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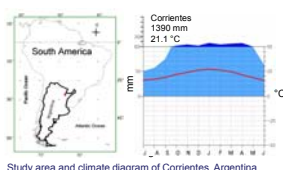
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Introduction

Despite Northern Argentinean humid grasslands are very productive, farmers stock their rangeland with comparably low rates due to low winter forage growth. Standing dead biomass accumulates assuming a negative impact on grass growth and fodder availability for cattle. Sustainable management options to reduce standing dead biomass are highly requested. The combined effect of short-term high-intensity grazing and trampling could improve grassland productivity.

The aim of this work is to evaluate the effects of seasonal short-term high-impact grazing on vegetation productivity and grazing site selection by cattle.

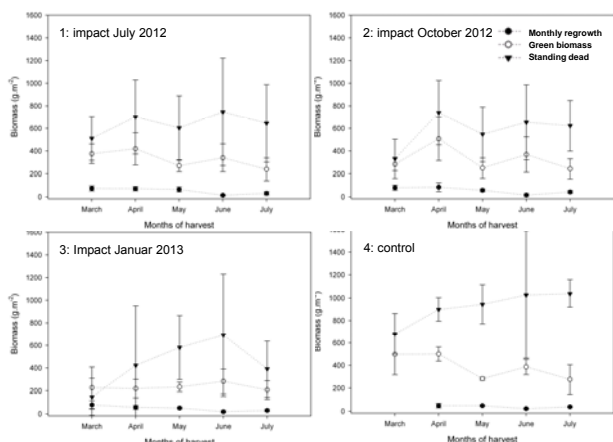


Control plot with high standing dead biomass (1), after high impact treatment (2), after 3 months winter impact (3) and after 3 months fall impact (4).

Conclusions

- Opposite to our expectations, the lower amounts of standing dead biomass as a result of high impact grazing did not affect the green biomass pools and monthly regrowth.
- High impact grazing management affect cattle grazing behavior towards more homogeneous spatial exploration.
- High impact grazing has the potential to function as an alternative management option to control excess biomass.

Results and Discussion



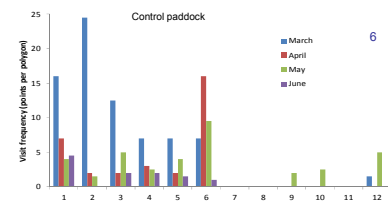
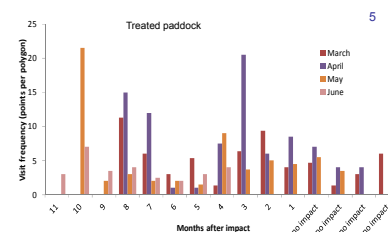
Biomass production after high impact in: July 2012 (1); October 2012 (2); January 2013 (3) and in the control paddock (4). Biomass samplings: March – July 2013.

• Regrowth of grasses showed no significant difference between treatments ($p > 0.05$).

• Three months after high impact grazing, the green biomass stocks showed no difference between the treatments ($p > 0.05$).

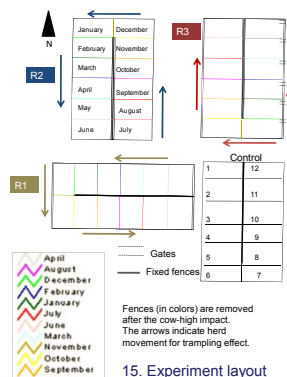
• Standing dead biomass showed significant difference between treatments ($p < 0.05$). Even one year after high impact grazing the dead biomass pool remained lower (~25%) compared to the control.

• Paddocks with high impact treatment were more homogeneously visited by cattle than the control site.



Cattle frequency visit in the treated area (5) Cattle frequency visit in the control area (6)

Notes on Materials and Methods



Biomass. 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 of 0.5 ha is subjected to three days high impact grazing and trampling ($150 \text{ cattle ha}^{-1} \text{ day}^{-1}$). A control site with traditional management is monitored additionally (1,2,8,9,15). Control site was "virtually 12-divided" for the analysis (15). Grass re-growth was monthly sampled inside and outside moving cages (3,4,5). Biomass was separated for green and dead biomass and over dried until constant weight (10,11,12,13). Data were analyzed through ANOVA. The effects of trampling date, harvest date and its interactions were analyzed ($\alpha = 0.05$). Assumptions of variance homogeneity and normality were validated (Shapiro-Wilks test).

Animal Tracking. It was done for 2 to 3 consecutive days with global position system (GPS). Collared cattle were continuously tracked with Trackstick-GPS (6,7). One cow was monitored in each replication, and two cows in the control area. Data were monthly downloaded, and cow frequency of visit calculated as the intersection of the recorded GPS location and the area of interest with the Hawth Tools for ArcGIS (14).