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# St. Cloud Times

SUNDAY, OCTOBER 24, 2021 | SCTIMES.COM

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CLIMATE SOLUTIONS PART 1 OF 5

## Adapting to a changing world



### Minnesota farmers raise new cash crops spurred by climate change, reduce carbon dioxide in the air

Nora G. Hertel St. Cloud Times | USA TODAY NETWORK

LITTLE FALLS – Minnesota agronomist Amy Robak describes budding carbon markets as the wild west.

And she's not the only one who sees it that way. "There's no regulatory bubble around it," Robak said.

There's still debate about just how much carbon farmers can intentionally draw from the air and deposit into the soil, a process called carbon sequestration.

Robak is working that frontier. She helps farmers change some practices and measure the impact on their soils as they join a new carbon marketplace backed by corporate partners including Land O'Lakes and General Mills.

#### How do carbon markets work?

Agricultural carbon markets pay farmers to draw greenhouse gases, namely carbon dioxide, from the air and keep it locked in the soil to fight climate change. Plants do this naturally through photosynthesis; farmers encourage it by limiting their tilling, grazing livestock in crop fields and planting cover crops in the off season or between row crops.

Corporations pay for those credits through brokers to offset their carbon pollution.

By the end of August, voluntary carbon market transactions were near \$750 million globally for the year, according to an Ecosystem Marketplace Insights Report, putting 2021 on track to set a new

See **CHANGING**, Page 16A

### What it means to sequester carbon for big companies



Small pines grow in the sandy soil Oct. 6 at the Badoura State Forest Nursery near Akeley.

DAVE SCHWARZ/ST. CLOUD TIMES

Nora G. Hertel St. Cloud Times | USA TODAY NETWORK

Carbon cycles constantly through living organisms, abate the Earth's crust, oceans and atmosphere.

Sometimes that carbon is part of the living trees and other plants, or locked in the chemical structure of rocks such as limestone. Other times it's in the form of carbon dioxide, a gas that spreads through the atmosphere and helps regulate the planet's temperature.

Today, there is an overabundance of carbon dioxide in the atmosphere, released through use of fossil fuels and other industrial practices, such as deforestation.

Instead of keeping the Earth's temperature steady, this freed carbon dioxide is heating our planet up. That has meant more disastrous weather events and changes to average temperature and rainfall across the globe.

Those effects are why many people are talking

See **CARBON**, Page 10A

#### About this project

This is part of a five-part series on climate solutions in Minnesota's fields and forests. Look for it this week in print and online at SCTimes.com.

Above: Farmer Jason Lorenz and Centra Sota Cooperative Lead Nutrient Management Specialist and Certified Crop Advisor Amy Robak talk Aug. 31 about results from a recent planting of sudangrass and other cover crops in a field near Little Falls.

DAVE SCHWARZ/ST. CLOUD TIMES

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# Changing

Continued from Page 1A

annual record since the Ecosystem Marketplace launched in 2005. The trading of greenhouse gas emissions dates back to the early 1990s, but it has accelerated this year due to a rapid increase of net-zero, carbon neutral and other climate change-related commitments from corporations.

Consumers are demanding more sustainable practices as the effects of climate change are increasingly visible and catastrophic. Countries around the world are working to meet goals set in the 2015 Paris climate agreement and keep global temperature rise this century below 1.5 degrees Celsius when compared to pre-industrial levels. That's about 2.7 degrees Fahrenheit.

In Minnesota, average temperatures have risen 1 degree Fahrenheit to 3 degrees Fahrenheit, depending on the part of the state. Farmers are being recruited here to help combat climate change by capturing carbon, even as the science and policy of carbon markets is unsettled.

## What's the risk?

In late August, Robak stepped through a field lush with new pea shoots, kale, clover and sorghum sudangrass. All are cover crops planted as part of a pilot program that will pay farmers if their soils show a marked increase in carbon.

Farmers plant different cover crops to add nutrients to the soil, absorb excess nutrients or produce something their livestock can eat. Radishes, for example, can absorb nitrogen from the soil, which is good for water quality.

Robak, lead nutrient management specialist and certified crop advisor for Centra Sota Cooperative in Little Falls is helping enroll producers into a carbon market pilot. The costs to make the changes are covered by the member-based nonprofit running the market called the Ecosystem Services Market Consortium, or ESMC.

"Right now, in the world of carbon markets, everyone seems to have their own offer out there," said Robak. "There is no really good regulation set around it. There's no USDA farm programs around it, nothing like we have in the crop insurance world."

And there is no consensus on how to best test soil for carbon gains.

"It's very difficult and expensive to do," said Danny Cullenward, policy director for CarbonPlan, a nonprofit that analyzes climate solutions. "That means a lot of these efforts are either trying to confront the fact that it would be very expensive to carefully measure the outcomes in these efforts or maybe they want to cut corners and find ways not to directly measure or measure cheaply."

Big companies, governments and environmental groups are willing to bet on agriculture and other working lands, like forests, to sequester excess carbon that's been released into the atmosphere primarily through combustion of fossil fuels.

Planting cover crops could sequester 6.4 million metric tons of carbon dioxide in Minnesota, according to a January report from The Nature Conservancy. Reducing tillage practices and improved management of fertilizers and nutrients could reduce emissions by more than 4 million metric tons.

That is the hope.

"I do think that we run the risk of really losing credibility in the eyes of the public if these markets fail. Because the hype has been so high," said Anna Cates, Minnesota's state soil health specialist. "That's where I see the greatest risk."

## What are farmers saying?

Jen Wagner-Lahr likes that her family's Cold Spring farm will contribute data and useful information to a fledgling carbon market program.

Her husband, Larry Lahr, grows crops and raises about 450 cattle on more than 500 acres, and they're enrolled in the ESMC pilot. They planted their first cover crops this fall. They've been limiting their tilling already, a practice touted for keeping more carbon in the soil because there's less disturbance to the soil's microbiome.

"It's really kind of a unique opportunity in this region. That a pilot is here where we can actually contribute to that verification aspect," Wagner-Lahr said.

Her husband likes that there's a financial incentive to "do the right thing."

"We prefer to do our practices in a more environmentally responsible way, with sustainability in mind," Lahr said. "It's turning out we can do that without necessarily sacrificing the ability to make a living off the farm."

Jason Lorenz is another farmer in the pilot program who signed up for the soil improvements that come with practices tied to carbon sequestration and carbon



Cows feed contentedly at Lahr Heritage Acres Sept. 3, near Cold Spring. PHOTOS BY DAVE SCHWARZ/ST. CLOUD TIMES



Centra Sota Cooperative Lead Nutrient Management Specialist and Certified Crop Advisor Amy Robak looks at a printed soil survey Aug. 31, in a field near Little Falls.



A large silage pile makes an interesting vantage point for one of the members of the Lahr family Sept. 3, near Cold Spring.



Farmer Jason Lorenz holds a handful of soil from a field he farms Aug. 31, near Little Falls.

markets. He's been using cover crops to some extent for a few years and sees improvements on his farm near Little Falls. He has 40 acres enrolled in the ESMC pilot.

"It just makes your soil healthier," Lorenz said of cover crops. "You take care of the soil, the soil takes care of you."

Using cover crops brings increased yields for many farmers who try them and can bring cost savings on gasoline and fertilizer. Cover crops also help reduce erosion and allow farmland to hold more water which will make that land more resilient to the challenges that come with climate change.

## The trouble with testing soil for carbon

The Ecosystem Services Market Consortium is halfway through a three-year pilot program. They take a soil sample when they enroll a new farm, plug it into a model and retest the soil after a few years.

Caroline Wade, ESMC deputy director, says customers are demanding legitimate climate solutions.

"The pressure is on more and more and it's consumer driven," Wade said. "Consumers want to know that the products they're purchasing have been produced sustainably and are not having negative impacts on the environment."

ESMC is making changes throughout the pilot as it gathers feedback and is trying to be thoughtful and methodical with its pilot and eventual launch, said Project Manager Stacy Cushenbery.

There's a lot of pioneering and a lot of market runners have jumped right in, Wade said. "We are working toward where we think the puck will be, not necessarily where the immediate, uncertain opportunity is."

Soil has a lot of potential to sequester carbon, but carbon test results can vary depending on the depth of the sample, where it was taken on a field and the history of land use for that particular sec-

tion of earth.

The question is not whether cover crops and no-till practices draw in atmospheric carbon, but "how much can we really do," said Angelyca Jackson Hammond, manager for carbon scientific communications with Indigo, which has an agricultural carbon market program.

"We have some data, it's not perfect, but we can't wait for another 50 or 100 years until we have the perfect data set," Jackson Hammond said.

Soil health practices like using cover crops and limiting tillage have shown improvement in the structure of soil, but there isn't a lot of evidence that they increase the amount of carbon held in it.

"We haven't found a way besides growing a prairie or growing a forest that really builds carbon," Cates said. "Farming practices can change carbon levels. And in some cases, they are just maintaining carbon levels and preventing loss, not building new carbon. Should that be a credit? You know, I don't know. That's kind of a market question more than a science question."

The very existence of the market allows big companies to continue emitting greenhouse gases while claiming those emissions are offset by agricultural or forestry practices — even while the jury is still out on whether those practices truly sequester carbon for the long term.

There's little oversight and carbon market companies often police themselves by paying third-party verifiers to back them up, which Cullenward sees as a conflict of interest.

"They all say, when you buy a credit you've caused a farmer or a forest manager to change the way that they're running their practices," he said. "They're making the claim that a small trickle of income is the difference between a project surely doing nothing good and absolutely doing something very, very positive."

## The problem with the price of credits in carbon markets

The incentives are moving in the wrong direction, Cullenward said. There's pressure among carbon markets to keep prices down and provide a lot of credits.

Robak, the Little Falls agronomist, thinks the price for carbon should be higher. And she's not alone.

Brad Doyle, an Arkansas farmer and vice president of the American Soybean Association, says the price needs to increase to make it worth farmers' time and effort — whether it's private companies or governments paying the bill.

"They're not going to change their current practices with the economics such as they are with \$15 (per credit)," Doyle said. "It's going to have to be \$35 or more, \$40 or more."

The economics need to be there, Doyle said. It is not enough to improve soil health and offer a small payment for it.

Cates sees potential in stacked benefits. Farmers could generate a credit for a positive contribution to water quality on top of a credit for sequestering some carbon, however difficult that is to measure.

"The carbon market should be the sprinkles," she said. "It should not be the primary reason that you're doing it."

Farmers are motivated to enroll for myriad reasons, and cover crops look different on every farm depending on the soil, geography and primary crop.

The bottom line is a factor for many, but not for all.

"I ain't farming to get rich. I'm farming because I like it, and that's what God put me here for, to take care of it," said Little Falls farmer Jason Lorenz. "I want to leave it better than I found it."



# Carbon

Continued from Page 1A

about carbon sequestration as a tool to slow or reverse climate change.

Carbon sequestration is the science of capturing and storing carbon dioxide from the atmosphere. It's converted from a gas into a liquid or solid form.

## Why bother?

The last time carbon dioxide levels were as high as they are now was more than 3 million years ago, according to the National Oceanic and Atmospheric Administration. And the Earth looked different then — there were trees in Antarctica and sea levels were up to 30 feet higher than they are now.

