

Students invent robot to add safety to grain bin management

University of Nebraska Omaha students Benjamin Johnson and Zane Zents were recently named a \$10,000 "Eat It" Lemelson-MIT Student Prize Undergraduate Team Winner for their invention, the Grain Weevil, which is a grain extraction and bin management robot.

The Challenge: Between harvest and distribution, grain is often stored in large bins on farms. There are over one million grain bins across the United States, collectively providing storage capacity for 13.5 billion bushels of grain. To maintain the quality of the grain for sale, moisture and overheating must be prevented during storage. Grain also must be routinely leveled to maximize storage capacity. If conditions in the bin are not properly maintained, the grain can be damaged or clump together, forming a crust of hard grain on the top surface. The grain may also stick to the interior walls of the bin, making it difficult to extract. These scenarios lead to post-harvest grain loss. Estimated pre-consumer grain loss in developed countries like the U.S. equates to 12% of grain supply, and another 18% is lost as consumer waste.

Proper grain management can be difficult, dangerous, and deadly. Technology provides farmers with data about the conditions within a grain bin. Grain management, however, must be done manually.



Ben Johnson and Zane Zents were awarded a \$10,000 prize from "Eat It" Lemelson-MIT for their invention of the Grain Weevil, which is a grain extraction and bin management robot.

Farmers and their children (sometimes as young as 14) must ensure that grain is level and properly aerated by entering the

grain bin, enduring temperatures of up to 140 degrees Fahrenheit, to physically move grain with shovels or other tools. U.S.

farmers put their lives at risk by entering grain bins where they may suffer illness, injury, entrapment, and even death. On

Courtesy photo

average, one in five grain bin accidents involves a boy in his teens — in 2019 there were eight known accidents involving teenagers. Up to 7% of farmers in the U.S. develop a disease commonly known as farmer's lung⁴ brought on by an allergic reaction to grain dust that causes lung inflammation, shortness of breath, increased heart rate, cough, and sometimes permanent lung damage. Farmers typically live just eight years after diagnosis. Developing technology to address grain management is difficult due to the nature of grain in storage, which moves and functions in fluid ways, with hot pockets of air creating a quicksand effect. There have been no machines to date that have been able to successfully navigate the top surface of the grain while avoiding entrapment in the grain.

The Solution: Johnson and Zents invented the Grain Weevil, a grain bin safety and management robot that weighs less than 30 pounds. The Grain Weevil is small enough to fit in a backpack and uses horizontal augers and gravity to level and redistribute grain within a bin.

The robot rests on two augers that propel it forward and simultaneously do the work of leveling and aerating the grain by scurrying across the top surface without flipping over or getting buried. The drilling action of the augers, in conjunction with the natural force of grav-

ity, facilitates grain movement and maintains appropriate viscosity, moisture levels, and temperature. The Grain Weevil is waterproof and dustproof, and is able to dig itself out from as much as five feet of grain if it is accidentally buried.

The Grain Weevil can be transported in a specially designed backpack, allowing it to be easily carried to the top of a grain bin for placement inside. The robot is currently operated via remote control, but a fully autonomous self-driving vehicle is close to completion. Battery life for the Grain Weevil is approximately three hours. A longer battery life is anticipated, which will allow for a full maintenance cycle to be completed with only one charge.

Commercialization: Nearly 450,000 U.S. farms ranging from small family farms to large corporate operations have grain bins. The Grain Weevil addresses safety and grain management across both areas and meets the quality standards of large corporate farms. Johnson and Zents plan to have a service model that includes customers purchasing one Grain Weevil per grain bin for continuous bin maintenance and service calls as needed. Over the course of one year, the Grain Weevil will pay for itself in savings from preventing lost grain products. The team has one full utility patent pending and a second one near completion.

Kansas State University celebrates the naming of the Carl and Melinda Helwig Department of Biological and Agricultural Engineering

Carl and Melinda Helwig of Columbus have invested in the naming of the Carl and Melinda Helwig Department of Biological and Agricultural Engineering in the Carl R. Ice College of Engineering at Kansas State University. On Friday, April 23, the college celebrated this naming in the Helwigs' honor.

This investment will empower the department to recruit and retain top faculty, support deserving students and provide flexible funding for department leaders to take advantage of emerging opportunities.

"I am extremely honored that Carl and Melinda Helwig have chosen to invest in the Department of Biological and Agricultural Engineering,"

said Joseph Harner, department head and professor. "The Helwigs are committed to assuring undergraduate students have extracurricular experiential learning opportunities beyond the classroom. Their generous gift enables students to participate in a team environment working on product design, testing, manufacturing and marketing prior to entering the professional workforce."

Carl and Melinda Helwig, owners of Helwig Farms, raised wheat, corn, soybeans and grain sorghum on their southeast Kansas farm. The Helwigs also competed in tractor-pulling competitions and placed nationally in the early 1980s. Neither attended Kansas State



Carl and Melinda Helwig have invested in the naming of the Carl and Melinda Helwig Department of Biological and Agricultural Engineering in the Carl R. Ice College of Engineering at Kansas State University.

University, but in recent years became important supporters and mentors of K-State students by investing in the university's quarter-scale tractor team, which demonstrates the power of engineering and inspired innovation. They felt a kinship with the students of this team and were motivated to support them.

"We are honored to support K-State as it educates the next generation of engineering professionals," said Carl Helwig. "We have had a good life, been fortunate in grain production, and we've enjoyed the thrill of competition. We want students to have every opportunity to be on top."

A gift of this magnitude is truly transformational for the college and the

university.

"Carl and Melinda Helwig personify the generosity of the K-State family," said K-State president Richard Myers. "Their investment in the success of the Carl R. Ice College of Engineering faculty, students and programs not only elevates the college but brings prestige to the university and helps propel K-State toward being nationally recognized as a student-centered, public research university."

As Kansas State University's strategic partner for philanthropy, the KSU Foundation inspires and guides philanthropy toward university priorities to boldly advance the K-State family. Visit www.ksufoundation.org for more information.

Sens. Moran, Durbin introduce bill to boost agriculture research funding

U.S. senators Jerry Moran (R-Kan.) and Dick Durbin (D-Ill.) — members of the Senate Committee on Appropriations — introduced legislation that would require a five per-

cent annual funding increase each year for the next ten years for research activities at the U.S. Department of Agriculture (USDA).

With federal agriculture research investments on the decline, the America Grows Act would restore the United States' commitment to publicly-funded agriculture research at USDA. Increasing research at USDA will expand American competitiveness in foreign markets; improve sustainable production and climate issues; find more food solutions for global population growth; combat risks for plant and animal disease transmissions; and expand adoption of new data communications, computing technologies, engineering and robotics.

"For U.S. farmers and ranchers to remain competitive in the world, it is important for our country to prioritize making investments in agricultural research," said Moran. "With the help of the latest research and tech-

nology, Kansas producers constantly adapt their practices and methods to improve the way we grow and raise our food. This legislation builds on the critical role USDA plays in conducting research to help our nation's agricultural producers continue to feed, fuel and clothe the world."

"The time has come for the United States to reinvigorate our commitment to publically-funded agriculture innovations," said Durbin. "The America Grows Act would boost USDA funding for more breakthroughs and innovations to make America stronger than ever before in food and agriculture. In recent years, China has elevated its commitment to public agriculture research while U.S. public funding has fallen behind. If we want to maintain and strengthen American leadership, we must restore our commitment to bold and effective federal research funding."

Today, most domestic agriculture research is funded by large pri-

private-sector corporations. Moreover, the U.S. share of total agriculture research investments among high-income countries as a group has declined from 35 percent in 1960 to less than 25 percent by 2013. By comparison, in the past 30 years, Chinese investments in agriculture research has risen eight-fold.

Additionally, recently the American Farm Bureau Federation released a report which emphasized America's risk of falling behind in public agriculture research, especially to China.

The America Grows Act authorizes a five percent annual funding increase each year for the next 10 years for research activities at the USDA, specifically at the:

- Agriculture Research Service (ARS) — USDA's chief in-house scientific research agency with 90+ locations nationwide and overseas.

- National Institute for Food and Agriculture (NIFA) — which funds external research through

a nationwide network of land-grant colleges and universities, agricultural experiment stations, schools of forestry, schools of veterinary medicine, and cooperative Extension experts.

- National Agriculture Statistics Service (NASS) — which collects and reports statistics on U.S.

agriculture, such as the farm census, crop forecasts, and price estimates.

- Economic Research Service (ERS) — which provides economic and policy analysis on farming, ranching, food, conservation practices, farm management, commodity markets and rural economic development.

New study: agricultural trade can mitigate climate change impacts

A new study from the University of Illinois looks at how changes in weather, including extreme events, may decrease crop profits in one state while increasing profits in other states. The secret ingredient: U.S. interstate trade. According to the study, it is expected to mitigate the economic impact of climate change by up to \$14.5 billion by the middle of the century.

Researchers said the motivation for the study is twofold: Climate change brings about more frequent and intense extreme weather events, which impact agricultural production. While the current project focuses on U.S. interstate trade, researchers said the approach can also apply to global weather events and international trade as well as other sources of disruption in the supply chain such as diplomatic events or infrastructure vulnerability.



The Magic of a Grain Bin

By Kim Baldwin,
McPherson County farmer
and rancher

Throughout our farm you can see large, metal grain storage bins scattered about. While many farmers haul their grain to the local elevator while their crop is being harvested to either sell or to pay to have the grain stored for later sales, many also store grain in their own bins.

These “big bins” as the kids call them, can hold

an impressive amount of grain. It allows our family the ability to store grain to sell throughout the year as the market changes.

A few years ago, we had a large grain bin built near our house. This new metal “giant” has held some of our corn since last fall. The year before, it was filled with grain sorghum.

Just like the stages observed during an annual life cycle of a crop, our newest bin also experiences stages. August gen-

erally sees a bin with just a few remnants of the previous crop. It's swept and cleaned and prepared for fall harvest.

September ushers in a cleaned, empty bin, which encourages the family to go for evening walks to the structure and utilize the large chamber to hold impromptu mini-concerts. My daughter prefers singing songs associated with Disney princesses at the top of her lungs, while my son likes showcasing his novice beatboxing skills.

