



The Germinator

SPRING 2020 • VOL. 41 NO. 2

RESILIENCE NOW

As a pandemic upends our lives, these 7 principles
of resilience can help us find our way

PAGES 25-27





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Snow geese rise and fall above a field near Frederick, S.D. Despite the pandemic and economic turmoil affecting the human world, the goose migration continues as usual, and spring is returning. For thoughts on how we might be just as resilient, see the story on pages 25-27.


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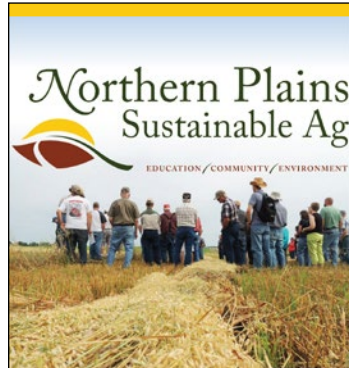
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Mission Statement

Northern Plains Sustainable Agriculture Society
promotes sustainable food systems
through education, advocacy, and research.

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NPSAS occasionally includes guest articles and opinions. The opinions in these articles may not reflect the opinions or policy of the Northern Plains Sustainable Agriculture Society or its Board of Directors.



Words of thanks and appreciation

I want to thank everyone who attended the 2020 NPSAS Annual Winter Conference in January. Without your attendance and support throughout the year, this conference would not be possible. I also want to thank all the great volunteers who, under the able direction of our dedicated staff Verna and Kayla, worked together to make this conference successful.

Everyone who attended the annual meeting also deserves kudos. Please know that our engaged members are highly valued and, without them, NPSAS would not exist. Rich Horsley, Head of the Department of Plant Sciences at NDSU, and a barley breeder who coordinates the malting barley improvement program for the university, was elected to the Board of Directors. Re-elected for second terms were Gretchen Harvey, secretary and Curt Petrich, board chair. Members also approved the newly updated bylaws, which set the stage for good board governance into the future.

Not least, I want to thank all those who made a donation to

NPSAS, either during the conference's silent auction and/or during the online giving event in February known as Giving Hearts Day. NPSAS is happy to be able to participate in Giving Hearts Day, and this year was able to raise \$5,000 by doing so. We are still working on our fundraising goals for this fiscal year, but there is no doubt that Giving Hearts Day provided our organization with a good boost. If you missed either the conference or Giving Hearts Day event and would still like to support the work of Northern Plains Sustainable Agriculture Society, we would be grateful if you'd use the enclosed envelope to make your donation. 🐾

Considering supporting NPSAS in your will—a gift to benefit future generations. www.npsas.org/donate

Crazy Musings from the North Outback

What happens to Justice
in a survival-of-the-fittest society?
What happens to compassion
as we claw out our
individual survivals at
whatever price it takes?
What happens to community
if we selfishly pursue
our own survival at the expense
of neighbors' when
the interests of each are intertwined
like a braid
which is weakened with the
loss of either one?
What happens to the land
of the people, by the people
and for the people
when corporations thrive
and people don't?
What happens to a way of life
if a family doesn't get
a fair price for what they produce?
What happens to the land
if farming becomes a business
and not a way of life,
if the land becomes a commodity
for the rich to buy and sell
and not a dynamic living
environment created to
nurture and feed all the creatures
of the earth?
What happens to the environment
when power and profits
are elevated above
overall well-being and stewardship
of the earth?
The healing is overdue.

—Terry C. Jacobson

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We can be a resource in our challenging times

I pulled out my copy of Wendell Berry's *World Ending Fire* last night to review for inspirational bedtime reading. I am struck with the messages from many Facebook friends who are rejoicing in the time at home to focus on cleaning their house, finishing long undone projects and so on. It is good to look for the positive in such times as we face today.

What struck me again in reading last night is the message I was trying to weave into last year's conference: For those of us who have been dedicating our lives to a "different way of living," our time has come. We have been striving to "husband" our own homes, gardens, and farmstead with greater time spent at home for many years. Now the knowledge, skills, and "daily living" self-confidence we possess, can be a resource for those many who are fearful of changes ahead.

Because of my work for years developing relationships within the Fargo-Moorhead refugee community, I started getting calls last weekend asking if I knew where people could purchase 50- or 100-pound sacks of such things as beans, flour, whole wheat, and so on. I put callers in touch with Noreen Thomas and Mark Askegaard immediately. However, this represents an opportunity that our members were expressing to us in the board feedback session, namely help with local and regional marketing. Kayla has developed a survey to verify who is already doing an online platform for direct-to-consumer sales so we have an up-to-date list for referrals, and we are offering help to anyone

who wants to shift from exclusively commodity sales to some direct-to-consumer, particularly with legumes. Please consider filling out the survey sent in an E-Sprout March 19 or find it here: <https://bit.ly/NPSASsurvey>.

We are following and will share with members what we learn about access to small business loans for food-related business as we all work to cope with the changed needs and economy moving forward. We have also been in touch with statewide food shelves for North and South Dakota and have learned that Western North Dakota has been out of emergency food for some time. The anticipated needs are great in the coming months, so please consider a donation if you have food to share with a local or regional food bank.

It will be very important to remain "social" even when social distancing and, as always, contact our office if you have questions or needs by phone (218-331-4099) or email (Kayla@npsas.org). Kayla has access to databases now at her home, and from 8 a.m.-5 p.m. daily, one of us is answering the office phone number from our remote office locations. If

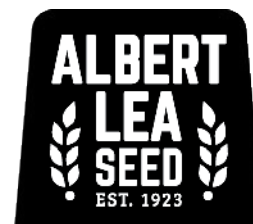
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Other Key Announcements

1. We had started to develop some ideas about the summer program, but planning is on hold until we see what happens in the next couple of weeks. We could use help with the planning when we get focused on that again. Let Kayla know if you are interested in being on a call to advise by calling her at 218-331-4099 or emailing her at Kayla@npsas.org.
2. NDSU wants help from NPSAS in creating an advisory committee to develop a five-year plan for organic research on newly certified organic acres at the Fargo campus. Please contact Verna at vernakragnes@npsas.org if you are interested in being involved. This is a great opportunity and comes from our new board member, Rich Horsley, a barley breeder at NDSU. I met with him and three other faculty recently to discuss this idea. Additionally, NDSU faculty are in need of farmers who are interested in hosting on-farm research and ask that I forward names to them from our membership.
3. Ceres Trust-funded research this summer for Farm Breeding Club members will move ahead. We are planning a virtual FBC meeting for early April. Several farmers are already interested in growing seed

provided by Walter Goldstein of the Mandaamin Institute in Elkhorn, Wisconsin. Please contact me if you are interested in being involved and/or ensure you are on the list for the FBC meeting.

FBC is respected among organic seed growers

Last fall I attended the Midwest Seed Summit in Madison, Wisconsin. While at the Seed Summit, I was strongly encouraged to have NPSAS attend the Organic Seed Growers Conference. Kayla was able to attend the February 12-14 conference with funding from SARE and Organic Seed Alliance. Here's her report:

"The first day of the Organic Seed Growers Conference was a fast, and sometimes dirty, crash course in plant breeding. To my delight, among discussion of deleterious genes and smut resistance, two familiar names were dropped often and with enormous respect and affection: Frank Kutka and Theresa Podoll. The Dakota connections didn't stop there: everywhere I went during the 10th-annual conference, folks were excited to talk about NPSAS and our history of farmer-driven plant breeding.

"I was happy to share what I know about the past work of the Farm Breeding Club and talk about the upcoming season for the FBC but even more thrilled to hear stories about visiting Carrington from far-flung places like Michigan and gain more insight into just how influential and exciting the FBC work is for folks. It was also great to meet up with one of our conference sponsors, Dakota's Best Seed from Platte, S.D., and hear about their experiments with Kernza and history growing prairie grass seed.

"The whole weekend was about how breeding and growing regionally adapted organic seed is an increasingly necessary act in the face of consolidation of seed companies. Underpinning the conference was a feeling that organic seed systems are a tool of resistance against the rampant use of farm chemicals, increasingly large farms managed from afar, and organic standards that can be seen as weak.

"Organic seed means more land in organic management and more seed that is bred for growing under organic conditions. There was a definite sense that we as farmers (of which there were many in attendance) have a responsibility to buy or produce and save organic seed and not take advantage of the 'if available' organic seed exemption.

"Saving seed, if you're thoughtful about it, is a form of plant breeding. People have been selecting for traits and improving crops around the world forever, but because seeds have a dual function as both a form of technology transfer and a commercial commodity, the question of who profits from seed quickly becomes complicated, especially in a climate of decreased funding for public seed breeding. These are some of the questions we as farmers and collaborative plant breeders need to answer.

