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NOBLE NEWS & VIEWS

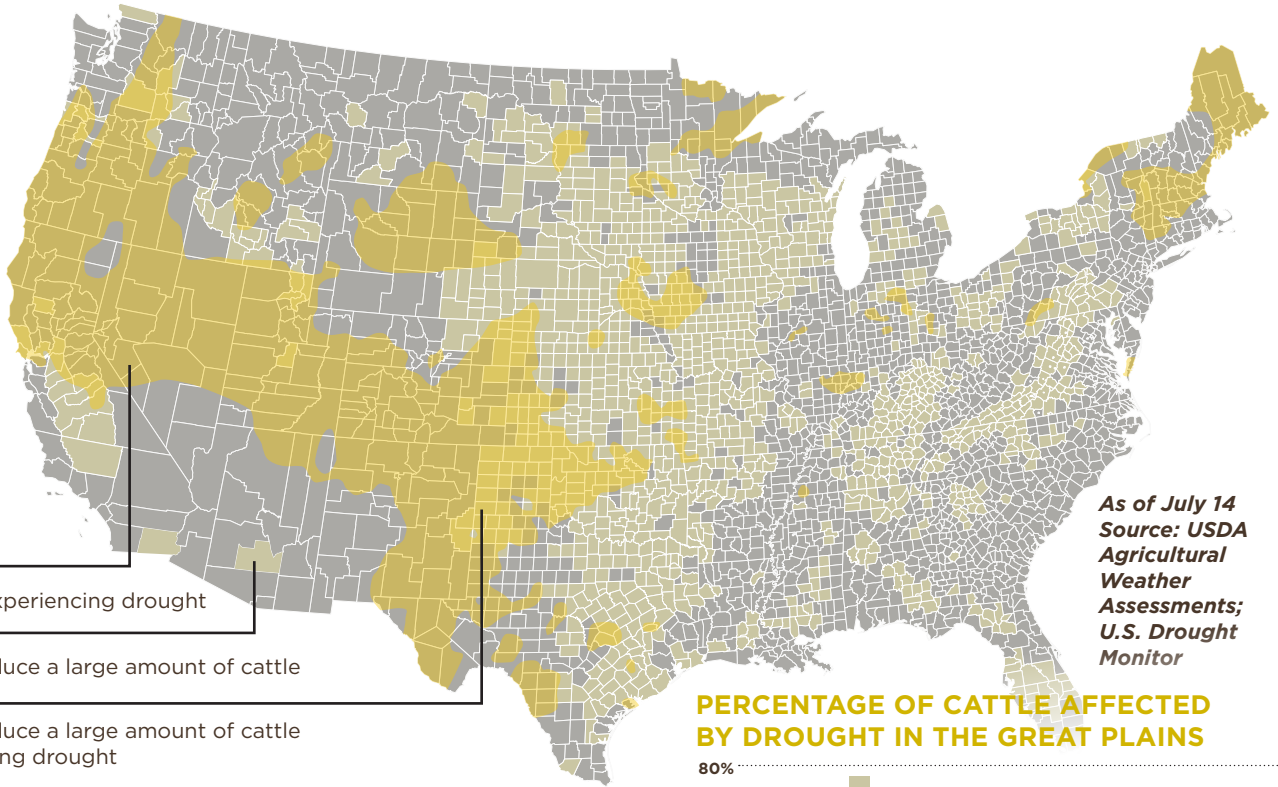
LIVESTOCK

Prepare for Drought With Regenerative Ag Mindset

23%
of the US land area is experiencing drought.

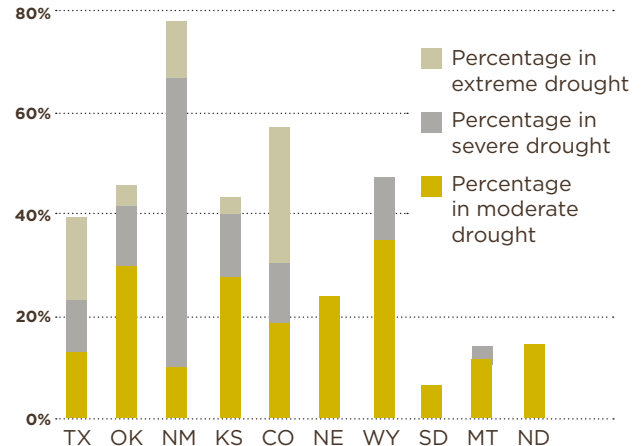
39.7M
people are experiencing drought

25%
approximate percentage of cattle inventory within an area experiencing drought.



