

Navigating Drought in Wyoming: A publication from the University of Wyoming

If you have been involved in production agriculture in Wyoming for even a short time, you are familiar with drought.

Wyoming's climate is varied and unpredictable compared with more favorable growing regions of the country. Consider 2019. Many regions were facing dry conditions through most of the winter until the massive turnaround in February.

Drought can be looked at in four main categories: meteorological (precipitation), agricultural (limiting crop and forage/pasture growth), hydrological (stored water), and socio-economic (tied to behaviors and choices).

Navigating Drought in Wyoming

Developed by numerous academic and other professionals, *Navigating Drought in Wyoming* is a comprehensive look at all aspects of drought from an agricultural perspective. The publication

outlines strategies to help prepare for and manage through drought. Divided into three sections, the publication highlights numerous available resources.

Before the drought

The first two articles outline how precipitation and overall climate is measured in Wyoming. Drought from a climatological perspective is challenging to define in Wyoming, due to a variety of factors, including variation in terrain, elevation, and precipitation.

For example, where extended periods without precipitation in the northeast corner of the state may qualify as drought conditions, those same conditions may be common in the southwest.

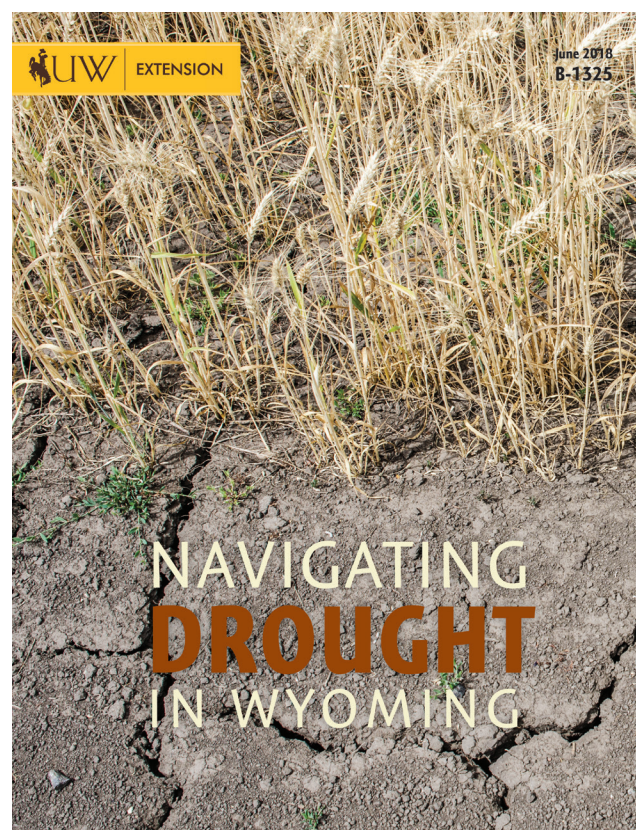
Drought mitigation strategies for the cattle business are discussed in some detail. The first strategy outlines reactive and proactive approaches, along with effects over a 35-year price horizon. **Proactive** strategies such as diversifying the operation through different enterprises (such as retained ownership) can provide a more certain outcome than **reactive** strategies such as buying supplemental feed or herd reduction/liquidation. This leads to preparing for drought by better managing rangeland, often the most limiting resource. Strategies include reducing stocking rates, stockpiling forage, and finding alternative feed for livestock to minimize the effects of drought on rangeland and pasture.

The concept of risk is presented next. Developing a comprehensive risk management plan is integral to managing drought in Wyoming. For most producers, this includes insurance products through federal crop insurance programs or by utilizing federal disaster assistance programs.

For livestock, insurance programs can help producers manage price risk (see sidebar left); these include policies for livestock price (LRP, LGM), forage (PRF and other forage insurance), and insurable crops (YP and RP). Disaster programs, while reactive in nature, provide resources to producers in disaster areas (including drought).

Irrigation is crucial for most crops in Wyoming. Improving efficiency and saving water are critical to plans for managing through drought and are discussed in the bulletin. Operations that use water efficiently are in a much better position to deal with drought. Options include efficiency improvements such as surge and drip tape systems, soil moisture monitoring, and conservation tillage.

Tools to monitor drought include the Drought Risk Atlas and the Drought Risk Monitor. These



Navigating Drought in Wyoming is available from the University of Wyoming Extension at bit.ly/navigatingdrought. The publication comprehensively looks at planning for and managing drought in Wyoming. Each chapter contains numerous links to related articles and resources.

can give producers a predictive way to plan for reduced moisture. Lastly, drought issues for small landowners are discussed.

During the drought

The management during a drought section begins with an article discussing the effects on rangeland and how to deal with less moisture in pastures. Grazing no more than 50 percent of available plant material is a key practice, allowing desired species time and resources to recover in a moisture-deficit situation while minimizing negative effects.

