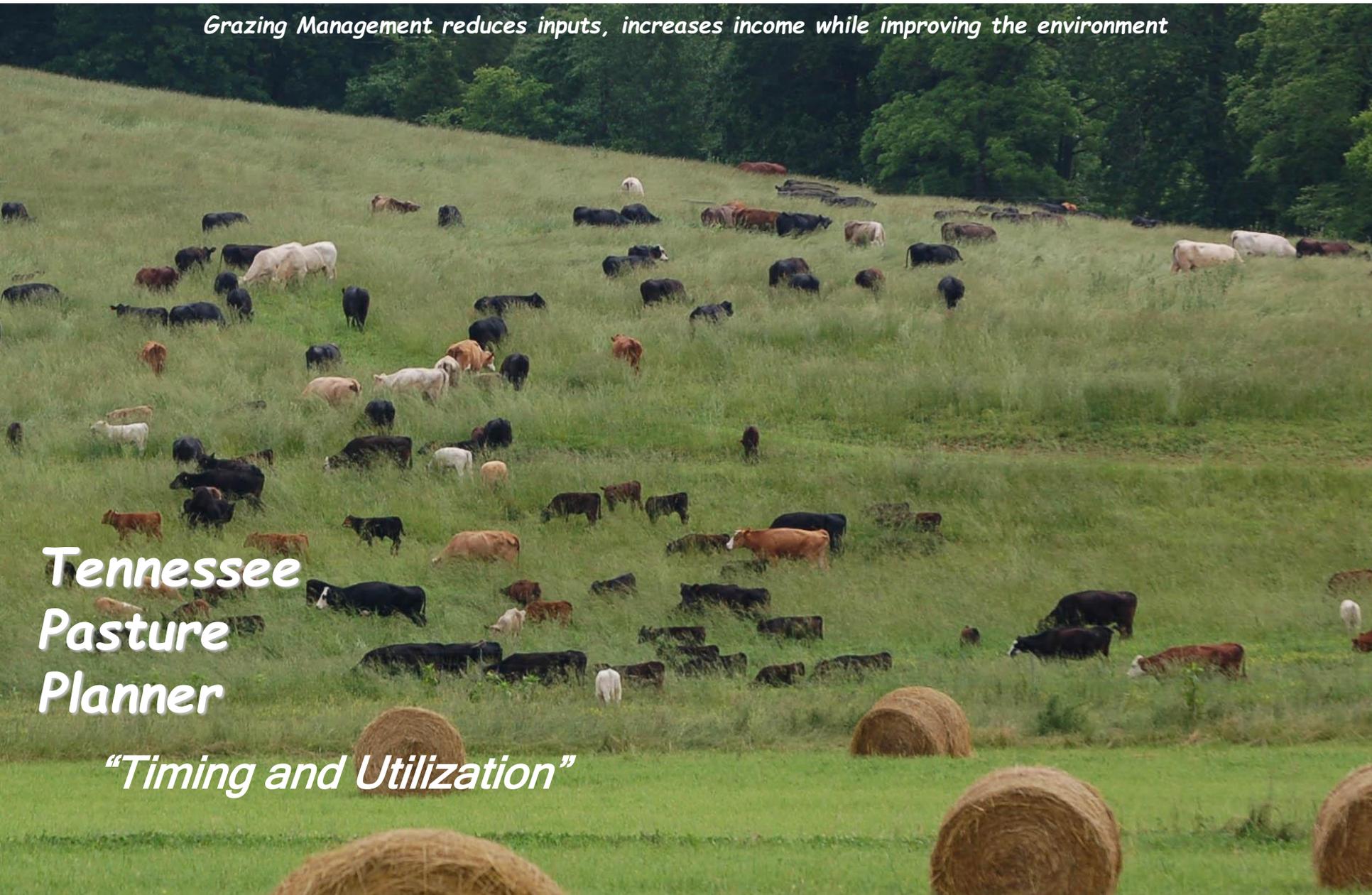


Tennessee Grazing Coalition

Grazing Management reduces inputs, increases income while improving the environment

**Tennessee
Pasture
Planner**

“Timing and Utilization”



Body Condition Scoring (BCS) Guidelines

Trait	Condition Score								
	Too thin			/ Just Right /			Too Fat		
	1	2	3	4	5	6	7	8	9
Visible Ribs	All	All	Most	3-5	1-2	0	0	0	0
Visible Spine	++++	+++	++	+	No	No	No	No	No
Brisket Fat	No	No	No	No	No	+	++	+++	++++
Tail Head Fat (Pones)	No	No	No	No	No	No	+	++	+++
Muscle Loss	+++	++	+	No	No	No	No	No	No

- In general, if cows are too thin, (condition score 4 or less), they are likely to have trouble re-breeding and probably need improved grazing or supplement.
- Cows with 5 BCS may need some additional supplement or high quality pasture
- Cows rating score 6 or 7 need minimal fall adjustment in management
- Fat cows, score 8 or 9 are often too fat because they are not pregnant or skipped calving last year. If she has a good calf and she is pregnant, keep her!
- +++++ indicates an increase or decrease in the trait relative to a 5 BCS

