

When in Drought – Manage Throughout

An old adage, “An ounce of prevention is worth a pound of cure,” is practical advice which we have all probably heard at some time.

It is also true that drought in South Dakota and the Midwest is a recurring situation (Smart, A.J., Dunn, B., and Gates, R., 2005). So there is cause to always be alert to its hazards. In fact, the drought of 2012 was one of the worst on record covering the United States and especially the Midwest (O'Donoghue, 2012) (Wiltgen, 2012). In particular, drought damages pasture and range plants which in turn affects the livestock operator's bottom line (Nadeau, 2012). So, what can we do about it?

When in a drought we still need to manage throughout the season and stick it out. I will discuss 1) how plants respond to a drought and overgrazing, 2) history of grazing management and its evolution, and 3) steps to develop a drought plan.

Most grasses in South Dakota and rangelands across America are suited to endure drought conditions (Box, 2005). Also, they are adapted to moderate grazing. Under good management, grasses are allowed to store food and remain healthy. There is a payoff to this especially during dry weather.

When drought is combined with continuous heavy grazing, grass plants can actually starve to death. Leaves, not roots, are the food factories for plants. When too much is removed during the growing season, root reserves go down. A plant is weakened. Some plants do become dormant during drought. However, if drought occurs when food reserves are very low, plant roots begin to die and entire plants will be killed. But if only 50% of leaf material is removed, the root reserves will be left intact (Dietz, 1989).

Take half and leave half. A catchy phrase maybe, but one that good grass managers abide by. It's used to indicate the amount of each year's growth that can safely be used. The half that is left in the pasture is the reserve needed for the grass to manufacture food. A pasture stick can be used to help give a visual of how much should be removed (Smith, R., Panciera, M., and Probst, A., n.d.) (NRCS Grazing Or Pasture Stick Instructions for Using, n.d.)

Getting the most from rangeland while keeping plants healthy and productive is important to all ranchers and grassland managers. But when faced with a drought as we were the

summer of 2012, we have to remember that management is key. Let's take a look back in history and see how far grazing management has evolved. When cattle were first introduced to this country, grazing took place in the form of herding and cattle drives. Cattle were left to roam the range, and if drought or lightning strikes occurred; forage was greatly reduced, and the cattle had to keep moving on to find green grass (Cattle Drives, 1999). Then came the invention of barbed wire (Fencing the Great Plains: The History of Barbed Wire, n.d.). Barbed wire was the one factor has influenced grazing management the most. Almost one hundred years later, high tensile wire was introduced in the United States (High-Tensile Fencing, n.d.). This proved beneficial in the 1980's to transform grazing management from continuous season-long grazing to controlled or prescribed grazing. Fencing allowed pastures to be broken up into smaller pastures or paddocks which helped to prevent overgrazing of sensitive areas and allowed pastures to be rested. Multiple species could be grazed and fencing was used to increase productivity of rangeland. Prescribed grazing evolved from rotating cattle through pastures, to more elaborate plans such as Management Intensive Grazing or MIG (Management-Intensive Grazing, 2012). But in times of drought it can be just as important to give much needed rest, and with the development of fence – we can do just that.

Government agencies such as the Natural Resources Conservation Service have been instrumental in helping landowners by offering technical and financial assistance for fencing, and water developments such as rural water hook-ups or wells, water tanks and pipelines (NRCS, n.d.). These tools along with keeping some simple principles in mind like, "Take Half, Leave Half" can help maintain ones pastures and be a recovery plan when drought occurs. In times of drought like the summer of 2012, they can offer resources to help with drought planning, and offer assistance through the Drought Management Calculator website (Drought Calculator, n.d.).

Experiencing a drought firsthand is very emotional, and many times decisions are not made to effectively manage through the drought conditions. In 2010 a study was conducted by Cody Knutson and Tonya Haigh (2013) with 10 ranchers from seven states (South Dakota, Nebraska, Kansas, Colorado, Wyoming, Texas, and California) to determine what their drought strategy was and how they implemented it. As a second part of the study ranchers met with grazing land advisors to share experiences and develop a drought-planning methodology. As one Colorado rancher said, "I think you've got to have a drought plan to remove the emotional side

of it. It's like the general having a game plan before he goes into battle. You can't just make it up as you go because the shells are falling all around you. You've got to have something like that to take the emotion out of it." They came up with a ten step plan that can be implemented and be thought of as a game plan for managing through a drought. The first step is to form a planning team. Identify your planning partners and establish an open communication. These can be NRCS personnel, state university specialists, conservation districts, county extension specialists, private consultants, and neighbors. The second step is to set ranch vision and strategic objectives. Producers must identify their goals for coping with drought and focus on how the operation will maintain its natural resources base. The third step is to inventory ranch resources. Questions to ask include: what is the rainfall history, what are the livestock numbers, what is the feed and forage inventory, and what are the forage needs? These are just some of the inventory questions that must be asked. The fourth step is to understand drought risks and benefits. Advisors through this study worked with producers to explain that drought can transition their rangeland to a new ecological site, and also explained that weed control during dry years can be critical. The fifth step is to learn to monitor resources. Some of the monitoring components included: precipitation, range condition, forage production, livestock production and health, feed and livestock markets, water resources, and ranch finances. The sixth step is to identify critical dates for making decisions. Making decisions when a drought is progressing is very difficult. Making decisions based on a critical date such as April 1 or April 15th is better to determine forage growth and number of cattle to run for the spring and summer compared to making decisions on a day to day basis. Step seven is to identify strategies to be implemented before drought. Most ranchers in the study agreed that the best management practices are always made on the front-side of a drought. Decisions such as investing in fencing and water developments to improve infrastructure ahead of time proved beneficial to graze more efficiently. Step eight is to identify strategies to be implemented during the drought. Advisors recommended using resource inventories to help with decision making during the drought and using tools such as a Drought Calculator to assess and re-assess different scenarios. Step nine is to identify strategies to be implemented after drought. Planning for drought recovery by determining how long it will take for pastures to recover, and determining when cattle numbers can be restocked are all steps to take in recovery. The final step is to monitor and evaluate the drought plan. After having experienced a drought, write down

what could be improved if it should ever happen again. Share experiences with others and look for ways to improve. The study concluded that having a step by step drought plan will better equip ranchers and grass managers to have a plan of action, so management decisions aren't made day by day (Knutson, C. and Haigh, T., 2013).

From my own experience, having a plan and following it has proven beneficial. I've seen in our pastures where we rotated the cattle more frequently during the drought of 2012, the pastures recovered better the next spring. That is one thing I've learned is that when the pastures are green and growing the cattle should be moved more frequently, and making sure to "Take Half, Leave Half." This is key to ensuring there are root reserves in times of drought and to utilizing the forage in the right season when the nutritional value is the highest to maximize pounds of beef produced. Using resources and tools available to set up grazing infrastructure such as fencing and water developments and working with technical specialists to set up a grazing plan can be beneficial before a drought. As well as following the ten step approach to developing a drought management plan. We can't always predict when there will be devastating cycles like drought, but we can be ready if we stick with some simple principles to help us, so 'When in Drought, Remember – Manage Throughout'.

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