While the echoes allowed by the tall metal walls make it feel like one is singing within a stadium, I'm sure that from outside any observer would question the cacophony of sounds produced from both kids combining their

preferred vocal performances.

Later in the fall, the concerts end, and we again review our safety rules with the kids before and while we monitor the trucks unloading grain. During this time, the bin ultimately will fill plum to the top. From late fall until early spring we will welcome semi trailers ready to be filled with golden streams of grain and then hauled to local feed yards, ethanol plants or elsewhere.

The stairs which curve around the outside of the bin allow the perfect opportunity to take in scenic views and look for wildlife during these storage months. While we take in the views, no one is allowed into the bin until

it's time to start shoveling and sweeping the remains of the grain.

Currently there's only a thin layer of corn covering the floor of the bin. It's the perfect time for the family to take evening walks over to the silver structure, allowing the kids the opportunity to enjoy the feeling of the kernels between their bare toes. I'll sometimes do the same.

Later in the evenings following a visit to the bin and after bath times, I'll come upon a small collection of grain on the floor somewhere — usually making the discovery only after stepping on the kernels. It's better than stepping on a Lego brick.

Soon the bin will be swept and cleaned completely and then sit empty

for a few months. During that time, its purpose will change from holding grain to holding mini-concerts.

The annual stages of the large structure will reset, and soon more grain will gather within the walls. The levels of the stored crop will slowly lower until a thin layer remains, and the kids will once again relish the feel of grain between their toes. And throughout the year, we will continue to safely enjoy the magic of a grain bin.

“Insight” is a weekly column published by Kansas Farm Bureau, the state's largest farm organization whose mission is to strengthen agriculture and the lives of Kansans through advocacy, education and service.

Sen. Marshall announces \$615,000

U.S. Sen. Roger Marshall, M.D. has announced USDA is investing \$615,000 in the state of Kansas through a grant to increase American ethanol and biodiesel availability. These funds were made available to 24-7 Travel Stores through the Higher Blends Infrastructure Incentive Program (HBIIP).

“Strong ethanol and biofuel industries increase marketing options for farmers and provide consumers with an affordable, clean energy option at the pump — a clear win-win for all Kansans,” said Marshall. “I applaud USDA's investment in regions of rural Kansas, and look forward to the expansion of biofuel sales benefitting not only our great state, but America as a

in USDA funding for Kansas to increase American biofuel availability

“Liquid Fueling systems have become very complex due to evolving environmental regulations and higher blends of ethanol add to the cost. The Higher Blend Infrastructure Incentive Program funded through USDA grants help to minimize the increased capital expenditures necessary to adapt to different fuel offerings that may be commercialized in the years ahead,” said Mark Augustine, president of 24-7 Travel Stores.

Background: USDA's Higher Blends Infrastructure Incentive Program (HBIIP) investments will be used to build infrastructure to help expand the availability

of higher-blend renewable fuels. The HBIIP program helps give consumers more environmentally friendly fuel choices when they fill up at the pump.

This specific USDA grant will be used to create infrastructure to expand the sales and use of renewable fuels. This project will add and replace 33 dispensers and four storage tanks at four Triplett fueling stations located in Colby, Russell, Hays, and Goodland. This project will increase the amount of ethanol sold by over 7 million gallons per year. The purpose of this funding program is to assist owners of transportation fueling and fuel distribution facilities to expand the sales and use of ethanol and biofuel.

Mexico dominates March imports of U.S. HRW wheat

Kansas farmers have good reason to say “gracias” for continued wheat purchasing by their closest market — Mexico. Mexico dominated imports of U.S. hard red winter (HRW) wheat in March 2021, according to the latest data available from the U.S. Department of Agriculture (USDA). As the top import-

er for the month, Mexico purchased nearly 6.39 million bushels (roughly 174,000 metric tons), compared to no markets above the 100,000-metric ton (3.67 million bushels) threshold in February.

Thanks to duty-free access established by the North American Free Trade Agreement (NAFTA)

and solidified by the United States-Mexico-Canada Agreement (USMCA), Kansas elevators and Mexican flour mills have a highly interconnected supply chain. Combined with market development work by the Kansas Wheat Commission and U.S. Wheat Associates (USW), Mexico remains one of the largest

destinations for Kansas HRW wheat each year.

“Our key customers in Mexico know they can rely on Kansas wheat farmers to produce consistent quality year-in and year-out,” said Aaron Harries, Kansas Wheat vice president of research and operations. “Maintaining trust with these top buyers requires continually sharing information on our wheat crop and providing technical support — information and expertise they do not receive from our competitors.”

Overall, the United States exported 19.7 million bushels (537,000 metric tons) of HRW in March, bringing the year-to-date total to more than 267 million bushels (7.28 million metric tons). While last month's exports are more

than 25 percent higher than the previous month, they lag nearly 36 percent behind March 2020.

Mexico represented the lion's share of these exports, but 13 countries in all imported HRW in March, up from nine in February. Nigeria remained the second-largest importer for the month at 3.43 million bushels (93,400 metric tons). Japan rounded out the top three importers for March 2021 at 1.87 million bushels (nearly 51,000 metric tons).

Inspections of HRW at Gulf, Pacific and Interior ports increased 35 percent from February but remained 20 percent less than March 2020.

USDA, in its monthly World Agricultural Supply and Demand Estimates (WASDE) report, project-

ed the United States will export 985 million bushels (26.8 million metric tons) of wheat this marketing year. Ten months into the year, the United States has exported 77 percent of that total, slightly behind the pace needed to hit the marketing year-end goal.

Kansas farmers can follow the exports of HRW wheat through a pair of reports from USW. USW provides both a weekly report on commercial sales and a visual rundown of the organization's analysis of the WASDE report, along with many other online resources.

“Both of these reports are important aspects of the wheat trade to understand as both can have an impact on the wheat market through futures and basis movements,” Harries said.

The Kansas Wheat Commission is a member of USW, which combines funding from 19 state wheat commissions and cost-share grants from the USDA's Foreign Agricultural Service (FAS). As the wheat industry's export market development organization, USW promotes the reliability, quality and value of all six U.S. wheat classes to wheat buyers, millers, bakers, food processors and government officials in more than 100 countries around the world.

Follow USW's reporting on worldwide supply and demand at <https://www.uswheat.org/market-and-crop-information/supply-and-demand/> and weekly commercial sales at <https://www.uswheat.org/market-and-crop-information/commercial-sales/>.



It is hard to know what is true these days; finding sources of information that are completely correct is hard to decipher. I try not to fall into the trap of internet conspiracy theories and extreme views. It is easy to get yourself worked up about something that is either twisted bits of fact or complete falsehoods just to stir things up, so I am always slow to jump on any bandwagon until I have more facts. That being said, I think it is more than time for those of us as beef producers to stand up to the overzealous climate change movement. They have really been spreading propaganda and it has my blood boiling.

I am a proud beef producer, and I am also one who is very conscientious about our natural resources and how to best protect them. In addition to my personal convictions, I hold a master's degree in range management, so I believe that I have the credentials to be an expert on the matter. I think the current trend of blaming beef production for climate change and the subsequent push to reduce or eliminate red meat consumption is one of the most baseless, senseless, and shameful campaigns I have ever seen.

The idea of it is that if we reduce our beef consumption to four pounds a year or eliminate it totally that we will greatly reduce greenhouse gases and lessen climate change. I call bull pucky on this. The fact is that methane emissions by beef animal is a very minute percentage of the total greenhouse gases and if we could eliminate beef animals it would not have any measurable impact on climate change. If we want to have a real impact, I will guess we need to focus on transportation and other things far more near and dear to our urban brethren's daily lives. Simply put, beef animals or the production of the safe, wholesome, nutritious food product on our table is inconsequential to nearly every other factor. Yet our livelihood is being targeted: why?

This is simply a means for anti-animal ag forces to chip away at or eliminate our farms and ranches and we must fight back. We know that our stewardship stores a great deal of carbon in the soil. Our conservation efforts have led to saving topsoil, cleaning water, and making our air safer, yet the so-called experts in the media never mention it. We need to tell our story and brag about all the good we do for our environment, all the while producing nutritious, safe, environmentally friendly protein in the form of beef.

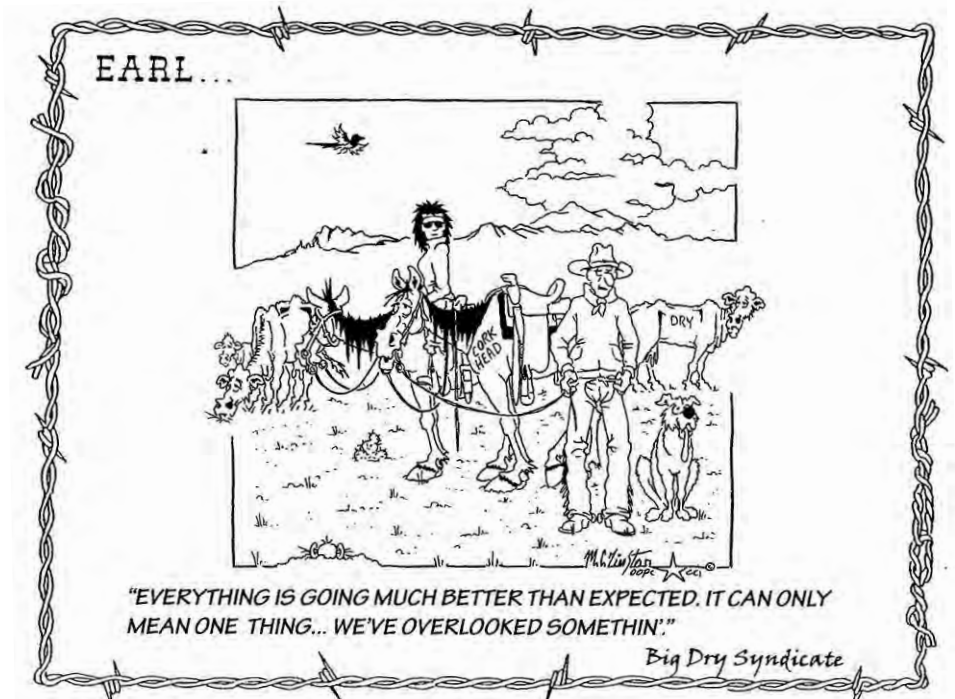
If you think I am mad, you are right, I am fighting mad. However, this is the worst approach we can take while telling the non-ag public about what we do. Some of the best advice I ever got was to be mad when you are not mad. We cannot be defensive toward news or posts we read, we must be subjective and counter with good factual information about why our practices and cows are good for the environment. Things like the production of forage leads to millions of acres of carbon scrubbing grasses and other plants. Things like how the grazing actions of cows help keep grasslands healthy. All of this while beef is produced on millions of acres that would otherwise not be able to help feed our ever-growing population.