Recommended Minimum Levels on Mineral Feed Tags for Beef Cattle

Element	Level
Calcium	10 to 24%
Phosphorus	5 to 12%
Magnesium	2%
Magnesium	10 to 16%
Sulfur	1%
Manganese	2000 ppm
Copper	1750 ppm
Zinc	3500 ppm
Cobalt	20 ppm
Iodine	50 ppm
Selenium	44 ppm

- Mineral supplementation is recommended year around
- Calculations based on 2-4 oz mineral consumption
- Producers need to switch to a high magnesium mineral at least 60 days before the calving season
- Sulfur is generally in excess in TN and can be antagonistic to copper, zinc, iron and manganese

Gestation Table Based on 283 Days (Noble Foundation)

Breeding Date	Calving Date	Breeding Date	Calving Date	Breeding Date	Calving Date
1-Jan	13-Oct	7-May	16-Feb	10-Sep	22-Jun
8-Jan	20-Oct	14-May	23-Feb	17-Sep	29-Jun
15-Jan	27-Oct	21-May	2-Mar	24-Sep	6-Jul
22-Jan	3-Nov	28-May	9-Mar	1-Oct	13-Jul
29-Jan	10-Nov	4-Jun	16-Mar	8-Oct	20-Jul
5-Feb	17-Nov	11-Jun	23-Mar	15-Oct	27-Jul
12-Feb	24-Nov	18-Jun	30-Mar	22-Oct	3-Aug
19-Feb	1-Dec	25-Jun	6-Apr	29-Oct	10-Aug
26-Feb	8-Dec	2-Jul	13-Apr	5-Nov	17-Aug
5-Mar	15-Dec	9-Jul	20-Apr	12-Nov	24-Aug
12-Mar	22-Dec	16-Jul	27-Apr	19-Nov	31-Aug
19-Mar	29-Dec	23-Jul	4-May	26-Nov	7-Sep
26-Mar	5-Jan	30-Jul	11-May	3-Dec	14-Sep
2-Apr	12-Jan	6-Aug	18-May	10-Dec	21-Sep
9-Apr	19-Jan	13-Aug	25-May	17-Dec	28-Sep
16-Apr	26-Jan	20-Aug	1-Jun	24-Dec	5-Oct
23-Apr	2-Feb	27-Aug	8-Jun	31-Dec	12-Oct
30-Apr	9-Feb	3-Sep	15-Jun		

Water

- Don't allow trough to overflow, install overflow pipe to drainageway
- Reduce freezing allow 1/16" of water to flow through trough
- Ball waterers, set slight gap around balls, drain when not in use
- Check heat lamps and tightness of pump house
- Break ice. Painting tank black with 1/2 tank covered reduces freezing

Shelter - Cattle in good body condition tolerate cold weather best

- Wet muddy cattle are most vulnerable to wind and cold
- Round hay can be strategically placed to provide wind break
- Living barn is a small clearing facing east surrounded by trees, preferably cedar or evergreen

Herding

- Slow down, speak in a normal voice
- Best if one person calls and another keeps the group together
- To get livestock to herd up, rear person should zig zag back and forth at edge of flight (recognition) zone
- Edge of flight zone is when animal begins movement
- Ease in and out of flight zone, apply pressure then release pressure
- Position yourself so the animal can see you and calf
- Movement draws movement
- Direct the lead animal not the rear animal

Feeding/Grazing: Consider changing calving date to March for reduced hay feeding

- Fall calving is recommended when t. fescue is the primary pasture due to breeding problems
- Fall calving allows high use of spring flush of growth, requires better quality pasture or hay
- When conditions are right feed hay in remote areas
- Unroll hay daily or use hay rings
- Unrolling hay in front of temp fence reduces waste
- Ideally locate feed areas 300' from water on uplands surrounded by grass
- During wet times feed on heavy use areas
- Baby calves can be trampled around hay rings

January Stockpiled grass is 2 to 5 times cheaper than hay

Ration Pasture like you do hay



J. Adkins, Sevier Co.

“Health issues that show up in animal is a symptom of stress the animal was subjected to 60 days or more prior to calving Ian Mitchell Innes”

Seeding- (drought reduced stand of grass perfect place for legumes)

- Consider managing existing forage in lieu of seeding more
- Legumes can improve quality and quantity of forage
- Renovate with legumes, broadcast/frost seeding. As a mixture/acre: 2 lbs. Ladino white clover, 4 lbs. red clover, plus 8 lbs. of kobe lespedeza on upland fields. Alone/ac.: 2 lbs. white clover, 8 lbs. red clover, or 25 lbs. of kobe lespedeza
- Consider dragging manure piles: wild turkey will scatter manure particularly if some corn is present

Animal Temperament - Cattle with faster exit speeds from the working chute had lower weight gains, more sickness, and more dark cutting meat. Cattle with thin foreleg bones exited faster. Holsteins with more white on their head exited faster

- Exit score of animals leaving the working chute
 - 1) Walk - have questionable mother ability
 - 2) Trot - desirable animal
 - 3) Canter - evaluate temperament
 - 4) Jump - consider culling or improving temperament

Feeding

- Feeding in the afternoon improves number of calves born in the morning
- Stockpiled t. fescue can hold good quality for dry beef cattle through February
- Feed on weedy areas & spots of bermuda
- Do not feed next to water or other sensitive areas
- Heavy Use Area runoff into livestock drinking water can cause disease
- Determine fertilizer and seeding needs based on hay, feed & livestock needs

February
Think
Clovers!!!



