Use of system fleckscore in the evaluation of body conformation in Slovak Spotted dairy cows

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Paper is focused to use of the Fleckscore system for evaluation of main body conformation traits – body frame, musculature, feet & legs and udder in the Slovak Spotted dairy cows in the first lactations (n = 15,779), in the second lactations (n = 2,138) and in the group of older ones in the third and other lactations (n = 3,694). The score for the main trait body frame have been calculated by the Fleckscore system from the recorded data. The dairy cows in the first lactations reached average level 76.54 points of body frame score, 78.8 points in the second lactations and 72.75 points reached the older dairy cows in the third and others lactations. Based on the results can be stated the Slovak Spotted dairy cows in the first lactations but particularly in the second and the third lactations had smaller body frame in comparison with dairy cows of Simmental breed in the first lactations in European countries. It was found increasing the feet & legs conformation average score from 80.25 in the first lactation to 81.02 in older dairy cows in the third and others lactations. The trait udder average score was 80.09 points for cows in the first lactations, 80.31 points in the second and 79.8 points in older cows, by Fleckscore system calculation. The results showed better udder conformation in younger cows of the Slovak Spotted breed, in the first and second lactations, than older dairy cows.

Keywords: dairy cows, Slovak Spotted breed, body conformation, Fleckscore

1   Introduction

International system Fleckscore is the most recent and accurate way of the main conformation traits score calculation in Simmental breeds in the Europe (Anzenberger, 2012; Tanzler, 2014; Ondráková, 2014). The system is in use in conformation evaluation in Germany, Austria, Italy and Czech Republic. The score of main conformation traits is calculated in dairy cows in the first (Fleckscore 1), second (Fleckscore 2) and the other lactations (Fleckscore 3) (Luntz, 2014; Kučera, 2014). The aim of the paper was to evaluation the main body conformation traits of Slovak Spotted cows by Fleckscore system.

2   Material and methods

The score of the main body conformation traits – body frame, musculature, feets & legs and udder have been calculated due the Fleckscore system in the Slovak Spotted dairy cows. Mentioned traits have been analyzed separately in the dairy cows in the first lactations – primipara (n = 15779), in the second lactations (n = 2138) and in older dairy cows in the third and other lactations (n = 3694). Only dairy cows with complete record from the linear evaluation of the conformation have been taken to calculation of the separate main traits, it was condition

for analysis performance by the Fleckscore system. All calculations of the main conformation traits score have been performed by SAS 9.3 statistical software by methodology of B. Luntz a D. Krogmaier from Bayerische Landesanstalt für Lanwirtschaft in Bavaria.

The main trait body frame calculation has been based on body measurements (in cm) recorded by judgers during conformation evaluation in the Slovak Simmental dairy cows – hip height, body length, rump length, rump width and body depth. The result of evaluation can reach score from 68 to 93 points in primipara, which is given by methodology conditions. The calculation for dairy cows in second lactations and older dairy cows in third and other lactations have been performed by similar equations Fleckscore 2 and Fleckscore 3, which differs from Fleckscore 1 only in partial traits standardization with correction to average values of Slovak Spotted dairy cows population in the second and third lactations.

3   Results and discussion

The score 76.56 point in average has been calculated for the main trait body frame due calculation by Fleckscore system from dataset of the body measurements in the dairy cows in the first lactation (n = 15779). The dairy cows

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Table 1   The main conformation traits calculations in the Slovak Spotted dairy cows in Fleckscore system

Fleckscore	n	$\overline{x}$	s.d.	x_{min}	x_{max}
Body frame					
1st lactations	15,779	76.54	3.97	68	92
2nd lactations	2,137	74.80	4.15	68	91
3rd and other lactations	3,694	72.75	3.95	68	88
Musculature					
1st lactations	15,726	81.34	3.56	68	92
2nd lactations	2,138	82.03	3.89	68	92
3rd and other lactations	3,664	82.24	4.26	68	92
Feet & legs					
1st lactations	12,283	80.25	4.27	68	93
2nd lactations	2,131	80.50	4.64	68	93
3rd and other lactations	3,669	81.02	5.18	68	93
Udder					
1st lactations	6,627	80.09	3.44	68	91
2nd lactations	9,15	80.31	3.79	68	93
3rd and other lactations	1,120	79.80	3.70	68	89

$\overline{x}$ – mean, s.d. – standard deviation, x_{min}, x_{min}

in second lactation reached body frame average score 74.8 and older dairy cows in third and other lactations reached 72.75 points. Based on these results can be stated the Slovak Spotted dairy cows in the first lactation but mainly older dairy cows have smaller body frame in comparison with Kučera (2014), from -2.46 to -7.36 points then dairy cows in the first lactation in Simmental breeds in the European countries with Fleckscore system in use.

The legs traits was calculated at average level 80.25 points in the Slovak Spotted dairy cows in the first lactation (n = 12 283) due the Fleckscore system (Table 1).

The rear legs have tendency to change angle expression toward sickle-hocked legs with increasing age and parity (Ondráková, 2014) and the total score of the main trait legs has been influenced by this fact in dairy cows in the second lactation and in dairy cows in the third and other lactations to 80.5 respectively 81.02 points in presented analysis.

Exactly, the partial trait rear legs conformation has most remarkable impact (with 40 % weight in index) to the result score for the main trait feet & legs (Luntz a Krogmaier, 2011; Luntz, 2014). Kučera (2014) recorded the average score range 79.6 points in Bavaria to 81.8 points in Italy for trait feet & legs conformation in Simmental dairy cows in the first lactation in Europe. We can state, on base of result, feet & legs conformation in Slovak Spotted dairy cows in the first lactation is similar with the Simmental dairy cows in Bavaria (for +0.65 point) or with lower

values for the main trait feet & legs than in dairy cows in Czech Republic, Austria and Italy (for -0.45, -0.85 and -1.55 point respectively) than present Kučera (2014).

The udder and evaluated partial udder traits are important conformation traits with relation to the milk production in the dairy cows as well as the longevity and the length of productive life. Based on analyze the main trait udder by the Fleckscore system mean score 80.09 points has been computed in the Slovak Spotted dairy cows in the first lactations. The dairy cows in the second lactations reached mean score 80.31 points, similar or slightly higher level than in dairy cows in the first lactations (for +0.22 point in average). The mean score 79.80 points for udder have been calculated in dairy cows in the third and other lactation. It can be stated, on base of results, the younger Slovak Spotted dairy cows, in first and second lactation have better udder conformation in comparison with older ones.

The results of the main trait udder in the Slovak Spotted dairy cows in first lactation are comparable with the Simmental dairy cows in the Bavaria (80.09 – 80.1 points) as have been found in analyzes by Luntz (2014) a Kučera (2014). Authors in other European countries have published higher score for the main trait udder from 80.4 points in Czech Republic to 81.8 points in Italy, which is confirming more strict selection for udder conformation or sooner culling of dairy cows with poor udder conformation in these populations.

4   Conclusions

On base of the results can be stated the Slovak Spotted dairy cows in the first lactation but mainly older dairy cows have smaller body frame in comparison with Simmental breeds in the European countries with Fleckscore system in use. Type traits like feet & legs and udder conformation in Slovak Spotted dairy cows in the first lactation are comparable with the Simmental dairy cows in the European countries.

Acknowledgments

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