Large companies use a lot of energy and cause emissions through their operations, such as through the use of vehicles that burn fossil fuels. Organizations face pressure from consumers and regulators to reduce that carbon footprint. And many are promising to do that.

Microsoft, for example, has promised to get all its energy from renewable sources like wind and solar by 2025, stop using fossil fuel-powered vehicles by 2030 and then remove the carbon it released throughout its history by 2050.

We also need to adapt to the climate change that has already occurred. This is a different challenge that can be addressed by shoring up infrastructure, preventing erosion on farm fields with cover crops and myriad other solutions.

## How do we do it?

Luckily, plants sequester carbon naturally through photosynthesis. They take sunshine, water and carbon dioxide from the air and convert it into oxygen and sugars. Those sugars have carbon atoms and are used to grow the plant. Some carbon is also deposited into the soil.

Natural environments like forests can be big carbon sinks — storing carbon safely in a form that does not warm the planet. Protecting carbon sinks is a key way to reduce emissions.

And humans can help the process by growing more trees or helping crops deposit more carbon into the soil. Encour-



People gather for equipment demonstrations during a Soil Stewardship and Nutrient Management Field Day Sept. 1, near Albany. DAVE SCHWARZ/ST. CLOUD TIMES



Soiled hands were a common experience shared by student volunteers who planted 825 northern red oak seedlings on Sept. 25, at the University of Minnesota Duluth Research & Field Studies Center north of Duluth, Minn. CLINT AUSTIN FOR THE ST. CLOUD TIMES

aging natural carbon sequestration in soils and trees can help draw down carbon already in the atmosphere.

Carbon markets and other incentives are popping up to encourage land managers like farmers

and foresters to draw in more carbon to their soils and plants. And Minnesotans are involved in these projects.

These solutions are not a panacea. Reducing the use of fossil fuels is a big piece of the puzzle too.

But natural climate solutions, which include a lot of practices that sequester carbon, could manage 37% of carbon dioxide emissions reduction in the next nine years, according to a study published in the 2017 Pro-

ceedings of the National Academy of Sciences.

Those practices, paired with other aggressive emissions reductions, could put the planet on track to keep global aver-

age temperature rise below 2 degrees Celsius — the level experts say is needed to avoid the greatest risks from climate change.

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# St. Cloud Times

MONDAY, OCTOBER 25, 2021 | SCTIMES.COM PART OF THE USA TODAY NETWORK

**CLIMATE SOLUTIONS** PART 2 OF 5

## Becoming a state of change

### Five ways in which Minnesota is ramping up efforts to slow the effects of climate change

**Nora G. Hertel** St. Cloud Times | USA TODAY NETWORK

**AKELEY** — Spruce pinecones envelop a warming room at the Minnesota State Forest Nursery's extractory in the scent of Christmas. The extractory heats cones collected around the state and shakes out the seeds so staff can cultivate new seedlings.

Minnesota's nursery in the Badoura State Forest has produced more than 1 billion seedlings from the early 1930s through 2020, which amounts to 4 million to 6 million a year. And the state wants to increase that number.

There's a shortage of seedlings across Minnesota and the U.S. due to forest fire recovery

efforts and projects that aim to reduce the effects of climate change by planting trees to process greenhouse gases.

Minnesota has a number of state-led efforts to combat climate change despite partisan disagreement in the state's split Legislature. Tree planting cannot solve the climate crisis. But it can be a piece of the puzzle, and has been supported by Democrats and Republicans.

Trees, like all plants, absorb carbon dioxide, the most prevalent greenhouse gas.

"People love trees," said Meredith Cornett, the climate change director at The Nature Conservancy.

**See CLIMATE, Page 2A**

**"I think we're purposely being really thoughtful about what are all of the opportunities."**

**Shannon Lotthammer**  
Assistant Commissioner

#### About this project

This is part of a five-part series on climate solutions in Minnesota's fields and forests. Look for it this week in print and online at **SCTimes.com**.

**Above: Sarah Ebert stands on the edge of one of the dozens of plots used to grow trees Oct. 6 at the Badoura State Forest Nursery near Akeley.**

DAVE SCHWARZ/ST. CLOUD TIMES

## Democrats consider changes in filibuster rule

**Matthew Brown**  
USA TODAY

**WASHINGTON** — After another failed vote to advance voting rights legislation last week, Democratic lawmakers are debating the merits of changes in the filibuster rule that many in the party see as essential.

"The most important vote right now in the Congress of the United States is the vote to respect the sanctity of the



**Biden**

vote, the fundamental basis of our democracy," House Speaker Nancy Pelosi, D-Calif., said in an interview on CNN's "State of the Union."

"If there were one vote that the filibuster could enable to go forward, that would be the vote," Pelosi said.

**See RULE, Page 5A**

## Lesser-known disease affecting deer in Minnesota, Wisconsin

**Steve Rudio**  
LA CROSSE TRIBUNE

**LA CROSSE, Wis.** — Mike Kendhammer used to look out his dining room window and see large groups of deer gathered in a field below.

"In the morning, I would have my coffee and read the paper, and I would always see a dozen, 15 or 20," he said.

These days, the deer are gone.

Since last year, Kendhammer has found 15 dead deer on his 220-acre property just south of La Crosse. He

said three other deer who died under similar circumstances have been found on a neighboring property. Last month, the Wisconsin Department of Natural Resources identified the cause of at least two of the deaths: epizootic hemorrhagic disease.

Kendhammer believes EHD killed the remaining 16 deer. He also believes there are dead deer on his and neighboring properties that have yet to be found, the La Crosse Tribune reported.

**See DEER, Page 4A**

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BestBuy	2.80	2.4	14	118.39	+79	+18.6
Brunswick	1.34	1.4	13	94.97	-2.15	+24.6
CH Robins	2.04	2.0	70	99.70	+90	+6.2
Carnival	...	...	...	22.29	-0.4	+2.9
ClevCliffs	...	...	14	23.85	+2.69	+63.8
CocaCola	1.68	3.1	29	54.45	+10	-7
HutaoTc	...	...	...	.59	+0.7	-16.3
ContxtLog n	...	...	...	5.20	-62	-71.5
Created	...	...	...	4.13	+1.21	-7
DatChat n	...	...	...	9.04	+20	+164.3
DiDi Gln	...	...	...	9.19	-62	-35.0
DigWrAcA n	...	...	...	94.20	+48.70	+86.7
DraftKin	...	...	...	46.11	-2.81	-1.0
ExelaTc rs	...	...	...	1.50	-13	+20.5
ExxonMbl	3.48	5.5	...	63.12	+43	+53.1
Facebook	...	...	24	324.61	-17.27	+18.8
Fastenal	1.12	2.0	36	56.05	-0.5	+14.8
FordM	...	...	19	16.28	-27	+85.2
FrptMcM	.30	.8	20	37.67	-75	+44.8
FuelCell	...	...	...	7.29	-82	-34.7
Gap	.48	2.1	20	22.52	-41	+11.5
Goodyear	...	...	7	19.81	-16	+81.6
Graingr	6.48	1.5	31	437.04	-76	+7.0
HP Inc	.78	2.5	11	30.47	-10	+23.9
HSBC	2.00	6.7	...	30.02	+0.2	+15.9
HomeDp	6.60	1.8	26	365.99	+1.37	+37.8
ING	.14	.9	...	15.31	+0.5	+62.2
Intel	1.39	2.8	10	49.46	-6.54	-7
IBM	6.56	5.1	21	127.88	-4.5	+1.6
ItauUnH	...	...	6	4.13	-17	-17.7
IzeaWrldwd	...	...	...	2.24	+32	+23.1
KelsoTch g	.03	3.7	...	.82	+0.5	+49.9
Kohls	1.00	2.0	10	49.15	+1.85	+20.8
LloydBkg	.07	2.8	...	2.70	+0.8	+37.8
MDU Res	.85	2.7	15	31.19	+27	+18.4
MartMM	2.44	.6	31	381.33	-36	+34.3
Mattel	...	...	22	20.45	+12	+17.2
McDnlds	5.16	2.2	26	238.44	-2.96	+11.1
Medtrnc	2.52	2.0	46	123.09	+1.44	+5.1
Merck	2.60	3.2	37	81.15	-0.2	-8
MetenHldg	...	...	...	.31	-0.1	-84.7
MicronT	...	...	13	67.51	-1.13	-10.2
Mondelez	1.40	2.3	23	60.52	+36	+3.5
NewOrEd s	...	...	12	2.39	-0.2	-87.1
NokiaCp	.19	3.2	...	5.88	-0.7	+50.4
Nvidia s	...	...	81	227.26	+34	+74.1
Ocugen	...	...	...	8.32	-14	+354.6
OtterTail	1.56	2.6	27	60.60	+1.05	+42.2
Palantir	...	...	...	24.43	-35	+3.7
PayPal	...	...	...	240.40	-2.81	+2.6
Pentair	.80	1.1	27	75.77	+50	+42.7
PepsiCo	4.30	2.7	27	159.97	+79	+7.9
PetbrsA	...	...	6	9.62	-0.4	-13.0
Petrobras	...	...	3	9.95	-10	-11.4
Polaris	2.52	2.0	12	126.13	-1.75	+32.4
Progenity	...	...	...	2.96	+46	+44.3
Prudentl	4.60	4.0	17	113.99	+72	+46.0
RemrkHl h	...	...	...	2.17	+1.26	+14.2
SalemMda	.10	2.1	20	4.70	+99	+351.9
SesenBio	...	...	...	1.15	-10	-14.8
SnapInc A	...	...	...	55.14	-19.97	+10.1
SoFTech n	...	...	...	20.58	-41	-9.1
SwstnEngy	...	...	...	5.01	+0.7	+68.1
Starbucks	1.96	1.7	...	114.55	+11	+7.1
Sundial h	...	...	...	.66	-0.4	+39.2
TJX	1.04	1.6	31	64.16	-52	-6.0
Target	3.60	1.4	30	255.93	+1.72	+45.0
Tegna	.38	1.9	9	20.53	+0.8	+47.2
Tesla Inc	...	...	...	909.68	+15.68	+28.9
3M Co	5.92	3.3	18	180.80	-1.32	+3.4
Tilray	...	...	...	11.08	-48	+34.1
TonixP h	...	...	...	.55	-0.3	-17.9
Tyson	1.78	2.2	14	82.50	+1.31	+28.0
Uber Tch	...	...	...	45.51	-96	-10.8
US Bancrp	1.84	2.9	13	62.74	+56	+34.7
USSteel	.04	.2	6	22.88	+67	+36.4
UdnlthGp	5.80	1.3	30	449.16	+6.88	+28.1
Vale SA	3.08	22.8	...	13.52	+18	-19.3
VerizonCm	2.56	4.8	11	52.93	-46	-9.9
WaitrHl	...	...	...	1.46	-14	-47.5
WalMart	2.20	1.5	42	148.34	+1.53	+2.9
WalBBoots	1.91	3.9	19	49.00	-14	+22.9
WstMlnc	2.30	1.4	44	164.42	+2.54	+39.4
WellsFargo	.80	1.6	3	50.66	+33	+67.9
Wendys Co	.48	2.1	49	22.59	+17	+3.1
Winmark	1.80	.8	23	218.00	-1.25	+17.3
XcelEngy	1.83	2.8	22	65.55	-0.6	-1.7
Zynga	...	...	...	7.38	-42	-25.2



Jon and Dewayne Lesemoe hoe weeds from rows of trees growing on a plot on Oct. 6 in the Badoura State Forest Nursery near Akeley. PHOTOS BY DAVE SCHWARZ/ST. CLOUD TIMES

Climate

Continued from Page 1A

“There aren’t too many things that are natural unifiers in our world. Wherever we can find those uniting things in our very divided world, let’s grab on to them and run with it.”