We must be calm and cool while telling our story; we need to be the voice of reason. Becoming defensive, upset, and mad just makes us look like we have something to hide or that we know we are doing bad things. Instead, we need to be proud of the conservation measures we are taking and the efficient, environmentally friendly way we produce food and show that to the public.

At the same time, we need to be active in our communities, counties, states and nation and make our voices heard. We cannot sit back and let the other side take control or continue to go unchallenged, it is up to all of us who have a hand in the production of red meat. We need to strengthen our farm organizations, take charge of our government at all levels, and combat the anti-animal agriculture movement because that is what this is.

It really is not about climate; the facts prove that. This is all about the elimination of animal agriculture and the radical groups are using climate change and the environment as a means to their end. Fighting them is tough because they are not hindered by presenting facts but rather use sensationalism and scare tactics. We in agriculture need to counter with truth and show the public who has everyone's best interests in mind.

I hope each of you will take this as a call to action and begin your own campaign to show all the good we do and how we are needed to protect our precious natural resources. Tell everyone you know, take pictures, show videos, and make your conservation efforts known to all. We have not lost anything yet, but it is time to act. Let us lead the charge.



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KDA shares virtual open house of new agricultural laboratory

In 2020, the Kansas Department of Agriculture's agricultural laboratory moved into a brand-new facility in Manhattan, next door to the KDA headquarters building. A virtual open house tour is now available to allow Kansans an inside look at this state-of-the-art facility.

The KDA lab includes six lab sections: metrology, dairy, microbiology, pesticide, industrial hemp, and feed and fertilizer. The lab serves the rest of the agency's divisions and programs as well as the citizens of Kansas by providing accurate and timely test results. The lab con-

ducts tests regarding food and feed safety, serving KDA's mission to protect human and animal health, as well as testing to verify label claims which helps to protect consumers from economic fraud. The metrology lab provides a broad scope of mass and volume calibration ser-

VICES. The new agricultural laboratory was designed specifically to meet the needs of the program, so KDA can be more efficient in the lab's day-to-day testing activities as the agency works to meet specific program needs, and provides room to grow for future

agricultural testing needs. The lab employs chemists, microbiologists and metrologists who work together to ensure that the quality of the test results continues to meet nationally and internationally recognized standards for

traceability and legal defensibility. Watch the virtual open house video and read more about the features of the new KDA agricultural laboratory at www.agriculture.ks.gov/AgLabOpenHouse.

Growing Better: K-State Garden Hour charges into summer series

A popular, lunch-hour gardening program that debuted in the early days of the COVID-19 pandemic continues to grow in popularity.

The K-State Garden Hour will kick off its summer online series on May 5 with 'Herbs: From Seed to Seasoning.' The program will be held from noon to 1 p.m. (CST).

A one-time registration gives viewers free access to all of the summer's sessions, which also include:

- May 19 - Xeriscaping: Beautiful Landscapes with Less Water.
- June 2 - Effective Irrigation.
- June 16 - Native Plants

to Support Native Bees.

Matthew McKernan, a K-State Research and Extension horticulture agent in Sedgwick County, said the viewers tuned in by the thousands for the spring series, which ended on April 21. He said that more than 3,000 people registered for at least one of the sessions, including a high of 955 for the April 7 presentation on raised bed and container gardening.

"These participants represented at least 36 states, though 90% of the participants are from Kansas, and we had six international participants," McKernan said. "We hope

to continue to grow our participation and expand our outreach as more people become aware of the free gardening webinars we are offering."

In 2020, at the height of the COVID-19 pandemic, McKernan said the K-State Garden Hour featured 21 webinars with more than 8,560 participants. So far in 2021, more than 6,000 people have participated in either the live webinars or the recordings.

"Whether you are growing one plant or one acre of plants, there is something new in every K-State Garden Hour to learn," he said. "Gardening in Kansas is not easy. Between

the scorching heat, bitter cold, drought, strong winds and insect or disease problems, there are many challenges for Kansas gardeners. Each K-State Garden Hour shares tips and tricks on how to avoid many of these common problems."

Organizers also have set the schedule for the fall (Aug. 4 through Sept. 15) and winter (Oct. 6 through Nov. 3) series. The programs planned and a description of each is available online. Recordings of last year's and this year's sessions also are available.

Biden's ag budget request asks for 16% increase

The Biden administration recently submitted to Congress the President's priorities for fiscal year 2022 discretionary spending including \$27.8 billion for USDA, a \$3.8 billion, or 16% increase from the 2021 enacted level. In a statement, USDA says the funding request advances key agency priorities, including economic development and growth in rural America, maintaining support for American agriculture, rebuilding scientific expertise in our agencies, aiding in an all-of-government approach to mitigate and adapt to climate change, and supporting a strong safety net to address hunger and nutrition insecurity.

Specifically, the request calls for additional funds to expand broadband access. USDA notes that rural Americans are ten times more likely than their urban residents to lack access to quality broadband. The discretionary request provides an increase of \$65 million for broadband access over the 2021 enacted level for the Rural e-Connectivity program, "Reconnect," which provides grants and loans to deploy broadband to unserved areas. The benefits of high-speed internet will serve as an economic equalizer for rural America, and the work of installing broadband will create high-paying union jobs with benefits in rural communities, USDA says.

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***** By G&G Area Cooks *****

Millie Conger, Tecumseh, Is This Week's Grass & Grain Recipe Contest Winner

Winner Millie Conger, Tecumseh:
MEXICAN LASAGNA

- 1 1/2 pounds ground beef
- 4-ounce can green chiles
- (2) 10-ounce cans mild enchilada sauce
- 16-ounce can yellow corn
- 12-ounce package corn tortillas
- 1 pound shredded Cheddar cheese
- For garnish: black olives, shredded lettuce, chopped tomatoes

Brown beef and drain. Add chiles, enchilada sauce and corn; mix well. Simmer 5 minutes. Layer tortillas, beef mixture and half of cheese in a 8-by-11-inch baking dish. Bake at 350 degrees for 30 minutes. Let stand 5 minutes before cutting. Garnish with remaining cheese, black olives, shredded lettuce, chopped tomatoes.

Darlene Thomas, Delphos: "Flour tortillas can be used in many recipes like bean and cheese quesadillas, fold-over tortilla bake, ham pinwheels and the classic tacos made with seasoned taco meat."

HOMEMADE TORTILLAS

- 2 cups all-purpose flour
- 3/4 cup water
- 3 tablespoons olive oil

In a large bowl combine flour and salt. Stir in water and oil. Turn onto floured surface and knead 10 to 12 times adding a little flour or water if needed to achieve a smooth dough. Let rest for 10 minutes. Divide dough into 8 portions on a lightly floured surface; roll each portion into a 7-inch circle. In a greased cast iron or other heavy skillet cook tortillas over medium heat until lightly browned, 1 minute on each side. Serve warm. Makes 8 tortillas.

Jackie Doud, Topeka: "Very good on meat."

- PICKLED ONIONS
- 1/2 cup sliced red onion
- 1/3 cup red wine vinegar
- 2 tablespoons oil
- 1/4 teaspoon salt
- 1/4 teaspoon pepper

Mix all together. Cover and let stand one hour.

Rose Edwards, Stillwater, Oklahoma:
BLUEBERRY MUFFIN BREAD

- 2 1/2 cups self-rising flour
- 1 cup sugar
- 1 cup milk
- 1/4 cup oil
- 1 egg
- 1 cup fresh blueberries

Set oven 350 degrees. Spray a 8-by-5-inch loaf pan. Whisk flour and sugar. Mix in remaining ingredients except blueberries. Pour half of batter into pan. Top with half of blueberries. Spread remaining dough over top. Top with remaining blueberries. Bake about 1 hour or until tests done. Let cool in pan 10 minutes then remove to rack.

Margaret Wetter, Norton:
OATMEAL BROWNIE BARS

- 2 3/4 cups uncooked oats
- 1 cup flour
- 1 cup brown sugar
- 1 cup chopped nuts
- 1 teaspoon baking soda
- 1 cup butter, melted
- 1 3/4 cups M&M mini baking bits

Mix oats, flour, brown sugar, nuts, baking soda, melted butter and M&M bits. Reserve 3 cups of the mixture. Pat remainder of the mix into a 15-by-10-by-1-inch pan to form the crust. 19-ounce fudge brownie mix

Prepare the brownie mix as directed on package. Pour prepared brownie mix over crust and spread. Sprinkle remainder of the crumb mixture over the

batter. Bake at 350 degrees for 25 to 30 minutes.

Susan Schrick, Hiawatha: "Easy and amazing!"

- APPLE-CINNAMON ROLLS
- 2 cans of cinnamon rolls, quartered
- 1 can apple pie filling
- 1/2 cup chopped walnuts or pecans

Mix all ingredients together and put into a sprayed 9-by-13-inch baking dish. Bake at 350 degrees for 45 minutes. Use cinnamon roll icing (that comes with rolls) for the topping when it comes out of the oven.

Kelley George, Shawnee:
CHEESY ALFREDO PASTA

- 1/4 cup butter
- 1 teaspoon minced garlic
- 1 cup heavy whipping cream
- 3/4 cup grated Parmesan cheese
- 1 teaspoon pepper
- 1/2 teaspoon salt
- 12-ounce package extra wide egg noodles, cooked
- 3 tablespoons chopped fresh parsley

In a large saucepan melt butter over medium

heat. Add garlic and cook for 1 minute. Add cream and cook for 2 minutes.

