



Managing Risk on the Ranch

A Drought Planning Guide for Livestock and Forage Producers

*“Here’s what my dad used to tell me.
He said, if you bet on dry weather in
this country, you’ll be right more than
half the time”*

(Nebraska Rancher 2005)

Cody Knutson
National Drought Mitigation Center
School of Natural Resources
University of Nebraska-Lincoln

Began hearing and reading that best management practices and holistic management made producers more resilient to drought

Needed more information....



Nebraska Holistic Management Study (2005)

- ▶ Mail survey and face-to-face interviews with members of the former Nebraska Holistic Management group
- ▶ Asked questions about:
 - the effects of recent drought from 2000-2004
 - strategies implemented to prepare for/respond to drought
 - drought-related needs and barriers to change
- ▶ Found wide variety of impacts and suggestions to better prepare for and respond to drought



Reported Effects of Drought from 2000 – 2005

- **Cattle culling and reduced stocking rates**
- **Reduced grass/hay production**
- Surface water/ground water quantity and quality problems
- Increased supplemental feed costs
- Crop losses
- Emotional stress
- Increased pests such as grasshoppers
- Wind erosion
- Increased irrigation
- Reduced cattle pregnancy rates
- Increased weed pressures
- Tree losses
- Hindered pasture burns
- Increased disease



What practices have you implemented to reduce the effects of drought?

Rank	Practices Implemented (N=79)	Respondents
1	Reduce cattle numbers (culling, early weaning, heifers, feedlots)	35
2	Grazing management (rotational and modified grazing, leasing)	30
3	Forage production and supplemental feed (interseeding, crop grazing, hay, distillers grain)	28
4	Developed new water sources - EQIP	15
5	Financial and management strategies (reduced inputs, record keeping, other income)	8
6	Prepared a drought plan	8

Some best management practices and others specifically for drought

Ted Alexander

- Rancher in south-central Kansas
- Working with NRCS and university researchers to improve ranch management over the last 20 years
- Including development of long- and short term drought plans
- Long-term: make ranch resilient to drought (prescribed burning, rotational grazing, water distribution, stockers)
- Short-term: identifying critical condition, dates and actions



Kansas NRCS Featured Customers



Ted Alexander - Ranching with a Passion

"*Ancora Imparo*" (I am still learning) is the philosophy by which rancher Ted Alexander lives and works. He reminds his fellow ranchers and others that he doesn't have it all figured out, but he has the passion to push onward to improve.

[...More Info](#)

Ted Alexander Ranch Drought Plan (1999)

Average Annual Rainfall – 21 inches/yr

Critical Dates – April 1, June 15, August 15, and Nov. 1

April 1

- beginning of the grass growing season
- If less than 4” of moisture during winter season - limit prescribed burns

June 15

- Half of the forage has been produced
- 75% of the annual average rainfall has been received
- If rainfall is < 80% of the 75%, decrease stocking rate 30%
- If < 60% is received by July 15, decrease stocking rate 40-50%
- Graze/rest periods should be as long as possible by June 1 if drought is present

August 15

- Length of the grazing season (based on rainfall in July and August)
- If rainfall is < 70% of the 5” July-August average, grazing period ends Sept. 1

November 1

- End of the growing season
- Less than 80% of the 21” average indicates drought for the next growing season

What are the barriers that limit your ability to prepare for drought?