Minnesota is in the midst of several efforts to reduce greenhouse gas emissions and tackle climate change in other ways. Nonprofits and businesses are working on it as well.

Here’s a look at five state projects aiming to take on climate change.

Increase carbon sequestration in forests

By January 2023, Minnesota’s Department of Natural Resources must establish goals and recommendations on how to draw more carbon from the air and lock it into public and private forests.

Even before that directive from state lawmakers, the DNR was hiring a forest carbon policy coordinator, said DNR Assistant Commissioner Shannon Lotthammer.

Work together on climate goals

Lotthammer co-leads an action team on climate change and Minnesota’s natural and working lands with Andrea Vaubel, deputy commissioner in the Department of Agriculture. They’re looking for ways to reduce emissions, increase carbon storage and improve soil health across Minnesota ecosystems.

“I think we’re purposely being really thoughtful about what are all of the opportunities,” Lotthammer said. “I think we all feel this sense of urgency as well, that we need to keep accelerating action, we need to really move forward expeditiously, given the challenges that we’re facing and that we’re going to be facing.”

Encourage conservation practices in ag

The Minnesota Agricultural Water Quality Certification Program celebrates farms that use conservation practices. Gov. Tim Walz announced last December that he wants to enroll 1 million acres in the progr. Producers that go beyond the water quality requirements can get recognized for practices that support soil health or for being a climate-smart farm.

But a Walz proposal to put \$500,000 into a Climate Smart Farm Project did not get support from the Legislature. It would have provided gap payments to farmers working to sequester carbon before they enrolled in a carbon market program.

State lawmakers did OK \$5.35 million in the budget that passed in June for soil health practices through the Clean Water Fund and Board of Soil and Water Resources budgets.



A sign greets visitors on Oct. 6 to the Badoura State Forest Nursery near Akeley.



Sarah Ebert talks about the process in collecting and preparing seeds for planting Oct. 6 at the Badoura State Forest Nursery near Akeley.

\$2.5 million for seedlings

Minnesota will spend \$2.5 million in the next two years to increase production of seedlings at the Department of Natural Resources’ forest nursery and incentivize the planting of more trees.

Rows of tiny trees fill beds in 78 fields at the state nursery. Each field is an acre and a half and separated by wind-breaks.

The money will fund seedbed expansions, additional irrigation and seed procurement to meet an expected rise in demand linked to climate change-motivated reforestation efforts, according to the DNR. The number of new seedlings will depend on the state’s ability to get more seeds.

Seeds are collected by landowners and others across the state and shipped to the nursery. The seedlings grow there for at least two years before they’re sold.

A new initiative from The Nature Conservancy aims to plant 1 million acres of trees in Minnesota, a feat that will require more than 43 million tree seedlings a year for the next 18 years, according to a Nature Conservancy post by Cornett. That’s seven times the current annual output in the state.

Ongoing emissions reductions

Minnesota is not on track to meet 2025 goals on reducing greenhouse gas emissions set in the state’s 2007 bipartisan Next Generation Energy Act.

Utilities are looking to meet or exceed renewable and solar electricity sourcing standards. And lawmakers passed a number of provisions in May and June to advance clean energy in the state.

Lotthammer is proud that Minnesota has been a leader on setting those goals.

“I’m an optimist by choice. And it’s hard to do this work if you’re not optimistic,” Lotthammer said. “There are things to be optimistic about even in the midst of what truly is an existential threat that we’re facing. But we have to take action. We absolutely have to keep moving.”

And a project for the future?

The Land Stewardship Project championed a proposal for a Soil Healthy Farming Program that would incentivize and push for cover crops, perennial crops, no-till or managed rotational grazing on 100% of the state’s tillable and grazeable acres by 2040.

It didn’t pass the GOP-controlled Senate, but it did have bipartisan support in its first House committee hearing this year.

“Both sides saw the importance of investing directly in farmers, knowing that this is not a debate really about climate change, but rather resilience and innovation for farmers,” said Laura Schreiber, a policy organizer for the Land Stewardship Project. “All farmers want their soil to thrive.”

TODAY IN HISTORY

Today is Monday, Oct. 25, the 298th day of 2021. There are 67 days left in the year.

On this date in:

**1760:** Britain’s King George III succeeded his late grandfather, George II.

**1854:** The “Charge of the Light Brigade” took place during the Crimean War as an English brigade of more than 600 men charged the Russian army, suffering heavy losses.

**1859:** Radical abolitionist John Brown went on trial in Charles Town, Va., for his failed raid at Harpers Ferry. (Brown was convicted and hanged.)

**1910:** “America the Beautiful,” with words by Katharine Lee Bates and music by Samuel A. Ward, was first published.

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CLIMATE SOLUTIONS PART 3 OF 5

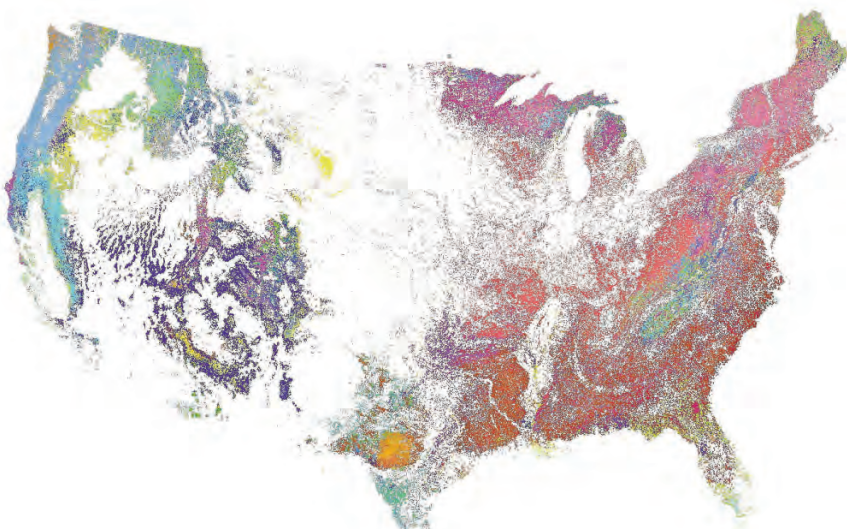
## SPEAKING FOR THE TREES

### High-tech startup pays Minnesota landowners to help preserve forests, and uses AI and satellite imagery to do it

**Nora G. Hertel** | St. Cloud Times | USA TODAY NETWORK

John I. Scheef has purchased hundreds of acres in the north woods of Minnesota in the last 20 years. ● The retired investment manager initially thought about developing the forestland in the northeastern corner of the state. Then his priorities shifted toward conservation. ● Scheef planted 1,000 conifers on the land — “a drop in the bucket,” he said. He also allowed for some logging at the recommendation of a forester. ● Now he is among a group of landowners deferring all timber harvests for payment brokered by startup company

See **TREES**, Page 2A



Above: A map from NCX shows forest types across the U.S. The startup is a forest carbon market exchange that uses satellites and artificial intelligence to keep tabs on carbon sinks – forested land in the U.S. that stores carbon. PROVIDED BY NCX

Top: A stand of cedar trees near Jackson Lake in Cook County are part of John Scheef’s 600-plus acres enrolled in NCX’s forest carbon market program in 2021. He agreed not to harvest any of the trees on his land in exchange for a small payment. PROVIDED BY BRIAN ALLEN

#### About this project

##### Climate solutions in Minnesota’s fields and forests

This story is part of a St. Cloud Times series on natural climate solutions supported by the MIT Environmental Solutions Journalism Fellowship. Journalism Fellow and St. Cloud Times Reporter Nora Hertel visited 10 farms this summer and interviewed dozens of experts on climate change, forestry, agriculture and more. Primary photography is by St. Cloud Times Photojournalist Dave Schwarz. Anna Haecherl is the project’s content coach.

##### More online

Visit [sctimes.com](http://sctimes.com) for additional stories, photos, videos and podcasts featuring farmers and experts in Minnesota.

##### Get involved

Join us Nov. 2 in person or online for a panel discussion at Milk & Honey Ciders with food from KREWE Restaurant featuring beef and honey from producers on the panel.

Panelists include farmers using sustainable practices at Early Boots Farm in Sauk Centre and Lahr Heritage Acres in Cold Spring.

Find more information on the event and RSVP at [bit.ly/2Xt74x0](http://bit.ly/2Xt74x0)

#### EDUCATION

### Number of students rebounding

#### St. Cloud seeing boost in kindergarten enrollment

**Erik Newland**

St. Cloud Times | USA TODAY NETWORK

The full extent of the COVID-19 pandemic’s effect on public school districts around St. Cloud may not be clear until it’s completely over, but the St. Cloud and Sartell-St. Stephen districts may have seen kindergarten enrollment return after a drop-off in 2020.

At St. Cloud, “we are down about 91 students” from 2020, Executive Director of Finance and Business Services Amy Skaalerud said in a presentation to the school board in September. Most of the decrease is an expected decline in middle school enrollment, due to a large eighth-grade class leaving for high school, according to Skaalerud.

“We do see a rise in Kindergarten,” Skaalerud told the board. “When we compare our current Kindergarten numbers, they are about 70 higher than they were last fall.” She said many families decided to hold kindergarten-aged children back a year due to COVID-19 shutdowns.

In Sartell-St. Stephen, by Superintendent Jeff Ridlehoover’s count, kindergarten enrollment rebounded from

See **KINDERGARTEN**, Page 4A

### School board resignations triple in Minnesota

ASSOCIATED PRESS

ST. PAUL – Contentious disagreements over COVID-19 policies and critical race theory have caused a significant increase in the number of local school board resignations in Minnesota.

According to the Minnesota School Boards Association, nearly 70 board members have resigned their positions this year, triple the number of resignations in a regular year.

That equates to an unusually high number of district special elections, according to the association’s executive director, Kirk Schneidawind.

“We have a number of special elections around filling vacant seats. We’ve seen a number of school board members have resigned or moved on to special positions and as a result it’s going to require some elections,” Schneidawind said.