"I came away from the conference even more sure that our food security depends upon farmers' ability to obtain and grow a diversity of seeds for safe and nutritious foods. We need to become empowered as growers to participate as partners in plant breeding in order to ensure the availability of adapted and productive varieties." 🐦

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An unexpected, beautiful sermon on diversity

It was a Sunday morning, but I wasn't expecting to hear a sermon on the last day of the Food & Farming Conference. Nevertheless, the story that Matt Russell of Iowa Interfaith Power and Light told as part of our conversation about farming, faith, and climate change was as moving as any message I'd heard in a church pew.

It started with this statement: "Creation is diversity. And for my faith tradition, God created diversity."

The science, Russell said, also matches this belief: With the expansion of the universe comes ever-increasing diversity.

But what the "conventional wisdom" is moving toward, in farming but also often otherwise, is the opposite of that. The monoculture of most fields, the limited number of breeds of livestock—all of it is "fighting the natural invitation to this greater diversity," Russell said. And by rejecting this diversity, we are limiting the realm of solutions and joy that are possible.

The truth of this became clear to Russell in the summer of 2015. He and his husband, Pat Standley, farm together in Iowa. They choose to farm quite differently from their neighbors, at a scale that requires hiring extra hands-on labor at times. They live near the small town of Pleasantville, but they hadn't really interacted with people from that town all that much. They had previously hired help from other small towns in the area, but not from Pleasantville.

That summer, they hired two teenage brothers to work on their farm. And it soon became clear that the brothers were in a really terrible family situation.

The people of Pleasantville knew it. Parents of other kids had them over to spend the night regularly, and teachers sent food home with them. They saw these two incredible young men struggling, and tried to help where they could, but no one saw the path that would take these brothers out of the trauma they were suffering at home.

Russell and his husband didn't see the path right away either. "I lost 20 pounds," he said. "I cried every day, the summer of 2015. Even Pat said that we have to let go of this."

But they couldn't let it go. And by the end of the summer a path forward had emerged: The boys needed to go before the county judge and request the someone else would become their guardians to supersede the parental rights of their dad. They needed someone to be their guardians.

And Russell and his husband were it.

They were the solution not in spite of their difference from their neighbors, but because of it.

"Who we were as gay men, who we were as farmers, we provided a path forward for (the brothers) that didn't exist until they ran into us."

And then something else interesting happened.

"When they came into our lives and we became their parents, the community of Pleasantville absolutely welcomed us with open arms. Because we solved the problem that they all were trying to figure out."

That's how God works—through diversity.

"It's not about creating space for minorities in our communities because it's the fair thing to do. *It is* the solution to the future.

"When women have more voice, our communities are better. When people of color have more voice, our communities are better. When LGBT (lesbian, gay, bisexual and transgender people) and immigrants moved to rural America, those communities are better. When we increase the diversity on our farms, our farms are better."

When we respond to crises with the diversity that is authentically present in who we are, and when we embrace the work of partnering with the Creator to expand the diversity of what's possible, we won't just help the current problem. We will actually invite in the kingdom of God—"the abundance that is promised," Russell said.

When we embrace diversity, the future is a world of abundance. It isn't extravagant, but it's enough, Russell said. And it is certainly more than we have now.

And to that, I say: Amen. 🐦

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Ceres Trust grants \$45,000 to restart FBC work

We learned recently that Ceres Trust has granted \$45,000 to NPSAS to fund a collaboration with Walter Goldstein of the Mandaamin Institute in Elkhorn, Wisconsin, for corn field trials, providing support for renewing the work of the Farm Breeding Club and clarifying the organizational structure.

A meeting of those past FBC members and others who are interested in FBC work in the region is being planned now.

During 2020 several (up to eight) hybrids and open pollinated varieties will be grown out in strip plots on up to five cooperator farms. One of the hybrids will be a conventionally bred, commercial hybrid. Hybrid trial plots will be 100 feet long and two to four rows wide. The intent is to assess the adaptation of the 85-to-95-day corn hybrids to NP conditions that are N limited and to assess their quality and value. The cultivars will be un-replicated on each farm but replicated between farms. Plots will be grown out on unfertilized sites following a different crop than corn, with a manured strip will be included to assess the impact of manuring on the performance of the cultivars. If you are interested in being a cooperating farmer, please contact the NPSAS office.

Climate change impacts plants, animals, farming systems and rural communities. The solutions are embedded in sustainable practices, needing continued further refinement in order to exist in circumstances impacted by extreme weather events and increased atmospheric carbon. While renewing the work of FBC, to address this need, NPSAS seeks to transform the Farm Breeding Club work into a regional research collaborative that integrates seed breeding and soil health as the most resilient seeds will be grown in healthy soil. Strategies will include

1. convening FBC members and others in April 2020 with active outreach to stakeholders in ND, SD, MN, and Iowa, nurturing a climate of collegial relationships between all stakeholders, and
2. developing multiple avenues for collaboration including the identification of, and establishment of funding partnerships supportive of the shared work. Collaboration is relevant to due to the compelling need for establishing significant progress on making agriculture carbon neutral; addressing current and future needs for the organic industry for seeds; and to provide support for farmers and ranchers impacted by ever extreme weather events in the Upper Midwest.



NPSAS file photo

Grant funding will support corn field trials on up to five farms.

The association will be coordinated by NPSAS and facilitation supported by The Institute for Mindful Agriculture using social technologies developed at the Sloan School of Business at the Massachusetts Institute of Technology (MIT).

The activity outlined for 2020:

April 2020 – hold meeting facilitated by IMA to re-launch FBC research and explore compatibility of Quality Crop Association structure for FBC. Summary of discussion as “social research” reported in *Germinator* will be facilitated by Steffen & Rachel Schnieder, Institute for Mindful Agriculture.

May–October – Ceres Trust funding for collaboration with Walter Goldstein/Mandaamin Institute for corn field trials; several (up to eight) hybrids and open pollinated varieties will be grown out in strip plots on cooperator farms. One of the hybrids will be a conventionally bred,



Interested in participating?

A meeting of those past FBC members and others who are interested in FBC work in the region is being planned now. Given COVID-19 disruption, Verna is working with the facilitators to determine the best new schedule for moving forward to meet the project goals. Please email (kayla@npsas.org) or call the office (218-331-4099) if you have an interest in being involved in either the corn trials for this year and/or the future work of the Farm Breeding Club.

commercial hybrid. Hybrid trial plots will be 100 feet long and two to four rows wide. The intent is to assess the adaptation of the 85-to-95-day corn hybrids to NP conditions that are N limited and to assess their quality and value. The cultivars will be un-replicated on each farm but replicated between farms. Plots will be grown out on unfertilized sites following a different crop than corn, with a manured strip will be included to assess the impact of manuring on the performance of the cultivars.

September – Walter Goldstein will visit the sites to assess overall adaptability of the cultivars to the NP. NPSAS will host a field day during Walter's visit to at least one of the farms.

October/November – Grain yields and moisture will

be assessed by NPSAS staff. Grain protein, methionine, lysine, and cysteine content will be analyzed by the Iowa State University Grain Quality Lab using NIRS methods developed together with MI. Yields and price based on estimated value of end products will be used for calculating gross returns.

November–December – results reviewed / reported.

January 2021 – Presentation of corn trials & research results by farmers at NPSAS conference; article about corn research results published in the winter issue of *The Germinator*

ROLES:

Verna Kragnes – NPSAS Project Coordinator / Grant Manager; provides support for farmers in establishing / maintaining plot; prepares reports, hosts field days & outreach regarding project results.

Walter Goldstein – Mandaamin Institute and Quality Crop Association; provides seeds, technical support, invites participating farmers into research association, and helps evaluate field trials. Participates in discussion about the QCA.

Steffen & Rachel Schneider – Institute for Mindful Agriculture; facilitate evaluation of Quality Crop Association by Farm Breeder Club members as a structure supportive of farmers goals and organizational collaboration



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Summary of NPSAS board meetings

Dec. 12, 2019, via conference call:

- Personnel Committee: A motion was made and approved to fill a vacant board position with Kalie Jo Rider, a dietitian with a master's degree in food systems and sustainable agriculture. Kalie will serve the remainder of a term that ends in 2022.
- Verna Kragnes noted in her report that there is strong interest with the Minnesota land trust with respect to working with farmers on conservation easements. All agreed that it makes sense to see if similar support exists in other states.
- Verna and Kayla Pridmore summarized the latest planning for the Food & Farming Conference.
- Finance Committee: The progress on the review of FY2018 and audit for FY2019 was discussed. Other discussion focused on developing the financial presentation and annual report for the annual meeting.
- Gretchen provided a summary of her work on bylaws revisions. A final version will be sent to members in January, and members will vote on them at the annual meeting.

- The concept of Farmland Conservation Partners was shared with Fred Kirschenmann in a recent phone call. More discussion of this concept will occur during Ron McFaul's workshop at the conference.
- Nominations for Friend of the Farmer and Steward of the Year were discussed.

