

## EVALUATION OF THE REPRODUCTION FUNCTION OF GOATS IN ROMANIA

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### Abstract

Research has had as main purpose the evaluation of the reproduction activity of herds of goats located in various farms in the North-Eastern part of Romania and the identification of main factors of influence in order to implement an appropriate management. In order to obtain real results were included in the experimental protocol farms of goats located in all counties from the North-East Development Region.

The analysis of index of fecundity, by the fact that the mean value determined for the entire population was 97.4 %, it can be said that the expression of the fecundity represents an attribute of the breed, being dependent mainly on the maintenance condition of females at the onset of the breeding season, and indirectly the reproductive technology applied in the farm.

Instead the absence of measures of type flushing, based on food supplementation, with a view to restoring the condition of maintenance of females at the onset of a new reproductive cycle, caused the fertility index for the entire population to not exceed 120%, thus decreasing the profitability on each of the females forming the live stock.

On the basis of all data obtained it can be said that at the goat populations in North-Eastern Romania the breeding function is characterized by obtaining relatively good average values for each of the indicators analyzed, and for their evident improvement it is recommended an immediate application of selection measures and the intensification of breeding. These measures can be easily applied by reforming the goats which no longer correspond in terms of productive and reproductive, through a selection of billy-goat mothers, testing the breeders, acquisition of high genetic male goats and application of directed breeding.

**Key words:** goats, Carpatina goat, reproductive indices

### INTRODUCTION

Reproduction is the function through which organisms give birth to similar beings. Under the genetic ratio, reproduction refers to the physiological processes that allow merging the nuclear material of the two sexual cells. The sexual process appears as a manifestation of the unconditional perpetuation reflex of the species on a given stage of evolution of living matter, what justifies the different aspects of the perpetuation of the species of the zoological evolution [7].

The reproduction activity of the farm animals is of particular interest because, in

addition to providing the perpetuation, also supports the achieving of a certain level of basic production. So, the reproduction carried out regularly conditions directly the production of milk and meat.

Maintenance errors, alimentation and the technological deviations expedients first of all by the emergence of reproductive dysfunction, the most affected reproductive characters being fecundity and fertility. In these circumstances, the first negative effects which appear refer to decreasing the number of products obtained from each female from the breeding group and increasing the interval between generations.

Therefore, in order to achieve the objectives related to the breeding activity of goats, all efforts must be made to satisfy the following general principles:

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- application of selection also after breeding characters;
- the use of youth, for the first time in reproduction, at the optimal age;
- the use of youth, for the first time in reproduction, when the body development is optimal;
- efficiency of the reproductive technologies.

## MATERIAL AND METHOD

Biological material was represented by populations of goats that are in growth and exploitation in farms in the North-East of Romania. In a proportion of 97% the herd subjected to the planned evaluations belonged to the Carpathian breed, and the applied technologies are mostly the traditional ones. The breeding activity is seasonal, with planning the reproductions during the onset of autumn (October-November) and calving in early spring (March-April).

The working methods applied in research had intended to monitor, analyze and process the data to permit a real assessment of the actual activity of breeding goats. In this regard, after the onset of the breeding season, was switched to a careful surveillance of the herds included in the experimental protocol, being identified the females which manifested oestrus, turns and returns. Based on the centralized data were calculated the basic indices which enable a real analysis of the reproduction function. For a real characterization, each indicator analyzed was determined for each lot and for the total population situated in the area represented by the North-East of Romania.

## RESULTS AND DISCUSSIONS

In terms of technically and economically feasible, the efficiency of breeding is currently appreciated by calculating the indices of breeding. They represent an absolute or relative value, by which is measured how the reproductive function is carried out in a livestock farm. Based on the data obtained from the records of the studied livestock populations were able to calculate the main indices of breeding.

As regards to the reproduction technologies applied in the studied farms, they

were mostly traditional. Thus, with the exception of the Research Station from Popăuți, Botoșani, where there were applied some coordination actions of the reproduction, using a routed mount/insemination, at all the other farms the breeding was undirected.

