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RESEARCH ON THE APPRECIATION OF CONFORMATION TRAITS FOR THE HOLSTEIN BREED IN ROMANIA

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Abstract

This paper aims to present the ratings obtained by a group of animals divided by the lactation rank and the differences between them and the breed standard. The tool that helps us to have an overview of the herd that we are working with is the type classification action. It is a very important element in the exploitation of dairy cows because it helps us to establish a hierarchy of animals in terms of conformation. Most of the results obtained from type classification of the animal group, have values close to those of the Holstein international standard. In some farms, there is now no emphasis on proper animal breeding technology nor is there a clear direction of genetic improvement in cows. In order to achieve higher economic performance, it is recommended to establish the long-term objective of development of the farm and then use of all existing means in the field to reach it.

Key words*: type classification, Holstein, lactation rank.*

INTRODUCTION

Type classification is used to appreciate the exterior of animals from a long time ago. Although this was done empirically, it was the only method of assessing the animals. Over time, with the evolution of mankind and a growing demand for consumption, and because of the farmers desire to have the most productive livestock, the assessment of the outside of the animals has evolved (Acatincăi, 2004). Type classification is now a fairly accurate cow assessment method and an extremely important activity for obtaining breeding values for bulls for sex limited characters (VP/05.0393, 2005).

Given the particular importance of cow's milk in human life and well-being, dairy cow husbandry occupies an important place in the global livestock production economy, representing a core sector in modern agriculture. Cows are the main raw material source for milk processors (Georgescu et al., 1995).

The tool that helps us to have an overview of the herd that we are working with is the type classification action. It is a very important element in the exploitation of dairy cows because it helps us to establish a hierarchy of animals in terms of conformation. After the animals are valued, we can objectively observe the qualities and defects of the herd and we can make comparisons between the animals (Pantelic, 2013).

It should also be borne in mind that type classification is the basis for bull selection, these being tested on descendants.

This paper aims to present the ratings obtained by a group of animals divided by the lactation rank and the differences between them and the breed standard (Alexoiu, 2002; Hamoen, 2016).

MATERIALS AND METHODS

The material analyzed and used for the writing of this paperwork is represented by 8026 Holstein Frisian cows. The working method used is represented by the analysis of the animal exterior using the linear description method. By this method, 18 traits were analyzed for each animal, grades from 1 to 9 were awarded for each trait except for “Stature” which is appreciated in centimetres, according to biological extremes in agreement to the methodology proposed by ICAR (Holstein Foundation Dairy Judging Workbook, 2016). A cow classification was then made according to their total score. A number of 8026 Holstein Friesian cows were analyzed, found in 13 farms

with different exploitation systems which were divided into groups according to the lactation rank.

RESULTS AND DISCUSSIONS

The deviations of the analyzed cows from the breeds standard are presented in the Table 1.

For stature, we can see a difference from the standard of +2.38 cm for all the classified animals, +2.9 cm for first calving, +2.37 cm for second calving and +1.97 cm for multiparous cows.

Analyzing these differences, one clearly distinguishes a tendency to increase the stature in the first calving versus the multiparous cows.

Table 1. Comparison of averages obtained with the standard of the breed

Parameters	Average total	Average first calving	Average second calving	Average multiparous	Breed standard
Stature (cm)	147.38	147.90	147.37	146.97	145.00
Chest width	5.295	4.775	5.169	5.809	5
Body depth	5.859	5.526	5.841	6.146	5
Angularity	4.709	4.423	4.700	4.949	5
Condition	5.087	4.857	5.194	5.199	5
Rump angle	4.872	5.026	4.897	4.728	6
Rump width	5.626	5.651	5.629	5.606	5
Rear legs rear view	4.782	4.985	4.761	4.625	9
Rear legs side view	6.073	6.094	5.897	6.182	5
Foot angle	4.116	4.286	4.074	4.001	5
Locomotion	4.222	4.160	4.291	4.217	9
Fore udder attachment	4.187	4.288	4.344	3.993	9
Front teat placement	4.705	4.791	4.890	4.507	5
Teat length	5.166	4.896	5.130	5.413	5
Udder depth	3.690	4.570	3.819	2.879	8
Rear udder height	5.421	5.624	5.461	5.228	9
Ligament	5.142	5.410	5.180	4.901	6
Rear teat placement	5.735	6.081	5.897	5.348	5
Frame	80.812	80.644	80.834	80.928	
Dairy strength	80.511	80.068	80.425	80.933	
Udder	79.482	80.222	79.620	78.791	
Feet and legs	79.077	79.199	79.304	78.811	
Total score	79.446	79.594	79.661	79.275	

In Table 1 we can see the differences in the average of the characters in the analyzed cows and the international standard of the Holstein breed.

