

DYNAMIC NUTRIENTS QUALITY CHARACTERISTIC ON PASTURE IN DIFFERENT ALTITUDE IN SOUTH BOHEMIAN REGION

DINAMICA CALITĂȚII NUTRIENȚILOR PE PAJIȘTILE SITUATE LA DIFERITE ALTITUDINI IN REGIUNEA BOEMIA DE SUD

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In 2004-2005, 7 different experimental locations were chosen in the Sumava Mountains area between 450 to 900 m. Three farms had dairy cows, 2 farms had beef cattle on pasture, and 2 farms had a combined beef and dairy herd. During summer, all cattle were grazing. Dairy cows were supplemented with concentrate and hay according to their milk production. During winter, the cattle on all farms were fed with silage. The pasture yield, botanic structure of grass, clover and other plants and the quality of animal product were monitored.

Content of richness species in pasture through 2 years (average)

Species agro botanic group	P content in %					
	1. VJ		2. T		3. R	
	2004	2005	2004	2005	2004	2005
Grasses	81	62	75	71	49	42
Trefoils	3	6	14	22	36	40
Other plants	16	32	11	7	15	18

Yield, botanic composition and chemical analyses of grass and herbage were measured in seven localities with different altitudes between 450 and 900 metres above sea level.

We suggest that evaluation of pasture nutrients, yield can give valuable information that can improve the grazing management. Grazing influenced not statistically significant a low nutrient content in grass with herbs gave a lower cut production, especially in terms of cutting, grazing management and lower part of N fertilisation. The content of average richness species of grasses, trefoils and other plants are present. In the stands 2 and 3 the increasing of trefoils especial white clover are increased. This showed high utilisation of pasture and good management. Higher stands of pasture depend on altitude had tendency to lower dry matter content.

Key words: pasture, botanic composition, altitude

Introduction

The quality and nutrient composition of grass are important factors for the welfare of ruminants and the quality of animal products (Zastawny et al., 2004). Good pasture and grazing management can improve nutrients and botanical structure (Čermák et al., 2004; Gaisler, P., 2005). Optimal structure of good pasture consists of 50-70% of grass, 10-20% of clover and 10% of other plants (Čermák et al., 2001, Mrkvička, Veselá 2004). The increase of protein following a high proportion of clover has negative impact on the fibre content in fresh pasture and can create problems for silage production for the winter season (Kadlec et al., 2001, 2004, Pozdříšek et al., 2003).

Material and Methods

In 2004-2005 2 different experimental locations were chosen in the Sumava Mountains area between 450 to 900 m. During summer, all cattle were grazing. Dairy cows were supplemented with concentrate and hay according to their milk production. During winter, the cattle on all farms were fed with silage. The pasture yield, botanic structure of grass, clover and other plants and the quality of animal product were monitored. The wetter through summer was observed (temperature and rain fall). Bows farms are in ecological conditions.

The samples of forages were analysed for content of DM, ash and crude protein (CP).. CP was analysed according to the Kjeldahl method (AOAC, 1990). Ash was determined after combustion at 525 °C (AOAC, 1990). The organic matter digestibility and rumen protein degradation after Van Soest and Tilley Tery methods was observed. The statistical evaluation with the pocket Stat Anova was observed.

Results and Discussions

In the table 1 are results of temperature and rainfall from the farm R 450 m altitude showed, the some results from farm VJ 900m altitude in table 2 presented. In the table 3 the yield of pasture and the digestibility of organic matter OMD% and the rumen protein degradability Deg CP% into the 2004 and 2005 year are showed.

Table 1 results of wetter on the farm R 450m altitude

average temperature 2005

month	5	6	7	8	9	10
average	9,7	13,9	15,7	16,1	10,9	7,5
min	4,8	9,6	9,2	10,1	6,4	0,3
max	15,4	17,5	21,9	21,9	14,4	13,9

average temperature 2006

month	5	6	7	8	9	10
average	11,5	14,3	16,4	13,8	13,7	12,9
min	4	7,3	10	9,8	0,3	-1,8
max	19,7	21,7	23,2	17,3	15,1	10,1

rain fall 2005

month	5	6	7	8	9	10
total	65,8	134,4	85	53,1	52,3	56,1
min	0	0	0	0	0	0
max	13,5	41	23,5	13,5	19	16,2

rain fall 2006

month	5	6	7	8	9	10
total	73	91,9	144,4	124,5	63,5	78,9
min	0	0	0	0	0	0
max	19,2	54,2	22	34,3	20,1	15,7

