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The effect of roughage quality and dried distillers grains as protein component on feed intake and milk performance in the diet of dairy goats

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Introduction

Optimal diets for dairy goats are very important for high performance and healthy animals. Because of high cost of concentrate the amount in the ration must be considered well. High quality roughage can reduce the amount of concentrate. The feeding value of roughage mostly depends on the time of harvesting. Early cutted grass has a higher nutritive value than late harvested grass.
With the building of a factory for ethanol production in Austria corn dried distillers grains (DDG) are available for feeding ruminants. The evaluate the use of DDG in the diet for dairy goats a feeding experiment was carried out. The aim was to replace soybeans as protein component in the concentrate with DDG.

Material and method

Three different concentrates: group K-0 with 11.8% soybean extration meal,

group K-50 with 5.9% soybeans and 9.4% DDG

group K-100 without soybeans and 18.7% DDG.

xP in all 3 groups 15.6%,

energy content 12.26, 12.15 and 12.04 MJ ME/kgDM.

The experiment was carried out with 36 female Saanen goats for the first lactation. Animals where housed in pens on straw and was fed individually. Water was available for free intake. Body weight, daily hay and concentrate intake and milk performance where recorded. Milking was twice a day.

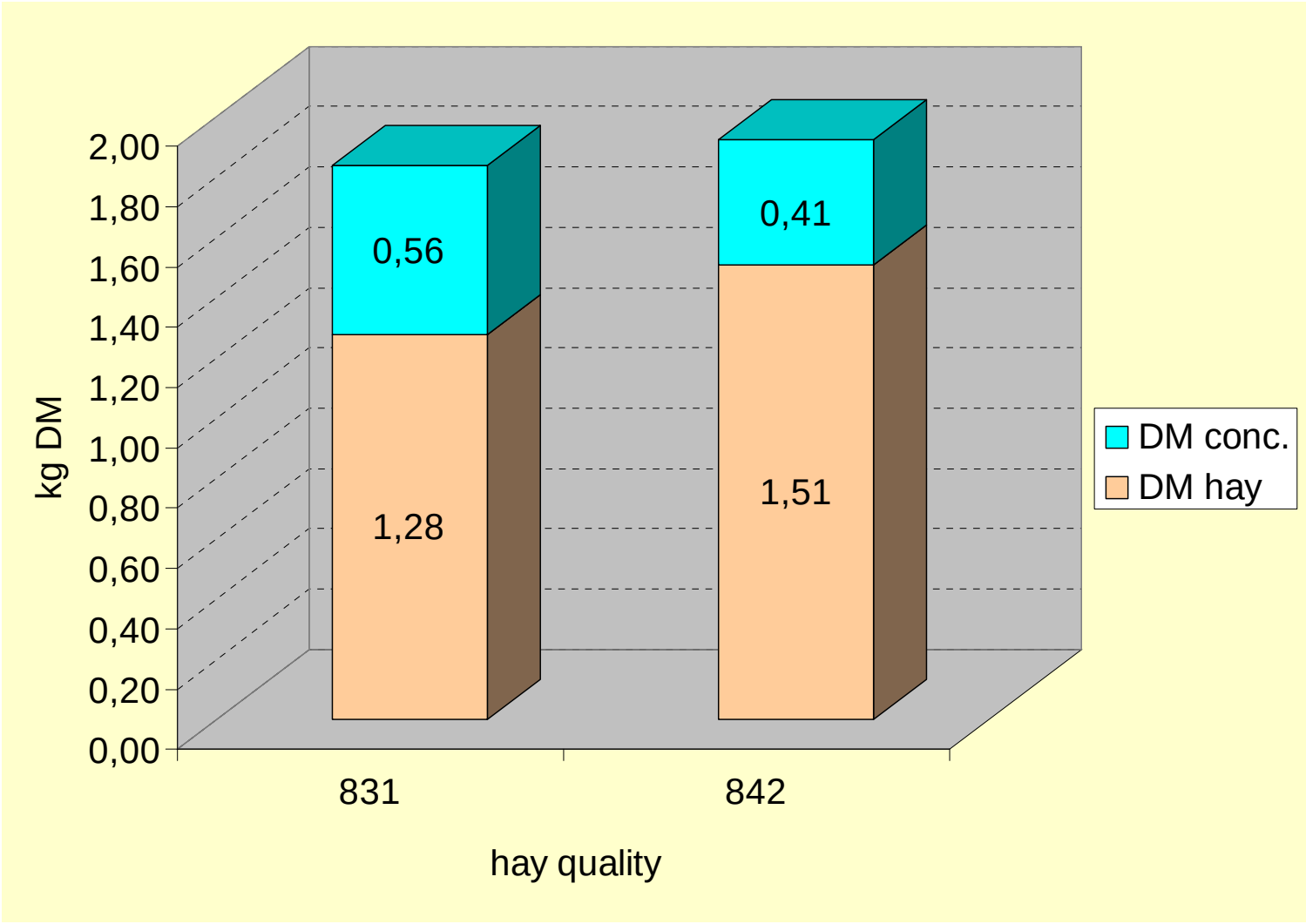
Composition of concentrate and feeding value of feed stuff

Feed stuff	K-0	K-50	K-100	3-cut	4-cut
barley	41,370	39,893	39,400		
maize	15,760	14,775	12,805		
dried sugar beet cuts	14,775	14,775	14,775		
oats	10,835	9,850	8,865		
soybean extraction meal	11,820	5,910	-		
DDG	-	9,358	18,715		
minerals	2,955	2,955	2,955		
carbolic lime	0,985	0,985	0,985		
molasses	1,500	1,500	1,500		
crude protein, g/kg DM	156,00	156,00	156,00	108,06	143,77
energy, MJ ME	12,26	12,15	12,04	9,57	9,41
crude fibre, g/kg DM	76,39	77,20	78,20	292,00	272,19

Results

During the first 22 weeks of lactation there where no significant effect of DDG in concentrate on daily dry matter intake (1,95, 1,86 and 1,88 kg), on daily milk yield (2,34, 2,17 and 2,24 kg) and on milk fat (2,74, 2,86 and 2,79 %) and milk protein (2,82, 2,91 and 2,84 %) content. Hay quality had a significant effect on daily hay intake, the intake of 4-cut hay was higher than that of 3-cut hay (1,5 vs. 1,3 kg DM).

