ABSTRACT

The paper was built on two sections, comprising ten chapters.

The 1st section includes three chapters, related to a wide bibliographic study.

The first chapter, entitled "**Actual situation, orienteering and prognosis related to cattle husbandry, on worldwide and national levels"** focused on the nowadays state of facts in cattle husbandry around the world, nationally and locally, as well as on the perspectives granted to this species husbandry and exploitation.

The study has revealed that herds of cattle worldwide are experiencing a slight tendency to increase numerically and yields even further. There were recorded large differences between continents and between countries, depending on natural conditions, economic development tradition in raising cattle, the existence of improved breeds and many other factors.

In chapter two, entitled "**General considerations on the dairy cows husbandry systems and the micro familial farms from the North-Eastern side of the country"**, there are presented the main exploitation systems for dairy cows, the dynamics of cattle farms size and data from dairy herds and their share in the family microfarm from Moldova.

In chapter three, named "**General considerations on the cattle from Schwyz strain"** there are presented the main characteristics of the cows breeds issued from Schwyz breed.

Schwyz breed formed in Switzerland, is a biological material with a particular genetic value, which has spread throughout the world, because they possess exceptional qualities (particularly genetic value for milk and meat , adaptability to harsh mountainous and hilly areas , recovery high specific consumption of food and low organic strength, longevity, production, etc..).

The problem of growth and management of dairy cows in private family farms, of particular importance, both globally and nationally as achieving increased production of milk and meat at the lowest cost per unit of product, creates the possibility of increasing living.

Race Maramures Brown was introduced, increasing the area of Moldova and selected a century ago (1907) by extending it from the cradle-Maramures training throughout the extra-Carpathian area of Moldova, Muntenia and Oltenia.

By entering into this area, Brown has contributed to improving the breed of cattle indigenous populations absorption cross-bred bulls Brown-Schwyz, indigenous and imported,

resulting in a population with the very final morpho-productive, breeding, and their own economic differentiate populations of the same strain in other geographical areas of the country.

Given that Brown has a significant share in the structure of the cattle breed reared in Romania's Carpathian chain around the area, and in some districts of Moldova and Neamt, Bacau, Vrancea, it grows almost exclusively in private-individual holdings, we deemed necessary and appropriate to undertake studies and research on productive performance in specific environmental conditions, operating technologies, in particular, micro family.

Section II, structured on seven chapters, comprises the results of the study run within small and medium capacity farms from the North-East area of the country.

In chapter IV, entitled "**Researches purpose, studied biological material and applied research methodology"** is the main motivation of this research presented, which is due to the fact that, although Brown is increased Moldavia race for nearly a century, have not hither to been undertaken extensive research on the population of cattle in private-sector individual to know present state of improvement, the productive performance and how has this race in the area, qualities and defects encountered, how management responds to specific technologies and technological factors, genetic and economic effect of continuing in service a longer period of time of cattle with highly variable productive performance.

The research method was based on a study conducted at the farm (macro-economic) and sample-based individual holdings. In this regard, sources of information were used in DADR, ANARZ (during 1999-2009), are supplemented with direct personal observations taken from some farms in research, pursuing the following objectives:

► **Study of the natural area in the North-East of the country;**

► **Dimensional structure of small and medium-sized farms;**

► **Study of specific technologies operating in small and medium-sized farms under study;**

► **Productive performance, total lactation and normal lactation in succession on farms and counties;**

► **Study of reproduction traits on successive lactations;**

► **Study of genetic parameters.**

Chapter V – **"Presentation of the natural environment which hosted the researches"** contains data on the landscape in which the research. As regards the natural environment, North-East of the country provide favourable environmental conditions of cattle breeding. The climate is temperate continental pronounced. Thermal regime ranges from 14ºC to 2ºC, annual average rainfall is between 450-600 mm, and the wind regime is typical steppe zone.

Chapter VI, entitled "**Analysis of husbandry technologies and management from the investigated units"** contains data on traditional shelter from research area and an overview of technologies applied in the farms studied.

Chapter VII – "A**nalysis of Brown breed productivity performances in the farms from north-eastern Romania counties"** are presented the yields obtained by the Brown race in the counties studied.

Total duration of lactation (TDL) ranged from 314.7 days in the fourth lactation and403.7 days in lactation VII. It appears that the studied population mean values of this parameter were significantly above the optimum, with a tendency to prolong lactation, especially in cows with good milk production and reduce the optimal duration of dry period. These factors related to technology operations and farm management, the impact on production performance in future lactations and throughout the productive life.

Quantitative production of milk per lactation normal, according to the sequence lactations, ranged from 3032.3 kg in lactation milk VII and lactation milk 4088.9 kg IV, which usually is the maximum lactation of a lifetime. By analyzing the evolution of milk production on successive lactations, Brown finds that race in the studied area has a good medium to productive precocity in first lactation realizing 80 and 90% of maximal lactation. It is also remarkable longevity and good productive, very important feature for inexpensive exploitation brown race.

Fat content of milk had average values ranging from 3.60% in lactation I and 3.98% in the fourth lactation a. Examining the average values for the entire population, according to the sequence of lactation and counties, respectively each holding , that Brown breed in the studied area has a fat content of milk falling on the average race, but there is a clear improvement in this regard.

Accordingly the amount of milk fat, the amount of fat, according to lactation, had average values ranging from 137.6 kg to 185.3 kg in lactation I and IV lactation a. In addition there were variations in the population. reflecting the genetic potential expressed much higher than the average values of the population.