January 16, 2020, Robert D. Johnson Recreation Center, Fargo:

- Board members introduced themselves to Randy Nelson.
- Finance Committee: The board's discussion considered best financial practices for nonprofits, some of which have been brought to our attention as a result of NPSAS contracting with BradyMartz for a financial review and financial audit. The review and audit are complete, and copies are available for board member review and consideration.
- Steve Wood with BradyMartz provided an overview of the findings.

The audit for FY2019 is for eight months, since the fiscal year was changed to start Sept. 1.

- The projected budget for Sept. 1, 2019 – Aug. 31, 2020 was presented. A motion was made and approved to accept the projected budget for FY2019-20.
- Verna summarized grant applications that have been submitted, as well as other efforts to solicit donations, including NPSAS participation in Giving Hearts Day in February.
- The board had a healthy discussion about the changing educational mission from the organization's early days (without the internet) to now.
- A motion was made and approved to adopt the ballot for the 2020 election. The approved nominees for the Board of Directors are Rich Horsley, Curt Petrich, and Gretchen Harvey.
- A motion was made and approved to accept the final draft of the updated NPSAS bylaws as presented.
- The 2020 meeting schedule was set.

The full text of the minutes from past NPSAS board meetings can be found at <https://www.npsas.org/about-us/board-meeting-minutes/>.

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S.D. Farmers Union president calls on state, national leadership to look into price fixing

HURON, S.D. — After Friday the 13th saw a dramatic drop in cattle prices at Ft. Pierre Livestock Market, South Dakota Farmers Union President Doug Sombke called on leadership to investigate the possibility of price fixing among the nation's four meat packers.

"I'm asking you on behalf of all our cattle producers in South Dakota whom you represent, to get answers from the Justice Department and USDA's GIPSA to why laws already on the books are not being enforced," Sombke's letter reads.

Addressed to S.D. Governor Kristi Noem and S.D.'s congressional leaders: Sen. John Thune, Sen. Mike

Rounds and Rep. Dusty Johnson, Sombke hopes they can influence stricter enforcement of anti-trust laws to aid the hemorrhaging cattle market prices.

"Finished cattle selling for \$521 per head—that is a loss of about \$900 per head. We thought it was bad in December when, after expenses, finishers only received \$70 per head. But to lose \$900, this situation is dire," Sombke says. "In my opinion, these packers are using this coronavirus ordeal as an excuse to suck the life blood out of the cattle industry through criminal activity. After all, price fixing is against the law."

—S.D. Farmers Union news release

As Senate passes coronavirus relief package, farm groups call for support in next round

The Senate voted on March 18 to pass an emergency aid package that will, among other provisions, expand funding for nutrition programs as the nation confronts the economic toll of the spreading coronavirus. As the bill heads to President Trump for a likely signature, farm and food groups are urging Congress to include the agriculture sector in forthcoming relief efforts.

Senators voted 90-8 in favor of the "phase two" stimulus measure, which the Joint Committee on Taxation estimates will cost more than \$100 billion. Officials and lawmakers are already discussing a third relief measure that could total \$1 trillion.

The Families First Coronavirus Response Act includes an additional \$1.25 billion for nutrition programs, including \$500 million for WIC. It also suspends controversial work and job training requirements that dictate who is able to access benefits from the Supplemental Nutrition Assistance Program (SNAP). Now groups that represent farmers and farmers' markets are asking to be included in the next anticipated

federal relief package, which is expected to focus on small businesses.

Groups that work with farmers who sell directly to consumers, either through farmers' markets or community-supported agriculture, are particularly concerned. Those farmers face a potentially devastating loss of income if public markets are forced to close as cities restrict public gatherings.

Advocates say young and beginning farmers face particular risk from the economic uncertainty caused by the pandemic, as they typically have smaller cash reserves than more established farmers. A majority of them sell directly to customers, said Sanaz Arjomand, policy director for the National Young Farmers Coalition.

"We need Congress to add funding and flexibility to programs that support direct-to-consumer outlets so that young farmers and ranchers can keep their small businesses going and so that local communities can continue to have access to the food that they depend on," Arjomand said.

—thefern.org

S.D. Legislature agrees to legalize industrial hemp

PIERRE — The industrial hemp bill is headed to Gov. Kristi Noem's desk.

Noem and legislators said the hemp bill would be done in the first couple weeks of the legislative session, but it became the final bill passed during the 2020 session.

The House first passed in a 58-9 vote the revamped version of House Bill 1008 and the Senate passed it six hours later in a 30-3 vote on March 12. It now heads to Noem's desk for consideration and will become law as soon as Noem signs it, but producers need to wait until the U.S. Department of Agriculture approves the state's hemp program before they can start growing it.

—Argus Leader

USDA works to combat African swine fever

KANSAS CITY, Mo. — At the National Pork Industry Forum on March 6, Greg Ibach, USDA Undersecretary for Marketing and Regulatory Programs, outlined the government's efforts to prevent African swine fever from reaching the U.S. and the plan should the disease spread here.

The plan — a national approach — involves temporarily stopping hog movement, developing a vaccine and establishing standards for carcass removal.

Ibach said the pork industry has been involved in prevention and response efforts. "The No. 1 priority is keeping it out of the U.S.," he said. "... We're making these announcements to be the best prepared, the best planned, but our No. 1 goal is to keep it out of the U.S."

Ibach said he is optimistic this is still possible, pointing to success in keeping foot and mouth disease out of the country for nearly 100 years.

—www.agupdate.com/missourifarmertoday

COVID-19 and livestock: Is there a connection?

When reports of the COVID-19 pandemic first hit the US, very few people had likely heard of coronaviruses—with some notable exceptions: cattle producers and their veterinarians.

It's not that people involved with cattle health have any particular insight into the increasing human toll the novel coronavirus is inflicting. Rather, it's a reflection that generations of cattle producers have recognized coronavirus as a significant cause of diarrhea in their young calves.

What's the connection between the novel coronavirus (designated "SARS-CoV 2") causing COVID-19 across the world and the "scours" germ cow-calf and dairy producers deal with? Except for the name, very little.

Many different versions of human and animal coronaviruses exist throughout the world. Many animal caretakers have probably dealt with coronavirus infections for years without realizing it. Swine producers and their vets have fought Porcine Epidemic Diarrhea (PED) Virus and (historically) Transmissible Gastroenteritis (TGE) Virus. Companion animal vets recognize Feline Infectious Peritonitis (FIP) Virus as a cause of illness in cats—all coronaviruses.

Considering the above list, it should be apparent that the vast majority of these coronaviruses stick to their own species. No human or cross-species illnesses have resulted from bovine coronaviruses, PED, TGE, or FIP.

This is due to the very specific molecular makeup of

the "spikes" on the surface of each different coronavirus version. In order for coronaviruses to cause infection, these specific spike molecules need to attach to very specific molecules on a body cell, in a lock-and-key fashion. Pig cells have different surface molecules than do calf cells, than do human cells, and so on. Additionally, respiratory cells have different surface molecules than do intestinal cells. This explains why different coronavirus strains affect specific species and body systems.

It also explains the variability in the usefulness of different coronavirus vaccines (fair for bovine coronavirus, good for TGE, poor for PEDV) in animals. Additionally, it also highlights the fact that our current animal coronavirus vaccines have no utility for people in the face of the COVID-19 epidemic. Severe adverse reactions can result from people using animal vaccines for themselves.

Yet changes can occur to these viral molecules over time. A small shift in the molecular structure of the spike, and you may end up with a virus that can affect a different part of the body or different species.

In investigating where COVID-19 cases began, authorities have pointed the finger at a "wet market" in one Chinese city. Wet markets are fascinating places where people can buy supplies, food, and live animals. The variety and number of live animals for sale can be astounding: chickens, pigeons, bats, rodents, snakes, and more. Throw in thousands of human shoppers and you have a unique opportunity for viruses to "try out" infecting species besides their normal host. Sometimes—apparently in this case—it works.

There's some historical precedence. Severe Acute Respiratory Syndrome (SARS) took the world by storm in the early 2000s. With its likely origin in a bat, it looks like that coronavirus slowly circulated among people in wet markets before it became efficient at infecting people. MERS (Middle Eastern Respiratory Syndrome) emerged similarly more recently—with origins in bats and camels. Much more commonly, other circulating "normal" coronaviruses cause cold symptoms in people everywhere.

Could common animal coronaviruses (e.g., bovine coronavirus or PEDV) ever morph into viruses that make people sick? It hasn't happened yet. When PEDV splashed into the world of pork production in 2013, it wasn't because of a change in the virus: it simply was moved from overseas to the US.

