

CONTRIBUTIONS TO THE STUDY OF BODY CONDITION OF DAIRY COWS IN RELATION WITH THEIR PHYSIOLOGICAL STATE

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Abstract

In the countries with developed livestock, cows' body condition is an important indicator for comfort, maintenance and health assessing. Body energy reserves management for dairy cows improved production efficiency by reducing the incidence and severity of metabolic and reproductive diseases. In the current paper we study the physiologic phases of dairy cows during calving interval and we appreciated body condition. The biological material analyzed is from a top dairy cow farm, SC Panifcom SRL Vlădeni, from North-East area of Romania. After appreciation of animals' body condition using United States system with 5 points and with 0.25 graduation data were centralized and processed by calculating the main statistical indicators and frequency for of body condition in different physiological phases for the studied animals. The largest percent (23.71%) of cows which are in the phase of late part of gestation up to first month after calving had a body condition score of 3.75, for cows in service period phase up to first pregnancy month, body condition score was 2.75 for 27.6% of the animals. The highest rate of animals which are between 4 and 7 months of gestation were the value of 2.75 and for the majority of animals being in the late lactation phases (23.97%) the body condition score was 3.75.

Key words: body condition, dairy cows, physiologic status

INTRODUCTION

Milk and milk products are main products which are obtain from cows. Milk quantity and quality of which individual cow or for all herd, depends of some factors of which the most important are: genetic potential, cows alimentation, systems of milking, transport and milk conservation, cows age, milking frequency per day, lactation length, cows comfort, lactation season, healthy and body condition of cows.

Dairy cows body condition is an important indicator for comfort and health evaluation. Follow and controlling body condition of dairy cows makes this parameter a management tool for dairy farms.

MATERIAL AND METHODS

Biological material for this study is represented by a number of 195 Friesian cows breeding in Panifcom Farm from Vlădeni.

In this study was followed dairy cows body condition during a calving interval.

For cows condition evaluation was used American five-point system with 0.25 gradations [1, 2]. Analysed cows were dividing in 4 categories after their physiological state like:

- cows in service period – first month of gestation
- cows between 2 and 5 month of gestation
- cows in late lactation
- cows in ante and post partum period

Data were centralized and processed, calculating the main statistical indicators and frequency for body condition on physiological state of animals studied.

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The manuscript was received: 24.04.2012

Accepted for publication: 06.05.2012

RESULTS AND DISCUSSIONS

Cows were housing in open free stall barn and common resting space, assigning per head a surface of 8 m². As bedding, layer of straw is used, which is renewed every few days. In each stable, cows have free access to paddock. Cows have an increase comfort trough interior shelter features like: cow brush, ventilation and humidification system in feeding area for a good capitalization of food in summer warm days, stainless steel watering with heating system. Feeding takes place through a metal grille with animals blocking option. Manure evacuation is

mechanically. Feeding is from stock with all in one forage, in his composition having hay, alfalfa hay, and corn silage and concentrated.

After scoring and data analysing of body condition (Table 1) results that cows in service period – first month of gestation have a body condition score between 1.50 and 5.00 with an average of 2.73.

For the first part of gestation body condition score was between 1.50 and 4.50 and for the cows in late lactation and cows in ante and post partum period body condition was between 1.75 and 4.75, average score for this last two categories being 3.5.

Table 1 Variability and medium value for cows' body condition score

Physiological state	n	\bar{X}	s	V%	min	max
service period – first month of gestation	221	2.73	0.56	20.41	1.50	5.00
cows between 2 and 5 month of gestation	178	3.15	0.65	20.78	1.50	4.75
late lactation	146	3.58	0.58	16.28	1.75	4.75
ante and post partum period	232	3.51	0.59	16.83	1.75	4.75
TOTAL	777	3.22	0.69	21.31	1.50	5.00

To have a good view of cows body condition in table below are presented absolute and relative frequencies of its.

