

Drought Management Tips for Beef Cattle Producers

Ken Olson | Professor & SDSU Extension Beef Specialist
Adele Harty | SDSU Extension Cow/Calf Field Specialist

Dealing with drought is an ever-present issue. Even when drought is not occurring, producers are either recovering from one or should be planning for the next. Thus, these tips for drought management cover the spectrum of creation and execution of a drought management plan in good times and bad.

Big Picture

1. **Have a plan.** Having a written drought management plan is critical to proactive management before, during and after drought. A well-executed plan is key to minimizing the devastating effects during drought and speeding recovery after drought. However, to do that, the plan must be executed in non-drought times to position the land, livestock, and other resources for reduced impact when drought occurs. The drought plan should be written to ensure that it is well thought out and to reduce the chance that something is forgotten or misunderstood when in crisis mode. The following tips should be addressed in the drought management plan. For more information on drought management plans, see *Managing Drought Risk on the Ranch A Planning Guide for Great Plains Ranchers* (<https://drought.unl.edu/archive/Documents/RanchPlan/ranch-plan-handbook-to-print-9.14.pdf>)

Supply Management

The best management plan is to stock conservatively in good years to be prepared for drought years. This is true for both rangeland and tame pasture settings. Conservative stocking in normal precipitation years leaves a forage reserve that can forestall the need to reduce stocking because of drought. It is especially important to not overgraze both during and after a drought. Overgrazing after the drought will delay or

prevent vegetation recovery. This can permanently impair the health and productivity of the land.

2. **Improve grazing distribution.** Even with good grazing management, there will almost always be areas of pastures that are underutilized. To take advantage of the forage in underutilized areas of a pasture, use management tools that improve grazing distribution such as strategic placement of supplements or water. Even though this might be old forage from previous years, it can be a valuable resource if supplements are provided to overcome nutrient deficiencies. For more information see: *Grazing Distribution* (<http://www.ksre.ksu.edu/bookstore/pubs/mf515.pdf>)
3. **Consider alternative sources of forage and their management considerations.** A wide variety of alternative forages often become available during droughts. For example, CRP is often released for grazing or hay production, and cereal or corn grain crops that won't produce adequate grain to harvest can be grazed or harvested as hay or silage. Additionally, cropland can be planted to cool-season or summer annual crops for the purpose of providing emergency forage during drought. All of these forage sources can have management concerns. These concerns include inadequate or unbalanced nutrient content, toxins such as nitrates and prussic acid, and grazing restrictions because of application of pesticides. A variety of additional informational resources include:
 - *Alternative Feeds for Ruminants* (<https://www.ag.ndsu.edu/publications/livestock/alternative-feeds-for-ruminants/as1182.pdf>)
 - *Using CRP Hay during Drought* (<https://beef.unl.edu/using-crp-hay-during-drought>)

- *Grazing Corn Stalk Residue* (<http://beef.unl.edu/cattleproduction/grazing-corn-stalk-residue>)

4. Purchase winter feedstuffs early at lowest cost, before prices spike as the drought worsens.

Even in normal precipitation years, prices are typically lowest in summer when feedstuff demand is lowest and rise as winter demand escalates. Drought causes these price increases to be more dramatic and volatile. Starting early will allow producers to make wise purchasing decisions. Even as prices rise because of the impact of drought, a producer needs to resist the temptation to make rash decisions. During drought, it becomes very important to invest time in shopping for the best price possible for the nutrients needed. Alternative options should be compared on a cost per unit of nutrient basis rather than price per ton. For example, if forage needs to be purchased primarily for its energy content, calculate the cost per mega-calorie (Mcal) from each feed. For a tool to compare feeds on a cost of nutrient basis, see: *Feed Nutrient Calculator* (<https://extension.sdstate.edu/feed-nutrient-calculator>)

