SUMMARY

Summary of the thesis titled *"*Research regarding the application of animal welfare standards and production performances of dairy cattle from Teleorman county farms*",* developed by*Drd. Ing. MadalinGavrila*, under the guidance of Mr.*Prof. Dr. Marginean Gheorghe Emil*, dean of University of Agronomic Sciences and Veterinary Medicine Bucharest.

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The PhD thesis is structured on the basis of nine chapters, each one being clearly developed and having an important contribution in terms of understanding the concept of welfare in dairy cows.

The first part of the thesis is a detailed study of the researchs on welfare, made at global and national level till now, the scientific theories underlying the welfare and methods of assessment of animal welfare on dairy farms.

The second part of the thesis represent the own research that was done on a sample of farms in the county of Teleorman, using the method of evaluation system ANI 35 to present the animal housing systems of dairy cows and also highlighting the zootehnical potential of the area, a traditional area for livestock.

The main objectives of the thesis are:

- the status of research in animal welfare;
- analysis of the legislation for animal welfare;
- knowledge of criteria and methods of assessment of animal welfare;
- the analysis of the feeding technology used in dairy cows and its relation to welfare;
- the analysis of the housing technology used in dairy cows and its relation to welfare;

- the analysis of the milking technology used in dairy cows and its relation to welfare;
- comparative research on microclimate conditions in dairy farms from Teleorman County;
- assess the welfare of dairy cows in different types of farms;
- the analysis of the reproduction parameters in dairy cattle farms studied;
- research on the interrelationship between welfare and milk production of dairy cows in Teleorman County.

Thus Chapter I, has addressed the issue of welfare in terms of relationship between man and animal, and in this direction it was reminded the historian concept of welfare, with everything it assume, ideologies of scientists, scientific theories, the implications of European Union and special organizations.

Chapter II presents the legislative bases, both internationally and nationally.

Chapter III deals extensively with the animal welfare assessment methods. We remembered the assessment of animal welfare based on the indicators like ethological factors, management factors, numeric integrated systems and HACCP (Hazard Analysis Critical Control Points).

In Chapter IV are detailed the purpose of the paper, the research material and the working methodology.

Thus, according to the OARZ data provided by letter no. 96 / 05.30.2014, in Teleormancounty are registered 62 dairy farms with more than 20 heads per farm, resulting a total of 3,119 dairy cows.

For the realization of the PhD thesis were studied 10 farms, in wich were examinated, on the base of the 35 ANI assessment method, the housing conditions of dairy cows that have major implications for productive potential.

The research was conducted in a period of 16 months, from January 2014 to July 2015, period when the research took place both on the field to collect data and make measurements and in the USAMV Bucharest laboratory for further analysis and statistical data processing.

The analyzed farms have as main activity: milk production, milk quality, and to obtain animals for breeding, male and female for the replacement of reforms.

In chapters V and VI, were presented the technologies (feeding, housing, milking) and environmental conditions (temperature, humidity) that define each farm individually.

Chapter VII of the paper is dedicated to achieve the research on the welfare of dairy cows based on the 35 ANI System (Animal Need Index).

Thus based on research conducted, the results are:

- Farm 1 achieved a maximum score of 95.5 points based on tabular specialized classification, equivalent to an optimal wellbeing;

- Farm 2 achieved a maximum score of 37 points based on tabular specialized classification, equivalent to an optimal wellbeing;

- Farm 3 obtained a maximum score of 37 points based on tabular specialized classification, equivalent to an optimal wellbeing;

- Farm 4 achieved a maximum score of 32.5 points based on tabular specialized classification, equivalent to an optimal wellbeing;

- Farm 5 achieved a maximum score of 39 points based on tabular specialized classification, equivalent to an optimal wellbeing;

- Farm 6 achieved a maximum score of 38.5 points based on tabular specialized classification, equivalent to an optimal wellbeing;

- Farm 7 achieved a maximum score of 31 points based on tabular classification specialist, the equivalent of a full welfare;

- Farm 8 achieved a maximum score of 26.5 points based on tabular specialized classification, equivalent to a satisfactory welfare;

- Farm 9 achieved a maximum score of 37 points based on tabular specialized classification, equivalent to an optimal wellbeing;

- Farm 10 obtained a maximum score of 27.5 points based on tabular specialized classification, equivalent to a satisfactory welfare.