Before the starting of the mating season, none of the studied farms did not have previous training activities of the flushing type, based on supplement feed rations, in order to remake the maintenance condition of females which formed the breeding groups. Although it is known that the flushing actively participate in stimulating the poly-ovulation, meaning the development of multiple ovarian follicles, it is hard to understand why most farmers do not apply it, before the mating season and a stimulant feeding. Studies carried out in the country and abroad highlights that the stimulating feeding applied with minimum 20 days before the fixed date for the onset of the breeding activity has positive effects and allows obtaining higher values indicators [1, 2, 3]. In the absence of technical actions which could participate directly in the improvement of the actual activity of breeding, the performances carried out in farms by goats are modest and do not sustain the genetics improvement of the populations.

Whereas, through the experimental protocol, were planned targets which enable an assessment of the actual activity of reproduction, further are analysed the indices that characterize the function of reproduction in farm animals.

*Fecundity index* (the rate of conception) shows the number of kids calved by the goats assigned for mating. This index is heavily influenced by conditions of food and maintenance of females, by the type of insemination, the level of milk production, the age of the animal, the method of insemination, method of preserving the inoculated sperm, insemination season.

At goats, the gestation must be assessed only by calculating the *percentage of non-returns*, and due to the fact that the assessment on the basis of clinical trans-rectal examination does not apply, the identification of non-pregnant females is done exclusively using "trying" he-goats. Knowing the

conception rate or the percentage of non-returns is of great practical importance because, if these indexes will be higher, the average number of inseminations or mating/gestation will be smaller, and the costs for obtain a gestation will be reduced. Currently, it is considered that in the breeding season this index has normal values when it exceeds a rate of 85-90% of the total herd-jelly. In the specialized literature in Romania it is specified the fact that the fecundity index specific to Carpatina goats, is situated between 93.81% and 96.36% [4, 5, 9].

Because is the studied farms the mating was undirected (he-goats being kept together with females during the breeding season) and

the livestock breeding records could not be completed properly, the fecundity index calculation couldn't be done after each sexual cycle in order to calculate the number of mating/gestations, but only when the calving season ended.

Due to the fact that, after processing the data from the mating season, the average value of this index was between 85-90% (table 1), it can be asserted that, in the case of the populations taken into study, the average value of this index is very good (97.4%) and slightly superior to other values obtained for other holdings where there were effectives of the same breed [4, 9].

Table 1 Situation of mating, calving and of the reproductive indicators specific to the local goats

Specification	U.M.	Geographical area						Total
		Bacău	Botoșani	Iași	Neamț	Suceava	Vaslui	
Number of adult goats	individuals	70	236	320	89	103	120	<b>938</b>
Number of goats mated		69	233	314	89	103	120	<b>928</b>
Number of miscarried goats		4	8	12	5	2	6	<b>37</b>
Number of born goats		64	223	295	74	99	112	<b>867</b>
Number of born kids		87	304	377	93	120	143	<b>1124</b>
Number of kids born live		85	304	370	93	120	143	<b>1115</b>
Number of nonviable kids		0	0	5	0	0	0	<b>5</b>
Number of dead kids		2	0	2	0	0	0	<b>4</b>
Number of aborted		6	11	15	5	2	8	<b>47</b>
<hr/>								
<i>Fecundity index</i>	%	98.6	99.1	97.8	88.8	98.1	98.3	<b>97.4</b>
<i>Prolificacy index</i>		132.8	136.3	127.8	125	121.2	127.7	<b>129.6</b>
<i>Fertility index</i>		126.1	130.5	120.1	104.5	116.5	119.2	<b>121.1</b>
<i>Birth index</i>		92.8	95.7	94.0	83.1	96.1	93.3	<b>93.4</b>

The higher value of the index of fecundity can be explained by the fact that, within these populations, the mating took place freely, he-goats being kept together with goats throughout the period of oestrus, creating the possibility of a goat mating more often and with more than one he-goat in the same sexual cycle. Except for populations in Neamț, where the value of the index of fecundity was lower (88.8%), with all other populations this indicator registered a value greater than 97%. The lower value of this index recorded in the population studied in

Neamț county, determined by the relatively high proportion of non-fecund goats (11.24% of total population), can be explained by inadequate body condition of goats before and during mating season.

*Index of prolificacy* is a synthetic index on which depends the level of production obtained from each female used in breeding. The final value of this index is influenced by the morph-functional status of the female genital apparatus, maintenance and exploitation conditions, being at the same time, specific to each breed. This indicator is

determined based on the number of kids obtained from 100 born goats.

