Is Rotational Better?

Jul 1, 2008 12:00 PM, By Kindra Gordon

Talk with successful ranchers like Gene Goven and they often cite rotational grazing as a key ingredient in their operation's success. He sums up the importance of rotational grazing on his North Dakota ranch this way: “We wouldn't be here if we hadn't changed our method of management.”

In 1982, Goven began cross-fencing his 750 acres of native prairie, which he describes as “thin uplands,” to initiate rotational grazing. With continuous grazing, he was able to run an average of 55 cow-calf pairs. Under rotational grazing, he's increased his stocking rate 230% and last year custom-grazed 138 cow-calf pairs during the summer months along with fall grazing an additional 80 pairs.

Counting the calves' weight gain alone, Goven says he's averaged a 297% increase in the pounds of beef he's producing per acre.

Despite such accolades for rotational grazing from producers, research in the range science community documenting its benefits is less clear cut — and sometimes contentious. For instance, a recent synthesis of the science cites studies that suggest continuous grazing can produce equal or better plant and animal production compared to rotational.

While this has divided several range scientists over the issue, Pat Johnson, South Dakota State University (SDSU) range science professor, acknowledges rotational grazing has two sides: “There are many good things about rotational grazing, but the research [to date] doesn't support it [improved plant and animal production].”

That said, many — including Johnson, who has devoted more than 20 years to range-science research and teaching — say rotational grazing shouldn't be discounted. Instead, ranchers and researchers agree that the value in rotational grazing systems is in the management that goes into them.

Roy Roath, Colorado State University Extension range specialist, explains: “The contribution of rotational grazing is the ability to manage rangelands to achieve desired outcomes.” He points out how rotational grazing can be beneficial in enhancing plant species composition to achieve conservation goals, such as riparian management, wildlife habitat or managed grazing.
Merits of management

Specifically, Roath says rotational grazing's key principle is to “manage the frequency of defoliation and allow plants the opportunity to regrow and recover during the growing season.”

He points out that grazing is an intense defoliation process; changing the stocking rate doesn't change the intensity of use — it only changes the number of plants that get grazed. As an illustration, Roath cites a Texas study comparing a rotational and continuous grazing system with the same stocking rate.

In the continuous system, cattle grazed 30% of the total surface area with some plants being regrazed 5-6 times during the year. In the rotational grazing component, more total plants were grazed and plants were regrazed fewer times.

This is the crux of rotational grazing, he says. “With rotational grazing, you change the pattern of grazing use. You don't eliminate selectivity, but you increase use beyond those patch areas — and then allow for recovery.”

Continuous (or season-long) grazing doesn't allow for that recovery and regrowth, thus prompting overgrazed patches and ungrazed patches — even if only a few animals are in the pasture all season.

“If the frequency of defoliation isn't managed and plants aren't allowed a recovery period during the growing season, it's difficult to maintain the preferred plants in the stand,” Roath says. The recovery time is critical to foster greater diversity of plant species, such as forbs and cool-season grasses, which ultimately help in achieving conservation goals.

Others concur on the importance of recovery time for plants. Karen Launchbaugh, University of Idaho associate professor in rangeland ecology and management, acknowledges there are cases where continuous grazing can work, but says, in the topographically challenging landscapes of the West, rotational grazing helps “manage distribution and offer periods of deferment to highly preferred parts of the landscape.”

SDSU's Johnson adds, “The great thing about rotational grazing is you can control when an animal has access to the forage. You can't do that with continuous grazing.”

Regarding plant diversity, she adds, “If you go in a pasture and graze at the same time every year, eventually you'll change plant communities and possibly the usefulness of that rangeland.”

Likewise, Roath says, “In Colorado, continuous grazing [over time] essentially creates a monoculture of warm-season, short grasses. You won't have plant diversity and you'll graze out the riparian areas.

“Rotational grazing is supported by the science. The science may not show you can increase productivity, because that is limited by soils and precipitation. But what the land produces can markedly be changed by rotational or continuous grazing systems,” he adds.

Intangible effects

In addition to the ability to control grazing and impact plant diversity, Johnson also credits rotational grazing systems with several intangible benefits for ranchers. Rotational grazing allows animals to be regularly checked, facilitating monitoring for herd health and detecting sick calves, injured animals,
etc. Johnson says, “Those are some of the biggest benefits that don't get measured in a research study.”

Barry Dunn, executive director of the King Ranch Institute for Ranch Management, agrees. “The increased attentiveness to the cattle and the grass are benefits from rotational grazing that may not be documented. Most scientific studies of grazing systems are looking at the bare essentials of moving cattle, but there are other things that change — such as fly control, distance traveled to water, water consumed — that are benefits from rotational grazing that don't manifest themselves in forage production or pounds of beef… science doesn't pick up everything,” he says.

To that point, Pat Pfiel, with more than 30 years experience as a ranch manager in Florida and the Southeast with her husband Brady, sums it up this way: “In scientific research, rotational grazing is studied as a system, but it's not something you can put on a clock. Rotational grazing isn't a system — it's a management tool. You have to refine it to each setting and each type of forage… It's an art to watch the cattle grazing and recognize when it's time to move them.”

