The Latest Across the Plains

Unused Feed

When you have eaten and are satisfied, praise the LORD your God for the good land he has given you. Deuteronomy 8:10

Save Money $$$ Test Your Feeds

Tests are relatively inexpensive, usually costing less than $20, for the information derived. Contact our office to set up an appointment to have us pull feed samples if we have not done so yet.

We want to hear from you…

Do you have a question you would like one of the nutritionists to address in depth in our newsletter? Just submit your question through our website www.GPLC-Inc.com and we will get to work on it.

Timely Reminders

- Inoculate and cover silage/earlage piles
- Test stressed forages for nitrates
- Consider planting cover crop for spring grazing and manure application
- Scrape pens and pile manure
- Clean water sources on a weekly basis
- Keep an eye on commodity contract prices the next two months
- Have us sample hay and silage (silage greater than 3 weeks after harvest)
- Start thinking about pre-weaning calf diets
- New rations are going to be hotter, consider backing them down this time of year
- Contact your nutritionist about running projections on growing or finishing cattle, beef or Holstein, to help plan feedstuffs needs

Calendar of Events

- **Sept 30 - Oct 23** Texas State Fair, Dallas, TX
- **Oct 7 - 9** Ozark Fall Farm Fest, Springfield, MO
- **Oct 6 - 23** American Royal, Kansas City, MO
- **Oct 14 - 23** Arkansas State Fair, Little Rock, AR
- **Oct 14 - 22** Northern International Livestock Exposition, Billings, MT
- **Oct 18 – 20** Sunbelt Agriculture Exposition, Moultrie, GA
- **Oct. 23 - 25** Texas Cattle Feeders Association Annual Convention, Fort Worth, TX
- **Oct 26 - 27** South Texas Farm & Ranch Show, Victoria, TX
- **Nov. 1** Cover Crop Grazing Conference, Mead, NE
- **Nov. 3 - 17** North American International Livestock Exposition, Louisville, KY
- **Nov. 4 - 7** Angus Convention, Salt Lake City, UT
- **Nov. 4** Husker Beef Nutrition Conference, Mead, NE
- **Nov. 8** Grass and Grain Farm and Ranch Show, Manhattan, KS
- **Nov. 18 - 19** Annual Kansas Cattlemen's Association Convention and Tradeshow, Wichita, KS
- **Nov. 18 - 19** NDSU Harvest Bowl, Fargo, ND

Utilization of Cool-Season Cover Crops as an Alternative Feed Resource

Once harvested, early soybeans, early corn (seed, silage, grain), and wheat fields are typically left bare, with little to no residue left on the soil surface. In some cases, it could be up to 5-7 months before another crop gets planted, exposing soil to natural erosion from rainfall, snowmelt, and wind. To help prevent erosion, cover crops are planted post-harvest in the fall and remain in the soil during the winter and early-spring prior to planting next year's cash crops. In the spring, cover crops are chemically killed and left on the surface of the soil as residue or plowed into the soil. As cover crops have gained in popularity several farmers and ranchers have experienced not only soil health improvements, but also feed cost savings by either grazing or harvesting the cover crops as opposed to chemical termination. As crop and livestock inputs continue to rise, it is important to be innovative and explore new management strategies, such as incorporating grazing cover crops.

