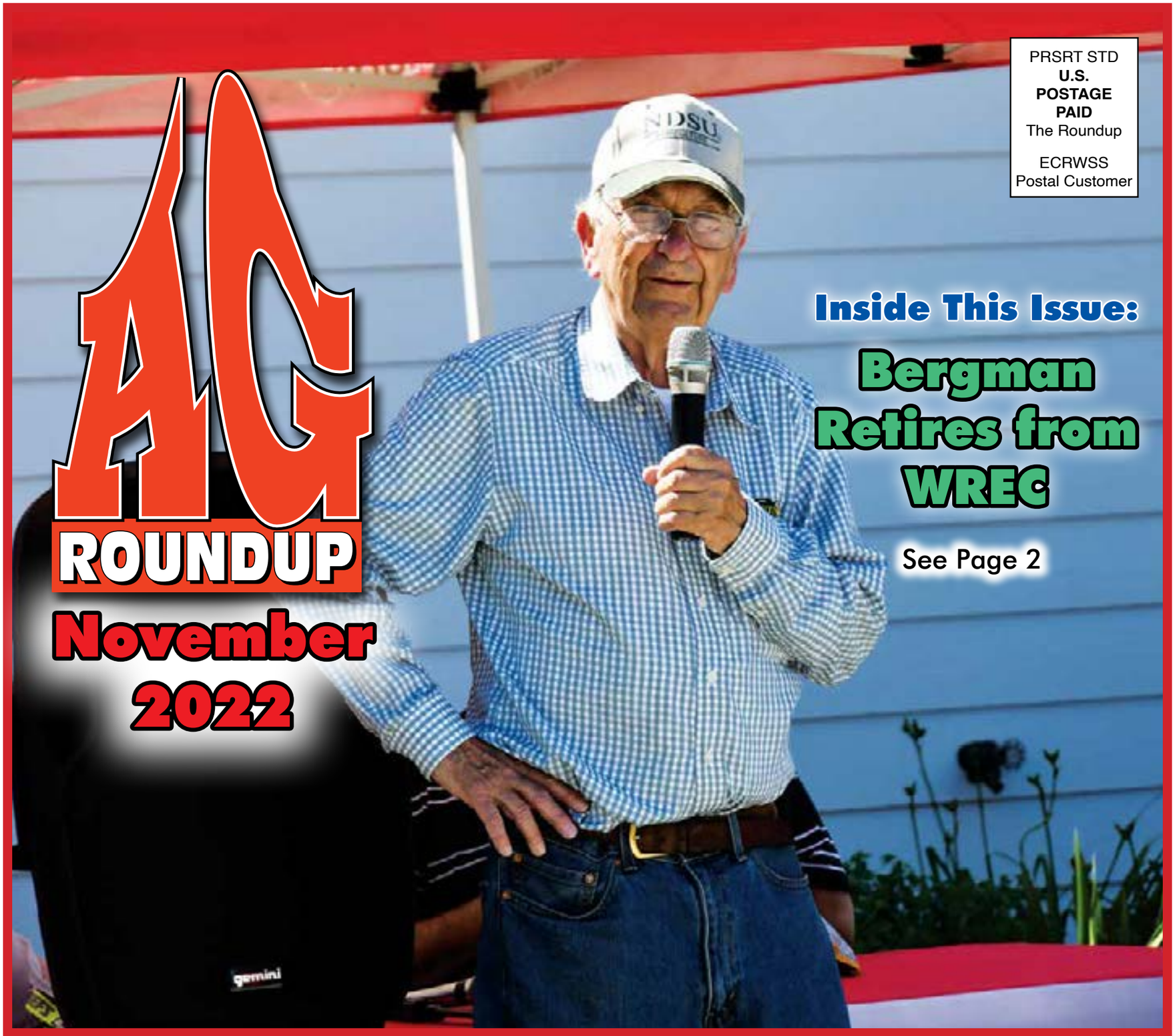

AG ROUNDUP

November 2022

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Bergman Retires from WREC

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Bergman Retires After Serving 48 Years As Ag Research Agronomist/Safflower Breeder In MonDak Region

Jerry Bergman, Sidney, started his long time ag career 48 years ago with the Montana State University's Eastern Agricultural Research Center, Sidney, as a research agronomist/safflower breeder in 1973. He served in this position until 1980 when he was named Superintendent of the MSU Eastern Agricultural Research Center, Sidney. In 1994, he became the co-director of both the Williston Research Extension Center and EARC, Sidney. He continued in this position until December 31, 2011 when he retired from the MSU university system and became the director of the WREC overseeing dryland and irrigated crop research and the pure seed production.

In 1990, following the Chernobyl nuclear plant explosion and release of radioactive materials Bergman was contacted by the U.S. government for he and fellow EARC Chemist Dr. Charles Flynn to go to Belarus to collect rapeseed seed samples to extract the oil and meal to be tested for radioactive compounds. Only certain centers in the U.S. had the analytical equipment and expertise to do the testing, Dr. Flynn and Dr. Bergman collected the rapeseed samples in Belarus and brought the samples to Sidney for oil extraction and testing. The results showed that the oil was free of radioactive compounds but the meal was not. So Belarus could grow the rapeseed on contaminated land and use the oil for biodiesel and return the meal to the soil as an amendment as the Belarus scientists had suspected. Later three Belarus scientists came to the MSU Sidney research laboratory to be trained on the laboratory equipment which was provided for them by the USA and shipped to Belarus for their continued research. "The Belarus scientists were very good scientists but lacked the technical equipment for conducting the needed research. They were not early risers," said Bergman.