Add cheese, pepper and salt stirring until cheese is melted. Remove from heat. In a large bowl stir sauce, noodles and parsley; serve immediately.

Kimberly Edwards, Stillwater, Oklahoma:
CHEESY GARLIC FRENCH BREAD

- (16) 1-inch slices French bread
- 1/4 cup melted butter
- 2 large cloves garlic, halved
- 1 pound Gruyere cheese, thinly sliced
- Black pepper

Preheat oven to 350 degrees. Place bread on a large rimmed baking sheet. Lightly brush top of bread with butter and rub with cut side of garlic. Bake until lightly browned, about 8 minutes. Divide cheese among bread slices. Bake until cheese is melted, about 5 minutes more. Garnish with pepper. Serve immediately.

Healthy Alternatives For The Snacker In The House

"Mom, can I have a snack?," "I'm hungry," "Dad, can I have some candy? I want candy!" These are sentences I heard this weekend from my own child. It seems he always wants a snack! Although his snacks of choice are gummy bears and chocolate, those are NOT the best choices, no matter what he tells me. I want to share some healthier options for the snack monster in your life. These are even good small bites for adults, especially for those watching their caloric intake.

When choosing snacks, choose multiple food groups to get the most bang for your buck. Fruits and vegetables are often the most neglected food groups, so I will focus on those today.

A lot of kids don't like to eat their vegetables. Here are a few options:

- * Celery sticks with peanut butter and raisins
- * Carrots with hummus or ranch
- * Baked sweet potatoes with applesauce
- * Cottage cheese with tomatoes
- * Black bean quesadillas with whole-wheat tortillas

At least for my kids, fruits are an easier sell. Here are some ideas:

- * Apple slices with peanut butter
- * Whole-wheat toast with sliced bananas
- * Low-fat yogurt with blueberries and strawberries
- * Grapes with pretzels (be sure to cut the grapes lengthwise if serving to child under 5)
- * Fresh fruit in an ice cream cone

As you can see, there are a lot of snacks that aren't pre-packaged, processed foods. I suggest that you make a list of some family favorites so healthy snacking is easier. I want to end with an idea I keep in my back pocket for fruit and veggie emergencies - SMOOTHIES. I use low-fat yogurt, frozen kale or spinach, and whatever fruit I have on hand. Throw it in a blender, call it dessert, and check off a few servings of fruits, vegetables, and dairy.

For more information, please contact Lacy O'Malley, lacyo@ksu.edu, or by calling 620-308-2970.



By now, I would guess you probably have figured out that I am happily a creature of habit. Monday through Friday at approximately 10:30 a.m., I head to the post office for work. As I drive, I do the same thing every single time; I push the little button on my steering wheel and wait for the ding, and then say, "call Nanny." Nanny is my mom's mom and has been my biggest cheerleader for as long as I can remember. She always answers and we chat about the day, work, weather, furry friends, how ridiculous my aunt and mom are being and of course my nieces. She loves to be in the know and I love giving that to her. When I know a juicy piece of information, there is no one I get more excited to tell than her; she loves it.

I can't think of one thing that she missed for me as a child, always showing up to show her support, but more importantly than that, she has always been a huge emotional support to me. Nanny is beyond sassy and stubborn; she clearly passed that on to my mother, who apparently decided to pass those glorious traits on to yours truly. This did not always make things easy between my mom and I, but Nanny always came to my rescue. To this day I can remember her driving her little gray car with her Coors Light can in the cup holder up the driveway to come get me, letting me spend the night, watch TV, relax and overall, just having my back.

As I was trying to decide which college I was going to go to, Nanny agreed to go look at Wichita State University with me. We were supposed to leave early one morning. Mornings have never been my strong suit. I was driving my mom's van and was shocked to find the windows frosted over that early morning. Knowing I was already running late, I did not have time to sit there and wait for them to thaw, I made the brave decision to drive with my head out the window, eventually putting my mom's van in the ditch on the opposite side of the road, right in front of my dad's parents' house. After that minor heart attack, I went to go get Nanny, I did not say a word until the sun started to come up, at which point I pointed out that the driver's side mirror was broken. Once we got to Wichita, we discovered the side of the van was also scratched up badly (there were also

pieces of trees on the inside that I frantically tried to get out without getting caught). My mom was not happy, she was adamant that I had done it. I was adamant that I did not, and you better believe Nanny would have taken a bullet for me, partially because she did not know what had actually happened, but also because she was going to have my back no matter what, always.

The truth did not come out about the van until a couple of years later. I wanted a tattoo and did not want my dad to disown me. My mom told me I had to tell her a secret and she would get him to let it go. I told her the truth, she was determined Nanny knew; while Nanny might have suspected it by that point, she did not know, and she was still willing to maintain that I had not done anything, again always willing to support me.

Nanny is turning 94 on May 3, and still living life being my favorite cheerleader. She is still sharp as a tack and has no issue telling you what she thinks. She is witty, smart, loving and hands-down one of my all-time favorite humans to ever grace this earth. I have always said I do not want to get old, but if I can do it as beautifully as Nanny, there is nothing I would love more. If I make it to 94 and am doing even half as great as she is, I would consider myself lucky, I would consider myself blessed and most importantly I would forever be thankful for the woman who made me think it was all worth giving it my best shot.

Nanny I hope 94 is filled with everything you love, and I hope you never forget the impact you have had on my life, without you, life would not be what it is today, thank you for being my favorite cheerleader and for allowing me to always be your favorite (even though you will not admit it).

Happy Birthday Nanny!

Michele grew up in Junction City and graduated from Kansas State University. She worked in the restaurant management field for six years before deciding to switch careers and now works as an office manager for a company that manufactures oilfield products. Her passion for blogging and food can be followed on Instagram: boobsbainsandbaking.

If you would like to contact Michele with comments please email mearlyon88@gmail.com

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A Kitchen Herb Garden
 By Ashleigh Krispense
 We're switching things up today and talking about one of my latest projects — a kitchen herb garden. Well, technically it won't be in my kitchen, but it's for my kitchen.

There are multiple benefits to having an herb garden. Not only will you have access to fresh herbs for your dishes, but you can also dry them to be used later in the year. And the smell? It's wonderful. Your entire porch will be wrapped in a delightful scent (and they'll look cute, too!).

While you can start your plants from seed, I tend to take the easy way out and just buy some plants. Planning out where you'll plant your herbs before you buy them is also a good idea. A place near the kitchen will allow for easy access and you'll be able to notice if they get too dry and start wilting. Depending on which herbs you get, you'll also need to make sure they get plenty of sunlight to avoid becoming too long and leggy.

So what kind of herbs should you buy? There are so many different kinds you could pick from, but keep in mind how much room you have and what you can actually use. As far as pots, I enjoy using terra cotta pots for a lot of my plants, but they tend to dry out quickly. Especially if placed in full sun, you'll need to keep a close eye on them.

Cilantro is one of the most used herbs in my family. Fresh salsa is a staple in the fridge during summer and it requires a whole handful of cilantro in each batch. Some people seem to love the bright, almost citrusy flavor of cilantro, while others can't stand it and describe it as "soapy" tasting.



Mint could be described as almost a noxious weed in the herb garden. A fast grower (and spreader) you'll need to keep it in check before it takes over. As you browse your local greenhouse, you might notice spearmint, peppermint, chocolate mint, apple mint, etc. Whatever mint you pick, be sure to smell it before you purchase. The aroma is one of the best parts of mint (in my opinion!).



Basil is one of my favorite herbs to put in buttery mashed potatoes. A slightly peppery flavor, it can also be used in sauces or on homemade pizza. Be sure it give it plenty of sunlight or it will get long and lanky.



Oregano prefers part sun and well-drained soil. It can be used in pizza crusts, pasta dishes or pestos. I like to use it when cooking chicken or even making homemade sausage burgers.



Rosemary (and lavender) are supposed to help ward off pesky mosquitoes, but I also enjoy them for the smell. You can also use rosemary in mashed potatoes or poultry dishes. Be sure to pull the needle-like leaves off of the woody stems before chopping and using it in any dishes!



Lavender has been a favorite plant of mine for years, but I've always struggled to keep it alive. While you can use it however you like, I enjoy it best when the flowers are dried and used as decoration in my kitchen. Lavender prefers well-drained, almost poor soil and full sun.

Whatever plants you choose to grow, be sure to pick ones that you will enjoy and use! If there's only one herb you like, don't worry about getting a variety of other kinds. Just plant what you'll enjoy!

Ashleigh is a freelance writer and the gal behind the website, *Prairie Gal Cookin'* (www.prairiegalcookin.com), where she shares step-by-step recipes and stories from the farm in Kansas.

OUT IN THE BARN

By Nancy A. Rezac

The dictionary says a building, housing crops, livestock, machines
 But to a lonely ranch kid it was a house of many dreams.
 When I go down the highway and see barns crumbling down,
 It's not the loss of assets of the boards of gray and brown
 It's the loss of someone's memories, *Out in the Barn*

You see, out in the country where social life was lean
 With votes of dog and many cats I was elected queen
 Raising bottle calves and orphan kittens I was nurse supreme
 It was a house of many rooms in imagination's scene
Out in the Barn

Making steers' hair and horses' tails to look so mighty fine
 A beautician fighting cockleburs and manure of bovines.
 I was a star hoopster in the basketball court I knew
 In the hay loft when the bales were fed and polished boards shown through
Out in the Barn

I was a track star jumping weed stalk poles out back beside the place,

And three oil barrels sat in a triangle in the lot my horse could race.
 I knew all words to country songs on the radio that would blare.
 The animals had time to listen when I told them of my cares
Out in the Barn
 Kittens would chase and do back flips as I teased them with a string
 A cozy place to play outside while waiting for the spring
 The creek nearby had tadpoles and a place for skipping rocks
 I practiced cheerleading many times out by the cattle docks
Out in the Barn

It was the thrill of victory as each calf and colt was born.
 The agony of defeat as each deceased one's life was torn.
 Mother Nature taught me the incredible facts of life.
 Along with all the good times, you have to suffer strife.
Out in the Barn



This photo is not the actual barn being written about. It was taken by Kevin Macy, Grass & Grain.