Rank	Possible Barriers	N	Mean
1	Lack of capital to modify operation	69	3.1
2	Market/need to maximize production	48	3.0
3	Landlord control over your operation	40	2.4
4	Lack of drought planning knowledge	60	2.3
5	Federal farm programs	51	2.3
6	Unreliability of weather data and forecasts	64	2.1
7	Feel that nothing can be done about drought	60	2.1
8	Bank control over your operation	47	2.1
9	Peer Pressure	40	1.6
10	Lack of access to weather/forecast sources	52	1.3

Rancher Thoughts on How to Overcome Barriers

Rank	Suggested Ideas from Interviews	N
1	Expanded or more effective assistance and insurance programs (more cost-share, allow grazing of CRP, reduced paperwork, more insurance products and proactive assistance, and tax breaks)	15
2	More education on sustainability and grazing management	8
3	Involve producers in planning/get people to plan on their own	6
4	Stop farm and ranch subsidies	5
5	More interstate and intra-university collaboration	2

Assistance – Education – Collaboration – Personal Responsibility



Managing Risk on the Ranch

A guide to help better prepare for and manage drought

Project initiated in 2006

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

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

Available for review in the Fall of 2009 and release to the general public in the Fall of 2010

Project Collaborators

PI: Cody Knutson, **Water Resources/Social Scientist**

National Drought Mitigation Center, University of Nebraska-Lincoln

Tonya Haigh, **Research Specialist**, NDMC

Barry Dunn, **Ranch Management**, Texas A&M-Kingsville

Brian Fuchs, **Climatologist**, NDMC

Roger Gates, **Range Management**, South Dakota State University (SDSU)

Pat Reece, **Rangeland Ecologist**, Panhandle Research and Extension, UNL

Sandy Smart, **Range Scientist**, SDSU

Matt Stockton, **Agricultural Economist**, West Central Research and Extension, UNL

Jerry Volesky, **Range/Forage Spec.**, West Central Research and Extension, UNL

Advisory Group

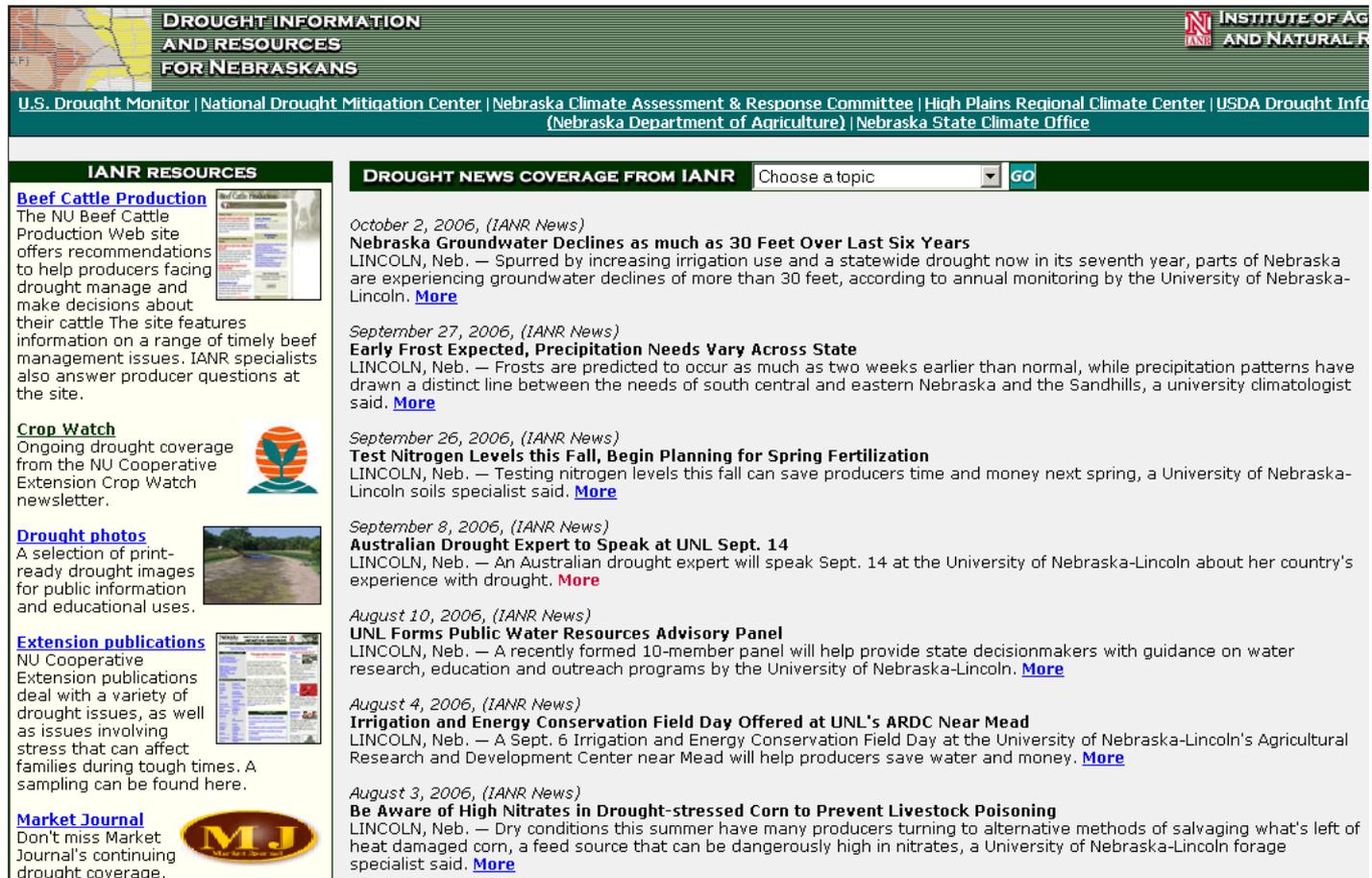
Dick Clark, **Agricultural Economist**, Retired UNL

