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Rotation vs. Continuous Grazing

Even the experts disagree on grazing management practices.

by **Troy Smith**

There might be nearly as many opinions about grazing as there are graziers. Perhaps that is as it should be. After all, every livestock grazing enterprise is unique. Each and every manager has different resources, different challenges and different goals. When you put a group of serious graziers together in the same room, it usually sparks lively discussion about what works and what doesn't.

It seems the "experts" don't agree on whether it is best to practice season-long continuous grazing or a pasture rotation strategy. Even the land grant university scientists who study effects on plants, animals and pocketbooks harbor different opinions about how to manage grazing lands for optimum results. From the scientific community, as well as the fraternity of seasoned range managers, comes a mixed message.

Seated in one camp are the traditionalists who favor season-long continuous grazing. There are ranches where a herd of animals may graze year-round on one large tract of rangeland. However, season-long continuous grazing usually involves assigning a set number of animals to a specific pasture for the duration of a grazing season — typically

the period of time that forage plants are actively growing. In many cases the manager decides how many animals the pasture should carry for the season, turns them in when the grass greens up and leaves them until forages go dormant.

Rotation grazing involves the use of multiple pastures, in sequence, to allow pastures in the grazing system to undergo a period of rest during the growing season. In a rest-rotation system, one or more pastures may not be grazed at all for an entire year.

More common are deferred-rotation systems, whereby at least four pastures are grazed sequentially during the grazing season. Typically, each pasture is grazed for a few weeks and the sequence for use is changed each year. Deferred-rotation systems may also allow for seasonal rotation, relegating some pastures for use in winter or when forages are dormant. An estimated 60% of range and pasture managers in the U.S. apply deferred-rotation practices.

While their numbers have increased during the last 10-15 years, producers practicing management-intensive grazing remain in the minority. Theirs are the most aggressive rotation systems, whereby animals are moved through more, smaller pastures, or paddocks, at a relatively rapid pace. Individual paddocks may be grazed for only a few days before animals are moved to the next paddock in planned rotation.

Under management-intensive grazing, paddocks are exposed to higher grazing pressure during the period of use but receive longer periods of rest. Managers may also be able to use some paddocks more than once during the growing season, returning animals to previously grazed paddocks after periods of rest and regrowth.

True believers in rotation grazing claim their methods target optimum forage and livestock production, and lend greater sustainability to their operations. Many are openly critical of continuous grazing, saying the practice contributes to range degradation. However, New Mexico State University Range Scientist Jerry Holechek says continuous grazing is getting a bum rap. While rotation seems to work for many ranchers, he says continuous grazing can work too.

Holechek says that research comparing continuous and rotation systems has shown much inconsistency regarding effects on rangeland vegetation. Across all studies, forage production averaged only 7% higher under rotation. He says rotation is most beneficial in humid regions, where forage production has been 20-30% greater than with continuous grazing. In semiarid and arid regions, however, Holechek says rotation offers no definite advantage.

"A commonly held belief has been that continuous or season-long grazing over time will degrade rangeland vegetation. However, actual research studies from a wide variety of range types show continuous grazing at conservative

to moderate stocking rates has generally increased vegetation productivity and given an upward trend in rangeland ecological condition," Holechek says.

"Livestock productivity and financial returns have generally been higher under continuous or season-long grazing than rotation grazing," he adds. "Financial returns per acre average about 4% higher under continuous or season-long grazing than rotation grazing."

Holechek insists that grazing intensity, rather than rotation, is the primary factor determining long-term grazing outcomes on vegetation, livestock and financial returns.

Forage management consultant R.L. Dalrymple says the advantages of pasture rotation are too great to ignore. Dalrymple's practical experience stems from his work in grazing management for the Noble Foundation in Oklahoma. He explains how rotation-grazing systems utilizing eight to 24 pastures or paddocks per herd of livestock were implemented on Foundation properties. The major benefits, Dalrymple says, were improved quantity and quality of forage plants and, ultimately, increased livestock product yield per acre.

With higher stocking density, each of multiple paddocks is grazed for a short period, followed by rest. Dalrymple says that animals graze less selectively so more plant species are utilized, including most weeds. Plant vigor among desirable perennial grasses improves and populations of annual weeds decline.

Utilizing rotation-grazing systems improved quantity and quality of forage plants and, ultimately, increased livestock product yield per acre.

