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“Bridging the gap between increasing knowledge and decreasing resources”

Does High Impact Grazing and Trampling Affect Grasslands Floristic Composition?

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Abstract

In northern Argentina traditional management of extensive grazing system, result in large accumulation of dead material (DM). Short duration grazing-trampling (herd effect), have been suggested as being able to increase productivity while maintaining or improving other grassland characteristics, such as floristic composition (FC). The objectives of this study were to examine the changes on FC and the spectral response (SR) of the Northwestern Corrientes tall grasslands, after intensive grazing-trampling experiment. For that, at the INTA Corrientes experimental station we designed a three times replicated 18 ha grazing experiment, where in each month of the year a different area is subjected to three days high impact grazing (150 cattle ha⁻¹ day⁻¹). Grassland attributes were recorded monthly, prior to, and one year of the treatment. FC by the dry weight rank method and the trend and cover index (INTECO) were calculated. The above ground biomass (AGB) was gathered by clipping five 0.25 m² quadrates in each replicate. AGB was hand separated, weighed and oven dried at 60°C until constant weight. SR was measured with a field radiometer and normalised difference vegetation index (NDVI) was calculated. Both, INTECO and NDVI have been widely used in Argentina for rangeland monitoring. Statistical analyses indicate that, after one year and independent of the month of impact, there was no significant effect on the INTECO, the total dry matter, the proportion of grass, weeds and grass-like species ($\alpha=0.05$). Different to what was expected, INTECO and NDVI were not related. Nevertheless, in most cases the NDVI was significantly different after the impact ($\alpha=0.05$). Finally, the preliminary results indicate that the high trampling is an alternative management option which does not significantly affected FC. But as the INTECO does not include minor species, further and deeper studies on biodiversity are needed.

Keywords: Biomass, INTECO, NDVI