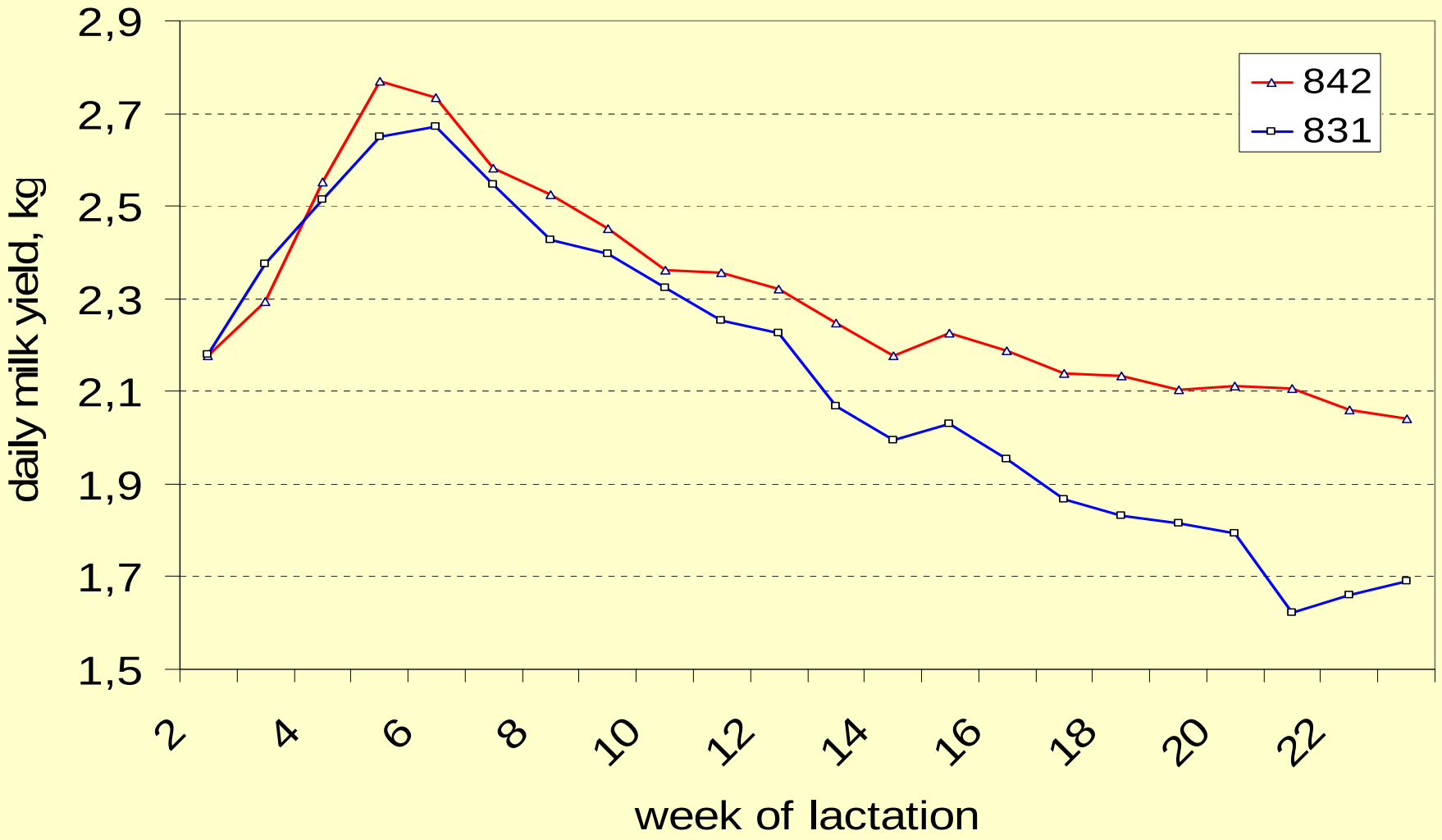
Daily DM intake



Feed intake, milk yield and body weight

Parameter	Concentrate			Hay	
	S-0	S-50	S-100	831	842
Feed intake, kg DM/d	1,95	1,86	1,88	1,87	1,92
Hay, kg DM/d	1,50	1,35	1,38	1,3[a]	1,51[b]
Concentrate, kg DM/d	0,45	0,51	0,50	0,57[a]	0,41[b]
Milk yield, kg/d	2,34	2,17	2,24	2,19	2,30
Fat content, %	2,74	2,86	2,79	2,91[a]	2,69[b]
Protein content, %	2,82	2,91	2,84	2,82	2,89
Body weight, kg	50,47	50,88	49,34	48,30	52,04

Daily milk yield



Conclusion

For feeding dairy goats it is very important to use roughage in best quality.

In concentrate soybean extraction meal can be replaced by DDG without any effect on feed intake and milk performance.