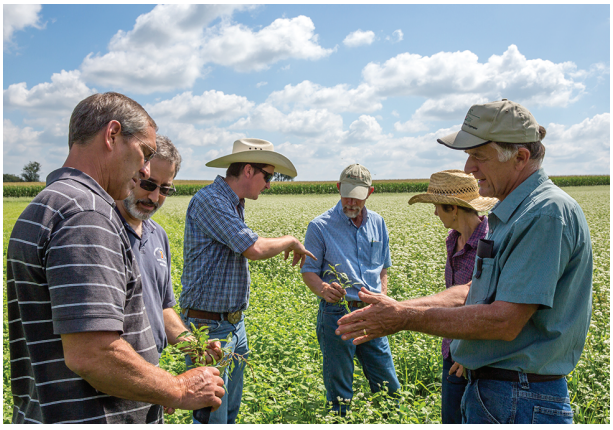
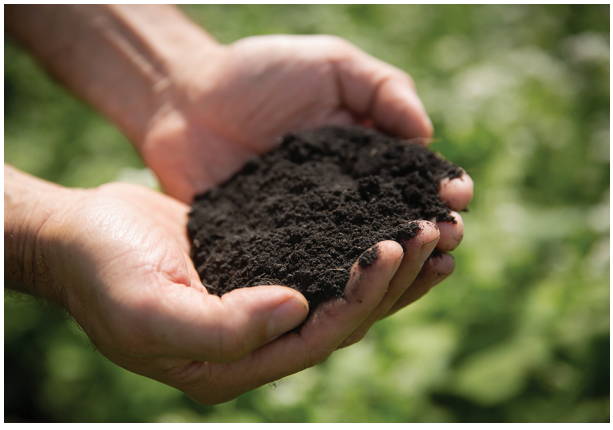
Organic Grain Conference & Trade Show 2019

Exploring Advancements and Issues in Organic Grain Farming, Together.

PROCEEDINGS





THE LAND CONNECTION

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Special thanks to the conference Advisory Committee. The committee reviewed the many suggestions of topics and speakers submitted by our farming community, and provided guidance about location, structure, and choice of presenters to the conference organizer Mallory Krieger and The Land Connection staff. Their guidance and input was invaluable.

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The opinions expressed in the abstracts within are solely those of the authors and do not necessarily represent the views of The Land Connection, its staff, board of directors, sponsors, or funders.

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The Land Connection (TLC) is a 501(c)(3) nonprofit founded in 2001 by author and good food advocate Terra Brockman. Located in Champaign, Illinois, TLC strives to create a vibrant, healthy local food economy for our immediate community and the greater Midwest region.

Mission

The Land Connection trains farmers in resilient, restorative farming techniques; informs the public about the sources of our food and why that matters; and works to protect and enhance farmland so that we, and generations to come, will have clean air and water, fertile soil, and healthy, delicious food.

Vision

The Land Connection envisions community-based food systems in which every farmer has the opportunity to grow food in a sustainable manner, and every person can access local and organic foods.

Programs

We provide education and training focused on improving environmental and ecological outcomes for our community, and economic and quality of life outcomes for our farmers. We strive to build connections between farmers to create a deep sense of community and social support for regenerative farming. We offer this training through conferences, workshops, field days, and webinars.

Our Champaign Farmers Market is a place where farmers can access new customers and the community can access healthy, local food. We strive to foster a sense of family among the vendors and patrons at our market. We believe access to good food is a right for every person and organize SNAP incentives at our market to help underserved families enjoy the food grown by their neighbors.

We also foster connections with the community at large through our local food messaging and outreach efforts. Our work in this effort includes podcasts, video series, and community focused events bringing the message of local, healthy, and regenerative food to the public.

Staff

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PRE-CONFERENCE WORKSHOP | FEBRUARY 13, 2019

CERTIFICATION, DE-HULLED - A DEEP DIVE INTO ORGANIC GRAIN CERTIFICATION

David Hettenbach *(Nature's International Certification Services)*

AGENDA

9:00 AM	Check-In & Refreshments *Chancellor Ballroom*
10:00 AM	**OVERVIEW OF ORGANIC CERTIFICATION AND THE HISTORY OF THE NOP**
10:30 AM	**TRANSITION TIME: WHAT TO DO DURING YOUR TRANSITION TO ORGANIC**
11:30 AM	**PILES OF PAPERWORK: SUBMITTING INITIAL PAPERWORK TO YOUR CERTIFIER, DOCUMENTATION TO MAINTAIN DURING THE GROWING SEASON, AND GETTING READY FOR THE FIRST INSPECTION**
12:45 PM	Lunch
1:30 PM	**READING THE RECORDS: PAPERWORK FROM AN INSPECTOR'S POINT OF VIEW**
2:30 PM	**WHAT TO EXPECT WHEN WE INSPECT: SURPRISE-FREE APPROACH TO INSPECTION DAY**
3:45 PM	**CONTINUED COMPLIANCE: PROCESS FOLLOWING YOUR INSPECTION AND CONTINUING CERTIFICATION**
5:00 PM	Adjourn

MAIN CONFERENCE & TRADE SHOW | FEBRUARY 14, 2019

AGENDA

8:00 AM	Check-In | Trade Show | Refreshments *Illinois Ballroom*		
	Lincoln Room	*Chancellor Ballroom*	*Alma Mater Room*
9:00 AM	**ORGANIC MARKETS, FARM BUDGETS, AND INDUSTRY CHALLENGES** Michael O'Donnell *(Purdue University Extension)* & Ryan Koory *(Mercaris)*	**HOW FARMERS AND LANDOWNERS CAN WORK TOGETHER TO TRANSITION LEASED LAND** (PANEL DISCUSSION) Moderator: Nathan Aaberg *(Liberty Prairie Foundation)* Panelists: Harold Wilken *(Janie's Farm Organics)*, Rob Woodrow *(Farmland Solutions LLC)*, David Miller *(Iroquois Valley Farms)*, Cecelia Gunther	**WHERE IS THE N GOING ON YOUR FARM? A WORKSHOP TO HELP ORGANIC FARMERS MANAGE NITROGEN FOR CROPS, SOILS, AND THE ENVIRONMENT** Dr. Michelle Wander *(University of Illinois)*, Dr. Heather Darby *(University of Vermont Extension)*, Ho-young Kwon *(Argonne National Laboratory)*, et al.
10:00 AM	**LEGAL ISSUES FOR ORGANIC GROWERS** Brianna Schroeder *(Janzen Ag Law)*	**LIFTING THE FOG: A PANEL DISCUSSION WITH ORGANIC GRAIN BUYERS** Moderator: Wyatt Muse *(Farmer and Broker)* Panelists: Matt Moser *(The Andersons)*, Rick Herzberg *(Clarkson Grain)*, Anders Gurda *(Pipeline Foods)*, Barb Barcal *(All Star Trading)*	
11:00 AM	**DEFENDING THE CORE OF THE ORGANIC STANDARDS** Keynote Address – Dr. Francis Thicke *(Radiance Dairy)* *Chancellor Ballroom*		
12:15 PM	Lunch | Trade Show *Illinois Ballroom*		
1:00 PM	Trade Show *Illinois Ballroom*	Round Table Discussions *Alma Mater Room*	
	Lincoln Room	*Chancellor Ballroom*	*Alma Mater Room*
2:15 PM	**SUCCESSFUL PARALLEL PRODUCTION: HOW TO AVOID COMMON PERILS AND PITFALLS** Randy Hughes *(Hughes Farms)*	**INTEGRITY OF THE USDA LABEL: ARE ADD-ON LABELS A GOOD IDEA OR JUST CONFUSING?** (PANEL DISCUSSION) Moderator: Michael O'Donnell *(Purdue University* Panelists: *George Kalogridis (Ecocert ICO)*, Dr. Francis Thicke *(Radiance Dairy)*, Anders Gurda *(Pipeline Foods)*	**PARTICIPATORY BREEDING AND TESTING NETWORKS: A MAIZE BASED CASE STUDY FOR ORGANIC SYSTEMS** Drs. Carmen Ugarte, Martin Bohn, and Michelle Wander *(University of Illinois)*; Dr. Walter Goldstein *(Mandaamin Institute)*; Binod Ghimire, Christopher Mujjabi, and Mario Nunez *(U of I students)*
3:15 PM	**OPTIMIZING SOIL HEALTH PROVIDES MORE FERTILITY FOR THE CROP** Dr. Dan Davidson *(Woods End Laboratories/Solvita)*	**THE FUTURE: GROWING THE ORGANIC MARKETS WITH INTEGRITY AND FARM PROFITABILITY IN THE FACE OF WORLD MARKETS, FRAUD, AND TARIFFS** John Bobbe *(OFARM)*	**NITROGEN FIXING CORN: MAKING IT A REALITY** Dr. Walter Goldstein *(Mandaamin Institute)*
4:15 PM	Social Hour | Trade Show *Illinois Ballroom*		

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WELCOME TO THE 3RD ANNUAL ORGANIC GRAIN CONFERENCE!

Mallory Krieger *(The Land Connection)*

Correspondence: mallory@thelandconnection.org

Welcome to the 3rd annual Organic Grain Conference. We are honored and pleased that all of you have gathered here in Champaign for this day of learning and community building.

