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Effects of repeated bunch trampling by grazing cattle on the botanical
composition of Argentinean grasslands

Master Thesis
Master Program Crop Sciences, University of Hohenheim
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This work was financially supported by the
Foundation fiat panis

Abstract

The grassland areas of Northern Argentina are mainly used for livestock production. Natural pasture in Corrientes has moderate to low quality, depending on the season. The need for high-yielding grassland with year-round fodder availability to feed an increasing number of cattle demand a change in the current farming management. A high accumulation of standing dead biomass and low stocking rates of herbivores hamper plant production and forage growth. It is therefore necessary to find ways to reduce standing dead material. For that reason an experiment with 150 cattle ha⁻¹ day⁻¹ was established on the experimental station Estación Experimental Agropecuaria Corrientes on a 24 ha large grassland area, split into three paddocks with 12 plots and a control. An intensive, monthly repeated bunch trampling by grazing cattle, was conducted in spatially confined paddocks. To investigate the changes in botanical composition, the assessment of biodiversity took place in 8 m² sampling areas. Total soil coverage of plant biomass, bare ground, litter and biodiversity parameters were estimated using a plant sampling assessment scale related to the dominant abundance of plants of Braun-Blanquet. Pasture vegetation turned out to be high, but mostly dominated by *Poaceae*-, *Cyperaceae*- and *Compositae* (*Asteraceae*). The repeated presence of livestock proved to enhance the growth of more favourable green standing plants biomass and reduced standing dead biomass in the experimental site ($p < 0.001$). The investigation on biodiversity parameters revealed no variation of species richness in the paddocks in comparison to the control. The Shannon-Wiener diversity index (H) and Shannon's equitability (E_H) showed that repeated trampling by grazing cattle does affect neither grassland diversity, nor equitability. The results of this thesis support the assumption that biodiversity and green biomass production of Argentinean grasslands are positively influenced by repeated bunch trampling by grazing cattle and could be an option to improve management practices in local pastures.