



Sheridan
Community
LAND TRUST
Conservation | History | Recreation

Connecting people to land and history

52 S Main St, Suite 1
PO Box 7185
Sheridan, WY 82801
307.673.4702
sheridanclt.org

Drought Planner for Sheridan County, Wyoming

Introduction

- This Sheridan County Drought Planner has been tailored specifically to farmers and ranchers on all sides of the county. It has been made to be reviewed annually but can also be reviewed accordingly depending on the year. The best way to counter drought is experience, therefore the plan below has been comprised of suggestions to help ranchers and farmers of all generations. This plan consists of 8 major parts which include the following:
 - **Ranch Vision and Objectives**
 - **Communication**
 - **Ranch Inventory**
 - **SWOT Analysis**
 - **Critical Dates**
 - **Monitoring Schedule**
 - **Drought Strategies**
 - **Resources**

We hope you will be able to use this plan for years to come!

Ranch Vision and Objectives

- **Vision Statement:** What your ranch contributes to the community and how it provides for your family is why you do what you do. Vision statements can be either broad or specific depending on how important this is to you. The space below can be utilized to create a vision statement for your operation.
 - Example of a broad vision statement: ***To manage the ranch's inventory in a sustainable and efficient manner in which the most profit can be drawn utilizing the least amount of resources.***

- **Objectives:** What you wish to achieve yearly will determine how you manage drought. This could change annually depending on the needs of your livestock, the changing of the economy, and the amount of precipitation received each year. More than five objectives can be overwhelming, keep this in mind writing them below.

○

○

○

○

○

○

○

○

○

○

○

○

○

Communication

- Knowing who your team members are and keeping them in the loop is extremely important regarding your personalized plan. Whether it be employees or trusted partners, it is important you are all on the same page.

My Team

Ranch Inventory

- **Budget:** While preparing for drought the most important thing is understanding your budget. Doing things to save your money such as rainwater harvesting for your cattle, or being diligent about when to irrigate can help maximize your budget.
- **Precipitation:** Sheridan County receives an accumulative average of 15 inches of precipitation in one water year. Knowing how much water your ranch receives is crucial in deciding how to manage. A drought is induced when less than 75% (12 inches) of the total expected water falls in one water year. Total water accumulation should be measured when the last snow has fallen. Remember, 13 inches of snow roughly equals one inch of rain.
- **Soil:** What soils your land has available is extremely important. Whether you are a dry land farmer or use water rights to the maximum, soil contents are the most important thing for vegetal growth. Suggestions on drought resistant soil types can be found in the drought strategies section below.
- **Local Feed Sources/Available Crops:** Natural feed and crops vary depending on ranch location and types of soil available. The most common in Sheridan County is purple alfalfa, (*Medicago sativa*). See drought strategies for more information on how natural feeds can be manipulated during drought.
- **Facilities:** What kind of infrastructure do you have available to you? What kind of rainwater harvesting structures are at your disposal? To save the most money during a drought you must be able to take what nature gives you and utilize it to the best of your ability. Providing natural water to animals is the best way to save money during a drought. More information regarding these structures can be found in the Drought Strategies section.
- **Water Rights:** Junior vs. Senior water rights play a critical role in being able to buffer some of the years water loss with irrigation. If drought persists it is important to know your water rights and how they influence your ranch. Understanding that drought is influencing an entire watershed should impact the decisions you make and the water you pull depending on the water rights you have.

Your Ranch Inventory (Insert Your Inventory Into Green Rows)

▫ Budget	
▫ Precipitation	
▫ Soil	
▫ Local Feed Sources	
▫ External Feed Sources	
▫ Facilities	
▫ Water Rights	

SWOT Analysis

- **SWOT:** When reviewing a drought plan or analyzing drought in general, a SWOT analysis can help guide the process. SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. A SWOT analysis can be broad, but having one that is more personalized might be able to help you. We have presented a few examples for each category but encourage you to use the space below to create your personal SWOT analysis.
- **Opportunities During Drought:** During drought, dormant seeds and nutrients in the soil become activated as the plants above them start to wither. Especially those with a high tolerance to little amounts of water. Because of this, opportunities for planting differing forms of crop and grazing vegetation become possible. For instance, Lavender, a drought tolerant crop, has become increasingly profitable for Californians during their most recent drought. Drought also plays a factor in increasing the elasticity of wetlands. More dynamic wetlands lead to increased resilience during times of drought allowing them to hold more water.
- **Weaknesses and Threats During Drought:**
 - Shortage of water means more time and money invested into the wellbeing of your crops/animals.

