Reducing grazing intensity to enhance grassland biodiversity: does it work with horses?

Contrary to what has been demonstrated in cattle, reducing grazing intensity by horses does not increase grassland biodiversity. Even at high stocking rate, the strong selection by horses of short but high quality patches creates strong structural heterogeneity favorable to plant and insect diversity. Decreasing stocking rate by horses would only have a marginal effect on grassland biodiversity, while farm performance would be strongly affected.

Permanent grasslands are recognized as important sources of biodiversity across Europe, making it essential to develop and promote grazing management that prioritizes ecosystem integrity as much as livestock production. Several studies conducted in ruminants report that reducing grazing intensity can increase the diversity of plants and insects as a result of higher sward heterogeneity. Despite the increasing numbers of horses grazing permanent grasslands in Europe, few studies have investigated the effects of horses grazing under contrasting stocking rates. In the present 4-yr study run in a hill-range mesophile grassland of central France, we analyzed the effects of two stocking rates (“High” 1.8 Livestock Unit ha⁻¹ vs. “Moderate” 1.1 Livestock Unit ha⁻¹; 1 Livestock Unit=600 kg body weight; 3-yr old saddle horses) on sward structure, horses foraging behaviour and performances, and pasture biodiversity.

Horses strongly selected highly-nutritive swards below 8 cm and avoided tall vegetation where they concentrated their faeces. Selection for short vegetative swards is even more pronounced in plots grazed at a moderate stocking rate where sward height and herbage biomass are higher. This allowed horses to maintain diet quality (diet dry matter digestibility: 59% DM) and performances (daily weight gain >270 g/animal) as in highly grazed plots while average herbage quality was lower. Despite their more pronounced selection of short swards at the moderate stocking rate, horses created and maintained a strong sward structural heterogeneity in both treatments. Of all the large domestic herbivores, horses with their two sets of incisors have perhaps the most marked tendency to use grasslands heterogeneously. This has long been interpreted as an anti-parasite strategy. The selection of short high-quality patches by horses could also be explained as a strategy designed to maximize digestible protein intake (Edouard et al. 2010).

Consistent with the lack of effect of stocking rate on sward heterogeneity, we did not record any benefit of decreasing grazing intensity on floristic and insect diversity over the course of this 4-yr study. Extensive management only increased the abundance of some Carabidae and grasshoppers that rely on tall vegetation, and did not influence or even decreased other species from the local pool. We conclude that decreasing stocking rate of horses would only have a marginal effect on grassland biodiversity, while farm performance will be strongly affected by the decrease in the number of horses per unit area.

On horse farms, creating a mosaic of grasslands submitted to contrasted grass management might be more favourable to floristic and insect diversity than decreasing grazing intensity. This hypothesis will be tested in a further study.

Publication/Patent
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