Mike Hayes, **Director and Climate Impacts Specialist**, NDMC

Terry Klopfenstein, **Ruminant Nutrition**, Retired UNL

Rick Rasby, **Beef Specialist**, Animal Science, UNL

Current “Buffet” Website Approach



The screenshot displays the IANR website interface. At the top, there is a navigation bar with the text "DROUGHT INFORMATION AND RESOURCES FOR NEBRASKANS" and the IANR logo. Below this, a secondary navigation bar lists various resources: "U.S. Drought Monitor", "National Drought Mitigation Center", "Nebraska Climate Assessment & Response Committee", "High Plains Regional Climate Center", "USDA Drought Info (Nebraska Department of Agriculture)", and "Nebraska State Climate Office".

The main content area is divided into two columns. The left column, titled "IANR RESOURCES", lists several key resources:

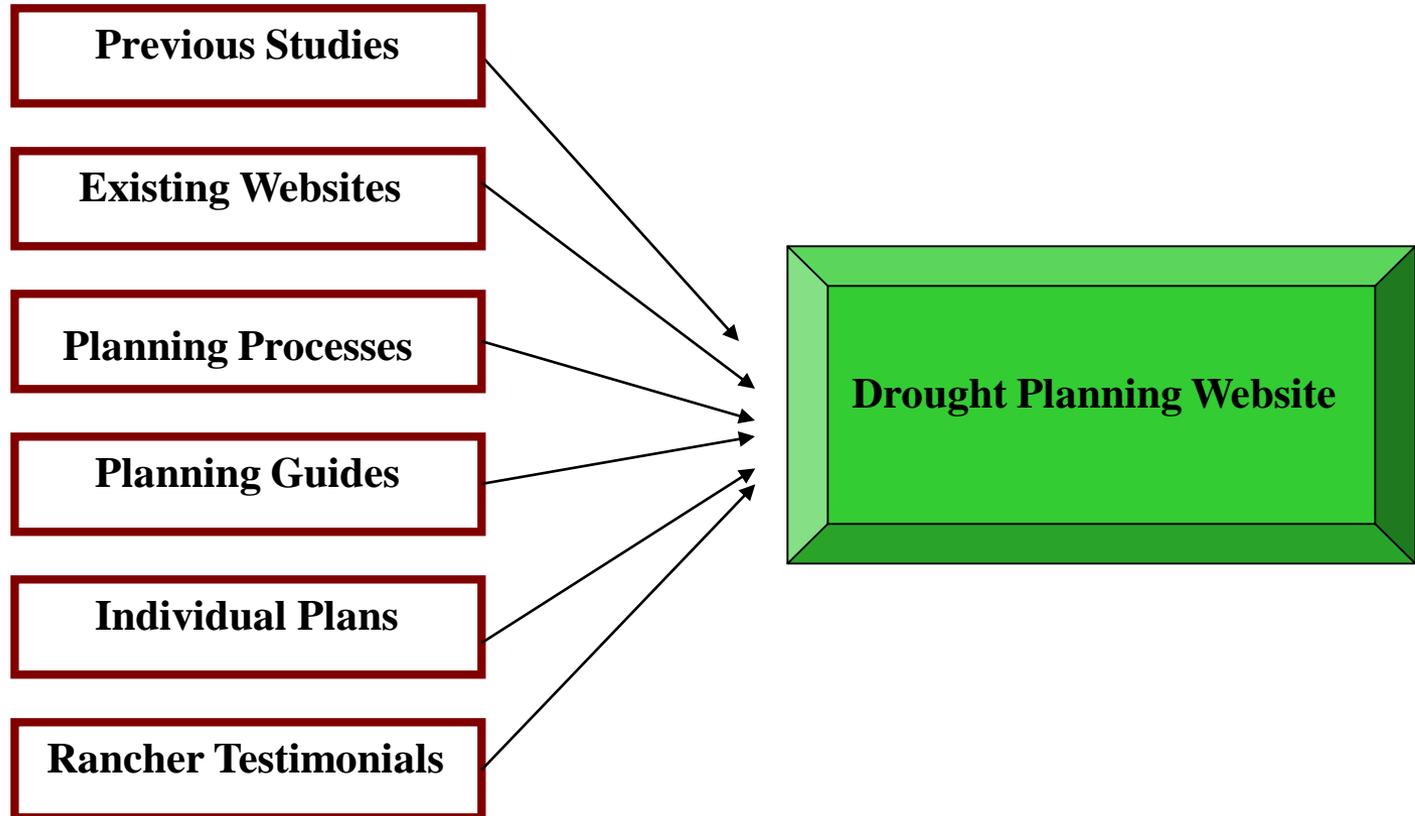
- Beef Cattle Production**: A link to a website offering recommendations for drought management and decision-making for cattle producers.
- Crop Watch**: A link to a newsletter providing ongoing drought coverage from the NU Cooperative Extension.
- Drought photos**: A link to a collection of print-ready images for public information and education.
- Extension publications**: A link to various drought-related publications from the NU Cooperative Extension.
- Market Journal**: A link to the Market Journal's continuing drought coverage.

