Triggering Management Decisions Before a Drought

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Today’s plan

• *Drought Planning Trigger Dates* (beef.unl.edu, Brad Schick)
• Weather-past and forecast
• Drought affects plants how?
• Reduce stocking rates-what does this look like?
• Trigger dates: what to look for and management options
• Resources
Disclaimer

Options presented today will not work for everyone
What are your ranch goals?
What are your resources?
If we keep talking about it, maybe it’ll rain
U.S. Drought Monitor

March 29, 2022
(Released Thursday, Mar. 31, 2022)
Valid 8 a.m. EDT

Drought Impact Types:

∽ Delineates dominant impacts
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

None
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:
Deborah Bathke
National Drought Mitigation Center

droughtmonitor.unl.edu
Deals large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short-lived events. “Ongoing” drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

Author: Brad Pugh
NOAA/NWS/NCEP/Climate Prediction Center

Consistency adjustment based on Monthly Drought Outlook for April 2022

http://go.usa.gov/3eZ73
Proactive > Reactive

• Planning provides more options than reacting
• Inventory animals and feed resources
GRACE-Based Root Zone Soil Moisture Drought Indicator

March 28, 2022

Wetness percentiles are relative to the period 1948-2012
The rootzone is defined as the top 1 meter of soil
Cell Resolution 0.125 degrees
Projection of this document is Lambert Azimuthal Equal Area

https://nasagrace.unl.edu
How do plants work?

• As drought progresses soil becomes drier holding onto water more tightly

• If we don’t feed cows enough protein, they metabolize muscle. Same thing with plants using water & carbohydrates.
Transpiration draws water from the leaf.

Cohesion and adhesion draw water up the xylem.

Negative water potential draws water into the root.

Stomata

Water potential gradient

Atmosphere: ~100 MPa
Leaf at tip of tree: ~1.5 MPa
Stem: ~0.6 MPa
Root cells: ~0.2 MPa
Roots

• When plants go dormant, due to drought, they use carbohydrates in roots
• Root mass shrinks, fewer roots to take up water after drought
• Overgrazing does the same thing
• If compounded by overgrazing in drought it can have long-term plant health impacts

Fig. 7. New growth of roots and tops of little bluestem six weeks after transplanting the sods on May 17. The sods were each 6 inches long, 4 inches wide, and 3 inches deep but taken from a high-grade, mid-grade, and low-grade pasture, respectively.
Reduce Stocking Rates

• Reduce grazing length on a pasture

• Reduce Animal Units (AU) on a pasture
Smaller AU’s

1 Animal Unit (AU) = 1,000 lb animal
1 AU consumes 26 lb of dry forage a day
Trigger Dates

• April 1
• April 15 to May 10
• May 20 to June 10
• June 15 to June 30
• June 15 to July 15
• September 1 to September 15
April 1-Look at

- Soil moisture critical - previous growing season & dormant season moisture
- Lack of moisture reduces cool-season grass growth
April 1- Management

- If exceptionally dry, reduce stocking rates 10-20% cool season rangeland
- Inventory all cattle & feed resources-what can go first?
- Cull late calvers, opens
- Keep smaller AU’s: heifers vs pairs
- Pastures leases – evaluate drought clause, find more pasture
April 15 to May 10—Look at

• 30-45 day forecasts
• Cool season grass green-up
April 15 to May 10 - Management

• Decrease stocking rate more
• Cull more
• Delay turn out, know your hay/feed inventory
May 20 to June 10—Look At

- Needlegrasses finishing growth
- Wheatgrasses rapid growth window
- March-May precipitation compared to average
May 20 to June 10 - Management

• Reduce stocking rates 30-40% or more
• Cull late calvers, opens
• Shorten breeding season, depending on calving season, sell bulls
• Heifers vs pairs
June 15 to June 30—Look at

- Cool-season grass done growing, unless irrigated
- 50% of warm-season grass growth
- Rainfall after late June may benefit warm-seasons
June 15 to June 30 - Management

- Reduce stocking rates
- Shorten breeding season
- Preg check, cull lates & opens
- Sell bulls
June 15 to July 15—Look at

- Precipitation and available soil moisture important for warm-season grass
- Most warm-season growth by July 15
- Some shortgrass warm-seasons may benefit from precipitation
June 15 to July 15 - Management

- Reduce stocking rate; remove from pasture
- Shorten breeding season
- Cull late calvers, opens, bulls
- Early wean, creep feed, etc
  - Creep feed ↓ calf forage consumption; does not reduce cow milk
September 1 to September 15—Look at

- Cool-season pasture regrowth if adequate moisture now
- Temperature & precipitation forecasts
September 1 to Sept 15-Management

• Start planning for next year
• How will drought affect production
• Early wean/marketing calves
• Cornstalk leases
• Acquire feed
  • If bringing in feed watch for weeds/invasive plants where fed
  • Fescue toxicity
Summary

Drought is in the forecast
Plan now or react later
To reduce stocking rates, shorten time or fewer AU’s
Be flexible
Use trigger dates to manage
Resources

National Weather Service Climate Prediction Center
  • Short and long term precip and temp forecasts

NebGuide: Skillful Grazing Management on Semiarid Rangelands

Beef.unl.edu

Drought.unl.edu

Managing Drought Risk on the Ranch

FSA/NRCS drought programs-keep records!
Contact Us-Find us on HWY 83

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