- Low amounts of natural water=Having to come up with intuitive solutions.
- One simple change in the weather could be fatal to both crops and livestock.
- If your family lives off a universal well, drought could influence the quality of water you are finding in that well. Without having new water seeping into the ground to flush out the well naturally, water conditions could become extremely basic or acidic.
- **Strengths During Drought:**
 - Seedlings have increased vigor from the parent plants in years to come.
 - Certain plants will “overseed” during drought allowing for enhanced fecundity and improved reproductive ability. The plants that are known to do this are usually those plants that are products of drought.
- **Short-Term Drought vs. Long-Term Drought:** Any drought six months or less is considered “short term”. These droughts might seem like they have less significance than those in long term droughts; however, this is completely subject to what season the drought occurs in. Drought occurring between January and August can be just as deadly as a long-term drought in regard to biomass production per plot. Do not underestimate the effects of short-term drought.
- **Your SWOT Analysis**

Strengths	
Weaknesses	
Opportunities	
Threats	

Critical Dates for Making Decisions:

- **Overview:** This section gives a broad range of dates that play a critical role in the success of herd management. Next to each range of dates is a place for you to input what you have learned to be the critical dates on your own property. Each piece of land is different and important times may vary with this.
 - **Spring - April 1st-May 31st or _____ - _____**
 - At this point, it is time to measure total accumulative precipitation. This information gives you approximately two months to prepare for the coming summer season. Within this time frame vegetal growth should be closely monitored. This will determine what actions will be necessary to sustain profitability. By now, you should have an idea about whether a drought is imminent or not. Remember, generally 12 inches or less is the signifying number that a drought is coming over the summer months in Sheridan County. Around this time, measuring of precipitation for the new year needs to begin.
1. Total Snow Accumulation = _____in.
 2. Total amount of answer 1 Divided by 13 = _____in.
 3. Total amount of Rain Received = _____in.
 4. Add the total number of inches from answers two and three, and put the answer here: _____in.
 5. When trying to use the least amount of irrigation possible, subtract answer four from the number 15 = _____in. This is how much irrigation needs to make up for to buffer a drought. Keep in mind this number applies to each plot of your land individually. Not a total for all your land. If you have 15 plots of land in which you are growing crops, each plot needs to see the answer to number five applied to it. If unable to make up this number in irrigation, then it is imperative to consider different drought strategies, some of which can be found below in the drought strategies section.
 - Pay attention to answer four as this is your determining factor for the imminence of a drought.
 - Drought is just like anything else, there are levels to it. When total precipitation in a water year is around 75%, a small drought in the summer months is probable. If 50-70% of the total is reached, a drought is inevitable and must be prepared for. If only 25% of the annual precipitation is reached, then preparing for drought should be on the forefront of your mind. There is a potential that drastic measures will have to be taken in this event.

- **Summer - June 1st -September 15th or _____ - _____**
 - This period is considered the summer months for most. During this time, we will see a peak in temperatures and smaller amounts of precipitation. Necessary decisions should be made regarding the availability of forage in pastures and the progress of crops. Suggestions relating to this time can be found in the drought strategies section.
- **Fall - September 16th- November 29th or _____ - _____**
 - By the end of this period, around 60% of the year's expected moisture has fallen in the form of either rain or snow. Many consider this the recovering months in regard to drought. If utilized correctly these months can be crucial for the success of your ranch or farm for the following year. Especially during a long-term drought. Creating intuitive ways to retain precipitation during this period can be extremely helpful in protecting your finances. See drought strategies for more information. During these months, the first frost is likely to happen with lows dipping below freezing in the nighttime while potentially reaching the 60's during the day. When in a long-term drought, excess feeding and laying down straw to get ready for the wintertime is crucial. Starting to turn irrigation down as well as baling every bit of hay, you will be able to help your checkbook.
- **Winter - December 1st-March 31st or _____ - _____**
 - The dreaded months of winter with a hint of Spring. Harsh conditions with low temperatures make it hard to get things done in these months. Turning a profit during these months can be a challenge. While keeping your cattle alive is important, it can be equally as important to sell during this period.

