Managing Drought Risk on the Ranch
An Introduction

Dr. Cody L. Knutson
Research Associate Professor
Planning and Social Science Program Leader
National Drought Mitigation Center
University of Nebraska-Lincoln
Drought is a Normal Part of Climate

1930s

1952-56

Baylor University, Texas Collection

1974-77

1988-89

1999-2007
54% of the country
Vegetation Drought Response Index
Rangelands

July 23, 2012

http://vegdri.unl.edu
Plains ranchers sell cattle as US drought spreads
Knoxville News Sentinel - 19 hours ago
WICHITA, Kan. — Kansas cattleman Ken Grecian sold 20 pairs of cows and calves a few weeks after drought had sucked his pastures dry and ...

2012 drought will shrink livestock’s profit margins
CattleNetwork.com - 6 days ago
Pictures of wilting corn in the Midwest may dominate the evening news, but the 2012 drought is also shrinking livestock’s profit potential ...

Drought squeezes livestock producers
Minnesota Public Radio - 2 days ago
More than half the United States is in drought, including parts of southern and western Minnesota. But even in areas where there’s been ...

Drought dries up hay crop, prices in Colorado climbing sky-high ...
www.denverpost.com › News › Breaking News
Jul 17, 2012 – Colorado’s drought is taking a big bite out of the state’s hay crop, knocking the ... July 17, 2012 11:34 PM GMTUpdated: 07/17/2012 05:34:08 PM MDT ... will force cattle off leased grazing lands on the range early this year.
National Drought Mitigation Center

Mission: To lessen societal vulnerability to drought by promoting planning and the adoption of appropriate risk management techniques.

http://drought.unl.edu
Crisis management replaced by risk management
Ted Alexander

• Rancher in south-central Kansas

• Working with NRCS and university researchers to improve ranch management over the last 25 years

• Including development of long- and short term drought plans
Existing “Buffet” Website Approach

Ranchers pick-and-choose from a list of information.
Managing Drought Risk on the Ranch Project

- **Project was initiated** in 2006, with funding from the USDA Risk Management Agency (also 2011)

- **Project Goals:** Develop a model drought planning process and web-based educational delivery system for livestock and forage producers

- **Initial Collaborators:** National Drought Mitigation Center, University of Nebraska-Lincoln, South Dakota State University, and Texas A&M
Expanded Collaborators

**University Researchers**
- Cody Knutson (PI), Water Resources/Social Scientist, NDMC, UNL
- Tonya Haigh, Rural Sociologist, NDMC, UNL
- Barry Dunn, Dean of Agriculture, SDSU
- Brian Fuchs, Climatologist, NDMC
- Roger Gates, Range Management, SDSU
- Sandy Smart, Range Scientist, SDSU
- Matt Stockton, Agricultural Economist, West Central Research and Extension, UNL
- Jerry Volesky, Range/Forage Specialist, West Central Research and Extension, UNL

**Rancher Advisors:**
- Ted Alexander, KS
- Brian Alexander, KS
- Cal Adams, KS
- Lynn Myers, NE
- Jim Faulstitch, SD
- Homer Buell, NE

**Federal Advisors:**
- Dwayne Rice, Range Specialist, NRCS-Kansas
- Stan Boltz, State Range Management Specialist, NRCS-South Dakota
- Gale Dunn, Soil Scientist, USDA-ARS

**University Advisors:**
- Dick Clark, Agricultural Economist, Retired UNL
- Mike Hayes, Director and Climate Impacts Specialist, NDMC
- Terry Klopfenstein, Ruminant Nutrition, Retired UNL
- Rick Rasby, Beef Specialist, Animal Science, UNL
- Scott Cotton, Extension Educator, UNL

**Private Advisor:**
- Pat Reece, Consultant/Rangeland Ecologist, Prairie and Montane Enterprises, LLC
Managing Drought Risk on the Ranch: Great Plains Examples

South Dakota
- Daybreak Ranch (Central)

Nebraska
- Tippets-Myers Ranch (Western Sandhills)
- Reed Hamilton Ranch (Sandhills)
- Shamrock Ranch (Southwestern)

Kansas
- Alexander Ranch (South Central)
- Adams Ranch (North Central)

Colorado
- Welch Ranch (Southern)
- Johnson Ranch (West Central)

Where to Start
- Start here if you are in a drought
- Start here if you are recovering from a drought
- Start here if you are preparing for a drought
- Write a Drought Plan
- How to use this site

Drought Conditions
- U.S. Drought Monitor
- Water Year Precipitation (Oct. 1st to present)
- Precipitation - past 30 days
- Weather forecast
- Long Term Outlook

Tools and Resources
- Inventory and Monitoring Tools
- Grazing Management Tools
- Financial Tools
- Drought Planning Tools
# Drought Basics

The objective of this section is to describe how drought impacts your ranching operation.