Violent school board meetings and threats toward school board members over divisive issues that have caused dozens of board leaders to quit their positions are now at the center of many school board campaigns and platforms, Minnesota Public Radio

See **SCHOOL BOARDS**, Page 4A

#### USA TODAY

**Whistleblower:** Insider tells UK lawmakers Facebook amplifies hate. **Nation & World, 7A**

#### ‘Bomb cyclone’ storms cross US

Storm triggers mudslides in California. Heavy rain, snow likely as system moves East. **6A**

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**STOCKS OF LOCAL INTEREST**

Name	Div	Yld	PE	Last	Chg	YTD %Chg
AMC Ent	...	...	...	36.83	+23	+1637.3
AT&T Inc	2.08	8.1	...	25.64	+15	-10.8
AbbottLab	1.80	1.4	31	126.58	-14	+15.6
AdvAuto	4.00	1.7	32	230.13	-1.84	+46.1
AMD	...	...	43	122.36	+2.54	+33.4
Allele	2.47	4.0	20	61.94	+28	0.0
Alphabet A	...	...	83	2748.94	-2.39	+56.8
Ambev	.05	1.8	17	2.72	+10	-11.1
AmAirlines	.40	2.1	...	19.23	+08	+21.9
AmExp	1.72	.9	21	182.31	-4.77	+50.8
Anthem	4.52	1.0	26	434.56	+1.22	+35.3
ApogeeE	.80	2.0	45	40.85	+51	+28.9
Apple Inc s	.88	.6	40	148.64	-.05	+12.0
BP PLC	1.29	4.3	12	29.71	+20	+44.8
Bakkt Hl n	...	...	...	30.60	+21.45	0.0
BcoBrad	.03	.9	9	3.74	+14	-21.8
BkofAm	.84	1.8	14	47.51	-.06	+56.7
Benesre A n	...	...	...	12.27	+58	+20.9
BerkH B	...	...	39	290.26	+1.02	+25.2
BestBuy	2.80	2.3	14	120.48	+2.09	+20.7
BorqsTech	...	...	...	.72	+16	-27.6
Brunswick	1.34	1.4	13	95.00	+03	+24.6
CH Robins	2.04	2.1	69	98.19	-1.51	+4.6
Carnival	...	...	...	22.05	-.24	+1.8
ClevCliffs	...	...	15	25.42	+1.57	+74.6
CocaCola	1.68	3.1	29	54.23	-.22	-1.1
ComSvrgn n	...	...	...	1.74	+16	0.0
ContxtLog n	...	...	...	5.50	+30	-69.8
Created	...	...	...	4.39	+26	+5.5
DigWrAcA n	...	...	...	83.86	-10.34	+742.8
Ecmoho	...	...	3	.67	+08	-70.4
ExelaTc rs	...	...	...	2.27	+77	+82.3
ExxonMbl	3.48	5.4	...	64.35	+1.23	+56.1
Facebook	...	...	24	328.69	+4.08	+20.3
Fastenal	1.12	2.0	36	56.15	+38	+15.0
FordM	...	...	19	16.00	-.28	+82.0
FuelCell	...	...	...	7.54	+25	-32.5
Gap	.48	2.1	20	22.51	-.01	+11.5
GeeGroup	...	...	...	.49	+02	-51.0
GeniusBr h	...	...	...	2.03	+69	+47.1
Goodyear	...	...	8	20.74	+93	+90.1
Graingr	6.48	1.5	31	435.83	-1.21	+6.7
Greenpro	...	...	...	1.47	+62	-28.3
HP Inc	.78	2.5	11	30.63	+16	+24.6
HSBC	2.00	6.6	...	30.50	+48	+17.7
HomeDp	6.60	1.8	26	371.26	+5.27	+39.8
ING	.14	.9	...	15.28	-.03	+61.9
INpixon	...	...	...	1.01	+25	-1.0
Intel	1.39	2.8	10	49.41	-.05	-.8
IBM	6.56	5.1	22	127.64	-.24	+1.4
ItauUnH	...	...	7	4.29	+16	-14.5
Kohls	1.00	2.0	10	49.06	-.09	+20.6
LucidGrp n	...	...	...	26.85	+2.74	+1
MDU Res	.85	2.7	15	31.23	+04	+18.6
MartMM	2.44	.6	32	393.79	+12.46	+38.7
Mattel	...	...	22	20.10	-.35	+15.2
McDnlds	5.16	2.2	26	237.34	-1.10	+10.6
Medtrnc	2.52	2.0	46	123.56	+47	+5.5
Merck	2.60	3.2	37	81.66	+51	-.2
MetenHldg	...	...	...	.38	+08	-80.9
MicronT	...	...	13	68.76	+1.25	-8.5
Mondelez	1.40	2.3	23	60.34	-.18	+3.2
NewOrEd s	...	...	12	2.32	-.07	-87.5
NokiaCp	.19	3.4	...	5.66	-.22	+44.8
NDynMn g	...	...	...	.45	+04	+40.4
Nvidia s	...	...	83	231.66	+4.40	+77.4
Ocugen	...	...	...	9.34	+1.02	+410.4
OtterTail	1.56	2.6	27	60.93	+33	+43.0
PAE Inc	...	...	...	9.88	+3.98	+7.6
Palantir	...	...	...	25.41	+98	+7.9
PayPal	...	...	...	246.88	+6.48	+5.4
Pentair	.80	1.0	27	76.93	+1.16	+44.9
PepsiCo	4.30	2.7	27	159.22	-.75	+7.4
Petrobras	...	...	4	10.71	+7.6	-4.6
Pfizer	1.56	3.6	18	43.15	-.01	+17.2
Pinterest	...	...	...	50.68	-7.38	-23.1
PlugPowr h	...	...	...	34.88	+2.18	+2.9
Polaris	2.52	2.0	12	126.26	+1.13	+32.5
Progenity	...	...	...	3.38	+4.2	-36.3
Prudentl	4.60	4.0	17	113.81	-.18	+45.8
RemrkHl h	...	...	...	3.15	+98	+65.8
RiseEdCy	...	...	...	1.49	+66	-75.5
SnapInc A	...	...	...	54.50	-.64	+8.8
SonimTc rs	...	...	...	2.40	+53	-66.9
Sphr3D g	...	...	...	6.99	+49	+388.8
Starbucks	1.96	1.7	...	114.71	+16	+7.2
Sundial h	...	...	...	.67	+01	+40.3
TJX	1.04	1.6	32	65.26	+1.10	-4.4
Target	3.60	1.4	30	260.35	+4.42	+47.5
Tegna	.38	1.9	9	20.23	-.30	+45.0
Tesla Inc	...	...	...	1024.86	+115.18	+45.2
3M Co	5.92	3.2	18	182.40	+1.60	+4.4
Tyson	1.78	2.1	14	83.29	+7.9	+29.3
US Bancpr	1.84	2.9	13	62.52	-.22	+34.2
USSteel	.04	.2	7	24.60	+1.72	+46.7
UtdHlthGp	5.80	1.3	30	449.49	+33	+28.2
Vale SA	3.08	22.2	...	13.90	+38	-17.1
VerizonCm	2.56	4.9	10	52.58	-.35	-10.5
VislnkT h	...	...	...	2.13	+54	+61.4
WallMart	2.20	1.5	42	150.06	+1.72	+4.1
WalgBoots	1.91	3.9	19	49.22	+22	+23.4
WsteMlnc	2.30	1.4	43	161.15	-3.27	+36.6
WellsFargo	.80	1.6	3	50.62	-.04	+67.7
Wendys Co	.48	2.1	49	22.34	-.25	+1.9
Winmark	1.80	.8	23	218.00	...	+17.3
XcelEngy	1.83	2.8	22	64.66	-.89	-3.0
Xpeng	...	...	...	48.09	+4.95	+12.3
Zynga	...	...	...	7.46	+08	-24.4



**A legacy patch of trees was left next to land logged in a 2018 timber harvest in northeastern Minnesota. John Scheef owns the land and manages it with help from forester Brian Allen. The logged area is now regenerating and attracting moose.**  
PROVIDED BY BRIAN ALLEN

**Trees**

Continued from Page 1A

NCX in a new forest carbon marketplace. ● Scheef’s land is home to cedar and spruce bogs, old birch and new aspen growth, and a variety of conifers including white pine and white spruce among other tree species and shrubs. He likes to walk through it, but it’s so remote he doesn’t go too far in when he’s alone. His plans for the land aim to keep it habitable to moose, black bears, ruffed grouse, chestnut-sided warblers and many others. Scheef is not making much money in the deal with NCX, he said. But he likes that there’s a market-based and cooperative solution taking on climate change.

**The power of carbon markets**

NCX launched a pilot program in 2019 with 20 landowners in Pennsylvania and funding from Microsoft. Now it has more than 670 landowners with 2.35 million acres and has sold 270,000 carbon credits. As of July, NCX was operating in 16 states. The units from the landowners are pooled together. Companies that bought units from Scheef’s land include Microsoft, Rubicon, Patch, Lune and Cargill, according to NCX. All the companies that buy carbon offsets from NCX do it voluntarily to counteract their carbon emissions. “We really, really believe in the power of markets to really quickly and efficiently bring the full weight of forests as a natural climate solution to bear,” said Alex Macintosh, director of U.S. origination for NCX. Planting new trees and changing forest management practices are two strategies to reduce the effects of climate change known as natural climate solutions. These solutions protect plants and ecosystems that already store carbon and encourage growth of those systems to draw in more carbon dioxide, a greenhouse gas. Carbon markets are one incentive. Land owners are paid to keep carbon locked up in landscapes by encouraging more plant growth. Companies that want to reduce their carbon footprint — essentially make up for the greenhouses gases their operations produce — pay them to do so through those markets. NCX is not the only player in the field. The Family Forest Carbon Program has a similar goal and is launching in Pennsylvania. It was created by the American Forest Foundation (a timber industry group) and The Nature Conservancy. There’s a large stretch of forest in north central Minnesota already enrolled in a carbon market. Much of a 188,000-acre permanent conservation easement is in the American Carbon Registry, a nonprofit and the first private voluntary greenhouse gas registry in the world. The land is owned and managed by UPM Blandin, a paper company. Some of it can be harvested for timber and the land is open for out-

door recreation. “Based on our experience it does seem like a really valuable tool, in terms of promoting these natural climate solutions and supporting forestry practices that are maybe better suited to higher levels of carbon sequestration or storage,” said Sawyer Scherer, a forest ecologist for UPM Blandin, about forest carbon markets. “It’s certainly been helpful for us. ... I think it will be important for a lot of new forest owners in the future, and I think it’s a good way to support those practices.” Talking on climate change will require drastic cuts in greenhouse gas emissions on top of carbon sequestration efforts.

**A new way to look at carbon**

NCX has set up a unique carbon marketplace. It uses satellite images and artificial intelligence to assess forests, which means it can work with a lot of smaller landowners efficiently. “I think we take an especially strong stance on the importance of landowners getting to be part of this solution and getting to have this extra tool in their toolbox for forest management,” Macintosh said. NCX works on a year-by-year basis and doesn’t require long-term commitments from landowners. Other forest markets work on 30- to 125-year projects, said Chris Wright, a landscape ecologist at the Natural Resources Research Institute at the University of Minnesota-Duluth. “I think it’s a really interesting idea, in the sense that they’re trying to get as many people involved in the carbon market as possible,” Wright said. “I think it’s a huge opportunity to reorient the way we approach our forests,” he said. One marker of a high-quality carbon credit is that it represents a permanent reduction in carbon levels. Carbon credits are meant to allow companies or countries to make up for some of their greenhouse gas emissions because the credits represent greenhouse gas reductions or removals. Rather than bring in a few, long-term protected forests, NCX seeks to bring in a high volume of smaller, short-term protections. “We think it’s much, much better to have that environmental impact all at once, today, if possible,” Macintosh said. “If you just take a unit of carbon retained over a period of time has an environmental benefit, and you stack up enough of those blocks, in one year, today, that can be really significant.”

