

DYNAMICS OF BODY GROWTH AND DEVELOPMENT OF YOUNG CATTLE FROM THE ROMANIAN BLACK AND WHITE BREED

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Abstract

In young cattle, any decrease or stagnation in the growth process because of bad nutrition and environmental conditions is irretrievable even when applying further stimulating conditions. Growth and development are two sides of a single process, indispensable connected. Compared with other races from our country, in the 0-3 months' category, the analysis showed that the livestock obtained only 85% of the average weight of the category. Young female cattle of the 12 -18 months' category had a higher average weight with 56 kg respectively 16% compared to the same category of the "Bălțată cu roșu" breed. Reducing food consumption per unit of product has a high importance in achieving economic efficiency. Specific consumption made by young female cattle for reproduction had an ascending character with age, reaching the over 18 months category at 12.6 N.U./ kg gain, respectively 1110 g D.P./kg gain.

Keywords: young female cattle, weight gain, specific consume

1. INTRODUCTION

Improving quality and raising the productive capacity of our country cattle breeds are conditioned primarily by normal growth and development of young cattle.

Improving a breed of animals shall be carried out in the process of breeding, new generations by getting better and more productive than the previous ones.

For this purpose it is necessary, through breeding and selection by matching service, not only to create a superior heredity but rather to update or to unfold this potential in all her inheritance to new products.

In adult animals, for example, milk cows, a temporary crisis arrangements for feeding or maintenance, manifested by reduced production or their physical weakness: they may recover completely with the restoration of normal conditions.

To youth, any decrease or stagnation of the process of growth, reason unfavorable environmental conditions, is unrecoverable even further by stimulatory conditions.

Some breeds of cattle kept in different living conditions could not acclimate and for the same reasons, improving live stocks in some countries progressing slowly or not progressing at all.

In the case the production of meat or milk production, optimal realization are compatible with maximum yield. The increase in young cattle, must obtain yield maximum, expressed the greatest growth, conditioned by potency hereditary.

Heighten growth, show the same trend upward growth until puberty, however, after this phase, increase takes character growth a descendant. Lehmann (quote Georgescu Gh. 1995) shows that the maximum rise in weight at the age of approximate 8 months, and the decline is proportional with the age, respectively, at first slowly, then more quickly.

By stimulating the morphogenetic process, must reach the total capacity increase, unconcerned whether for achieving this goal in addition to a few tens or hundreds

of litters of milk or kilograms of concentrates. These surpluses will be recouped tenfold, by large productions that will give these animals to adulthood and especially of value livestock.

2. MATERIAL AND METHOD

Research has been carried out on a flock of 60 heads youth female of breeding, belonging race mottled with black.

The age structure of the studied herd is rendered in the table number 1.

Table 1. The structure of the age of youth

Age (months)	number of heads	%
6-12	30	30
12-18	20	20
Heifers	10	10
Total	60	60

Growth and development are two sides of a single process, indispensable linked. These are determined by the specific control methods as follows:

- increase, by weightings and measurements expressed either in absolute values or relative;
- development, scoring, dissemination of substances in the body, measurements, body indices, weightings, chemical analysis.

3. RESULTS AND DISCUSSION

The dynamics of body weight relative to age.

Owing to the particularity of the process of growth and development, physiological needs of the organism, the development of qualitative and quantitative parameters,

economic production, considering that the animal through crossing from birth to extinction three stages, namely, youth, adult, old age. Each stage are specific to certain stages of growth:

- the first stage, youth, is the colostral stage debut. Characterized by triggering the digestive function, poor resistance to environmental conditions and pathogens, stage of lactation (decrease relations with mother's body); the stage of weaning (interruption of relations between mother and calf); in the stage of puberty is triggered as breeding, the young man is apt to produce gametes fertilized, to reproduce and to achieve high performance in growth;

- in the second stage, the adult, is slowing growth and development, at the end of the development phase is touching and manifestation of all the body's functions;

- in the third stage, of old age, characterized by stagnation and setbacks in the process of growth, vital functions are reduced, therefore the increase in weight decreases, consumption of food increases, deteriorates its quality indices, and in particular the quality of meat.

The dynamics of body weight at the end of each period of growth, at youth females is presented in table no. 2.

