EFFECT OF CARCASS WEIGHT ON ITS CONFORMATION AND FATNESS IN BULLS OF THE CZECH FLECKVIEH BREED

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ABSTRACT

The aim of this study was estimate the effect of carcass weight (CW) on its a conformation and fatness in a set of 408 bulls of Czech Fleckvieh breed. The average values of parameters under study were as follows: warm and cold CW 452 kg and 444 kg, respectively; live weight and age at slaughter 805 kg and 675 days, respectively; daily weight gain 1.133 kg; conformation 3.24 (S = 1 and P = 6); fatness 2.54; price per kg of CW 81.2 CZK and live animal market price 36,782 CZK. It was found out that the compactness increased highly significantly (from 3.47 to 3.05 points) with the increasing CW (from 380 to 518 kg) while the fatness increased less markedly (max. difference 0.19 points). In spite of a highly significant increase in slaughter age (from 662 to 686 days) the increase in daily weight gains was also highly significant (from 0.961 to 1.286). The increase in CW resulted in a highly significantly increased price per 1 kg of CW (by 1.6 CZK) and also in live animal market price (by 11,885 CZK).

Key words: Czech Fleckvieh; beef; carcass; fatness; conformation; price

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INTRODUCTION

Besides milk production, the meat performance of double purpose cattle breeds represents the second important reason of their rearing. As compared with specialised dairy breeds of cattle, higher revenues that farmers can receive because of a higher live body weight and better carcass quality, can partly compensate losses resulting from decreased sales of milk. The sum of money received for sold slaughter animals is influenced above all by their conformation and live body weight. Breeders of the Czech Fleckvieh are afraid that the increasing live body weight (and thus also CW) is associated with a decrease in conformation of slaughter animals so that the total revenues are markedly lower. This paper was written with the aim to assess the effect of CW on conformation and fatness of bulls of the Czech Fleckvieh cattle.

MATERIALS AND METHODS

Altogether 408 Czech Fleckvieh bulls slaughtered in the category A (young bull of the age up to 2 years) were classified into four groups basing on their warm CW, viz.: 350 to 400 kg, 401 to 450 kg, 451 to 500 kg and 501 to 550 kg. The following parameters associated with the meat performance were compared in the aforementioned groups:

- Warm CW

- Cold CW

- Live body weight (warm CW x coefficient 1.78)

- Slaughter age (in days)

- Daily live body weight gain (for the whole life period; the expected body weight of newborn calves was 40 kg)

- Conformation (SEUROP, S = 1 and P = 6)

- Fatness (Class 1 to 5)

- Price per kg of CW

- Live animal market price

Differences in the aforementioned parameters existing among individual groups were analysed using single factor method of variance analysis (UNISTAT version 5.1.) with subsequent Tukey's test. Significance of differences between individual mean values was expressed by means of letters and values differing in the same row either highly significantly ($P<0.01$) or significantly ($P<0.05$) were marked with exponents A, B or a, b, respectively.

RESULTS AND DISCUSSION

Mean values of essential beef performance parameters of bulls under study (n = 408 are presented in Tab. 1. As one can see, the highest number of them (161 bull) were classified into the weight category of 451 to 500 kg. A lower number (146 bulls) were in the category 401 to 450 kg and considerably less (55 and 46 bulls) were classified into in categories of 501 to 550 kg and 350 to 400 kg, respectively. As far as the differences in warm and cold CW and in live body weight were concerned, the differences among all groups were logically highly significant. Highly significant differences were found out also among groups with different slaughter age although the difference between groups with the highest and the lowest CW was only 24 days. However, the difference in live body weight was as much as 246 kg. These two factors also caused that highly significant differences existed in live body weight gains among groups under study: the lowest and the highest gains was recorded in groups with the lowest and the highest CW, respectively. values of body conformation score improved highly significantly with the increasing CW, viz. from 3.47 (practically in the middle between U and R) to 3.05 (practically net U). Although differences in fatness were also highly significant, no clear-cut tendency was observed. The highest and the lowest fatness scores (2.64 and 2.45, respectively) were recorded groups with CW of 451 to 500 kg and 401 to 405 kg. A better conformity of bulls with higher values of CW was reflected also in a significantly higher price per 1 kg of CW (although only by 1,6 CZK/kg); in combination with higher CW, the final price of such animals was highly significantly higher than that of other bulls (by 11,885 CZK

Tendencies to fatten bulls of Czech Fleckvieh (or Montbeliarde) breed to higher slaughter weight were described for example by Chládek et al. (2004) who mentioned CWs of 378.3 and 378.1 kg, respectively. In another study (Chládek et al., 2005) these authors referred about CWs of 380 kg and 382.6 kg, respectively. Although these weights were higher than those mentioned by Bartoň et al., (2003) – 313.7 kg or Bartoň et al. (2007) – 345.1 kg, they were always much lower than weights of bulls investigated in this study (up to 550 kg). Regarding significant but minimum differences in age of animals under study, this observation reflected high daily weight gains especially in groups with a high CW. In absolute numbers, these gains were comparable with results published by Velik et al. (2008); these authors, however, mentioned a slightly lower slaughter weight. High gain weight observed in this study indicate an excellent growth capacity of Czech Fleckvieh bulls even to high slaughter weights. The fact that a high CW of experimental bulls did not worsen but, on the contrary, improved their conformation is convincingly documented by our results. The final results of the evaluation of conformation and fatness correspond with data published by Bartoň et al. (2003 and 2007). This is obvious in spite of the fact that milk performance of the Czech Fleckvieh population, which is referred to be negatively correlated with body conformation (Strapáka et. al., 1998), has recently increased.

Table 1. Average values of essential meat performance parameters of bulls under

Parameter	Unit	Carcass weight (CW) in kg 1)				Total
		350 - 400	401 - 450	451 - 500	501 - 550	
Number of cases	n	46	146	161	55	408
Carcass weight [1] (CW)	kg	380 [A]	428 [B]	474 [C]	518 [D]	452
Carcass weight [2] (CW)	kg	373 [A]	420 [B]	464 [C]	508 [D]	444
Live weight [3]	kg	676 [A]	762 [B]	844 [C]	922 [D]	805
Slaughter age	Days	662 [A]	672 [AB]	678 [BC]	686 [C]	675
Daily weight gain	kg	0.961 [A]	1.074 [B]	1.185 [C]	1.286 [D]	1.133
Conformation	SEUROP category[4]	3.47 [A]	3.28 [B]	3.19 [BC]	3.05[C]	3.24
Fatness	Subclass [5]	2.46[AB]	2.45[A]	2.64 [B]	2.53 [AB]	2.54
Price per kg of hot CW [6]	CZK	80.3[A]	81 [B]	81.3 [BC]	81.9 [C]	81.2
Live animal market price[7]	CZK	30.527 [A]	34.701 [B]	38.493 [C]	42.412 [D]	36,782

Values in the same row with different exponents (A, B or a, b) are highly significantly (P<0.01), or significantly different (P<0.05)
[1]Warm carass weight; [2]Cold carass weight; [3]Coefficient 1.78; [4]S = 1 and P = 6; [5]1 = lean and 5 = fat; [6]R 3 = 77.76 CZK/kg; [7]Without reduction

CONCLUSION

Basing on obtained results it is possible to conclude that fattened bulls of the Czech Fleckvieh breed showed a better conformation and lower fattens even at higher slaughter weights. This fact resulted in better prices per 1 kg of CW and, consequently, in considerably higher revenues.

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