Effect of Utilisation Date on the Yield and Quality of a Semi-Natural Grass Stand in Winter

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Introduction Prolongation of the grazing period into the winter season reduces the costs of feedstuffs for dry cows. To enable the use of pastures in winter it is necessary to carry out the last cut or grazing cycle in June or July and to postpone the last grazing until the first week of August. (Opitz von Boberfeld, 1997). The time of the last utilisation in summer influences the yield and quality of herbage during the winter season (Bartholomew *et al*., 1997). This research studied changes in yield and quality of a semi-natural grass stand in autumn and in winter following preparatory cuts taken at different times in summer.

Material and methods The experiment was carried out over two years in the Českomoravská vrchovina highland (Czech Republic) at the altitude of 553 m. The average annual temperature and precipitation were 7.4 ^{o}C and 736 mm respectively. Fertiliser at the rate of 50 kg/ha N was applied in the first half of August. The main harvesting cuts (H) were taken in November, December and January following last preparatory cuts (P) for each of H taken in June, July and August. Assessments were made of dry matter (DM) yield and the digestibility of organic matter (DOM) estimated by the Hohenheim test (Menke & Steingass, 1987). Data were analysed using ANOVA and the statistical programme Statistica 6.0.

Results In both years, yields of DM and DOM decreased from November to January (Table 1). A colder autumn in 2001/2002 was reflected in lower yields of DM and quality of the grass stand in December and January in that year than in the following year. As the time of the last preparatory cut was delayed from June to August, it resulted in a significant decrease in forage DM in the November to January period had little effect on DOM

Table 1 Effects of preparatory cuttings and the period of main stand use on DM yields (t/ha) and DOM (%)

		Preparatory cutting (P)					
		2001/2002			2002/2003		
	Main period of harvesting (H)	June	July	August	June	July	August
DM	November	2.35	0.73	0.37	3.13	2.07	1.61
	December	0.68	0.32	0.19	2.30	0.89	0.65
	January	1.06	0.36	0.15	1.36	0.82	0.75
		$LSD_{(p<0.05)}$ = 0.37			$LSD_{(p<0.05)}$ = 0.53		
		P = *** H = *** P x H = ***			P = *** H = *** P x H = NS		
DOM	November	44.8	48.6	52.4	56.9	58.6	60.6
	December	35.9	36.5	36.2	51.6	55.8	51.7
	January	35.2	35.8	35.8	52.6	54.3	57.9
		$LSD_{(p<0.05)}$ = 2.87			$LSD_{(p<0.05)}$ = 4.82		
		P = ** H = *** P x H = *			P = NS H = ** P x H = NS		

Conclusions The data show wide variation between years in the quantity and quality of herbage produced in the November – January period. This was most likely due to variation in weather conditions in these years. Under conditions of the Czech Republic, the best time in the autumn to harvest the grass is in November and exceptionally also in December. The most suitable dates of the last preparatory cuts were June and July. The benefit of increased DOM following the preparatory cut in August did not compensate for the relatively low production of DM.

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