Milk protein content averages between 3.14% recorded in the seventh lactation and3.33% in lactation II a. From this point of view, the brown cattle population of Neamț county area, boasts a milk rich in proteins, important feature races of the stem Schwyz.

In line with milk production and protein content, milk protein, the entire population had average values ranging from 117.4 kg in lactation VI and 148.1 kg in the fourth lactation.

Chapter VIII – "**Analysis of Brown breed reproduction performances achieved in the farms from north-eastern Romania counties"** presents the values of the main reproduction traits per counties.

From analysis of the main general conclusion that emerges breeding reproduction function was held within acceptable limits, breeders are interested in getting a cow calf every year.

Age at first parturition (VP) ranged on average from 863.3 days (Suceava) and 907.3 days (Botosani and Iasi).From this point of view of the area Moldova Brown race is precocious average, less matter is determined by genetic background, as a youth growing conditions for breeding. Analysis of these data in conjunction with ongoing field observations, lead us to conclude that the use of the breeding of young females is delayed due to chronic deficiencies in the growth of replacement youth, particularly those related to diet at the earliest stages of growth.

Calving interval (C.I.) considered as a synthetic indicator of the reproduction function of the average recorded between 398.13 days (Suceava) and 411.4 days (Vaslui), which means a value quite far from the ideal (365 days). The average values of this index reflect the deficiencies in active breeding population studied in defeating the desire to get a calf every year.

Mammary repose **(MR),** according to lactation had an average value from 65.40 days (Suceava) and 68.85 days (Vaslui). Looking at this indicator by county on the farm and found no significant difference successive lactations and a very small variability.

Service-period (S.P.) had an average value of between 93.27 days (Vaslui) and 99.34 days (Iasi Botosani)close to the maximum permissible limit (120 days). The record, however, a marked individual variability as shown by the standard deviation values. This index, as in the dry period, had values less appropriate in many cases are losing some heat cycles or by loss of poor manifestation timely seeding in the heats and our best time.

Variability of these indices of breeding opportunity phenotypic and genotypic selection for genetic improvement of the population, but the main action must focus on improving operational and technological factors breeding management function.

Considered as a whole, activity in this population of cattle breeding is within normal parameters and Brown point out that race has improved qualities superior to other races.

Chapter IX, entitled **"Studies of quantitative genetics in the analyzed Brown breed cattle**" comprises data related to heritability (h^2), repeatability (R), phenotypic correlations (rp) and genetic correlations (rG) of the main selection criteria.

Heritability coefficients of milk production quantity (h^2 = 0.16) indicates a slight hereditary transmission, which shows poor consolidation properties in population genetics and improve opportunities for achieving a genotypic selection.

The degree of hereditary transmission, powerful and middle fat and protein content can be considered as providing better strengthen these traits in the six populations analyzed, with the possibility of improving the quality of their milk by indirect selection, given their positive correlations and very strong.

Reproduction traits (VP, RM, CI and SP) complied on the values of heritability coefficients, into a week genetic determinism, imposing thus the genotypic selection during inbreeding.

Repeatability coefficients of selection for characters studied have higher heritability values which means a more accurate expression of genotypes components and abetter evidence of genetic determinism.

Order of magnitude of the repeatability coefficients follow the same path as the heritability, meaning that the milk production quantitative repeatability is low to medium, being under strong influence of exogenous factors, as well as breeding characteristics, particularly breast and service rest periodically.

Analyzing the values of phenotypic correlation coefficients between quantity of milk production and main characteristics of production and reproduction, that in all counties, the correlations were different sizes and in most cases not significantly different from zero, a fact established by research done on other races and populations cattle (A.Petre, Gh Mărginean, H. Grossman, V. Ujica etc.).

Regarding the genetic correlations between milk production and other traits analyzed, that they remain at a level less than phenotypic correlations, the same sign. There is a very strong genetic correlation between the amount of milk and the amount of fat and protein, very favourable situation to improve this parameter, taking into account the strong correlations between the percentage of milk fat and protein. The results of genetic analysis of the relationship between quantity and quantity of milk fat and protein, but also between fat and protein content, characterized indirect selection and concomitant opportunities for improving the level of milk production and milk quality through quality indices, there are no antagonistic relationship between these traits. For all populations analyzed, the correlations between dairy production indices and indices of reproduction are low and in most cases insignificantly different from zero.

Chapter X – **"Main conclusions and advisory"** presents the general conclusions of these studies. Summarizing the results of research to conclude that Brown cattle are well adapted to

environmental conditions specific to the area, but productive performance are often modest and highly differentiated from one farm to another.

Variability range of productive and reproductive traits increased possibilities for genetic improvement using modern methods and criteria. Closure of the genetic potential production will be done through intensive use of bulls of high genetic value, as the main source of genetic progress in cattle populations.

There is still need to improve technology and increase the level of youth replacement breeding management, technology operations and management technology and economic factors.

Given the results of this study, the increase in brown cattle from North-East of the country, we believe race Brown remains in the future, a race of the basis for this area, the shortcomings can be corrected over time through selection, improved technological factors and farm management.

The results and conclusions have emerged from research carried out on Brown people in north-eastern Romania, aiming to serve, to the extent that decision makers involved in improving the cattle will consider its practicability proved as an element of knowledge improving the current state and use the results to guide future technical activities and improvement of the program code, as part of the National Program for Improvement of cattle.