

Best Practice for Grazing.

with Mick Alexander



AgriLife research: Multi-paddock grazing is superior to continuous grazing

A long-term study in Texas, USA has verified the importance of rotational grazing for improving ecosystem health. Texas AgriLife Research scientists agree that multi-paddock grazing improves vegetation, soil health and animal production relative to continuous grazing in large-scale ranches. The study measured the impacts on vegetation and soils achieved by commercial ranchers who adapted management practices in response to changing circumstances to achieve desirable outcomes, said Dr. Richard Teague, AgriLife Research rangeland ecology scientist.

At the ranch scale, when multi-paddock grazing is managed to give best vegetation and animal performance, it is superior to continuous grazing in relation to conservation and restoration of resources, provision of ecosystem goods and services, and ranch profitability, he said. Teague said this study differed from those conducted by researchers who investigated multi-paddock grazing in relatively small experimental areas, without managing adaptively the way a successful, conservation-oriented commercial rancher would.

"In our study we examined the accumulated impacts of nine years of different grazing management categories on vegetation and soil parameters at a commercial-ranch scale," he said. The study evaluated the impact of multi-paddock grazing at a high stocking rate compared to light continuous and heavy continuous grazing on neighboring commercial ranches in three proximate counties in North Texas tall grass prairie. The same management had been conducted on all ranches for at least the previous nine years.

Multi-paddock grazing was managed using light to moderate defoliation during the growing season followed by adequate time to recover, Teague said. With multi-paddock grazing and ungrazed areas, the vegetation was dominated by taller more productive grasses. With heavy continuous grazing, it was

dominated by less productive short grasses and forbs, he said. Light continuous grazing had a lower proportion of tall grass species than multi-paddock grazing or ungrazed areas. Teague said there was more bare ground on heavy continuous than light continuous, multi-paddock and ungrazed areas, while soil aggregate stability was higher with multi-paddock than heavy continuous grazing, but not light continuous grazing and ungrazed areas.

Soil compaction was lowest with multi-paddock grazing and ungrazed areas and highest with heavy continuous grazing, he said. **Water infiltration rate** did not differ between grazing management categories, but **soil erosion** was higher with heavy continuous grazing as compared to other grazing management categories, Teague said. **Soil organic matter, water holding and fertility** were higher with multi-paddock grazing and ungrazed areas than both light continuous and heavy continuous grazing.

The **fungus/bacterial ratio** was highest with multi-paddock grazing as a result of the greater amounts of tall grass species, he said, indicating **superior water-holding capacity and nutrient availability and retention** for multi-paddock grazing. "This study documents the positive results for long-term maintenance of resources and economic viability by ranchers who use adaptive management and multi-paddock grazing relative to those who practice continuous season-long stocking," he said.

The general management on the ranches using multiple paddocks per herd was to graze a pasture lightly to moderately for one or three days, followed by a recovery period of approximately 30-50 days and 60-90 days during fast and slow growing conditions, respectively. This resulted in two light-to-moderate defoliations during the growing season with regrowth before the majority of plants switched from vegetative to reproductive phases, Teague said. This kept the plants in a leafy,

vegetative condition during the growing season to provide a high level of forage quality for the livestock and to ensure the best possible forage regrowth after defoliation.

During drought periods, animal numbers were adjusted to match forage amounts. In the winter, the goal was to graze and trample most of the standing forage to enhance litter cover and minimize self-shading that would limit plant growth in the following spring, he said. The continuously grazed ranches in each county were stocked at approximately the same stocking rates from year to year over at least the previous nine years. They were otherwise selected by the Natural Resource Conservation Service technical staff in each county as being representative of traditional continuous-grazing ranches in the region.

"The results we measured, representing the combined positive effects of multi-paddock management, indicate the multiple advantages of this management option," Teague said.

"Multi-paddock grazing resulted in a higher proportion of desirable tall grasses, a lower proportion of less desirable short grasses, annual winter-growing grasses and

forbs, and higher standing crop, even with a higher stocking rate than the lightly stocked continuous grazing." Although the stocking rate was less with lightly stocked continuous grazing, the preferred plants and areas were never allowed any recovery under continuous grazing while multi-paddock grazing, correctly managed, prevented overgrazing and allowed for adequate recovery after defoliation, he said. By ensuring light-to-moderate use in the growing season with adequate recovery, the preferred forages are able to capitalize on good growing conditions, Teague said.

For more information on these and other related topics contact Mick Alexander at Grazing BestPrac 07 4938 3919 or email mick@grazingbestprac.com.au and have you checked our website www.grazingbestprac.com.au for other articles that you may have missed.

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