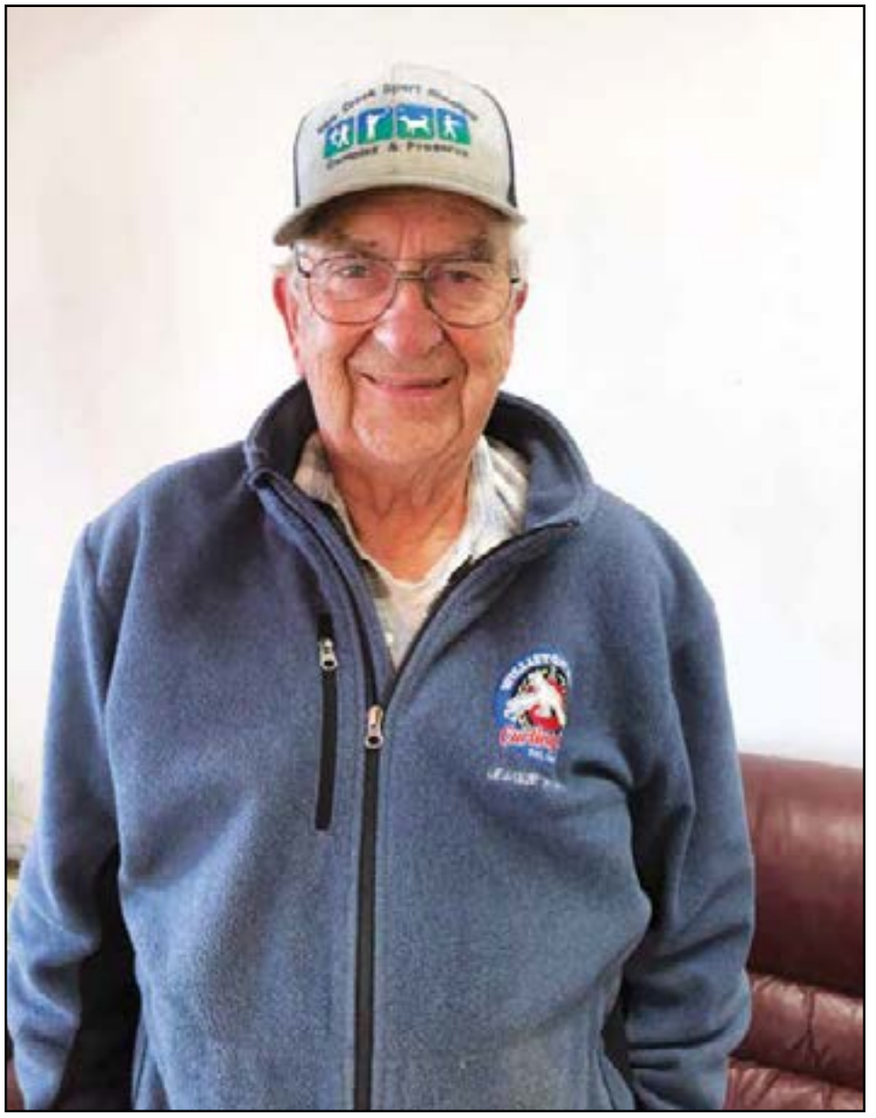
In 2002, he and his son, Mike, formed Safflower Technologies starting out with contracting safflower and other specialty crops in Fairview and Billings. Safflower Technologies International Company now contracts safflower and other specialty crops in five states: North and South Dakota, Montana, Wyoming and Idaho.

The elder Bergman has served as International Chairman of the International Safflower Conferences which was held at the Williston NDSU Research Extension Center in 2001 as well as in Bari, Italy; Istanbul, Turkey, and Hyderabad, India. In Hyderabad, he was the guest of honor.

Bergman will be moving to Sidney and plans to stay around to promote ag however he can with the Williston Economic Development Board and the Richland Economic Development Board.

"I want to continue to support the Sidney USDA and MSU Research Centers and the Williston NDSU Center in their joint mission to improve MonDak agriculture Together the research units have over 20 scientists to conduct research for the MonDak region which encompassed over 30 million acres.

When asked about his future plans, he jokes, "Just help around the house".



Jerry Bergman

Sugar Beet Harvest Complete

Sugar beet digging near Fairview on Oct. 10.

By Dianne Swanson

The 2022 sugar beet harvest wrapped up last week with both tonnage and sugar content coming in lower than expected. According to Sidney Sugars agricultural manager Duane Peters, the yield was unusually field specific with highs and lows in individual fields rather than in an overall area. "It seems to have a lot to do with weather, but there's not really any rhyme or reason on the sugar," he said.

Peters expressed his deepest appreciation for the area growers. "They faced tough issues and made hard decisions and came through with another good crop. We just can't appreciate them enough."

Weather factors included rain that crusted the fields in the spring and then overly warm temperatures late in the season. Late planting contributed also, with growers four to six weeks behind due to late April snow storms and delayed contract negotiations. Cercospera also reared its ugly head again this year causing a decline in yields.

Sidney Sugars is working with growers to determine factors that decreased plants per acre. They are usually 52,000 to start, but by harvest this year they were down to 30,000 with the average of 26,000. "We will be working with the growers to find out what happened," Peters stated.

The Glendive area had the most impressive yield, averaging 33.4 tons and 18.4 sugar; Culbertson followed with 28.2 tons and 17.4 sugar while the factory yard had 27.5 tons and 16.5 sugar. Sugar Valley came in at 27 tons and 17 sugar with Savage yielding 25 tons and 16.4 sugar.

As so often happens, weather also created an interesting harvest. Heat, rain, wind and frost caused temporary stoppages. "We got everything but snow this year. We usually get it all!" said ag-finance accountant Cheryl Riedel laughingly.

Sidney Sugars is always looking to improve storage of harvested beets. An automated ventilation system was installed at Sugar Valley this fall, adding new technology to the thermostat on the existing system, with remote controls connecting to agriculturalist Somer Reidle's phone. When the temperatures get too hot or cold, she can remotely turn the fans off or on as needed, saving precious hours which were previously spent as the agriculturalist would have to go to the yard and check each row of beets and manually adjust fans. "It took time and wasted temperature windows," Reidle explained. "This is a much more efficient system."