Grazing-

- Limit graze or fence out streams/ other sensitive areas
- No-tilled winter annuals support animals better
- Plan pasture utilization (Water, fence, feed, mineral, shade)



G. Brann, White Co.



Feed on weedy area: to tread weeds down or thin soils to manure area and build organic matter, unrolling hay on productive soils will increase production

Weed Control - see June for warm season weed control

- If you are constantly having to spray you need to change mgmt: raise grazing or clipping ht, use high density grazing, more animals on small acreage for short duration < 7 days, rest pastures longer 14 to 45 days,
- Consider spot spraying weeds, follow label recommendations
- Multi-species and high density grazing helps control weeds
- Adding goats and/or sheep to your grazing changes weeds to valuable forbs

Fertility -consider cost prior to fertilizing

- 100 cows on 1 acre for 11 days provides equivalent of 150 lbs of 19-19-19
- Value of manure from one cow is over \$200/ year
- High density grazing 4 or more animals per acre improves manure distribution
- Spread waste hay, mud, and manure from feed areas

Livestock

- Feed magnesium mineral to prevent grass tetany (see table)
- Proper phosphorus fertilization enhances forage magnesium uptake and lowers the risk of grass tetany
- Too high soil potassium can kill cows by increasing the incidence of grass tetany
- Young learn from mother, exposing calves to feed and forage with mother improves intake.



March- Continue to rotate cattle or confine and feed till pastures begin to grow, never open up all of the gates

J. Adkins, Macon Co.

"Livestock are the ultimate machine, they run on solar energy and reproduce themselves" Greg Judy

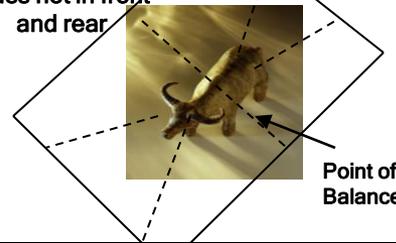
Seeding or Renovation

- Clean and calibrate drill
- Smooth and re-seed hay feeding areas and heavy traffic areas
- Evaluate legume stands for reseeded
- Certified red clover seed typically last 3 yrs where common only last 2 yrs
- Place small seed a 1/4 to 1/2 inch deep
- Planting too deep is a common problem
- Slow down for more precision seeding

Grazing- Drought management begins by managing what you have when you have it!

- Leave residual height of 3" tall fescue & annual ryegrass; 4" orchardgrass & winter annuals
- If rotation stopped during the winter, begin pasture rotation before forage gets ahead of cattle
- Rotate quickly through pasture, practice take half leave half principle (i.e. 6" at turn in graze no lower than 3").
- Slowly introduce livestock to tall fescue if they come from an area that does not have tall fescue
- Limit graze winter annuals (winter annuals cost approximately \$50.00/ac. less than hay)
- Consider prescribed burning native grasses, consult Tennessee Division of Forestry for a burn plan & permit

Work animals on sides not in front and rear



Point of Balance

Livestock- See Gestation, Body Condition & Mineral Tables

- Continue feeding magnesium mineral until daytime temperatures are consistently above 60° F
- Breeding now will give Jan. and early Feb. calves; and reduce problems with high endophyte tall fescue , down side is calving in Jan isn't working with forage cycle and natural birthing season
- Use best quality pastures during the breeding season
- Order of animals nutritional demands: maintenance, lactation, growth, breeding (This is why first calf heifers are hard to rebreed)

Grazing

- Bloat is most likely when livestock are hungry and turned in on wet legumes
- Rotate fast when growth is fast
- 3" stubble allows t. fescue to capture sunlight for quick re-growth
- Graze to prevent shading of legumes
- 5" to 8" of grass at turn in allows animal to get a mouth full
- Take half ht./leave half ht. works great for refreshing tromped on pasture

April- rotate cattle fast when forage growth is fast



G. Brann, Cannon Co

"Managing cattle access to shade even in cooler months improves manure distribution" Raymond Cooper, Cannon County

Animal Behavior

- High hair whorls above the eyes and animals with no hair whorls are more flighty
- Tail swishing and a high head are signs of fear
- Walking from the head chute toward animals in the alley moves animals toward the head gate
- Zig zagging in front of the herd slows them down
- Settle (calm) animals after moving them to a new area, allow to graze
- Apply pressure and release pressure to keep animals grazing in the desired area

Stock Density (Amount of live weight per acre per day)- Powerful tool, applying pressure to paddocks then turning it off, resting pastures

- ✓ High concentration of animals results in uniform grazing, higher utilization, consumption of weeds, uniform manure distribution and pulsing of nutrients
- ✓ Vary stock density according to forage growth and utilization needs. Stock density can be varied by changing: animal number, weight, and paddock size
- ✓ Target stock densities (lbs/ac): Lactating dairy 40,000+, Stocker cattle 20,000, Beef cattle 10,000+ (10-1000 lb cattle/ac)
- ✓ Benefits from high stock density begin about 4000 lbs/ac