- Continental U.S. experiencing drought
- Counties that produce a large amount of cattle
- Counties that produce a large amount of cattle and are experiencing drought

PERCENTAGE OF CATTLE AFFECTED BY DROUGHT IN THE GREAT PLAINS



by Hugh Aljoe,
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Drought is a natural and regular event in grazing lands. A drought is a period of time when an area or region experiences below-normal precipitation. The lack of adequate precipitation can cause reduced soil moisture or groundwater, diminished stream flow, crop damage, and a general water shortage. For livestock producers and managers of grazing lands, this means lower forage production and potential livestock water shortages.

In terms of climate, we experience alternating periods of dry and wet weather. The southern Great Plains in particular has experienced a favorable wet period over the last few years. However, meteorologists are now saying weather patterns are changing and the long-range forecast predicts drier conditions ahead, perhaps for the next few years.

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DROUGHT RESILIENCE WITH REGENERATIVE AG

In observing producers implementing regenerative agricultural practices, we find a unique mindset toward drought. We find producers who routinely manage operations proactively, meaning they operate in relation with the weather conditions. They manage anticipating drought long before it occurs. These producers usually have contingency plans in place to nimbly deviate from their “ideal” management plan and adapt to unfavorable weather patterns.

As a bonus, producers practicing regenerative agriculture and grazing typically manage through droughts more easily with fewer adverse impacts on their land and profitability. Their grazing lands also recover more rapidly than other lands, where regenerative grazing is not routinely practiced.

BUILD ORGANIC MATTER

The successful long-term application of regenerative agriculture and regenerative grazing results in improvements in the soil and plant communities that make the soils more resilient and drought tolerant.

Managing soils regeneratively results in the building of organic matter above, at and below the soil surface. Regenerative grazing complements the soil health principles but only because the grazing is managed in a way that matches stock numbers to forage biomass, manages for short grazing periods, uses moderate grazing during the active growing season, leaves adequate plant cover after each grazing event, and follows each grazing event with adequate planned recovery. Over time, soil organic matter, soil health and water holding capacity improves. Pastures become more productive, vigorous, and more resilient during drought (and floods).

MANAGE PASTURES WITH LIVESTOCK, NOT FOR LIVESTOCK

Regenerative graziers actually manage their pastures and forage inventories with livestock instead of their pastures for livestock — pasture and grazing management are the priorities. There is a distinction here that indicates a different, forward-thinking mindset.

The distinct advantage regenerative grazing producers have over other livestock producers is they are prepared to adjust stocking rates with forage availability and growing conditions. At the onset of drought, they begin adjusting their management plan and stock numbers based on preset criteria and triggers outlined in a drought contingency plan. They actively monitor both moisture conditions and forage production, and then they adjust stock numbers to reflect actual conditions. Regenerative producers are both mentally and logistically prepared to make sound, proactive management decisions for the short- and long-term benefit of the land resource and ranching operation when droughts occur.

WHAT IS REGENERATIVE AG?

Regenerative agriculture is the process of restoring degraded soils using practices based on ecological principles. Regenerative agriculture promotes:



Building soil organic matter and biodiversity



Healthier and more productive soil that is drought- and flood-resilient



Decreased use of chemical inputs and subsequent pollution



Cleaner air and water



Enhanced wildlife habitat



Capturing carbon in the soil to combat climate change

The above listed outcomes result from strategically applying management practices based upon the five principles of soil health, which are:

- Keep the soil covered
- Minimize soil disturbance
- Keep living roots in the soil all year
- Increase plant diversity
- Integrate livestock properly

WHAT IS REGENERATIVE GRAZING?

As one can deduce, regenerative grazing complements the soil health principles. It is the essence of the principle, “integrate livestock properly.”

On grazing lands, regenerative grazing means:

- Grazing for short periods.
- Grazing moderately in the growing season. Leaving adequate plant cover followed by adequate, planned recovery that is facilitated by effective multipaddock grazing management protocols. Adjusting stock numbers to match forage biomass.