Sidney Sugars General manager David Garland explained maintenance and capital improvements at the factory and pile grounds:

For the Fiscal 2022 Year we completed 19 capital projects above the normal summer maintenance. The 19 projects covered all departments: agriculture, operations, warehouse, lab, and wastewater. We are continually identifying and pursuing automation projects, three this year were for Beet Pile Ventilation Automations, 2nd carb filters automation and new lab equipment that will streamline sampling. Equipment this year included the bulk sugar trackmobile, forklift, a new machine shop lathe, std liquor filter supply tank, exhaust steam makeup, and pellet mills feed scroll as well as a gypsum feed scroll. Phase capitals projects which will require multiple years included pulp press upgrades, trash screen upgrades, wastewater cover and pile ventilation automation. Primarily for safety, for a number of years, we have been moving breakers and starters to new MCC rooms. This year we completed the last MCC room which was for the raw centrifugals. Capital project planning is underway for this next year along with the continued engineering for the gas boiler conversion project.

Garland also stated the following concerning the factory work force and campaign:

"Sidney Sugars is not immune to the local and national worker shortage. Both from the process side and maintenance side we began campaign extremely short on workers. As of late we have seen an uptick in the number of people applying for work at the factory."

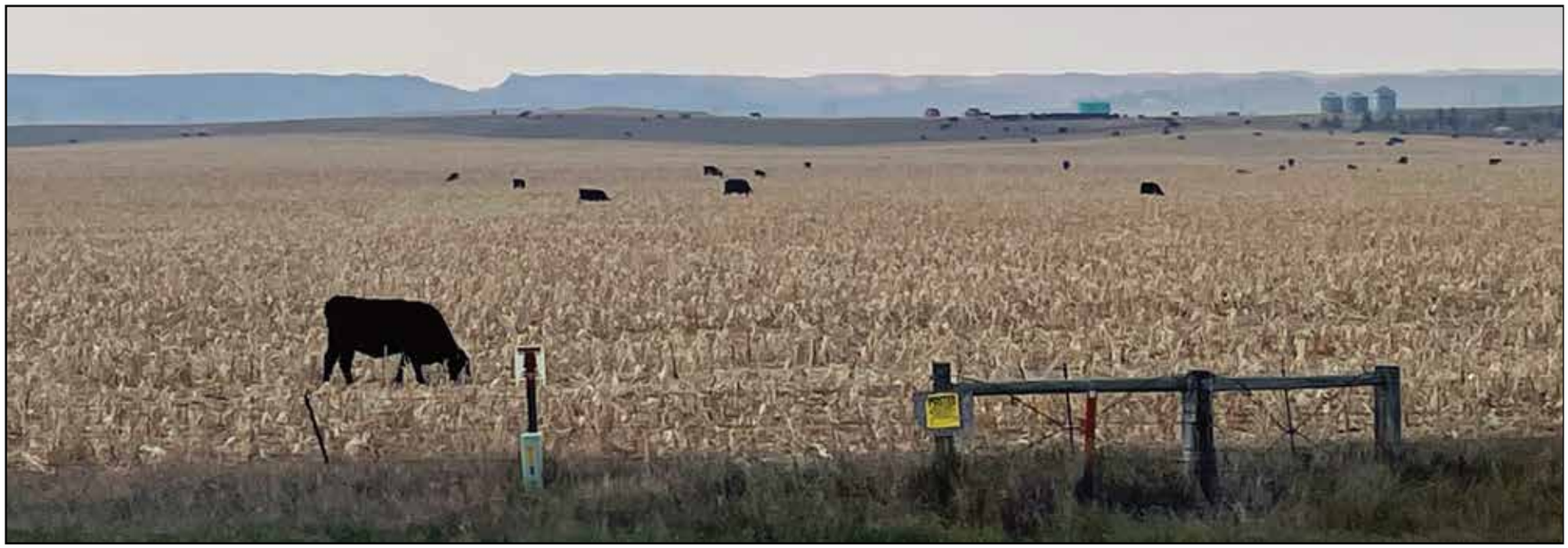
"This is the eighth year working with the Ft. Peck Indian Reservation, specifically TERO, to help find and transport employees from Poplar and Wolf Point areas to the factory and back home. Each year we have seen the number of employees increase, along with their advancement throughout the organization. Currently, there are just over 50 employees who are currently from or originally came from the Ft. Peck area."

This is the first year that Sidney Sugars has needed and opted to use the H2B Visa program. Currently, we have 18 employees from Mexico. Language was a concern but recalling high school Spanish, sign language, and translation apps, we are incredibly pleased with the employees and program.

As of Friday, Oct. 21, we are on Day 19 of Campaign. We began slice on Oct. 2. With each year, startup has its expected and unique start up issues. This year was no different, partly due to so many vacancies in so many key positions in the factory. Each day has its challenges as does any job, but we are smoothing out to a normal rhythm with a steady slice of sugar beets and the production of world class sugar.

Extend Grazing Season With Corn Stalks

With proper considerations for nutrient content and stocking rate, corn residue can extend the grazing season.



Cattle graze a corn field after harvest. (NDSU photo)

By NDSU Agriculture Communication

Grazing corn stalks is one way for farmers and ranchers to reduce the cost of wintering beef cows. However, "grazing corn stalks" is a bit misleading, as cattle shouldn't be forced to graze the stalk of the corn plant, say North Dakota State University Extension specialists.

"The components of the corn plant remaining postharvest include the stalk, leaf, husk, cob and any downed ears," says Zac Carlson, NDSU Extension beef cattle specialist. "The components with the greatest nutritive value are the husk and leaf. The cob is relatively high in digestibility but low in protein. The stalk is low in protein and digestibility."

"Cattle are selective grazers and will eat any grain first that is remaining in the field, followed by husk and leaf," says Carlson. "As a consequence, the longer the cattle graze a particular corn field, the lower in nutrient content their diet will be."

Therefore, farmers and ranchers should target cattle to consume husk and leaf and use the visual appearance of husk and leaf as an indicator of when to move cattle to the next field, Carlson advises.

"For each bushel of corn produced, there is approximately 16 pounds of leaf and husk available," says Janna Block, NDSU Extension livestock systems specialist. "A suggested stocking rate is to target grazing half (8 pounds per bushel of corn produced) of the available leaf and husk."

Mature, non-lactating, spring-calving cows with a body condition score of five or greater will not need supplemental protein when grazing corn residue in favorable weather at an appropriate stocking rate.