**Changing forest management?**

Another marker of a high-quality carbon credit is that it’s “additional,” meaning the reduction of carbon dioxide represented by the credit only happened because the carbon credit program incentivized it. Forest carbon credits don’t mean much if the forest was already protected or the landowner never intended to cut it down. “When you look at NCX, I think there’s

reasons to believe that they are doing a better job on the additionality problem,” said Danny Cullenward, policy director for CarbonPlan a nonprofit that analyzes climate solutions. “They’re trying to create a contractual structure that would actually, potentially change how a forest manager manages his or her lands. That’s good.” NCX requires an attestation from the land owner that they’ll defer timber harvest. The company conducts an inventory of the property that includes species mix and density and local market factors, such as the distance to nearby mills. John Scheef’s land is pretty far from the closest mills, in Two Harbors and Cloquet. He has about 660 acres enrolled in the NCX program.

The land is divided into swaths with hills, wetlands and small lakes. They’re remote and difficult to access. Plus markets for logging products aren’t strong. The company expanded its reach from the spring to the summer — an increase from 119 to 577 landowners — which had an impact on the cost of a “harvest deferral credit.” Those credits are currently worth \$12 a piece and landowners get the full payment, Macintosh said. Credit buyers pay an origination fee to NCX to cover the cost of running the program and certification auditing.

**Moose also benefit from forest preservation**

Macintosh said most landowners will make enough from carbon payments to cover their property taxes on the land. That’s not true for Scheef, but there are some non-financial incentives for him too. “It’s playing into the long-term conservation theme, and you’re earning a few dollars to do it,” he said. “I’d like to see the quality and diversity of these forests improve over time.” NCX is focused on forest carbon credits now, but the company is considering selling credits that reward landowners for reducing the risk of wildfires on the land through management choices. It also plans to offer credits for ecosystem services, meaning they’ll pay landowners for protecting habitat. “I think that’s again in the spirit of fully valuing the forest landscape and making sure the landowners are being compensated for their, you know, their stewardship of this really important resource,” Macintosh said. Scheef has noticed that the plot he logged several years ago is regenerating and drawing moose who like that phase of regrowth. Minnesota’s moose population is declining and is considered highly vulnerable to climate change, according to a Climate Change Vulnerability Assessment and Adaptability Plan led by three of the state’s Ojibwe reservation governments. Scheef’s land is in the part of the state most likely to keep its boreal forests, even as the climate changes and strains the region typically covered in trees. “It’s probably one of the last areas of true moose habitat,” Scheef said.

**TODAY IN HISTORY**

Today is Tuesday, Oct. 26, the 299th day of 2021. There are 66 days left in the year.

On this date in:

**1774:** The First Continental Congress adjourned in Philadelphia.

**1825:** The Erie Canal opened in upstate New York, connecting Lake Erie and the Hudson River.

**1861:** The legendary Pony Express officially ceased operations, giving way to the transcontinental telegraph. (The last run of the Pony Express was completed the following month.)

**1881:** The “Gunfight at the O.K. Corral” took place in Tombstone, Arizona, as Wyatt Earp, his two brothers and “Doc” Holliday confronted Ike Clanton’s gang. Three members of Clanton’s gang were killed; Earp’s brothers and Holliday were wounded.

**SC Times**

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## St. Cloud area teams receive top seeds in sections

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# St. Cloud Times

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## 'SOMETHING HAS TO BE DONE'



### How Minnesotans are helping the north woods adapt to climate change

Jackson Watson of St. Michael, Minn., a freshman at the University of Minnesota Duluth, plants a northern red oak seedling on Sept. 25 at the UMD Research & Field Studies Center north of Duluth, Minn. 825 trees were planted in 33 rows containing 25 trees each. PHOTOS BY CLINT AUSTIN FOR THE ST. CLOUD TIMES

Nora G. Hertel St. Cloud Times | USA TODAY NETWORK

DULUTH — Julie Etterson pursued a central question throughout her career: Can plants evolve fast enough to keep up with the pace of climate change? She found that they cannot.

Etterson, a biology professor and department head at the University of Minnesota-Duluth, came to that conclusion after more than two decades of research.

Now she and a slew of partners are in the midst of a project that could help Minnesota's north woods adapt more quickly to climate change.

They took seeds from southern Minnesota trees, recruited farmers to help them grow and will plant the seedlings in the northeastern part of the state where climate change has already slowed the regeneration of some iconic tree species.

It is called the Forest Assisted Migration Project. And it has drawn national attention. It's a somewhat controversial strategy, influencing a forest's gene pool.

"A lot of papers came out about it at the same time: It's good. It's bad. I hate it. I love it," Etterson said in her Duluth office in July. "They just don't agree, and I would say they still don't agree to this day. As the consequences of climate change become increasingly evident on the landscape, I think people are warming up to the idea more than they ever have before. Because something has to be done."

Minnesota temperatures have increased between 1 degree and 3 degrees Fahrenheit in the last several decades, with a faster increase in the northern part of the state. If climate change continues unchecked, much of Minnesota's forests could change to open prairie by the end of the century.

As threats from climate change loom, organizations like The Nature Conservancy and the Minnesota Department of Natural Resources are looking to plant more trees and alter forestry and agriculture practices to draw more carbon dioxide from the atmosphere and deposit it into plants and the soil where damage from the greenhouse gas is limited. Plants do that naturally through the process called photosynthesis.



Julie Etterson, a biology professor at the University of Minnesota Duluth, plants one of 825 northern red oak seedlings on Sept. 25 at the UMD Research & Field Studies Center north of Duluth, Minn. Northern red oak was chosen to demonstrate forest assisted migration. The climate is warming faster than the species can naturally migrate northward. By planting tree species from warmer areas the hope is to maintain northern forests as the climate continues to change.

"A tree can only sequester carbon if it survives. And right now, the boreal constituents of the North Shore forests are not surviving," Etterson said. Many are dying and not regenerating. Even the most common aspen species are not prepping their next generation as they used to.

Boreal forests are home to moose and many coniferous trees and are known for long and snowy winters.

The Nature Conservancy has worked with Etterson on the assisted migration project for years and will be one of the biggest buyers of seedlings next year. The University of Minnesota Duluth planted 825 seedlings into a research plot in September.

See HELPING, Page 2A

## Sartell to hold special vote on 1.5% food and beverage tax in February

Becca Most St. Cloud Times USA TODAY NETWORK

SARTELL — The Sartell City Council approved a special election and ballot question for an up to 1.5% food and beverage tax in Sartell at Monday's meeting. The special election will take place on Feb. 8.

The sales tax on food and beverages is only applied to food sales and retail sales of alcoholic beverages

See TAX, Page 4A

"This allows the city to capitalize on the thousands of visitors who frequent Sartell establishments and purchase food or beverages. On a \$50 total bill at a restaurant, an additional .75 cents would be collected for this tax."

According to a city press release

## \$50.8 million planned for St. Cloud's 2022 Enterprise Funds Budget

Becca Most St. Cloud Times | USA TODAY NETWORK

ST. CLOUD — A majority of St. Cloud's 2022 enterprise funds budget will be used for water and wastewater utilities, according to Mayor Dave Kleis in a presentation Monday to the St. Cloud City Council.

Typically, Kleis presents details of the enterprise funds budget in November, but because of the expected move into the new City Hall at the end of the year, Kleis presented it early to give more time for the public to review it, he said.

St. Cloud has nine enterprise funds, including the city's water, wastewater, hydroelectric and stormwater services; street lightings; refuse service; parking; the Municipal Athletic Complex; and River's Edge Convention Center.

Enterprise funds are expected to be self-supporting through the sale of goods or services to the public for a fee. They do not rely on property taxes for operation, according to Kleis' presentation to the council.

The full enterprise funds budget will be available on the city website on Nov. 8, and the City Council will follow its usual timeline to discuss the budget.

### What's in the budget?

Included in the \$50.8 million 2022 enterprise budget is about \$16.6 million for water utility services, \$14.6 million for wastewater utility services, \$4.9

See FUNDS, Page 4A



St. Cloud City Hall is pictured April 13 in St. Cloud. ZACH DWYER, ZDWYER@STCLOUDTIMES.COM