Table 2 results of wetter on VJ farm 900m altitude
average temperature 2005

month	5	6	7	8	9	10
average	8,7	13	14,8	15,5	10,3	6,5
min	3	8,4	9,1	10,4	5	2,3
max	13,7	19,8	21,7	22,2	14,4	13,4

average temperature 2006

month	5	6	7	8	9	10
total	10,9	14,2	15,5	13,1	10,8	7,8
min	2,3	5,5	8,7	6,9	3,1	-1,3
max	19,7	20,6	23,2	18,8	16,2	12,2

rain fall 2005

month	5	6	7	8	9	10
total	78,6	103,3	79,7	63,2	60,3	64,4
min	0	0	0	0	0	0
max	19,5	26,7	17,4	22,2	22,9	21,6

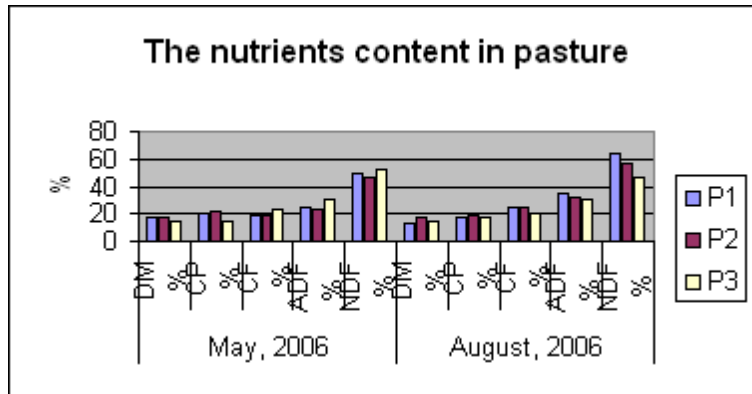
rain fall 2006

month	5	6	7	8	9	10
total	72,8	102	185	141,7	52,8	71,5
min	0	0	0	0	0	0
max	14,4	33,4	18,8	34,2	22,3	27,5

Table 1. Nutrients content in locality in 100% DM

Pasture method	May, 2006					August, 2006				
	DM %	CP %	CF %	ADF %	NDF %	DM %	CP %	CF %	ADF %	NDF %
P1	17,3	20,4	19	25,3	49,1	13,4	18,1	24,7	34,2	63,8
P2	17,3	21,9	18,9	23,6	47	17,5	19,4	24,5	31,6	56,4
P3	14,2	14,2	23,2	30,3	51,8	14,4	16,9	19,9	30,7	46,5

*



P1 permanent pasture, P2 pasture + cut, P3 cut + pasture

Table 3. Average yield of pasture t/ha. OMD Deg CP %

Pasture	yield t/ha	DOM%	CP Deg.%
P1	3.05	89	71
P 2	3.35	86	68
P3	3.20	85	65

In the table 1.2 we can see that in the higher altitude the higher rain fall and lower temperature through the summer grazing period was observed. The year differences are for the 2005 the higher rainfall in both farm was observed.

In the abstract table the content of average richness species of grasses, trefoils and other plants are present. In the stands the increasing of trefoils especial white clover are increased. This shoved high utilisation of pasture and good management.

Grazing influenced not statistically significant a low nutrient content in grass with herbs gave a lower cut production, especially in terms of cutting, grazing management and lower part of fertilisation N. This is in line with results of studies made by for example Cermak et al (2004), Pozdíšek et al. (2003), and Zastawny et al. (2005). The differences of content different nutrients crude, protein and dry matter in different altitude of pasture yields, significant increased the yield in wet condition through the pasture 2005. The OMD and Deg CP are not statistical important. Higher stands of pasture depend on altitude had tendency to lower yield and dry matter content.

. This results are Kadlec et al (2004), Čermák et al 2004), Pozdíšek et al. (2003) in this form presented for extensive pasture utilisation.

Conclusion

We suggest that evaluation of pasture nutrients, yield can give valuable information that can improve the grazing management. Grazing influenced not statistically significant a low nutrient content in grass with herbs gave a lower cut production, especially in terms of cutting, grazing management and lower part of fertilisation N. The content of average richness species of grasses, trefoils and other plants are present. In the lower altitude on farm R increasing of trefoils especial white clover are increased. This showed high utilisation of pasture and good management. Higher stands of pasture depend on altitude had tendency to lower dry matter content.

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