This index has, at goats, a mean value higher than 120%, being influenced by breed, individuality, and applied reproductive technology.

Analysis of the data presented in table 1 indicate that the prolificacy index recorded, at the populations taken into study, an average value per population of 129.6%, with limits

between 121.2% (at the farm from Suceava) and 132.8% (at the farm from Iași) (fig. 1 relative small value compared to those in the speciality literature). In the case of other research carried out on the population of the same breed, in the same area, the value of the index of prolificacy ranged between 134.74% and 140.36%, being directly influenced by the maintenance condition of adult goats before and during the breeding season [2, 3, 4].

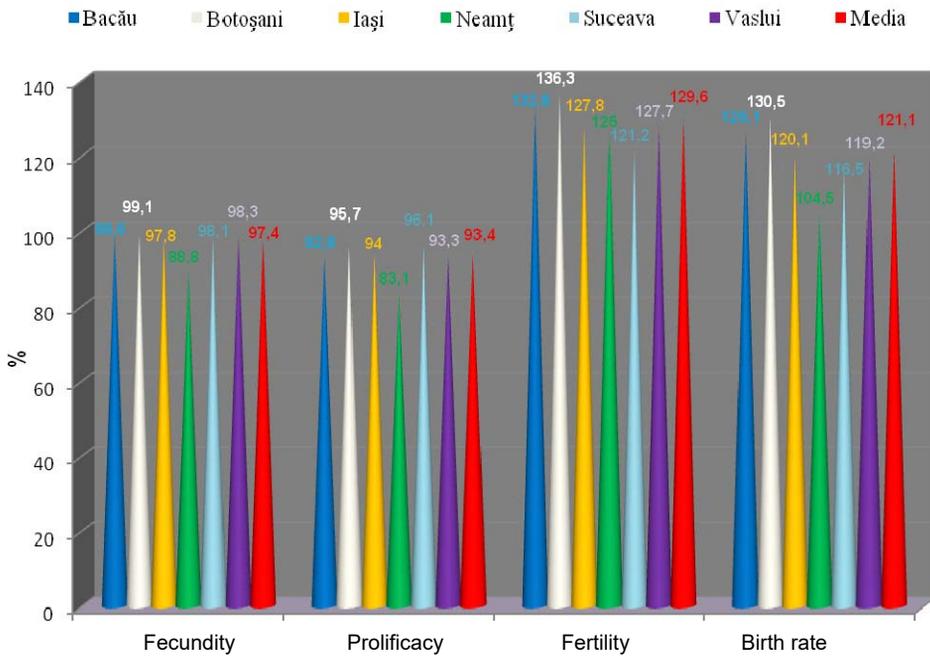


Fig. 1. Average values of reproduction indexes characteristic to goats from North-Eastern Romania

In the case of the presented research, the smaller average value of this index can be attributed both to the poor conditions of maintenance and exploitation, and to the fact that these populations were never the subject of selection and improvement actions.

*Fertility index* expresses the number of gestation females of the total goats which participated to mating. Fertility is the ability or aptitude for females to produce offspring. The fertility index calculated from the studied populations, recorded lower values (average 121.1%) than those given by other authors for the same breed, being influenced, directly, by prolificacy and by the number of miscarried

and unfertilized animals. At the populations of Carpatina goats breed in the North-East of Romania, this index has a mean value of 132.29% [3].

*Birth index* expresses, synthetic, the efficiency of breeding livestock in a zootechnical unit. This index is calculated through reporting the number of born goats at the total number of goats which participated at the matting. The average value of this index is approximately 90%. Due to the fact that the specific fecundity of these population records very high values, and the percentage of abortions is relatively small (about 4% of the

goats from the matting), this led to the registration of a very good birth index (93.4%).

## CONCLUSIONS

1. From the analysis of all the data obtained it appears that for the populations of goats in North-Eastern Romania the breeding function is characterized by obtaining relatively good average values for each of the indicators analysed, and for their evident improvement it is recommended an immediate application of the measures for the selection and intensification of breeding.

2. These measures can be easily applied by reforming the goats which no longer correspond in terms of productive and reproductive, as well as through the acquisition of he-goats, of a high genetic value and the application of routed matting.

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