

ANIMAL BEHAVIOR & GRAZING MANAGEMENT

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SIX YEARS OF RESEARCH TEXAS AG EXPERIMENT STATION, THROCKMORTON TX

- Compared the following grazing scenarios
- HC- Heavy stocked continuous grazed
- MC-Moderate stocked continuous grazed
- DR-Deferred rotation
- RG-Heavy stock, rotational grazing

STUDY RESULTS-6 YEARS OF DATA

Scenario	Stocking Rate	Conception rate	Pounds/acre	Weaning weights
HC	12 acres/pair	89%	466	579
MC	16 acres/pair	93%	467	574
DR	15 acres/pair	95%	508	593
RG	10 acres/pair	89%	439	550

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Scenario	Lbs/acre	Profit/cow	Profit/acre
HC	466	60.61	5.35
MC	467	69.67	4.46
DR	508	93.12	6.47
RG	439	62.72	6.63

GRAZING ANIMALS

- Intensely graze in the morning and at dusk.
- Unless forage is short, cattle wrap their tongues around it, they have wide mouths with inflexible upper lips. Eat more dead material, cannot be very selective.
- Goats & sheep, have narrower mouths and flexible lips, allows them to be very selective and can select leaves of woody plants.
- Cattle improve their diet quality by taking smaller bites, than capable of. They do this when short green grass is mixed with dry forage. They must graze longer.
- Sheep & goats require less food, can be more selective and spend more time searching for high quality forage.
- When moved into new paddock, they check out the boundaries and then move into the pasture.

GRAZING ANIMALS

- Cattle move in straight lines between points during grazing
- Sheep move parallel to fence lines
- Animals learn what to eat and what to avoid from older animals
- They will try new forages in small amounts
- Toxins must be sensed by the brain within 4-12 hours after ingesting for aversion to occur
- They use all of their senses in selecting forage, but taste is the most important
- Ruminants do not see colors, but distinguish between shades of gray
- Hearing is a very keen sense

GRAZING ANIMALS

- Animals remember places, bad experiences
- Make movement from paddock to paddock, positive experience
- Can be trained to go over or under a fence
- Move animals with low stress handling techniques



WHEN DO ANIMALS GRAZE?

- Graze between 7-12 hours a day
- Sunrise grazing 3-5 hours
- Late afternoon grazing 3 hours
- Shorter, less regular grazing at midday and during the night
- Remaining time-ruminating and resting



WHERE DO THEY GRAZE?

- Continuous grazed pastures-cattle rarely seen in the same location for more than two days
- When forage quantity and quality vary-may not return to sites with low quality for as long as 21 consecutive days
- Plant eating animals use two kinds of spatial memory to locate food
- Reference memory-map-like of the forages, can remember at least 20 days
- Working memory-remember where they've been recently
- Relocating animals from unfamiliar terrain, takes them about a year to adjust, spend more time grazing, but eat less, walk greater distances, suffer more weight loss, more likely to eat toxic plants.



GRAZING MANAGEMENT STRATEGIES

- Water placement is crucial
- Strategic placement of salt, mineral and protein can manipulate grazing distribution. Move in increments of 400 yards to new location.
- Mob grazing-ultra-high stocking rate (greater than 100,000 pounds body weight per acre)short grazing durations, longer rest periods versus Rotational grazing

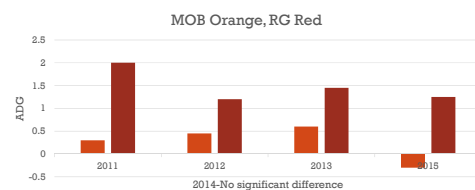


MOB GRAZING VS ROTATIONAL GRAZING

- 5 year study by University of Nebraska
- Lincoln's Barta Brothers Ranch in North Central Nebraska
- MOB grazing was 200,000 pounds of Body weight, 12 hour rotation
- RG grazing was 5000 pounds of Body weight, 10 day rotation