Polishing tack and scooping stalls gave me time to contemplate
 Feeding hogs and gathering eggs were sure to aggravate.
 With soft horse whisper kisses and dog smiles I'd forget the mess.

Yes, as a child in the middle of nowhere, I was truly blessed
Out in the Barn

Thanks to Nancy for sharing this with Grass & Grain.

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AG TECHNOLOGY 2021 EDITION

The era of precision agriculture has arrived

The USDA has identified three pillars of sustainability for the agriculture industry: reduced environmental impact, increased productivity and yield, and a better overall economic result. Today's precision agriculture (PA) technologies are helping crop farmers make significant gains with all three pillars.

Consider the analogy of a three-legged stool where the stool cannot stand unless all three legs are sturdy.

"For the environmental benefits of precision agriculture to take shape, farmers need to generate more yield and at least break even from a financial standpoint," said AEM senior vice president of ag services Curt Blades. "If a farmer is going to change a practice or invest in a new technology, the economic impact of that action has to be part of the conversation. Fortunately, we now have some rather compelling research that makes it a big part of the conversation."

The three USDA sustainability pillars line

up perfectly with AEM's newly released research, Environmental Benefits of Precision Ag, co-developed with the American Soybean Association, CropLife America, and National Corn Growers Association.

The study examined five key areas of the crop farming industry where precision agriculture can make both an environmental and economic impact, and then examined five key areas of PA that can make an impact in those areas.

"Farmers are the original stewards of the land and have been doing good things for a long time," said Blades. "Technology now affords farmers the ability to do even more — things that could never have happened before. A lot of GPS-driven technology is in place, giving farmers a whole new set of tools to help dial in the exact placement of seed, fertilizer and crop protection. This technology also helps farmers close the loop with insightful data that helps them monitor what they are doing to de-

termine if there is room for improvement going forward."

Key areas of precision agriculture technology

The five primary areas of precision agriculture give farmers numerous opportunities to increase efficiency, reduce operating costs and lessen environmental impact. Precision agriculture can be leveraged across a variety of crop farming applications throughout the year.

Auto Guidance – Also known as auto-steer, this technology utilizes GPS signals to automatically control a tractor to help reduce overlap during tilling, planting, spraying and harvesting. This has a positive impact on both productivity and fuel consumption.

Machine Section Control – Turns planter, fertilizer or sprayer sections on/off in rows that have been previously treated, or at headland turns, point rows and waterways. This helps optimize the placement of seed, fertilizer and crop protection. This technology also helps optimize down pressure and depth

control to gain machine and fuel efficiencies.

Variable Rate – Uses sensors or preprogrammed maps to determine application rates for seed, fertilizer and crop protection. Supporting technologies include variable rate controllers, GPS, yield monitors, crop sensors and soil sensors.

Fleet Analytics (Telematics) – Real-time monitoring of equipment including GPS location, route suggestions and idling. Any piece of telematics-equipped equipment can be monitored all year long whenever it is in operation. This technology affords an opportunity to increase asset utilization and reduce fuel usage.

Precision Irrigation – Provides the ability to apply different amounts of water to different areas of the field in order to reduce waste and optimize efficiency.

How precision agriculture is making an impact

The study also examines how the above-mentioned precision agriculture technologies can im-

prove the five key areas of environmental impact.

Productivity – The farmer can achieve better crop yields from accurate spacing and population rate. Indirect benefits include not having to place unproductive or preserved land into production, as well as reduced soil compaction and improved soil health, which help reduce inputs over time.

Fertilizer – Reduced overlap and better placement optimizes application and reduces waste. Indirect benefits include improved water quality due to reduced runoff, improved soil health and a reduction in net greenhouse gas emission.

Herbicide – As in the case of fertilizer, more efficient herbicide application reduces waste. Indirect benefits are improved soil health, reduced erosion, less weed resistance and reduced greenhouse gas emissions.

Fossil Fuel – When the number of field passes and time spent idling are reduced, so is the amount of fuel consumed. Greenhouse gas emissions are also inherently reduced.

Water – More precise irrigation can save water from evaporation and excessive runoff. An indirect benefit is an improvement in water quality due to the reduced runoff.

Positive results and available opportunities

In examining various crop types around the country, the research data can be summed up in one sentence: Crop farmers

are doing more with less.

By leveraging precision agriculture technologies, farmers have already accomplished the following:

- 4% increase in crop production
- 7% reduction in fertilizer use
- 9% reduction in herbicide use
- 6% reduction in fossil fuel use
- 4% reduction in water use

A direct parallel can also be drawn between the environmental benefit of those reductions and the economic benefit.

"That's 6% less fuel on a tractor that is likely running 20 hours a day for a couple weeks straight," said Blades. "That isn't just real money, helping the farmer save thousands of dollars in fuel expenses but has the carbon reduction benefits of taking nearly 200,000 cars off the road."

The same can be said about the use of fertilizer, herbicide, water use and crop protection. "If you're just spraying the places that need to be sprayed, that's good for the environment and the farmer's net income," said AEM senior director of regulatory affairs Nick Tindall. "Fewer pounds on the ground is a good thing all the way around."

The potential gains resulting from more widespread adoption of precision agriculture technologies is even more impressive.

Adoption rates vary

• Cont. on page 7

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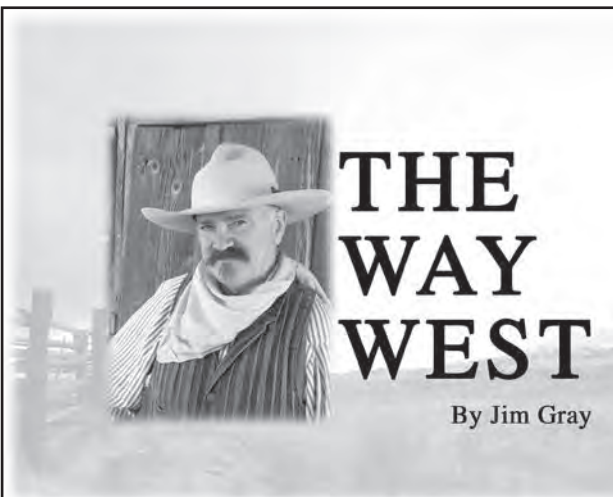
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Celebrating Caldwell

One hundred fifty years ago in January, 1871, Charles H. Stone, G. W. Smith, and an unnamed companion left Wichita with plans to survey a brand-new town on the southern border of Kansas. Their route was the well-used Chisholm Trail. The famous trail had already seen hundreds of thousands of cattle pass along its route as well as wagons carrying supplies for the reservations and military posts in Indian Territory. Soldiers, Indians, cattlemen, and traders traveled back and forth regularly.

Former army scout John E. "Curly" Marshall had already built a double log cabin between the trail crossings for Bluff Creek and Fall Creek. He named the place "First Chance-Last Chance." Thirsty

drovers could get their first drink of liquor when coming from the Territory where liquor was prohibited by U.S. law. Conversely, it was the last chance to buy a drink before crossing into the territory.

Stone was well aware of Curly Marshall's venture. But Stone envisioned the much larger prospect of a thriving city. The townsite was laid out on an elevation about a mile north of the First Chance-Last Chance. Chisholm Street was named to honor the famous trail that had given birth to the town. Stone's survey party returned to Wichita and began to promote Caldwell, named after newly elected U. S. senator Alexander Caldwell, who incidentally was influential with railroad interests.

A log cabin was con-

structed in May to serve as a supply house for passing drovers. With wholesale liquor dealer James Dagner as Stone's partner the business was described as "a grocery store, with liquid groceries predominating." Stone's first sale turned out to be to the Sixth Cavalry on their way to Fort Riley. They camped near Caldwell and purchased over seven hundred dollars in provisions.

Of course the drovers were not far behind. Four hundred seventy-five thousand head of cattle passed through Caldwell by November. 1871 saw a total of six hundred thousand head arrive at the northern railheads. Each year the town grew, and with its growth wild times made wearing a badge in Caldwell a dangerous profession. From 1879 to 1885 sixteen men occupied the marshal's office. Five of them died violently, often after they had served as marshal. Three more who had served as deputies found a bullet waiting to end their lives.

The most famous of Caldwell marshals whose life was cut short at an early age was Henry Newton Brown. Brown was originally hired as a deputy under Marshal B.P. "Bat" Carr. Carr, a Texan, took the job on July 27, 1882, after Marshal George Brown was murdered by a Texas cowboy. Henry Brown was hired on Carr's recommendation, having known Brown as a deputy sheriff of Oldham County, Texas. Early resident George Freeman recalled that Henry Brown "...was similar in character to

Carr, with the exception that he seldom smiled, was sober, candid, and determined in expression and mind... He dressed neatly, was gentlemanly, and won friends immediately upon his arrival in Caldwell."

Marshal Carr and deputy Brown were constantly on the alert for trouble and soon gained a reputation for efficiently keeping the peace. Carr was only on the job for six months when he left in November to marry his Texas sweetheart. Henry Brown was elevated to city marshal and another Texan, Ben Wheeler was appointed assistant marshal.

Brown performed so effectively at keeping the peace that the city of Caldwell presented him with a new rifle on New Year's Day, January 1, 1883. "On the stock of the gun is a handsome silver plate bearing the inscriptions 'Presented to City Marshal H. N. Brown for valuable services rendered the citizens of Caldwell, Kansas.'" Henry settled in with an air of permanency. Nearly seventeen months after taking office on March 25, 1884, he married pretty Maude Levagood, a refined young Caldwell school teacher.

No one in Caldwell could have imagined what would happen next. The news hit the cattle town like a bombshell! Everyone thought that Brown and Wheeler had left town on April 27th to apprehend a murderer in Indian Territory. Unbelievably, the town learned on May 1, 1884 the shocking news that Marshal Brown, Wheeler, and two cowboys, Billy

Smith and John Wesley, had robbed the Medicine Valley Bank at Medicine Lodge. Bank clerk George Geppert was killed, and the bank president Wylie Payne was dying. Brown was shot trying to escape, and the other men hung by an armed mob!