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STOCKS OF LOCAL INTEREST

THE MARKET IN REVIEW

STOCKS OF LOCAL INTEREST

Name	Div	Yld	PE	Last	Chg	YTD %Chg
AMC Ent	...	...	...	36.05	-78	+1,600.5
AT&T Inc	2.08	8.2	...	25.37	-27	-11.8
AbbottLab	1.80	1.4	32	128.13	+1.55	+17.0
AdvAuto	4.00	1.7	33	232.56	+2.43	+47.6
AMD	...	...	43	122.93	+57	+34.0
AEye A n	...	...	...	5.50	+1.05	-40.2
Allete	2.47	4.0	20	62.26	+32	+5
Alphabet A	...	...	84	2786.17	+37.23	+59.0
Ambev	.05	1.9	17	2.70	-0.2	-11.8
AmAirlines	.40	2.1	...	19.39	+16	+23.0
AmExp	1.72	1.0	21	180.95	-1.36	+49.7
Anthem	4.52	1.0	26	436.24	+1.68	+35.9
ApogeeE	.80	2.0	45	40.30	-55	+27.2
Apple Inc s	.88	.6	40	149.32	+68	+12.5
BIMI Intl	...	...	...	2.21	+1.53	+32.3
BP PLC	1.29	4.4	12	29.64	-07	+44.4
Bakkt Hl n	...	...	...	23.78	-6.82	0.0
BcoBrad	.03	.9	9	3.64	-1.0	-23.9
BkofAm	.84	1.8	14	47.96	+45	+58.2
BerkH B	...	...	40	290.85	+59	+25.4
BestBuy	2.80	2.3	14	121.23	+75	+21.5
Brunswick	1.34	1.5	12	91.27	-3.73	+19.7
CH Robins	2.04	2.1	69	98.51	+32	+4.9
Carnival	...	...	...	21.82	-23	+7
ClevCliffs	...	...	15	25.63	+21	+76.0
CocaCola	1.68	3.1	29	54.47	+24	-7
ContxtLog n	...	...	...	5.24	-26	-71.3
DiDi Glb n	...	...	...	8.41	-42	-40.5
DigWrAcA n	...	...	...	59.07	-24.79	+493.7
DraftKin	...	...	...	48.75	+1.93	+4.7
ExelaTc rs	...	...	...	1.92	-35	+54.2
ExxonMbl	3.48	5.3	...	65.84	+1.49	+59.7
Facebook	...	...	23	315.81	-12.88	+15.6
Fastenal	1.12	2.0	36	56.03	-12	+14.7
ForDM	...	...	19	15.94	-06	+81.3
FuelCell	...	...	...	7.17	-37	-35.8
Gap	.48	2.1	20	22.71	+20	+12.5
GeniusBr h	...	...	...	1.87	-16	+35.5
Goodyear	...	...	7	19.28	-1.46	+76.7
Graingr	6.48	1.5	31	430.64	-5.19	+5.5
Greenpro	...	...	...	1.27	-20	-38.0
HP Inc	.78	2.6	11	30.14	-49	+22.6
HSCB	2.00	6.5	...	30.72	+22	+18.6
HomeDp	6.60	1.8	26	369.20	-2.06	+39.0
ING	.14	.9	...	15.24	-04	+61.4
InspTcOx n	...	...	...	9.59	+7.24	+101.9
Intel	1.39	2.9	9	48.28	-1.13	-3.1
IBM	6.56	5.2	21	127.13	-5.1	+1.0
ItauUnH	...	...	7	4.21	-08	-16.1
IternUnTh h	...	...	...	.75	+21	-24.7
Kohls	1.00	2.0	10	48.80	-26	+19.9
LucidGrp n	...	...	...	26.38	-47	-1.7
MDIU Res	.85	2.7	15	31.33	+10	+18.9
MartMM	2.44	.6	32	390.82	-2.97	+37.6
Mattel	...	...	22	20.53	+43	+17.7
McDnlds	5.16	2.2	26	236.42	-92	+10.2
Medtrnc	2.52	2.0	47	124.05	+49	+5.9
Merck	2.60	3.2	37	82.25	+59	+6
MetenHldg	...	...	...	.55	+17	-72.5
Microsoft	2.48	.8	42	310.11	+1.98	+39.4
Mondelez	1.40	2.3	23	60.83	+49	+4.0
MySze	...	...	...	1.58	+42	+12.1
NewOrEd s	...	...	11	2.19	-13	-88.2
NokiaCp	.19	3.3	...	5.70	+04	+45.8
Nvidia s	...	...	89	247.17	+15.51	+89.3
Ocugen	...	...	...	9.15	-19	+400.0
OtterTail	1.56	2.5	28	61.49	+56	+44.3
Palantir	...	...	...	25.52	+11	+8.4
Pedevco	...	...	...	1.80	+30	+19.2
Pentair	.80	1.1	26	74.26	-2.67	+39.9
PepsiCo	4.30	2.7	27	161.17	+1.95	+8.7
Petrobras	...	...	4	10.54	-17	-6.1
Pfizer	1.56	3.6	19	43.56	+41	+18.3
Pinterest	...	...	...	47.89	-2.79	-27.3
PlugPowr h	...	...	...	34.17	-71	+8.0
Polaris	2.52	2.2	11	116.25	-10.01	+2.2
Progenity	...	...	...	3.99	+61	-24.9
Prudenti	4.60	4.0	17	113.65	-16	+45.6
Puxin	...	...	20	.59	+03	-89.9
RemrkHl h	...	...	...	2.18	-97	+14.7
RiseEdCy	...	...	...	1.26	-23	-79.3
SnapInc A	...	...	...	55.39	+89	+10.6
SoFITech n	...	...	...	19.96	-73	-11.9
Starbucks	1.96	1.7	...	114.92	+21	+7.4
Sundial h	...	...	...	.67	...	+40.3
TJX	1.04	1.6	32	65.33	+07	-4.3
Target	3.60	1.4	30	258.73	-1.62	+46.6
Tegna	.38	1.9	9	20.22	-01	+44.9
Tesla Inc	...	...	...	1018.43	-6.43	+44.3
3M Co	5.92	3.2	18	182.16	-24	+4.2
Twitter	...	...	...	61.43	-68	+13.4
TwoHrbl	.68	10.6	4	6.44	-28	+1.1
Tyson	1.78	2.2	14	82.49	-80	+28.0
UP Fint	...	...	33	8.67	-19	+9.2
US Bancrp	1.84	2.9	13	62.44	-08	+34.0
USSteel	.04	.2	7	24.34	-26	+45.1
UdnlthGp	5.80	1.3	30	454.64	+5.15	+29.6
VerizonCm	2.56	4.8	10	53.08	+50	-9.7
WaitrHl	...	...	...	2.05	+62	-26.3
WallMart	2.20	1.5	42	148.75	-1.31	+3.2
Walgreens	1.91	4.0	18	48.31	-91	+21.1
Wallbox	...	...	...	16.31	+5.21	0.0
WstMInc	2.30	1.4	42	159.28	-1.87	+35.1
WellsFargo	.80	1.6	3	50.63	+01	+67.8
Wendys Co	.48	2.2	48	22.13	-21	+1.0
Winmark	1.80	.8	24	226.00	+8.00	+21.6
XcelEngy	1.83	2.8	22	64.48	-18	-3.3
Zynga	...	...	...	7.37	-09	-25.3

Helping

Continued from Page 1A

Roughly 50,000 other seedlings will go out in the spring. Buyers include three Soil and Water Conservation Districts, Minnesota Power, Rajala Woods Foundation and The Nature Conservancy.

Working with ‘forest people’

Cree and Jason Bradley started with 27,000 yellow birch seeds, 12,000 white pine seeds and 7,000 red oaks. The two also raise vegetables and produce maple syrup on their Two Harbors farm.

“We’ve always been forest people, and we love to grow things,” said Cree Bradley. “You take that combination — and the thought of growing trees for a healthy forest — it so matches who we are.”

Cree expects to make more money off the red oaks, but the white pine and yellow birch mean more to her and Jason. They do some work in the Superior National Forest and love pine species.

“When we think about climate change, this boreal forest is really going to change. And it’s going to be changing to this more deciduous, red oak forest. And we’re playing a role in that. There’s a little bit of sadness there for us to be real honest,” Cree said. “Change is hard, especially when it’s something like climate change.”

The Bradleys’ farm is among 15 raising seedlings for the assisted migration project. All the participants share a fondness for trees, including David Abazs, the northeast Clean Energy Resource Teams coordinator, who has worked with the producers in the project and raised some seedlings at the Finland farm he runs with his wife.

“I think there’s a real synergy happening with the U.S. Forest Service, with the DNR, with the nonprofits like The Nature Conservancy and even for-profit energy companies like Minnesota Power,” Abazs said.

Ten years ago, only local seeds were used for reforestation efforts, he said. But Etterson’s research has shown the importance of southern genetics.

“All of those things put together, I think make it very promising, but we’ll see if they have the duration that’s going to be needed,” Abazs said. “It’s got to be a whole infrastructure and building up of our capacity to assist the forest and make the forest more resilient and strong.”

Growers started with nearly 400,000 seeds and acorns from the southern half of the state and almost all of them were distributed and planted with a goal of producing 85,000 seedlings.

Abazs estimates 50,000 will make it to the spring. Plans are underway to produce another 85,000 seedlings with producers building on knowledge they gained this year.

Growing new pillars of the north

It has been a difficult growing season in 2021 with trouble from chipmunks, severe drought, a late freeze and other challenges, Abazs said.

Some of the seeds had very low germination rates, and farmers had to plant several seeds to get one seedling. The goal was for farmers to break even, but Abazs expects many to lose money this year.

The Bradleys signed on knowing that they might not succeed, Cree said. They invested a lot of money in equipment, including special containers for the seedlings. And it’s been a learning process for all the farmers in the program.

“We had to be willing to know that we might not succeed at this. And we might need to spend a lot of money and be OK if we don’t succeed on it. That’s just part of the risk with farming,” she said. “But if we are successful at it, which we want to be and hope to be, it is an enterprise that we felt like we could generate income from.”

Abazs hopes that the program will be self-sustaining, that farmers can continue to raise seedlings and have buyers for that crop.

“We don’t want this project to be dependent on grants,” he said. “We want



Cree and Jason Bradley pose for a photo among their vegetables at Chelsea Morning Farm in Silver Creek Township, north of Two Harbors, Minn., on July 8. They raise heirloom plants, sell farm shares, produce maple syrup and raise seedlings for a new Forest Assisted Migration Program tied to the University of Minnesota Duluth, where they met and earned degrees.

NORA HERTEL/NHERTEL@STCLOUDTIMES.COM

About this project: Climate solutions in Minnesota’s fields and forests

This story is part of a St. Cloud Times series on natural climate solutions supported by the MIT Environmental Solutions Journalism Fellowship. Journalism Fellow and St. Cloud Times Reporter Nora Hertel visited 10 farms this summer and interviewed dozens of experts on climate change, forestry, agriculture and more. Primary photography is by St. Cloud Times Photojournalist Dave Schwarz. Anna Haecherl is the project’s content coach.

Visit sctimes.com for additional stories, photos, videos and podcasts featuring farmers and experts in Minnesota.

Join us Nov. 2 for a panel discussion at Milk & Honey Ciders with food from KREWE Restaurant featuring beef and honey from producers on the panel.

Panelists include farmers using sustainable practices at Early Boots Farm in Sauk Centre and Lahr Heritage Acres in Cold Spring.

Find more information on the event and RSVP here: bit.ly/2Xt74x0

the core fundamentals to work within the economic system.”

There is a shortage of seedlings across Minnesota and the U.S. as communities work to replant after forest fires and seek to increase tree populations as a natural climate solution.

Forests can help reduce the effects of climate change, because they take carbon dioxide from the air and store it in plant material and the soil. And while trees are touted by many as a useful solution to climate change they cannot counterbalance the effect of all the fossil fuels humans have burned. So reforestation has to go hand in hand with reduction of greenhouse gas emissions.

The Forest Assisted Migration Project works to help forested land adapt to the climate change that has already happened. And it will add to the total number of trees growing in Minnesota — a goal The Nature Conservancy pursues through several initiatives.

One effort called Conifer Strongholds planted 100,000 conifers in cooler pockets of northeastern Minnesota where they’re likely to continue to grow despite increasing temperatures overall.

Meredith Cornett, climate change director at The Nature Conservancy, has worked on the project with Etterson since its inception. She found it serendipitous that the white pine, which is featured in the assisted migration project, is expected to do well within climate change. They were targeted in Minnesota’s logging heyday in the late 1800s and early 1900s.

White pines are also a favorite of Matthew Jahnke, the greenhouse manager at the University of Minnesota-Duluth. He helped raise the seedlings that are now planted at the university’s research farm.

“White pine are the pillars of the north. They’re the largest tree that we have,” Jahnke said. “They grow really slowly.”



Julie Etterson, a biology professor at the University of Minnesota Duluth, talks to students and volunteers prior to planting a plot of 825 northern red oak seedlings on Sept. 25 at the UMD Research & Field Studies Center north of Duluth, Minn. This is a collaboration between UMD and the Nature Conservancy with the plan to reforest northern Minnesota with as many as 25 million climate-smart trees. CLINT AUSTIN FOR THE ST. CLOUD TIMES

From talk to assisted migration

Minnesota’s forests are important to the state’s identity. They’re central to the tourism and timber industries, Etterson said. And they’re important for wildlife and water flow.

As Etterson learned from her experiments that adaptive evolution was too slow to keep up with climate change, she started to think about how to help local plants transition.

There’s a long history of forest managers selecting species or seedlings with different genetic traits within the same species to accommodate the environment, Etterson said. And the concept of assisted migration took shape within the last 15 or 20 years. She was among a group of scholars in different disciplines that published a number of papers on it.

Etterson has looked at data from 160-year-old forestry trials and studies of assisted migration to expand the species distribution of butterflies in England. There’s evidence to support assisted migration, but the studies weren’t local and weren’t about trees, she said.

“I personally felt like it was getting to the point in the scientific community where talk was cheap. People are talk, talk, talk, talking about assisted migration,” Etterson said. “But where we were really lacking was empirical data. Somebody saying, ‘Let’s try this and see if it works.’”

Now Etterson and her partners are trying it in Minnesota’s forests to see how it works. She and her students will track how the trees perform — how fast they grow and how much sugar they produce from photosynthesis.

They have reduced some risk by keeping tree species in their normal growing range and moving them in line with the climate change that has already occurred, she said.

“My goal is to retain healthy forests. And I’m a biologist, so I tend to think about the value of those forests from the perspective of ecosystem services, clean water, shade, carbon sequestration, habitat for other organisms,” Etterson said. “And of course, the enjoyment of the people who are up and down the North Shore all summer long. That’s what really motivates me.”

