PASTURE HEALTH AND DROUGHT PROTECTION

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NCAT

Keys to Pasture Management

- Respond flexibly to changing conditions
- Protect soil and water resources
- Match livestock and forages to farm resources
- Rest and rotate animals among paddocks
- Integrate crop and livestock production

Manage conservatively in good years to maintain production in bad years

Management Flexibility

- **Know your farm resources**
  - Soil type and soil quality
  - Forage species and condition
  - Animal species and health
  - Financial resources and available markets
- **Manage according to environmental conditions**
  - Season of the year, temperature, and rainfall
  - Climate trends and changing climate conditions

Forage Species for Dry Areas

- **Plants that thrive during drought**
  - Can draw water from subsoil with their deep root systems
  - Grow with limited amounts of water
- **Plants that survive during drought**
  - Annuals that grow rapidly, then set seed before the onset of drought
  - Perennials that store food in rhizomes during periods of drought

Drought-Resistant Grasses

- **Warm season grasses**
  - Sorghum
  - Sudangrass
  - Pearl millet
  - Crested wheatgrass
  - Barnyard millet
- **Cool season grasses**
  - Smooth brome grass
  - Tall fescue

Drought-Resistant Legumes

- Alfalfa
- Birdsfoot trefoil
- Common vetch
- Cowpea
- Sanfoin
- Sweet clover

Drought-Tolerant Fodder

- Spineless cactus
- Saltbush
- Browse and shade trees
- Crop aftermath
- Drought-affected crops

Manage Grazing Land to Resist Drought

- **Manage forage for drought resistance**
  - In pastures, interseed drought-resistant forages
  - On ranges, manage grazing to favor forages that remain palatable and nutritious during drought
- **Manage grazing to**
  - Encourage effective forage use
  - Protect soil quality in paddocks

Management Intensive Grazing

- **Subdivide land into paddocks**
  - Move animals to another paddock when they reduce the forage height by half
  - Regraze paddock when forages regrow and pasture condition is healthy
  - Soil and forage conditions will determine the right durations of grazing and rest

- **To stimulate animal movement, place water, shade, and minerals at various points in paddock**

Benefits to Land and Forage

- **Management intensive grazing enhances**
  - Effective use and healthy regrowth of forages
  - Ability of soil to hold water and nutrients
  - Even distribution of manure
- **MIG reduces**
  - Selective feeding and overgrazing
  - Soil compaction and erosion

Benefits to Animal Health

- **Appropriate stocking rates and effective rotations promote animal health**

  - Puberty is not delayed
  - Cows produce sufficient milk for calves
  - Animals are less susceptible to parasites and diseases
  - Healthy animals are more tolerant of toxic plants

Key Management Practices

- **Manage stocking rates, length of rotation, and rest time according to land and forage condition**

- **Time rest periods appropriately and provide rested paddocks: this is more important than the length of the grazing period**

Rotation Length Affects Soil

- **Rotation length should not be routine**
- **Base length of rest on soil fertility, quality, and moisture**
  - **Build up soil fertility and quality through extended rest**
  - **Allow soil-building plants to grow and reproduce**
  - **Do not graze wet paddocks**
  - **Do not overgraze droughty paddocks**

Rotation Length Affects Plant Growth

- **Base length of rest on plant characteristics and growth**
  - Plant recovery from grazing varies according to variety and species
  - Temperature, light, and moisture affect plant growth and recovery from grazing
- **Time rest periods so preferred forages can reproduce**

Grazing and Plant Growth

- Animals rarely remove all leaf tissue the first time they graze
- Moving animals quickly through paddocks minimizes repeat grazing, decreasing stress on plants
- Plants have difficulty regrowing if animals graze most of their leaf tissue or damage the growing point

Management of Perennial Forages

- **Graze perennial forages before stem elongation to stimulate tillering**

- **Rest and do not graze plants**
  - **During active tiller growth and elongation**
  - **When young plants or rejuvenated perennials are developing strong root systems in the spring**

Management of Annual Forages

- **Time grazing of annual forages to**
  - Detach seeds from plants
  - Transport seeds within and among paddocks
  - Work seed into the ground

- **Rest paddocks with annual forages**
  - To allow for plant establishment
  - To allow plants to produce seed

Stubble Height as a Rotation Tool

- **6-8” stubble in wooded areas protects willows or other riparian trees from being used as forages**

- **4” stubble in grassy areas**
  - **Protects soils from compaction**
  - **Maintains plant vigor**
  - **Traps sediment**

Managing Stocking Rate

- **Base stocking rate on land capabilities**
  - Quality and growth of forages
  - Season of the year
  - Moisture availability

- **Base stocking rate on animal characteristics and management**
  - Type, age, and reproductive status
  - Animal access to supplements, feed, and water