Weaned calves, first-calf heifers and fall-calving cows will require additional protein and energy to meet nutrient requirements.

"Corn residue is low in most minerals and vitamin A," says Karl Hoppe, NDSU Extension livestock systems specialist. "Farmers and ranchers should provide a vitamin and mineral program when grazing corn residue."

Scout fields prior to grazing to determine the amount of downed corn present.

"There is an increased risk of founder or acidosis if fields have eight to 10 or more bushels of ears of corn per acre," says James Rogers, NDSU Extension forage crops production specialist. "If this is the case, strip grazing is recommended to limit the amount of corn consumed in one day."

To determine the amount of corn remaining in fields planted in 30-inch rows, count the number of 8-inch ears (or equivalent) on the ground along three different 100-foot furrow strips, and then divide the total by two. This will give an estimate for bushels of corn per acre remaining in the field, says Rogers.

"Do not turn hungry cattle out to graze," advises Miranda Meehan, NDSU Extension livestock stewardship specialist. "Provide good-quality hay for a day or more so cattle don't consume corn immediately. Allow cattle to fill up on hay before grazing corn residue."

Two main limitations to grazing corn residue are installing fence and providing water for grazing cattle.

Soil compaction is another issue often attributed to grazing corn residue. Based on research conducted at the U.S. Department of Agriculture's Northern Plains Research Lab, Mandan, ND, the risk of compaction from fall grazing is low in the northern Great Plains due to our freeze-thaw cycles. However, NDSU Extension specialists recommend that producers avoid grazing soils with a high clay content when saturated.

"Have a plan for weather events that limit grazing," says Meehan. "Deep snow and ice will limit the ability for cattle to graze corn residue. Have additional feed resources available when the weather gets bad."

Check out the NDSU publication "Utilizing Corn Residue in Beef Cattle Diets" at www.ndsu.edu/agriculture/ag-hub/publications/feeding-corn-beef-cattle for more information.

Neighbors Helping Neighbors: Savage Growers Come Together To Help Neighbor In Need

Photo submitted by Kim Nollmeyer.

It all started this summer. Savage sugar beet producer Del Nollmeyer was experiencing chest discomfort while irrigating. After two weeks of tests, there was finally a diagnosis. “We were told we needed to go to Billings for an angiogram. It was there they found the blockage,” stated Del’s wife Kim. On Aug. 19, he underwent a single bypass open heart surgery.

With beet harvest just around the corner Del and Kim were stuck. Del was in no shape to spend hours in the tractor topping and digging beets. “Our neighbor, Kjeld Jonsson had been in contact with Kim and was aware that I would need open heart surgery.” Del said. “Kjeld assured us that things would be taken care of on the farm.” While Del and Kim were still in Billings, Kjeld was in contact with the Savage farmers about harvesting their crop. “Once we were home, Kjeld shared the harvest plan with us.” Kim said.

On Sept. 29, a team of diggers, defoliators, and 24 trucks went to work on the Nollmeyer’s 191 acres. Kjeld Jonsson, Bryce and Dave Jorgensen, Jeff and Jon Jorgensen, and Mark and Tyler Tombre operated the diggers and defoliators, and local farmers provided the 24 trucks. Sidney Sugars worked with the growers to schedule processing Nollmeyer’s beets before the rest of harvest began. Due to the amount of help the Nollmeyers received, they were able to finish in two days. “We would like to thank our community for supporting us during this time,” said Kim. “Coming together and harvesting our crop. It really means a lot to us.”

Warm, Dry Conditions Increase Risk Of Combine Fires

Farmers should take steps to minimize the risk of combine fires.

By NDSU Agriculture Communication

Row crop harvest is in full swing across North Dakota, with many crops near harvest completion. Weather conditions have been warm and dry, allowing producers to harvest crops without the pressure to get the grains harvested before winter arrives. However, dry and warm conditions increase the risk of combine fires, especially when harvesting sunflowers.

In 2022, North Dakota saw a huge increase in planted sunflower acres, with the National Agricultural Statistics Service (NASS) stating that oil sunflower acreage increased 48%, while confectionary sunflower acreage increased 62%.

"The increase in planted sunflower acres and warm, dry weather conditions means an increased risk for combine fires," says Angie Johnson, NDSU Extension farm and ranch safety coordinator. "Mix warm, dry harvest conditions with a high wind speed, and you have a recipe for harvest fires."

In mid-October, the North Dakota Agricultural Weather Network reported wind speeds over 34 miles per hour, which does not include the high wind gusts that were also occurring during that timeframe.

"The high wind speeds we are experiencing and the large amount of extremely dry plant material in our fields and grasslands creates perfect conditions for fire when provided with an ignition source, such as the hot exhaust from the combine's turbocharger or exhaust manifold, or even from an electrical malfunction in a plastic wiring harness on the combine," Johnson says.

Combine fires can occur at any time with the right conditions. Sunflowers, however, pose a greater risk because of the large volume of dust and particulate they produce while being harvested, says Johnson. The white portion inside the stalk, known as the pith, breaks down into very small, tiny particulate pieces with large surface areas that easily get sucked into the fan that is pulling air through the machine's radiator to cool down the engine. That pith dust and particulate easily sticks to engine and exhaust components and can ignite when it comes into contact with the turbocharger and exhaust system of the combine.

"One of my biggest concerns with the large increase in sunflower acres is that we may have new sunflower producers harvesting those fields, or producers who have not raised sunflowers for a number of years that may not be prepared for the increased fire risk that accompanies sunflower harvest," says Johnson. "Believe it or not, there was a time when producers made the decision to quit raising sunflowers because of the constant fire risk and complete combine losses that took place because of combine fires due to sunflowers. Fortunately, we have improved prevention tools and strategies to help mitigate and reduce the risk of combine fires during sunflower harvest."