Monitoring Schedule

- **Monitoring Table:**

- The open spaces are for you to fill in your information as you see fit.

What to Monitor	When (Month)		Current Conditions	Target conditions
Precipitation	By:			
Forage Availability	By:			
Remaining Forage	By:			
Range Condition	By:			
Livestock Grazing Records	By:			
Livestock Gain	By:			
Body Condition (livestock)	By:			

Financial Health	By:			
Markets and Value Upturn	By:			
Water Resources	By:			
Average Temperature	Annually (Compare to Month In the previous year)			

Drought Strategies

- **Introduction:** The drought strategies below are broken down into two main categories, farming and ranching. These strategies were implemented with your money in mind and are only suggestions that we hope you find useful.
- **Ranching Strategies (Broken Down)**

Before and During Drought

- **Drought Resilient Breeds**

Switching out certain livestock can help when predicted to be in a long-term drought. For cattle, Brahman and Angus/Any sort of interbred "Brangus" is great. For small livestock, Orpington and Australorp chickens, Red Wattle and Mulefoot hogs, as well as Karakul and Navajochurro sheep will significantly decrease water usage.

- **Feed Manipulation**

Different sources of feed can be manipulated in different ways tailored to what animals you have. When drought is upon you one way to help livestock acquire the nutrients they need is by putting out extra licks and implementing certain factors the cattle are lacking. When bales of Sorghum or Alfalfa are unavailable or low due to drought, investigate **Agrofeed's Nutralix**. This mineral bucket is very high in vitamins and phosphorus, essential for cattle. For animals deficient in Copper **CUPLEX** is a good feed addition. When bales of wheat or oats are unavailable during a drought year, (for a bedding material) explore sawdust if you want to keep your cattle warm. Not only does it hold heat well, but it should not need to be replaced all winter.

- **Rotational Grazing**

By rotating your pastures, you can condition your soil to be more prepared for drought. Depending on how you do this the impact can either be positive or negative. To have a positive impact it is encouraged that cattle are rotated on a one week or less basis. To see the best results a rotational grazing routine should have a 3-4 pasture minimum and a maximum of 6-7 pastures.

Your Strategies

Rotating cattle on a constant basis can also give your pastures time to replenish during drought.

During Drought

- **Herd Culling**

Herd management can save your checkbook when it comes to feeding and watering. Simultaneously, this will provide an advance in either meat or money for the year depending on what you do with the animal. The order below is a suggested order for culling until you have the available forage to meet the needs of the animals. A calculation between purchasing feed and culling cows can be made, however it is completely dependent on your cull rate. There are programs that can assist with both this calculation and cull rate, recommended programs are found in the resources section below.

- Open (non-pregnant) old cows.
- Open replacement heifers.
- Old cows with unsound mouth, eyes, feet, and legs.
- Open cows of any age.
- Thin cows over 7 years of age (Body Condition Score < 4).
- Very late bred 2-year-olds.

- **Backup Pastures**

Whether your plot of land is small or large it can be beneficial to have backup pastures in case main pastures aren't producing. If you don't have the space to do this now, cutting pastures in half is one way to go about creating backup pastures. Giving certain plots of land a break can be extremely helpful.

▫ Farming Strategies (Broken Down)

Before Drought

- **Cover Cropping**

Cover cropping can be utilized during the late fall to early spring months in Sheridan County, and while they might not provide much monetary value, they do assist in keeping your soil healthy and conditioned. The best cover crops to utilize in Wyoming include but are not limited to peas, barley, radish, and turnips.