There was more. Not until after his death did Caldwell's citizens learn that their honored Marshal Brown was the outlaw Henry Brown who had ridden beside Billy the Kid in New Mexico! Brown's young wife claimed his body. She supposedly buried her husband at Caldwell, but to add mystery

to the story there is no record of the burial. And so ended one of the most puzzling chapters in Caldwell's turbulent past.

The Border Queen will live again as Caldwell celebrates one hundred fifty years of wild times. Join us in Caldwell May 7th and 8th, for two days on The Way West.

"The Cowboy," Jim Gray is author of the book *Desperate Seed: Ellsworth Kansas on the Violent Frontier, Ellsworth, KS. Contact Kansas Cowboy, 220 21st RD Geneseo, KS. Phone 785-531-2058 or kansascowboy@kans.com.*

KDA announces Specialty Crop Grant opportunity

The Kansas Department of Agriculture is accepting applications for the 2021 Specialty Crop Block Grant Program. Funds for the program are awarded to the agency by the U.S. Department of Agriculture's Agricultural Marketing Service.

The funds are in turn granted to projects and organizations to enhance the competitiveness of specialty crops by leveraging efforts to market and promote specialty crops; assisting producers with research and development relevant to specialty crops; expanding availability and access to specialty crops; and addressing local, regional and national challenges confronting specialty crop producers. Specialty crops are defined by the USDA as "fruits, vegetables, tree nuts, dried fruits, horticulture and nursery crops, including floriculture."

Applications will be evaluated by a team of external reviewers. The team will rate proposals on their ability to successfully promote specialty crops in Kansas and make a positive impact on the Kansas economy. Those recommendations will be submitted to the Kansas Secretary of Agriculture, who will make the final awards. In 2021, Kansas has been allocated more than \$338,000 for this program.

Applications are due to KDA no later than 5:00 p.m. Central on May 21, 2021. For more information, including the Request for Application form and additional guidance about the grant program and the grant application process, go to the KDA website at: agriculture.ks.gov/specialtycrop.

The vision of the Kansas Department of Agriculture is to provide an ideal environment for long-term, sustainable agricultural prosperity and statewide economic growth. The agency will achieve this by advocating for sectors at all levels and providing industry outreach.



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AUCTION LOCATION: 1310 17th Street - WAMEGO, KANSAS

OPEN HOUSE: SUNDAY, MAY 16 * 1-3 PM



Like new! This clean, attractive home has been remodeled top to bottom with new flooring, paint, bathroom vanities and a second bathroom added in the basement. The home has over 2,000 square feet

and offers 4 conforming bedrooms, 2 baths, nice deck, walk-out basement and great backyard space. Located just a few doors down from the Wamego middle school.

REAL ESTATE TERMS: Property sells AS IS, WHERE IS. 5% non-refundable down payment is required day of sale by check. Buyer must be able to close on or before June 25, 2021. Buyer needs bank letter of loan approval or funds verification. Cost of Owners Title Policy to be split equally between Buyer and Seller. Buyers are responsible for understanding all regulations and zoning prior to the auction. All announcements day of sale take precedence over written materials. Crossroads Real Estate & Auction LLC is representing the Seller.

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SATURDAY, MAY 15, 2021 — 9:00 AM

Offering for sale at Public Auction, located at 2162 Frontier Rd., GALVA, KS. From Galva, KS & Hwy. 56 1 mile east, 3 miles south & 1/2 mile west.

TRACTORS & FARM MACHINERY

2001 JD 5410 FWA diesel tractor, JD 541 loader & grapple, 3 pt., pto, triple hyd., 2270 hrs. clean; 1974 JD 6030 diesel tractor, dual hyd., pto, cab; 1974 JD 830 3 cyl. diesel tractor, 3 pt., pto, hyd.; Ford 801 Powermaster diesel tractor, 3 pt., pto; 1963 JD 4010 diesel tractor, JD 720 loader; 1954 JD 60 tractor, less than 500 hrs. on overhaul; 1959 JD 830 diesel tractor, hyd. pto; 1959 JD 730 diesel tractor, 3 pt., pto, hyd.; 1949 JD B tractor w/JD 7' sickle mower, pto, hyd.; 1950 JD G WF tractor, hyd., pto; IH Farmall M NF tractor, pto; 1948 JD A tractor, hyd., pto; 1946 JD D tractor; 1944 JD A tractor, pto; 1939 JD H tractor, pto; JD 112 hyd. lift riding mower; JD 112 L hydrostatic riding mower; 1941 Ford 3/4 ton pickup, flathead V-8 eng.; 1966 Kawasaki Aircraft 125 motorcycle; 1981 Honda 200 3 wheeler; JD 235 20' disc; JD #400 20' rotary hoe on carrier; JD folding springtooth; Krause 17 shank chisel; Hillsboro Fieldmaster 26' springtooth; Hesston 1014 hydra-swing swather; implement trailer; JD 16 shank chisel; 3 pt. harrow; JD 235 20' single fold disc; flare side wagons; JD 45 loaders; NH #56 side del. rake; Dempster 2 row cultivator; 3 pt. track scratcher; dbl. drill hitch; Graber 20 shank dbl. wing fold chisel; AC 782 field cutter w/pickup; JD 6 sec. drag springtooth; JD 3800 field cutter w/2 row head; H & S 12 wheel rake; Schuler 175B feed wagon; HD #55 side del. rake; King Cutter 6' 3 pt. finish mower; IHC 4500 25' field cultivator; JD 5-18 semi-mt. plow; JD 5-16 semi-mt. plow; 2-JD 4-16 semi-mt. plows; 3-JD 5-16 pull plows; 6-JD 4-16 pull plows; JD 3100 6-16 pull plow; 2-JD 3100 4-16 plows w/dbl. hitch; JD steel wheel drill; Gehl feed wagon; JD 3-14 hyd. plow; 2-JD 3-16 trip & hyd. plows; 2 row lister; JD 14' tandem disc; JD cultivators; Woods 3 pt. rotary mower; 2-JD sickle mowers; 2-AC silage blowers; Papac silage blower; JD FBB 8-16 drill; 4-wheel trailer frame; Ford 3 pt. gin pole; 2-3 pt. post hole diggers; Hutchinson 6x41 pto auger; tandem axle implement trailer; drag springtooth; Krause 13 shank chisel; IHC #10 8-20 drill; pony cart; & more.

GUNS, FARM RELATED & HOUSEHOLD ITEMS

Excel 12 ga. single shot shotgun; J.C. Higgins 12 ga. bolt action shotgun; RWE 12 ga. bolt action shotgun; Brazil 12 ga. single shot shotgun; Crossman 630 BB gun; 3-Daisy BB guns; Craftsman table saw; welding table; pedestal grinder; JD A150 space heater; Knipco space heater; MTD tiller; fuel tanks; alum. irrigation pipe; Dura-Craft belt & drum sander; wheelbarrows; 3/4" socket set; combination wrenches; toolboxes; organizers; scroll saw; shop vac; new JD seat; old Maytag eng.; generator; ladders; Makita set of cordless tools in box; shovels; rakes; tires & wheels; tractor parts; hyd. cyl.; corn sheller; McCormick cream separator; hardware; bolt cutters; chain-saws; line trimmers; self feeders; log chains; boomers; Coleman lantern; pitcher pump; old scales; crocks; filler cans; cast iron skillet; enamel; sled; wall telephone; old toolbox; National cash register; post drill; metal seats; wash tubs; coaster wagon; pens & pencils; round oak stove; JD 7410 pedal tractor & trailer; wardrobe; cream cans; ice cream freezer; chest-of-drawers; wooden bench; tables & chairs; books; metal toys; pocket knives; glassware; games & toys; puzzles; pots & pans; pictures; porch swing; baking dishes; & more.

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Rock Creek High School competes in Regional Envirothon, qualifies for State

Rock Creek High School competed in the first virtual Regional Envirothon on April 14, 2021.

The county teams are sponsored by the Pottawatomie County Conservation District. The Envirothon is an environmental high school educational competition that is organized and coordinated by numerous Conservation Districts.

Students train and test in the topics of: Soils/Land Use, Forestry, Wildlife, Aquatics Ecology and a Current Environmental Issue. The current issue for this year is "Water Resource Management: Local Control and Local Solutions." Students studied

information and viewed five video presentations prior to this regional contest. Twenty teams competed in the contest and Rock Creek High School, who had two teams compete, placed fifth and 14th. The team from Manhattan High School took the top honors, Madison High School placed second and Mission Valley High School received third place.

Rock Creek High School is advised by David Holliday. The highest scoring team from each school qualified to compete in the 30th Annual Kansas Envirothon held virtually on April 28, 2021.



Ben Wick, Conner Walker, Seth Figge, Charlie Killingsworth, and Brendan Smith qualified to compete at the State Envirothon.



Tucker Gibbs, Justin Gerber, Cody Louquet, Lucas Bergren and JT Ross also competed for Rock Creek.

Spring is great time to plan projects, says 4-H official

For many Kansas 4-H members, the year is chock-full of activity, from summer camps and fairs to fall projects and state contests.

So, 4-H youth development specialist Beth Hinshaw said spring is a great time to breathe... and think.

"There are some great opportunities this spring to plan for upcoming project work," said Hinshaw, who is in the southeast region. "Our suggestion is to research your project, or review available curriculum and resources. Another option might be in-person field trips if it's safe, or virtual field trips."

The Kansas 4-H program offers 35 project areas for youth to participate in. Hinshaw said Kansas 4-H staff have developed spark pages for nearly all of those projects, helping youth with ideas on things to explore, learn, practice or experience.

Hinshaw noted that the content is appropriate for beginning, intermediate and advanced project members. The spark pages also list resources and events that might be available, including curriculum, record-keeping and project exhibit ideas.

"We also have some project challenges, which provide young people an introductory activity in several project areas," Hinshaw said.

