

## Strip-seeding of red clover, lucerne, alsike clover, white clover and sainfoin into grassland in central Europe

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**Keywords:** grassland, legumes, strip-seeding

**Introduction** Strip-seeding of legumes into grassland improves forage quality and adds fixed nitrogen (N) to grassland, which decreases the need for mineral N.

**Materials and methods** Strip-sown legumes were established on a fluvisoil at Jevicko, Czech Republic (altitude 330 m, mean annual temperature 7.5 °C, annual rainfall 629 mm, of which 397 mm during the growing period) in temporary grassland of *Dactylis glomerata* (60 %), *Poa pratensis* (5 %), *Alopecurus pratensis* (20 %) and *Arrhenatherum elatius* (15 %) in 2000 (Table 1). The plots were fertilised with 35 kg/ha P 100 kg/ha K. Rainfall in 2002 was normal but 2003 was an extremely dry year.

**Results** Red clover was the most successful of the strip-sown species with 30 – 47 % of the dry matter (DM) production in 2002 and 12 – 33 % in 2003 (Table 1). Tetraploid cultivars had a higher proportion in the sward, especially cv. Beskyd and the newly bred cultivar (nbc) RH, than diploid cv. Tábor. Alsike clover (17 and 7 % in 2002 and 2003, respectively), lucerne (12 and 6 %), white clover (15 and 4 %) performed reasonably and sainfoin (8 and 4 %) was the least successful. Two nbc's of tetraploid red clover were very successful too: (a) nbc RH, which was bred to increase N fixation ability (Šimon & Jakešová 2004) and (b) nbc V, which was bred for higher resistance against viruses. Red clover maintained high DM production in the summer of the extremely dry year 2003.

**Table 1** Treatments with legumes strip-seeding, DM production, and strip-sown cultivars

Treatment no.	Strip-sown species	Cultivar	Seed quantity (MVS/ha) <sup>1/</sup>	DM production (t/ha)			
				2002		2003	
				Total DM	Strip-sown species	Total DM	Strip-sown species
1	red clover (4n)	Vesna	8.0	7.91	2.93	4.46	1.01
2	red clover (4n)	Radegast	4.0	7.70	2.29	4.42	0.62
3	red clover (4n)	Beskyd	8.0	8.20	3.69	4.60	1.24
4	red clover (4n)	RH (nbc.)	8.0	8.17	3.69	5.13	1.71
5	red clover (4n)	V (nbc.)	8.0	6.32	2.34	4.27	0.87
6	red clover (2n)	Tábor	8.0	7.30	2.21	4.35	0.54
7	lucerne	Zuzana	8.0	7.71	0.97	4.49	0.28
8	alsike clover	Táborský	15.0	8.15	1.40	4.00	0.26
9	white clover	Jordán	15.0	6.59	0.99	4.42	0.18
10	sainfoin	Višňovský	5.0	6.31	0.50	4.42	0.18
average	.	.	.	7.44	2.10	4.46	0.69
LSD <sub>0,05</sub>	.	.	.	2.69	0.66	1.45	0.29
LSD <sub>0,01</sub>	.	.	.	3.23	0.79	1.74	0.36

<sup>1/</sup> MVS/ha: Seed quantity in millions of viable seeds per ha; nbc = newly bred cultivar

**Conclusions** The selected legumes showed to be very suitable for strip-seeding in central Europe, particularly red clover because of its it has wide tolerance Tetraploid cultivars were more productive than diploid ones.

**Acknowledgements** Funds for this study were provided by the research project No. VZ01 'Creation, calibration and validation of sustainable and productive cropping systems'.

### Reference

Šimon, T. & Jakešová, H. (2005) Relationships among nitrogenase activity, dry forage and water soluble carbohydrates content of selected red clover genotypes. In: Grassland – a Global Resources, XX International IGC 2005, Dublin, 2005 (*in press*).