Managing cropland through drought conditions is presented next. Growers should have a comprehensive strategy to address reduced precipitation and/or reduced irrigation water resources. This should include crop selection, maximizing irrigating water effectiveness, weed control, and reducing or eliminating tillage operations when possible. Keep in mind severe drought affects feed, such as nitrate levels.

Developing and implementing a comprehensive risk management plan for drought is also covered, highlighting an example Wyoming ranch and the pros and cons of Pasture, Rangeland, and Forage - Rainfall Index insurance policies. Comparing available strategies and accounting for as much risk as possible are keys to not just surviving but thriving in drought.

Bale grazing system could help lower your operating costs

The trial and error experience of livestock producers is often the soundest, especially if analyzed and verified by research.

Such is the case with bale grazing. Many producers are curious about how to start having their cattle eat large bales directly in the field and avoid a number of management functions but are hesitant to convert.

So why consider this at all? Labor costs can be cut by as much as 35 percent, according to research in Manitoba, Canada. The same studies indicate 40 percent of fuel and equipment cost related to haying can be saved. Downside – you do have to place the bales, set the wire, and check the grazing. Two-thirds of this can be done in nice weather.

Other benefits include the animals feeding themselves, lower operating costs, manure gets spread around widely on fields, and residual feed material protects the soil and conserves moisture. Hopefully, utilizing bale grazing can reduce labor during the feeding season.

Bale placement, fencing

A large bale grazing system also has some precautions and guidelines that make it feasible for some operations and not others. **Bale placement** and **fencing** are two important considerations. Bales need to be placed where there is a strong perennial grass stand, preferably a mixture including a rhizomatous grass that can generate a good start with a heavier amount of residue. Smoothbrome and intermediate wheatgrass are good candidates but do not grow everywhere in Wyoming. Fields with bunchgrass species may develop “dead spots” from the bales.

Bales should be placed about 30 feet apart in a grid. Bales with sisal should be placed on their sides, since that string rots and releases the bales. Bales with plastic twine should be placed on their sides to allow removal before turning the stock in. Bales on end will absorb more moisture, reducing the quality of some hay. Removal will also be necessary if net wrapped bales are used. All feeding sites should be within travel distance to a water source and shelter.

Navigating Drought, continued

After the drought

The last section of *Navigating Drought in Wyoming* covers strategies for managing rangeland, cropland, and cattle after drought. From a **rangeland** perspective, waiting to return to normal stocking rates until plant health has been restored is most important.



Bales are placed about 30 feet apart in a grid pattern.

Estimating how many bales to leave in one “feed bunch” surrounded by two electric wires is a function of how big your bales are, how big your cows are, and how long you want to feed in one area. A 1,200-pound round bale can provide about 34 cow days of feed. This equates to 34 cows for one day, 17 cows for two days, or 6+ cows for five days. If you like to work on a week-long rotation and have 400 (1,200 pound) cows, 245 pounds per cow for each week will be required. For the herd, that would be 98,000 pounds of hay or 81 bales. Laid out 9 feet by 9 feet, this would take an area of about 400 x 400 feet. That's only about 3.75 acres.

Important points

There are a number of considerations, including:

- You will still have to spot check and then open new “grazing” segments.
- The hay will be set aside from marketing.
- Remember the two electric wires (hot and ground), since snow is a great insulator.
- Electric posts or rebar can be driven into bales to hold wire.
- Practice does not work well on native prairie sites since the bale impact and manure tend to kill grass in spots and provide nutrients for weeds.

From a **cropland** perspective, managing weeds in an aggressive fashion, once adequate precipitation has returned, is most important. Herbicide carryover and increased pest and disease issues should be addressed as well.

The bulletin concludes with discussions of predicting drought and future drought cycles.

- Snow drift patterns will need monitored.
- All bales must be harvested by the next growth season.
- Soil on grazing sites should be tested and bales placed differently to maximize benefits.
- Avoid placing grazing areas where runoff will take manure and urine into riparian areas.
- If mixing high and low quality feeds, consider separating them and moving stock every two to three days to balance nutrition intake by the herd.
- It helps if you systematically evaluate the Body Condition Score of your stock regularly.

You might consider phasing bale grazing into your operation to see if it makes sense for you. Try it with one class of stock and see if you want to expand.

If you would like to discuss bale grazing, windrow grazing, or other alternatives feel free to contact me or any University of Wyoming Extension educator or specialist.

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INSURANCE OPTIONS AVAILABLE IN WYOMING

1. **RI-PRF.** Pasture, Rangeland, and Forage—Rainfall Index insurance allows a producer to insure against losses on pasture and hay land for selected two-month intervals.
2. **LRP and LGM.** Livestock Risk Protection and Gross Margin insurance allow producers to insure against revenue declines due to price (LRP) and/or feed prices (LGM), and is not dependent on prices received at the farm.
3. **Yield protection (YP) and Revenue Protection (RP)** use a producer's actual production history (APH) to insure against declines in revenue due to yield and/or price.

