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High Impact Grazing Enhances Grass Forage Quality in Northern Argentina

Ditmar Bernardo Kurtz[1], Marcus Giese[2], Folkard Asch[2], Uta Dickhoefer[2]

[1] *National Institute of Agricultural Technology (INTA), Natural Resources, Argentina*
[2] *University of Hohenheim, Inst. of Agric. Sci. in the Tropics (Hans-Ruthenberg-Institute), Germany*

Abstract

Natural grasslands are the major feed source for livestock in the Province of Corrientes, northern Argentina. Traditional extensive-management on large paddocks with low stocking rates favours the accumulation of low quality, grazing deterrent standing dead biomass. Soils are frequently waterlogged and biomass elimination with machines is impracticable. Since biomass burning has been out-lawed, range managers are looking for management alternatives to eliminate the dead biomass and to stimulate the regrowth of nutritious grass.

High impact grazing (HIG) was proposed as an alternative to address this problem in Argentina. HIG is using the effect of large herds which eliminate standing biomass by trampling and forage intake during a short term high intensity grazing. The aim of this study was to evaluate the effects of HIG applied in different seasons on fodder quality. Quality parameters crude protein (CP, in g 100 g^{-1} DM), metabolisable energy (ME, in MJ kg^{-1} DM), and digestible organic matter (DOM, in g 100 g^{-1} DM) were analysed up to one year after HIG and compared to control sub-plots under standard grazing regime. Compared to the control, HIG in winter produced more CP, 6.0 vs 4.9 ($p = 0.004$); more ME, 5.2 vs 4.7 ($p < 0.0001$) and more DOM, 40 vs 37 ($p = 0.0002$). HIG in spring did not affect CP 5.6 vs 4.8 ($p = 0.0624$); but increased ME, 5 vs 4.8 ($p = 0.0284$) and DOM, 39 vs 37 ($p = 0.017$). HIG in autumn increased CP, 6 vs 4.9 ($p = 0.0026$); ME, 5.1 vs 4.7 ($p = 0.0003$) and DOM 39.7 vs 37.2 ($p = 0.0021$). HIG in summer did not affect the quality parameters; nevertheless, from a management point of view it still could be favourable as it reduced the dead biomass. Timely-well managed HIG not only reduced this pool, but it also delivered increased fodder quality. We have shown that forage quality was enhanced during autumn, winter and spring after HIG. The positive effects lasted for up to 4 months, which would be enough to improve fodder quality for livestock throughout the unfavourable winter. Further studies should assess the effects of repetitive HIG that could maintain these positive effects.

Keywords: Corrientes, environment, fire, fodder, management

Contact Address: Marcus Giese, University of Hohenheim, Inst. of Agric. Sci. in the Tropics (Hans-Ruthenberg-Institute), 70593 Stuttgart, Germany, e-mail: m.giese@uni-hohenheim.de