Grazing intensity and precipitation affects herbage accumulation, herbage quality, and animal performance in semiarid grassland

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Background
- Increasing grazing pressure on native grassland in Inner Mongolia, P.R. China
- Overgrazing and degradation (more than 80% of the typical steppe ecosystem in Inner Mongolia is degraded).
- Grazing not only alters the ecological functionality of the grassland but also its value for livestock farming.
- Aim of the present study:
  Analysis of grazing-induced changes in productivity and herbage quality as well as its effect on animal performance.

Materials and methods
- Controlled grazing experiment (initiated in 2005)
- Experimental factors: Grazing intensity, Year (i.e. different rates of precipitation)
- Parameters:
  a) Productivity: end-of-season herbage mass, herbage accumulation, live weight gain (LWG)
  b) Herbage quality: e.g. crude protein, neutral detergent fibre, acid detergent fibre, acid detergent lignin, in-vitro digestibility, metabolizable energy
- Near-Infrared-Spectroscopy (NIRS) technique

RESULTS (2005–2008)

Conclusions
- Precipitation appeared to be the crucial factor determining accumulation and quality of herbage.
- Grazing intensity played the key role in determining animal performance.
- Increasing grazing intensity decreased herbage accumulation but increased herbage quality.
- Animal performance in this rangeland was primarily influenced by herbage quantity. There were no benefits of grazing-induced increases in herbage quality on live-weight-gain.

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