The right column, titled "DROUGHT NEWS COVERAGE FROM IANR", features a search bar with a "GO" button and a list of recent news items:

- October 2, 2006, (IANR News)**: "Nebraska Groundwater Declines as much as 30 Feet Over Last Six Years" - A statewide drought in its seventh year has caused groundwater declines of over 30 feet.
- September 27, 2006, (IANR News)**: "Early Frost Expected, Precipitation Needs Vary Across State" - Frosts are predicted to occur two weeks earlier than normal.
- September 26, 2006, (IANR News)**: "Test Nitrogen Levels this Fall, Begin Planning for Spring Fertilization" - Testing nitrogen levels can save time and money next spring.
- September 8, 2006, (IANR News)**: "Australian Drought Expert to Speak at UNL Sept. 14" - An Australian expert will speak at UNL about her country's drought experience.
- August 10, 2006, (IANR News)**: "UNL Forms Public Water Resources Advisory Panel" - A 10-member panel will provide guidance on water research and outreach.
- August 4, 2006, (IANR News)**: "Irrigation and Energy Conservation Field Day Offered at UNL's ARDC Near Mead" - A field day will help producers save water and money.
- August 3, 2006, (IANR News)**: "Be Aware of High Nitrates in Drought-stressed Corn to Prevent Livestock Poisoning" - Dry conditions have led to high nitrate levels in corn, posing a risk to livestock.