- 5. Consider the economics and feasibility of feeding cows in a drylot.** Often, alternative sources of forage, as described in tip 3, are not locally available. Hay or silage from failed crops, CRP, and emergency crops of annual forages can be hauled to the location of the cows or vice versa, depending on which is less expensive. Sometimes it is best to put failed crops such as corn into silage rather than hay. In this case, hauling the cattle to the silage is required and placing them in drylot near the silo is the most efficient. In either case, moving the cattle from pasture to a drylot has at least two advantages: First, it makes feed management and delivery easier. Second, it provides total relief for the drought-stressed pasture. For a tool to compare hauling cattle vs. hauling feed, see: *Move the Cows or Move the Feed* (<https://extension.sdstate.edu/move-cows-or-move-feed>)

If alternative sources of forage are not available at economic prices, consider limit-feeding a high-concentrate diet to cows in drylot. In this

case, an energy-dense ration based on grain or byproduct feeds such as distillers' grains would be fed in limited quantity so that the cows receive adequate nutrition to maintain body condition, but not enough to get fat. Because the diet is essentially a finishing diet for feedlot cattle, careful management is needed to avoid nutritional disorders such as acidosis.

For more information about drylot feeding of cows, see:

- *Drylot Beef Cow-Calf Production* (<https://www.ag.ndsu.edu/publications/livestock/drylot-beef-cow-calf-production/as974.pdf>)
- *Limit Feeding Concentrate Diets to Beef Cows as an Alternative to Feeding Hay* (<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2017/ANSI-3028web.pdf>)

- 6. Minimize Feed Waste.** Although waste should always be managed, it is most important when feedstuffs are expensive and in limited supply. For hay, using bale feeders is key. Additional features on round bale feeders that further reduce waste include sheet metal around the bottom, slanted bars, and an internal cone. Moving from feeding hay on the ground to a well-designed hay feeder can reduce waste by as much as 30%. Putting out a one-or two-day supply of hay rather than more will also reduce waste. In drylot settings, active reading of bunks and management of daily feed deliveries is key to not providing excess feed that will go to waste. Managing so bunks are clean (slick) or only contain crumbs immediately before daily feed delivery will not only reduce waste, but will likely contribute to improved feed conversion by the cattle. For more information see:

- *Feeding Management to Minimize Hay Waste* (<https://u.osu.edu/beef/2019/01/23/feeding-management-to-minimize-hay-waste/>)
- *Feed Bunk Management* (<https://store.extension.iastate.edu/Product/Feed-Bunk-Management>)

- 7. Understand the role of creep feeding calves during drought.** Some have recommended providing creep feed to calves so the supplemental feed substitutes for grazed forage and stretches the drought-limited forage supply. While this may be true, early weaning is a better alternative for

reducing grazing pressure. Not only does it totally eliminate grazing by calves, it also reduces forage requirements by cows because they are not lactating (see tip 12). Additionally, management of the feedstuffs used as creep feed can be controlled better in a drylot setting with weaned calves. For more information see: *Creep Feeding Options: Will it Pay?* (<https://extension.sdstate.edu/creep-feeding-options-will-it-pay>)

8. Be wary of poisonous plants. Many poisonous plants have taproots that extend deep into the soil to extract moisture that grass cannot reach, and therefore they may be the only green vegetation in the pasture. While these poisonous plants are present during normal precipitation years, other green vegetation is available for cattle to select. Be able to identify poisonous plants that are common in your area so you can remove cattle from a pasture with poisonous plants that are highly apparent under drought conditions. For more information, see:

- *Drought Increases Toxic and Poisonous Plant risk to Livestock* (<https://beef.unl.edu/cattleproduction/toxic-poisonous-plant-risk>)
- *Poisonous Plants to Livestock in the Western States* (<https://www.ars.usda.gov/is/np/PoisonousPlants/PoisonousPlants.pdf>)

9. Manage livestock water supplies. Livestock water may run out before forage does. Producers need to be prepared to haul water. Planning and developing improved sources of water that are drought-proof is an important part of drought management during years of normal precipitation. Drilling wells and installing pipelines can provide water supplies with increased reliability. Springs and ponds can be improved by cleaning and developing them to increase capacity. Although we suggest that water developments should be planned and conducted during normal precipitation years, the best opportunity to rejuvenate ponds by dredging sediment is when they dry up during a drought. Planning before the drought is important to being prepared when the opportunity arises. For more information see: *Waterers and Watering Systems: A handbook for Livestock Producers and Landowners* (<http://www.ksre.ksu.edu/bookstore/pubs/s147.pdf>)