Table 2. Dynamics weights recorded at the end period in farm Negrasi

Specification	n	Body weight at the end of the period (Kg)		
		$\bar{x} \pm S_x$	S	V%
Cattle 0 - 3 months	40	90.07 ± 0.50	2.26	2.5
Cattle 3 - 6 months	30	142.12 ± 1.24	7.85	5.52
Cattle 6-12 months	20	303.4 ± 1.11	6.12	2,01
Cattle 12-18 months	10	399.65 ± 0.79	3.57	0.89

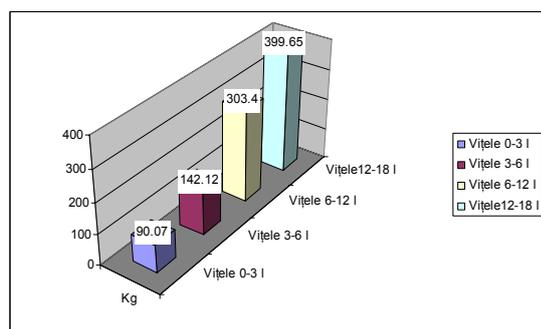


Figure 1 The dynamics of body weight at the end of each period of growth, at youth females

From the previous table and graph it looks that within the herd, youth female of category 0-3 months, registered an average weight at weaning than 90 Kg with a 2.26 standard deviation and with a coefficient of variance of 2, 5%. In the category of 3-6 months, has achieved an average weight at the end period of 142 Kg, with a standard deviation of 7.85 and with a coefficient

of variance of 5.52. In category 6 - 12 months, average weight is 303.4 kg with a standard deviation of 6.12 and a coefficient of variation 2.01.

Average weight in 12-18 months is 399,65 Kg, with a standard deviation of 3.57 and a coefficient of variability 0.89.

Compared to the other breeds bred in our country in the category 0-3 months, the herd has been analyzed only 85% of the average weight of the category 0-3 months of the race mottled with red Romanian. Young females from 12 to 18 months category of livestock analyzed, had a higher average weight with 56 kg and by 16% compared to the same category of the race mottled with red Romanian.

Analyzing the variability coefficient indicates that its values are small which indicates that the herd studied, young females favors by growing technology and good service.

The dynamics of body weight of youth cattle.

Body mass increase materializes by the increase in weight, which is part of the youth through cell multiplication and especially by accumulating type cell hypertrophy. Growth potential, energy content, protein and minerals of weight gain varies with nutrition, physiological status, age, sex, genotype and previous growth rate. Clausen 1965 (quoted by Draganescu 1984) to the formulated from a practical standpoint, three laws of growth:

- no animal can be forced through a diet rich in protein, to make more protein than the basis of hereditary;

- no animal can submit so much meat, cat allows its potential hereditary, unless ration contains enough protein, of high biological value;

- when the maintenance requirements and the production of lean meat are satisfied, the rest of the diet is used for the formation of fat; the animal receives more forage per day, so it becomes more oily.

The dynamics of increasing growth in body weight at the youth population, constitute a problem of techno-economic strategy

Within the herd, the growth dynamics of youth females breeding in different age groups is shown in table no. 3.

Table 3. The dynamics of growth in young females

Specification	n	Increase the average daily (g)		
		$\bar{x} \pm S_x$	S	V%
Cattle 0 - 3 months	40	743.5 ± 2.51	15.92	2.14
Cattle 3 - 6 months	30	822.0 ± 0.94	5.19	0.63
Cattle 6-12 months	20	799.75 ± 1.10	4.94	0.61
Cattle over 18 months old	10	636 ± 63,1	19.69	31,3

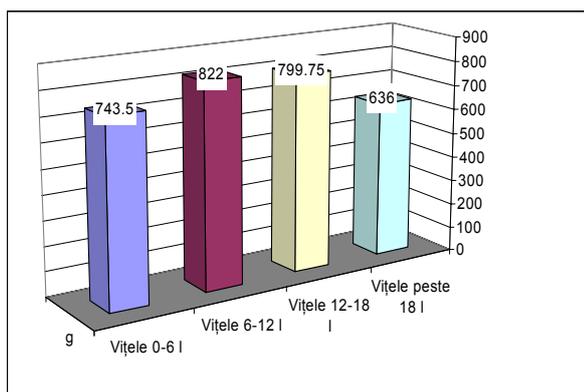


Figure 2 The dynamics of growth in young females at the end of each period

The analysis of the data obtained, it can be seen that in young breeding females category 0-6 months, was achieved a growth of 743.5 g daily average, with a standard deviation of 15.92 and a coefficient of variation of 2.14. At the category 6-12 months there has been achieved a daily average of 822 g, with a standard deviation of 5.19 and a coefficient of variability of 0.63.

At the category 12-18 months has achieved an average daily increase of 799.75 g, with a standard deviation of 4.94 and a coefficient of variance of 0.6, and the cattle young over 18 months, average daily increase was 636 g with a standard deviation of 19.69 and a coefficient of variance of 31.3.