Despite its likely animal origin, the current coronavirus causing COVID-19 hasn't yet made animals sick where human illnesses have been common. That's the good news for our animals. Swings in global financial markets have occurred due to worries about restrictions on travel and other human activity, not any perceived problem with livestock or the food supply.

But things can change. The COVID-19 situation bears close watching, especially if evidence emerges that the virus is behaving in a different manner than expected.

— Russ Daly, SDSU Extension Veterinarian

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Integrity at center of organic conversation

Participants stress need for NOP to move faster on increasing oversight

Following an initial meeting in September 2019 in Piper City Ill., David Glasgow, Associate Deputy Administrator of the USDA National Organic Program (NOP) met again with OFARM producers, marketers and staff at the organization's meeting Feb. 26–27 in conjunction with the MOSES conference in Lacrosse, Wisconsin. Representatives from the Organic Farmers Association, the National Organic Coalition, Organic Valley, Quality Organic Producers Cooperative, The Real Organic Project (ROP) and collaborators and partners representing organic producers joined in the dialog as well.

A recently uncovered second case of large-scale domestic fraudulent activity as well as continuing suspicion of such activity in the now global organic supply chain, primarily grains, quickly brought the issue of organic integrity to center stage. The integrity of the USDA Organic Seal is at stake, and every negative report is a double-edged sword, warning criminals that they will be caught and punished, but potentially undermining consumer confidence in a label that has been held in high esteem.

Glasgow highlighted NOP work in higher risk regions that has resulted in certifiers, and more than 275 farms and businesses leaving the organic sector in the Black Sea Region, South America and other places at home and abroad. He also emphasized strengthened partnerships with other enforcement agencies that have more authority and manpower to prosecute criminals: Customs and Border Protection, Animal and Plant Health Inspection Service, Office of the Inspector General, and the Justice Department.

Glasgow noted that organizations such as OFARM and their supporters



Photo courtesy of OFARM

Representatives of OFARM, the Organic Farmers Association, the National Organic Coalition, Organic Valley, Quality Organic Producers Cooperative, The Real Organic Project, and collaborators and partners representing organic producers joined in a dialog with David Glasgow, Associate Deputy Administrator of the USDA National Organic Program, during the MOSES conference in February in Lacrosse, Wisconsin.

have been successful in their encouragement of members of Congress to increase funding and resources to expand organic oversight and enforcement. He shared the recently expanded NOP organizational chart and talked about key positions that include in-house livestock specialists, international specialists and more enforcement analysts and accreditation auditors for oversight and enforcement. Hiring and training are in process with emphasis on filling these positions with individuals with solid backgrounds in the various skills required to cover the wide range of organic livestock, produce and handling operations eligible for certification.

With support from the most recent farm bill, the Strengthening Organic Enforcement (SOE) proposed rule is moving forward and has been called a “real game changer” by the NOP administration. Mr. Glasgow said a number of enforcement elements in this rule will make it easier and faster to identify suspect activity and gather the necessary documentation to bring perpetrators to justice. One primary element is to provide for a much greater collaboration among the various government agencies like

Customs and Border Patrol (CBP) and the USDA Office of the Inspector General, which become involved in imports and domestic cases; and more robust tracking of imports and exports to close a loophole that some use to change how they label a commodity to make tracking more difficult, like calling their import “cracked corn” one time and “whole or worked corn” the next time. Such changes will clarify actual volumes and origins of product being imported.

The SOE proposed rule will also require certification for handlers that repackage, reconstitute, combine multiple lots, process, or take ownership of organic product, making it easier to trace goods across the supply chain under organic certification, which has, until now, been an opportunity for some to avoid proper scrutiny.

Additionally, groundwork has been laid to gather more useful and informative data to help identify possible fraud, using things like farm-level acreage data to more easily confirm that reported yields match the capacity of the region.

Certifiers will also be required to

Continued on page 14





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submit more complete and more timely reports on their certified operations, making it easier to cross-check production claims so they may be matched with documentation of traded volume.

NOP is also streamlining the process of reporting suspected fraudulent activity and managing the data collected on complaints, inspections and accreditations to make it easier to analyze for risk factors in a timely fashion.

Additionally, in 2019, the NOP launched a more in-depth training program for certifiers and inspectors. The free online Organic Integrity Learning Center is also available to farmers and handlers interested in learning more about specific topics.

Other topics of discussion with Glasgow included dairy and livestock. Many expressed concerns that there has been inconsistent guidance from some certifiers in certain states favoring large Confinement Animal Feeding Operations (CAFOs), giving them a financial advantage over family operations in traditional dairy states. Meeting participants expressed their concern that access to outdoors and proper grazing requirements remain highly questionable and uniform enforcement of the rules is urgently needed with greater scrutiny on the part of the NOP.

On the positive side, the long-delayed Origin of Livestock rule is moving forward again, and Glasgow said it will help close a loophole that has allowed some dairies to keep transitioning non-organic livestock into dairy herds. He also presented an overview of the continuing Dairy Surveillance Project, which includes unannounced on-farm audits. The audits target higher risk operations based on factors like the operation size, complexity, geographic location and history. He reported that NOP has provided face-to-face and advanced online training for certifiers and inspectors. As a result of this surveillance and training, there is a high level of consistency between certifiers, particularly with respect to key things like how the grazing season is determined and decisions on when temporary confinement of livestock may be allowed.

According to Mr. Glasgow consideration of new forms of genetic engineering in organics is not on the agenda. He also encouraged farmers, coops and other organic businesses to follow the NOP's Organic Insider emails that provide a first look at what's happening at the NOP and often provides links to resources and support for organic producers offered by other USDA agencies: **www.ams.usda.gov/reports/organic-insider**.

While meeting participants accepted the descriptions of increased NOP oversight, they expressed their disillusion and frustration with the apparent “snail's pace” of the progress in this increased scrutiny. They pointed to the ongoing millions of dollars of economic damage to producers while positive action is so slow in coming to fruition.

—Story from OFARM: www.ofarm.org

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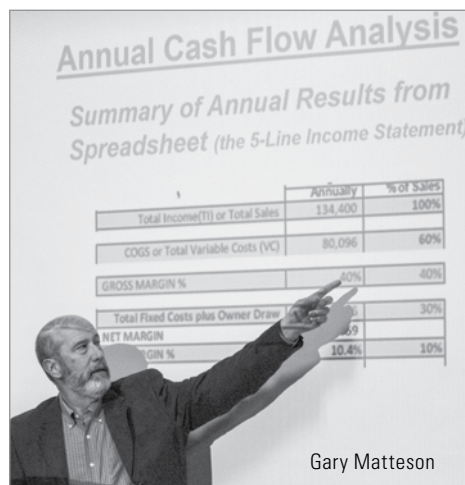


Hope can help get us through, Gary Matteson says

Gary Matteson didn't know that a time of challenge was about to be thrust upon much of the world, but his message of hope during his Food & Farming Conference keynote is certainly relevant to us now.

"If you have a 'why' to propel you, to be committed to, then you're going to figure out how to get through almost any challenge that you have," said Matteson, the Senior Vice President, Beginning Farmer Programs and Outreach at Farm Credit Council.

"It's that sense of being able to be in control of your own destiny that really is that spark of hope. If you cannot control your own destiny, you're not going to have hope. In concentration camps, it was found out that the people who were able to survive ... had something that they were envisioning that they were going to do later. (For example,) they were going to be an architect, so



they started drawing plans on whatever scrap of paper they had, or in the dirt, or scratching it in the wall. There's always some element of forward-looking: 'What am I here for in the future?' That allows someone to carry hope with them."

He continued: "I don't know what you think your biggest challenge is in your life or in your farm business. But you probably haven't

had it yet—if you're a young farmer, certainly. The biggest challenge for a lot of farm businesses tends to be a family challenge, whether it's transferring to the next generation, the death of a parent, or a key person on the farm. The biggest challenge may not be markets. ... It may not be changing practices on your farm to be more sustainable or regenerative. It will probably have something to do with people. ... If you don't have hope, you're not going to get through that challenge."

Another key point in his talk was practical: The importance of doing a cash flow budget. "What you need to know is how your business is doing now. What's your capacity to withstand a crisis or challenge today?"

You can get started by downloading a one-page spreadsheet here: www.farmbiztrainer.com/resources/groups/one-page-planning-suite/

New crops provide ecosystem services, Wyse explains

Don Wyse's first goal when he started the work of the University of Minnesota's Forever Green Initiative was focused not on plants but on people.

"Why can't we put a new model in place that doesn't extract nutrients and extract people from that landscape?" Wyse said during his keynote presentation. "How can we design a system that leaves more financial and human capital in these communities?"

The new perennial and winter annual crops being developed are intended to do just that: They can provide the ecosystem services that the landscape needs, while also ensuring that the crops are economically viable.