10. Monitor water quality in both surface and ground water to avoid poor cow and calf performance and death loss. Surface and ground water in many areas of the Great Plains are high in sulfate content. Sulfates in water cause cattle to reduce water intake, which in turn leads to decreased forage intake and depressed performance. At higher concentrations of sulfates, cattle develop polioencephalomalacia, a brain disorder that quickly progresses from lethargy to death. Sulfate concentration in water often increases under drought conditions, primarily because water depletion increases the concentration of sulfates in the remaining water. Increased vigilance to ensure that safe, low-sulfate water is available to cattle during drought is important to cattle performance and survival. Another water quality concern during drought is blue-green algae blooms. These blooms are most likely to occur during hot, calm weather conditions. For more information see:

- *How Do Sulfates in Water Affect Livestock Health* (<https://extension.sdstate.edu/how-do-sulfates-water-affect-livestock-health>)
- *Blue-Green Algae and Livestock* (<https://extension.sdstate.edu/blue-green-algae-and-livestock>)

Demand Management

Adjust stocking rates to match drought-induced reductions in forage yield to avoid long-term damage to the base forage resource. Selling productive livestock is always hard to do. However, strategic and timely reductions in specific classes of livestock can play a role in minimizing the overall magnitude of cow herd dispersal over a long-term drought. The longer a producer waits, the deeper he will have to cull when the forage is completely depleted (e.g. total herd dispersal in a worst-case scenario). For more information see: *Drought and Stocking Rate Effects on Forage Yield from Western South Dakota Rangelands* (https://openprairie.sdstate.edu/cgi/viewcontent.cgi?article=1068&context=extension_extra)

11. Monitor cow body condition score (BCS).

Body condition scoring provides a measure of the nutritional status of an animal. Research has shown that BCS influences productivity, particularly in terms of reproductive performance. Body condition scoring can provide an objective measure of the

influence of drought-induced forage shortage on the ability of grazing cattle to meet their nutritional needs. Specific BCS targets can be set in drought management plans to trigger stocking rate reductions to ensure sustained performance of remaining cattle. For more information, see:

- *Effects of Cow Body Condition and Calving Date on Calf Performance* (https://openprairie.sdstate.edu/cgi/viewcontent.cgi?article=1013&context=sd_beefreport_1988)
- *3-Step Body Condition Scoring (BCS) Guide for Range Cattle: Implications for Grazing and Reproduction* (<http://www.wyoextension.org/publications/html/B1294/#:~:text=Optimum%20BCS%20is%20a%205,BCS%20of%203%20or%20lower>)

12. Wean calves early. Cows need significant nutrients to meet the requirements of lactation. Weaning calves eliminates the lactation requirement and substantially reduces forage consumed to meet the nutrient requirements of the cow. Additionally, as calves grow, their consumption of grazed forage increases. Early-weaning calves and removing them from pastures will reduce forage demand by as much as 36% (<https://extension.sdstate.edu/early-weaning-drought-management-strategy>). For more information see:

- *Early Weaning Beef Calves* (<https://www.ag.ndsu.edu/drought/feeds-and-feeding/early-weaning-beef-calves>)
- *Economic Considerations for Early Weaning* (<https://extension.sdstate.edu/economic-considerations-early-weaning>)

13. Shorten the breeding season and pregnancy check all cows 25 days after breeding ends. This requires pregnancy diagnosis with ultrasound. It is key that cows diagnosed as open are immediately culled and marketed to eliminate their forage demand. Shortening the breeding season to 45 days or less selects the most fertile cows that get pregnant early in the breeding season, ensuring that the retained cattle are the most productive. While the overall herd size may need to be reduced, this practice ensures that the impact on overall productivity is minimized by improving herd reproductive performance. Additionally, the culled

cows will be marketed earlier than most, avoiding the market downturn that is typical when most herds are being downsized in the drought-stricken region. For more information, see