"One of the things we talk about with 4-H projects is the idea of the project pathway. We are interested in what creates a spark for young people; that is, something that they're very interested in. Then, we help them gain knowledge and mastery of the subject as they continue in the project."

She noted that completing a project helps youth build career skills, whether they pursue a career in the given subject area or not, because many skills are transferable.

"We think it's great for young people to start seeing the possibilities in those project areas. That deeper learning might spark them toward a career," she said.

More information about Kansas 4-H and project areas is available online at www.Kansas4-H.org. Interested persons may also contact their local K-State Research and Extension agent.

Kansas Beef Council releases new cattle handling video

The Kansas Beef Council (KBC) has released a new video that showcases how beef producers can greatly improve cattle handling by making small, economical changes to their working facilities. The free video, which is part of a series of educational programs that focus on Beef Quality Assurance (BQA) principles, is available at the newly created Kansas Beef Producers Hub and can be found on www.KansasBeef.org.

Titled "Low-Cost, High-Impact Cattle Facility Tips," the video features Dr. A.J. Tarpoff, Kansas State University Extension beef veterinarian, who visits two real-world facilities to showcase the practical advantages brought about by simple upgrades. He also discusses with the ranchers who own the facilities how the improvements have positively impacted their operations.

"Strategies offered within the video will work on both small and large cattle operations," says John Sachse, KBC director of industry relations. "Kansas beef farmers and ranchers are committed to looking for new ways to improve their operations. BQA-focused trainings like this help ensure farmers and ranchers continue to produce a safe and wholesome product the consumer trusts."

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AUCTION for SHARON BURGESS

SATURDAY, MAY 15, 2021 — 10:00 AM
AUCTION LOCATION: 1136 US Hwy. 136 — RED CLOUD, NE 68970
SHED TO BE MOVED: 12x16x10' Tall Utility Shed. **MOWER, ETC.:** Cub Cadet LT 1046 46" Cut Riding Mower; 2 Wheel Yard Cart. **TOOLS inc.:** Pitch Forks; Wire Stretchers; Ladders; Yard Fertilizer; Handyman Jacks; sm. Organizers; Shop Vacs; Planes; Wood Finishing Supplies; C-clamps; Coleman Fold Up Table; 2 whl Dolly Cart; Saws; Sanders; Drills; Hand Tools; Bench Vise; Grinder; Allen Wrenches; Post Hole Digger; B&D Miter Saw; Work Stand; Anvil; Stanley Mobile Work Center Box; Fishing Poles & more. **ANTIQU FURNITURE:** Single Iron Bed; High Boy Chest of Drawers; Bustle Chair; Oval Parlor Table w/Drawer; Nice Oak Wardrobe; (2) Sewing Stands; Press back Chairs; Round Oak Table w/2 Leaves; Wood High Chair; Nice White Clad Oak Ice Box; Sq. Oak Table w/2 Leaves; Smoking Stand; Nice Oak Hall Tree w/Mirror; Ohio Chair Co. Twig Style Rocker; 46" Oak S Roll Top Desk; 3 Metal Yard Chairs; Metal Kitchen Utility Cart; Fancy Rocking Chair; Enamel Top Tables; Small Pew; Child's Hop a Long Cassidy Rocker Chair; Trunks & More. **ANTIQUES-PRIMITIVES-COLLECTIBLES:** Wooden & Iron Wagon Wheels; Cl Hinge pc.; Blue Bottles; Guernsey Milk Bottle; Architectural pcs.; Galv. Buckets & Tubs; Spurs; Wiley Hubcap; Silverware; Saddles (1 Heiser); 4 Stirrup Sets; Chaps; Bridle; 1912 Webster Co. Argus; Wooden Pulley; Federal-Mogul Cabinet; Fairbury Pump; Lanterns; Horse Collar Mirror w/Hanes (US Hanes Co); Old Car Light; Adv. Match Safes; Boot Jacks (Naughty Nelly, Steer, & Santepede); Horse Clock; 1909 CM Russell Picture; Pocket Knives; Unusual Tub; Horn Art Lamp; Cl John Wright Water Kettle; Lots of Grey Enamelware Cl Taylor's Iron; Cl Horse Tie Down; Coffee Grinder; Turkey Foot Balance Scale; Prison Ball; Cl Horse Figurine; Star Cut Crystal Cruet; Stromberg Carlson Oak Wall Telephone; Globe; Elephant Pitcher; Tins; Disney Swanky Swig Glasses; Fire King Bowls, Greaser & S&P Set & Other Fire King pcs.; Wulbrandt Adv. Plate (Red Cloud); Horlicks Jar; Pyrex Bowls; Waffle Coffee Jars; elec. Aladdin Lamp; Whimsy Dolls; Adv. Horse Print W Crary Mercantile Co. (Guide Rock, Ne); Old Eyeglasses; Old Trusty Wood Incubator; John Wayne Watch Fob; Fancy Jewelry (some marked); Cabbage Rose & Opalescent Glassware; Cl Lamp Bracket; Spirited Horse & Other Horse Pictures; Francis Tipton Hunter Picture; Can U Talk Picture; 1894 Amitinker Dog/Rabbit Picture; Cuckoo Clock; Bridge Lamp; Henry Ten're "The Introduction" Picture; 15 & 25 gal. Hanging Cl Pots w/Stands; Saddle Tree w/Cl Sewing Machine Base; Laughlin China & MORE! **YARD ART PCS., CL STOVES & COOKERS, MISC. HOUSEHOLD & OTHER ITEMS!**

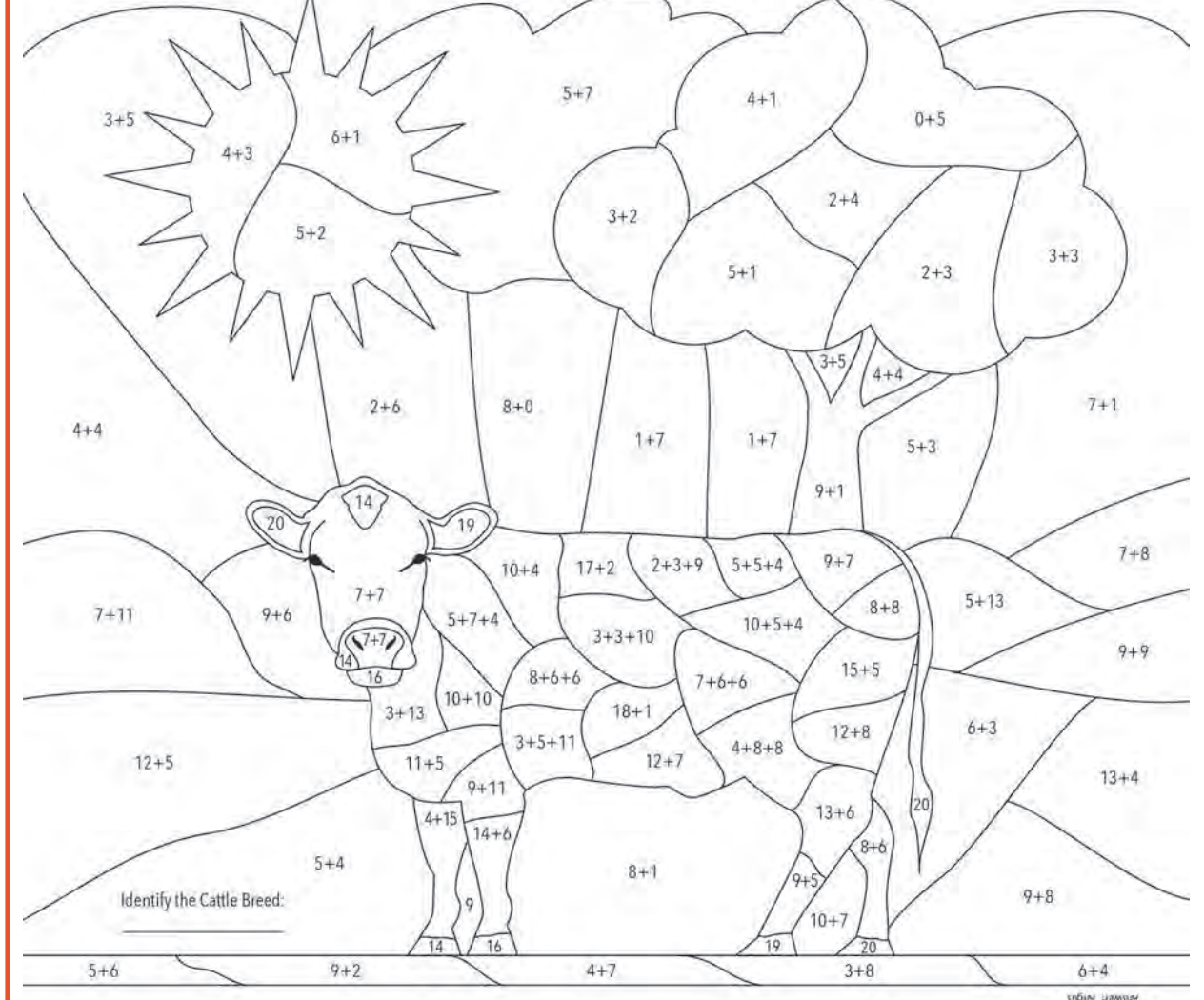
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The next Kid's Corner page will appear in the June 1st, 2021 edition!

May is Beef Month!

Beef Up Your Addition



INSTRUCTIONS: Solve the math problems. Then, using the key, color the picture. Identify the Cattle Breed you colored by reading the Cattle Breed Facts.

Yellow = 7; **Light Blue** = 8; **Light Green** = 5, 6, 9, or 17; **Reddish-Brown** = 13; **Dark Green** = 15 or 18; **Pink** = 3; **White** = 12; **Black** = 14, 16, 19, or 20; **Brown** = 10 or 11; **Tan** = 4

CATTLE BREED FACTS:

ANGUS cattle originated in Scotland and can be solid black or red. Angus cattle are polled, meaning they don't have horns.
HEREFORD cattle originated in England and are reddish-brown with all white faces. They also have white on their chest, belly, and legs. Hereford cattle have horns. Polled Hereford cattle do not.
CHAROLAIS cattle originated in France & are white or light tan in color. Charolais have horns, so are dehorned at a young age.
SIMMENTAL cattle originated in Switzerland and are usually reddish-brown with some white markings. Simmental cattle are among the oldest and most widely distributed breeds in the world.
GELBVIEH cattle originated in Bavaria, in Southern Germany. Gelbvieh cattle are reddish-brown and were not introduced into the U.S. until the 1970's.