This year's theme, "Exploring advancements and issues in organic grain farming, together," summarizes a core strength within our organic farming community, togetherness. The organic industry is changing. Consumer demand for organic grain is at an all-time high and is outpacing domestic production. To meet this demand, buyers are looking overseas, which has brought fraudulent organic grain into the marketplace. The National Organic Standards Board has allowed the certification of hydroponic crops, challenging the soil-based nature of organic production. And, the USDA has moved to withdraw important animal welfare protections from the national organic standards. These challenges threaten to erode the integrity of the USDA organic label. We, as a community of organic farmers, educators, researchers, and buyers, must navigate these challenges and protect the integrity of our industry, together. In this spirit, The Land Connection and the advisory council for this conference have put together a program full of timely topics, evocative conversation, and community building.

We have worked hard to enhance our Organic Grain Conference and are excited to bring you added programming, more networking, and a larger trade show. For the first time, we have offered a full-day pre-conference workshop on navigating organic certification. At the main conference we offer three concurrent tracks of sessions exploring diverse topics including production, marketing, legal considerations, and emerging research in organic production. We have an expanded trade show featuring companies that serve the needs of organic farmers. I encourage each of you to make time to connect with them. During the lunch hours, we also offer the opportunity to gather in small groups and discuss topics that arise from the day's themes. You can find these topics in your program under "roundtable topics". And finally, we invite everyone to attend our afternoon social hour after the final breakout sessions have concluded.

Many thanks to our 22 sponsors and to the USDA for awarding conference funding through the Organic Agriculture Research and Extension Initiative (OREI) who have made funding for this event possible. Special thanks to our advisory council for providing guidance and expertise in crafting this educational and networking event.

And most importantly, we want to thank you, our participants, for bringing your expertise to this gathering. This conference exists to serve you, and with you, our sponsors, exhibitors, and presenters, we will grow the organic industry, **together.**

DEFENDING THE CORE OF THE ORGANIC STANDARDS

Keynote Address – Dr. Francis Thicke *(Radiance Dairy)*

Correspondence: fthicke@iowatelecom.net

There are two important things that I learned during my five-year term on the National Organic Standards Board (NOSB), which ended January 2018. First, I learned that the NOSB review process for materials petitioned for inclusion on the National List is rigorous, with Technical Reviews of petitioned materials and careful scrutiny by both NOSB subcommittees and the full NOSB. The basic foundation of the National Organic Program is sound, but...

The second thing I learned is that industry has an outsized and growing influence on USDA—and on the NOSB (including through NOSB appointments)—compared to the influence of organic farmers, who started this organic farming movement. Perhaps that is not surprising, given the growing value of organic sales. Now that organic has become a $50 billion/year business, the industry not only wants a bigger piece of the pie, they seem to want the whole pie.

We now have "organic" chicken Concentrated Animal Feeding Operations, or CAFOs, with 200,000 birds crammed into a building with no real access to the outdoors, and a chicken industry that worked behind the scenes to make sure that the Organic Livestock and Poultry Practices Standards (animal welfare standards) never saw the light of day—just like their chickens. The image consumers have of organic chickens ranging outside has been relegated to pictures on egg cartons.

We have "organic" dairy CAFOs with 15,000 cows in a feedlot in a desert, with compelling evidence by an investigative reporter that at least one CAFO is not meeting the grazing rule of the organic standards—not by a long shot. But when the USDA did its obligatory "investigation," instead of a surprise visit to the facility, the USDA gave them a heads up by making an appointment, so the CAFO could move cows from feedlots to pasture on the day of the inspection. The National Organic Program's stamp of approval gave that dairy CAFO's owners a green light to move forward with their plans to establish a 30,000-cow "organic" facility in the Midwest.

Today six "organic" dairy CAFOs in Texas produce more milk than all 453 organic dairies in Wisconsin.

We have large grain shipments coming into the U.S. that are being sold as organic but that lack sufficient organic documentation. Some shipments have been proven to be fraudulent. The USDA has been slow to take action to stop this, and organic crop farmers in the U.S. have suffered financially as a result. I spoke with the Washington Post reporter who broke the story on fraudulent "organic" grain imports. I asked him how he was able to document the fraud of grain shipments when the USDA said it was very difficult to do so. He replied "it was easy."

We have a rapidly growing percentage of the organic fruits and vegetables on grocery store shelves being produced hydroponically, without soil, and mostly in huge industrial-scale facilities. The Organic Foods Production Act (OFPA) and the Organic Standards clearly state that organic food must be grown in soil. The NOSB recommended to the USDA in 2010 that hydroponics be prohibited in organic production. But the USDA did not implement that recommendation and caved in to the high-powered lobbying of the hydroponics industry, and opened the doors to organic certification of hydroponic production. Furthermore, at the behest of the hydroponics industry, the USDA has determined that there will be no labeling of hydroponic "organic" foods, leaving consumers confused and powerless to find real organic foods.

The leaders of the hydroponic movement have deceptively renamed organic "hydroponic" production as "container" production, even with 100% liquid feeding of nutrients in the containers. With their clever deception, the hydroponics industry has been able to bamboozle the USDA—even the majority of NOSB members—into complicity with their goal of taking over the organic fruit and vegetable market with their hydroponic products.

It has been estimated that half of the organic milk and over half of organic eggs come from livestock CAFOs. And, a large and growing percentage of organic tomatoes, peppers, cucumbers and berries are produced hydroponically.

Perhaps we shouldn't be surprised to find that big business is taking over the USDA organic program because the influence of money is corroding all levels of our government. Organic farmers have tried very hard to get the USDA to stop the erosion of organic standards, but to no avail. We have hit a wall.

At this point, I can see only one way to bring the organic label back in line with the original vision of organic farmers and consumers and the Organic Foods Production Act. We need an add-on organic label for organic farmers who are willing to meet the expectations of discerning consumers who are demanding real organic food.

I believe that the vast majority of organic farmers have integrity and are producing real organic food. It is a small minority that are violating the spirit and the letter of the organic standards. Unfortunately, that small minority produces a large and growing percentage of the organic food found in grocery stores.

Two years ago, I would not have supported the idea of an add-on organic label, because I, like many others, had considered the USDA organic label to be the gold standard. We had hoped that through the process of continuous improvement of organic standards we could really make them into the gold standard that we envisioned. Now I can see that the influence of big business is not going to let that happen. The USDA is increasingly exerting control over the NOSB, and big business is tightening its grip on the USDA and Congress. During hearings for the recent Farm Bill, industry representatives publicly called on the U.S. Senate to weaken the NOSB and give industry a stronger role in the National Organic Program. And in the 2018 Farm Bill, Congress did just that.

I now support the establishment of an add-on organic label that will enable real organic farmers and discerning organic consumers to support one another through a label that represents real organic food. The Real Organic Project is working to do just that, creating an add-on label to bring organic food back to what it was conceived to be by pioneer organic farmers and OFPA. The goal of the Real Organic Project is to ensure the integrity of organic foods, for example, making sure animals have real access to the outdoors and are able to express their natural behaviors, and that food is grown in soil, not in a bucket of water.

I am also pleased that organic farmers have recently organized themselves into the Organic Farmers Association (OFA), to better represent themselves in the arena of public policy. Too often in the past the interests of big business have overruled the interests of organic farmers and organic eaters when organic policies are being established in Washington. The Organic Farmers Association will help organic farmers gain equal footing with industry on issues that affect the organic community. I believe that the OFA has already had a positive impact on national policies related to organic agriculture.

In summary, organic is at a crossroads. Either we can continue to allow industry interests to bend and dilute the organic rules for their economic gain, or organic farmers—working with organic consumers—can step up and take action to ensure organic integrity into the future.

INTEGRITY OF THE USDA LABEL: ARE ADD-ON LABELS A GOOD IDEA OR JUST CONFUSING?

(PANEL DISCUSSION)

Moderator: Michael O'Donnell *(Purdue University Extension)*

Panelists: Dr. Francis Thicke *(Radiance Dairy)*, **George Kalogridis** *(Ecocert ICO)*, **Anders Gurda** *(Pipeline Foods)*

Correspondence: fthicke@iowatelecom.net, george.kalogridis@ecocert.com, agurda@pipelinefoods.com

Remarks Provided by Panelist George Kalogridis

Let me begin by stating that I am NOT an officer of Ecocert SA. My comments are my own and do not necessarily reflect the opinions of the management, Ecocert SA or its subsidiaries.

The argument for a narrow interpretation of Organics is based on the concept of "Original Intent", a philosophy usually adopted by conservative legislators and jurists to reduce the reach of government. There is a segment of the Organic Community using the concept of Original Intent as the basis for their desire for organics to be soil based and to restrict the use of off-farm inputs.

The legal theory of Original Intent falls apart when you read the history of the US Constitution. Fact is, the Founding Fathers were arguing about the tenants of the Constitution, before the ink was dry.

The history of organic standards and regulations followed a similar path in the1980s when the Organic Community came together to codify the many different Organic Standards in use around the United States and internationally.

