ABSTRACT

The doctoral dissertation entitled "THE MANAGEMENT OF DAIRY CATTLE HOLDING IN AVERAGE-CAPACITY FARMS FROM THE NORTH-EAST DEVELOPMENT REGION" is divided into seven chapters, plus the introduction, addenda and bibliography.

The doctoral dissertation stretches on 235 pages and comprises 123 tables, 91 charts and a bibliography of 129 titles.

The introduction has a brief and concise presentation about the importance of the chosen theme as well as the objectives which laid the foundation of this present study. The paper consists of two parts: the first one contains the current stage of knowledge nation and worldwide, while the second one incorporates the outcomes obtained from my own research investigations and also, the author's conclusions and recommendations. The first part of the paper, „The current stage of knowledge in the domain literature on the theme researched", is divided into two chapters, as it follows below:

The first chapter entitled „*Present-day direction regarding cattle breeding at a national and global level*", advises the position of the zootechnical section within different contexts (worldwide, in Europe and in the country) and also presents the growing perspectives about the dairy cows' breeding and holding.

By analyzing the cattle population recorded worldwide we can notice that they have registered an ascending evolution, gradually increasing from 1.297 million in 1990 to over 1.494 million in 2013. Nationally, due to the serious structural problems emerged as a consequence of the multiple transformations occurred after 1990, the cattle population registered in 2013 represents a mere third from the livestock recorded 23 years ago.

For what concerns the dynamics of the total milk production in Romania, it has recorded a descending trend primarily caused by the plunging decrease of the farmed cattle population. A related point to consider is that the medium milk production per cow fed has

experienced a significant increase, reaching 3.529 liters in 2013, over 1.000 liters more than in 1990. This aspect reveals that the Romanian zootechnical section registers significant progress in spite of the hardships and turmoil caused by the transition processes towards a healthy market economy.

The annual medium consume of milk per inhabitant in our country has registered an ascending trend since 1989 up to de 240,5 kilos in 1998 (in 10 years the increase was 45 liters only). The annual medium consume of butter was 2 kilos per inhabitant in Romania in 1989, (7,4% as compared to that of Denmark).

The second chapter entitled „*The particular features regarding the breeding and reproduction technologies of the dairy cows*", introduces the management of the technological factors and technologies implemented in the farms from the North-East Romania. Throughout this chapter there are introduced and highlighted the main technologies of dairy cows 'breeding and also pointed out their influence upon the farm productiveness.

Most times the results are in line with the investigations made, so that it is noticeable how the results have registered high values as a natural consequence of the activity intensification. With regard to the small-size and extensive holdings, the equipments have a relatively limited part, mostly necessary machinery for the cot hygiene, fodder distribution and, sometimes, milking machine installations. Both in semi-intensive and especially, in intensive holdings the technological processes are mechanized or even, in some cases, automatized. Supplying the proper equipment for the personal hygiene in order to collect and evacuate manure leads directly to superior work productiveness and to higher economic outcomes as well.

The most frequent problem comes from the projecting phase due to the lack of correlation between the holding dimension with the particular features of the zone, fact reflected in an unfortunate way on the economic efficiency of production.

In the second part of this chapter I have made the presentation of the Black Pied breed with Romanian Black breed. I have chosen this breed based on the strength of its high productive and reproductive performances and also of its wide spread (over 55% of the total of farmed dairy cows) in the North-East of Romania.

The Black Pied breed combined with Romanian Black breed belongs to the Friesian type breed, inheriting the bones fineness and unusual high rates for milk production. The

productive performances, precocity and the highly adjusting skills have worked for the unprecedented spread at a global level.

The second part of the paper entitled „My Own Researches" is divided into 5 chapters, as it follows below:

Chapter III, entitled „*The purpose of inquiries, biological material studied and research methodology*", intercepts the main objectives of the thesis and the manner in which the research has been conducted. Throughout this chapter I have detailed the general research plan, the biological material studied and the methodology employed.

The motivation behind the approached theme lies in the knowledge importance of the holding technologies, their advantages and disadvantages as well as the improvement stage of the animal population held by these. Concurrently, I have pursued the achievement of a series of correlations between the farm's production capacity and market demands and requests. Therefore I have made the hierarchy of the factors that influence the sound functioning of the dairy cattle farms both in view of the productive and reproductive performances registered and the factors related to the exterior environment where the holding runs its activity.

I have tried to assign equal space and density to both studies and papers with a technological character and economic researches.