The Forever Green Initiative draws on the work of 55 five people, and they have 15 species in development. They are focused on the whole system that needs to be in place: "You can't put new plants on the landscape until there's a market," Wyse said. "So we go from basic genomics to market, all in unison. That's the unique part of this program."



Wyse is looking for farming partners. For more information, go to www.forevergreen.umn.edu.



Steward of the Year goes to Mikkonen Organic Farm

Mikkonen Organic Farm was honored as the NPSAS 2020 Steward of the Year.

Mikkonen Organic transitioned to organic production in 1989, and the family raises a diversified mix of crops, including barley, black beans, blue corn, yellow corn, flax, oats, spring wheat, soybeans, sunflowers, and winter wheat. The Mikkonens started farming organically in part because when brothers Lonny and Rory took over the operation, neither one wanted to run the sprayer. The accepted path for agriculture wasn't appealing to them. "At the time, the message was, either get big or get out," Lonny said. "And what Dad and his two brothers had built over the course of their lifetime, we didn't want to start borrowing against to expand to keep up with what everybody thought we should be doing, the direction the farmers were all going."

Krysti added that while they want to treat the soil that God entrusted to them in the best way possible, their connection to organic farming was about more than that. "What we love about organic isn't just the farming and the soil. It's about the people. And organizations like this. We are part of NPSAS because it makes us better operators. It makes us better people," she said. "We are grateful to be part of this group."



Photos by Heidi Marttila-Losure

Attending the Food & Farming Conference to accept the award were, from left, Jayden Mikkonen, Krysti Mikkonen, Lonny Mikkonen, and Mariah Heine.

Roger TeSlaa receives Friend of the Farmer Award

NPSAS recognized Roger TeSlaa as the 2020 NPSAS Friend of the Farmer.

TeSlaa, who worked with farmers regularly through his business, Nature's Best, served on the NPSAS board for many years and led a fundraising auction at many winter conferences. He stepped down this past year after suffering from a stroke.

He chose to use his time at the microphone to speak about two issues. First, he encouraged the audience to get checked for sleep apnea.

"(My oxygen level) was below 70 percent oxygen 74 minutes a night, and below 50 percent 18 minutes of the night. What's a normal oxygen level? 98 percent. When you drop below that, you can have a stroke, which is what I suffered. If you are over 30, don't ever think you don't need (a CPAP machine). I sure didn't think I needed one. Does it sound like I've ever run out of oxygen?"

The crowd laughed at that. He continued:

"We have a due diligence opportunity to help with climate change," TeSlaa said. "When our crop is done



Roger TeSlaa and Lynn Brakke

producing, we have residue left. When it breaks down, the carbon goes right into the atmosphere—if you don't have the right bacteria in the soil, and fungi, to tie that carbon onto the soil. It's a simple process. ... The Haney test will tell you the bacteria you've got. If you don't have them, everybody's in the bacteria business now. It's cheap to put on."



Fellowship during the Agri-CULTURE event



Rachel Armstrong discusses how to create a legally resilient farm

Volunteer 2: Argue reasonably than of (igent).

Scenes from the 2020 gathering



Lots of conversation on oats variety trials with Dr. Melanie Caffre-Tremblay



Fred Kirschenmann, Ryan Schmid, and Don Wyse discuss the future of regenerative agriculture



Fun in the Exhibit Hall



Winona LaDuke speaks about hemp



Greetings at the Agri-CULTURE gathering



Volunteers at the registration table



Children's activities



Holiday Inn chef Weston Baril speaks at the Agri-CULTURE event



Meeting with vendors



Didi Pershouse speaks about soil as a sponge



A full house for Friday's lunch



Music from the Radio Star Players, joined by Kalie Jo Rider



Farmers encouraged to lead on climate change

The narrative about farmers and climate change needs to be rewritten—and farmers are going to need to become active in efforts to revise it. If they aren't part of the conversation, they are giving control of their destiny to others.

That was part of the message shared by Matt Russell of Iowa Interfaith Power & Light, an organization that is mobilizing the religious community to become leaders in the movement for climate action. He has been leading conversations and action planning sessions with farmers on how they can be part of the solution to climate change. He led a small group in a similar conversation on Sunday, Jan. 26, as the closing event of the Food & Farming Conference.

The basic challenge is this: “A lot of rural Americans and particularly farmers are not hearing an opportunity to be part of the future,” Russell said.

Instead, they are hearing other narratives. One story, which is funded by the fossil fuel industry and is the loudest position right now, is that the climate is changing, but it's always changed, and we need to try to be more resilient. “(This position is) a distraction, and if we embrace that distraction, we're going to unleash the power of China to eat our lunch, and we're unleashing the power of environmentalists to regulate our farms out of existence,” Russell said.

On the other side is the dominant story told by environmentalists, which is that farmers—or at least some farmers—are a significant cause of climate change.

These positions don't empower farmers to lead, Russell said. “So it's no surprise that farmers aren't moving into a leadership position.”



Matt Russell

“We are victims of climate change as farmers. And we are causing the problem. Those are both true statements. But we are *all* victims of climate change. We are *all* helping cause the problem. What's unique for farmers is that we actually, by our very identity as farmers, have an opportunity to be part of the solution in ways that very few other people on the planet have.”

Farmers make decisions that can directly impact drivers of climate change: How we manage the land can reduce emissions and store carbon, which means farmers have a huge opportunity.

Iowa Interfaith Power & Light's strategy is to get farmers to talk to one another. These conversations have happened in churches, with the support of that church community. Farmers from all across the agricultural spectrum—some small, some large, some conventional, and some organic or regenerative—who have an interest in conservation are invited.

And what has resulted is farmers have been empowered to speak to the media and to legislators. In 2019, when Iowa became the center of the political conversation with candidates for the Democratic presidential nomination criss-crossing the state, many farmers brought

‘Who can save us? American farmers’

A policy statement that came from these conversations about how farmers can take action to fight climate change includes this:

Who can save us? American farmers. We have the most advanced agricultural systems with the most public policy support of any farmers on the planet. ...

How can American farmers save the world? Make it profitable for American farmers to help solve the climate crisis. Cut them a check. America needs to invest in our farmers to lead and innovate so they can develop the agricultural systems that will reduce admissions, capture carbon, and help stabilize the climate. ...

These are the five practice areas of innovation farmers will use to maintain their productivity ... and to develop the environmental services the world desperately needs:

Conservation tillage – no-till is an example

Integrating livestock – rotational grazing is an example

Permaculture – cover crops and woody vegetation are two examples of keeping roots in the ground all year

Extending crop rotations – expanding crops on a whole-farm basis drawing on 10,000 years of genetics rather than relying on only a narrowing set of crops

Generating energy – on-the-farm solar, wind and methane digesters are examples

their message of climate change leadership to many of those candidates. Russell said nearly every Democratic candidate included the idea that farmers are part of climate change solutions in their position papers.

For more information, go to iowaipil.org.



JOIN US!

Moorhead Community Education, along with RDO Equipment Co.—Moorhead, are offering a new series of learning circles to empower women with education on lawn mowers, compact utility tractors, and the more complex systems of a combine. The group will learn hands-on from RDO Equipment Co.'s two women service technicians, Makenzie Lako and Emma Westman, and will have the opportunity to ask questions they may not otherwise ask. Scholarships are available.

Date: Saturday, March 28 and Saturday, April 4, 2020
Time: 8 a.m.–12 p.m.
Location: RDO Equipment Co.—Moorhead Equipment Shop



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Community Education Instructors:
Noreen Thomas
Melany Thomas

Simeon Bakunda
and Verna Kragnes
look out over New
Roots Farm plots
last October.
*Photo by Jon
Solinger*



PLANTING SEEDS

With NPSAS support, New Roots Farm Incubator gives new farmers a boost

Part of this story was produced by West Central Initiative and appeared in their narrative publication, "Writing A New Story."

Simeon Bakunda arrived in the region from the Congo in the middle of a snowy November. Back home, he grew his own food. Looking around at his new, snow-covered home, he wondered how he was going to feed himself. He went to a local market and found a vegetable with a familiar shape. He bought it, carefully preserved its seeds until spring, and planted them in a community garden. Now, eight years later, the seeds from that original vegetable have grown into what is now known locally as Simeon's Eggplant. It's grown in community gardens all over the Fargo-Moorhead area.



Bakunda's plans sound like those of many farmers: "My dreams with regards to farming are to own a small piece of land where I can grow some vegetables, ... supply myself with healthy fresh food, and sell it to other people at a fair and reasonable price, bringing an additional income to support my family," he said.

His products are meeting a need, according to Verna Kragnes, Executive Director of Northern Plains Sustainable Agriculture Society.

"There are a number of ethnic grocery stores in this area; the sellers drive down to the Twin Cities and fill vans with the kinds of veggies (like Simeon's Eggplant) that they can't find in large enough quantities locally to meet demand," Kragnes says. "That represents a real opportunity for local farmers like Simeon."