Some believe the current disagreements are a direct result of recent National Organic Standards Board (NOSB) votes and rulings of the USDA's National Organic Program (NOP). These current disagreements have their roots in the Organic codification arguments of the 1980s where there were two basic schools of thought: the Purist who wanted a narrow definition of Organics and the Pragmatists who argued for a Big Tent approach to Organics. There were very heated discussions between the groups, but there was a major difference between the arguments of the past and today.

The reason for such passion is that Organics gives many people a purpose to their lives; it has had a profound effect on my life. In many ways Organics can border on a religious experience. The current schisms within the Organic Community do resemble that of religious sects—there are Orthodox, Reformist, Fundamentalists, and Evangelicals. And like religion, the basic tenets from which these varied beliefs sprang are the same. The interpretations of the text leaves us where we are today, with one belief system condemning the others for not seeing the one true way in Organics.

Organic regulations around the world are similar, close to 95%. This similarity is rare in international law and regulations and this commonality is one of the main reasons for such wide divides in interpretations. We often hear that if we change the issue de jour, then we will harmonize the worldwide regulations of Organics. The U.S. bans the use of antibiotics on livestock, but the EU allows the use of antibiotics under strict circumstances to save the life of the animals. I would argue these regulatory variances recognize the differences in growing regions and size of the farming operations throughout the world.

One of the major decisions made by the Organic Community in the 80s was that the standards/regulations should not be prescriptive. Instead of insisting on every farmer following a strict set of recommendations, it allowed for the individual farmers to meet the basic construct of Organics in a way that worked best for the farmer's region and the crops they chose to grow. This was a hotly debated topic. The Purist wanted to make sure everyone farmed in a way that they thought made the most sense for Organics. The Pragmatists understood that farming in the Northeast was completely different than farming in the Southeast. An example is Homestead Florida, where there really isn't any soil to speak of. In Homestead the ground is old coral rock. They break the rock into smaller and smaller pieces until their field is small pieces of gravel. It is, for lack of a better explanation, outdoor hydroponics. In the 80s there was a small group of dedicated Organic farmers in Homestead who believed in farming without chemicals since the water table was 18 inches from the surface. They grew citrus, winter vegetables, and topical fruit. Some Purists said Homestead farmers could not be Organic, but the consensus of the Organic community was not to exclude anyone simply because of where they lived and the circumstances by which they had to adapt the Organic standards.

The big difference between then and now is that in the 80s, once the Purists and Pragmatists reached a decision, both sides would go out for a beer afterwards as friends. They understood it's possible to have an honest difference of opinion and be accepting of one another's opinion. Sadly, that comradery is missing from today's disagreements, with one side not wanting to be associated with those whom they disagree, even to point of not considering sitting down to discuss commonalities, much less differences.

Fact is, we need to be working together to overcome the threats to Organics from the current administration in DC.

Remarks Provided by Panelist Anders Gurda

At a recent presentation at an organic grain conference, a presenter shared a slide that had all of the "clean label" seals pasted one next to the other. If you squinted your eyes, the differences were barely noticeable. A green circle here, a green leaf there, rounded and easy on the eyes. A distinct "Organic" look. One label seemed more foundational to me than the rest though—a kind of anchor that the others revolved around. It's the label you see more than the others: USDA Organic. The USDA organic label has never been perfect and through structures like the National Organic Standards Board (NOSB), it's a constantly evolving standard that strives to respond to a diverse chorus of voices, motivations, and interests. It's a flawed process as most democratic processes are, but it's the structure that we've all worked within for almost two decades and what regulates and enforces the seal that consumers have looked to for the same amount of time.

As more and more competing labels emerge, there's a risk of seeding mistrust of our foundational label and confusing consumers to the point of either disengagement or worse, abandonment of label-based purchasing. At the same time, it's undeniably important to not blindly accept the current regulation as a final or finished document. Constant improvement and evolution is necessary to stay relevant and maintain focus on all of our shared goals of a more ecologically-sound production system that creates resilient soils and communities. Some of the "add-on" or alternative labels can be seen as a protest against what some see as an insufficient standard under attack by those who might "water down" the regulations. While these labels might effectively challenge the status quo, and drive us all to a higher standard, they may also cause considerable collateral damage to consumer confidence, cohesion within the industry, and stakeholders' perception that an active role can be taken within the current system. It's possible that some of this damage could be addressed with effective marketing and communication that acknowledges and honors the USDA organic label while explaining the valuable addition of specific, named practices including provisions for animal welfare, human health and safety, and soil health measures. However, successfully educating the consumer while simultaneously protecting the integrity of the USDA seal would be a significant challenge.

We've come too far and accomplished too much with the USDA organic standard to cannibalize or unproductively challenge its foundation. A reasonable conversation about how best to improve, not replace, the standard is becoming increasingly important as competing projects stand to damage what we've worked towards and the limitations of the standard as written become clearer. We're having the conversation within Pipeline Foods, a company at the ready to create sustainable supply chains around any label that there's demand for while working to protect the integrity of the labels we currently work within. Hard, important conversations for all of us to have.

THE FUTURE: GROWING THE ORGANIC MARKETS WITH INTEGRITY AND FARM PROFITABILITY IN THE FACE OF WORLD MARKETS, FRAUD, AND TARIFFS

John Bobbe, *Executive Director*
Organic Farmers' Agency for Relationship Marketing, Inc. (OFARM)

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The Organic Farmers' Agency for Relationship Marketing (OFARM) is a cooperative incorporated in the State of Minnesota as a marketing-agency-in-common and operates under the Capper-Volstead Act of 1922. OFARM has five-member organic grain and livestock marketing cooperatives with organic producers in 19 states from Montana to Texas and Louisiana to Tennessee, Kentucky and Ohio and all states in between. The USDA has cited OFARM as the largest organized block of farmer-controlled organic grain in the U.S. (Rural Cooperatives Magazine, January 2012).

The idea of farmers working together in the marketplace on contracts including terms of trade, specifications, and price, originated in Ames, Iowa in 1997 with OFARM beginning its operations in 2000.

I have been OFARM's executive director since 2001. During our 18 years of existence we have observed and carefully monitored the U.S. organic marketplace with its trends and changes. During the last few years, I have become increasingly concerned about the role imports of organic grain (some of which are fraudulent) are playing in reducing farm profits and slowing growth in organic conversion.

The U.S. Organic Market

The U.S. organic market is quite large with annual sales at the retail end over $50 billion. The organic market is projected to grow at an annual rate of 14% per year over the next several years.

Even with farm transitions to organic, the demand for organic grain production is increasing much faster than conversion of acres to meet the demand. The market is also not signaling to producers in any significant way that more production is needed or wanted. This is where imports come into play, especially for corn and soybeans.

Estimates we have seen point to about 40% of our corn needs are met with imports, 70-90% of our soybean needs and about 14% for wheat. The reason for the low wheat import numbers is that wheat for milling purposes is much more specific as to milling requirements.

I want to make perfectly clear that we in OFARM are not opposed to organic imports of corn, soybeans, or wheat. Fraudulent imports (which have been identified on a large scale) however, have had disastrous consequences for U.S. organic grain producers.

U.S. Organic Grain Farmer Perspectives and Damages from International Organic Fraud

The 12 Midwestern states of North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Indiana, Michigan, and Ohio produce 77 percent of the organic corn for grain and almost 50 percent of the soybeans. (Source: USDA)

Market conditions are such that in talking with farmers in the 19-state area OFARM covers, a farm with 100 acres of corn has lost over $30,000 below production costs for the years 2015 through the first half of 2018. With somewhat improved prices the last 18 months we have seen those losses decline.

Again, our farmers recognize the current necessity of imports of organic corn and soybeans for segments of the industry to meet growing demand.

What is problematic is that imports, some in large quantities, in many cases are being used to relegate U.S. organic grain production as a residual source of supply instead of a primary source. This has resulted in lower U.S. producer prices, sending the opposite market signals that less domestic production is needed. More domestic production should be encouraged, and price is one of the factors that indicates what producers should do. This is compounded by what appears to be massive volumes of fraudulent import shipments.

The United States Department of Agriculture (USDA) Foreign Agricultural Service (FAS) has published reports on organic markets including an assessment of fraud potential in at least one country in the Black Sea region. (January 26, 2016 USDA-FAS Gain Report TR6005, Turkish Organic Market Overview)

The most frequently cited countries of origin for exports to the U.S. for corn and soybeans include countries in the Black Sea Region (Ukraine, Russia, Kazakhstan, among others). The fraud exposed has also been from shipments originating from countries in this region.

Washington Post Investigative Reporter Peter Whoriskey published an article titled, "The labels said 'organic'. But these massive imports of corn and soybeans weren't." (May 12, 2017) The article cited copies of actual manifests and their alterations from conventional to organic en route to the U.S. This shipment plus documents from two others indicated they were fraudulent on over 16,363 metric tonnes each, some of which entered into the U.S. domestic market supply chain.

We in OFARM have been tracking shipments and have actual pictures of ships, ports of origin, cargo, volumes and port of delivery.

OFARM representatives have had extensive conversations with people who have travelled to countries that export to the U.S. They have reported highly questionable practices including such things as wild birds flying around in processing facilities and questionable protocols regarding sanitation.

The problem of fraud has many aspects. First is fraud along the supply chain closer to the point of origin and second is the current weakness in the U.S. regulatory oversight to detect and take actions regarding fraud.