- *Tightening up Calving Season* (<https://extension.sdstate.edu/tightening-calving-season>)
- *Bunch the Cow Herd* (<https://extension.sdstate.edu/bunch-cow-herd>)
- *Beef Management & Reproduction Report Card* (<https://extension.sdstate.edu/sites/default/files/2020-02/P-00146.pdf>)

14. Manage the bull inventory. Because of their larger size, bulls demand substantially more forage than cows. Thus, reducing the number of bulls will have a greater impact than eliminating an equal number of cows. Consider eliminating bulls and utilizing artificial insemination (AI). If natural service is used, consider shortening the breeding season (see tip 13) and selling bulls when breeding ends. As a bull ages and gets larger, he requires more forage than a young replacement bull. For example, a mature 2400 lb. bull consuming 2% of body weight will eat about 48 lbs. per day, while a yearling bull weighing 1200 lbs. will consume about 24 lbs. per day. Selling the bull battery at the end of breeding eliminates forage demand by bulls until replacements are purchased before the next breeding season.

15. Make timely herd reduction decisions using cow performance records. A drought management plan should have trigger dates when a set percentage of cows should be sold based on a measure of drought severity, possibly as indicated on the U.S. Drought Monitor (<http://droughtmonitor.unl.edu/>) or a specific deficit in precipitation. The plan should call for a series of small cuts that start early in drought. A small percentage of the poorest performing cows culled early may be key to saving forage to reduce the magnitude of later cuts, thus retaining more cows in the long run. The plan should specify how to choose which cows to sell. Comprehensive and up-to-date individual cow performance records can be invaluable to identifying the least productive cows. For example, if the plan specifies that 10% of the cows will be sold if precipitation is 50% of normal on May 1, a computerized performance

record program that can provide a ranked list of the cows that are least productive will support identifying the cows to sell. Selective culling can lessen the overall impact of herd reduction, much like culling the less fertile cows suggested in tip 13. For more information, see:

- *Production Records for Cow/Calf Producers* (<https://www.asi.k-state.edu/research-and-extension/beef/research-and-extension/ProductionRecordsforCowJan2016.pdf>)
- *Guidelines for Uniform Beef Improvement Programs* (https://beefimprovement.org/wp-content/uploads/2018/03/BIFGuidelinesFinal_updated0318.pdf)

16. Diversify into a cow-calf plus yearling

operation. Yearlings are more liquid than cows. They can be sold whenever resources are too limited to support them. By having yearlings to sell when drought limits forage availability, the investment in genetics in the cows can be retained. A drought management plan should have a trigger mechanism to determine when yearlings should be marketed. In general, it is best to set this trigger early in drought to maximize forage savings for the cows. Additionally, it is usually easier to restock with yearlings after drought recovery rather than attempting to rebuild the genetics in a cow herd. For more information see

- *A Systems Thinking Approach to Ranching: Finding Leverage to Mitigate Drought* (<https://journals.uair.arizona.edu/index.php/rangelands/article/view/19710/19339>)
- *Increasing flexibility in rangeland management during drought* (<http://www.ars.usda.gov/SP2UserFiles/person/1354/98.%20Kachergis%20et%20al%202014%20Ecosphere%20drought%20paper.pdf>)

Marketing and Finances

Written marketing and financial plans should be in place that include contingencies for marketing cattle under drought conditions and managing the financial implications of drought-induced management decisions. The marketing contingencies should be tied to the triggers for reductions in cattle numbers or changes in timing of marketing, such as early sale of yearlings or disposition of early-weaned calves.

17. Market drought-induced herd reductions.

Market timing is important. Tips 12 to 16 discussed managing herd inventory during drought. As indicated, herd reductions should be made early in drought to maximize forage savings for remaining inventory. Another reason to sell early is that local cattle markets generally decline during drought-induced runs of cattle. Selling before the run helps reduce market losses.