Verna also saw an opportunity—to invest in community farmers' economic development and give them the tools they needed to start building wealth while supplying local demand. The New Roots Farm Incubator launched by NPSAS in the spring of 2019 with help from West Central Initiative, a regional community foundation in west central Minnesota. West Central Initiative has supported the endeavor with scholarship funds for board members and a Changemakers grant, recognizes how the incubator connects regional investment, global impact, and a commitment to diversity and inclusion.

By prioritizing outreach to New Americans, emphasizing diversity and equity, and fostering beneficial relationships between people and organizations, this effort fits into West Central Initiative's efforts to develop inclusive communities in an increasingly interdependent world. "'Our 'Reimagine Regional' strategic priority emphasizes that investing in our unique geographical area can resonate globally,'" notes WCI's Director of Programs Wendy Merrick. "From eliminating hunger to sustaining our natural resources, investing regionally in areas such as food and agriculture not only creates stronger communities, it also moves us toward a world that leaves no one behind."

PartnerSHIP 4 Health, a collaboration of community partners in four Minnesota counties working to improve the health of residents through preventative strategies, has also helped to fund and support the project.

New Roots Farm provides land and equipment to disadvantaged local farmers — those with less than 10 years of experience, or those who are New Americans, people of color, Native Americans, veterans, or women — giving them the chance to establish a financial track record that will eventually enable them to secure loans for their own farms.

"New Roots helps me to put to work all my skills in terms of growing various vegetables, and practice



Photo courtesy New Roots Farm Incubator

Board members Jason Bergstrand (standing left), Verna Kragnes and Noelle Harden (sitting on left) gather with eight farmers who will be growing with New Roots Farm Incubator in the 2020 season.

New Roots: Growing for the Future

As commercial agriculture continues to expand across the landscape, new growers face a challenge to access affordable and suitable land for farming. The farm incubator model is one solution that removes the land access barrier, and connects growers to affordable equipment, training, and connecting to markets to develop skills to launch a business.

New Roots Farm Incubator is accessible to farmers with fewer than 10 years of experience, or those who are New Americans, Native Americans, people of color, veterans, or women. "The goal of New Roots is to create widespread opportunities to help support beginning farming efforts," Verna Kragnes said. "We are in a food access crisis in this country, so we are trying to develop support by providing land, technical support, and coaching."

New Roots is a critical stepping stone for beginning farmers to work toward operating a farm business. By having good records and showing some income, growers will have the opportunity to apply for loans toward a business start-up.

For more information on connecting with New Roots, contact Verna Kragnes at verna.kragnes@gmail.com or 218-331-4099.



Continued on page 24



what I learned from the Farm Beginnings Class of 2018," Bakunda said.

Amy Rice is another one of the new farmers getting a start through New Roots. Rice is originally from and currently living in Moorhead but spent some years living in Massachusetts, where she worked on an organic farm. She said she has wanted to have her own farm since college and completed the Farm Beginnings program one winter. That's where she heard about New Roots.

"It's a nice way for someone who doesn't own land to have access to a larger plot of land," Rice said.

Her dreams for her farming future include permaculture with culinary and medicinal herbs, berries, and tart cherries, along with vegetables.

This year, however, didn't go as planned. Her son arrived in April, and flooding wiped out early plantings. She focused on vegetables that could be harvested in the fall; the garden yielded food for her family and the restaurant where she works.

Even in a tough year, the program has been worthwhile. "I think meeting all the people who are involved with it has been the best takeaway," she said. "We get a lot of chances to talk to each other in the planning stages."

The NPSAS connection

The partnership between NPSAS and the New Roots project started in early 2019 when the NPSAS board accepted a contract from PartnerSHIP 4 Health, which provided funding for the project through 2019.

Verna had been working on the New Roots project prior to starting to consult with NPSAS in the fall of 2018. About the same time she started working as NPSAS's conference coordinator, she was offered a contract to fund her work with New Roots. She then brought the project before the NPSAS board and asked if NPSAS was interested in being the project's nonprofit sponsor.

The project supports the mission of NPSAS—promoting sustainable food systems through education and research—by providing a means to educate and experiment. "New Roots is being created as a model that can be done easily in other communities," Kragnes said. "After refining the required roles and piloting innovative ways to utilize local community resources, NPSAS plans to encourage widespread replication of this low-cost method of providing support for beginning farmers."

First steps

In 2019, four farmers were involved in New Roots. However, due to flooding and a new baby, only two brought products to market. Eight farmers will be involved for the 2020 season.

Farmers are members of a cooperative that provides access to land and shared equipment. The farmers pay an annual fee that covers the basic costs for water, electricity, etc. Farmers can be members of the cooperative for up to five years.

The goal is helping these farmers find an "on-ramp" into agriculture.

"Just as 150 years ago, we have immigrants coming with a wish to meet their own basic needs and also share with the broader community, but the situation is so different today from earlier times of immigration with industrial agriculture occupying the landscape so strongly."

Kragnes says a new approach is needed to reestablish local and regional food production and move back toward a more stable regional economy, as well as a safer world in terms of carbon production and reducing the miles that food travels from farm to plate. "We've got multiple motivating factors to support the local food and agriculture economy, and I'm delighted with the position West Central Initiative has taken as a leader in this region in supporting that goal."

Kragnes cites a proverb that sums up the multiple layers of benefit the project represents: "If you wash the left hand, the right gets clean too. That's where we are now." And when the region gets stronger — economically, environmentally, and socially — so does the world." 🌱



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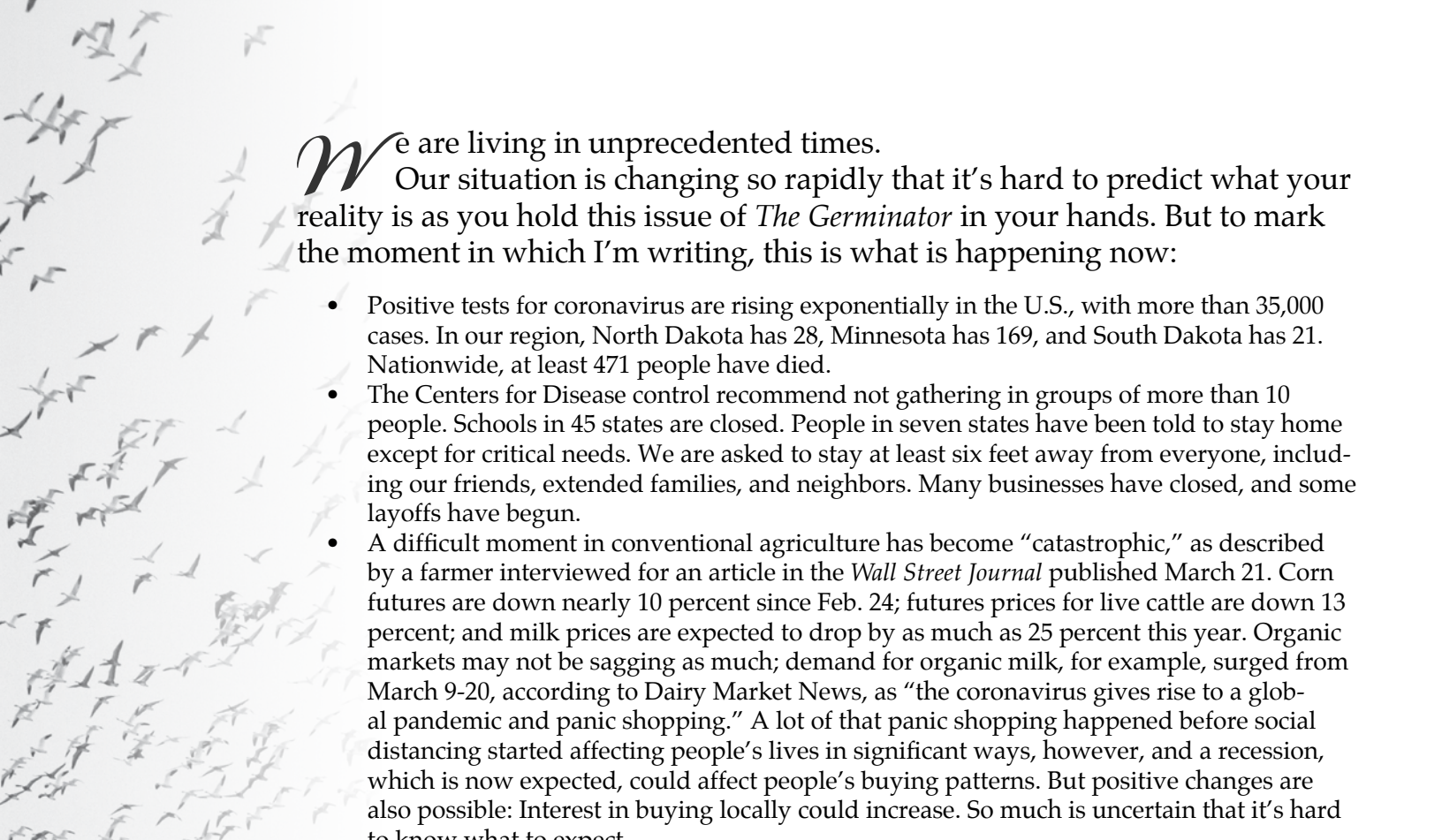
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We are living in unprecedented times. Our situation is changing so rapidly that it's hard to predict what your reality is as you hold this issue of *The Germinator* in your hands. But to mark the moment in which I'm writing, this is what is happening now:

