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Presenter Information

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Rotational grazing on rangelands : an assessment of the experimental evidence

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Introduction Comparisons of continuous, season-long grazing and rotational grazing have been conducted in numerous rangeland ecosystems world wide over the past 60 years. The preponderance of evidence generated from these experiments has consistently indicated that rotational grazing is not superior to continuous grazing on rangelands in terms of plant and animal production (Heady 1961, Briske *et al.*, 2008). However, rotational grazing continues to be promoted and implemented as a superior grazing system. The specific objectives of this synthesis were to summarize plant and animal production responses to rotational and continuous grazing and attempt to reconcile these contradictory perspectives.

Materials & Methods Plant and animal production responses were evaluated from published investigations comparing continuous and rotational grazing derived from the AGRICOLA data base (<http://agricola.nal.usda.gov/>), the grazing systems information in Holechek *et al.* (2001, Tables 9.1 and 9.2) and the archived articles of the *Journal of Range Management* (<http://uvalde.tamu.edu/jrm/jrmhome.htm>). Only those investigations published in the peer reviewed literature were utilized to ensure data quality and to enhance transparency of the data set. Variables were indicated to differ between continuous and rotational grazing only when they were reported as being statistically significant by the authors of the original articles.

Results & Discussion Across stocking rates, 83%, 92% and 84% of the experiments reported no significant benefit with rotational grazing for plant production, animal production per head, and animal production per land area, respectively (Table 1, Briske *et al.*, 2008).

Table 1 Number of published grazing experiments reporting significantly higher, equal or lower plant and animal production responses for continuous (CG) compared to rotational grazing (RG).

Stocking Rate	Plant production			Animal production/head			Animal production/land area		
	CG>RG	CG=RG	RG>CG	CG>RG	CG=RG	RG>CG	CG>RG	CG=RG	RG>CG
Same	0	17	2	10	16	2	10	16	2
> for RG	1	2	1	6	3	1	1	0	3
All studies	1	19	3	16	19	3	11	16	5

Conclusions These experimental results conclusively demonstrate that rotational grazing is not superior to continuous grazing for plant or animal production across numerous rangeland ecosystems world-wide. Continued advocacy for rotational grazing as a superior system of grazing for production is largely based on perception and anecdotal interpretations of management practices, rather than evidence-based assessments of ecosystem responses. It is unlikely that researcher oversight or bias has contributed to this conclusion given the large number of grazing experiments, investigators and geographic locations involved over a span of six decades. We recommend that these evidence-based conclusions be explicitly incorporated into management and policy decisions addressing this predominant land use on rangelands.

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