The Principles of Cost of Production

OFARM organic grain and livestock producers adhere to the following principles on prices the marketplace needs to reflect in order for organic to continue to grow and be profitable:

- The full recovery of all actual production inputs including those unique to the production, handling, and marketing of organic livestock.

- A return to labor and management that provides family income at levels that allow for the full involvement and adequate compensation of all members of this partnership in the operation of an organic production unit. This compensation must extend to the education, training, and transition to a future generation of organic farmers.

- Return to investment that provides for the acquisition and ownership of the land and related infrastructure required for organic food production.
- Income enhancement to provide support for the social and economic viability of the community.
- Organic premium for production of healthy, wholesome food in an environmentally responsible manner.

These principles should apply anywhere in the world.

Are Tariffs Really a Solution?

The problem with tariffs is they are a doubled edged sword. Ideally if you could selectively impose tariffs on organic grain out of the Black Sea region, and if the tariffs were set at high enough rates, they could be beneficial to U.S. producers. The question is: "How high do you set the tariffs"? What if the rates still allow the grain to come in below domestic prices? Second, tariffs won't stop attempted fraud. If enough grain is kept out of the market, even legitimate organic grain, it could short the domestic market enough to either allow domestic fraud or result in simply lowering organic standards to increase supply rapidly. We do export organic soybeans to China, Japan and Taiwan. Imposing tariffs could result in retaliation, killing a foreign market, and customers will look elsewhere just as they have in conventional corn and beans markets. The ultimate question is dealing with legitimate organic grain imports that meet NOP standards versus those that are fraudulent.

2018 Farm Bill and Some Hope!

Top priorities advanced by the National Organic Coalition (NOC) and OFARM that were included in the 2018 Farm Bill:

The bill includes a historic boost for the **Organic Agriculture Research and Extension Initiative (OREI)**; keeps the **organic certification cost-share program; and steps up organic import enforcement.** Specifically:

In the 2018 Farm Bill, Senator Tammy Baldwin (WI) along with Senator Jon Tester (MT), who is also an organic farmer himself, successfully got language of the Organic Farmer and Consumer Protection Act of 2018 inserted into the signed bill (S2927). The bill not only gives the USDA more funding, but stipulates specifically what the USDA must do to insure organic integrity throughout the supply chain, especially for imports. The following are some of the specific provisions and language:

The purpose is to provide documentation sufficient to verify that an agricultural product imported for sale in the United States which shall include, at a minimum, information sufficient to indicate, with respect to the agricultural product--- (i) the origin; (ii) the destination; (iii) the certifying agent issuing the national organic program certificate; (iv) the harmonized code, if a harmonized tariff code exists for the agricultural product; (v) the total weight; and (vi) the organic standard to which the agricultural product is certified.

Documentation and traceability enhancement; data collection.
FRAUDULENT OR MISREPRESENTED PRODUCTS.—The Secretary, to the maximum extent practicable, shall reduce the risk of fraudulent or misrepresented organic products entering the United States and being marketed for sale in the United States. (3) IMPORT CERTIFICATION. (A) IMPORT CERTIFICATES.—For an agricultural product being imported into the United States to be represented as organically produced, the Secretary shall require the agricultural product to be accompanied by a complete and valid national organic program import certificate, which shall be available as an electronic record. (B) TRACKING SYSTEM.—(i) IN GENERAL.—The Secretary shall establish a system to track national organic program import certificates.

The Secretary shall modernize international trade tracking and data collection systems of the national organic program established under this title.
(B) ACTIVITIES.—In carrying out subparagraph (A), the Secretary shall modernize trade and transaction certificates to ensure full traceability without unduly hindering trade, such as through an electronic trade document exchange system. On an annual basis, the Secretary shall submit to Congress and make publicly available on the website of the Department of Agriculture a report providing detailed quantitative data on imports of organically produced agricultural products accepted into the United States during the year covered by the report. The data described in subparagraph (A) shall be broken down by agricultural product type, quantity, value, and month.

Oversight of satellite offices and foreign operations.—As part of the accreditation of certifying agents under this section, the Secretary shall oversee any certifying agent operating in a foreign country. Including satellite offices.

Investigations.
Section 2120(b) of the Organic Foods Production Act (7 U.S.C. 6519(b)) is amended by adding at the end the following:

(3) INFORMATION SHARING DURING ACTIVE INVESTIGATION.—In carrying out this title, all parties conducting an active investigation under this subsection (including certifying agents, State organic certification programs, and the national organic program) shall share confidential business information with Federal and State government officers and employees and certifying agents involved in the investigation as necessary to fully investigate and enforce potential violations of this title.

(4) EXPEDITED PROCEDURES FOR FOREIGN OPERATIONS.—The Secretary shall establish expedited investigative procedures under this subsection to review the accreditation of a certifying agent operating in a foreign country under any of the circumstances described in subparagraph. The Secretary shall promptly carry out expedited investigative procedures established under subparagraph (A) to review the accreditation of a certifying agent operating in a foreign country if— (i) the accreditation of the certifying agent is revoked by a foreign government— (ii) the Secretary determines that there is a sudden and substantial increase in the rate and quantity of imports of an individual organically produced agricultural product from the foreign country, in which case the expedited investigative procedures shall be carried out with respect to each certifying agent of that agricultural product in that foreign country.

Federal agency that administers such a system access to available data from the system, including—(A) the Automated Commercial Environment system of U.S. Customs and Border Protection; and (B) the Phytosanitary Certificate Issuance and Tracking System of the Animal and Plant Health Inspection Service.

(2) DATA COLLECTION AND ORGANIZATION SYSTEM.—(A) IN GENERAL—The Secretary shall establish a new system or modify an existing data collection and organization system to collect and organize in a single system quantitative data on imports of each organically produced agricultural product accepted into the United States. (B) ACCESS—The single system under subparagraph (A) shall be accessible by any agency with the authority to engage in—(i) inspection of imports of agricultural products; (ii) trade data collection and organization; or (iii) enforcement of trade requirements for organically produced agricultural products.

The new Farm Bill provides for:
Establishing an organic agricultural product imports interagency working group. It will include Customs and Border Patrol (CBP), FDA and agencies within the USDA including the NOP and Animal Plant Health Inspection Service. The purpose is to facilitate coordination and information sharing between the Department of Agriculture, U.S. Customs and Border Protection, and the Food and Drug Administration relating to imports of organically produced agricultural products, verifying the authenticity of organically produced agricultural product import documentation, such as national organic program import certificates; ensuring imported agricultural products represented as organically produced meet the requirements under this title; collecting and organizing quantitative data on imports of organically produced agricultural products; and reporting to Congress on— (i) enforcement activity carried out

by the Department of Agriculture, U.S. Customs and Border Protection, or the Food and Drug Administration in the United States or abroad; and (ii) barriers to preventing agricultural products fraudulently represented as organically produced from entry into the United States. (I) tracking the fumigation of imports of organically produced agricultural products into the United States; and (II) electronically verifying national organic program import certificate authenticity; and (ii) training of U.S. Customs and Border Protection personnel on— (I) the use of the systems (C) establishing outcome-based goals for ensuring imports of agricultural products represented as organically produced meet the requirements under the Farm Bill; (D) recommending steps to improve the documentation and traceability of imported organically produced agricultural products;

"(2) REPORT ON ENFORCEMENT ACTIONS TAKEN ON ORGANIC IMPORTS.—A report—

"(A) providing detailed quantitative data (broken down by commodity type, quantity, value, month, and origin) on imports of agricultural products represented as organically produced found to be fraudulent or lacking any documentation required under this title at the port of entry during the report year;

"(B) providing data on domestic enforcement actions taken on imported agricultural products represented as organically produced, including— (i) the number and type of actions taken by United States officials at ports of entry in response to violations of this title; and (ii) the total quantity and value of the agricultural products that were the subject of the actions, broken down by product variety and country of origin;

"(C) providing data on fumigation of agricultural products represented as organically produced at ports of entry and notifications of fumigation actions to shipment owners, broken down by product variety and country of origin; and

"(D) providing information on enforcement activities under this title involving overseas investigations and compliance actions taken within that year."

The Bill provides additional funding to the NOP as follows; "(1) $15,000,000 for fiscal year 2018; (2) $16,500,000 for fiscal year 2019; and increases funding through 2023 to $24,000,000. It also provided a special one-time appropriation of $5,000,000 for modernization of trade tracking and data collection systems."

2018 Farm Bill - Things that Need to be Fixed and OFARM Actions!

1. Currently there is nothing stopping an entity under enforcement actions by the USDA from changing certifiers when NOP enforcement actions may be taken. We have seen a major case of this in May 2018. This needs to be corrected.

2. From what we have been able to determine in OFARM there are no protocols for transport via bulk marine carriers and containers for organic grains. For many carriers, sea water and flooding the holds constitutes cleaning. One has to ask whether the harbor or ocean water possibly has industrial waste, heavy metals, plastics, and who knows what else? Rules need to be put in place for protocols that ensure the integrity of the grain loaded and transported equal what is required domestically, including furnishing an affidavit of inspection before loading.

In addition to the Farm Bill corrections needed, the OFARM family of cooperatives has developed an add-on label for all their transactions signifying that the grain being sold was grown in the U.S.

