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Introduction:

In Uruguay, natural grasslands cover about 67% of the lands of the country. The Basaltic region occupies 4 millions of hectares and it has de highest proportion of natural grasslands of the country.



Objectives:

- a) to calibrate RUE for two contrasting grazing methods
- b) to study the temporal variability of RUE for two contrasting grazing methods.

Results & Discussion:

Between grazing methods, RUE average values throughout the evaluated period were statistically different ($p < 0.05$), with controlled management reporting values above 44% (Table 1). These values are consistent with those obtained by Piñeiro et al., (2006) in natural grasslands of the Flooding Pampa in Argentina (0,2-1,2g.MJ-1). Therefore, changes in species composition caused by grazing method affect RUE coefficient (Le Roux et al., 1997).

When analysing seasonal variation between grazing methods, there were no statistical differences in RUE values. Climatic conditions, such as high rainfall and high temperatures could have influenced rapid restoration of the vegetation, masking the grazing methods differences. Whereas, seasonal variation of RUE for each grazing methods separately, was significantly different within seasons ($p < 0.05$)(Fig. 1).

Materials & Methods:

The study was conducted on five livestock farms located in the Basaltic region, north-eastern of Uruguay. In each site, two contrasting pastures with different historical grazing management (controlled vs continuous stocking rate) were selected. Data was collected between september 2013 and february 2015.

RUE coefficient was estimated following Monteith equation (1972):

$$ANPP = APAR \times RUE \rightarrow RUE = ANPP / APAR.$$

RUE data were analyzed with a one-way ANOVA and the means were compared with T test for paired samples.

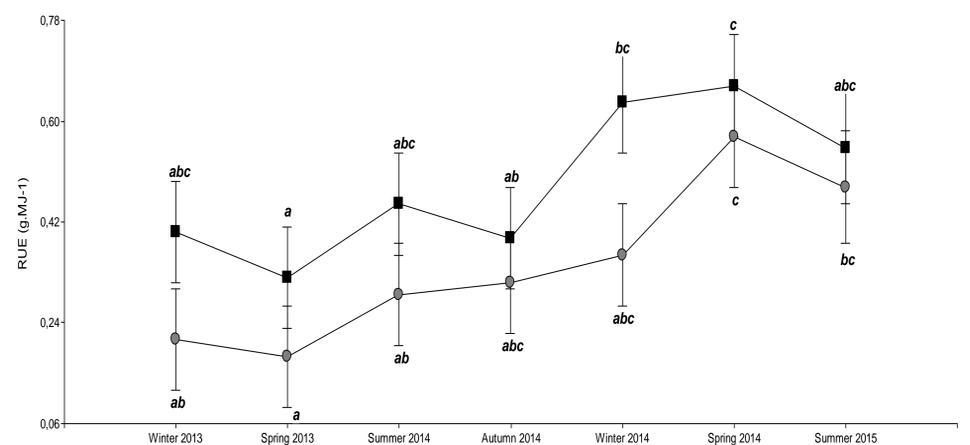


Fig.1: Seasonal variation of RUE for both grazing methods. Circle:Traditional; Square:Controlled. Letters indicate significant difference in seasonal variation for each grazing method separately ($p < 0,05$).



Conclusions

In natural grasslands of the basaltic region of Uruguay, livestock management regimes associated with high loads, high sheep / cattle relations, with long periods of occupation and no rest periods generates changes in the floristic composition. These changes could cause a decrease in productivity due to lower efficiency in the transformation of solar radiation into biomass. The RUE values obtained could be used in the estimation of a more accurately ANPP in natural grasslands on deep soils of the basaltic region.

Table1. RUE mean ± standard error

	Grazing method	
	Controlled (kgMS.ha ⁻¹ .MJ ⁻²)	Traditional (kgMS.ha ⁻¹ .MJ ⁻²)
Mean	0,49 a	0,34 b

Letters indicate significant difference ($p < 0,05$).



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