

Thesis: Behavioural patterns of heifers under intensive and extensive continuous grazing on species-rich pasture in the Czech Republic

Author: doc. Mgr. Pavla Hejčmanová, Ph.D.

Abstract

The consumption of food is one of the most fundamental activities in all animals and takes its ultimate part in maximizing an animal's inclusive fitness. Foraging response mechanisms issue essentially from animal intrinsic characteristics, animal's cognitive abilities and environment, namely quantity and quality of available food resources. Understanding of animal's foraging decisions is not possible without the knowledge of other types of behaviour and factors they affect it. Therefore, the aim of the investigation was to evaluate heifers' behavioural pattern on species-rich semi-natural pasture under a continuous intensive (IG) and extensive (EG) grazing regime as this is currently the most extensive management system employed in central Europe. Ten or eight (IG), and six or four (EG) heifers were continuously stocked in two completely randomized blocks from June to late September in 1998, 1999, 2000, 2006 and 2007. Swards were maintained at a target height of 5 and 10 cm, respectively. Grazing, ruminating, resting, and other activities were monitored during 24-hour observations, and grazing, chewing and ruminating rates (per minute) were recorded. Daily behavioural patterns and the time budgets for particular activities were not significantly different between IG and EG heifers. However, IG heifers did spend more time grazing and slightly less time ruminating and resting than EG heifers. Other activity such as drinking, salt licking, comfort behaviour or social interaction was stable and there was no difference between the two treatments. Grazing rates were found significantly higher for IG heifers. Grazing was negatively affected by increase in air temperature at the expense of resting. Grazing time increased as the season progressed in the both IG and EG treatments, while resting showed a reverse trend. Concurrently, the ruminating time of IG heifers decreased and was variable for EG heifers. As the season progressed further, grazing rates showed a decreasing trend. Considering that the differences in behavioural patterns between IG and EG were not conspicuous, our results indicate that the target sward of 5 cm commonly used in animal husbandry practices in the Czech Republic does offer enough forage to animals. Furthermore, the seasonal patterns of ingestive behaviour showed that the heifers under both grazing intensities balanced their intake by increase of grazing time along with decrease of grazing rates as the season progressed. These findings suggest that the herbage on species-rich pasture was sufficiently available to livestock at both the investigated grazing intensities.

Key words: Stocking rate, Ingestive behaviour, Semi natural grassland, Cattle, Forage availability