In Conclusion

The originators of the U.S. Organic Food Production Act never envisioned 20 years down the road, weaknesses in our system that would be exploited for financial gain through fraud.

Organic integrity and elimination of fraud will benefit everyone including those who wish to export to the U.S. organic markets. Continued fraud will be damaging in the long run to everyone.

U.S. producers do feel that the USDA's National Organic Program and its rules and procedures regarding certification and use of the USDA organic label put them at the forefront in the U.S. and the world when it comes to high standards for organic production that our consumers can have confidence in.

This will result in fairness to everyone through the entire supply chain. It will result in fairness to organic farmers in a marketplace that is fully transparent and reward them for the risks they take. Consumers will have confidence that when they make the decision to buy "organic" they are getting the value and integrity they are paying for with their dollars.

WHERE IS THE N GOING ON YOUR FARM? A WORKSHOP TO HELP ORGANIC FARMERS MANAGE NITROGEN FOR CROPS, SOILS, AND THE ENVIRONMENT

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Our team has been working to develop decision support tools for organic grain growers by leveraging existing resources and experience associated with the development of goCrop™ , a tool developed by UVM extension and others working closely with farmers in Vermont. It uses integrated web and mobile applications to pioneer the future of crop and nutrient management. The back side of the tool will draw on a parameterized soil organic matter model (PCSOM) that is an adaption of the widely applied CENTURY/DAYCENT model (Parton et al. 1987&1988). Using PCSOM we can calibrate the model and adjust decay rates to more accurately reflect the influences of climatological, physical factors (e.g. tillage or other field operations), and inputs (e.g. fertilizer addition or residues returned) on SOM turnover in systems that use organic amendments (Kwon et al. 2017).

The tool is designed to help estimate plant available N (PAN), SOM, and nitrous oxide (N2O) emissions to help users manage N for crops and the environment. In addition to N being of agronomic interest, as it is the most frequently limiting nutrient for crop growth, N is also one of agriculture's greatest environmental concerns. As much as one-third of fertilizer N is leached. Agricultural soils contribute about 75% of all N2O emissions coming from the ag-sector, which accounts for about 8 % of U.S. greenhouse gas emissions (USEPA, 2015). During the workshop we will show how factors in and out of our control influence N fate and soil health, and try to discover how to package this information to best help growers be good stewards.

In order for farmers to benefit from decision support tools that combine information about crop rotations, soil test results, input applications, and yield estimations to project changes in soil fertility, leaching and C sequestration, we need to overcome the high transaction costs associated with tool use. We hope to learn why, despite the potential utility and financial savings that one might get from them, existing N management tools are seldom used. Reasons for this might be that farmers do not have time to enter data solely for the purpose of creating nutrient budgets, the tools are not user-friendly and/or, the information is not presented in a way that helps with important decisions.

A weakness in existing tools that is of particular concern for organic growers is that models we rely on do not account for feedbacks that result from changes in SOM that accrue over time (Colomb et al., 2012). The same is true for simple tools now available to estimate plant available N derived from added organic residues and fertilizers. Estimation of PAN is a major source of uncertainty, and after working hard to summarize available published data and reports on manure and cover crop composition, we conclude that use of look-up-tables will never provide adequate 'guestimates' of PAN. To determine whether it is necessary to measure manure and/or cover crop inputs to successfully estimate PAN, we conducted a cover crop survey last season and obtained field management, manure analyses, and cover crop biomass from 50 fields. We also collected field and satellite imagery. From this pilot study we learned: 1) manure test values bear little resemblance to 'book values'; 2) one can estimate cover crop biomass and N returned using field collected observations, but we need more samples to develop robust relationships; and 3) if we had more data on cover crop biomass, then satellite imagery might generate reasonable estimates of biomass return. We hope that information shared during the workshop, protocols for field-

specific estimates of organic inputs, and the tool workshop participants help us develop will help improve soil and N stewardship on organic farms.

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PARTICIPATORY BREEDING AND TESTING NETWORKS: A MAIZE BASED CASE STUDY FOR ORGANIC SYSTEMS

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Along with the increased demand for organically produced grains, there is a growing need for seed that performs well under organic farming conditions. Our group has been working with Midwest organic grain farmers on a project that is testing corn cultivars with agronomic potential and that fit within organic farming conditions. Cultivars of interest are those with nitrogen efficiency characteristics, are robust weed competitors, and that have high yield potential, as well as improved nutritional value. These are cultivars that were developed at the University of Illinois under a conventional breeding program with optimized nutrient availability and at the Mandaamin Institute in Wisconsin under low inherent soil fertility conditions. In 2018, the first year of the project, we evaluated a set of cultivars in strip trials established at 13 different farm locations and two on-farm replicated trials. Preliminary results from strip trials reflect the high variability in soil quality characteristics—soils that had high soil organic matter and improved levels of soil fertility had more stable yields. At the two replicated trials, we evaluated root response to varying levels of soil fertility. The top-performing varieties from each of the breeding programs reflected differences in root architecture, yet no difference in yield response was apparent. The University of Illinois material was responsive to improved levels of fertility and allocated resources to grain production with reduced partitioning to the rooting system. The top performer from the Mandaamin Institute produced a massive rooting system that likely allows the plant to withstand more stressful conditions related to water stress and nutrient availability. This cultivar was less responsive to changes in soil fertility. Our presentation will also share the first results on the influence of organic management practices on grain quality characteristics including protein and starch content. Overall, this first year of data revealed patterns that will inform selection and testing of cultivars under different soil quality characteristics and that meet current market needs. This project continues for 3 more years and the team will continue partnering with organic farmers in the region to test cultivars and to evaluate business models that address intellectual property and germplasm sharing issues.

NITROGEN FIXING CORN: MAKING IT A REALITY

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An overview is given for a corn breeding program that improves populations, inbreds, and hybrids in the Midwestern U.S. Breeding and selection occurs under biodynamic-conditions in Wisconsin, on an organic winter nursery in Puerto Rico, a biodynamic winter nursery in Hawaii, and a conventional winter nursery in Chile. Emphasis is on improving protein quality, carotenoid content, competitiveness with weeds, nitrogen (N) efficiency/N2 fixation, and cross incompatibility to genetically engineered (GE) maize. Philosophy is that the plant species is a responding partner in the breeding process. Adaptation and selection emphasize vigor and yield under N limited conditions. The Ga1 and Tcb1 alleles are utilized to induce cross incompatibility to GE corn. Grain protein quality was improved by utilizing opaque kernels that emerged in populations during the course of the program in surprisingly high frequencies. Results were inbreds and hybrids with increased N efficiency and protein quality. N efficiency was accentuated by breeding with landraces that may fix N2 with microbes coupled with selection for performance under N-limited conditions. When grown next to conventional hybrids, the best hybrids from this program have exhibited 30% more methionine and 16% more protein in grain and more protein/acre. A short summary is given on scientific literature relating to N2 fixation by microbes in conjunction with corn. We will discuss the financial value and application of the results, the availability of seed for testing, and the need for specific research to determine how much N fertilization can be reduced.

OPTIMIZING SOIL HEALTH PROVIDES MORE FERTILITY FOR THE CROP

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Soil health is important to maintaining the sustainability of our soil resources and productivity of agriculture. And maintaining a high level of soil health and nutrient cycling is particularly important to organic producers who depend on cover crops, manures, nature, and natural minerals to provide the nutrients that crops require. However, the basics begin with understanding crop demand, soil supply, and soil health contributions before adding additional supplemental materials.

Crop Needs

Grain crops like corn, soybeans, and wheat require both macro- and micronutrients. Regardless of the production system (conventional vs. organic), the nutrient requirements or demand are largely a function of yield. A bushel of production requires so many pounds of nutrients and the greater the yield, the greater the demand. Many growers plan their fertility program based on crop removal rates. Understanding how many pounds of nutrients are required per bushel is your first step in planning a fertility program.

Crop	Unit	N	P_2O_5	K_20	S
	Pounds per bushel of production				
Corn-grain	Bu	0.67	0.35	0.25	0.08
Soybean-grain	Bu	3.3	0.73	1.2	0.18
Wheat-grain	Bu	1.2	0.48	0.29	0.1

IPNI Estimates of Nutrient Uptake and Removal. http://www.ipni.net/article/IPNI-3296

Soil Supply

The supply of nutrient is a function of what is available in the soil. A conventional soil test will reveal the parts per million (ppm) or pounds per acre of extractable nutrients that are potentially available to the crop. All farmers should base their fertility program partly on what the soil can provide and pay attention to what it's deficient in. When soil test levels are in the moderate or medium range for phosphorus or potassium, apply enough nutrients to replace expected crop removal. Winter wheat requires a large amount of available phosphorus in the fall, when the root system is primarily in the upper soil profile and phosphorus mineralization has ceased in cold soils. To compensate for the higher phosphorus requirements of wheat, have 1.5 times more phosphorus available in the fall.

Understanding what the soil can supply is your second step in planning your fertility program. More information is available in the Illinois Agronomy Handbook, Managing Soil pH and Crop Nutrients.
http://extension.cropsciences.illinois.edu/handbook/pdfs/chapter08.pdf.