— **R.L. Dalrymple**

“With improved forage came increased animal performance,” explains Dalrymple. “We’ve seen calves gain in excess of 3 lb. per day on grass. That means more pounds to sell.”

All across the U.S. and around the world, significant numbers of producers claim improved range condition, more sustainable grazing enterprises and higher profits have resulted from rotation grazing practices. To date, however, there is little scientific research to support their claims. If anything, the gap between science and practical experience has widened during the last 20 years.

Researchers have made a great many attempts to measure the merits of rotation systems against continuous grazing. Most studies have concluded that continuous grazing is no better or no worse than rotation, in terms of livestock production. Why does the conundrum persist? If the benefits of rotation grazing are so intuitively obvious to a good many producers and a growing number of range scientists, why can’t they be demonstrated through research?

Real-world comparison

“I’m not a research scientist. My job is to apply research to management,” says Wayne Hanselka, Texas Cooperative Extension range specialist. “But one of the basic tenets of landscape ecology is that we can’t necessarily apply what we see on a small scale to a much larger scale.”

Most research studies concerning rotational grazing, explains Hanselka, have been carried out through the use of small paddocks. Researchers also used a small pasture, under continuous grazing, for the control treatment. This is intended to mimic real-world, commercial operations. But in the real world, continuous

grazing is usually applied to pastures that are much larger.

In small, continuously grazed research pastures, there is more even utilization of forage than with continuous grazing in large pastures. With the latter, because of the greater expanse of acreage and freedom of movement, animals are more selective in what they choose to eat. This results in more patch grazing and the uneven forage utilization for which continuous grazing is most often criticized.

Hanselka says experimental conditions involving continuous grazing of many small pastures may not be a fair representation of what most often happens on larger landscapes. He also worries that some research has compared continuous grazing, at moderate or even conservative stocking rates, with rotation grazing at heavier stocking rates.

“That’s kind of like comparing apples and oranges,” Hanselka says.

Despite the lack of supportive formal research Hanselka believes rotation grazing has proven its worth in practice. Wayne Schacht, University of Nebraska professor of agronomy and horticulture, agrees. However, Schacht says Holechek is correct in saying continuous grazing can be made to work. Range and pasture can be maintained in good condition under continuous grazing, if stocking rates are kept at conservative to moderate levels and if animals are well distributed. The latter, however, can be hard to control.

“My bias is that with rotation grazing of multiple pastures, managers have more flexibility,” says Schacht. “They can attempt to control more variables. They can control the time of year, duration and frequency of grazing, as well as the stocking rate. And they have better control over animal distribution.”

“Livestock productivity and financial returns have generally been higher under continuous or season-long grazing than rotation grazing.”

— Jerry Holechek

Under properly managed rotation grazing, plant communities should respond favorably and provide improved range condition over time, adds Schacht. That can provide higher carrying capacities for livestock and the ability to produce more pounds per acre. But when producers apply rotation grazing and see improved forage and livestock production, it’s not just because continuous grazing was bad. Often, says Schacht, it’s because the producers have become better managers.

Perhaps grazing management is an art as well as a science. Texas A&M Rangeland Ecologist Richard Teague says science has tended to minimize differences in research results, but there are huge differences in the capabilities of people who manage grazing lands.

“Attitude and capability are big factors. And scientists and producers who say (certain practices) won’t work often won’t go see ranches where those practices are applied with success,” Teague says. “Of course, some people have managed to fail, usually because they try to practice different methods without really thinking about it. Most tend to carry too many animals and remove too much vegetation. Successful managers don’t do that.”

Teague says some of the most valuable resources available to producers are local “grazing clubs.” Through these support groups, graziers can consider all that science has to offer, but also share in the



PHOTO BY AMY COWAN

Range scientist Jerry Holechek says that research studies have shown that continuous grazing at conservative to moderate stocking rates has generally increased vegetation productivity and given an upward trend in rangeland ecological condition.

success and failures of participants. Fortunately, says Teague, there are very good managers all over the country and around the world. And while climate, landscapes and other circumstances may differ greatly among grazing operations, producers and scientists may be able to learn the most from people who are making it work. **HW**



This photo is an example of management-intensive grazing. At the bottom is a freshly grazed paddock that is backfenced with a temporary electric fence for a two or three week rest. At the far left is a paddock that has rested for two days and is already showing signs of greening up. At the far right is an ungrazed paddock.