- Positive tests for coronavirus are rising exponentially in the U.S., with more than 35,000 cases. In our region, North Dakota has 28, Minnesota has 169, and South Dakota has 21. Nationwide, at least 471 people have died.
- The Centers for Disease control recommend not gathering in groups of more than 10 people. Schools in 45 states are closed. People in seven states have been told to stay home except for critical needs. We are asked to stay at least six feet away from everyone, including our friends, extended families, and neighbors. Many businesses have closed, and some layoffs have begun.
- A difficult moment in conventional agriculture has become "catastrophic," as described by a farmer interviewed for an article in the *Wall Street Journal* published March 21. Corn futures are down nearly 10 percent since Feb. 24; futures prices for live cattle are down 13 percent; and milk prices are expected to drop by as much as 25 percent this year. Organic markets may not be sagging as much; demand for organic milk, for example, surged from March 9-20, according to Dairy Market News, as "the coronavirus gives rise to a global pandemic and panic shopping." A lot of that panic shopping happened before social distancing started affecting people's lives in significant ways, however, and a recession, which is now expected, could affect people's buying patterns. But positive changes are also possible: Interest in buying locally could increase. So much is uncertain that it's hard to know what to expect.

Principles of RESILIENCE

Guidelines can help us build so we bounce back better

by Heidi Marttila-Losure

One thing of which we can be almost certain, however, is that our communities, our nation, and the world will come through this moment fundamentally different than we were before this crisis began. Crises shake the system, and things that tumble down are almost never rebuilt exactly as they were before. Sometimes things get worse, true—but often, the rebuilt system is better.

We members of an organization with "sustainable" in its name can take a little comfort in the fact that we have been planning for this. Not this exact scenario, probably, but when we speak of sustainability and resilience, we understand that we need to sustain and be resilient in the face of shocks to the system, whether they be storms, droughts, broken machines, market fluctuations, or disease. The principles of resilience that help us

to weather one storm of life are generally useful to weather others.

Our efforts at resilience will be tested this year, and even the most carefully designed systems will likely have something shake loose. We will be forced to change. We will need time to mourn and heal—but we will rebuild, and when we do, we can choose how we do so.

Principles of resilience can guide us as we build anew. The Stockholm Resilience Centre, an international center that does research on how to build resilient systems, has identified seven principles that help systems adapt to change and continue to develop. Their explanation of each principle is included on the following pages, along with a discussion of how this is reflected in our current moment, and questions we should consider as we work to apply those principles in our lives and farming systems.

While our social lives are curtailed in this time of social distancing, we have more room in our lives to breathe deep and ponder. Considering how to create resilience could be a good use of a few of those moments.

	Principle	Key message*	What this means for us	Key questions
1	Maintain diversity and redundancy.	<i>Systems with many different components (e.g. species, actors or sources of knowledge) are generally more resilient than systems with few components. Redundancy provides “insurance” within a system by allowing some components to compensate for the loss or failure of others. Redundancy is even more valuable if the components providing the redundancy also react differently to change and disturbance (response diversity).</i>	“Don’t put all your eggs in one basket” sums up the value of diversity: Relying on any one thing leaves you vulnerable to shocks to the system. Variety lessens risk, whether that’s in types of crops, streams of revenue, or even sources of news. Redundancy means having extra in case of need—and perhaps that’s what all the toilet paper buying was about! But more resources may be required—of knowledge and possibly equipment in the case of diversity, and of more purchasing or gathering in the case of redundancy.	Where can we increase the diversity of the things we rely on—for example, streams of revenue? Do we have funds saved for times of need? <i>Balancing questions:</i> Predicting future needs isn’t easy. How much is diversity is enough? How much redundancy is enough? How can we prevent infringing on a neighbor’s needs today by saving for our own tomorrow?
2	Manage connectivity.	<i>Connectivity can both enhance and reduce the resilience of social-ecological systems and the ecosystem services they produce. Well-connected systems can overcome and recover from disturbances more quickly, but overly connected systems may lead to the rapid spread of disturbances across the entire system so that all components of the system are impacted.</i>	“Rapid spread of disturbances”—that clearly rings true in the time of a spreading pandemic. The act of social distancing means we are living out this principle of managing connectivity. But we are also calling upon our connections to survive, as people use their connections to help move resources to where they are needed. Our social connections can help us keep a healthy mindset in a time of stress.	What does our “map of connections” look like? Do we have connections that both “bond” (with people who are like us) and “bridge” (with people who are not like us)? Are we using our connections to address our needs and the needs of others? <i>Balancing question:</i> Are there connections that should be limited to improve the health of the system?
3	Manage slow variables and feedbacks.	<i>In a rapidly changing world, managing slow variables and feedbacks is often crucial to keep social-ecological systems “configured” and functioning in ways that produce essential ecosystem services. If these systems shift into a different configuration or regime, it can be extremely difficult to reverse.</i>	The effects of pesticides are often slow variables: The harm often doesn’t show up until years down the road. Soil health has several feedback loops: For example, if the structure of soil is damaged, it can’t act as a sponge to let in water and air. If it can’t let in as much water and air, fewer microbes survive, which further decreases the health of the soil.	How might the action I want to take today affect the situation (for me, my family, our community, our nation, and our world) in five years? Or in a generation? <i>Balancing question:</i> When action is clearly needed, how much do we need to know before we can act?
4	Foster complex adaptive systems thinking.	<i>Although complex, adaptive systems thinking does not directly enhance the resilience of a system, acknowledging that social-ecological systems are based on a complex and unpredictable web of connections and interdependencies is the first step towards management actions that can foster resilience.</i>	Many products are advertised as solutions to specific problems: Have weeds? Spray this. Have bugs? Spray that. Zoom out, though, and we can see that those specific problems are part of a bigger system, and the advertised “solutions” may interact with other parts of the system to cause harm. Knowing that we operate in systems helps us to avoid jumping at easy answers. “Adaptive” is also an important word here: In software design, it’s described as being “agile and iterative”—try various solutions in small ways before implementing a change throughout the whole system. This year, we may wish to try this adaptive approach in growing a new crop or developing new markets.	Recognizing that in an interconnected world every system is a model—a partial description of a larger whole—what does my system look like? What are the parts, and how do they interact? How can I try a solution in a small way before staking the future of my operation upon it—while also ensuring this experiment is big enough to be a true test? <i>Balancing question:</i> Changing a mindset can be difficult. How can we make this new way of thinking less scary or threatening—to ourselves or others?

* These key messages are from the Stockholm Resilience Centre website: <https://applyingresilience.org/>

	Principle	Key message*	What this means for us	Key questions
5	Encourage learning.	<i>Learning and experimentation through adaptive and collaborative management is an important mechanism for building resilience in social-ecological systems. It ensures that different types and sources of knowledge are valued and considered when developing solutions, and leads to greater willingness to experiment and take risks.</i>	Because systems are constantly changing in response to the actions people take or other factors, such as weather or disease, “learning how the system works” can’t be done just once. This knowledge must be regularly re-learned as the system changes. While learning from specialists is important, we must also look for other sources of knowledge—traditional or local sources, as well as our own experimenting.	What in my own knowledge base might I need to re-learn to adapt to a changing system? <i>Balancing question:</i> Recognizing that learning requires resources, how can I make room for that in my life and in the lives of others? Since re-learning can feel threatening, how can I adopt a mindset of curiosity instead of judgment?
6	Broaden participation.	<i>Broad and well-functioning participation can build trust, create a shared understanding and uncover perspectives that may not be acquired through more traditional scientific processes.</i>	Giving everyone a role to play in a project has many benefits: Those who are part of a project try harder to make it successful. More perspectives from a variety of sources can lead to better results. This can prove true in our farming operations and in our families.	On our family farms, how can we ensure that family members are true participants in the work? <i>Balancing question:</i> What additional measures or training might be required to make this participation safe?
7	Promote polycentric governance.	<i>Collaboration across institutions and scales improves connectivity and learning across scales and cultures. Well-connected governance structures can swiftly deal with change and disturbance because they are addressed by the right people at the right time.</i>	Polycentricity is “a governance system in which multiple governing bodies interact to make and enforce rules within a specific policy arena or location.” This may be more relevant to our organizations than our farms: Making sure all the “players” who have the power to effect change in a situation are at the table is the best way to make needed changes happen.	Who has the power to effect change in a certain situation? How can we connect them and encourage cooperation between them? <i>Balancing question:</i> In an era of increasing tribalism, how can we encourage collaboration across boundaries?