Johnson shares the following tips for reducing the risk of combine fires while harvesting sunflowers:

- Pre-operational checks. Take time to walk around the combine before the start of each day during harvest season. Use an air compressor or leaf blower every day when the machine is off and cooled down, to remove dirt, dust, chaff and other plant reside that has accumulated. Always wear hearing protection, eye protection and respiratory protection, such as an N95 mask, when using an air compressor or leaf blower to remove plant dust and reside. While blowing off residue, look in high-risk areas, such as the engine and engine compartments, hydraulic pumps and pump drives, gear boxes, batteries, and cables. When cleaning, take time to look for any issues that require repair, such as leaking hydraulic hoses that can be a perfect place for chaff to stick and build up, creating an easy fuel source for a fire.
- Take time to service the machine daily, based on the combine's operator manual. Grease and lubricate bearings and chains and continue to look for areas that have excessive wear or damage.
- Watch for wiring issues. Today's combines are controlled by many sensors and electrical components that are extremely complex. Take time to glance through wiring systems to see where wires appear to be unrestrained or if wires appear to be damaged from rubbing or making contact with moving parts.

Warm, dry harvest conditions in combination with high winds increase the risk of combine fires. (Purdue University photo)

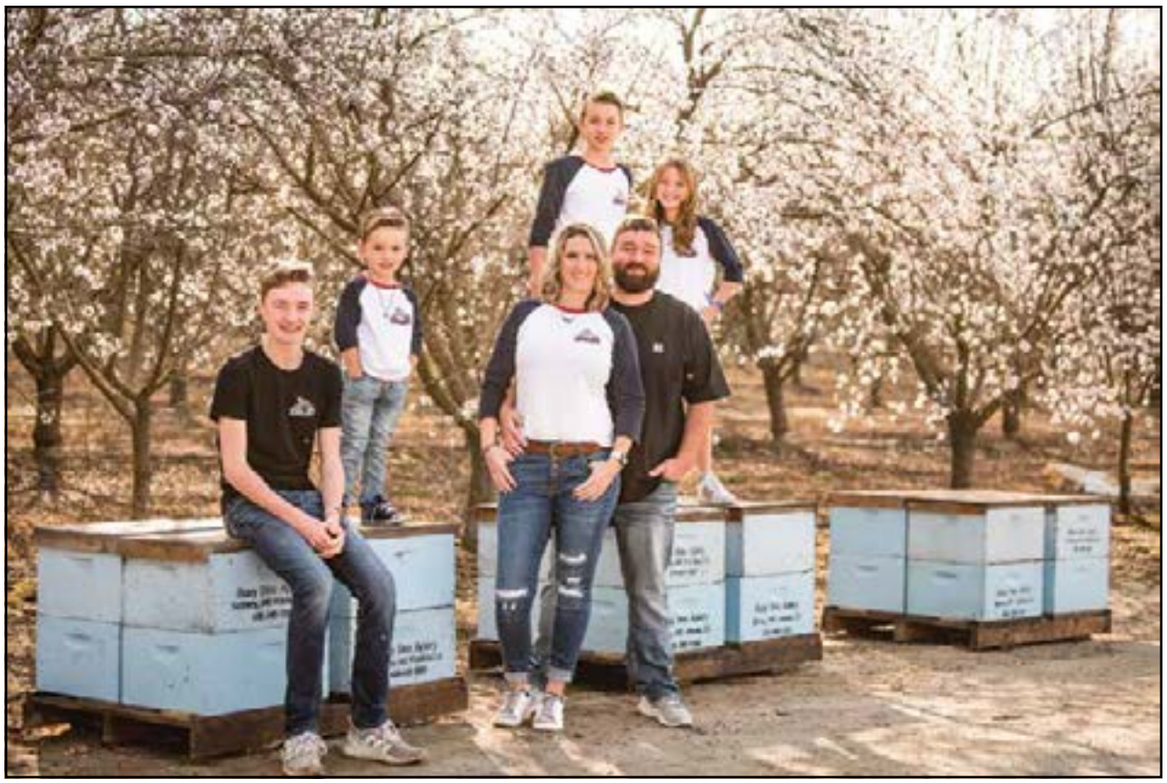
- Use an infrared thermometer. Hot bearings are a combustion source. To check the bearings, warm up the combine before taking it to the field and use an infrared thermometer to determine the operating temperature of your combine's bearings. Safely open the combine's shields, including the header, and from a safe distance, point the infrared thermometer at a bearing to read the measured temperature. If the thermometer measures a bearing's temperature that is much higher than others, it is time to replace that bearing, as it may be worn or damaged. Infrared thermometers are inexpensive (less than $50) and can be found at many hardware and farm stores.
- Install an air intake kit. An air intake kit allows clean air found above the combine's "dust cloud" to enter the combine's air intake screen, instead of taking in the dusty, dirt-filled air produced from harvesting the crop. Take the time to consider an option that will work best for you and your combine.
- Avoid combining during fire danger conditions. Believe it or not, harvest conditions can be too good, meaning it can be too warm and dry to combine your crop. Relative humidity values are low in the fall, increasing the risk of fire, especially in the late afternoon hours. Keep an eye on outdoor air temperature, relative humidity and wind speeds. As hard as it is to shut down for the day when conditions are favorable for harvesting, shutting down when temperatures are hot, dry and windy could prevent you from losing your combine to a fire. Be aware and find out if your area is in a fire danger zone by visiting: https://ndresponse.gov/burn-ban-restrictions-fire-danger-maps. If you must continue combining, take extra precaution and clean your combine more frequently.
- Carry two, fully charged fire extinguishers. Ideally, you should have two 20-pound, charged fire extinguishers on your combine. Have them ready and operational and review with workers how to use them when needed. Call 911 immediately to get your closest fire department on scene.
- Create a soil perimeter. If you choose to harvest during high wind and temperature conditions, make a tillage pass around the perimeter of your field to prevent the possibility of a fire spreading to other areas on the landscape should a combine fire occur.

"Good machine maintenance, cleaning and monitoring can help reduce the incidence of combine fires during crop harvest," says Johnson. "Make farm safety a priority on your farm this fall. Combines and crops are replaceable – you are not."

For more information on crop harvest fire prevention, visit www.ag.ndsu.edu/publications/crops/crop-harvest-fire-prevention-checklist.