In other words, the grazing is planned, managed and in sync with the growing conditions at any given period of time.

HAVE A PLAN

As stated earlier, meteorologists have begun providing evidence that the favorable precipitation patterns are now changing, shifting to what is expected to be a drier period. Producers practicing regenerative grazing for many years are monitoring their forage production now and know the capabilities of their pastures to withstand short- or long-term dry spells. They are prepared to implement drought plans to protect the land resource when severe drought sets in. They have managed their pastures and stocking rate proactively and are accustomed to balancing livestock demand to forage production. As a result,

their grazing lands are more resilient with improved soil health and soil organic matter, increased water holding capacity, and enhanced forage production capabilities. Rainfall that occurs during a drought is more effective.

Once drought breaks and favorable precipitation patterns return, these grazing lands that have been managed according to the soil health principles and regenerative grazing will respond much more readily to rainfall events with little or no evidence of adverse effects from the drought. The mindset of a producer practicing regenerative grazing is certainly better prepared for drought. 🐄

EDUCATION

Online Science Lessons and Resources Coming to Teachers

by Jenn Moore, youth education associate |
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Teaching students is a challenging profession. It requires careful planning, long hours of grading papers, being able to keep at least 30 different people happy and learning at one time, flexibility, and the ability to procure the right resources for lessons. This would be in a normal school year; but this year, we have watched a global pandemic change what education and teaching looks like.

THIS YEAR, WE HAVE WATCHED A GLOBAL PANDEMIC CHANGE WHAT EDUCATION AND TEACHING LOOKS LIKE.

In March 2020, students in Oklahoma left for spring break and never came back to the classroom. Teachers immediately had to adjust not only how they were teaching but what they were teaching. Teachers were not allowed in the classroom while lockdown orders were in place. Whatever a teacher took home with them for spring break were the only resources they had to teach with; some may have only had a laptop and maybe a textbook. They had two weeks to come up with a way to disseminate information that was relevant to students who were sheltering in place.

This meant teachers were looking actively to online resources and projects that they could do from home using materials they had on hand. Teachers and students need science, technology, engineering and mathematics (STEM) resources, and in particular science-based laboratories to incorporate in their daily lessons to meet the state mandated standards and objectives. Noble Research Institute's youth education outreach program helps to fill that role during the school year. Noble's youth education teachers bring science-based, agricultural laboratory lessons to the classroom to help reinforce what is being taught. We also send our lessons in educational trunks that provide teachers and students with the laboratory materials they need to complete the lessons in class. This resource is free for students and teachers.

During this time of COVID-19, we have used the time away from the classroom to plan for the future of social distancing. Within the next year, we will begin to transition our lessons online and make them interactive and accessible for teachers to use, regardless of social distancing or school shutdowns. Teachers will be able to bring science-based content to their students and will be able to get the valuable training and continuing education that they need to meet their own professional development requirements.

We always anticipate change in the classroom and in the field of agriculture. Now we have seen change in the world. We have learned and are teaching each other that we are resilient to change. No matter the challenge, we are here to meet it head on.



www.noble.org/education/youth-education-outreach:

Teachers can find our resources online and have them shipped to their school.



ECONOMICS

Price Protection Can Help Cattle Producers in Volatile Markets

Dan Childs, senior agricultural economics consultant | mdchilds@noble.org



Many risks are ever present for agricultural producers. To attempt a listing of all the risks would likely be somewhat surprising and quite lengthy. The risks that come to mind quickly are weather risk and price risk. The United States Department of Agriculture's Risk Management Agency (RMA) has created ways to help many producers — both grain and livestock — manage both of these risks.