Soil Health

Soil health can be defined several ways. The Natural Resources Conservation Service (NRCS) defines it as "the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans." They add it's important that soil biota be protected and can flourish. To learn more about the NRCS's approach visit

https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/soils/health/. The NRCS lists four areas to pay attention to, but unfortunately they miss decomposition and nutrient cycling/mineralization which are important outputs of healthy soil and critical to an organic producer. The four areas the NRCS lists are:

- Keep the soil covered as much as possible.
- Disturb the soil as little as possible.
- Keep plants growing throughout the year to feed the soil.
- Diversify as much as possible using crop rotation and cover crops.

Size of your Soil Engine

Soil respiration, or carbon mineralization is a common metric to assess soil health, microbial activity, and nutrient mineralization. Organic production systems usually have better soil health than conventional production systems due to the use of diverse rotations, applications of mulches, manures, composts, and compost teas, and routine inclusion of cover crops. Most operators include some form of tillage as a weed control tool and still maintain good soil health.

Today there are numerous tests that give an indication of soil health such as organic matter, soil organic carbon, permanganate active carbon, Solvita soil respiration, soil labile amino nitrogen, Haney soil health, and PLFA (phospholipid fatty acids). A total of nineteen metrics are being evaluated by the Soil Health Institute (https://soilhealthinstitute.org/?s=soil+health+metrics) for their utility in describing and characterizing soil health.

However, all that growers really need to know about soil health is output and outcome. Output is carbon mineralization (amount of soil respiration) and functionality (nutrient mineralization) by the microbial community. Outcome is the ability of that community to break down organic matter, release nutrients, and build aggregate stability.

Feedstock Fuel

Organic matter is the part of the soil that consists of raw plant and animal residues in various stages of decay. Most agricultural soils have between 3 and 6% organic matter, some degraded soils less than 1%, and some organic soils greater than 12%. Organic matter is routinely measured by a soil laboratory and reported as LOI (Loss on Ignition) test. This is an important metric because it is hard to have a healthy soil without an organic matter pool.

As an organic producer it's the raw organic matter, living microbial biomass, and active organic matter that really matter. Organic matter is made up of different components:

- Raw plant residues such as cornstalks and wheat straw and living microbial biomass
- Active soil organic matter which is the source of fertility
- Passive soil organic matter or humus.

The raw organic matter and living microbial biomass are the feedstock that feed nutrient release, but this takes time. Including more wheat and corn in your rotation will help build raw organic matter which is the key feedstock for producing active organic matter. A 240-bushel corn crop, 100-bushel wheat and 60-bushel soybean crop will produce 6, 4-5, and 2 tons of residue, respectively. However, the fate of that residue is largely determined by its carbon to nitrogen ratio, whether incorporated, and how fast it breaks down.

Also, the quality of organic matter counts and that means it needs a certain amount of nitrogen relative to carbon which is referred to as the carbon to nitrogen ratio. Soil microbes need a C:N ratio near 24:1. Cornstalks and wheat straw can have a ratio of 70 to 80:1, respectively, and break down slowly. Soybean residue comes in at 25 to 30:1 and breakdown quickly. Legume forages such as vetch and clovers can have ratios of 10 to 12:1, break down too quickly and release ample amounts of nitrogen.

It's the active organic matter (only 10 to 20% of the total) that releases the nutrients taken up by crops. Consider this: if your soil is 3% organic matter and weighs 2 million pounds per acre foot, it contains 60,000 pounds of organic matter or 6,000 to 12,000 of active organic matter that is a source of nitrogen, phosphorus, potassium, sulfur, and an abundance of micronutrients. However, while that pool is quite large on a per acre basis, the amount that becomes available on an annual basis is much smaller due to constraints on mineralization.

As a producer it's the humus materials that build soil tilth, structure, and provide additional nutrient and water hold capacity. However, as a source of fertility, it's poor since it is the end-product of decomposition, stable and further decomposition is difficult.

Organic Matter and Nutrient Availability

There is a strong relationship between organic matter and nutrient availability. Soil organic matter, together with any fresh crop residues, manures or compost are sources of carbon, nitrogen, phosphorus, sulfur, and micronutrients. Organic matter holds on to potassium, calcium, and magnesium, and naturally chelates zinc, copper, and manganese in forms that plants can use. However, potassium is not a mineralizable nutrient. Instead it leaves crop residues quickly, even before they decay. However, potassium, like phosphate, is relatively immobile in the soil and does not leach with water or volatilize like nitrogen.

There is also a strong relationship between microbial activity and nutrient availability. If you have good quality organic matter and good microbial activity, more nutrients will be released. You can also have large quantities of poorer quality organic matter (high carbon to nitrogen ratio) and have high microbial respiration yet poor mineralization. So, organic matter quality counts, and adding compost, manures, and cover crop can help maintain a better balanced and higher quality organic matter pool in the soil.

Microbes Real Value

Soil microbes recycle, mine, or produce nutrients. Most bacterial and fungal microbes are decomposers that take dead plant and animal matter and break them down into microbial biomass loaded with carbon and nutrients. They use active organic carbon in the organic matter or from root exudates as an energy source and release nutrients like nitrogen and phosphorus. The 'miners' exudate an organic acid goo that extracts nutrients which are tied up with minerals. Another specific group that form a mining relationship is mycorrhizal fungi. They form a symbiotic relationship with plant roots, and their fungal hyphae extend out exploring more soil volume than roots alone. Then there are the producers that capture nitrogen out of the soil atmosphere and make it available to plants. Rhizobia form a symbiotic relationship with legumes. There are also free-living soil bacteria (Azotobacter, Bacillus, Clostridium, and Klebsiella) that can fix significant amounts of nitrogen including while feeding on organic carbon in the soil.

Cover Crops

Cover crops are extremely popular today and have been a tool that organic growers' have used to improve soil productivity. Cover crops play an essential role in improving soil health and come with several numerous bene-

fits, such as controlling erosion, improving water infiltration, and scavenging and recycling nutrients and adding nitrogen back into the soil. Cover crops should be part of all organic rotations, but choose the species wisely to scavenge and recycle leftover nutrients, mine nutrients from below the crop rooting profile and provide a source of organic nitrogen.

Supplemental Biologicals

Today there are many biological products available for the commercial and organic markets that supplement what nature provides naturally. A healthy and robust soil matrix can provide all or part of the required fertility. But a soil that is lacking in structure, basic nutrients, or has an environment not conducive to high levels of microbial activities, can benefit from these supplemental products. If a product works and stimulates the microbial community to a higher level of activity, soil respiration can validate that increase in activity. However before purchasing, do your homework and on-farm testing to make sure the products you purchase contribute to the health and fertility levels of your soil.

Today's soil health tools offered by many commercial soil laboratories measure soil microbial activity and estimate soil health by focusing on carbon and nitrogen cycling and the available nutrient pool. It was specifically designed to incorporate soil health testing into conventional soil testing to improve fertilizer recommendations by estimating the potential available of nitrogen, phosphorus, and potassium. While the soil health tool isn't a perfect tool, in soils high in active organic matter it can provide a good estimate of how much nutrients are available in that system, the first step an organic producer needs to take.

Managing for a Healthy Soil

To develop a healthy soil with the resources to support organic production follow these tips:

- Build up and maintain high soil organic matter levels
- Enhance soil structure to improve the environment for soil flora and fauna
- Maintain soil pH and EC in the optimal range for both crops and microbes
- Test soils regularly to determine the nutrient levels and account for it in budgeting
- Test manures and composts and credit their nutrient content
- Incorporate manures/composts to reduce volatilization, runoff, or wind displacement
- Balance application and removals and take advantage of drawdown if levels are high
- Plant cover crops to sequester nutrients over winter, increase soil organic matter and health
- Plant a legume cover crops to provide nitrogen to the following crops
- Supplement organic fertilizer materials with biological products to enhance microbial activities

Much of the information discussed above can be researched at Building Better Soils for Better Crops.
https://www.sare.org/Learning-Center/Books/Building-Soils-for-Better-Crops-3rd-Edition

ORGANIC MARKETS, FARM BUDGETS, AND INDUSTRY CHALLENGES

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Farmers need solid financial data to make informed decisions about their operations, particularly when exploring a new enterprise or diversification opportunity. With growing demand for domestically sourced organic grains, many Midwest grain farmers are looking at transitioning acreage to organic production. The lure of organic grain price premiums over conventional prices, particularly for corn and soybeans, can make transitioning to organic seem like a no brainer—despite typically lower yields, organic price premiums can provide higher gross revenue relative to conventional crops. However, organic cropping systems typically require longer, more diversified rotations compared to conventional systems. These diverse rotations help organic farmers manage weeds and pests, build soil fertility (including nitrogen from legume cover crops), and limit erosion from physical soil disturbance used to manage weeds and cover crops. Organic systems use different inputs and typically require increased labor to manage weeds. Therefore, farmers need to carefully assess expenses relative to the potential increased gross revenue for each crop, and the net return for a full crop rotation.

Michael will share current results from a Purdue AgSeed funded project that includes development of organic crop enterprise budgets and a transition decision-making tool. The transition decision-making tool compares a conventional corn-soybean rotation to longer organic rotations in a phased transition. A summary of the latest (2017) FINBIN data from University of Minnesota comparing organic and conventional crop rotations will also be reviewed.