TODAY IN HISTORY

Today is Wednesday, Oct. 27, the 300th day of 2021. There are 65 days left in the year.

On this date in:

**1787:** The first of the Federalist Papers, a series of essays calling for ratification of the United States Constitution, was published.

**1904:** The first rapid transit subway, the IRT, was inaugurated in New York City.

**1938:** Du Pont announced a name for its new synthetic yarn: “nylon.”

**1941:** the Chicago Daily Tribune dismissed the possibility of war with Japan, editorializing, “She cannot attack us. That is a military impossibility. Even our base at Hawaii is beyond the effective striking power of her fleet.”

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### CLIMATE SOLUTIONS PART 5 OF 5



## FARM CONSERVATION PRACTICES ON THE RISE

Nora G. Hertel St. Cloud Times | USA TODAY NETWORK

ST. AUGUSTA

**S**unflowers bloomed between rows of corn because Daniel Janski ran out of cover crop seeds and grabbed a pollinator mix to fill in the rest of the field. • Four years ago, Daniel's brother introduced cover crops to the farm that has been in their family for four generations. Each year since, Daniel and his cousin Tyler Janski have learned more about regenerative agriculture and experimented with those practices on their 4,000 acres. • At first, Daniel thought his brother's idea sounded crazy. • "And you hear of older farmers that said, 'That's not something that works. People have done that in the past. They were unsuccessful,'" Daniel said about that first year with the cover crops. "And for us it was the complete opposite. ... It was very successful."

Now the Janskis are using more cover crops across their land. They've reduced their tillage. And they allow their cattle to graze on some of their fields, which provides benefits to the land through the animals' hooves, saliva and manure.

Cover crops and reduced plowing are becoming more common in Minnesota and across the U.S., especially as carbon market brokers start to offer new incentives for practices that draw carbon dioxide from the air and lock it into the soil.

The science of soil carbon sequestration is still in development, but the benefits of soil health practices are often touted by farmers themselves and those practices are likely here to stay. Whether they lock in carbon credits or not, farming practices

See **SOLUTIONS**, Page 2A

### About this project: Climate solutions in Minnesota's fields and forests

This story is part of a St. Cloud Times series on natural climate solutions supported by the MIT Environmental Solutions Journalism Fellowship. Journalism Fellow and St. Cloud Times Reporter Nora Hertel visited 10 farms this summer and interviewed dozens of experts on climate change, forestry, agriculture and more. Primary photography is by St. Cloud Times Photojournalist Dave Schwarz. Anna Haecherl is the project's content coach.

Visit [sctimes.com](http://sctimes.com) for additional stories, photos, videos and podcasts featuring farmers and experts in Minnesota.

**Above, Daniel Janski stands between corn rows as a variety of other plants grow Aug. 19 in St. Augusta.**

DAVE SCHWARZ/ST. CLOUD TIMES

## Enrollment declines persist in higher ed

Numbers drop in St. Cloud and across state

Nora G. Hertel St. Cloud Times  
USA TODAY NETWORK

ST. CLOUD —Enrollment at St. Cloud State University has declined in the last six years, but slowed this year despite the ongoing COVID-19 pandemic.

Higher education institutions across the U.S. have been bracing for enrollment declines linked to lower high school graduation rates driven by demographics as the large millennial cohort aged out.

"Our president saw the national trend coming prior to the pandemic," said Jason Woods, St. Cloud State University's vice president for strategic enrollment management, citing SCSU's It's Time initiative, which features an individualized focus on students and highlights four of the school's programs: health, leadership, education and engineering and applied science.

"She saw the need to counter the root causes of the enrollment decline nationally," Woods said about President Robbyn Wacker, who took the helm in July 2018.

The pandemic has become a new and, yes, "unprecedented" strain on enrollment, said Hannah Mikels, St. Cloud State's director of undergraduate admissions, Tuesday.

In one outreach effort, SCSU staff sent handwritten notes and paper applications to students in parts of the state known for poor internet access, Mikels said. "We tried personalizing things more, as much as possible."

St. Cloud State saw a 7.8% decline in the fall headcount this year compared to last. The year prior, enrollment declined by a factor of 10.5%, according to a St. Cloud Times analysis of Minnesota State system data.

Minnesota State has seven universities that saw a combined 4.9% decline in student enrollment this fall compared to last. Every university in the system saw a decline with the largest at the University of Minnesota-Moorhead (-8.5%) and the smallest at Minnesota State University-Mankato (-0.4%).

Enrollments dropped at Minnesota

See **DECLINES**, Page 4A



**Andrew Huxley, 15, readies for a COVID-19 vaccine dose from LPN Jaclyn Niska May 18 at CentraCare Plaza Pediatrics.**

ZACH DWYER/ST. CLOUD TIMES

## COVID-19 vaccinations for children aged 5-11 could begin next week in Minnesota

Imani Cruzen St. Cloud Times  
USA TODAY NETWORK

COVID-19 vaccinations for children ages 5 to 11 could begin as early as late next week, according to the Minnesota Department of Health during a phone call with media Wednesday.

"This is a really important step toward better protecting our children from COVID-19, especially with the Delta wave and the degree to which they're

main vulnerable in situations, still, of very high viral activity around the state," said Minnesota Department of Health Commissioner Jan Malcolm.

The department has been working to offer families a variety of vaccination site locations for their children, said Malcolm. A network of 1,100 Minnesota providers have registered to administer pediatric COVID-19 vaccines, she said.

"As we wait for official guidance and the final greenlight to begin vaccinating

... clinics, local public health, tribal health agencies, pharmacies, and state-run community and school-based clinics are preparing to administer vaccines to our children..." Malcolm said.

A CDC advisory group is expected to meet Tuesday and Wednesday to review the data before their committee recommendation goes to the head of the CDC for final authorization, Malcolm

See **VACCINE**, Page 4A

### USA TODAY

**Democrats budget plan:** Pelosi upbeat, but Manchin's opposition to billionaire tax a difficulty. 7A

### Staying in town

Hernandez Burrito moves to new location but stays in Sauk Rapids for loyal customers. 3A

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**STOCKS OF LOCAL INTEREST**

Name	Div	Yld	PE	Last	Chg	%Chg	YTD
AMC Ent	...	...	...	34.76	-1.29	+1.539.6	
AT&T Inc	2.08	8.3	...	25.06	-.31	-12.9	
AbbottLab	1.80	1.4	32	127.71	-.42	+16.6	
AdvAuto	4.00	1.7	32	230.35	-2.21	+46.2	
AMD	...	...	43	122.28	-.65	+33.3	
AgriFrce n	...	...	...	3.17	+1.01	-31.2	
Allete	2.47	4.0	20	61.06	-1.20	-1.4	
Alphabet A	...	...	88	2924.35	+138.18	+66.9	
Ambev	.05	1.9	17	2.68	-.02	-12.4	
AmExp	1.72	1.0	21	178.03	-2.92	+47.2	
Anthem	4.52	1.0	26	433.68	-2.56	+35.1	
ApogeeE	.80	2.0	44	39.90	-.40	+25.9	
Apple Inc s	.88	.6	40	148.85	-.47	+12.2	
BIMI Intl	...	...	...	.94	-1.27	-43.7	
BP PLC	1.29	4.4	11	29.25	-.39	+42.5	
Bakkt Hl n	...	...	...	29.40	+5.62	0.0	
BcoBrad	.03	.9	9	3.68	+.04	-23.0	
BkofAm	.84	1.8	14	47.04	-.92	+55.2	
BerkH B	...	...	39	287.78	-3.07	+24.1	
BestBuy	2.80	2.4	14	118.75	-2.48	+19.0	
Brunswick	1.34	1.5	12	90.42	-.85	+18.6	
CH Robins	2.04	2.1	68	97.64	-.87	+4.0	
Cemtrex	...	...	...	1.32	+.26	-2.2	
ChXDPlast	...	...	1	.93	+.35	-6.1	
Citigroup	2.04	2.9	7	70.31	-.34	+14.0	
ClevCliffs	...	...	14	24.80	-.83	+70.3	
CocaCola	1.68	3.0	30	55.52	+1.05	+1.2	
Comcast	1.00	1.9	25	52.44	-1.32	+.1	
ContxtLog n	...	...	...	4.96	-.28	-72.8	
Cortexym	...	...	...	13.51	-44.17	-51.4	
DigWrAcA n	...	...	...	64.89	+5.82	+52.2	
ExelaTc rs	...	...	...	1.70	-.22	+36.5	
ExxonMbl	3.48	5.4	...	64.13	-1.71	+55.6	
Facebook	...	...	23	312.22	-3.59	+14.3	
Fastenal	1.12	2.0	36	55.57	-.46	+13.8	
FormD	...	...	18	15.51	-.43	+76.5	
FuelCell	...	...	...	7.00	-.17	-37.3	
GaleraTh	...	...	...	2.41	+.52	-76.4	
Gap	.48	2.2	19	21.76	-.95	+7.8	
GenMotors	...	...	9	54.26	-3.11	+30.3	
GeniusBr h	...	...	...	1.52	-.35	+10.1	
Goodyear	...	...	7	18.95	-.33	+73.7	
Graingr	6.48	1.5	30	424.53	-6.11	+4.0	
GuardHlt rs	...	...	...	1.50	+.32	-39.8	
HP Inc	.78	2.6	11	29.70	-.44	+20.8	
HSCB	2.00	6.6	11	30.42	-.30	+17.4	
HomeDp	6.60	1.8	26	372.32	+3.12	+40.2	
ING	.14	.9	...	15.16	-.08	+60.6	
Intel	1.39	2.9	9	47.89	-.39	-.3	
IBM	6.56	5.2	21	125.17	-1.96	-6.9	
IronNet	...	...	...	16.34	+6.04	0.0	
ItauUnH	...	...	7	4.23	+.02	-15.7	
ItermTh h	...	...	...	.59	-.16	-40.7	
Kaival n	...	...	...	1.84	-.32	-79.1	
Kohls	1.00	2.1	10	47.76	-1.04	+17.4	
LucidGrp n	...	...	...	27.02	+.64	+.7	
MDU Res	.85	2.8	15	30.67	-.66	+16.4	
MarMM	2.44	.6	31	383.20	-7.62	+34.9	
Mattel	...	...	22	20.63	+.10	+18.2	
McDnlds	5.16	2.1	26	242.73	+6.31	+13.1	
Medtrnc	2.52	2.1	46	122.50	-1.55	+4.6	
Merck	2.60	3.2	37	81.54	-.71	-.3	
MetenHldg	...	...	...	.42	-.14	-79.3	
Microsoft	2.48	.8	44	323.17	+13.06	+45.3	
Mondelez	1.40	2.3	23	60.39	-.44	+3.3	
NokiaCp	.19	3.3	...	5.76	+.06	+47.3	
Nvidia s	...	...	88	244.51	-2.66	+87.3	
Ocugen	...	...	...	9.61	+.46	+42.1	
OtterTail	1.56	2.6	27	60.47	-1.02	+41.9	
Palantir	...	...	...	25.06	-.46	+6.4	
Pentair	.80	1.1	26	73.35	-.91	+38.2	
PepsiCo	4.30	2.7	27	160.61	-.56	+8.3	
Petrobras	...	...	4	10.49	-.05	-6.6	
Pfizer	1.56	3.6	18	42.97	-.59	+16.7	
PlugPowr h	...	...	...	34.41	+.24	+1.5	
Polaris	2.52	2.1	11	117.24	+.99	+23.0	
Progenity	...	...	...	3.75	-.24	-29.4	
Prudentl	4.60	4.1	17	111.76	-1.89	+43.2	
Puxin	...	...	25	.75	+.16	-87.2	
RemrkHl h	...	...	...	2.09	-.09	+10.0	
RiseEdCy	...	...	...	1.05	-.21	-82.8	
Robnhd A n	...	...	...	35.44	-4.13	+1.8	
SnapInc A	...	...	...	52.02	-3.37	+3.9	
SwstnEngy	...	...	...	5.10	-1.17	+71.1	
Starbucks	1.96	1.7	...	113.51	-1.41	+6.1	
Sundial h	...	...	...	.65	-.01	+37.8	
TJX	1.04	1.6	32	64.56	-.77	-5.5	
Target	3.60	1.4	30	256.54	-2.19	+45.3	
Tegna	.38	1.9	9	19.64	-.58	+40.8	
Tesla Inc	...	...	...	1037.86	+19.43	+47.1	
3M Co	5.92	3.3	18	178.24	-3.92	+2.0	
Transcon	...	...	...	3.68	-.30	+59.3	
Twitter	...	...	...	54.81	-6.62	+1.2	
Tyson	1.78	2.2	14	80.63	-1.86	+25.1	
Uber Tch	...	...	...	44.73	-1.29	-12.3	
US Bancrp	1.84	3.1	12	60.28	-2.16	+29.4	
UtdHlthGp	5.80	1.3	30	453.48	-1.16	+29.3	
Vale SA	3.08	22.9	...	13.47	-.32	-19.6	
VerizonCm	2.56	4.9	10	52.63	-.45	+10.4	
Visa	1.28	.6	44	215.78	-16.04	-1.3	
WaitrHl	...	...	...	1.86	-.19	-33.1	
WallMart	2.20	1.5	42	147.53	-1.22	+2.3	
WalbBoots	1.91	4.1	18	47.12	-1.19	+18.2	
Wstmlnc	2.30	1.5	41	155.15	-4.13	+31.6	
WellsFargo	.80	1.6	3	50.05	-.58	+65.8	
Wendys Co	.48	2.2	48	22.01	-.12	+.4	
Winmark	1.80	.8	24	224.00	-2.00	+20.6	
XcelEngy	1.83	2.9	22	63.39	-1.09	-4.9	