The Buzz About The Honey Biz

Above: Roughly 4 million bees are pictured in these shaker cages. (Photo submitted by Busy Bee Apiary)



Right: Caden, Liam, Angela, Derek, Brody and Lily Lawrance pictured in one of the almond orchards they keep bees in. (Photo submitted by Busy Bee Apiary)

By Meagan Dotson

Throughout history honey has been a highly valued commodity, but simply pulling a bottle from a store shelf doesn't always bring to mind the hard work and time that goes into it. Having a partnership with Mother Nature is, after all, not always the easiest thing to do.

It all begins in the hives that can be spotted around various fields. For owners and operators of Busy Bee Apiary, Derek Lawrance and his wife Angela, every year begins with the hives in Visalia, CA, where the bees are fed to keep them strong and healthy.

"Starting at the beginning of February we move the bees into the almond and cherry orchards for pollination," explained Lawrance. "From there they are moved to the hills and citrus orchards where the bees make honey and this is where we start making divides and introducing new queen bees."

In May they begin shipping bees to Montana for the summer honey production season, and operations are in full swing at the apiary just north of Sidney.

The bees are dispersed to more than 150 locations in the area, where they spend the summer making honey and storing it in honey supers. Honey supers are boxes that are added to the hives during the summer months for storing the sweet stuff that will be harvested and brought to the honey processing shop. Once there, the honey supers will be run through an automated system that uncaps the honeycombs, spinning the honey out into a sump that pumps the honey through a heat exchanger before it enters the wax spinner that separates the honey and wax.

"From there it's pumped into a holding tank that we fill 275-gallon totes from that are later sold for bottling at a different plant. We bottle many boxes of honey every year to give out to all our extremely generous and appreciated farmers that give us the opportunity to have our bees on their land during the year," Lawrance added, noting that Mother Nature is indeed the greatest challenge to the operation. "Everything we do with the bees is impacted by the weather for good or bad. In the springtime in California, nice days are required for proper mating weather of the new queens that will head the hives for the year to come. Spring and summer rains in Montana are needed for healthy summer flowers and forage for the bees."

By late September, the bees are being readied and shipped back to California where they will spend the last few months of the year being fed and medicated.

"This keeps them healthy through the winter months and gives them an upper edge come spring," commented Lawrance, who grew up working with his dad and his bee business. "I learned a lot about the bees and started to gain a passion and interest that led to us buying a small bee operation in Fairview, MT with 220 hives and around 1200 honey supers. The Busy Bee Apiary journey started there."

The couple began the business in May 2006, initially moving their whole family along with the bees. Over time, the Lawrances adjusted their family life as their kids got older and more involved in school and sports, decreasing the amount of time the entire family was traveling with the bees.

"My wife and I own and run the business together. We have about 6,000 hives, three full time employees, four seasonal employees and four kids that like to suit up and get involved when they can."

Most of the honey is sold in 275-gallon bulk totes to packers around the country who then pack and sell it under their label. But, the locally sourced honey is available year-round at The Shoppes at Peifer's General Store, Sidney.

"The bee business is like most occupations; it's a get-out-of-it what you put-into-it venture. The most rewarding part to me is impacting the world in a good way," Lawrance commented. "Everyone needs a purpose in life, whatever that might be... big or small. Finding it and doing that, to me, is the rewarding part."

While the product might be delicious, it seems sweet satisfaction may be the real reward for this family-owned business.

NDSU Extension Offers Advice For Conditioning Too-Dry Soybeans

Farmers may want to condition soybeans that were harvested at lower moisture contents.

By NDSU Agriculture Communication

Warm, dry weather can result in soybeans being too dry at harvest.

"The soybeans lose weight and become brittle, increasing the potential for handling damage when they are too dry," North Dakota State University Extension agricultural engineer Ken Hellevang says. "Also, producers lose money at lower moisture contents."

Farmers may want to condition soybeans that were harvested at lower moisture contents to bring the moisture content up to the market standard of 13%. On a 40 bushel-per-acre yield, harvesting soybeans at 9% moisture content, rather than 13%, is equal to 1.8 bushels of lost weight per acre. At $13 per bushel, that is $0.59 per bushel or $23.40 per acre.

Just as grain is dried with bin fans, soybeans can be conditioned by operating fans during periods with the desired air temperature and relative humidity.

"Conditioning requires high airflow rates for several weeks using air with an average relative humidity of about 70-75% to condition soybeans to 13% during normal fall temperatures of 30-60 degrees Fahrenheit," says Hellevang. "Be aware that the air will be heated 3-5 degrees as it goes through the fan, which reduces the air relative humidity slightly."

A conditioning zone develops and moves slowly through the bin in the direction of the airflow, which is similar to a drying zone in natural-air drying. Conditioning occurs the fastest when the airflow rate, cubic feet of airflow per minute per bushel (cfm/bu), is high and the air is warm and humid.

The moisture-holding capacity of the air is related to the temperature. At temperatures below about 40 degrees, the air holds very little humidity and little conditioning occurs. Conditioning will be the most successful in a drying bin with a fully perforated floor and a fan that can deliver at least 0.75 cfm/bu.

Even with this airflow, moving a conditioning front all the way through the bin will probably take at least a month of fan operation. In most cases, not enough high-humidity hours are available in the fall to move a rewetting zone all the way through the bin. The conditioning can continue in the spring when outside temperatures average above about 40 degrees. You would need only a 3-horsepower fan to provide an aeration airflow rate of about 0.25 cfm/bu, but conditioning the beans would take about 90 days at that airflow rate.

Farmers should compare the cost of fan operation with the benefit of marketing at the desired moisture content. To estimate the cost of operating the fan, assume a 1-horsepower fan motor will use 1 kilowatt (kW) of electricity for each hour of operation. For example, if conditioning the soybeans takes 30 days of fan operation, that is 720 hours. Achieving an airflow rate of 0.75 cfm/bu on a 42-foot-diameter bin filled 20 feet deep with soybeans would require a 15-horsepower fan. The cost to operate the fan, assuming an electricity cost of 12 cents per kilowatt-hour is about $1,296. (720 hours x 1 kWh/hp x 15 hp x $0.12 kWh) Increasing the moisture content of 22,167 bushels of soybeans from 9% to 13% would increase the quantity of soybeans by 4.4% or 975 bushels. At a price of $13 per bushel, this is worth $12,675, which is more than the cost of operating the fan in this example.