According to the U.S. Organic Trade Association (OTA), consumer demand for organic goods grew 40% between 2013 and 2017 (more than double the growth of conventional agriculture). This boom in consumer interest has created opportunities for U.S. farmers to grow their incomes and operations in an otherwise stagnant agricultural marketplace. With prices for many organic commodities consistently double or triple their conventional counterparts, the revenue potential for organic producers remains a bright spot for the U.S. agricultural industry overall. As a result, many producers are moving to participate in the organic agriculture marketplace, fueling industry growth, and doubling the organic field crop acres over the past five years according to Mercaris estimates. However, organic consumer demand remains ahead of supplies in the U.S., leading to a persistent trade gap. This gap highlights future growth opportunities for the U.S. organic sector, but is also a sign of the obstacles U.S. organic farmers are facing as they work to maintain organic production standards.

To understand the trade gap and the opportunities within trade, Mercaris has developed data and market insights including the latest organic market production, trade, and price information. An in-depth examination of this data highlights how consumer demand is the driving force behind the booming organic soybean import trend, as well as the opportunities for U.S. organic small grain markets that hide within trade. Finally, it is important to discuss the production and marketing challenges organic farmers face when integrating small grains into their crop rotations, and some steps that can be taken to address these obstacles.

LIFTING THE FOG: A PANEL DISCUSSION WITH ORGANIC GRAIN BUYERS

Moderator: Wyatt Muse *(Dirt Road Farm)*

Panelists: Matt Moser *(The Andersons)*, **Rick Herzberg** *(Clarkson Grain)*, **Anders Gurda** *(Pipeline Foods)*, **Barb Barcal** *(All Star Trading)*

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Remarks Submitted by Moderator Wyatt Muse

Clear and timely communication is the most important thing a grower can do to be a good supplier. If the crop is going to be short of contract, share that with your buyer when you realize it, don't wait until ship time. Be sure to send a sample that accurately represents your inventory. There is nothing worse than seeing a good sample and receiving trash when the loads ship. Don't over estimate yield before harvest. Give a realistic estimate based on past experience and current growing conditions. Buyers remember these things and the grower that has a tendency to "over promise and under deliver" is remembered... and that usually results in a lower price offer in future years.

Remarks Submitted by Panelist Rick Herzberg

Whether you are just beginning to consider transitioning to organic production or are already producing organically, your local grain merchandiser can provide you with the pricing information you need to make good economic decisions. He or she will want to know information about your certified organic acres. How many acres and certified by whom? Your buyer will also want to know how much on-farm storage you have and your ability to deliver the grain in your own trucks. Organic grains and oilseeds must be kept separate from other grains (Identity Preserved, or IP) and a farmer's ability to store organic production and deliver when needed by the elevator, can add value to the price of the grain. As with any grain sold, make sure quality terms are clear: acceptable moisture content, foreign material, test weight, etc.

Much organic production is contracted well before harvest and often before planting, therefore a discussion about your average yields is extremely important. Many times, grain companies will contract acres for organic production. If you have a history of your organic yields, sharing these with your merchandiser can help to avoid confusion and disappointment when the grain delivers on contract. The merchandiser will estimate total production based upon your yield projection. You and your merchandiser must be very clear about yield expectations. We certainly cannot predict the weather, but under normal growing conditions, we expect your projection to be reasonable.

In some cases, the variety you plant may be important to your grain merchandiser. Some end users have specific needs that can only be met by certain varieties, but can fetch the highest premiums. Customers may want clear or dark hilum, ultra-high protein, extra hard endosperm etc. Your grain merchandiser will be able to provide guidance for which varieties, or crop qualities, will pay the best prices. Do not be afraid to ask.

Clear and concise communication is important in all business dealings but is especially important as related to the growing and marketing of organic grains and oilseeds. Clarkson Grain merchandisers place high importance in developing relationships with farmers, suppliers and customers in an effort to facilitate the communication necessary to foster business that benefits all parties involved.

Remarks Submitted by Panelist Matt Moser

The Andersons has been serving customers since 1947. Starting with a single grain elevator in Maumee, Ohio we have grown into a diverse agricultural company operating in commodity trading, ethanol, plant nutrient, and rail. While our company has grown, the mission has remained the same to serve God by serving others.

Our organic and specialty grains group is uniquely positioned to carry out that mission of serving. Leveraging our expertise in the global supply chain, we are building an organic supply network to connect growers and users across the country and across the world. We have organic processing capabilities such as corn cleaning in Mansfield, IL and flour milling in Hudson, MI. Our plant nutrient business continues to be on the forefront in developing OMRI approved nutrients.

We consider our farmers our partners. Our success depends on your success. When developing new relationships, we are looking for:

- Partners we can serve. How can we leverage our expertise in agronomy, supply chains, and markets?
- Partners with a purpose. What is your motivation to farm organically? Is it soil health? Financial? An innovator? Or a combination of those things? Knowing this motivation can allow us to craft a strategy together.
- Partners with shared values. We firmly believe that our Company is a powerful vehicle through which we channel our time, talent, and energy in pursuit of the fundamental goal of serving God by serving other. We have lived and will continue to live by our Statement of Principles and look for others with these same values.

We will continue to grow our processing capabilities, supply chains, and nutrient development with the purpose of serving in mind. If you share these values and have a purpose, we welcome the opportunity to serve you.

HOW FARMERS AND LANDOWNERS CAN WORK TOGETHER TO TRANSITION LEASED LAND

(PANEL DISCUSSION)

Moderator: Nathan Aaberg *(Liberty Prairie Foundation)*

Panelists: Harold Wilken *(Janie's Farm Organics)*, **Rob Woodrow** *(Farmland Solutions LLC)*, **David Miller** *(Iroquois Valley Farms)*, **Cecelia Gunther**

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Remarks Provided by Moderator Nathan Aaberg

Through my work facilitating land access connections for local, sustainable food farming in northeast Illinois, I have the chance to talk with many farmers. About a year ago, I spoke with a young organic grain farmer in LaSalle County. He shared the story of how he and one of his landlords had worked out a mutually beneficial arrangement to transition a parcel of land to organic. I want to share the bare bones of that story because it illustrates two dimensions of what I believe it takes for a farmer and landowner to work together around organic farming or any kind of sustainable farming practices.

The landowner, it turns out, lives in Chicago. To that point, the farmer had understood that the landowner owned it largely for investment purposes. At some point, however, the farmer shared with the landowner that he was farming some other land organically. The landowner then shared that he tried to eat as sustainably and organically as he could. One thing led to another, and they decided to try to figure out how they might transition the particular land in question to organic.

With that common goal in mind, they were able to work out a five-year lease with the lease rate for the first three transition years set at 50% below the going rate for farmland in the area. This would enable the farmer to better absorb the drop revenue he would experience during the transition period. In the last two years, the lease rate would jump up to 60% above the going rate for equivalent farmland in the area. This was based on the assumption that once certified the farmer would generate much more revenue. The transition is now underway.

The first dimension of any successful transition of farmland to organic is the left-brained area of finances and lease terms – in other words, the analytical, business aspect of the deal that we usually tend to focus on. Any good arrangement along these lines needs to be as fair as possible to both parties. But how do you make it fair when in the short-term, the farmer is going to take a financial hit? One approach is the one I just shared – the landowner accepts a lower rental rate during the transition period and then the rate goes up once the land is organic. A related approach is the flex lease approach. In this system, a base rental rate is set that is below market rates to some degree. However, if the farmer generates gross revenue above a certain threshold on a per acre basis from that land, the landowner gets a share of the revenue above that threshold. In other words, the farmer and landowner are sharing risk and reward together. Another approach is to simply make the lease much longer without any incentives or mutual sacrifice by the farmer and landowner. A farmer I've talked with in Indiana has been able to secure 10-year leases with a number of families. This is enough long-term security for a farmer to get the returns he/she needs to make up for the short-term losses during the transition period.

I would suggest, too, that farmers and landowners need to have a candid conversation not just about the financial aspects of the transition during a particular lease term but also the intangible effort it takes for the farmer to manage the transition. Farmers are far more likely to want to do the transition with a particular landowner if there is assurance (even if that is just a verbal commitment) that the farmer will continue to be able to farm that land for

some time in order to fully get a return on investment on the energy and time spent regenerating the soil.

The story I shared in the beginning actually started with the conversation between the farmer and landowner that led to an understanding that their values overlapped. It's almost too obvious to say, but farmers and landowners need to also pay attention to the right-brained factors of values and relationship to make a transition really work. This is the second dimension of what it takes for an organic transition to be successful. I would assert that the firmest foundation for a good transition is an alignment of values between the farmer and landowner around the stewardship of the land.

This isn't to say that a farmer and landowner can't work out an arrangement for organic transition strictly based on financial factors and thinking. These days the numbers do add up if you have a longer-term perspective. You can simply work out a business deal. If the farmer or landowner is just focused on financial returns, you can make it work.