Analyzing body condition of dairy cows on Panifcom Farm, note that most cows in service period – first month of gestation (71.5%) had a body condition between 2.25 and 3.00. Optimal body condition for this period, with notes of 2.25 and 2.50, has 30.7% of animals (Table 2).

Most cows in first part of gestation (64.9%) has an body condition score between 2.50 and 3.25, optimal condition for this period being between 2.50 and 3.00 this score being found to 48.9% of cows. Analysing body condition score frequency we can see that 43.8% of cows have a superior score than desired body condition, 14% having a score of 3.25. An inferior body condition had 7.3% from cows (Table 2).

Analyzing body condition score frequency for late lactation period we can see that 31.5% from cows had a good condition

for this period, 13% had an inferior condition and 56% had a superior condition with score between 3.75 and 4.75. The biggest percentage registered was for cows with a body condition of 3.75 close to desired condition for cows in late lactation.

Following cows' body condition before and after parturition is obvious that 41.8% from cows had a good body condition for this period with score between 3.50 and 3.75. We see that almost 33% from cows had an inferior body condition most of this being recently given birth cows. A superior body condition was registered by 25% from cows, 13% had a condition of 4.00 (Table 2).

Table 2 Body condition score frequency during calving interval

service period – first month of gestation				cows between 2 and 5 month of gestation				late lactation				ante and post partum period			
BCS	Frequency		Cumulative percent	BCS	Frequency		Cumulative percent	BCS	Frequency		Cumulative percent	BCS	Frequency		Cumulative percent
	absolute (n)	percent (%)			absolute (n)	percent (%)			absolute (n)	percent (%)			absolute (n)	percent (%)	
1.5	4	1.8	1.8	1.5	1	0.6	0.6	-	-	-	-	-			
1.75	5	2.3	4.1	-	-	-	-	1.75	1	0.7	0.7	1.75	1	0.4	0.4
2	15	6.8	10.9	2	2	1.1	1.7	-	-	-	-	2	3	1.3	1.7
2.25	27	12.2	23.1	2.25	10	5.6	7.3	2.25	4	2.7	3.4	2.25	6	2.6	4.3
2.5	41	18.6	41.6	2.5	22	12.4	19.7	2.5	5	3.4	6.8	2.5	15	6.5	10.8
2.75	61	27.6	69.2	2.75	43	24.2	43.8	2.75	9	6.2	13.0	2.75	15	6.5	17.2
3	29	13.1	82.4	3	22	12.4	56.2	3	11	7.5	20.5	3	12	5.2	22.4
3.25	16	7.2	89.6	3.25	25	14.0	70.2	3.25	19	13.0	33.6	3.25	25	10.8	33.2
3.5	5	2.3	91.9	3.5	10	5.6	75.8	3.5	16	11.0	44.5	3.5	41	17.7	50.9
3.75	11	5.0	96.8	3.75	13	7.3	83.1	3.75	35	24.0	68.5	3.75	56	24.1	75.0
4	3	1.4	98.2	4	12	6.7	89.9	4	26	17.8	86.3	4	31	13.4	88.4
4.25	1	0.5	98.6	4.25	7	3.9	93.8	4.25	8	5.5	91.8	4.25	14	6.0	94.4
4.75	2	0.9	99.5	4.5	8	4.5	98.3	4.5	9	6.2	97.9	4.5	11	4.7	99.1
5	1	0.5	100.0	4.75	3	1.7	100.0	4.75	3	2.1	100.0	4.75	2	0.9	100.0
Total	221	100.0		Total	178	100.0		Total	146	100.0		Total	232	100.0	

*BCS - body condition score

Knowing that desired body condition for dairy cows varies between 2.25 and 3.75 during calving interval and reporting results from this, we see that less than 50% of cows were analyzed had an desired body condition.

CONCLUSIONS

After this study we see that body condition of analysed cows was good for almost 40% from it. It also notes that from cows with a poor body condition, most had a superior condition than desired one.

This is explained by the lack of genetic potential uniformity of cows, the herd being heterogeneous and possibility of groping cows by nutritional requirements are not being made, cows grouping is made by physiological state.

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