Forage production of Alfalfa (*Medicago sativa* L.) with different densities of sowing under irrigation in the North Patagonia

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**INTRODUCTION:** in the production systems of the irrigated valleys of the Negro river, alfalfa is a fundamental component in the forage chain due to its potential high yield and quality per unit area. This aptitude is considered both for direct grazing and for the preparation of reserves to be used in times of lower forage supply (autumn- winter). To achieve high yields and persistence over time, aspects such as planting density are important because they determine the initial stand of the pasture.

**OBJECTIVE:** the objective of the present work was to compare forage production using different sowing densities and varieties.

**MATERIALS AND METHODS:** the experiment was sowed on april 8th, 2008 in the EEA Valle Inferior del río Negro (40° 48' S; 65° 05' W), on a Vertisol soil series "Chacra" (pH: 7.5; P assimilable (ppm): 24; MO: 5%). Three varieties (V) of alfalfa were evaluated: G 969, Super Monarca INTA and Trinidad 87 of use fall dormancy 8-9 combined with four sowing densities (D) 10, 15, 20 and 25 kg / ha of viable seeds inoculated. A split-plot design with randomized blocks with four repetitions was used; where V were the main plots and D the sub-plots. Their size was 2.10 m², in 6 rows at 17.5 cm between rows. The cycles evaluated were 2008/09 (C1) and 2009/10 (C2). It was fertilized when sowed with 100 kg / ha of mono ammonium phosphate. The accumulated precipitations during C1 and C2 were 195 and 281 mm respectively, while the water applied by irrigation for those cycles was 1,300 and 1,100 mm. Sixty days after sowing, a seedling count was carried out to determine the initial stand in each treatment (Figure 1). The accumulated forage production of C1 and C2 was evaluated where 5 and 4 harvests were made respectively. The harvests were made in 1,60 m² with a lawnmower at 5 cm height when the crop reached 10% flowering or 3 cm of basal regrowth. Aliquots of forage were taken to determine dry matter (DM) content. On this information, ANOVA and a significant minimum differences test (LSD, p <0.05) were performed.

**RESULTS AND DISCUSSION:** only in C1 interaction was found between V * D (p=0.0055), where it was observed that D20 increased production between 11 and 33% (Figure 2). In C2, there was no interaction between the D*V factors, although there were differences between V (Fig. 3).

**CONCLUSION:** although the number of established seedlings is higher when D increases, forage production only increases in the first cycle and stabilizes during the second cycle for the evaluated densities.