By Clinton Laflin,
Livestock Production Agent

Corner Post CONVERSATIONS

K-STATE Research and Extension | Midway District

"AS I SEE IT"

Spring is a season of renewal. Calving is underway for many in Midway District, we are ever closer to grass green-up, and many of us have recently bought our herd bull prospects for the year to turn out with spring calving cows this summer. A common question I get this time of year is what I suggest for stocking rates for area pastures for the quickly approaching grazing season…to which I respond, "it depends." Classic extension agent answer, right?

Stocking rate is defined as the land area allocated to each grazing animal for a specific length of time. Stocking rate influences:

1. How well the plant can recover from grazing during the growing season
2. Future forage production
3. The quality of the available forage
4. Animal performance
5. Long-term change in species composition

Many livestock operations base their stocking rate on tradition, the advice of their neighbors, financial pressure, research results, or simply a best guess. While that may work at times, it is best to match your stocking rate to the carrying capacity of the grazing area for that specific situation each year.

Producers have great resources at their disposal to figure an accurate stocking rate each year. You can work with your local NRCS or extension office to build a "grazing plan," observe grazing habits and forage utilization of your cattle over time to ensure they have enough forage, and change stocking rate "rules of thumb," as drought or plentiful moisture is present.

University research indicates that a moderate grazing intensity will yield the best long-term results for rangeland health and economic gain.

As a general rule, no more than 50 percent of the current season's growth should be removed during the growing season. By leaving sufficient leaf area, the plants can produce enough foodstuffs for current growth and to rebuild stored food reserves.

To maintain 50 percent of the leaf area, about 2 /3 of the current season's leaf length can be removed at any one time.

Google search these helpful KSU resources to learn more:

MF1118 Stocking Rate and Grazing Management (ksu.edu)
Considerations for Pasture Turn-out – Beef Tips (k-state.edu)
MF515 Grazing Distribution (ksu.edu)

I am happy to answer questions, or print these resources off at the office. Please email me or call the office if I can help further. Best of luck in the 2024 grazing season!

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This newsletter is designed to provide you with timely information on relevant issues facing livestock producers today. If I can assist you moving forward please contact me.
Looking forward to working with you!

MINERAL SUPPLEMENTATION

Although, the upcoming grazing season may be hard to picture at this point, it's not too early to begin making preparations. It can be challenging to select a mineral program, as there are many different products and mineral formulations currently available.

When evaluating mineral supplements the phosphorous concentration may be used as a basic guide to determine if the mineral fits the production stage of the herd and forage base. Phosphorous is one of the most common mineral deficiencies in grazing systems around the world and is one of the primary reasons we provide mineral supplements to grazing beef cattle.

The table below illustrates the amount of phosphorous required in a mineral supplement required for cattle at various production stages consuming forages with different phosphorous concentrations.

Forage phosphorous concentrations vary and are typically greatest during the spring and lowest in the winter. In Kansas, phosphorous content of native range during the grazing season is typically between 0.15 and 0.20%. Thus, the maintenance requirements of lactating cow (20 lbs milk/d) could be met by a mineral with at least 8% phosphorous (average of 6 and 10 in the table.)

	Total diet P, %			
	0.05	0.10	0.15	0.20
	--------% P needed in mineral supplement--------			
Maintenance				
1000 lb BW	8	6	6	6
1200 lb BW	10	6	6	6
1400 lb BW	12	8	6	6
Gestation				
Last 1/3	16	10	6	6
Lactation				
20 lb milk/d	16	16	10	6
30 lb milk/d	16	16	16	6

Intake assumption: 2% bodyweight during maintenance and gestation. Intake increases with milk production

Wright, 2003

By: Justin Waggoner
KSU Beef Systems Specialist

PROPER SEMEN TANK HANDLING

Breeding season will soon be here, and those that use artificial insemination (that's AI in my world) may be busy delivering or picking up semen stored in a liquid nitrogen tank. Unfortunately, many of the people involved with moving these tanks may be unaware of the safety precautions they should be taking when doing so. Understanding more about liquid nitrogen and its properties will reduce complacency and help prevent accidents.

Nitrogen in a liquid form (liquid nitrogen, LN) is very cold and serves a cryogenic purpose in storing and preserving semen. To remain a liquid, it must be kept at very low temperatures. The semen tanks we use are well insulated and serve this purpose.

As the liquid nitrogen is exposed to warmer temperatures it changes to vapor and the resulting gas form now takes up 700 times the liquid's volume. When this happens the nitrogen gas displaces oxygen. In an enclosed area this can deplete the amount of oxygen to the point where there is not enough oxygen for life.

The level of oxygen in clean outdoor air is 20.9% and supports life. A potentially dangerous environment is reached when oxygen levels decline to 19.5% or less. Humans are unable to detect the nitrogen in the air (no color or odor) so in an oxygen depleted environment an individual may feel dizzy, confused, or just slip into unconsciousness without any awareness of a possible issue before complete asphyxiation.

ABS Global (ABS), located in DeForest, WI, produces and delivers semen all over the world. This organization has conducted studies that help us understand some of the safety issues with transporting LN in semen tanks. When they placed two newly filled tanks in the back seat of a crew cab pickup, it only took 3 minutes before the cab contained unsafe oxygen levels. At the end of 60 minutes, there was only 14.7% oxygen in the cab. If one of the tanks was allowed to tip on its side, it took less than one minute for oxygen to decline to 18.3%.

Liquid nitrogen tanks are designed to vent around the slots in the stoppers, because without this they would explode. Factors such as the age of the tank can further impact the likelihood of undetected leaks and the risk of hauling a semen tank inside the closed cab of a vehicle. The extra space in the pickup cab may seem like a convenient place to haul a tank, but not if it puts lives in danger. Rather, take the time to develop a plan to secure the tank in the bed of the pickup for transportation.

By: Dr. Sandy Johnson, KSU
Extension Livestock Specialist

Proper Semen Tank Handling Continued

To keep the bottom of your LN tank from developing leaks do not store directly on concrete or drag or roll the tank across the concrete floor. For larger tanks, a base to hold the tank with rollers on the bottom is very helpful. Avoid actions that will result in denting the outside of the tank and subsequent damage to insulative properties. The stopper should not be inserted if it contains any moisture to prevent freezing in place and interfering with normal venting. Replace a damaged or dysfunctional stopper. Frost or ice anywhere around the lid or elsewhere is a sign of tank failure and immediate steps should be taken to transfer contents to a functioning tank. Make sure the tank is upright and secure in any storage location.

Exposure of skin or other tissues to LN or substances cooled by LN can result in severe burns. Wear eye protection and gloves when handling semen. A straw that explodes when it hits the thaw bath becomes a dangerous projectile.

Use tweezers to move individual straws from canes to the thaw bath. While it is good to be focused on management to optimize cow response to AI and estrus synchronization, don't lose sight of the importance of all team members that help make that happen and their safety. Respecting the properties of liquid nitrogen by practicing safe handling from moving to storage and insemination is sure to benefit all.

Figure 1: Proper semen handling technique. A. Straw removal near to the neck of the storage tank. B. Use of tweezers and gloves for operator safety. Picture and Instructions courtesy of University of Florida Extension

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