Native Grasses -best drought tolerance, high production relative to yield

- ❖ 45 day rest from grazing improves grass production and nesting
- ❖ Cost share programs are available for establishment
- ❖ Eastern gamagrass, primitive perennial corn
- ❖ Don't graze Native Warm Season Grass closer than 6"
- ❖ Nesting season for quail is 4/15 -8/15

Seeding- Bermuda grass is an excellent vegetation for heavy use areas

- Seed, sprig, or vegetatively establish warm season forages
- Typically 30% of the forage system should be in warm season forages
- Hybrid Bermuda produces high quality forage when tall fescue is dormant

Fertility- earliest date to fertilize warm season forage

- Over 32% of fertilizer is wasted if soil pH is 5.5 or lower, too many fields in Tennessee are below the desirable pH of 6.5, **soil test!!!**
- For additional cool season grass, apply nitrogen (0-45) in early May



May- Consider warm season forage needs, graze tall fescue close to stimulate existing bermuda or crabgrass

Red sorrel pictured above is an indicator of low pH and low phosphorus. This would be an excellent area to feed hay and sacrifice in winter or in a drought.

G. Brann, Fentress Co.

Breeding date- biggest control of inputs

- Calving in March and April with late May mid July breeding is lowest input
- Need quality warm season forage for cattle to breed in summer

Grazing

- Continue to rotate fast to keep forage vegetative
- Now is a good time to heavily graze broomsedge fields
- Attend NRCS, University, & Ag Dealer pasture walks & field days

June



G. Brann, Macon Co.

Grazing-

- Close grazing stimulates Bermuda grass, crabgrass, dallisgrass
- Keep bermuda grazed or clipped short for best palatability
- Separate water, shade and feed for better animal distribution
- Graze ryegrass hard to make room for warm season forage like bermucagrass, crabgrass, johnsongrass, or dallisgrass.

Cow Days Per Acre =

Cows x # Days

Acres

Note: 500 # calf = 0.5 cow

- Totaling cow days per acre per field is powerful
- Allows comparison of production per field considering inputs and management
- See back page for recording cow days and other records

Weed Control-

- If you apply pesticides year after year, your management is not breaking the cycle of the pest, the best weed control is good pasture management
- High density grazing reduces or eliminates clipping needs
- Consider spot spraying and wick application of herbicide
- Consult Extension Service and herbicide label for weed susceptibility, rates and dates of application

Legumes in warm season grass lower need for costly nitrogen fertilizer

Fertility

- Apply fertilizer for warm season forages according to soil test recommendations and forage needs
- Ideally apply fertilizer prior to 1/2" to 1" rain to reduce fertilizer loss

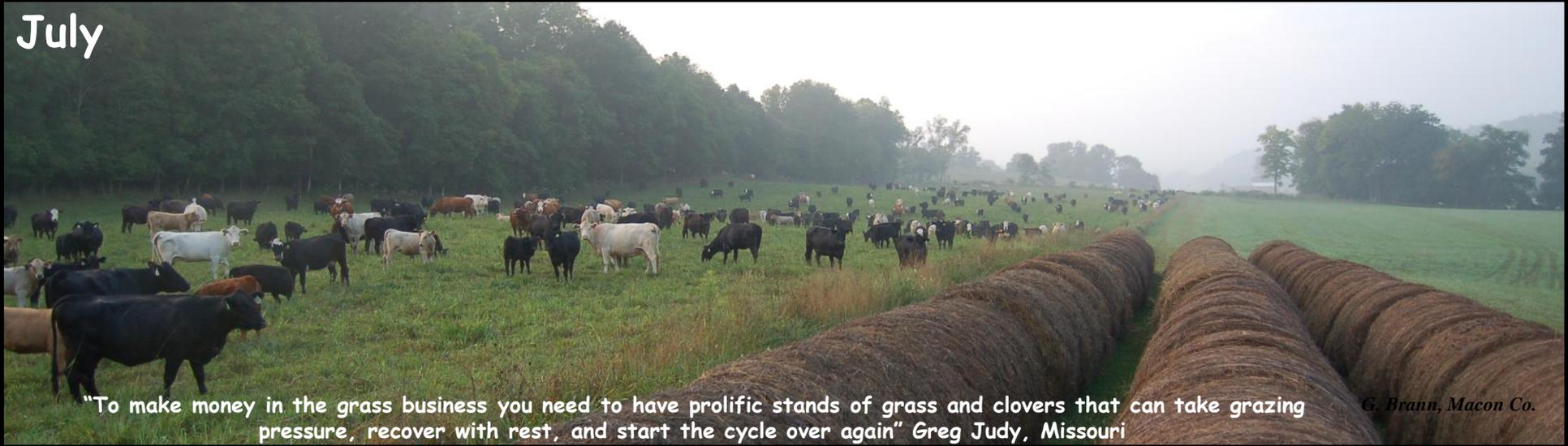
Grazing System Guidelines

- Rotate prior to impacting any resource (forage, animal, water, or soil)
- Follow landscape lines for paddock boundaries
- Keep paddocks square to rectangular if possible
- Locate water so paddocks can be further subdivided
- The paddock ahead should be of higher quality than the one animals are leaving
- Monthly rotations changed to weekly rotations increases carrying capacity up to 20%