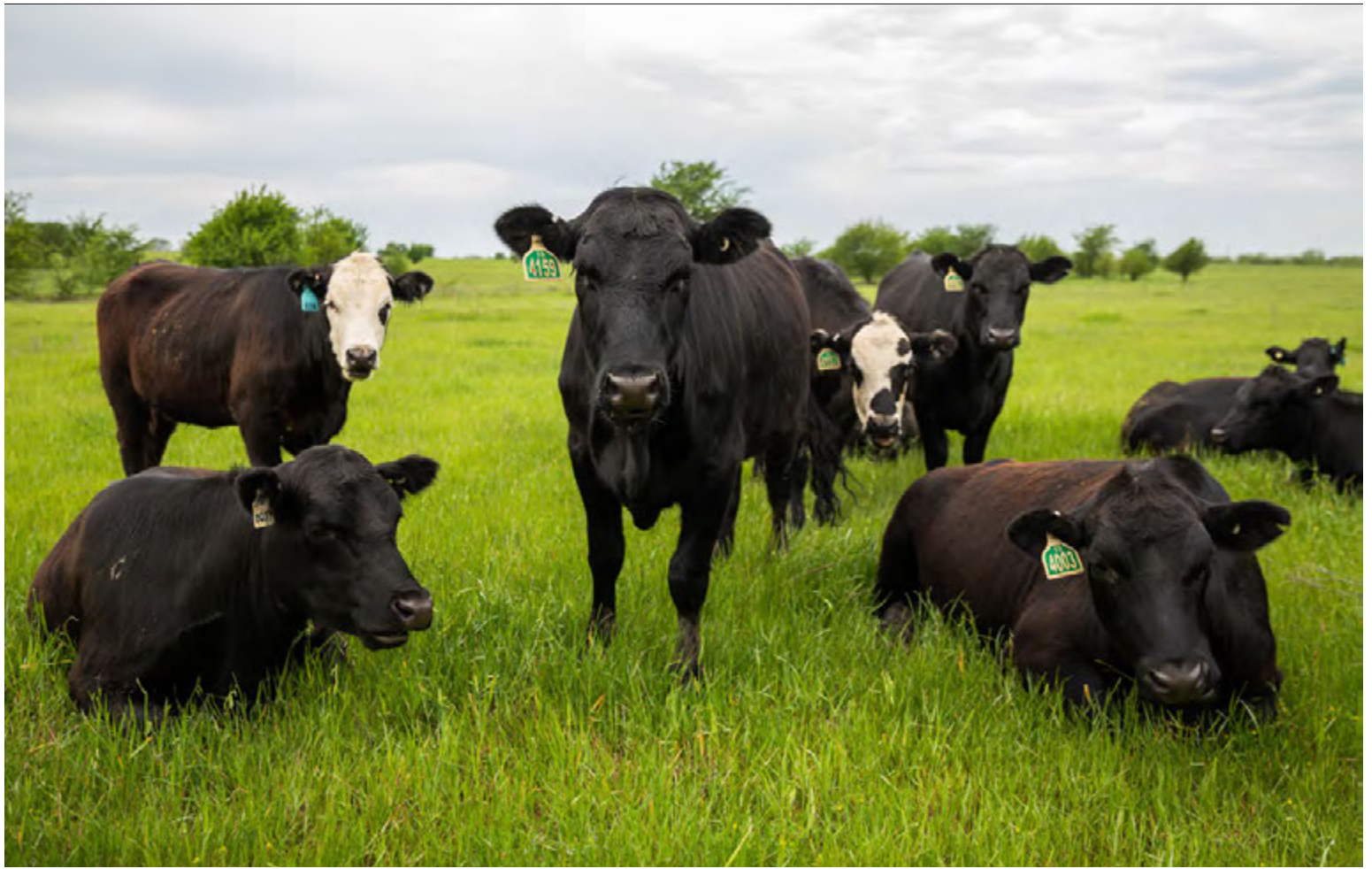
BEFORE THE CORONAVIRUS

Managing weather risk has been an ongoing concern of producers. However, the interest in

managing price risk has been more sporadic. Producers, being generally optimistic, are reluctant to lock in a certain price that eliminates the opportunity of a higher price if by chance the market offers it later in the production cycle. The pandemic has reminded producers of and heightened the interest in price risk management.

If you are a cattle producer, think back to the outlook for cattle prices in late January 2020. On Jan. 1, the U.S. cattle inventory report estimated beef cow numbers to be down from the previous year by 1.2%, the first decline since 2014.

Story continues on next page



The calf crop was estimated to be down 0.9%. In a market where supply and demand determine prices, the fundamentals were in place to support stronger prices. Projections in the fall for purchased stocker calves or retained home-raised calves indicated a profit when sold at heavier weights in the spring. Few producers who owned yearling cattle thought much about price protection at the time.