ADG YEARLING STEERS, 5 YEARS NEBRASKA, MOG,0.5,200K RG,10,5K



FATE OF STANDING FORAGE MOB OR RG- ONCE OR TWICE A YEAR, NC NEBRASKA



OTHER OBSERVATIONS

- Cattle in MOB took 5551 steps per day, while RG cattle took an average of 1592 steps. Likely result of long, narrow paddocks.
- Follow up study, using square shaped paddocks, cattle in MOB walked less, but still significantly more than RG.
- Subtle shifts in grass species-lose shorter growing grass and legumes, both systems lost bluegrass- may be due to weather events than grazing management.
- Differences in soil temperatures and soil moisture, needs further research.
- Michigan study cool season pastures-no difference in cow's body condition
- Arkansas-warm season pastures, cow BCS much less in MOB grazing, but calf weights not affected.
- Nebraska- MOB ADG .4 lbs, RG 1.5 lbs.

WHAT DO THEY WANT?

- 1st choice- New growth or regrowth
- 2nd choice-Mature green leaves
- 3rd choice-Green stems
- 4th choice- Mature dry leaves
- 5th choice-Dry stems
- Nutritional wisdom? No scientific evidence to support this.

FORAGE AVAILABILITY & GRAZING

- Spend less time grazing, when forage is plentiful and good quality
- More time grazing when forage is limited and poor quality
- Higher stocking rates= more time grazing
- More time grazing when pasture is short
- One study showed heifers increased grazing time average of 3.5 hours per day as the amount of available forage decreased.
- Small herds in small pastures-stay together
- Graze together when forage is plentiful, and as individuals when forage is scarce.
- Cattle avoid areas that have their feces, sheep are not as particular. Urine is only a short term aversion

WEATHER AFFECTS

- A study in Oklahoma-85 degrees, 45% humidity, grazing time reduced by 2 hours
- During prolonged hot weather, night grazing can account for 80% of the grazing time.
- Midday grazing during sunny summer days, indicates forage is limited.
- Black cattle seek shade quicker than lighter colored cattle.
- Brahman influenced breeds can withstand more heat
- General rule 2 gallons of water/100 pounds of bodyweight
- Water intake can double during extreme temperatures or humidity
- Don't handle cattle during heat stress days

SHADE RECOMMENDATIONS

- Temperatures over 90 degrees F-panting, sweating and decrease feed intake
- Humidity and high nighttime temperatures, aggravate the effect
- Natural or portable shade-20 to 50 square feet/adult cow
- Portable shade needs 10 to 12 feet of overhead clearance
- Shade cloth should be at least 80% or a full roof

RECOMMENDATIONS

- Measure amount of available forage, match resources to cattle needs
- Purchase replacement animals from areas with similar topography
- Offer supplemental feeds during midday to avoid grazing interruption
- Use power of observation to study behavior, Cattle become easier to handle in a rotational system
- When moving cattle some will lag behind- put gates in the corners so the corners act as a funnel
- Calves will stray from their mothers, make sure exterior fences will hold calves, you can use th strategy so that calves have access to the lush grass in the next paddock, but can still get back to mama.
- Cattle associate a row of fence posts with that "hard to see" hot wire, they can become reluctant to cross the fence posts, even when the wire is down, make gate openings really wide, so they are willing to go through.



GOATS OFF GRID

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SARE Grant Program
USDA-Producer Grant



PURPOSE

- Documented fact-goats can manage brush and noxious weeds
- Main drawback-keeping goats in pasture, fencing is costly
- Grant, to see if goats can be trained with shock collars
- Goats then grazing within the wireless fence
- Use Solar panel to generate the power for the wireless fencer
- Fencer & shelter rotated around pasture



TRAINING THE GOATS

- Set up the fencer
- Flag the perimeter of the area
- Put collars on goats
- Walk goats up to the perimeters
- Allow goats to test the collars
- Training twice a day for two weeks



