

## The effect of closing date and type of utilisation in autumn on grass yield in spring

E. Mosimann<sup>1</sup>, M. Lobsiger<sup>2</sup>, C. Hofer<sup>2</sup>, B. Jeangros<sup>1</sup> and A. Lüscher<sup>2</sup>

<sup>1</sup>Agroscope RAC Changins, CH-1260 Nyon. <sup>2</sup>Agroscope FAL Reckenholz, CH-8046 Zurich, Switzerland.

Email: eric.mosimann@rac.admin.ch

**Keywords:** grazing, cutting, closing date, herbage yield

**Introduction** Due to the low cost of grazed grass, most dairy farmers extend the grazing period in autumn. However, delaying the closing date may reduce the grass yield in the following spring (Roche *et al.*, 1996; O'Donovan *et al.*, 2002). The objective of this experiment, conducted in the Swiss lowlands, was to quantify the effects of closing date and type of utilisation in autumn on grass yield in the following spring.

**Materials and methods** The trial was carried out from autumn 2001 to spring 2004 on two dairy pastures with continuous stocking: Waldhof (wet) and Saint-Livres (dry). It comprised of 6 treatments: two kinds of utilisation (cut or grazed), each with three closing dates (early October, late October or late November) replicated 5 times. Grass yield in the following spring was measured at three different dates (March, April and May).

**Results and discussion** The mean yields in spring averaged over both sites are presented in Table 1. In most cases, the type of utilisation in autumn did not influence DM-yield in spring. There was, however, a highly significant 'closing date' effect, with a reduction in spring yield when the closing date was delayed. When comparing the treatments 'late November' and 'early October' there was a yield reduction of 69% (44 to 87%) in March, 53% (23 to 75%) in April and 19% (9 to 34%) in May. In absolute terms the yield reduction was largest in May (783 kg DM/ha). Regression analysis (herbage mass in November vs. spring yield) demonstrated the importance of an increased standing biomass in autumn and thus leaf area during winter, for a high spring growth. This result is in accordance with observations on white clover in a European multi-site experiment (Wachendorf *et al.*, 2001; Lüscher *et al.*, 2001).

**Table 1** Effect of autumn closing date and type of utilisation on herbage dry matter yields in spring (kg DM/ha)

Closing date (CD)	early October		late October		late November		se	Significance			
	cut	grazed	cut	grazed	cut	grazed		U	CD	U x CD	Site
March 2002	608	754	232	371	148	100	59	ns	< 0.001	ns	ns
March 2003	280	281	153	212	99	59	37	ns	< 0.001	ns	< 0.001
March 2004	234	598	144	186	130	237	49	< 0.001	< 0.001	0.005	< 0.001
April 2002	1355	1435	782	893	618	529	75	ns	< 0.001	ns	ns
April 2003	1087	1087	802	941	835	639	70	ns	< 0.001	ns	0.05
April 2004	326	362	213	252	123	89	46	ns	< 0.001	ns	---
May 2002	3644	3681	3003	2921	2922	2432	113	ns	< 0.001	ns	< 0.001
May 2003	4436	4085	3872	4050	3696	3273	132	ns	< 0.001	ns	< 0.001
May 2004	4730	5079	4477	4583	4310	4327	166	ns	0.005	ns	< 0.001

**Conclusion** Extending the grazing season or late cutting in autumn reduces the grass yield in the following spring, up until May, thereby, delaying the start of the spring grazing season. To facilitate grazing management in spring, the closing date should be varied between paddocks, so that paddocks closed early are available for grazing early the following spring, whilst those with a late closing date reach the grazing stage later in the spring.

### References

- Lüscher, A., B. Stäheli, R. Braun & J. Nösberger (2001). Leaf area, competition with grass, and clover cultivar: Key factors to successful overwintering and fast regrowth of white clover (*Trifolium repens* L.) in spring. *Annals of Botany*, 88, 725-735.
- O'Donovan, M., P. Dillon, P. Reid, M. Rath & G. Stakelum (2002). A note on the effects of herbage mass at closing and autumn closing date on spring grass supply on commercial dairy farms. *Irish Journal of Agricultural and Food Research*, 41, 265-269.
- Roche, J.R., P. Dillon, S. Crosse & M. Rath (1996). The effect of closing date of pasture in autumn and turnout date in spring on sward characteristics, dry matter yield and milk production of spring-calving dairy cows. *Irish Journal of Agricultural and Food Research*, 35, 127-140.
- Wachendorf, M., R.P. Collins, A. Elgersma, M. Fothergill, B.E. Frankow-Lindberg, A. Ghesquiere, A. Guckert, M.P. Guinchard, A. Helgadottir, A. Lüscher, T. Nolan, P. Nykänen-Kurki, J. Nösberger, G. Parente, S. Puzio, I. Rhodes, C. Robin, A. Ryan, B. Stäheli, S. Stoffel, F. Taube & J. Connolly (2001). Overwintering of *Trifolium repens* L. and succeeding spring growth: A model approach to plant-environment interactions. *Annals of Botany*, 88, 683-702.