Ranchers pick-and-choose from a list of information

Project Goal: Incorporate this type of information into a drought planning process and training website



Ranching for Profit: Planning for Drought

Dave Pratt, Ranch Management Consultants, Inc.

<http://www.foothill.net/~ringram/drought.htm>

- Develop and maintain a drought resistant ecological state
- Cross-fence to control where/when livestock graze to increase density
- Develop a long-term water supply
- Have enterprises that are compatible with drought risk
- Have a de-stocking plan in writing
- Know and act on your critical dates
- Never, ever drought feed
- Put yourself in control of your finances
- Have financial reserves
- Beware of “free” money
- Have a positive attitude about drought

Published Drought Planning Guide

Drought Management on Range and Pastureland: A Handbook for Nebraska and South Dakota

Pat Reece, Jack Alexander, and James Johnson (1991) Lincoln, NE: University of Nebraska-Lincoln Cooperative Extension Division

- I. Plant Responses to Drought
- II. Management Preparation For Drought
- III. Herd Management
- IV. Animal Responses to Drought
- V. Predicting Forage Production and Stocking Rates
- VI. Drought Management Plans
- VII. Rangeland Resource Inventory
- VIII. Grazing Management
- IX. Plant Recovery After Drought



[NDMC](#) > [Ranch Plan](#)

*"Here's what my dad used to tell me.
He said, if you bet on dry weather in this country,
you'll be right more than half the time"
--Nebraska rancher, 2006*

Managing Risk on the Ranch

- 1 Drought is a normal part of climate...it will happen again.
- 2 There are things you can do before, during, and after drought to reduce your risk.
- 3 You should have both a long-term management plan and a drought response plan, with trigger dates.
- 4 The goal of this website is to help you become more resilient to hazards such as drought.



Producers manage for things they can control and things they can't; for conditions that persist and those that change seasonally. All regions are prone to some form of extreme weather events such as thunderstorms, blizzards and drought. These extremes and every day distractions make it critical to use effective planning processes to effectively manage environmental risk.

Drought is one hazard that affects every portion of the United States sooner or later, and producers are increasingly implementing new ways to better prepare and respond to it.

The information, strategies and resources on this site are designed to provide producers with information on how to incorporate management strategies to reduce the threat drought poses to livestock and forage operations.



Managing Risk on the Ranch

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Drought Basics

[Why Plan](#)[Weather & Drought](#)[Livestock & Drought](#)[Grasses & Drought](#)[Grazing & Drought](#)[Financial Considerations](#)

Drought Basics - Introduction

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

This section can help you answer questions such as:

- **Planning**
[Why Should I Plan for Drought?](#)
- **Weather & Drought**
[What is Drought?](#)
[How Do We Monitor Drought?](#)
[How Do We Prepare for Drought?](#)
- **Livestock & Drought**
[How Does Drought Affect Livestock Nutrition and Gain?](#)
[When Should I Worry about Heat Stress or Dehydration?](#)
- **Grasses & Drought**
[How Does Drought Impact Grasses \(Quick Facts\)?](#)
[Why is Soil Moisture Important to Plant Growth?](#)
[Will Limited Plant Growth This Year Hurt Next Year's Growth?](#)
- **Grazing & Drought**
[How Do Grazing & Drought Interact \(Quick Facts\)?](#)
[Do Diverse Pastures Hold Up Better During Drought?](#)
[If I Grazed Too Hard Last Year, Why is There Less Grass This Year?](#)





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Before A Drought

[Grazing Strategy](#)
[Grazing Systems](#)
[Water Management](#)
[Routine Monitoring](#)
[Financial Options](#)

Do you have a ranch plan and evaluation process?