If you'd like to gain a better understanding of how drought affects your area, how drought affects grasses, livestock, and grazing management, how drought impacts cattle market cycles, or how planning for drought can make a difference in your bottom line, this is the place to start.

## Grasses & Drought
- How Does Drought Impact Grasses?
- Why is Soil Moisture Important to Plant Growth?
- Will Limited Plant Growth This Year Hurt Next Year's Growth?
- What's a Rapid Growth Window?

## Grazing & Drought
- How Do Grazing & Drought Interact?
- Do Diverse Pastures Hold Up Better During Drought?
- How Do Last Year's Grazing Practices Affect My Grass This Year?
- Can My Grazing Practices Influence How Much Moisture Is in the Soil?

## Financial Considerations
- What are the Financial Considerations in Planning for Drought?

## Planning
- How Am I Affected by Drought?
- How do I know when I am In Drought?
- How Does Forage Growth Vary within the Great Plains Region?

## Weather & Drought
- What is Drought?
- What is "Normal Precipitation?"
- What's the Difference between a Short-term and Long-term Forecast?

## Livestock & Drought
- How Does Drought Affect Livestock Nutrition and Gain?
Inventory and Monitor

Ranch management cannot be optimized without inventorying and monitoring all natural resources.

Precipitation

Forage / Range

Livestock

Inventory
- Average Precipitation and Drought - average precipitation and timing, historical frequency and severity of drought.
- Precipitation and Drought - plant year and monthly precipitation, drought status, short and long term forecasts.

Monitor
- Range Site - plant communities, growth curves, indicator species
- Range Condition - successional plant community, hydrologic health
- Range Production - trend in plant community and health, photopoints, check list
- Forage Production - carrying capacity, clip and weigh method

Inventory
- Herd - class, number, feed needs, stocking rate

Monitor
- Grazing Records - numbers, class, dates enter and exit pastures
Ranch Management Strategies Before a Drought

This section contains information about management steps you can take to maximize the overall health, resilience, and productivity of your ranch operation.

Healthy systems are better able to tolerate drought. Incorporating the likelihood of periodic drought into your overall ranch plan and grazing strategy will increase the likelihood that your pastures, livestock, finances, and family will successfully make it through the next one.

Start Here Before Drought

Ranch Goals & Strategic Plan

Drought is only one of the management challenges that ranchers need to plan for. It is important that the decisions you make before, during, and after drought fit into your overall plan. The decisions you make before, during, and after drought should help move you closer to the vision or goals that you have for your ranch.

- Resources for Strategic Planning

Grazing Management

Implementing a grazing strategy that increases vigor and abundance of desirable forage species and that improves hydrological condition of the range is one of the most effective ways you can prepare for drought.

- Grazing Strategy
- Choosing a Grazing System
- Grazing Pressure & Stocking Rates
- Season-long Continuous Grazing
- Rotation Grazing Alternatives
- Skim or Flash Grazing
- Decision Support Tools

Forage Resources

To further improve pasture resources, you may need to remove undesirable shrubs or trees, overseed pastures, or plant new pasture land. You may also want to consider annual forages and irrigated pasture as part of a drought management plan.
What to Do During a Drought

This section contains information about steps you should consider during a drought. Topics include drought monitoring, grazing management, supplemental feeding, de-stocking, and financial options.

Drought Plan Principles

Where to Start During Drought

Pasture Management

When too little grass was left last year...

- Pasture Management

Finding Feed

One of the most difficult parts of drought planning is determining viable feed options. This section provides:

- Finding Feed
- High-Grain Rations
- Alternative Forages
- Testing for Toxins
- Hay-Exchange Links

Reducing Demand for Feed

The other choice in balancing resources during drought conditions is to reduce inventory size. The best time to make this decision, according to livestock producers and advisors across the Great Plains, is sooner rather than later.

- De-Stocking - Financial Considerations
- When to De-Stock
- Culling and Early Weaning

Water and Heat Stress

Livestock water needs during drought, quality issues, and lessening the risk of heat stress
What To Do After Drought

This section contains information about steps you should consider after a drought.