Watering Facility-Water

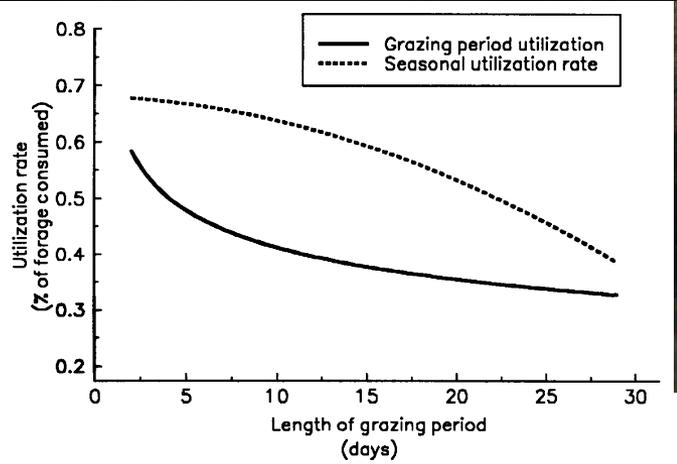
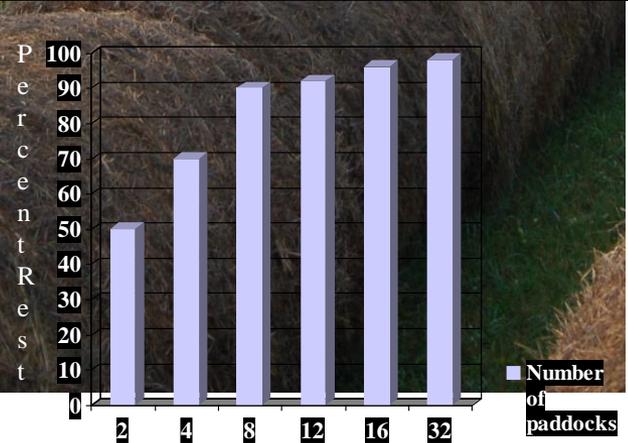
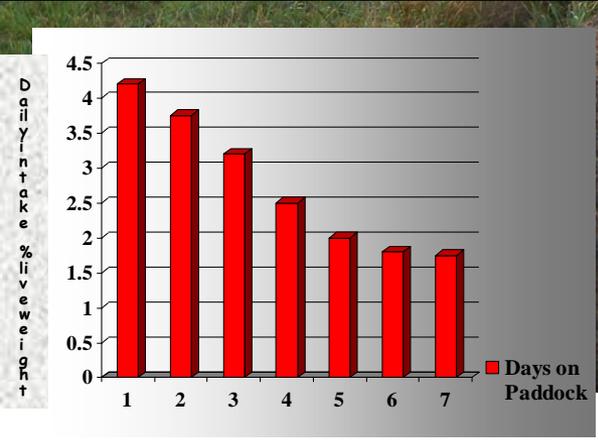
- consumption increases as temperature increases
- ❖ Forage intake drops when water intake drops
 - ❖ Taste of water can reduce intake (sediment, algae, etc)

July



"To make money in the grass business you need to have prolific stands of grass and clovers that can take grazing pressure, recover with rest, and start the cycle over again" Greg Judy, Missouri

G. Brann, Macon Co.



Drought Management-

- Inventory grass and predict how long grass will last
- Close gates, feed hay or supplement on one field till other fields recover
- Multiple paddocks conserve forage for slow growth periods, Slow rotation, bigger paddocks longer rest period
- Consider creep grazing, allowing calves to graze ahead of cows, or early weaning

Weed Control-

- ❖ Grazing weeds in a vegetative stage increases consumption by cattle; goats tend to prefer weeds in late season
- ❖ High density grazing also increases weed consumption
- ❖ Mowing weeds when blooming before seed forms is best; earlier mowing can result in tillering

Water- placing water central in fields allows maximum options for cross fencing

- Properly planned placement of water points improves forage utilization & water quality
- Herds travel as a group if travel distance is over 800-900' or lead animal travels over a hill or leaves shade for water
- Rotational grazing and proper placement of water improves waste distribution by the animal
- Most manure is dropped around shade, water, and hay.
- Separating facilities will improve manure distribution
- Use rack or guard to keep livestock out of open tank

August



G. Brann, Macon Co

"Nothing in high density grazing is wasted if it is trampled on the ground. We are feeding our soil microbes, earthworms, laying down ground surface litter, building soil, increasing organic matter, preventing erosion, holding water where it falls and providing bird nest habitats" Greg Judy, Mo.