**Farm Manager and Seedkeeper Jessika Greendeer laughs during a tour at the Dream of Wild Health farm in Hugo on Sept. 2. The nonprofit runs a 30-acre farm that grows vegetables and heirloom seeds.** PHOTO BY SHANNON RATHMANNER



**Kate Droske smiles in the yard at Early Boots Farm in Sauk Centre where she and Tyler Carlson keep quail, ducks, pigs, chickens and goats on July 19. They also raise grass-fed beef and pastured lamb, sour cherries and honey berries.** PHOTO BY CAROLINE YANG

**Solutions**

Continued from Page 1A

including the use of cover crops, limited tilling and grazing livestock on crop fields can provide benefits to soil, yields, water quality and biodiversity.

**Soil health practices on the rise**

“When I first started in 2005 I got almost no calls about cover crops, and now over half the calls I take are asking about cover crops,” said Mark Lefebvre, conservation planner for the Stearns County Soil and Water Conservation District in Central Minnesota.

Minnesota farms had 580,000 cover crop acres in 2017, a nearly 42% increase from 2012, even as the number of farm operators using cover crops declined by 6%. In 2017, 3.6% of Minnesota farm acres had cover crops and that number has likely increased since then.

Cover crop acres in the U.S. rose from 10.3 million in the 2012 U.S. Census of Agriculture to 15.4 million acres in the 2017 census, which is the most recent report.

In 2017, 37% of U.S. acres were no-till, an increase of 8 million acres from 2012, according to a Soil Health Institute analysis of U.S. Census of Agriculture data.

“You do hear of a lot of people that want to try it, that are getting in on it,” said Tyler Janski.

“You’re seeking more of it, but it’s not at the level everybody hopes or wants it to be,” added Daniel in mid-August.

Tyler thinks visible benefits will convert new adopters to these soil health practices over a number of years

The Janskis have seen better water retention on the land, an increase in organic matter in the soil and a marked increase in their earthworm population — signs of higher carbon levels. They’ve done soil tests every other year for four years which have shown an increase in organic material in the soil.

That’s the kind of anecdotal evidence Lefebvre has seen to back the assumption by many that cover crops draw carbon from the air and no-till practices help keep it sequestered in the soil.

Emerging agricultural carbon markets are banking on that, even as existing soil tests haven’t fully backed it up. Part of the challenge is that there’s not much historic data on soil carbon.

Carbon is one component of soil organic matter. The more carbon in the soil the less there is in the atmosphere, but that carbon needs to stay locked in the soil for it to be considered carbon sequestration.

Farmers who’ve been cover cropping and limiting their tillage for 10 or 15 years have increased their organic matter in the soil, Lefebvre said. “So that’s an indicator to me that there is carbon being stored because that’s a measure of carbon.”

Lefebvre is helping implement a carbon credit pilot program in Central Minnesota.

“In my opinion, it can’t happen fast enough because it’s going to be the icing on the cake I think for some of these guys and maybe and hopefully a tipping point,” he said.

Here are insights from three producers who adopted cover crops and soil health practices early, without the promise of carbon credit payments. They do it to be good stewards of the lands they manage, and they say they have seen benefits firsthand.

**Amending the soil**

“It’s something that all of our ancestors practiced at some point before the creation of tractors or steel implements. We all had a form of regenerative agriculture,” said Jessika Greendeer, seedkeeper and farm manager for Dream of Wild Health, a Native American-led nonprofit with a farm just outside the Twin Cities.

Greendeer raises heirloom plants to collect seeds, along with a range of vegetables that include dark purple Roma tomatoes, climbing spinach and the spinach-like orach, which is very attractive to the deer. There are also sunflowers and sorghum, which Greendeer handles affectionately on a tour around the farm’s original 10 acres. It added 20 acres in 2020.

Cover crops and biochar help build up the soil at Dream of Wild Health. Biochar is an indigenous farming practice in which burned wood similar to charcoal is added to improve soil health and sequester carbon.

“Whatever we’re taking from the Earth, we’re trying to put back,” Greendeer said about the cycle of carbon.

Healthy soil leads to healthy plants. Healthy plants lead to healthy people. And healthy people lead to a healthy planet, Greendeer said.

“Here we talk about our relationship to the Earth. And you can think about it in a spiritual context — we’re having a relationship with the Earth,” she said. “We’re being gifted with this bountiful harvest, but what are we giving back? Thinking about it in that way — the better we take care of the Earth, the better she is going to take care of us.”

Thinking about what’s best for the next five or 10 years is thinking too small, she said. How will our grandchildren’s grandchildren farm? Will they have soil to farm?

**Cattle and trees on the land**

Tyler Carlson and Kate Droske have a yard full of ducks, quail, goats and pigs. And their sheep and cattle have a special job out in the wooded pasture.

The cattle move regularly between stretches of grass, separated by rows of berry bushes, young trees and a forested hill that Carlson is returning to oak woodlands, which are a little denser than the oak savannah common in parts of Minnesota, southern Wisconsin, southern Iowa and northern Illinois.

The 200-acre farm belonged to Carlson’s grandfather, who used it for hobby farming and as hunting land. Carlson came to farming through his studies at the University of Minnesota. He zeroed in on silvopasture and agroforestry, agriculture and ranching practices that incorporate trees, as he came to learn that the food system was driving some land degradation, habitat loss and climate change.

When Carlson determined beef cattle could help remediate the land and provide revenue for his family, his wife was still a long-time vegetarian. Now she’ll eat meat raised by their family and others who use similar practices.

“The bison and the elk and things that used to be here for tens of thousands of years co-creating these prairies and oak savannah systems are gone now. So how do we reintroduce that?” Carlson said. “It seemed like we were not achieving very great potential with restoration because those forces were missing.”

The Sauk Centre farm was included in a study that showed their practices did increase the carbon content in the

soil, but Carlson is not banking on that and doesn’t think others should either.

Agriculture has been a net source of emissions for years as trees have been cleared and soil turned over. It’s not realistic to expect land practices to take back in all of the excess carbon from the atmosphere, Carlson said.

“We need to do those practices for a lot of different reasons. And we should be doing what we can to continue to learn and research and understand how we can optimize our farming systems for sequestering carbon,” Carlson said. “But really, even if we can get our farming systems to stop releasing carbon, that’s a moonshot effort alone.”

**A complicated picture, but still moments of joy**

Each industry, agriculture included, has a responsibility to reduce its own emissions, said Jessica Kochick, a policy organizer for the Land Stewardship Project.

“Should a fossil fuel company get to offset their pollution because someone planted a cover crop? No,” Kochick said. “But it still matters. And even if it’s a very temporary, minimal carbon sink, it is climate mitigation. It’s making that land more resilient to flooding, more resilient to heat waves.”

Some farmers in the Land Stewardship Project are involved with voluntary carbon markets and others have no interest, Kochick said. There are many reasons not to engage with carbon markets and many reasons to still use soil health practices anyway.

Carbon markets have failed in the past, when credits flooded the marketplace and carbon prices plummeted, she said. “We need to flip the script and have the government invest in a transition to sustainable agricultural systems that can be part of the solution. But that doesn’t mean that other industries don’t also need to reduce their emissions.”

The Janskis have decreased their fuel use because they’re tilling less. But with all the changes they’ve made, cousins Daniel and Tyler estimate a similar cost and return. They aren’t factoring carbon payments into their equation. Carbon is not an additional crop for them, as it could become for some operations.

They try new things all the time, things they learned by talking with other producers on Facebook groups and through books like Gabe Brown’s “Dirt to Soil” and Timothy Egan’s “The Worst Hard Time,” about the Dust Bowl.

There is concern in parts of Central Minnesota that conventional agricultural practices fail to lock down the soil and allow for erosion that resembles a small-scale dust bowl.

The Janskis tried interseeding this season for the first time, planting cover crops between rows of corn that will remain after harvest and become forage for their cattle.

They like pursuing their curiosity and experimenting on the land. They like seeing improvements in their soil, seeing something green in the ground all year round.

Daniel Janski brought in more than 100 chickens and a pen of pheasants that he’s learning from now, too. He’s also a new father.

“This has been a great journey for us. We enjoy it. Our family loves to farm. We’ve always loved to farm,” Daniel Janski said. “I hope that I leave this land better than I found it. And I hope that someday, maybe the next generation can do the same and leave the land better than they found it.”

**TODAY IN HISTORY**

Today is Thursday, Oct. 28, the 301st day of 2021. There are 64 days left in the year.

On this date in:

**1858:** Rowland Hussey Macy opened his first New York store at Sixth Avenue and 14th Street in Manhattan.

**1886:** The Statue of Liberty, a gift from the people of France, was dedicated in New York Harbor by President Grover Cleveland.

**1922:** Fascism came to Italy as Benito Mussolini took control.

**1996:** Richard Jewell, cleared of committing the Olympic park bombing, held a news conference in Atlanta in which he thanked his mother for standing by him and lashed out at reporters and investigators who’d depicted him as the bomber, who turned out to be Eric Rudolph.

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