The greatest difference from the breed standard was recorded for “fore udder attachment”. All the studied animal groups had a roughly equal score of around 4.2, the optimum of the breed being 9. Thus there was a difference of 4.8 points.

Another difference from the standard is recorded for the "udder depth" character. The standard is 8 points and the results obtained were 4.6 points for first calving, 3.8 points for second calving and 2.8 points for multiparous cows. At first, we can see the smallest difference between the credit rating of 3.4 points. However, the first calving is superior to the other groups of animals analyzed for this character, which were assessed by 1.8 points above the multiparous average and by 0.8 points above the second calving average, mainly by noticeable improvement of this character.

Table 2. Calculated statistical parameters for all trait

Parameters	Average (X)	Standard deviation (S)	Variance (S^2)	Variability (V%)
Stature	147.384	4.613	21.279	3.130
Chest width	5.295	1.478	2.185	27.917
Body depth	5.859	1.185	1.404	20.225
Angularity	4.709	1.358	1.844	28.838
Condition	5.087	1.659	2.753	32.616
Rump angle	4.872	1.838	3.380	37.732
Rump width	5.626	1.579	2.494	28.068
Rear legs rear view	4.782	1.966	3.864	41.104
Rear legs side view	6.073	1.683	2.832	27.708
Foot angle	4.116	1.684	2.837	40.928
Locomotion	4.222	1.879	3.531	44.510
Fore udder attachment	4.187	1.889	3.570	45.124
Front teat placement	4.705	1.656	2.744	35.207
Teat length	5.166	1.600	2.560	30.971
Udder depth	3.690	1.681	2.826	45.557
Rear udder height	5.421	1.347	1.815	24.853
Ligament	5.142	1.749	3.059	34.014
Rear teat placement	5.735	1.845	3.403	32.166
Frame	80.812	3.083	9.506	3.815
Dairy strength	80.511	3.449	11.895	4.284
Udder	79.482	3.265	10.663	4.108
Feet and legs	79.077	3.543	12.555	4.481
Total score	79.446	3.949	15.595	4.971

As we can see in Table 2, the most homogeneous analysed character is represented by stature with a variability of only 3.1%.

For the traits udder depth, fore udder attachment, locomotion, rear legs rear view and foot angle the value for variability is over 40% and we can say that the animals are very heterogeneous.

This heterogenity comes from a faulty management of the farm, from the lack of use of modern breeding techniques such as mating programs and from a poor choice of bulls used for artificial insemination.

In some farms, there is now no emphasis on proper animal breeding technology nor is there a clear direction of genetic improvement in cows. In order to achieve higher economic performance, it is recommended to establish the long-term objective of development of the farm and then use of all existing means in the field to reach it.

In order to obtain productive and healthy animals with a good longevity and conformation it is advisable to carry out a rigorous selection of the Holstein cows in Romania, a selection that can be made after classifying the animals because we will have a clear picture of the qualities and defects of the animals. It is also recommended to use a mating program which is very helpful in avoiding inbreeding and combined with type classification, can increase the precision of getting very good animals in future generations.

CONCLUSIONS

Most of the results obtained from type classification of the animal group, have values

close to those of the Holstein international standard. The exceptions are "udder depth", "rear udder height", "locomotion" and "rear legs rear view" that are far below standard in all the groups of analyzed animals.

From the analysis we can see a tendency to increase the stature of the animals, the first calvers having higher values than the multiparous cows.

Given the above-mentioned characters as inferior to the breed standard, we can conclude that the main problems encountered in the Holstein cows farms in our country are related to limbs and udder.

Limb problems like rear legs rear view could, in time, lead to walking disorders, different hoof diseases, pain when the cows are standing and all these, to a smaller milk yield.

Udder traits, especially udder depth, are very important in maintaining a good udder hygiene thus limiting the incidence of diseases like mastitis, abscesses. The higher the udder, the better it is for trying to avoid these inconveniences.

The amount of milk obtained in some Romanian farms could increase significantly if the technological conditions of operation and hygiene were improved.

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