Grazing- stockpile grass on winter feeding areas

- Mixed forage species pasture allows the animal a more balanced diet, reduces stress, increases intake and efficiency
- Old disk blade great to cover water line access or for floating brace
- Placing gates or gaps so livestock enter straight or at a 45- degree angle turn reduces wear of the gate area
- Cattle normally graze 6 to 11 hours per day, just before dusk and just after dawn

Seeding- Seed cool season grasses between August 15 and Oct. 1, also good time to apply high density grazing pressure on fields to stimulate seed bank

- What season do you have lack of forage in Spring, Fall and Winter (tall fescue, orchardgrass, winter annuals), Summer (Bermuda grass, NWSG, millets, sorghums). Most producers need more fall production to carry them farther into winter without feeding hay.

Water - the most important nutrient

- ◆ Check springs during low flow period, may need increased water storage if flow is low, septic tank works great
- ◆ Animal's weight = 50-80% water, milk is approximately 90% water

Grazing

- ◆ Normal rumination time is 5 - 9 hours after grazing, adequate rumination indicates a balance of fiber and nutrients
- ◆ During drought confine animals to one paddock or continue to rotate and feed hay till other paddocks recover
- ◆ Do not graze or clip sericea or native warm season grass fields until after frost unless you want reduced stand

Stockpiling: apply 130 to 180 lbs. of ammonium nitrate or stabilized urea to tall fescue; defer grazing until after frost or later

◆ Stockpiling is 2 to 4.5 times more profitable than feeding hay

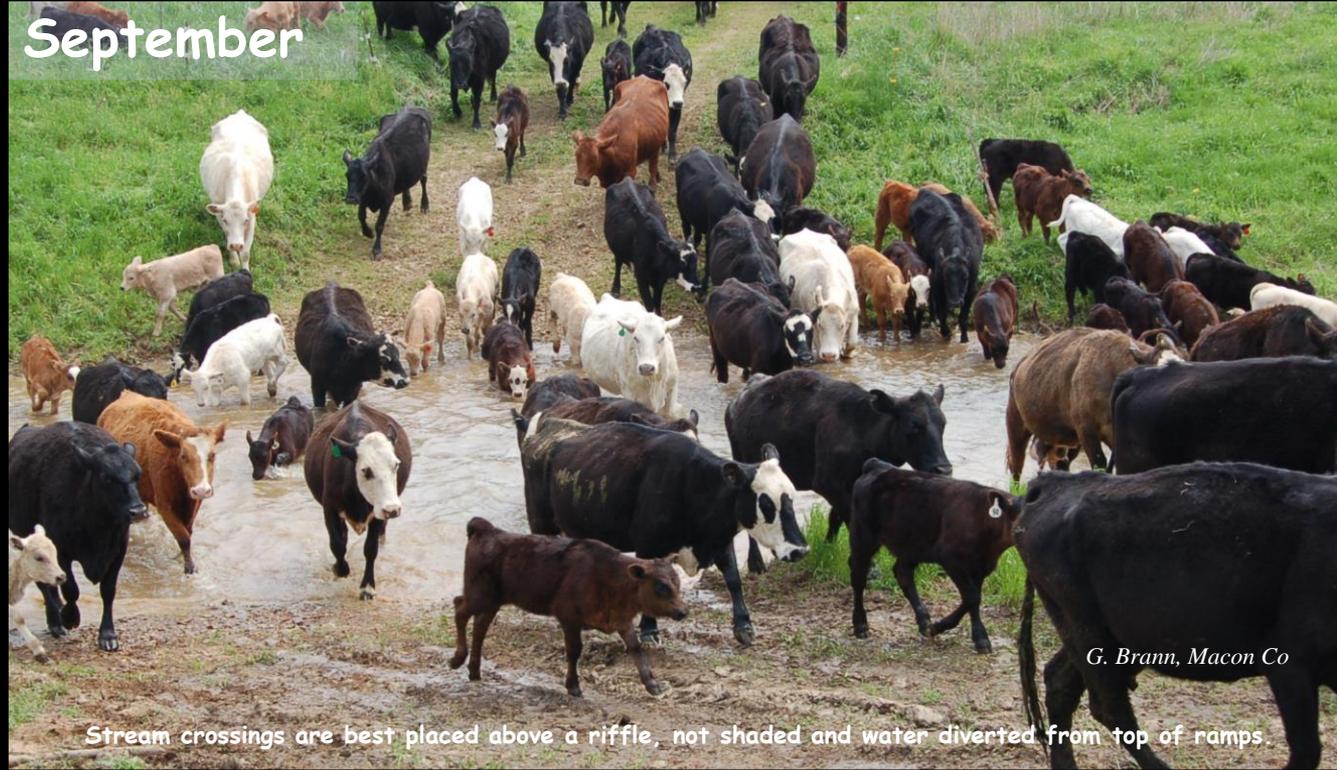
◆ Stockpile ~1 ac/cow

◆ Stockpiling provides 60 to 90 more days of grazing

◆ Tall fescue holds its winter quality better than any other perennial forage

◆ The quality of stockpiled Bermuda grass is not too bad, graze early after frost

◆ Strip graze allowing animals access to 3 days of forage at a time



Seeding- Shape and seed eroded areas, clean out ponds, and perform other earth work