18. Avoid selling lightweight, early-weaned calves.

Early-weaned calves have been shown to perform well in feedlot settings. Rather than sell early-weaned calves at less than their potential value because of their small size, consider retaining ownership into a feedlot in a region not influenced by drought. Custom feedyards exist to feed cattle owned by customers such as cow-calf producers that retain ownership. Ownership can be retained for varying lengths of time. One option would be to feed them to normal weaning age and weight. Another would be to retain ownership to slaughter. Custom yards provide valuable services as partners to add value to weaned calves. They will typically assist with calculating breakeven prices to determine the best option under a given set of circumstances. The cost of drought-diminished forage supply is a great enough economic hardship; taking a hit on income because of lightweight calves should be avoided. For more information see:

- *Feeding Management for Backgrounders* (<https://www.ag.ndsu.edu/pubs/ansci/beef/as1158.pdf>)
- *Early Weaning Beef Calves Sometimes Makes Cents* (<https://beef.unl.edu/cattleproduction/earlyweaning>)
- *A Cow-calf Producer's Guide to Custom Feeding* (<https://www.ag.ndsu.edu/publications/livestock/a-cow-calf-producers-guide-to-custom-feeding/as1162.pdf>)

19. Consider using risk management strategies

(e.g., futures, options, and Livestock Risk Protection). Market prices for both cattle and feed typically become more volatile during drought. This means protection from risk associated with market volatility becomes more important than usual. This can be particularly true if ownership is retained on early-weaned calves, as discussed in tip 18.

Custom feedyards typically include assistance with risk management among the services that they provide to customers. For more information, see:

- *Livestock Risk Protection for Cattle* (<https://extension.sdstate.edu/livestock-risk-protection-cattle>)
- *Self-Study Guide to Hedging with Livestock Futures and Options* (https://www.cmegroup.com/trading/agricultural/files/AC-215_SelfStuy_GuideNYMEX.pdf)

Forage insurance is another risk management tool to be considered as a contingency for drought. In essence, it is an insurance policy that pays when forage production is reduced due to natural causes such as drought. For more information, see: *Pasture, Rangeland, Forage Insurance is a Risk Management Tool for Producers* (<https://beef.unl.edu/cattleproduction/prfinsurance>)

20. Utilize livestock indemnity and forage disaster programs.

The USDA Farm Service Agency administers these disaster assistance programs. They provide government-funded payments to overcome economic hardship caused by natural disasters such as drought. For more information see:

- *Livestock Indemnity Program* (https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/FactSheets/livestock_indemnity_program_lip-fact_sheet.pdf)
- *Livestock Forage Disaster Program* (https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/FactSheets/livestock_forage_program_lfp-fact_sheet.pdf)

21. Communicate with your Management Team.

Maintain close communication with your lender, tax accountant, and other financial professionals to keep them abreast of your financial situation. They play key roles in managing the influence of drought-induced decisions on profit, cash flow, tax implications (e.g. capital gains on cow sales), and related issues.

Back to the Big Picture.

As was said at the beginning, a drought management plan that considers these tips will play a role in mitigating the negative effects of drought. Final considerations include:

22. Think outside the box. As you make your plan, realize that one cannot continue “business-as-usual” during drought. Opportunities to find the best alternative feeds, market into the best prices possible, and generally reduce the damage will be found through unusual opportunities. People that fare the best during trying times are those that are open minded to alternatives. For more information see: *Tips for Overcoming Paradigm Lockdown* (<http://beefmagazine.com/blog/tips-overcoming-paradigm-lockdown>)

23. Plan ahead for drought recovery management.

It will rain someday. The key to range recovery is allowing the land to overcome the stress of drought. Much like we have suggested triggers to instigate decisions and actions during drought, a drought plan should have triggers for restocking and returning to normal management as drought recovery occurs. While rapid restocking may provide the fastest short-term recovery from the economic hardship, it may not be the best for long-term stability. For more information see: *Where to start if you are recovering from drought* (<http://drought.unl.edu/ranchplan/AfterDrought/StartHereAfterDrought.aspx>)