

EXAMINATION OF DIFFERENT PLANTED LUCERNE FEED AVAILABILITY IN SMALL RUMINANTS

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Introduction

Technicality pasture grazing by small ruminants has great importance because of it has advantage physiological and economically effects and notable aspect of environmental economy too. We should considering one part of or all forage requirements make from these areas for winter time. In dryness years can harvest considerable quantity feed from moist-lying fields. Preconditions of it are the technicality utilization of pasture (in actual circumstance use accept grazing, cropping, etc.), pasture stocking capacity in proportion to livestock size, and botanical composition of the actual field. Many times the weather is changing successively, e.g. once it is suddenly rainfall and after this has a long drought period (Köles *et al.*, 2003). The water stress evaluated the vegetative growth, yield and yield components (Baser *et al.*, 2004, Kaddour and Fuller, 2004) for many plants. The water-saving soil management and cultivation of xerophytes, plants with short vegetation period and species with giving large fresh mass give result in drought and dry period (Gyuricza and Birkás, 2000; Birkás and Gyuricza, 2004).

It is very important in small ruminants related to meadow-graze-farming that get increased significance of specialities from regional trait (microclimate, moist-dry-lying, flat-descent-lying, alternative plants – *Medicago sativa varia*, *Bromus Inermis* (Szemán *et al.*, 2004), etc.) and on the basis of it should be make the accord of variety-environment-market interaction (Bedő and Póti, 1999).

The technology of grazing, harvesting and preserving are have to be such an optimal that guarantee derive from advantages of pasture crop dynamic (Orosz *et al.*, 2001).

The aim of this estimation was evaluate the *Medicago sativa varia* planted by open sowing and with *Bromus inermis* as well as *Medicago sativa* usability in sheep and goat feeding.

Material and methods

We examined the feed availability of sheep and goat in pure planted *Medicago sativa*, *Medicago sativa varia* and *Medicago s. varia x Bromus inermis* on two different ecological regions Gödöllő (Pest County) and Tiszaszőlős (Jász-Nagykún-Szolnok County).

The soils of the studied area are Brown Forest Soils (Luvisols, Cambisols) at Gödöllő sites, and Salt Affected Soils (Solonetz) at Tiszaszőlős site. The classification was according to the Hungarian Soil Classification System (HSCS), and World Reference Base for Soil Resources (WRB) after HSCS in brackets. WRB is an international classification and correlation system, based on diagnostic approach.

We evaluated the effect of different grazing methods (continuous and rotational) on two different ecological sites. One site was in Dombóvár (Tolna County), other site was in Tiszaszőlős (Jász-Nagykún-Szolnok County). The fields (Dombóvár and Tiszaszőlős) were partition into two parts (each part were 60-60 ha). One of it was grazing continuous; the other part was grazing rotational by 180-180 Hungarian Merino ewes.

We evaluated the botanical contents, and crop yield in different fields. We compared the hay yield (5 sample), the stocking capacity, the condition of animals and ability of lamb and kid rearing in the examined farms.

Data were statistically evaluated by SPSS 10.0 program package.

Results and discussion

We evaluated the different plants (*Medicago sativa*, *Medicago s. varia* and *Medicago s. varia x Bromus inermis*) of green yield in Gödöllő, Tiszaszőlős (Table 1).

Table 1: Crop yield and crop partition of *Medicago sativa*, *Medicago s. varia* and *Medicago s. varia x Bromus inermis*

		<i>Medicago sativa</i>	<i>Medicago s. varia</i>	<i>Medicago s. varia x Bromus inermis</i>
Gödöllő	green yield	10.46±1.29bc	6.41±0.79c	7.76±1.13b
	hay yield	7.53±1.10bc	4.62±0.67c	5.23±0.65b
Tiszaszőlős	green yield	11.39±1.41bc	7.29±0.92c	8.16±1.03b
	hay yield	7.86±0.97bc	5.04±0.62b	5.63±0.94c

b=P<0.01, c=P<0.001

The green yield of *Medicago sativa* was greater 36-39 % and 26-28 % compared *Medicago s. varia* and *Medicago s. varia x Bromus inermis* in Gödöllő and Tiszaszőlős. We found similar tendency in the hay yield.

We always found much more grass weeds in every sites of *Medicago s. varia* compared to *Medicago sativa*. Therefore, we had to do mechanic weed killing by weed harrow after planted *Medicago s. varia*.