Overstocking Problems

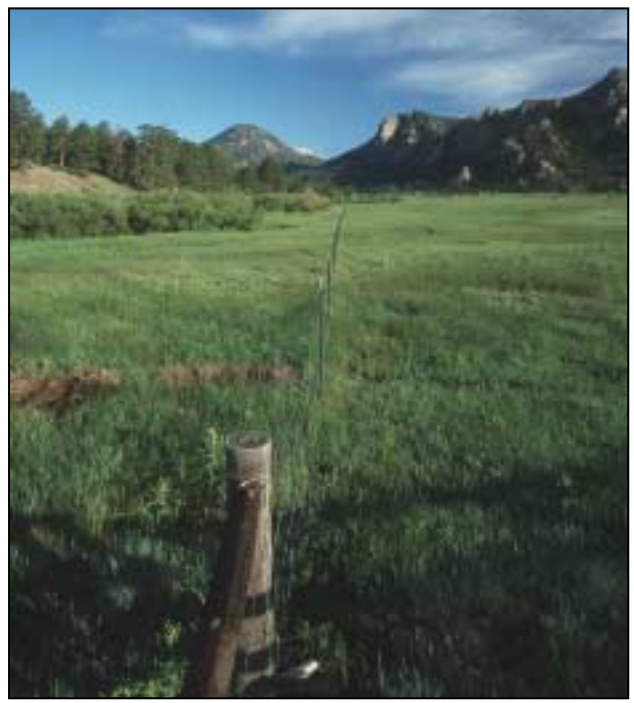
- **Overstocking in good years**
  - Increases the risk of degrading land resources
  - Decreases productive capacity in drought years
  - Prolongs recovery following drought
- **If you have excess forages, add animals on a short-term basis or harvest for sale or storage**

Pastures Vulnerable to Grazing

- **Grazing wet areas**
  - Hoof impact compacts soil
  - Manure nutrients can contaminate streams or groundwater
- **Overgrazing droughty areas**
  - Soils become bare from loss of vegetation
  - Good forages are consumed, weedy forages survive
- **Grazing steep soils favors erosion and runoff**

Riparian Areas are Vulnerable to Grazing

- **Animals congregate on streambanks**
  - Breakdown streambank structure
  - Compact moist soil
  - Deposit manure in or near streams
- **Animals overgraze riparian vegetation**
  - Located where animals congregate
  - Riparian vegetation is more lush than upland vegetation



Vulnerable Area Protection

- **Use sacrifice areas when paddocks are in vulnerable condition**
- **If vulnerable areas are grazed**
  - **Limit time animals are kept in paddocks**
  - **Provide sufficient time for paddocks to recover before regrazing**

Match Livestock with Land

- **Beef breeds more drought tolerant than dairy animals**
- **Mix grazing species to use forage resources more effectively**

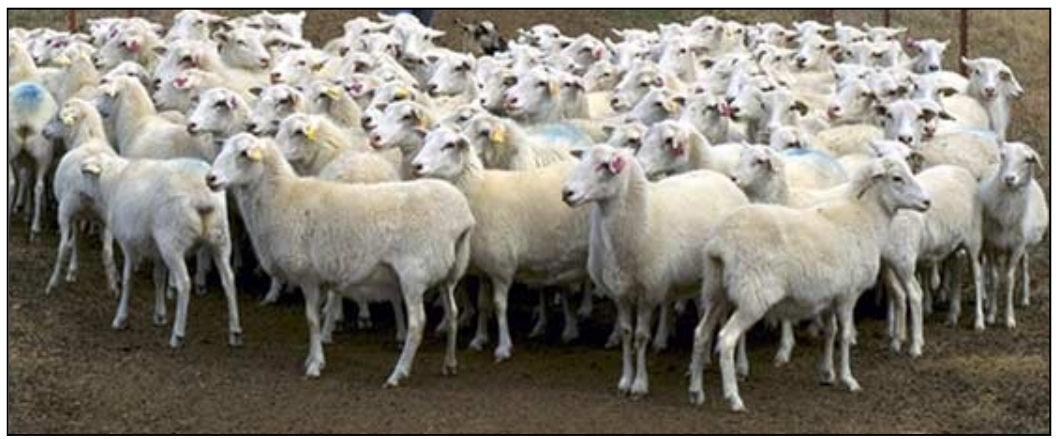
  - **Sheep and goats eat plants that cattle do not like**
  - **Small ruminants use less feed and water than cattle**
  - **Mixing species allows precise balancing of stocking rates with land and water resources**

Breed for Drought Resistance

- **Breeding practices can provide a farm with long-term protection against drought**
- **Use breeding stock that perform well under drought conditions**
  - **Select slow-growing breeds rather than livestock bred for fast weight gain**
  - **These breeds can provide dependable growth on poor-quality, dry forages**

Breeding and Water Needs

- **British sheep breeds need about 20 % more water than do Merino sheep in hot weather.**



- ***Bos indicus* cattle need less water under hot conditions than do *Bos taurus* breeds**

Cattle Cross-Breeding

- ***Bos indicus* and *Bos taurus* cross-breeds produce well under drought conditions**

- **Best crosses for growth on poor pastures**
  - Cross *Bos taurus* bull with *Bos indicus* cow
  - Pure-bred bull (either breed) with cross-bred cow

Integrating Crops and Livestock

- **Provides economic and management flexibility during drought**
  - When droughts are predicted or water stores are low, can transition fields from crop to livestock production
  - When drought-affected crops cannot be harvested profitably, they can provide value through grazing

Summary

- **Protect your land resources in good years to maintain productivity in drought years**
- **Manage according to the capabilities of your land**
- **Use flexible, integrated crop and livestock practices to enhance your management options and your potential for farm profits**

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