

SUMMARY

The master's degree named **“Contribution to the cow's breeding study in one of the small and middle sizes exploitation in Dobrogea”** elaborated by engineer Gheorghe Neaga, coordinated by the collegiate teacher doctor engineer Vasile Ujica in the frame of the Agricultural Science and Veterinary Medicine University “Ton Ionescu de la Brad” – Iasi, Zootehnic Faculty is structured in 2 parts, with many chapter and subchapter.

First part is approaching a bibliographic study referring growing cow's nowadays situation on local and world plan, the origin, spreading, numbers, property's structures, number's dynamic, family micro-farm's evolution for growing milking cows at the world level and in our country.

In this also been studied the internal factors that are influencing the individual milk production, the used technologies and the technological factors parameters.

It wasn't excused the milk cow's breeds in Dobrogea and their main morphologic and productive characteristic, and neither the types and subsystems for growing milk cows in the family micro-farms.

Chapter IV Researches' necessity and purpose, the biologic material studied and the working methods (the synthetic diagram) table 43, pages 119.

Second part

Chapter V The obtained results and it's discussion.

A special accent was putted on the growing and exploiting technologies and especially on the cow's number structure according to the exploitation.

For a good thoroughgoing study of the followed objectives was made also a case study including three exploitation where was followed the used technologies and the economical efficiency this aspect was followed by the incomes and profit realized. These researches are also due to the fact that although in Dobrogea's area the Romanian Black Spotted is growth in the same time with introducing in the country of the Holstein Freisen nucleus, it wasn't made close researches till now about the horned cattle populations from the private- individual and associative department, for knowing the actual ameliorating stage, the performances level and the way that the Romanian Black Spotted breed evaluated in that area, the qualities and the deficiency found, the way that it answer to the specific technologies, the genetical and economical effect of maintaining a cow in the exploitation a longer time with very varied productive performances.

Researches referring the variability (page 169).

A first aspect is referring to the main productions and reproduction parameter's study at the Romanian Black Spotted in Dobrogea (table 169). Analyzing the milk parameters according to the cow's community sizes presented in table 56 and images 59 and 62, we are being assertive that in the big exploitations with more than 127 lactations the 4516 kg. milk medium yield, while in the small exploitations is assertive a milk's yield raising from the 2 – 3 cows that realized 3261 kilograms till the 8-16 cows to whom the medium yield was 3784 kg., this being also a small exploitation's maximum yield.

From this information results that the best performances are obtained in the 8-32 cows exploitations, where the exploiting technological parameters can be better managed by the owners. The reproductions parameters presented medium values that are more influenced by the management from the farm that that the exploitation's sizes, according to the dates presented in table 56.

In subchapter 5.4.2 is analyzed the phenotypical values and milk production estimated variability on successive lactations and on the farms.

Following the milk yield's on successive lactations in the first 6 lactations is assertive that the maximum yield on normal lactation was realized in the third lactation (table 57 and image 63) but the difference between the lactations are distinctively meaningful (table 58).

The normal lactation on the entire population has a normal aspect till the 2-3 lactation, depending to the farm in the last lactations.

In the studied population there are coves with a high genetical potential, the maximum yield on normal lactation being 10219 kg. milk in the third lactation, realized by the cow with registration number, in breeder Olteanu Marius exploitation.

Adequate to the milk quantity and the milk quantity and the fat and protein quantity are registered medium values for the fat and protein quantity, to which's curves are depending to the lactation sequence is ascending but with an accentuated variability as also for the milk quantity.

Between the lactations the differences are insignificant for the fat quantity and very meaningful for the protein quantity.

Studying the medium analyzed characteristics values for every farm to the same lactation indifferent to its size, the variability between the farms and the same farm's coves is accentuated.

Varying with the lactation and the farm, are registered meaningful differences due to the genetical value and each exploitation's coves, in one hand, as also to the environment parameters and exploitations management with variation from one year to another.

One of the analyzed population's deficiency can be the obtained milk's quality to which's fat contained is under the Romanian's Black Spotted standards but also the protein contained.

5.4.3 The Romanian Black Spotted cow's inside population structure in the analyzed farms (page 202)

In the Romanian Black Spotted horned cattle population in the analyzed farms were identified 26 genetical groups of half father sister to which's size was at least 5 coves and maximum 60 coves.

Analyzing the medium parameters and the production parameters on genetical groups in the first normal lactation can be observed meaningful differences depending to the followed parameter and to the half father sister group (table 70). From the 26 genetical groups, 11 genetical groups had the milk yield under the population's average (4541.88 kg) while 15 genetical groups more than the population's average.