The analysis of these results it is observed that average daily gain in young females present, between period 0-12 months, upward growth. After the age of 12 months recorded a decrease in the average daily growth, so do not influence breeding parameters.

The dynamics of specific consumption in young females

The ability to use food is expressed through the consumption of food per unit of product (Kg growth, meat, liter of milk). This facility has been developed as a result of intensive feeding, with full rations for a long time the most valuable specimens. The power of food depends on the composition of the diet, the presence of all the necessary principles and optimal balancing ratio.

In the group analyzed, the specific consumption per kg increasing at young females is shown in the table no. 4.

Table 4. Specific consumption / kg increasing / youth category

Specification	Dry substance	N.U.	D.P.
Cattle 3 - 6 months	6.4	5.1	573
Cattle 6-12 months	9.3	7.2	594
Cattle 12-18 months	12.4	9.6	914
Cattle over 18 months old	16.2	12.6	1110

In the interpretation of the data in table no. 4 shows that, specific consumption / Kg increase in category 3-6 months 6.4 Kg dry substance; 5.1 N.U. and 573 g D.P.; in category 6-12 months, specific consumption / Kg increase is 9.3 dry substance, 7.2 N.U. and 594 g D.P.; in category 12 - 18 months specific consumption / Kg increase is 12.4 Kg dry substance, 9.6 N.U. and 914 g D.P., and in the category over 18 months old specific consumption / Kg increase is 16. 2 Kg dry substance, 12.6 N.U. and 1110 g D.P..

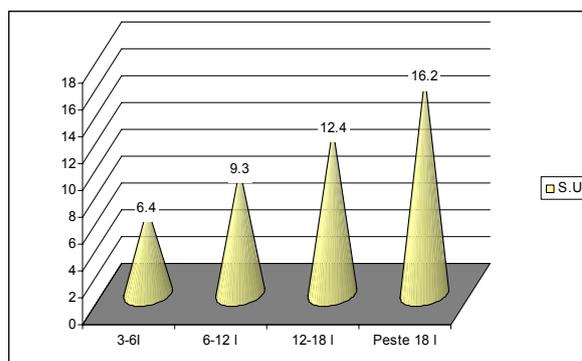


Figure 3 Specific consumption of dry substance / Kg increase age categories

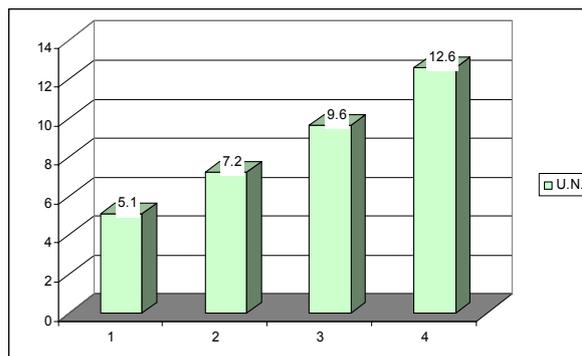


Figure 4 Specific consumption N. U./ Kg increase age categories

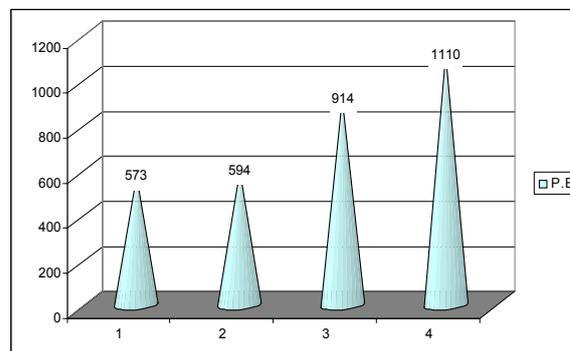


Figure 5 Specific consumption D.P./ Kg increase age categories

It can be concluded that once the age increases, and progressive growth noticeable consumption of dry substance, N.U. and the D.P..

Reducing the consumption of food per unit of product has a very high proportion in achieving economic efficiency.

4. CONCLUSIONS

Heifers up to 12 months are maintained in the playpen in the speakers, and ensuring all technological factors at optimum parameters. During this period feeding is done controlled, aiming to get a raise in growth of 822 g/day and proper development of the digestive tract.

In the period age 12-18 months, of rations is altered in such a way as to reduce the average daily, increase resulting in optimal of weight introduction to breeding (18-19 months).

Specific consumption achieved of young cattle breeding females had a character upward with increasing age, reaching category over 18 months 12.6 N.U./kg, respectively, 1110g D. P./kg increase.

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