

# PASTURE LIFE LENGTHENING AND BEEF PRODUCTION INCREASE THROUGH INTERSEEDING

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## ABSTRACT

The objective of the trial was to evaluate the influence of pasture interseeding with grasses and legumes on the forage production and liveweight gains by steers. Four year pastures were interseeded with alfalfa (*Medicago sativa* L.), brome (*Bromus unioloides* HBK.), red clover (*Trifolium pratense* L.) and orchardgrass (*Dactylis glomerata* L.). There were two treatments with two replications: interseeding and control, grazed by steers. For four periods forage availability did not show differences. Legume percentage was higher in interseeding. The animal daily gains were higher in the interseeded treatment in the first two periods, but decreased with time. Liveweight gains per hectare were higher for interseeding, showing the practice to be useful for our area.

## KEYWORDS

Interseeding, legumes, grasses, animal daily gains, forage availability, beef production

## INTRODUCTION

Pastures interseeding, which became degraded in species or production due to age or deficient management, is a very interesting practice in a large area of the Pampa, in Argentina. (Josifovich, 1993).

Under midwest northern USA conditions, Krueger and Sholl (1970) stated that 270 kg of nitrogen/hectare should be applied to grasses to equalize the effect of legumes on the pasture production.

In fescue pastures interseeded with clovers, a beneficial effect was obtained on daily gains in weaning calves and in cows pregnancy (Hinds, Cmark and McKibben, 1974) (Schaffer and Swanson, 1982). In production systems in Virginia (USA) it was possible to double the carrying capacity of pastures, and it was also possible to make hay for winter feeding (National Research Council, 1989).

According to Barnhart (1990) it is possible to interseed more productive grasses or legumes in a pasture without previous control of vegetation, pest control or soil correctors. The objective of the trial was to evaluate the influence of pasture interseeding, with grasses and legumes, over degraded pastures four years old, in dry matter production, botanical composition and secondary production..

## MATERIALS AND METHODS

The pastures used for the trial were sown four years before with fescue (*Festuca arundinacea* Schreb.), brome (*Bromus unioloides* HBK.), alfalfa (*Medicago sativa* L.) and white clover (*Trifolium repens* L.) on an Argiudol class II, in Pergamino, Argentina.

Ten hectares out of a 20-hectare field were interseeded using 2 paddocks of 5 hectares each by means of an implement developed at Pergamino Experiment Station, which has 5 heavy chisels, 20 spring teeth, and seeder. The labor was done in May fall and the pastures were grazed in September.

The species interseeded were alfalfa (4 kg/ha), red clover (2 kg/ha), brome (5 kg/ha) and orchardgrass (4 kg/ha). For grazing 2,1 steers per hectare were placed initially, but in few weeks it was possible to increase the number of animals. As a result the carrying capacity

through the trial was adjusted. The trial was maintained for four periods, until the pastures lost both production and species balance.

The samples for forage production were taken in each paddock change. Five samples per hectare were taken using 1m<sup>2</sup> frame. Dry matter was evaluated by drying the samples at 60°C for 48 hours. The animals were British steers, with 180 kg initial weight. The animals were weighed every month in the morning, without water. The legume-grass proportion was evaluated using Botanal method. The statistical analysis was done by ANOVA, using SAS system for each year separately.

## RESULTS

Dry matter availability did not show differences through periods, except in the last one. The percentage of grasses and legumes showed a different tendency, being higher for legumes in the interseeding treatment than in the control one (Table 1). This difference could explain the better average daily gains, as stated by Decker, Retzer, Sarna and Kerr (1969).

The ADG were higher in the interseeding treatment but decreased with time (Table 2). There were no differences in the second and third period, but there were differences in the first and the fourth. The higher ADG and the higher carrying capacity of the interseeding treatment gave out higher liveweight per hectare, as shown in table 2.

## CONCLUSIONS

Interseeding with legumes, alfalfa and clover, and grasses, brome and orchardgrass, offers a good solution to increase by 2-3 years the utilization of 4-5 year pasture. The improvement of forage availability, and, above all, the balance with legumes, appear to be very useful for higher liveweight daily gains and liveweight production per hectare.

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**Table 1**

Forage production and botanical composition.

Dry.Matter availability per treatment (average of all grazing) and botanical composition, through periods.

Year	Interseeding			Control		
	DM.kg/ha	Grasses	Legumes	DM. kg/ha	Grasses	Legumes
1st.	3122 a	45,4±1,70 b	54,5±1,77 a	2958 a	76,75±1,91 a	23,20±1,84* b
2nd	3773 a	73.3±2,12 a	26,7±2,26 a	3491 a	88,80±6,22 a	11,20±6,22 a
3rd	3448 a	54,5±23,3 a	45,5±23,3 a	3082 a	83,5±14,8 a	16,5±14,8 b
4th.	3240 a	56,3±18,5	43,7±25,2 a	2672 b	89,5±17,3 a	10,5±11,2* b

\* P-0,01

Means followed by the same letter are not different.

**Table 2**

Animal production

Average daily gains for four successive periods, average carrying capacity and liveweight gains per hectare according to treatments.

Periods	Treatments		
	Interseeding	Control	
1st	.722 a	.547 b	P-0,045 CV: 6,08 SEM: 27,28
2nd	.737 a	.625 a	P-0,165 CV: 7,68 SEM: 36,99
3rd	.592 a	.411 a	P-0,073 CV: 10,34 SEM: 36,67
4th.	.378 a	.259	P-0,010 CV: 3,83 SEM: 8,74
X	.607 a	.461	

Carrying capacity, head/ha    2,41    2,21  
Liveweight gain kg per ha    534    372

Means followed by the same letter are not different.