New measurements

That said, some range scientists are working to develop analysis techniques to better assess the usefulness of rotational grazing systems. Among them is Alexander “Sandy” Smart, SDSU range science associate professor.

“Our discipline [range science] has let us down in not adequately measuring grazing utilization,” he says. He cites flaws in current methods to calculate forage production that use caged enclosures, suggesting they're more of a reflection of past management than a current grazing treatment.

Smart believes a better utilization measure may be tracking the harvest efficiency by livestock on rangelands. He believes rotational grazing is beneficial because it increases harvest efficiency; he's re-evaluating previous North Dakota data to examine this theory.

Smart also says plot size is an important factor to consider in the debate. Much of the research that makes continuous grazing look favorable to rotational grazing has been conducted on units smaller than 10 acres, he says. Meanwhile, on larger, real-life ranch settings, Smart says he's found fencing and setting up rotational grazing is helping distribute livestock over the landscape and utilize the range more efficiently.

He concludes, “Rotational grazing is beneficial — especially when we have differences in plant species and their growth rates. In a rangeland setting where moisture is driving the system, land managers need to be able to control the different time periods to utilize the forage.”

Kindra Gordon is a Whitewood, SD-based freelancer.

Perspective: Chuck Pritchard

Chuck Pritchard operates Bitter-water Land and Cattle Co., a cow-calf ranch east of Paso Robles, CA that's been in his family since the 1860s. Pritchard runs about 200 cow-calf pairs, and says of rotational grazing: “If you look at the natural system of grazing with wildlife, they move. They have patterns. So the idea of controlling animals with a fence and leaving them in one spot to graze all season is not a natural process. They need to move around.”
He adds, “We try to use rotational grazing as much as possible. Our ranch varies from 1,600-3,000 ft. in elevation with steep canyons and light to heavy soils. So we've got to have flexibility; every year is different. What nature provides us on our grasslands is what we get.”

Pritchard uses high-intensity, short-duration rotational grazing with the goal of impacting the annuals as much as possible. “We use our grazing as a management tool to try and create plant diversity on the rangelands and get more perennials to come in — and we've accomplished that.”

He continues, “I can show in photos that we've taken marginal land and actually improved it. But to do so, you've really got to pay attention, monitor the grassland and constantly evaluate the plant community and what's going on out there. And, you have to give it rest.”

Pritchard concludes, “There is no one-size solution for all operations. I've found that really good grazing operations are those with a hands-on management team that's committed to good resource management.”

**Perspective: Pat & Brady Pfiel**

Pat Pfiel and her husband Brady were introduced to rotational grazing in 1978 as new managers for a Florida ranch that was overstocked and overgrazed, but the owner did not want to decrease livestock numbers. Working with the Natural Resource Conservation Service, Pat proceeded to refine a rotational-grazing method that got the ranch back on track. She's been sold on rotational grazing ever since.

The Pfiels have managed multiple ranches ranging from 1,000-5,000 acres over the last 30 years, and Pat says, “I've applied rotational-grazing principles to the properties we've managed and shown it works well. Even in the worst drought in Florida, I did mob grazing and made it work. But the important thing to remember — and what science sometimes can't quantify — is that it's a managed system.”

She adds, “You can utilize the concept of a rotational grazing system, but it still requires the management side — otherwise it won't function. It's not a cookbook. It really depends on what your goals are and what the grass can sustain. You need to do what's good for plant diversity and the cattle.

She concludes, “If you're not going to manage, then you might as well continuous graze, because continuous grazing is a lack of management.”

**Perspective: Gene Goven**

Gene Goven of North Dakota says his recognition that “things weren't right” on his North Dakota ranch in the early 1980s moved him toward rotational grazing. Goven saw that his native prairie on thin uplands was producing less and less. “I recognized I have to manage the grass first and the beef second.”

With help from the Natural Resource Conservation Service, he began the process of implementing his system. “I learned that you must manage the time and timing of your grazing so the grass has the opportunity for regrowth and recovery.”

By allowing for that regrowth, Goven was able to better capture precipitation, which helped foster
plant diversity. “It's all about efficient use of rainfall. We now have the ability to capture 6.2 in. of surface runoff on our slopes compared to 0.8 in. in the past.”

Today, Goven's 750 acres of native prairie have an increased carrying capacity of 230%, which he attributes to the improved plant diversity. He operates as a custom grazer during the growing season to allow for maximum flexibility, and says the key to rotational grazing is flexibility and management.

“Mother Nature not only flexes the seasons, but flexes within the season. So you need to take cues from what's happening on the prairie and manage for diversity,” Goven says.

He also uses that principle on his cropland, often inter-seeding beneficial legumes to help with nitrogen fixation and boosting productivity. This spring, he seeded Indianhead black lentils, red top turnips and forage radish into his field of winter triticale.

Looking back on his experiences with rotational grazing, Goven says, “I look at grazing and say there is science and there is art. I like to say I use their science for my art.” And, Goven recognizes that there's always more to learn about grazing management. “It's a journey, not a destination,” he says.

Find this article at:

Check the box to include the list of links referenced in the article.