[Using the Balanced Scorecard for Ranch Planning & Management: Setting Strategy & Measuring Performance](#) by Barry Dunn

[Holistic Management - A Whole Farm Decision-Making Framework](#) by ATTRA National Sustainable Agriculture Information Center

What to do Before a Drought

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

The first step is to develop and implement a plan that maximizes 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.

Here you will find tools to help you identify best management practices for your operation, implement monitoring that will help you make effective decisions, and improve your overall drought resiliency.



- Grazing Strategy**
 - [Developing a Grazing Strategy](#)
 - [Livestock Management & Production Objectives](#)
 - [Pasture Objectives & Plant Resources](#)
 - [Grazing Pressure & Stocking Rates](#)
- Grazing Systems**
 - [Introduction to Grazing Systems](#)
 - [Season-long Continuous Grazing](#)
 - [Rotation Grazing Alternatives](#)



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During a Drought

[Monitoring During Drought](#)[Grazing Management](#)[Supplemental Feeding](#)[De-Stocking](#)[Financial Options](#)

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.

- **Monitoring During Drought**
 - [Monitoring Range Condition](#)
 - [Monitoring Weather](#)
- **Grazing Management**
 - [Grazing Management During Drought](#)
- **Supplemental Feeding**
 - [Introduction](#)
 - [High-Grain Rations](#)
 - [Alternative Forages](#)
 - [Testing for Toxins](#)
 - [Hay-Exchange Links](#)
- **De-Stocking**
 - [De-Stocking](#)
 - [Culling & Early Weaning](#)
- **Financial Options**

Related Links



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[NDMC](#) > [Ranch Plan](#) > [After a Drought](#)

After a Drought

[Grass Recovery](#)[Re-Stocking](#)[Financial Options](#)

WHAT TO DO AFTER A DROUGHT

This section contains information about steps you should consider after a drought. Topics include grass recovery, re-stocking, and financial options.

[Short-term Drought](#)[Prolonged Drought](#)

Related Links

Could place links to external sites here.

Or add a testimonial or other picture

[Sitemap](#) | [Contact](#)

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Contacts|Resources

[Ask an Expert](#)[Hire a Consultant](#)[Testimonials](#)[Presentations](#)[Reference Links](#)[User Discussions](#)

CONTACTS & RESOURCES

The Contacts and Resources section of this website contains information about how you can ask an expert or hire a consultant. This section also contains testimonials, presentations, a reference section and a user discussion area.

Related Links

Could place links to external sites here.

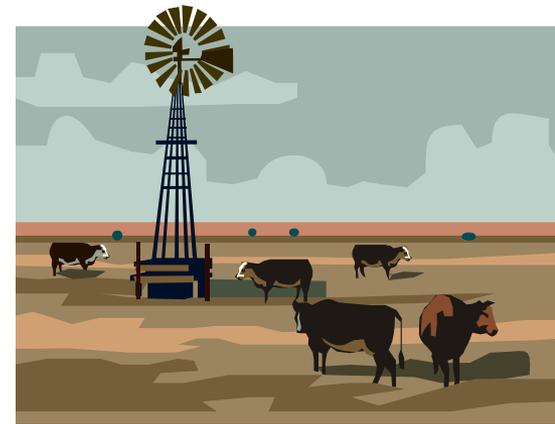
Or add a testimonial or other picture

[Sitemap](#) | [Contact](#)

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Ranch Planning Project Next Steps

- Work on the website
- Conduct interviews with ranch managers and advisors about their drought planning experiences
 - ❑ North Dakota, South Dakota, Nebraska, Wyoming, Kansas, Texas, Nevada, California
- Hold a drought planning workshop in late September in Lincoln, NE
- Have a working draft of the website this Fall
- Go public next year



Thank You!

Please consider reviewing the website.

Any suggestions or comments are appreciated!

Cody Knutson

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