**Start Here After a Drought**

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**Grass Recovery after Drought**

The end of a prolonged severe drought will be memorable. When drought ends, vegetation recovery should become a primary management objective.

[Grass Recovery](#)

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**Management Priorities after Drought**

Restoring range health and meeting production goals are both priorities after a drought that require careful planning.

[Management Priorities](#)

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**Financial Considerations after Drought**

After a drought period is over is a good time to reflect and assess the performance of your response to drought conditions.

[Financial Options](#)
Write a Drought Plan

Many range publications recommend that managers develop drought plans. The planning steps provided here have been developed by ranchers throughout the Great Plains, as well as forage, range, and agricultural economics specialists. These steps will help range managers develop a solid plan of action for situations (such as drought) that lead to forage shortages.

Drought Planning Steps

1. **Form Planning Team**
2. **Set Ranch Vision and Strategic Objectives**
3. **Take Inventory**
4. **Identify Critical Dates and Target Conditions**
5. **Learn to Monitor Resources**
6. **Develop Strategies for Preparing for Drought, Responding to Drought, and Recovering from Drought**
7. **Implement and Evaluate the Plan**

Sample Drought Plans

**Colorado**
- Southern Colorado Case Study - Welch Ranch

**Kansas**
- South-Central Kansas - Alexander Ranch
- North-Central Kansas - Adams Ranch

**Nebraska**
- Southwest Nebraska - Shamrock Ranch
- Western Nebraska Sandhills - Tippets-Myers Ranch
- Nebraska Sandhills - Reed Hamilton Ranch

**South Dakota**
- Central South Dakota - Daybreak Ranch

**Texas**
- West-Central Texas - Johnson Ranch
Sample Drought Plans

These sample drought plans have been contributed by ranchers, consultants, and advisors throughout the Great Plains. They range from very simple to quite detailed. While they do not all follow the planning methods suggested here, they may help you decide what sort of plan is needed for your ranch operation.

A key point to remember with any planning process is the old saying, "garbage in - garbage out." The better job you do collecting information about your operation and evaluating your options before, during, and after drought, the better the results of your plan will be.

Sample Plans

South Dakota
- Central South Dakota - Daybreak Ranch

Nebraska
- Southwest Nebraska - Shamrock Ranch
- Western Nebraska Sandhills - Tippets-Myers Ranch
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Kansas
- South-Central Kansas - Alexander Ranch
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Colorado
- Southern Colorado Case Study - Welch Ranch

Texas
Southern Colorado - Welch Ranch

Ranch Locations

Colorado operation (family business) – Southern Colorado, with leased lands in Montana, Kansas, Texas

Operations

Colorado – cow/calf
KS – cow/calf
MT – cow/calf and yearlings

Inventory

• Native range, multiple locations

Critical Dates

• Makes decisions when moving through rotation, based on forage availability

Monitoring

• Monitors rainfall and forage production
Nebraska Sandhills Drought Plan - Tippets-Myers Ranch

Operation

Cow-calf and bred heifer operation

Inventory

Mean Annual Precipitation - 14 - 17 inches

Plant Community - Prairie Sandreed/Sand Bluestem

- warm season dominant, cool season sub-dominant, mid and tall grasses

Critical Date

July 1

- June and July produce most growth of warm-season forages

Monitoring Plan

Forage Production and Condition

- Uses SANDRIS
Sample Drought Plan - South Central Kansas

Goals/Strategic Objectives
The declaration of purpose for the Alexander Ranch is to manage all integrated resources in order to maximize the production of protein, shape a harmonious existence with nature and maintain economic viability.

The strategic plan and goals for the Alexander Ranch include:

1. Regenerating the range while utilizing the optimum percent of forage grown.
2. Improve the quality and quantity of the water cycle, mineral cycle, and energy flow.
3. Maximize the forage utilization and flexibility.
4. "Ancora Imparo" (I am still learning) Continue the management education process.

Operation
Seasonal custom grazing with cows and calves, no haying, no tractor

Inventory (see details)
- Annual Rainfall - 18-22 inches per year
- Native mixed-grass prairie

Critical Dates
- April 1
- June 15
- August 15
- November 1

Monitoring Plan
- Precipitation - uses Davis Vantage Pro 2 which downloads data onto home computer
- Forage growth - in early years used clip and dry method, now uses grazing stick and Forage Production
Thank you!

NDMC Contacts:

Cody Knutson
cknutson1@unl.edu
(402) 472-6718

Tonya Haigh
thaigh2@unl.edu
(402) 472-6781

http://www.drought.unl.edu/ranchplan