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Now's the time to talk about farm transitions

The one-woman play "Map of My Kingdom," which was performed during the Food & Farming Conference, provided both cautionary tales about what can go wrong with farm transitions, as well as a few stories about how transitions can be handled with grace. Both kinds of stories sparked good conversations among attendees.

Playwright Mary Swander led a discussion following the play, as well as a workshop the following day. She suggested one way to start the conversation was to write a letter to your family. She provided an example that began with these questions: "What is meaningful about the farm? What memories do I want future generations to know about? And what are my overall goals for the farm 30 years from now?"

Swander provided a list (at right, below) of possible goals to have for a farm transition. She suggested selecting three of these goals, or writing three goals of your own, and numbering them in order of priority. These goals could be included in a letter, or they could be a starting point for a conversation by themselves.

The play pointed out the importance of having these conversations earlier than you think you need to have them, because you never know when illness or death might make it too late.



Above: Actor Erika Kuhn plays the role of a farm mediator in "Map of My Kingdom" at the conference on Jan. 24. Right: Mary Swander discussed the process of writing the play. Photos by Heidi Marttila-Losure



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Possible farm transition goals

- ☐ Keep family harmony/foster positive relationships among family members
- ☐ Provide land for my farming heir(s) to farm
- ☐ Provide a farm for a family to work
- ☐ Help provide my heirs with greater financial stability through the sale of, or rental income from, the farm
- ☐ Use my farmland to benefit a worthy cause
- ☐ Give all my heirs an inheritance of equal economic value
- ☐ Keep the farmland together
- ☐ Use my farmland to help stem the tide of land consolidation
- ☐ Use the farmland to conserve or improve the soil, increase biodiversity, improve water quality and other conservation
- ☐ Ensure that my farmland does not prevent my heirs from developing into independent adults
- ☐ OTHER: _____

Kernza: The potential in a perennial grain

Kernza was prominently featured in the Food & Farming Conference this year: At least three presentations included discussion of this intermediate wheat grass.

Dr. Don Wyse of the University of Minnesota laid out the promise of Kernza in his keynote: “We are domesticating it as a perennial grain—the first perennial grain in the world.” As a perennial, it can provide more of the ecosystem services that are missing from the crops the now dominate the landscape, as well as providing a marketable product.



But progress doesn’t always go full speed ahead. General Mills planned to produce a honey toasted Kernza cereal that would be distributed in a handful of grocery stores, but 95 percent of the 2018 crop they were counting on failed. “And I’m gonna tell you the truth. There were some tears in our offices here,” said Carla Vernon, president of General Mills’ natural and organic unit.

Instead, the company did a limited edition version, with profits benefiting Kernza research, Vernon said on *PBS NewsHour* in November.

NPSAS member Carmen Fernholz of Madison, Minnesota, was featured in that episode also. He was one of the first farmers in the region to grow Kernza, planting it first in 2011 when Wyse approached him about experimenting with it.

Kernza presents some practical challenges for the farmer: it yields only about 25 percent of what wheat does (although this is expected to improve over time). The seed head is long enough that seeds at the top ripen before seeds at the bottom. “And what happens is as the bottom kernels are finally getting ripe, the top kernels are starting to fall off and shatter. And so how do you make a good judgment on the most opportune time to harvest?” Fernholz said.

Getting the seeds to a size that is big enough to harvest easily and not so big that the plant flops over, which interrupts pollination and makes harvesting more difficult, is another challenge that scientists at the University of Minnesota are working on.

Fernholz is still committed to the effort, he said on *PBS NewsHour*. “If I can develop a crop that really cuts back on the soil disturbance, and yet is a great revenue-producing crop, and a food crop besides, to me it becomes a win-win-win for everybody.”

You can watch the *PBS NewsHour* program online at <https://pulitzercenter.org/reporting/how-new-grain-could-help-combat-climate-change>.

Birchwood Cafe's Kernza Pancakes

This recipe was shared by Birchwood Cafe chef Beth Doolley on PBS NewsHour Weekend in November 2019.

2 cups unbleached all-purpose flour
1 tablespoon baking powder
1 tablespoon maple sugar
1/2 tablespoon salt
1 cup whole milk
1 cup whole milk yogurt
2 eggs
1/2 cup cooked Kernza, farro, wheat berries or barley
Vegetable oil for the skillet

Mix the dry ingredients together. Stir in the milk, yogurt, and eggs to make a thick batter. Stir in the Kernza.

Add oil to pan and set over medium heat. Pour about 1/4 cup of the batter per pancake onto the griddle and cook until bubbles form on the top. Flip the pancake and continue cooking until the bottom side is golden brown.

Serve with jam, fresh fruit, and maple syrup.



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Ignoring the web of life quiets our spring

Seed catalogs started showing up in my mail box in December. Early in January hatchery catalogs appeared. In the middle of snow and cold, blizzards and freezing fog I started to dream of spring.

I have experienced a lot of springs. Most of them in the place I'm expecting be this year. I'm anticipating feeling the warm sun on my face as I sit in my lawn chair with my morning coffee. I long to hear the croaking, creaking cacophony of the returning blackbirds in the trees before they move to nest in the cattails. My ears strain for the song of the first robin.

Some of my memories have probably taken on colors and sounds of their own, as memories often do. I am sure, however, that there once were more blackbird songs, more robins and more meadowlarks. Scientists confirm that.

Last fall a report by the Audubon Society, based on annual bird counts dating back to 1970, confirmed my observations. There are 440 million fewer blackbirds than there once were. Among the worst-hit groups were warblers, with a population that dropped by 617 million.

Other scientists have warned of an insect apocalypse. In the United States, scientists recently found the population of monarch butterflies fell by 90 percent in the last 20 years, a loss of 900 million individuals; the rusty-patched bumblebee, which once lived in 28 states, dropped by 87 percent over the same period. Since we have no counts of many common insects such as flies, dung beetles, mosquitoes, and millions of other bugs we don't even see, we probably have lost species we didn't even know we had.

Other bugs seem to have increased in number or at least have moved from one place to another. I've never seen as many stink bugs as attacked my tomatoes last summer. I was able to weed them with fewer mosquito bites, however.

I'm not sad for the loss of a few million mosquitoes. I am sad that the number of barn swallows building nests along the roof of our barn seems to have fallen off in the

last few years. I miss the hundreds of different butterflies I used to catch as a child. Now I see mostly cabbage butterflies who love canola and a few painted ladies and an even smaller number of monarchs.

I understand the economic stress of having grasshoppers eat as much alfalfa as a cow and blackbirds emptying acres of sunflower heads of their seeds. I resent stink bug bites on my beautiful tomatoes. I hate finding green worms in my broccoli.

I have come to understand, however, that life on this earth is an interconnected web, and the loss of one species has an impact on the lives of many others and eventually on us.

I once heard a scientist compare the use of broad-spectrum insecticides to control a single insect to dropping an atomic bomb on New York City in order to control petty crime. It would be effective in stopping the illegal activity, but at a dreadful cost. It would seem we have tried to control insect pests, often unsuccessfully, at a high cost to our ecosystem.

No mosquitoes, gnats, and moths means no bats, barn swallows or brown thrashers. No earthworms and beetles means slower decomposition of soil organic matter. No painted lady butterflies or thistle gall worms means runaway thistle populations. If we kill all the thistles, finches, bees and hundreds of other pollinators will suffer. If we spray all the cattails, the blackbirds will have nowhere to nest. The prairie chickens will have no winter. The bobwhites will lose their home, and the great blue heron will move on to more hospitable places.

No one really knows how bad a mess we have created or even if our efforts to change things can reverse things. But we need to try. Plant flowers. Stop spraying dandelions and cattails. Quit using a baseball bat to swat a mosquito. Allow grasses and blooming plants to grow along the borders of fields. Leave room for nesting birds. Think about what happens to the bugs that process manure when we treat our cows for flies and lice.

We all are guilty of acting out of what we think is our own best interests at times. When we do, sadly, we often create our own next problem because we have set ourselves apart from the rest of creation in our arrogance and short-sighted vision.

We can all do better and if not for ourselves, for the sake of our grandchildren, we must do better.

May your spring be filled with blackbird songs. ♡

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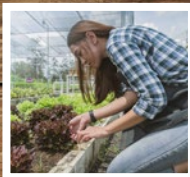


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