Cover Crop Species Selection and Planting Details

There are numerous cool-season forage species to choose from, depending on your overall goals and number of growing days available. Cereal grain forages (oats, wheat, triticale, and cereal rye) and annual ryegrass are the most common cover crops planted. These annual cool-season grasses are typically the staple for agronomic benefits and provide ample amounts of forage for cattle to graze due to their extensive root growth and greater biomass yields. Legumes (peas, vetch, and clover) and brassicas (turnips, radish, kale, and rape) are excellent compliments to annual cool-season grasses depending on your land conservation and production goals. Legumes can biologically fix atmospheric nitrogen and release nitrogen during decomposition, providing additional nitrogen to the subsequent cash crop. Legumes are also a source of greater dietary crude protein (20-24%, DM basis) for livestock, which compliments the bulk roughage provided by cool-season grasses. Brassicas have the ability to mitigate soil compaction concerns due to their larger and often deeper tap root characteristics. They also benefit livestock by providing additional supplemental energy due to the amount of water-soluble carbohydrates present (31-45%, DM basis). Incorporating these forages into a mixture allows for greater cover crop diversity and the ability to capitalize on the various benefits each forage species has to offer. Seeding rate considerations when forages are planted as a monoculture stand or forage cocktail mixture are presented in Table 1.

Table 1. Common cool-season annual forage species and their recommended seeding rate (lbs/ac) for grazing as a monoculture or within a forage mixture.

	Forage Species				
	Oats	Wheat/Triticale/Rye	Annual Ryegrass	Legumes	Brassicas
Monoculture	100	115	30	12	2
Mixture	60	70	15	--	--

Growth characteristics of each forage species should be considered as you evaluate and plan your fall/winter cover crop grazing or harvesting strategy.

- Oats and brassicas are faster maturing, providing earlier grazing opportunity by November.
- Winter hardy cereal grain grasses (wheat, triticale, and cereal rye) have moderate initial growth and increased opportunity for regrowth during the winter, as long as average daily temperatures are 45°F or greater.
- Legumes and annual ryegrass are slowest maturing and produce greater yield in the spring.

Examples of strategizing your grazing plan according to the previously mentioned forage growth characteristics include:

- Avoid oats or brassicas, if you do not have the capability to plant before late-October.
- Avoid legumes and annual ryegrass, if you have to terminate forages on crop fields prior to cash crop planting by early-March.

Oftentimes, planting a mixture of multiple cover crops by early-October allows producers to achieve a longer grazing season. For example, utilizing a mixture of oats, brassicas, cereal rye, and legumes provides you with grazing from mid-November to mid-April.

Grazing Cover Crops

Although cover crops are proven to be beneficial, the cost, time, and labor for forage establishment and management of cover crops are perceived as major challenges for producers to justify implementing their use. Grazing might be one way to offset the costs of planting cover crops while still potentially gaining the conservation benefits. Grazing is also a very cost-effective way of feeding livestock. It has been shown that the cost per ton of dry matter is half or less than feeding harvested forages and grain to animals.

Cover crop grazing management can be handled anyway that best suits the producer's time and resources, but rotational or strip grazing is encouraged due to the relatively short grazing time frame and some opportunity for forage regrowth. Rotational or controlled grazing forces uniform forage consumption within pastures/fields. Intensive controlled grazing has also been shown to have 65% greater grazing efficiency compared to continuous grazing. The nutrient density and greater forage yield of cover crops can be more than enough to maintain lactating cows or even potentially improve BCS of gestating cows with only the supply of free choice mineral and water. Oftentimes though these lush forages are reserved for growing calves to achieve relatively cheap and low management gains. Under ideal conditions and access to free choice mineral and water, it is realistic to expect 2-3 lbs. per day average daily gain, especially if calves were moderately stocked between 1-2 ac/calf and rotationally grazed. Stocking rates are going to vary based forage species, maturity, grazing conditions, and what type of animal you are going graze on cover crops. If forages begin to become mature it may be advised to provide an additional protein or energy source such as dry distillers grains or soybean hulls. Another consideration for grazing cover crops is the faster passage rate of these easily digestible and extremely low dry matter forages. It could be beneficial to supply some free choice hay to aid in slowing the rate of passage and encourage a longer duration of rumen digestion. It is encouraged to budget for some dry hay in general to prepare for inclement precipitation events (rain, ice, and snow) during the winter.