However, if you are a landowner or farmer who wants to make the transition to organic as a result of your values, then making the effort to find a counterpart who shares those values at least to some degree is, I believe, going to increase your odds of business success and will also add much more satisfaction. What are the implications of this? There are several:

First, when you're looking for a partner (landowner or farmer) to transition land to organic, pay attention to the motivations of that partner and share your motivations (and stories are one of the best ways to do this). If you're a landowner who really cares about the health of your soil and land, then look for a farmer who has some passion around that same topic. If you're a farmer and have the luxury of considering a number of different rental opportunities, test the waters to see what motivates the landowners. Ask good questions. Tease out stories. Motivations beyond financial return will likely mean the landowner will be more flexible and understanding of the challenges that organic farming brings and better able to withstand any community friction that arises.

Second, assuming that you and your rental partner are human, then sharing values is just going to make your dealings so much more enjoyable and satisfying. My experience has been that being a farmer is very often a calling, and this is especially the case with organic and regenerative farming. Satisfaction in advancing something important to you can add rich meaning to your life. That is way easier to do with a land rental partner who cares, too. Friendships can even develop. The Indiana farmer I mentioned earlier said that in a recent first conversation with two brothers who owned land he wanted to farm, things just "clicked" between them all as they talked about their values around farming and land and family. Look for that click.

Third, when you share values and values are part of the equation in your land rental relationship, you should know that the expectations for the relationship will also be higher. In a strictly financial arrangement, as long as you pay what was promised and pay on time, you're largely good. If the landowner and farmer are going to transition land to organic out of deeper values, then both (and especially the landowner) are more likely to want to pay attention what is exactly happening on the land and how is the land responding. The farmer in this case needs to be ready to keep the landowner informed and to field more questions and to have greater scrutiny about erosion, soil health, soil test results, etc. Farmers should be ready for these higher expectations and meet them proactively.

Finally, I would emphasize the importance of communication in the transition process overall. It is a dynamic, challenging, complex undertaking. It's good for farmland owners to hear how the process is going. In fact, my experience is that many landowners, even non-farmers, who have any interest in transitioning land to organic are more likely to be curious about many of the details of the farming world. For example, they may enjoy hearing at the end of a growing season what changes you are seeing in the land and who is buying your grain. If you can, get them out on the land from time to time. If that's not possible, share some pictures. The landowner's happiness with the land rental arrangement has huge implications for the success of your farm business. It's strategically wise to invest energy in that key relationship.

Conversely, it's good for farmers to hear their farmland owner express curiosity about how the process is going and what new practices are being used on the land that haven't been done for. This will prime the pump, so to speak, for the farmer to share more information proactively over time. Farmers can be concerned that the farmland owner will be uninterested. Let them know you are interested.

For both parties' sake, I'd recommend being a little self-conscious about the rhythm of your communication. What's too much? What's too little? Ask each other. Be honest when it's too little or too much or happening during a harvest push and you haven't had enough sleep in days. Farmers in particular should anticipate community dynamics that may arise if there isn't much organic farming going on in the community. Anticipate questions and concerns with good information and, better yet, good stories and even YouTube videos that show that these practices are actually effective and widespread.

The best part of a good transition arrangement between a farmer and a landowner is this – together you are doing something creative and good and profitable that you could not do alone. There is much more to learn and share about how this can happen.

Remarks Provided by Panelist Rob Woodrow

With estimates of over 60% of all Illinois cropland being operated by someone other than the owner there is a good possibility that:

- If you want to grow or start an organic farming operation you will need to have a conversation with at least one landlord.
- If you want to have your farm transitioned to organic you will need to have a conversation with your tenant.

As professional farm managers, we are seeing both sides of the coin; as operational margins continue to shrink, more farm operators are taking a look at organic production as a way to potentially increase net profits and set themselves apart from the crowd and attract additional land to rent.

At the same time, we are seeing one of the largest generational transitions of farm ownership in the nation's history. Fortunately not all want to sell the land they have inherited; however many of the new owners are the same ones who are driving the growing demand for organic foods in the supermarkets, and have an interest in having their farm operated organically.

Many times the tenant and landlord may not know they have the common interest of organic farming because neither one of them want to be perceived as the "nut" in the room and initiate a conversation.

As a tenant farmer, when approaching your landlord about transitioning to organic:

- Be educated about the subject before having a conversation – take time to attend workshops, conferences and field days.
- Have a plan – crops to be grown, cover crops, markets, and cultural practices you intend to employ. Have budgets and financial projections.
- Don't expect the landowner to subsidize your "experiment". If you own land of your own, start the transition there. While it may cause you to operate "dual" operations for a few years, if you are successful, you will have data to back you up and make it easier for your landlord to go along with transition.

- Know your capabilities and weaknesses. Know what you are able and willing to invest in the operation.

- Know what investments may be required of the landowner such as tile or grain storage. A multiple year lease, if the farm is on a cash rent lease. Some owners may expect you to share some of the increased profits once transition is done in exchange for a multiple year lease.

- Don't be upset if they say no. Remember it is their farm. They may have specific financial needs that you don't know about or they may not have the appetite for the risk.

As a tenant farmer, when approached by your landlord about transitioning their farm to organic:

- Be open minded, take time to educate yourself by attending workshops, conferences and field days. If possible, offer to attend them with the landlord so you are both hearing the same information; discuss questions and concerns while it is fresh in your minds. You will most likely learn something that you can employ in your operation even if you don't transition to organic and strengthen the relationship with your landlord.

- Don't be afraid to ask the landlord what they are willing to do? Build grain bins, put in drain tile, convert from cash rent to crop share lease.

- Be honest with the landlord, after taking the time to educate yourself, tell them if transitioning to organic isn't something you are comfortable doing. If you are not able to handle it financially or labor wise tell them. The landowner may back off or re-evaluate how they may be willing to work with you to accomplish their goal.

- Remember it's their farm, if you are unwilling or unable; the owner may decide to find someone who is willing and able.

In my opinion, not every farm is meant or able to be farmed organically nor is every farmer meant to farm organically. Some of the obstacles that come to mind are:

- Poorly drained farm

- Floodplain

- Dirty farm – high weed populations

- Low fertility levels

- Capital limitations – not financially able to build grain storage, install drain tile, pay input costs, purchase necessary machinery or able to withstand a crop failure.

- Skill sets – not every farmer has the required skills to transition to organic. The learning curve is steep and can be expensive. Be willing to learn and talk about failures as well about the successes is essential. The ability to handle negative peer pressure.

It is necessary for all involved to make an honest assessment of the farm, the risk appetite, the skill sets, the available capital and commitment to succeed before starting to transition a farm. You need to have and know Plan "A", Plan "B" and Plan "C" to avoid the deer in the headlights look when things start to go wrong.

LEGAL ISSUES FOR ORGANIC GROWERS

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Organic producers face legal issues particular to their way of growing crops. Pesticide drift and genetic contamination can wreak havoc on a sensitive organic farm. Pesticide drift is the physical movement through the air at the time of application of a pesticide from the site of application to any non-target site in sufficient quantities to cause injury to the non-target site. Pesticide drift often occurs when the applicator does not heed label recommendations or applies in a careless or negligent manner. Weather can increase the risk of drift. Drift is especially dangerous to organic crops because the organic crop essentially runs two risks: (1) traditional negative impacts on the crop's health because the crop is sensitive to the chemical at issue; and (2) loss of the organic designation. Organic farms can take steps to protect their crops and should educate themselves on how to respond to potential drift incidents. See 40 CFR Part 156 (federal label requirements). Most states also have state pesticide application requirements through their Office of State Chemist or State Department of Agriculture. Some courts have recognized common law claims of nuisance, negligence, or trespass for pesticide drift onto organic fields. See e.g., Johnson v. Paynesville Farmers Union Coop. Oil Co., 817 N.W.2d 693, 696 (Minn. 2012).

Securing and retaining the organic designation is a key part of an organic farm's business model. See 7 CFR Part 205 (federal organic program requirements). The National Organic Program ("NOP") was created by the Organic Foods Production Act of 1990. The USDA organic regulations describe organic agriculture as the application of a set of cultural, biological, and mechanical practices that support the cycling of on-farm resources, promote ecological balance, and conserve biodiversity. Organic crop producers are responsible for preventing contact between organic and conventionally-grown crops since the organic standards expressly prohibit the use of any genetically modified organisms. Organic farms must comply with organic operations requirements and retain records to prove it. 7 CFR § 205.400. Cross-pollination of or cross-contamination by genetically engineered crops may contaminate organic crops and, consequently, affect marketability of those crops. Pollen contamination is primarily a problem with cross-pollinated crops such as corn and canola, where the wind or insects can carry pollen long distances. Seed from a genetically modified crop, or from plants grown from such seed, might become accidentally mixed with organic crops. Buffers can help but may not always be enough to prevent genetic drift. Producers must communicate with their GMO-growing neighbors about location, planting schedule, spraying, and more. Communication and education are just as—if not more—important than buffers when it comes to preventing genetic drift.

Finally, organic farmers are also subject to common agricultural issues, like contract disputes, employment issues, and zoning questions. Contract disputes are generally controlled by state law and/or some variant of the Uniform Commercial Code ("UCC") for the sale of goods. Employment issues turn on state and federal law. Operations of different sizes will trigger different employment requirements. For example, the Family and Medical Leave Act does not apply to employers with fewer than 50 employees. Likewise, farming operations are frequently exempt from certain employment requirements. Finally, zoning is a super-local issue based on state and county regulations for land use. Nonetheless, some general principles apply across county and state lines and can give your organic operation a head start on land use questions.

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