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- Bluestem Farm & Ranch:** - 2611 W. Hwy 50, **Emporia, KS**
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- Or Stop by the Grass & Grain Office:**
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- Office Hours:** Monday-Friday, 8am-5pm



Spring is in the air (as well as prodigious amounts of pollen). Along with spring comes change,

sweeping out the old and ushering in the new. That's exactly what we've been doing at *Around Kansas*.

Sen. Marshall announces over \$4 million in DOI funding for Kansas Wetland Conservation

U.S. Sen. Roger Marshall, M.D. has announced the Department of the Interior's U.S. Fish and Wildlife Service has awarded Ducks Unlimited with a \$2 million grant and \$2.03 million match in funding to conserve bird populations and wetlands in Kansas.

"Kansas has some of the most magnificent wildlife and wetlands in the

country, and conservation efforts must be a priority in our great state," said Marshall. "I want to leave our world better than we found it and by improving habitats and our environment, we not only care for our wetlands and wildlife, but provide better outdoor recreation opportunities for everyone. These dollars are an important part of the Department

of Interior's conservation efforts so the next generation of Kansans can experience the great outdoors."

Next, we have come to terms with the digital age and have decided that we don't want one morning a week with you. We want you to be able to join us *Around Kansas* at your convenience. With that in mind, we are now ON DEMAND!

Listen to us through your podcast app, on YouTube, Facebook, or the Farming Unlimited website, AroundKansas.com – we're everywhere!!

The digital age has dragged many us kicking and screaming across the millennial dateline. I love some things about technology, the internet, and social media. I love being able to stay in contact with family and friends and making new ones. I love being able to join presentations, and to offer them,

over Zoom with friends and colleagues around the globe (I just don't like being limited to them). And I love being able to watch or listen to shows any time I like!

My schedule is ridiculous. Almost no two days are the same. I am grateful for the variety but it makes some things very difficult, like catching programs at a particular time. Increasingly, our viewers are watching online. It only made sense to transition completely to that format.

The other good news about this transition is that time is unlimited in cyberspace. Infinite! I can talk as long as I want!!! (Okay, maybe that is also the downside).

See you somewhere *Around Kansas*, any time you want!

Deb Goodrich is the co-host of Around Kansas and the Garvey Texas Historian in Residence at the Fort Wallace Museum. She chairs the Santa Fe Trail 200 and can be reached at author.debgoodrich@gmail.com.

AUCTION
SATURDAY, MAY 8, 2021 — 10:00 AM
 Offering for sale at Public Auction, located at the intersection of 22nd & Arapaho Rd., MOUNDRIAGE, KS from the 4-way stop in Moundridge, KS 1 mile south.
WOODWORKING EQUIPMENT, SHOP TOOLS & HOUSEHOLD ITEMS
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of Interior's conservation efforts so the next generation of Kansans can experience the great outdoors."

Background: The U.S. Fish and Wildlife Service's Migratory Bird Conservation Commission approved this year's grants under the North American Wetlands Conservation Act (NAWCA).

Ducks Unlimited received a \$2 million award and a \$2.03 million match in funding for conservation efforts on 4,162 acres across Kansas. These ef-

orts will take place in the following counties: Allen, Anderson, Atchison, Barber, Barton, Bourbon, Brown, Butler, Chase, Chautauqua, Cherokee, Cheyenne, Clark, Clay, Cloud, Coffey, Comanche, Cowley, Crawford, Decatur, Dickinson, Doniphan, Douglas, Edwards, Elk, Ellis, Ellsworth, Finney, Ford, Franklin, Geary, Gove, Graham, Grant, Gray, Greeley, Greenwood, Hamilton, Harper, Harvey, Haskell, Hodgeman, Jackson, Jefferson, Jewell, Johnson, Kearny,

Kingman, Kiowa, Labette, Lane, Leavenworth, Lincoln, Linn, Logan, Lyon, McPherson, Marion, Marshall, Meade, Miami, Mitchell, Montgomery, Morris, Morton, Nemaha, Neosho, Ness, Norton, Osage, Osborne, Ottawa, Pawnee, Phillips, Pottawatomie, Pratt, Rawlins, Reno, Republic, Rice, Riley, Rooks, Rush, Russell, Saline, Scott, Sedgwick, Seward, Shawnee, Sheridan, Sherman, Smith, Stafford, Stanton, Stevens, Sumner, Thomas, Trego, Wabaunsee, Wal-

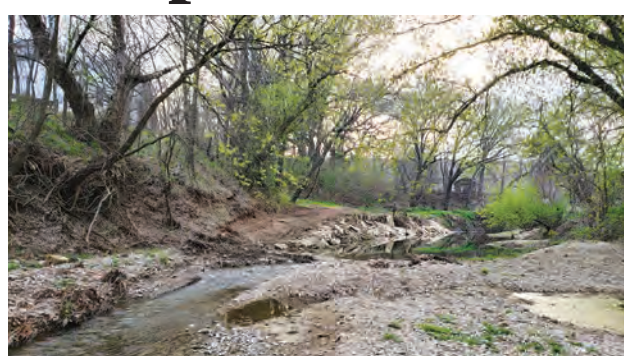
lace, Washington, Wichita, Wilson, Woodson, and Wyandotte counties.

NAWCA grants conserve bird populations and wetland habitat while supporting local economies and outdoor recreational opportunities, such as hunting, fishing and birdwatching. Partners in NAWCA projects include private landowners, states, local governments, conservation organizations, sportsmen's groups, Tribes, land trusts and corporations.

Nature Trail opens at Pioneer Bluffs

With spring comes new opportunities, including a chance to experience a new nature trail at Pioneer Bluffs near Matfield Green.

"One of the things that has always drawn me to Pioneer Bluffs is the feeling of peace and refuge. It's a quiet, welcoming place to escape for a while," said Dave Leiker, board president and one of the trail designers. "Now that feeling of being out in nature is even more immersive with a new trail looping through thickets, burr oaks and along pocket meadows on a patch of land formed by a loop in Crocker Creek. The trail makes that area



much more accessible and fun to explore. There is a gentle creek crossing to contend with, but that just adds to the atmosphere. And Crocker Creek is a wonderfully cooling spot on a summer day."

The Pioneer Bluffs Nature Trail is free and open to the community. It meanders through a wooded area along Crocker Creek, and offers a natural space for hiking, exploring, bird watching, photography, observation and reflection.

To access the trail, visitors can follow the path behind the historic log cabin to rocks that cross the creek. Depending on recent rains, wading shoes

or boots are recommended.

A grant from the Sadie Jones Fund of the Emporia Community Foundation, a designated gift from an anonymous donor, and 2020 ECF Match Day contributions have combined to create this trail for the community.

The twelve-acre grounds of Pioneer Bluffs are open to the public every day during daylight hours. Visitors are invited to bring a picnic or a book to enjoy a quiet place of refuge.

The Pioneer Bluffs National Register Historic District can also be explored with a self-guid-

ed tour. Using a smartphone on QR codes placed around the property, the tour offers history, background stories, and a bit of education about this and other ranches, and the generations of ranchers who shaped the Flint Hills. It can be accessed online at tour.pioneerbluffs.org. The Greater Emporia Area Disaster Relief Fund provided support for the self-guided tour.

A monthly "Cattle Tales of the Flint Hills" E-Newsletter shares stories and informs of upcoming events. To sign up for E-News, contact executive director Lynn Smith at lynn@pioneerbluffs.org or (620) 753-3484. More information can be found at pioneerbluffs.org and on the Pioneer Bluffs Facebook page.

Pioneer Bluffs is a non-profit organization with a mission to preserve and share the ranching heritage of the Flint Hills, located on Flint Hills National Scenic Byway K-177, 14 miles south of Cottonwood Falls or one mile north of Matfield Green.

2-DAY AUCTION
SATURDAY, MAY 15 & SUNDAY, MAY 16, 2021
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 Auction will be held in Kenwood Hall at the Saline Co. Expo 900 Greeley in SALINA, KS
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 Selling will be over 1500 tools of all kinds inc: fence tools & stretchers.
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Please check our website for pictures & a tool list www.thummelauction.com
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 Note: Harold has collected for years there are many unique tools. Both days will be very large. Check our web site for pictures and a list of tools at www.thummelauction.com. Please wear masks for your safety.
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HARLEY DAVIDSON MOTORCYCLE, MARILYN MONROE COLLECTORS ITEMS, TOOLS, ANTIQUES & COLLECTIBLES AUCTION
SATURDAY, MAY 8, 2021 — 10:00 AM
 LOCATION: 415 Sycamore Drive — WAMEGO, KANSAS 66547 * LUNCH
 Directions: Turn South off Hwy. 24 onto Columbian Rd & proceed approx. 1 mi. to 4th St. then turn left. Proceed approx. .03 mi. to Sycamore Dr. then turn Left. Auction will be on the west side of the road about half way up the block.
See Last Week's Grass & Grain For Listings or go to our website!
 For questions call:
MORGAN RIAT, REALTOR/AUCTIONEER
 785-458-9259
 or email:
morgan@foundationks.com
FOUNDATION REALTY
 210 N. 4th St., Suite B, MANHATTAN, KS
 Visit us at WWW.foundationks.com for more details & pictures!
SELLER: DIANE DAWSON
 Guest Auctioneer: Greg Kretz

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Bidding Opens Thursday, May 6 @ 8 AM CST with Soft Close Wednesday, May 12 @ 8 PM CST
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Auction & BIDDING Information available at:
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HOLLINGER ONLINE AUCTIONS, Lyons, KS — Jim & Mary 620-257-8148

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