BEEF

Pasture Drought Management

Eric Mousel, University of Minnesota

Drought conditions make pastures less productive. Farmers must develop short- and long-term strategies for dealing with a short grass supply that can persist even after moisture returns. Often, pasture drought management decisions are reactive, not proactive, generally making matters worse. The primary pasture drought management goal is to preserve pasture condition to reduce long-term negative effects. Whether adjustments to grazing, early weaning calves, or destocking are necessary, adjustments prior to damage is key.

Protecting roots. Lack of soil moisture suppresses grass growth and root development. Reductions in root capacity limit the ability to pull moisture and nutrients from the soil, further limiting plant growth. Drought conditions force grasses to use stored energy to grow leaves and photosynthesis to manufacture energy. Under normal conditions, as much as 20% of the year's growth will occur using stored energy before the plant can maintain itself on leaves produced that season. During drought, energy produced with root or crown reserves will be used primarily to maintain basic functions rather than growth. Grazing during drought further complicates the physiological process. Root systems are sacrificed to the bare minimum necessary, further limiting plant growth. Grazing systems targeting key species at the right time for a minimal duration will be most effective in limiting long-term damage to perennial plants.

Protecting soil. In a drought, all ecosystem resources are stressed and can be easily damaged by overuse. Plants rely heavily on organic matter, soil microbes, invertebrates, and fungi to feed growing tissue. As grazing removes ground cover, ecosystem components are exposed to conditions where they do not thrive. Research shows on an 80˚F day, every 5% reduction in soil coverage results in a 3˚F increase in soil temperature at a 4" depth. Therefore, the sun can heat soil to over 125˚F on a day that is not even that hot. The ecosystem begins breaking down under these conditions and can take significant time to recover. Maintaining soil cover is key to avoiding this type of ecological breakdown.

Grazing management. Managed grazing is key to protecting pasture resources for quick recovery following drought. Rotational grazing will benefit pasture ecosystems tremendously. Livestock should only be allowed to graze grass with a sward height of ≥8" and should be removed when stubble reaches 4". Rest times between grazing events will likely need to be doubled to avoid pasture degradation. In normal or wet years, it is common to see grasses grazed to a 1-2" stubble height. However, grazing <4" during drought will take longer for spring recovery.

Supplemental feed and water. One strategy benefitting livestock and pastures is supplemental feeding. This can stabilize grazing livestock nutrition while reducing pressure on the grass. These feeds should consist of bulky roughages ≥7% crude protein to act as rumen fill. Feeding concentrates, while improving flesh on livestock, will not reduce grazing pressure to any measurable degree. Economic feasibility of doing so will vary, but it is a good management option.

For many, surface water for livestock has become as much of an issue as grass. As stock ponds dry up, cattle spend more time in a smaller area around water; grazing only at night. This creates a major degradation zone that can take years to recover. Providing supplemental water can not only alleviate potential shortages and water quality issues, but can help manage the distribution of livestock in pastures and reduce large areas of severe degradation.

Adjust stocking rates. Summer destocking is a last resort strategy to avoid pasture destruction. The destocking goal is to be proactive enough to maintain a smaller breeding female group through the rest of the summer and over the winter. This group will then be the core to rebuilding once conditions improve. Strategies to destock vary, but generally consist of first selling open, late-bred, and older stock as well as any animals with bad eyes, feet, or udders. Additional destocking strategies can include early weaning to dry off females and reduce their nutrient requirements and grass intake as well as liquidating young replacement stock.

Remember, drought does not impact everyone the same. Creating a plan specific to your operation and resources, even at this late stage of the grazing season, will pay big dividends in future years. Drought events effect livestock operations for several years post-drought with poor conception rates, low grass production, and light weaning weights. Therefore, proactive management executed today will truly save farmers from challenges down the road.

Forage Focus, August 2021