If the fan is operated just in periods of very high humidity, such as during fog or when the relative humidity is near 100%, the soybeans in part of the bin would be too wet to be stored safely, about 20% or more. Mixing the wet layers with dry layers would reduce the spoilage risk and discounts for marketing wet beans. However, stirring increases the bean damage. Emptying the bin and moving the beans through a grain-handling system will provide only limited mixing because the majority of the grain comes from the top of the bin in a funnel shape with a center unloading sump.

Controlling the fan manually or on a time clock and operating it during the night and a portion of the day based on the measured humidity is one option, but fan and moisture control is not as accurate with this method, says Hellevang.

Soybean Equilibrium Moisture Values

Temperature	Relative humidity (percent) 50	60	70	80	90
(F)	- - - - soybean moisture content - - - -				
32	10.0	11.8	13.7	16.2	19.8
40	9.8	11.5	13.5	16.0	19.6
50	9.5	11.2	13.2	15.7	19.4
60	9.2	11.0	13.0	15.4	19.1
70	8.9	10.7	12.7	15.2	18.9
80	8.6	10.4	12.5	15.0	18.7

This table indicates bean moisture increases as relative humidity rises. It also shows how easily a layer of soybeans can be rewetted to a moisture content that is too high for safe storage (the market moisture content is 13 percent).

Table: Soybean equilibrium moisture values (NDSU)

A humidistat can operate the fan when the relative humidity will average about 70%. Even though the humidity level varies considerably during the day, it will average about 70% if the fan is operated for a time when the humidity is 90% and for an equal time when it is 50%. Setting the humidistat to operate the fan when the humidity exceeds about 60% would be a reasonable starting point. However, the humidity setting would need to be adjusted based on a measured soybean moisture content.

To avoid wetting the beans to moisture levels unsafe for storage, add a second humidistat to stop the fan when the relative humidity reaches very high levels, over 90%, or use a microprocessor-based fan controller that monitors temperature and humidity, and runs the fan only when air conditions will bring the crop to the desired moisture content. A disadvantage of these options is that the fan does not run as many hours.

Hellevang reminds farmers that soybeans expand when they absorb moisture, so a moisture content increase of more than a couple points could create enough pressure to damage the grain bin's bolted connections or even cause the bin to rupture. The bin warranty may be voided if damage occurs while conditioning grain.

One way to reduce the pressure is to unload some beans from the bin periodically, maybe three times, during the conditioning. Another way to reduce the damage potential is to use a negative pressure system to pull humid air down through the soybeans and remove the soybeans from the top of the bin as they are reconditioned. An additional way to reduce the pressure is to use a vertical-stirring auger to mix the beans periodically. Stirring the beans will increase the amount of broken or damaged beans. Unfortunately, these methods of reducing pressure have not been well researched and are based on field experience primarily with smaller bins.

For more information about reconditioning, drying, handling and storing soybeans, visit the NDSU Extension soybean production guide at https://bit.ly/ndsusoybeanproduction and NDSU's grain drying and storage website at www.ndsu.edu/agriculture/ag-hub/ag-topics/crop-production/drying-storage.

AGT Foods Is Making An Impact 'From Producer To The World'

By Meagan Dotson

AGT Foods has its finger on the pulse of agriculture; or rather the pulse crops of agriculture. AGT is a buyer, processor, and distributor of pulse crops such as lentils, chickpeas, beans and peas, and additionally offer cereal grains, flax, canola, popcorn, millet, mustard seed, and sorghum on a global level.

"Our Minot, ND, facility is a pulse fractionation plant that makes value-added food ingredients. We supply pea protein, fiber, and starch to the pet food and human consumption markets and also make our own pasta in Minot which is called Veggipasta. The pasta has a single ingredient made from 100% peas," says Ryan Edinger, AGT USA operations Head Grain Buyer. He has been with the company for 14 years and is located in Bismarck, ND.

Pulses have been gaining popularity across North America, Europe, the UK, and Japan as these crops are more readily incorporated into pastas, snack foods, chips, and baked goods. Though other parts of the world, such as India, North Africa, and the Middle East have been relying on these plant proteins for years as their main source of protein. In fact, pulses provide about 10% of the total dietary protein consumed in the world!

But the benefits are not limited to the consumers. Growers can expect healthier soil, lower input costs, and increased profits. Additionally, incorporating pulses in crop rotations benefits the local economy and creates jobs.

"Agronomically, pulse crops fit very well into the rotation as they increase soil available nitrogen, enhance soil microbiology, break disease cycles, and improve overall soil health. Pulses are a very sustainable crop to grow in the rotation. They naturally leave a lower carbon footprint than most foods grown as they require little to no fertilizer, which in turn leads to less input costs for farmers. Strong grower pricing along with lower input costs continue to keep pulses in the rotation among growers in eastern Montana and North Dakota," Edinger explains.

Incorporating pulses into crop rotation adds nitrogen to the soil and breaks disease cycles, creating healthier soil, and pulse crops don't require fertilizer making input costs lower. (Photo provided by AGT Foods)

Pulses such as lentils, chickpeas, beans and peas provide about 10% of the total dietary protein consumed worldwide. (Photo provided by AGT Foods)

AGT Foods actively exports to over 120 countries. (Photo provided by AGT Foods)

AGT originated in Regina, SK, Canada in 2007 and actively exports to all geographic regions serving a network of customers in the Americas, Europe, Africa, and Asia. The company is actively exporting to over 120 countries.

Farmers who are interested in growing pulses and working with AGT Foods USA can contact the company at 1-877-751-1623 for more information or visit their website at www.agtfoods.com.

Edinger adds, "When thinking of consuming pulses many consumers think of split pea soup. The transformation on uses of pulse ingredients into pastas and snack foods give consumers a new perspective on trying pulses in your diet. Give AGT Veggipasta a try the next time you serve a pasta dish!"

