

ROTATIONAL GRAZING SYSTEMS AND GRAZING MANAGEMENT RESEARCH: MAPPING THE FUTURE

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A recent publication by Briske et al (2008) reviewed a substantial amount of evidence generated from a geographically diverse effort by university and agency scientists over the past 6 decades to investigate the impacts of rotational grazing on fundamental rangeland ecological processes. Their findings, and others as well, clearly indicate that varying frequency and intensity of defoliation by rotating grazing livestock does not significantly affect plant or animal production when other factors (stocking rate, season of use etc) are held constant. However, many producers, advisors and researchers have substantial observational evidence that rotational grazing can be an important tool in achieving ranch level goals. This symposium was organized to examine the current state of the knowledge, the range of objectives and goals that producers and conservation programs may have beyond production and opportunities for improving the transfer of research information among scientists, policy makers and producers.

Conclusions drawn from the existing scientific literature are clear and consistent on several points:

- Grazing management represents a continuum of practices and techniques that are often difficult to classify even within a single ranching enterprise
- Management decisions should be emphasized over method of grazing
- Emphasis should be placed on the fundamentals of adaptive management and provision of identified ecosystem services
- Assessments should be outcome-based rather than practice-driven
- Multiple goals that transcend production (i.e. conservation) are poorly quantified in the existing experimental and observational record

From this limited basis, we have identified basic principles associated with the process of grazing rangelands and rangeland plants by livestock. These

principles are based on managing for proper levels of stocking, distribution and season of grazing use. However, there are limits to this knowledge, including:

- A lack of research conducted at relevant grazing management scales (both in terms of space and time)
- Limited commercial perspectives on responses to management other than animal or plant production
- Research is seldom holistic, (defined as: the functional relationships between parts and the whole) and while components are relatively well understood, we lack whole ranch enterprise experiments

Given the strength and consistency of the experimental results to date, there seems little public benefit in expending scarce resources further studying the impacts of rotational grazing on production variables at a small plot or experimental paddock scale. Instead, gains in knowledge are much more likely to be achieved by emphasizing the following principles to improve “evidence-based grazing management”:

- Partnered studies of commercial operations with
 - Ecologically stratified land area and ecological sites/states
 - Prior dynamics and management responses evaluated
 - Monitoring, including economic and sociological aspects
 - Expanded to a temporal scale that encompasses multi-generations.

The information in this symposium resulted from the publication of a special issue of RANGELANDS (SRM 2009), a publication of the Society for Range Management, summarizing the state of knowledge and offering new directions in grazing management research. In addition, the newly reorganized USDA National

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Institute of Food and Agriculture (formerly CSREES) offers opportunities to establish a dialog among researchers, researches, the public and producers to identify research topics and organize research projects. Whatever the direction and mechanism, the focus must remain on quality science in the public interest.

References

Briske, D.D., J. D. Derner, J. R. Brown, S. D. Fuhlendorf, W. R. Teague, K. M. Havstad, R. L. Gillen, A. J. Ash and W. D. Willms. 2008. Rotational Grazing on Rangelands: Reconciliation of Perception and Experimental Evidence. *Rangeland Ecology and Management* 61: 3-17.

SRM. 2009. *RANGELANDS*: Rotational Grazing on Rangelands. Volume 31, Number 5. October 2009. Articles can be accessed at <http://www.srmjournals.org/toc/rala/31/5>.