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The 21st International Grassland Congress / 8th International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

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Sward allowance at early lactation of primiparous dairy cows : II-Ingestive behaviour

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Key words : sward allowance, ingestive behaviour, early lactation, primiparous dairy cows

Introduction Grazing the whole year round represents the dominant feeding system in Uruguayan dairies. The negative energy balance that occurs during the transition period in dairy cows is more severe in primiparous cows (Meikle et al. 2004). The main factor affecting the negative energy balance is dry matter intake (DMI) which under grazing is largely determined by sward state (Chilibroste et al., 2005). We are not aware of plant-animal interface studies involving early lactation primiparous dairy cows under grazing. This experiment was carried out to understand the impact of daily sward allowance on ingestive behaviour at early lactation of first calving dairy cows grazing temperate pastures.

Materials and methods The experiment was carried out at the EEMAC Research Station, Agronomy Faculty, Uruguay (30° S). Primiparous dairy cows (n=44, BW=595±41 kg, age at calving=2.96±0.11 years and BC=3.7±0.3) were blocked by BW, age and BC, and randomly assigned from calving up to 60 days in milk to one of the following treatments (n=11 each): Control with a 100% TMR diet (ad libitum) and the grazing treatments, high (HA, 30 kg DM cow day⁻¹), medium (MA, 15 kg DM cow day⁻¹) and low sward allowance (LA, 5 kg DM cow day⁻¹). The grazing treatments were supplemented with TMR to cover their maintenance requirements. Cows were milked at 5:00 and 16:00 h and were allowed to graze between 8:00 and 15:00 h every day on a 7-days rotation schedule on a pasture of Tall fescue (*Festuca arundinacea*), Birdsfoot trefoil (*Lotus corniculatus*) and White clover (*Trifolium repens*). Each treatment was placed on independent plots. On experimental weeks 2, 4, 6 and 8 each treatment was observed during three alternate days every 15 minutes and the number of cows grazing, ruminating or in other activities recorded. The same weeks during three intervening days 4 individual cows of each treatment were observed every 10 minutes and the observed activities (grazing, ruminating, others) recorded. Probability for different activities were analyzed with a General Linear Model as repeated measurements in time (GENMOD of SAS v. 8) while bite rate was analyzed as repeated measurements in time using Proc MIXED of SAS v. 8.

Results and discussion Bite rate tended to be lower ($p < 0.1$) in LA treatment (24.1 bites/minute) when compared with HA and MH (26.8 bites/minute). Allocation of time on grazing activities increases significantly ($p < 0.01$) with days in milk. The mean values for grazing activities on days 14, 28 and 50 were 57, 64 and 71%, respectively. During the first month of lactation primiparous dairy cows expend half of the allowed grazing time on grazing activities irrespectively of sward allowance, which suggest a strong physiological control on grazing time. Bite rate increased significantly ($p < 0.01$) with days in milk. Mean values for bite rate during days 14, 28 and 50 were 21.5, 29.2 and 38.3 bites/minutes, respectively.

Conclusions Primiparous dairy cows require at least 4 to 6 weeks to exhibit regular values for grazing time allocation and intake rate. This trend although non independent from sward condition is mainly driven by day in milk which suggests a strong physiological feedback regulating DMI under grazing conditions for primiparous dairy cows.

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