- ◆ Inventory existing plants, many times it's best to manage existing forages, increasing rotation from once per week to 2x a week improves utilization up to 20%, provides paddocks with 42% more rest for re-growth
- ◆ Control weeds and balance fertility prior to seeding
- ◆ When seeding tall fescue seed no more than 1/2 bu. of wheat, best to seed tall fescue alone
- ◆ Seed tall fescue now and overseed with legumes in February
- ◆ Seed winter annuals in warm season forage or where fescue is less than 50% stand
- ◆ No-till is an excellent planting method: don't plant too deep and seedlings must have space

Water Quality

◆ Steers gain over 10% more on high quality water

◆ Water quality can affect growth, lactation, and reproduction

◆ Poor water quality increases diseases: Coccidiosis, Cryptosporidia, Salmonella, E. Coli and Leptospirosis. Calves are affected most

◆ Leptospirosis increases rates of abortion within 2-5 weeks of infection

◆ Hoof action stirs up sediment and organisms lowering water quality

◆ Chronic toxicity = poor weight gain, poor appetite, high susceptibility to infection and abortion

◆ Sulfur causes copper, & selenium deficiency

◆ High iron in water contributes to copper deficiency

◆ Test water if animals have a rough hair coat, unexplained illness, or breeding problems

Seeding - Overseed warm season forages like Bermuda grass with red and white clover reduce N fertilizer by half

- Typically more management is needed not more seed
- Seed winter annuals in warm season forages
- Fertilize perennial cool season forages (40 lbs. N) in lieu of overseeding unless perennial stand is 50% or less

Water

- Winterize equipment, pumps, tanks and buildings
- If building a pond install a 2" or larger supply pipe under the dam with a trough below the pond

Trailing

- Trails typically form between feed, water and shade
- Livestock walk fences and may create gullies if fences are located in drainage ways or up & down hill
- High density short duration grazing reduces trailing
- Access through a gate can magnify trailing problems
- For livestock flow, where possible place gates in corners

Grazing

- Calculate number of cow acre days of grazing left
- Number of cows x acres divided by days = cow acre days
- Be aware of prussic acid (cyanide poisoning) from grazing sorghums and johnsongrass after frost. Grazing is safe 10 days after frost unless re-growth and freezing occurs again
- Nitrate poisoning, nitrate remains in hay, most common in a drought year, test for nitrates, nitrate concentration is highest in the base of the plant
- Place weaned calves on rested "clean" grass that is 5" or taller

October



Grassfed Meat-

- Compared with grain-fed meat,
- Grass-fed meats have 5 times more cancer-fighting CLA {conjugated linoleic acid},
 - Four times more vitamin E,
 - Three times more heart-friendly omega-3s
 - Twice as much beta carotene.
 - Lower in total fat, saturated fat and calories
 - Fatty acids are essential (fats) in our diets
 - The only way to get the correct proportions is to choose grass-fed animal products

Grassfed Beef-

- Ideal if cattle are constant state of gain 1.8 pounds adg
- High adg forages TDN 65%+, 4% + of liveweight availability, 20%+ DM, balanced energy to protein ratio 6:1
- Spring is best harvest time
- Steer finish wt. 100 pounds greater than dam

Conservation Programs

- Contact local USDA/NRCS office about available cost share for conservation practices
- A number of cost share programs are available: CSP, CRP, EQIP, TDA, WHIP and others.
- Contact TDA for TN Agric. Enhancement program cost share on Genetic Improvement, Cattle Handling Facilities, Hay Storage, Milk Equipment and Marketing Incentives 615-837-5160

Feeding Areas - Feed away from water areas, sinkholes, depressions & other sensitive areas

- When possible feed off of heavy use area to improve manure distribution, and lessen cost of spreading
- Annual nutrient composition of beef manure: 85 lb. N, 57 lb. P₂O₅, 190 lb. K₂O or (300 lbs. 19-19-19 +)
- Manure is a benefit spread by the cow on the pasture or it can be a cost and environmental hazard offsite
- Filter runoff from heavy use areas where manure buildup occurs, 30' of good pasture filters nutrients

Livestock

- Check with Cattleman's Association and USDA/FSA about Premise ID
- It's easier to put flesh on animals prior to 3rd trimester

Grazing- If needed begin strip grazing stockpiled tall fescue at water point

- Inventory standing forage available and hay supply
- Determine standing "Cow Acre Days"
- After frost, sweetness and palatability increase in tall fescue
- Forage will last much longer strip grazed allowing animals access to only 3 to 4 days of grazing at a time
- Allocate about 1 ac./30 head / 3 days: adjust according to yield and trial & error
- Electric polywire is a convenient temporary fence for subdividing pasture
- If grazing crop residues, leave 50% or more of surface covered with residue, graze in dry times

November



Grazing

- Start temporary fence at water source
- Strip graze stockpiled tall fescue
- Fence off 3 to 4 days of grazing at a time
- Adjust fencing as needed
- Winter annuals should be limit grazed

Livestock- See Gestation, Mineral and Body Condition Score Table

- Monitor cows body condition score trend up, down, or stable
- Although one group is easier to manage, if needed divide the herd into groups for winter feeding
- Bury dead animals 30" deep, reduces predator problems
- Review the years calf crop and start plans for next years breeding season
- Electric tape tied to post, held at other end moves trained animals effectively