SUPPLY AND DEMAND DISRUPTED

Then the pandemic caused huge disruptions to both the supply and demand for many food items, including beef. Consumers changed their buying behavior due in part to many working from home and eating more meals at home. The food service (primarily restaurants) demand dried up almost overnight and panic buying ensued at the retail level. Some cattle processors darkened plants due to surging cases of COVID-19, while others had to reduce capacity because workers felt unsafe at work and stayed home. Food service products could not easily be retrofitted for the retail market. With reduced processing capacity and a product shortage, a much stronger beef demand was created at the retail level and boxed beef prices skyrocketed. At the same time, feedyards with ample cattle ready for harvest were unable to move those cattle to processing facilities since the processing capacity had been reduced. So live cattle prices adjusted by approximately 25%, and the price softness

was felt down the production chain to yearling cattle and calves. No one in January would have ever thought the cattle market would experience this kind of decline.

PRICE PROTECTION HAS POTENTIAL

The chain of events that created the lower prices caused cattle producers to think back and wish they would have done some kind of price protection. Nothing can be done for what has already happened, but producers can learn from the experience and consider ways price protection can be used in the future. Fortunately, there are several choices a cattle producer has to help with price protection. Some of these products have been around for a long time, while others have been available for only about 20 years.

HEDGING

Hedging on the futures market by selling a futures contract is very popular. This strategy locks in a certain price with no opportunity for any upside potential. Typically, the only reason a producer would experience a different price would be that the actual basis was different than projected.

The reason many producers do not like hedging is margin calls. Large margin calls can shake the emotions of the calmest producer. Purchasing options on futures contracts is attractive because of the potential for a higher price. A “put” option

provides a minimum floor price and leaves the upside open. No margin calls are required.

The reluctance by some producers to use options is premium cost. If a “strike” price close to the underlying futures contract is chosen, premium cost could be considered pricy, especially in volatile markets. Many strategies exist as to ways producers can pick and choose combinations of put and call options to achieve a higher floor.

LIVESTOCK RISK PROTECTION

Around the turn of this century, RMA created a product they named Livestock Risk Protection (LRP). RMA provided a 13% subsidy on the premium, hoping it would entice producers to use it. The product is sold and serviced by private insurance agents. The use of the product has been disappointing. Effective July 1, 2020, the subsidy has been increased to 20-35% depending on the level of coverage chosen. One of the more attractive features of LRP is that any size group of cattle less than 3,000 head can be protected.

OPTIONS ARE AVAILABLE

If the recent fluctuations in the cattle markets have made you interested in price protection, please become informed of the products available. We at Noble are available to discuss these products with you. 🐮

RESEARCH

Tall Fescue for Grazing Livestock: Researchers Look to Improve Nutrition



by Mike Trammell, senior plant breeder, perennial grasses breeding | matrammell@noble.org and Carolyn Young, Ph.D., professor, mycology | cayoung@noble.org

Pastures dominated by perennial grass species form the base of animal/forage production systems worldwide and are vital to their economic sustainability. Tall fescue is a persistent cool-season perennial grass widely grown in the southern United States. However, its nutritional value is lower than ideal for many livestock enterprises. This provides us with an opportunity to improve tall fescue as a forage for grazing livestock.

In the U.S., most tall fescue varieties are considered to have a coarse leaf texture, which reduces an animal's desire to graze and ultimately results in lower forage consumption and weight gains. Soft-leaf tall fescue varieties are preferred by cattle and have been associated with increased animal performance, but these varieties cannot withstand harsh weather conditions across the southern U.S.



TALL FESCUE AVAILABLE NOW

Mike Trammell and Carolyn Young, Ph.D., have worked together on tall fescue breeding for 14 years, releasing two successful tall fescue cultivars: Texoma MaxQ II and Chisholm.

Texoma MaxQ II contains a nontoxic novel endophyte and is adapted to areas east of the I-35 corridor in Oklahoma and Texas. Seeds are available through Pennington Seed Company in Madison, Georgia.

Chisholm is adapted to the drier climate west of I-35. Seeds are available through Warner Brothers Seed Company in Lawton, Oklahoma.