The most valuable proved to be the genetical family resulted from bull code number 51036 formed of 8 cows with individual performances between 4005 kg. and 9059 kg. milk on normal lactation.

These cows existence plus other variations in the studied population proved the utility of immigrating import bull's valuable genes and the genetical potential expressing possibility by improving the exploitation technological parameters.

The first calving's age was between 841.38 days to the genetical group code 51036 and 1223.43 days to the genetical group 51455.

Is assertive that 12 genetical groups had the first calving age under the population's average (1002.28 days) proving a good precocity and 14 groups upwards the population's average.

Analyzing the inside the population structure resulted that the most valuable prove to be the genetical group Code 51036 resulted from an import bull and the group with the lowest productive and reproduction performances was the one resulted from the imported bull Code 50832.

Is good to restrain also the good genetical value of the half father sisters families

resulted from aborigine bulls which is evidencing their genetical value and the imported bulls gene's immigrations positives influence.

5.4.4 The medium values and the production's parameters variability

Had been analyzed the main reproduction parameters:

- First calving's age (VP).
- The interval between calvings (CI).
- The udder's recumbence (RM).

to the entire population, on successive lactation and on the farms, the average values being presented in table 71 and table 79.

Analyzing the first calving's age resulted that the cows of the studied Romanian Black Spotted population calved first time at the medium age of 662 days and 1719 days, what is characterizing the population, by this point of view with a low productive precocity.

Comparing the reproduction's parameters values with the medium values of the Romanian Black Spotted, according to the Official Production Examination, but also with other author's data (Florescu, Elena Vasile, Ujica, Marian, Pinteam, Gh. Georgescu, Jeana, Murat) on the same breed's population in other areas of the country, the values found in our area are closer to the optimum ones but smaller than the one obtained by the mentioned authors.

5.4.5 Productive longevity

In the studied exploitation was analyzed the productive longevity for 156 cows that closed the exploitation time analyzing the productive life's time and the using parameter to which's medium value are presented in table 77.

The milk yield on productive life time was in average 9802.56 kg., with limits between 4643 kg milk in Mihale Iancu breeder's exploitation and 19948.28 kg. milk in Olteanu Marius breeder's exploitation.

From the 27 analyzed exploitation, 14 exploitations had the milk production on productive life time under the population's average and 13 exploitations upwards the average.

The best results were obtained in exploitations F3SC, F5DC, F10TN, F12CC, F18SG, F23GN, F18SG, F23GN, F26OM, with total productions more than 12000 kg. milk.

In the analyzed population were more than 20 cows with a good productivity life time, the best performance being obtained by the cow with registration number 950005 with 30396 kg. milk belonging to the breeder Solomon Constantin. This exploitation had more cows with a medium yield more than 20000 kg. milk on productive life time, detached to the other exploitations.

The use percent (%) in the studied population was only of 27.5 %, what is proving a milking cow's insufficient use if we are directing to this parameter's optimum value (80% according to V. Ujica). The cow's use rate in production was very low in all the 27 studied exploitations.

In the studied population were identified 11 half father sisters genetical groups, with at least 5 daughters that had a productive longevity between 19194.6 kg. milk (code 19486) and 5547.92 kg. milk (cod 51451).

The conclusion that comes from analyzing this dates is that the exploitation period in the Romanian Black Spotted population in the studied exploitations is to short and the cows couldn't express the maximum production potential.

Taking the cows out of the effective before realizing the maximum lactation has negative economical effects to the exploitation but also to the genetical ameliorating activity by emigrating genes that could be valuable. Is ascertain that the "drying period" is to long the animals being maintained in the effective whiteout having milk. This aspects are due less to the genetical value, as more to the exploiting deficiency's and the lean technological

parameter's management.

5.4.6 Quantitative genetics' research in Romanian Black Spotted population in Dobrogea

Analyzing the heritability coefficient's value (h^2) in the Romanian Black Spotted population in the studied family farms (table 77) results that the milk production's and reproduction's characteristics presents efficient determination rate, following the genotype – environment interaction specific to every character and of the genotype's variability of the characters that are forming studied animal's groups.

The high characteristic's variation inside the half sister's groups and lower between the group's determinate genetical variation's low values and implicit of the heritability coefficient (h^2) for milk production ($h^2 = 0.22$) and surprise for the protein quantity ($h^2 = 0.18$).