December



G. Brann, White Co

Heavy Use Areas

- Geo-textile fabric is useful to improve longevity of rock
- Uses include: gates, hay storage, feed pad, stream crossing, around trough, around barn, etc.
- Size rock relative to the job: 2"-3" rock for heavy equipment and hay storage, crusher run is standard, 3/8" stone to lime for tender feet
- Backing up when dumping rock prevents wadding geotextile
- Compacting rock improves utility and longevity
- Use a sheep's foot roller, hand held packer, or drive over previously placed rock with a loaded truck
- Maintain rock cover over geotextile

Corral Design- crowd pen best w/ level surface, fill pen half full

- ✓ Crowd pen best if animals see 2 to 3 body lengths up the single file chute before it curves
- ✓ Animals go around the curve, thinking they are going back where they came from
- ✓ Width of V-shaped chute is 18" at bottom & 32" at 5' ht., or 28" width for a straight wall chute

Tennessee Grazing Coalition- partners interested in promoting the benefits of grazing management and Groups Committed to Livestock Production and a Healthy Environment



Natural Resources Conservation Service – Grazing Lands Mission: Coordination, and transfer of technology that meets the needs of grazing land resources, landowners, managers, and the public. Strive to develop Total Resource Management Plans that address all resource concerns. Contact local field offices: <http://www.tn.nrcs.usda.gov/contact/directory/index.html>



Tennessee Association of Conservation Districts: Mission: to take available technical, financial, and educational resources, whatever their source, and focus or coordinate them so that they meet the needs of the local land user for the conservation of soil, water and related resources. <http://tnacd.org/>



Tennessee Beef Cattle Improvement Initiative: Goals: Develop & Implement Marketing Strategies, Provide Producers with Superior Education Programs, Build Information Networks that Serve Producers' Needs, Identify & Promote Profitable Genetics, Improve Forage Production & Management, Market Consumer-Oriented Beef, Provide Information to Improve Cattle Health, Increase Political Support & Funding for the Tennessee Beef Industry. <http://www.tnbeefcattleinitiative.org/>



Tennessee Cattlemen's Association mission is to provide the cattle feeders and producers in the State of Tennessee with an organization through which they may function collectively to protect their interests and work toward the solution of cattle industry problems; and to build the necessary good-will that will bring both governmental and public esteem and recognition to the industry. <http://www.tncattle.org/>



Tennessee Farmers CO-OP remains a cornerstone in the Tennessee communities in which retail outlets and TFC facilities are located. Because its roots reach back into the soil farmed by its organizers, Co-op always has the best interest of its patrons at heart. A knowledgeable, well-trained, and dedicated staff stands ready to serve the needs of each and every customer. Remember: Co-op offers quality products for everyone! <http://www.ourcoop.com/main/home.asp>



The Nature Conservancy The Duck River is considered a "Last Great Place" by The Nature Conservancy, and is widely regarded as the most biologically rich river in North America. Our Duck River Project works with a variety of partners and is committed to supporting landowners in their efforts to improve land condition and protect water quality throughout the upper watershed. <http://www.nature.org/>



Tennessee Department of Agriculture- The goal of TDA's Agricultural Resources Conservation Fund is to reduce or eliminate runoff from agricultural operations to the extent that soil particles or other pollutants do not enter the waters of the state.

<http://www.state.tn.us/agriculture/>



Tennessee Farm Bureau Federation- To develop, foster, promote and protect programs for the general welfare, including economic, social, educational and political well-being of farm people of the great state of Tennessee." adopted February 15, 1923.

<http://www.tnfarmbureau.org/index.html>



Tennessee Landowner Incentive Program (TNLIP)-The TWRA will provide 75% cost-share assistance and some cash incentives for best management practices implemented near streams. Practices will include stream exclusion fencing with alternative water sources, field borders, riparian buffer, heavy use area protection, stream crossing, and channel stabilization. To learn more about the TNLIP and what can be done on your property, contact Gray Anderson at **615-837-6008**,

Gray.Anderson@state.tn.us, or visit the website at www.state.tn.us/twra/wildlife/tnlip



Tennessee Valley Authority goals are to generate prosperity for the Tennessee Valley by promoting economic development, supply low-cost, reliable power, and supporting a thriving river system. Watershed teams work in partnership with business, industry, government agencies, and community groups to manage, protect, and improve the quality of the Tennessee River and its tributaries. TVA provides cost share funding for demonstration projects to encourage good land management practices to improve water quality. <http://www.tva.gov/>



The University of Tennessee Extension is an off-campus division of the UT Institute of Agriculture. It is a statewide educational organization, funded by federal, state and local governments, that brings research-based information about agriculture, family and consumer sciences, and resource development to the people of Tennessee where they live and work.

<http://www.utextension.utk.edu/>



World Wildlife Fund's Southeast Rivers and Streams Private Landowner Incentive Program (PLIP) works with landowners to establish practices that enhance and protect water quality and biodiversity. We do this by helping landowners access Farm Bill programs and by providing incentives to landowners who install effective, progressive practices.

<http://www.worldwildlife.org/about/>