Keith Steinbeisser Memorial Livestock Judging

The Richland County Extension Office held the annual Keith Steinbeisser Memorial Livestock Judging Contest on Oct. 9 at Dynneson Feedlot. The event is sponsored by MonDak Ag Days.

Top Novice Reasons: Beau Becker, Richland Co.

2nd Place: Peyton Denowh, Richland Co.

3rd Place Novice: Cambree Denowh, Richland Co.

1st Place Novice: Riley Caraballo, Divide Co.

1st Place FFA Team: Connley Hoagland, Tayler Wolb, Ashton Smeltzer and Katelyn Pratter, Dawson Co.

2nd Place FFA Team: Miley Dixon, Beau Chase, Harlee Hart and Hailey Wold, Plentywood

1st Place Novice: Danica Denowh, Cambree Denowh, Peyton Denowh and Mya Everett, Richland Co. 2.

2nd Place Srs.: Tally Berwick, Holden Salivar, Ayla Yoder and Carly Friedrich, Sheridan Co.

1st Place Srs.: Riley Jones, Brooke Spinner, Addi Foss, Casey Rettke, Richland Co. #2

Junior 1st Place Jr: Maddie Schreiber, Richland Co., 2nd Place Jr: Molly Webb, Miles City and 3rd Place Jr.: Trevor Jeffers, Miles City.

Top Seniors: Cooper McNally, Top Reason; Marett Schieber, 3rd Ind.; Tally Berwick, 2nd Ind.; Riley Jones, 1st Ind., Richland Co.

3rd Place Srs.: Cooper McNally, Keaton Kostelecky, Marett Scheiber, and Jori Horsburgh, Richland Co. 1.

3rd Place Novice: Brynn McNally, Kree McNally, and Lucy Jeffers, Richland Co. #1. Not pictured Ethan Hood.

2nd Place Jr. Team: Myli Josephson, Sophia Josephson, Kendal Josephson and Maddie Schreiber, Richland Co.

1st Place Jr. Team: Molly Webb, Trevor Jeffers, Tedd Jeffers and Felixe Becker, Miles City.

2nd Place Novice: Braylin Monson and Beau Becker. Not pictured: Cassie and Libby Reiman, Richland Co. #4.

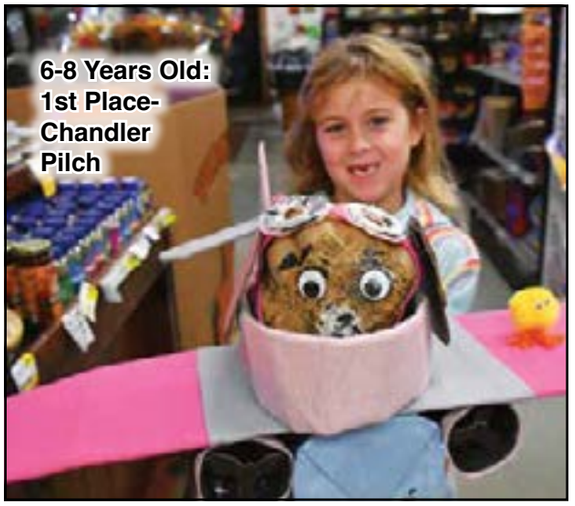
Annual Harvest Festival Sugar Beet Decorating Winners

5 & Under: 3rd Place-Hadley Hoffman

5 & Under: 1st Place -Paisley Andreasen

5 & Under 2nd Place-Parker Cayko

The Roundup held their Annual Sugar Beet Decorating Contest Thursday, Oct. 13 at Neu's Super Valu, Fairview. A special thanks to Neu's for sponsoring the contest, Sidney Sugars for the beets and the Powder Keg, Fairview, for the prizes. Thanks also to the kids who entered their decorated beets. (Not pictured 10-12 Years Old: 2nd Place-Taylor Unruh)



6-8 Years Old: 3rd Place-Kayden Ferdinand

10-12 Years Old: 1st Place-Eleie Carico

6-8 Years Old: 2nd Place-Eliza Carico

Efficiently Feeding Your Livestock: Calculating Cost On Unit Nutrient Basis

By Marley Manoukian,
MSU Richland County Extension Agent

As we head into the winter-feeding months, feed costs make up 65% or more of total input costs. It is important to compare feed costs on a "unit nutrient basis" which really means just getting the most bang for your buck. This approach will come in useful for all feed costs, but especially when you are comparing and pricing out different supplements.

There are three pieces of information about the feed in question that you will need in order to do this calculation: 1) total price per ton, 2) percentage dry matter of the supplement (% DM), and 3) percentage nutrient you are wanting to supplement (crude protein (CP), energy (TDN), minerals, etc.).

As an example, say you are wanting to supplement more crude protein (CP) to your cows and you are comparing two supplements; Supplement A and Supplement B. Supplement A costs $200/ton, is 91% DM, and 15% CP. Supplement B costs $300/ton, is 90% DM, and 30% CP. Supplement A is the least expensive and you should buy that, correct? Not necessarily. Why is that? While Supplement B costs more total per ton, it costs less per pound of CP, meaning you can feed less of Supplement B to get the amount of CP your cows need compared to if you fed Supplement A.

Supplement A: 1 ton = 2000 lb; 2000 lb × 91% DM (91/100) = 1820 lb DM/ton; 1820 lb DM × 15% CP (15/100) = 273 lb CP/ton; $200/273 lb CP = $0.73/lb CP; $0.73/lb CP

Supplement B: 1 ton = 2000 lb; 2000 lb × 90% DM, (90/100) = 1800 lb DM/ton; 1800 lb DM × 30% CP (30/100) = 540 lb CP/ton; $300/540 lb CP = $0.55/lb; $0.55 lb CP

This same calculation would apply if you were wanting to supplement energy, minerals, or other nutrients. If you have any questions about calculating cost on a nutrient basis, please contact the MSU Richland County Extension Office at 406-433-1206 or marley.manoukian@montana.edu.