

## THE HIGH ENERGY RATIONS USED IN THE FEEDING OF HIGHLY PRODUCTIVE DAIRY COWS OF THE ROMANIAN SPOTTED BREED

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**Abstract.** *The biological material under study consisted of 40 Romanian Spotted milk cows at the debut of their lactation. The effect of using animal fat in dairy cows feeding was established on two groups of 20 Romanian Spotted Breed dairy cows. Milk yield and butterfat in the milk of dairy cows fed with animal fat were favorably influenced, as production values obtained were higher and higher with each month of checking. The milk yield was 8.053 kg, and the average milk fat 4.8% for the experimental and 7.309 kg with 4.1% fat for the control.*

**Keywords:** milk, lactose, fat content, metabolic profile.

### INTRODUCTION

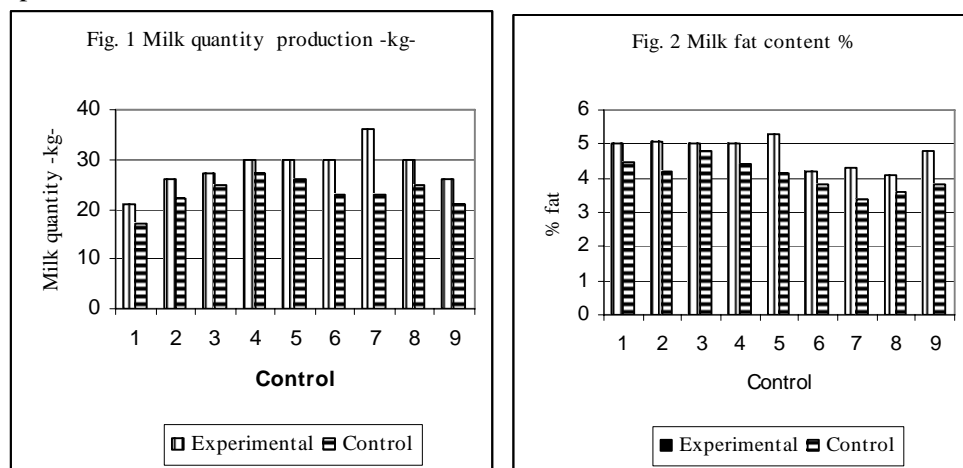
The effect of using animal fat in dairy cows feeding was established on two groups of 20 Romanian Spotted Breed dairy cows each, maintained in identical technological and microclimatic conditions. The dairy from the experimental group received a high energy feeding, with 5% lipids (pork fat), two times a day, during one year. All along, the cows ate very good hay, silage corn and beet. The milk yield was 8.053 kg, and the average milk fat 4.8% for the experimental and 7.309 kg with 4.1% fat for the control.

### MATERIAL AND METHOD

The biological material under study consisted of 40 Romanian Spotted milk cows at the debut of their lactation. The batches were organized as follows: 20 head in Experimental (E) one, receiving pork fat added to their feed; 20 head in the Control (C) one. Concentrates applied had the following structure: for “E” type concentrate: corn on cob 50%, barley 10%, bran 18%, sun flower grist 12%, pig fat 5%, molasses 2%, premix 1%, salt 1,7%, methionine 0,3%. Structure of “C” type concentrate was: corn on cob 50%, barley 15%, bran 22%, sunflower grist 10%, premix 1%, salt 2%. The “E” type of concentrates were gradually introduced in the feed in order to allow the animals to get used to it and notice possible rejection and intoxication. The system of management was the same with both batches, i.e., in shelter; confinement system; milking in cans; *ad libitum* watering; automated watering device. Comfort parameters were also identical. The experiment lasted for one year. There were followed and recorded: the milk yield (quantity and quality); feed consumption (per sorts and batches); state of reproduction; the main parameters of the metabolic profile.

### RESULTS AND DISCUSSION

The animals were taken under observation at the debut of their lactation, the starting milk yield being 21, 4 liters and 5, 00% butterfat with “E” and 17, 0 liters of milk and 4.5% butterfat with “C”. The milk yield and the fat content evolution with the two batches all along the experiment are presented in fig.1 and 2. Individually, there were also recorded values of the fat content higher than 6.5% for the experimental.



The standard milk production (with 3.5% fat), estimated for the whole lactation and for both groups, show a milk yield production higher with 29% for the experimental. The data are presented in table 1. The level of other milk components, taken under observation (protein, lactose, somatic cells, milk urea), are presented in the table 2.

**Table 1**

**The standard milk yield (3.5% fat)**

Item	Milk yield	Fat %	Fat units	Standard milk (3.5% fat)
Experimental	8.053,47±958.62	4.8	38.656±5.230	11.045
Control	7.309,24±1068,70	4.1	29.968±4.580	8.562
Differences±	+744,23 (+10.18%)	+0.7 (+29%)	+8.688 (+29%)	+2.483 (+29%)
Significances	*	**	**	**

\* (p<0.05); \*\* (p<0.01); \*\*\* (p<0.001);

**Table 2**

**The average values for some milk components**

Item	Protein %	Lactose %	Water %	Somatic cells	Milk urea mg%
Experimental	3.48	4.92	85.93	280.000	8.33
Control	3.60	5.01	85.99	199.000	10.10
Differences±	-0.12	-0.09	-0.06	+81.000	-1.77

Significances	n. s.	n. s.	n. s.	*	*
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\* (p<0.05); \*\* (p<0.01); \*\*\* (p<0.001);

The parameters of metabolic profile measured after periodical blood samplings (through jugular puncture) display close values in both group, within physiological limits (Table 3).

**Table 3**

**The value for the main metabolic profile parameters**

Item	Serum lipids mg %	Cholesterol mg %	Proteins g %	Serum urea	Serum glucose mg %	Ca mg %	P mg %	Alkaline phosphates I.U./l
Exp.	694.00 ±93.50	202.30 ±19.60	9.20 ± 0.47	27.00 ± 7.35	66.80 ± 16.20	10.88 ± 0.11	4.52 ± 0.23	30.60 ± 12.50
Control	558.00 ±101.30	169.6 ±21.20	8.77 ±0.56	20.60 ±8.70	54.60 ±5.82	10.24 ±1.12	4.34 ±0.20	25.60 ±7.32
Diff±	+136.00	+32.70	+0.43	+6.40	+12.20	+0.64	+0.18	+5.00
Signif.	*	n. s.	n. s.	*	*	n. s.	n. s.	n. s.

\* (p<0.05); \*\* (p<0.01); \*\*\* (p<0.001);

The reproductive situation presents itself in the following way: at “E” all cows are conceived and S.P. is 95, 0 days; at “C” all cows are also pregnant and S.P. equals 133 days, higher with 28.57%. The feeding behavior of the animals in the experiment did not display any cases of disliking the feeding including fat in concentrate structure.

### CONCLUSIONS

Milk yield and butterfat in the milk of dairy cows fed with animal fat were favorably influenced, as production values obtained were higher and higher with each month of checking. The standard milk yield (3.5% fat) was higher for the experimental group with 29 %. The parameters of metabolic profile measured displayed close values for both group, within physiological limits, significant differences were recorded for lipids, urea and serum glucose. The Service Period was shorter at “E” with 28.6 % than at “C”.

### REFERENCES

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