- **Crop Replacement**

The typical crops of Sheridan County including Alfalfa, Wheat, Oats, and Barley tend to struggle in severe drought. In order to keep up with the year's quota it might be best to go with different options. These could include:

- Corn (almost all varieties)
- Broccoli in the fall/winter (Waltham 29)
- Bush beans and Green beans

If you cannot get away from one of the typical crops listed above, their most drought resistant variables are listed below:

- Milan barley
- Hard Red Spring wheat
- Kamut wheat
- All varieties of Quinoa

For a more complete list of drought resistant crops visit the University of California's Agricultural and Natural Resources website.

During Drought

- **Irrigation**

If you are fortunate enough to have quality water rights during a drought, make sure you understand the conditions of the watershed you are pulling from. In a down water year, it is important to not irrigate when periods of rainfall do occur, or during periods of high wind. If your water rights allow for it, creating a dam on

Your Strategies

a stream within your property might help. If you have the means to irrigate with a sprinkler, this is encouraged to control water usage. Flood irrigation is not encouraged during this time. Additionally, consider irrigating during the night as this will help your soil to hold more moisture for a longer term. All of this can be done by closely monitoring soil conditions and making necessary decisions.

- **Crop Residue**

When tilling your crops, leaving behind more crop residue than normal can help be a natural fertilizer to your fields. This also helps to decrease Evapotranspiration within your crops by creating a layer of shade on top of the soil.

- **Water Measurement Devices**

Utilize and observe water measurement devices. With the right system you will be able to save money on knowing when and how much to water your crops. Being as frugal as possible with your water supply is important.

- **Strategies of Both (Broken Down)**

- **Soil**

Knowing what soil types your ranch has, and modifying your management to your soil type, is the most important thing regarding drought. Soils with a little bit of clay are the strongest at buffering drought. Those soils that are completely made up of silt or sand don't hold water as well. If your soil is silty or sandy it is important to examine different irrigation strategies. Be careful if your soil has too much clay however, this can block water permeability up the root and makes it difficult for crop upturn. Per 5 square feet of soil, you want no more than 20% of it to be clay. A good percentage mixture of soil includes 45% Silt, 45% Sand, 10% Clay. This results in a well-mixed Loam.

- **Infrastructure/Rainwater Harvesting**

As stated earlier in the plan, the best way to help save money is by watering livestock without the use of irrigation techniques. Building certain structures can do so.

- Stock Tanks
- Rain Guzzlers
- Dams * (Check local laws for restrictions)
- Wells

- **Rain Guzzlers are an incredible way to harvest water. One of the best guzzlers is made by Rain Maker Wildlife, but there are many simple designs that can be made in any shop.**

Your Strategies

Resources

- The most important thing about a drought plan is the ability to be flexible. If you can find ways to personalize a plan more to your ranch, then do it! For instance, if you have recorded the average accumulated inches of precipitation on your plot of land over a long period of time and find it is different than 15 inches, use that data to determine what kind of year you expect to have.
- Utilize computerized programs. Programs have been created for any farmer or rancher to input data and see how much feed or seed needs to be put out regarding that year's precipitation. These programs also deliver guidance on fertilizer amounts and can be customized to accommodate all scales of ranch life from cattle ranches to smaller pig farms. The programs below are safe and trustworthy! They can be accessed using any sort of internet browser.
 - [Farmbrite](#)
 - [Cattle Max](#)
 - [Agworld](#)
 - [University of Wyoming Extension: Drought](#)

Local Resources that can help you

[NRCS](#) (Natural Resources Conservation Service)

NRCS works hard to meet with landowners one on one to ensure that producers find the best solutions to meet their unique conservation and business goals. Their goal is to sustain wildlife and agriculture for years to come.

[Sheridan County Conservation District](#)

The function of the Conservation District is to focus and coordinate technical, educational, and financial resources to meet the needs of the local land user.

[Sheridan Community Land Trust Water Supply Report Archive](#)

SCLT's water supply report has compiled many trustworthy sources into an easy-to-read and access report. It includes information about streamflow, snowpack, drought, soil moisture, and precipitation for both the Tongue and Powder Rivers.