Grazing's Impact on Soil and Subsequent Cash Crop Yields

Grazing has also shown a direct added value to cover crop conservation impacts. The ability to graze helps entice farmers to plant cover crops at the right time and utilize higher seeding rates, allowing an increase in the production of biomass. In addition to agronomic benefits of cover crops, there are additional benefits coming directly from grazing livestock through urine and feces that are adding nutrients back into the soil for future cash crops.

However, even with these benefits, there are still crop producer concerns of soil compaction during grazing, causing a negative impact on future cash crop yields. Cover crop research suggests that grazing has little to no effect on soil compaction, wind or water erosion, water infiltration and retention, and concentrations of organic matter and essential nutrients. This concludes that cover crop grazing is unlikely to negatively impact soil structure and fertility properties in addition to subsequent cash crop yields. There are several reasons as to why grazing did not have an impact on soil compaction.

Typically cover crops are only planted after corn, which minimizes grazing to every other year on a particular field.

Grazing typically happens in late-fall when the soil is less likely to be wet compared to spring.

The natural freeze-thaw and wetting-drying cycles can cause a natural breakup in any soil compaction.

Lack of infrastructure, resources, and time overlap with row crop farmers to utilize the fields are often the biggest hurtles for cattle producers when it comes to grazing cover crops. Some things to keep in mind when considering implementing cover crop grazing into your cattle operation is the ability to have water readily available to the livestock in fields, sturdy fencing, and a well communicated operation plan between cattle and farming producers.

Conclusion

The decision to use cover crops and utilize grazing as a feeding strategy is going to differ between producers. Crop preferences and strategies will change based on land availability, local resources, and operation

plans. When it comes to choosing when and what forage species to plant make sure to keep in mind what season of grazing you are targeting and the costs associated with getting the plant into the ground.

The utilization of cover crops has a significant impact on both agronomic and animal benefits. Over the years, as cover crops have gained popularity farmers and ranchers have experienced several positive benefits like soil health improvements and feed cost savings when cover crops are either grazed or harvested. As a row crop grower and/ or cattle producer, the utilization of cover crops is something that needs to be considered especially with the rising costs of growing cash crops and raising livestock.

Utilizing Drought Stressed Forages in Cattle Rations

With much of the upper Midwest and western third of the country experiencing some severity of drought this year, thinking about how we are going to manage drought-stressed forages might be creeping into producers' minds.

Nitrate accumulation in plants is caused by low light conditions, severe weather and/or herbicide application. Even though nitrates at reasonable levels themselves are not toxic to animals, nitrates are reduced in the rumen to nitrites and ammonia, which can lead to nitrite poisoning. Nitrites are absorbed into the blood and reduce the ability of the animal to transport oxygen from the lungs to the rest of the body, which can ultimately lead to suffocation.

The level of nitrates varies by plant species, stage of maturity, part of the plant, and the amount of nitrogen applied as fertilizer. Oats, corn, wheat, sudan grass, sorghum-sudan hybrids, bromegrass, orchard grass, johnsongrass, kochia, fescue, barley, rape, sunflowers, and sweet clover are notorious for accumulating nitrates when under stressed conditions (i.e. excessive fertilization or water stress from recent rain after a period of drought). A young plant that is growing fast and taking up a lot of nutrients has a greater chance of being high in nitrates. Nitrates tend to accumulate in the lowest third of the plant. To avoid those nitrate concentrated parts of the plant, strive to leave 6-15 inches of stalk in the field.

Cutting hay or silage on a sunny day starting after noon, when the plant has had time to convert accumulated nitrates to proteins reduces the nitrate concentration in harvested forage. In drought situations where forages have been heavily rained on, wait 4-10 days before harvesting. Rainwater or irrigation tends to stimulate nitrogen uptake by the plant. Also keep in mind that a field heavily fertilized with nitrogen has more nitrogen available for the plant to convert to nitrates.