The low genetic determination rate of this characteristic is reflecting in one side the female biological high variability and the low genetic variation between the males reproductive on the other side. In table 78 and picture 89-94 are presented the heritability values (h^2) and the main production and reproduction characteristic's repeatability on the total population and on the farms.

Analyzing the heritability value on the farms is ascertaining deficiency due to the cove's that are combining each allotment. Increasing the heritability (h^2) coefficient's size is maintained, in the sense that for increasing the yield milk quantity, fat and protein, the h^2 's values are expressing the characteristic that a low to medium heritability, while for the fat and protein quantity express intense heritable characteristics.

Repeatability's characteristics are maintaining in the same size order like h^2 , mentioning that the calculated value are lower, because of cumulated the exogenetic factors during the life time.

In the table 79 we draw up the obtained results referring the phenotypical and genotypic correlations between the main selection's parameters and characters of the Romanian Black Spotted population in Dobrogea department.

The positive and very close values of the correlation coefficients for the analyzed characteristics are proving the existence of a genetical pleiotropic determinism for the analyzed characteristic groups. The essence for selection, using these determinate values in the Romanian Black Spotted population in Dobrogea is the fact that increasing the production potential for milk can be done in parallel, without decreasing one of the characteristics in the other one's detriment. A special situation is represented by the correlation values between the milk quantity and the fat contained, respectively protein to which very close and positive values are different to what is known in the specialty literature.

The genetic parameters values determined for the studied population, had been used in the master degree script's final part for elaborating an areal program for genetical ameliorating of one of the reproductive used in the Romanian Black Spotted horned cattle population in Dobrogea.

Using a relative high number of bulls in the Romanian Black Spotted horned cattle population in the family farms in place in Dobrogea's areal come mainly from owns reproduction (aborigines) is one of the characteristic way to organize the breed's reproduction process in Dobrogea's growing conditions.

In the 27 Romanian Black Spotted horned cattle's family exploitation 27 bulls activated more intensely, from this 16 come from import (55.2%) and 13 bulls come from SEMTEST Craiova and RPN Bucharest testing units. The obtained results are draw up in table 81-87 and image.

The quantitative milk production is ameliorating thorough 12 reproductive (34.28 %) from this 6 reproductive come from import. The most valuable prove to be the

indigenous bulls Code 19137 with ameliorating value (VA) + 1037.44 kg. milk, and on the second place was also an indigenous bull Code 19021 with VA + 531.17 kg. milk.

Chapter VI Genetical amelioration's and management's program parameters

Romanian Black Spotted horned cattle in Dobrogea between 2006 - 2010

The technical management parameter's program of the amelioration work of the Romanian Black Spotted breed in Dobrogea between 2006 – 2010 is referring to the next elements with technical character:

Establishing the morphological, productive and genetical parameters of the active population in elite nucleus, of the cows at first calving and cow's that went out of the cow's effective.

The ameliorating value for bulls used in reproduction.

The reproductive necessary and selected effectives.

Establishing the genetical progress sources and the increasing genetical progress inducted in the exploitation.

Establishing the population's genetical potential at the level of the programmed year for realizing the desired type.

Knowing the genetic structure of the Romanian Black Spotted in Dobrogea's areal, main's selection characteristic's phenotypical and genetical parameters, the reproductive genetical ameliorating values, that are the mean factors that are contributing to ameliorating a horned cattle population I conceived an own project for areal ameliorating by combinations constantly and cautious of the amelioration factor's management, of the selection plan with matching the copulation, and exploitation's technological factors.

For projecting this program we directed the Romanian Black Spotted breed's typical parameters and the projected one for Dobrogea's area, presented in table 88.

The genetically profit proposed to realize is 690.13 kg. milk, 24.25 kg. fat and 24.40 kg. protein, in the condition of using in reproduction bulls with ascending genetic value mentioned in the thesis.

Directing that the interval between the horned cattle generation is approximated 5, 5 years, the projected genetic profit can be realized in 7.02 years for the milk production, in 3.55 years for the fat contained and in 4.04 years for the protein contained, in the Romanian Black Spotted horned cattle population in Dobrogea.

These calculations are valid taking into consideration Romanian Black Spotted's population in the studied area the nowadays productive performances and obligatorily using in the reproduction of the bull with high genetic value, of the mother with at least 6000 kg. milk with 4 % fat and 3.4 protein.

Touching the projected parameters is conditioned, in the same time, by the obligatory monitorizing the technological factors (the feeding in the first place) and optimizing the farm's management.

Chapter VII General conclusions and recommendations

All these are written in page 274-276.