

Monitoring by the Numbers

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What is the biggest resource most of us have on our farms and ranches? The answer for most of us is our land. To be profitable and sustainable, we have to manage it well. Monitoring is a big part of managing the land. Before I go into how we monitor, here is a little information about our ranch.

Shovel Dot Ranch is located 35 miles south of Bassett, Nebraska. We have a cow-calf, backgrounding and yearling operation, along with hay and crop production. Our heifers start calving at the beginning of April and our cows start April 20th. We usually wean in early October and graze our calves on meadow regrowth until November 1st. We then background our calves along with some purchased steer calves until they go back to grass in early May. They are then sold off grass weighing 900 to 950 pounds. Our cows are grazed on winter range with a protein supplement until April 1st. Then they are hayed until they go back on grass also in early May.

We keep a lot of records for our cattle, but perhaps nothing is more important to the continued health of our business than the monitoring practices we use for our pastures, and then using the information we have gathered to make the necessary changes.

In the early years, monitoring was accomplished visually; assessments were made to promote the philosophy of harvesting forages in a way that promoted long-term sustainability, and then adjustments were made accordingly. In those early years, no records were kept.

Monitoring practices became more exact and effective with the introduction of record keeping several decades ago. In the 1980s, with guidance from U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) representatives, Shovel Dot Ranch instituted picture sites and began recording usage on an animal unit months (AUM) basis.

Range management practices also improved greatly in the 1980s when family members attended Holistic Resource Management (HRM) schools, worked with grazing consultants, and joined the Society for Range Management, all of which increased my family's knowledge and understanding of forage management and monitoring.

Through those years many advancement in forage production were incorporated, but in the early 1990s we made a change that turned out to have a long-term positive effect on our operation: the incorporation of a computer-based information-gathering system. At the time, we were looking for a better way to determine what effect we were having on the land with our grazing practices.

With the help of Dr. Terry DeGroff, a veterinarian and management information systems expert, we began using a DOS computer program developed at Texas A&M University called The Grazing Manager (TGM) to orchestrate grazing plans. Data on pasture sizes, carrying capacity using demand days, forage growth curves, rainfall, etc., were entered, as well as data about the various cattle groups such as numbers, weight, stage of lactation, etc. Using analysis from these data, a grazing plan was developed. During the first three years, the pasture input numbers, carrying capacity and growth curves were adjusted to the point that we felt we had those critical inputs correct. Since then, we have not changed that information, knowing that changes in grass that could be harvested, either up or down, were due to our forage harvesting techniques. This was and is a good way to monitor what effect our grazing management strategies are having. Since then, TGM was updated to a windows program, and then updated again by a company in Iowa, the latest version of which came out in 2008.

Along with the long-term monitoring of pasture conditions, we also use TGM for our grazing planning and record keeping on a yearly basis. We set up a grazing plan in the winter. Then as we go through our pasture rotations, we observe what the grass is actually doing versus what the program says we should have. Expected growth curves are plotted versus actual use for each pasture. We can also change the growth curves for the grass if we are seeing a good or poor growing year. Then we can change the plan for the rest of the year to project if there is a need for more forage or reducing herd size so that available forage can be stretched out. Having the information we gather through monitoring put into a format that is easy to work with helps us make changes early when those changes can have the most effect.

This year I changed the growth curve in TGM to fit the dry conditions. Then I changed the original plan using different scenarios. I could see what would happen with the grass if we sold yearlings early, weaned early, or reduced herd size. Because of what we learned from this information, we sold all our yearlings by early August, we are going to wean in early September instead of early October, and we plan to sell our older cows. We will also be sending cows to cornstalks, and we have been locking in feed needs.

In the last couple of years, we added to our monitoring system by working with the NRCS in its Conservation Stewardship Program. One part of this program focuses on monitoring. We set up picture points in pastures to monitor plant composition along with plant height, density, etc., over time in order to measure the effect of grazing practices. We took GPS coordinates for these sites so we will be able to return to these exact sites year after year.

The following are site pictures taken in September 2011.



These are examples of site pictures taken in 1991 versus the same site in 2011.

1991



2011



1991



2011



These pictures show what our grazing practices have done for us over the last 20 years. We have made changes in grazing time, the amount of rest pastures are given, and the intensity of our pasture rotations. We are always trying new things. Last year with one of our rotations we started grazing each pasture one time during the growing season in hopes that the rest would be beneficial to the grass and that the pastures grazed early in the rotation would work well for winter grazing. The information we have gathered along the way and that we continue to gather has let us know what effect each change has had. The practices and management system we are using now put the information in a format that allows us to make decisions in a timely fashion. Together these have been invaluable to our grazing and conservation practices.

Our ranch has always looked to continually improve on what we do. How we monitor is no exception. TGM is a great tool for us, but as new technology is developed, we will always look to see if there is a better way. In the end, the key is to monitor so that you can measure how you are affecting your grasslands, not just eyeballing them, and then make the necessary changes.