Unlike baling dry forages, ensiling forages will reduce nitrates by 40 to 60%, as some of the nitrates are utilized by bacteria during the ensiling process. For this reason, many producers favor ensiling drought-stressed corn so it can be utilized as a feedstuff. Manage nitrate load by ensiling the feed if possible, testing for nitrate level after fully ensiled, diluting high nitrate feeds in the ration to limit total ration nitrates, and feeding a balanced diet. In corn plants that fail to make grain, much of the energy is trapped in the stalks, so the silage will have an energy value surprisingly close to that of normal corn silage, and typically higher protein. The energy density of the forage part of a plant decreases with maturity so harvesting the failed corn as silage needs to be done at an earlier maturity than normally harvested. The whole plant moisture content should be approximately 65% to optimize fermentation and ensure a reduction in nitrates.

Avoid feeding green chop silages that have been allowed to heat. Heating, without ensiling, converts nitrates to nitrites which are more toxic. With all ensiling; filling fast, tight packing, and immediate sealing is essential to insure good fermentation. Inoculants, bacteria, and acid-based preservatives are also an option that can be added when ensiling to encourage an optimum environment which can reduce storage losses and increase shelf life. Severely drought stressed corn may contain less of the important naturally occurring bacteria that are helpful for ideal fermentation. Be certain silages have had at least 4 to 6 weeks (or longer) to ensile completely prior to feeding. Test the forage with a representative sample to determine an approximate nitrate level but remember the level is of the sample taken not the whole pile. Data collected by KSU showed when sampling 23 bales, they averaged 2,764 ppm NO_3 with a range of 1,525 to 6,250 ppm Nitrate (NO_3) which demonstrates that there could be pockets or bales of high nitrate feeds within a stack or pile that averages a moderate or low level

of nitrates.

If test samples do come back with concerning nitrate concentrations, one option to still utilize those feedstuffs is by diluting the higher nitrate feed with lower nitrate containing feedstuffs so the total diet nitrate concentration is safe. Ruminants can be acclimated to a high nitrate level by slowly increasing the total dietary nitrates, much the same way feedlot cattle are adapted to a high grain diet. Feeding a balanced diet will maximize rumen function and allow for better conversion of nitrates by the rumen microorganisms. Urea can be utilized if the diet is low in protein. The risk of nitrate poisoning is less in high-energy rations than low-energy rations. The safest class of cattle to feed higher nitrate feeds is to growing cattle. Feed your lower nitrate feeds to pregnant animals and your higher ones to growing animals.

Comparison of nitrate reported levels and feeding recommendations.

Nitrate Levels (% DM)	Nitrate Ion (NO3-) ppm	Nitrate-N (NO3-N) ppm	Feeding Recommendations
0 - 0.44	<4400	<1000	Safe to feed to all classes.
0.45 - 0.88	4,400-9,300	1,000-2,100	Usually safe to feed with balanced diet. Limit to 50% of DM intake in pregnant animals.
0.89 - 1.50	9,300-15,000	2,100-3,900	Limit to 20-25% of DM intake. Do not feed to pregnant animals.
> 1.5	<15,000	>3,900	Toxic

Grazing can be an option but is higher risk because the animals do not naturally select against feeds high in nitrates. If you have to graze forages that could be higher in nitrates be sure to not overstock the pasture or strip graze. Supplement the animals on the pasture (more at the beginning to acclimate the animals). Graze a week after a killing frost, if possible, to prevent additional nitrate and/or cyanic acid accumulation.

If you have more specific questions, need help with feed sample collection/interpretation of sample results or want to discuss options on the best way to use drought-stressed forages in your rations, give Great Plains Livestock a call. We will be glad to help!

What are your corn stalks worth?

Hay, $/ton	$ 50.00	$ 75.00	$ 100.00	$ 125.00	$ 150.00	$ 175.00	$ 200.00	$ 225.00
Grazing Corn Stover, $/acre	$ 30.00	$ 45.00	$ 60.00	$ 75.00	$ 90.00	$ 105.00	$ 120.00	$ 135.00

Fall 2022

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