In chapter VIII the milk production was analyzed quantitatively and qualitatively.

The biological material we analyzed, it is characterized by a high productive level (7265.00 kg milk in farm 2), with limits between 3790 kg and 11251 kg. The lowest average milk production on the farm was registered in farm No 10 (4322.5 kg milk).

Therefore, the herds we studied, being housed overall in modern farms, have achieved 40-50% in addition to previous generations and 31% more than the entire active population of Romanian Black Spotted breed.

The amount of total fat and normal lactation. The cows from analyzed farms have achieved a mean quantity of 222.21 kg pure fat per normal lactation for the lactations 3 and above.

This value is superior to other existing data in the literature. Thus, A. Alexoiu (1983) established for the active population of Holstein-Friesian exploited in our country the amount of 131 kg pure fat on normal lactation, Gh. Georgescu (1988) 142.3 kg and Jeana Murat (1996) of 134.16 kg.

As a result, the analyzed herds have achieved with 42-48% more fat compared to the previous generations of active population of Romanian Black Spotted breed.

Based on the Official Control of Milk Production, the Romanian Black Spotted breed produce an average of 152 kg pure fat per normal lactation.The largest amount of fat was realised in the associative private sector - 170 kg fat by normal lactation.Analyzing the dynamics of the quantity of pure fat per normal lactation in the period from 1990 to 2000 one can see that it fluctuated from 135 kg in 1990 to 160 kg in 1996 and 152 kg in 2000.

The amount of protein produced by the Holstein and Romanian Black Spotted breeds is higher by about 28% compared to the active population of Fresian from Ireland.Instead, it represents only 70% of the protein made by the active population of Friesian breed in Israel , 72% Holstein in USA and 85% of the protein provided by the active population of Friesian breed from the Netherlands and Denmark .

Milk fat is made up of a molecule of glycerol and different fatty acids, and looks as a globule.

Thus Alexoiu A. (1983) determined the entire active population of Romania Holstein-Friesian average fat by normal lactation to bee 3.75%; Gh. Georgescu(1988) 3.80%, as we, and Jeana Murat (1996) found the percentage of 3.83%.

Romanian Black Spotted breed in general and the population we studied in particular, differ, both from the Holstein and Friesian from Israel and European ones (compared with the first, fat percentage is greater and with the other in lower).

Thus percentage of fat found by us in the analyzed population belonging to 10 farms in the area of Teleorman county is 20% higher than the production of Friesiane population from Israel and by 4% compared to Holstein population from USA.

On the contrary, the population studied by us has a lower fat content compared to the Freisian population in Sweden, Denmark, Belgium and the Netherlands, being reduced by 6.6 to 14.5%.Also, the percentage of milk fat is reduced by about 20% compared with the Friesiane in Japan.

The protein content. Studies made on Holstein cows from Austria (15981 heads) have showed that the protein percent per normal lactation was 3.28% in 2000.

Comparing our results on the protein content of milk from Holstein and Romanian Black Spotted with other populations of Black Spotted shows the following:

- Studied population shows a lower percentage of protein by 4% over the Dutch Friesian;

- The analyzed population has a 5% higher percentage of protein than of the Friesian of Israel and nearly 2% against the US Holstein.

The doctoral thesis ends with the presentation of Chapter IX, where we outlined the conclusions and recommendations of this publication.

The welfare of dairy cows is a matter of common concern and should given it the proper importance, therefore if we want productive performance should in turn provide an appropriate welfare of dairy cows!