To fully investigate and complete this research work I have gone through all the necessary stages recommended by the domain literature, starting with sketching the general research plan and establishing the objectives, to move on gathering data, processing and interpreting them and finally, presenting the conclusions and recommendations.

Chapter IV, entitled „*The presentation of the natural framework where the researches took place*", contains the study of the North-East region from an agroclimatic and social economic point of view. This development region is the largest area (36.849,83 sq. km) in Romania, with 6 counties: Bacău, Botoşani, Iaşi, Neamţ, Suceava and Vaslui, having almost all the geographical formations.

Approximately 28% of the region area is occupied by mountains (in the west), 12% by Subcarpathian relief (in the central part) and 60% by plateau and plain (in the east).

The variety of geographical formations offers large areas of plateau and plain which favour a wide range of agricultural crops, while the mountain area by its spectacular landscapes favors the tourism development.

The average altitude of the region decreases gradually from west to east, as it follows: Suceava, Neamţ and Bacău are dominated by mountains and Subcarpathian relief, while Botoşani, Iaşi and Vaslui are dominated by plateau. Obviously, from this distribution derives a series of features for these counties, the main geographical formation of each county being to some extent accountable for the social and economic profile of the region.

Chapter V, entitled „*The analysis of the productive performances of the crossbreed between Black Pied and Romanian Black, on counties in the farms from the North-East Romania*", shows the results obtained by analyzing the productive performances for the farmed dairy cattle in some small or medium farms in Bacău, Botoşani, Iași, Neamţ, Suceava and Vaslui.

Throughout the inquiries the following statistical indicators have been calculated: th arithmetical medium around which fluctuates the values of the studied variable, the standard deviation of the medium which reflects the error charging degree of the arithmetical medium, the standard deviation which indicates the variability of the studied character, the variability coefficient by which we can compare the variability degree of different characters under investigation, even if they have different measure units.

Chapter VI, entitled „*The Analysis of the reproductive performances of the crossbreed between Black Pied and Romanian Black, on counties in the farms from the North-East Romania*", comprises the results of the assessments made on the productive performances about successive lactations on counties and farms.

Chapter VII, entitled „*Studies of quantitative genetics on the analyzed crossbreed from black pied and Romanian black*", highlights the importance of the genetic parameters of the quantitative characters in order to achieve a correlation able to express most faithfully or to the letter the genetic determinism. The inheritance coefficient of the characters has the role to reflect the proportion with the phenotype that concords with the genotype. In practice and field work, the inheritance coefficient is met in almost every used improvement formulas. The coefficient of inheritance always has a positive sub-unitary value.

Throughout the researches the coefficients of inheritance for all the characters under inquiry (the duration of first total lactation, the milk quantity for the first normal lactation, the fat percent and quantity, the protein percent and quantity, the age for first deliver, the duration recorded from birth to the first fecund insemination, the dry cycle respite between the first and the second lactation, the time period between the first and the second delivery) the have

been calculated and also made comparisons between the registered characters and counties for each character.

As a result of the assessments made about the productive and reproductive performances and the analysis of the milk production indicators as well, the results obtained bring their contribution to the development of the documentation database concerning the current stage of cattle improvement.

In **Chapter VIII**, entitled „*The usage of fuzzy numbers in the assessment of development factors of the zootechnical farms from the North-East Romania*", I have applied the nuanced numbers in order to avoid the uncertainty state caused by the multitude of risk factors which influences the activity of the zootechnical farms. Therefore, based on the PEST analysis it was done the grouping of the risk factors into 4 categories: political, economic, social and technological. To fundament the PEST analysis in the North-East development region and to identify the particular features of the dairy cattle holdings, I have used data offered by ANZ offices and information gathered through field work to some farms identified as representative for the studied areal zone. The moment the risk factors were identified and grouped, they received marks according to the risk level they are each able to generate. The average of the marks achieved from applying the questionnaires to three expert groups were centralized in a table in order to make the initial matrix of the numbers. Later, each risk factor was analyzed by triangular fuzzy numbers and obtained a clear hierarchy of the risk factors. This hierarchy eventually aims to provide assistance to the farmers in respect of prioritizing the actions which need to proceed within their holding in order to diminish the impact of the negative factors.

By analyzing the research results we can notice that the crossbreed cattle obtained from Black Pied and Romanian Black and farmed in the North-East Romania are well adapted to the specific conditions yet the results obtained are somewhat modest. The differences registered between the holdings within the present study are quite noteworthy.