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Figure 1. The plant breeding teams at Noble Research Institute are comparing soft, hybrid and coarse leaf (from left to right) tall fescue cultivar leaf traits in order to develop the next generation of forages.

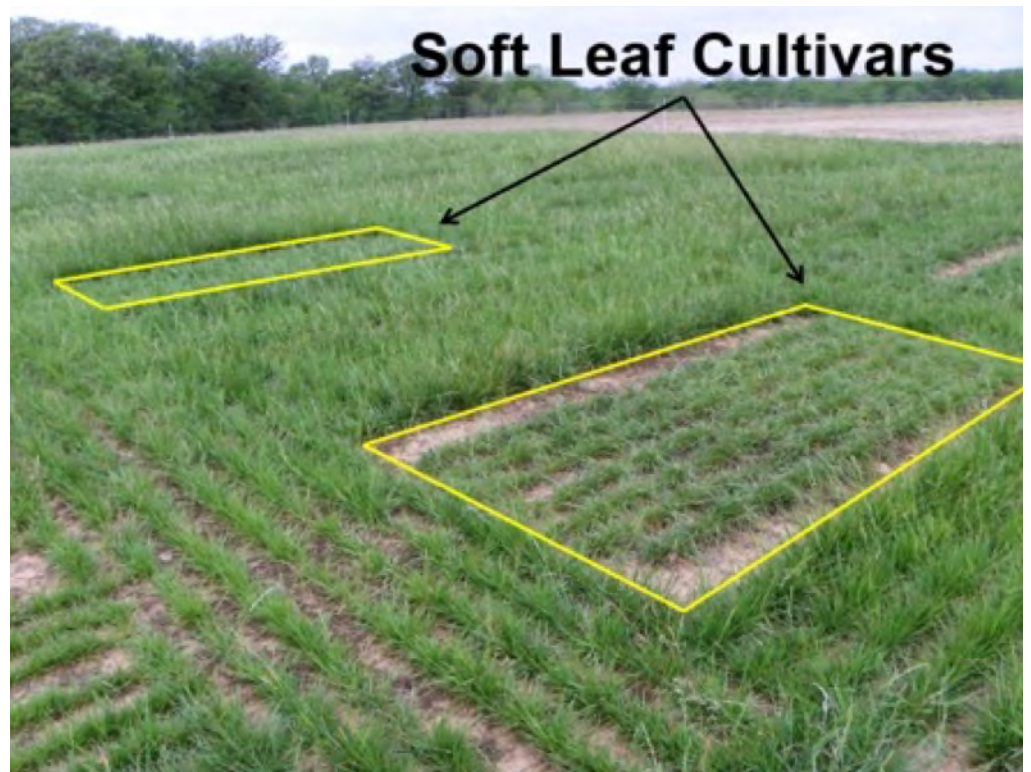
Therefore, we have decided to tackle this problem by first exploring the mechanisms, or traits that determine leaf softness and nutrition in tall fescue varieties.

The specific aims of our project are to:

- Develop protocols to characterize the physical differences and tensile strength of leaves in various types of tall fescue that range in leaf softness.
- Compare the dynamics of leaf structure, yield, crude protein, digestibility and water soluble carbohydrates of tall fescue varieties that differ in leaf softness. We'll be looking at coarse-leaf cultivars and hybrids of coarse- and soft-leaf germplasm (figure 1).
- Use genetic screening to determine if soft-leaf tall fescue represents a unique set of individuals within the tall fescue species.

Identifying the specific traits that determine leaf softness will help Noble's breeding program in the development of next-generation tall fescue varieties with improved forage quality and palatability. The new varieties will contribute to the sustainability and profitability of livestock production systems throughout the southern U.S. and similar agricultural environments throughout the world. It will also allow other plant breeders to efficiently and effectively use the traits in their own breeding programs. 🐄

Figure 2. Preference by cattle of commercial soft leaf tall fescue cultivar over traditional coarse leaf types (the plot between the two soft leaf plots) after 24 hours of grazing in a trial at Ardmore, Oklahoma.





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CHECK NOBLE.ORG FOR EVENT CANCELLATIONS

All educational events will move to live online learning for the remainder of 2020. Please check here for the latest information on times and dates. Please check www.noble.org/events for the most current information.