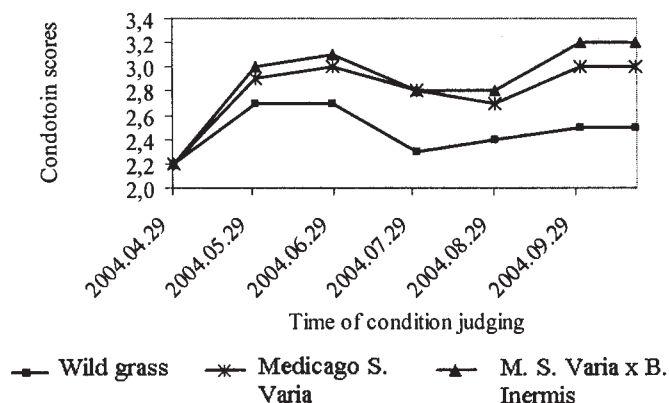
We examined the condition of ewe in Gödöllő (Table 2). The condition of ewes on *M. s. varia x B. inermis* and *M. s. varia* grass were better compared with ewes on wild grass (P<0,001) (Fig. 1).

Table 2: Evaluation of ability of lambing and kidding performance of grazing of different sites

Sites		Reproduction rate, %	Mortality %	Litter weight of birth, kg	Litter weight of weaning, kg
Gödöllő	grass	135±16.67cC	4.9±0.60	5.0±0.62cC	25.6±3.42cC
	<i>M. s. varia</i>	152±18.77c	5.0±0.62	5.7±0.77c	27.9±3.32ac
	<i>M. s. varia x B. inermis</i>	154±19.01C	4.9±0.60	5.8±0.72C	28.9±3.89aC
Tiszaszőlős	grass	148±18.27cC	4.8±0.65	5.7±0.73cC	27.1±3.79cC
	<i>M. s. varia</i>	164±20.25c	5.1±0.63	6.2±0.69c	30.7±5.05c
	<i>M. s. varia x B. inermis</i>	162±20.00C	4.9±0.73	6.0±0.74C	29.8±5.94C

a=P<0.05; c, C=P<0.001

Figure 1 : Evaluation of condition on grazing ewe in Gödöllő



The litter weight of weaning was better on the *M. s. varia x B. inermis* than wild grass.

We evaluated the effect of the continuous and rotational grazing methods to the plants and animals in two sites (Tiszaszőlös and Dombóvár). The results showed the rotational grazing methods better than continuous methods (25-30% greater crop production and 20-23% less tread loss, furthermore the botanical content was more favourable).

Conclusions

- The feed preparation cost was very high, therefore the development of ruminant keeping and feeding technology, for example evaluation of new plant species and feeding methods is very important;
- The pure planted *Medicago s. varia* and *M. s. varia x B. inermis* were able to meadow and grass utilization, because these plants were better in crop evenness and quality and feed ability, than wild grass;
- Compared the effect of continuous and rotational grazing methods the rotational grazing was better (25-30% greater the crop production and 20-23% less the tread loss, moreover the contents of botanical was more favourable) than continuous grazing methods.

Acknowledgements

This work was supported by Ministry of Agriculture (FVM 34125/2003 and FVM 43063/2004).

References

- Baser, I, Sehirali, S, Orta H (2004): Effect of different water stresses on the yield and yield components of winter wheat. *Cereal Res. Commun.* 32 2. 217-223. p.
- Bedő S, Póti, P (1999): A legelő, mint takarmány szerepe a juhtenyésztésben. *Állattenyésztés és Takarmányozás*, 48. 6. 690-692. p.
- Birkás M, Gyuricza Cs (2004): Agroökoszisztéma elemek kölcsönhatásainak vizsgálata művelési kísérletben. *Agro 21 füzetek*, 37. szám, 97- 110. p.
- Gyuricza Cs, Birkás M (2000). A szélsőséges csapadékelátottság hatása egyes növénytermesztési tényezőkre barna erdőtalajon, kukoricánál. *Növénytermelés*, 49. 6. 691-706. p.
- Kaddour, AA, Fuller, MP (2004): The effect of elevated CO₂ and drought on the vegetative growth and development of durum wheat (*Triticum durum* Desf.) cultivars. *Cereal Res. Commun.* 32 2. 225-232. p.
- P. Köles, E. Antal, J. Dimény (2003): The impacts of the increasing drought frequency on the agricultural water management. *Időjárás*, 107. 3-4. 237-248. p.
- Orosz Sz., Bellus Z., Kelemen Zs. (2001): New technologies in fermentative preservation of forages in Hungary *Proc. Conference on Nutrition of Domestic Animals "Zadravec-Erjavec Days"*, Radenci (Szlovénia) 96-111.
- Szemán L, Barcsák Z, Tasi J. (2004): Gyepalkotó fajok és fajták válogatási sorrendje, anyajuhok legelési viselkedése alapján. *Állattenyésztés és Takarmányozás*, 53. 4. 385-393. p.