Reproduction of ewes depending on their behavior when consuming feed

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Abstract. The article presents data on the study of reproductive and productive characteristics of sheep of the Grozny fine-fleece breed of different types of eating behavior (PP) in terms of autonomic-nervous activity (GNI). The dispersal of experimental bright colors according to the types of PP into the experimental groups was carried out according to the methods generally accepted in zootechnics by D.K. Belyaeva, V.N. Martynova (1973), V.S. Zarytovsky and others (1990). The principle of selection of individuals is to determine their passive-defensive, orienting reactions in an unusual environment of feed consumption. Scientific and production observations were carried out in the conditions of a specific agricultural enterprise in the Republic of Kalmykia. Our studies indicate that under identical feeding and keeping conditions of bright birds, the highest live weight (40.5 kg) is observed in individuals of the 1st type of PP, while among their peers it was lower by 2.7 and 5.3, respectively. kg. The sex dominant in type 1 flies of PP was much more pronounced, since they entered the state of the first hunt more intensively by 16.6 and 27.2%, respectively, than their counterparts from types 2 and 3. The peculiarities of the behavior of replacement birds at the time of feed consumption were reflected in their subsequent reproductive capacity. Thus, the highest reproduction (110%) of the number of ewes who had clung to ewes had individuals of the 1st type of PP. The lowest fertility (90%) had uterus of the 3 behavioral type. The wool productivity of ewes of different types of feeding behavior was characterized by rather high variability. For example, shearing wool from type 1 ewes PP turned out to be 4.9 and 7.7% more than in type 2 ewes. Survival of offspring by the time of beating and the yield of lambs per 100 ewes that have been clung to each other, depending on the type of PP, varies within wide limits. The highest mortality rate of young animals (11.8%) was observed in queens of the 3rd type of feeding behavior, while the indicators of obtaining offspring (44 heads), survival and yield of lambs per 100 ugly queens in the first group of the 1st type of PP were 100%. In the conditions of sheep farms in the Republic of Kalmykia, in particular in its eastern zone, in order to increase the brood stock, increase the reproductive capacity and productive qualities, it is necessary to use the type of feeding behavior when consuming feed as a "marker" of their selection for the repair and formation of brood stock.
1. Introduction
It is well known that the most significant consequences of the low reproductive capacity of raised sheep breeds in the Russian Federation include: errors in feeding, maintenance and operation, violations of the technology and technique of artificial insemination of ewes, diseases of the reproductive and other organs.

To eliminate the above consequences, in particular the first ones, significant financial costs are required. The entire list of other consequences can be completely eliminated without special costs due to the skillful use of certain ethological methods in the technology of conducting the industry.

Scientific research of domestic scientists proved that the types of feeding behavior of sheep when consuming feed and plants have a hereditary basis [1-7].

The practice of feeding farm animals has convincingly confirmed the importance of scientific research of these domestic scientists in the fact that the feeding behavior of a certain type of animal manifests itself when consuming feed or plants and largely depends on the physiological state and a number of related factors (opposition and speed of eating, appetite, duration of grazing, etc. chewing gum and others) [8-13].

In connection with these circumstances, the purpose of our work is: to trace the relationship of the feeding behavior of the Grozny fine-fleece repair lambs during the consumption of feed, and subsequently ewes of the 1st lambing with their reproductive and productive qualities in the extreme ecological conditions of the eastern zone of the Republic of Kalmykia.

2. Materials and methods
Scientific and production observations on the research topic were carried out on a flock of replacement young sheep (bright) in a specific agricultural production cooperative of the Yashkul region of the Republic of Kalmykia in full accordance with the scheme shown in table 1.

| Name of the experimental group of animals | Number of animals in the group, head | Corresponding eating behavior (PP) of the animal | Studied indicators |
|------------------------------------------|-------------------------------------|-----------------------------------------------|-------------------|
| 1                                        | 40                                  | 1                                             | Body weight is bright in terms of age. |
| 2                                        | 40                                  | 2                                             | Results of artificial insemination of 1st lambing ewes. Reproduction of ewes. |
| 3                                        | 40                                  | 3                                             | Wool productivity of ewes. Survival of offspring when discarded from ewes. |

To implement the set tasks, we selected (tested) 120 repair bright analogs of the fine-wool breed "Grozny Merino", which were dispersed into three groups of 40 animals each, different types of eating behavior (PP) in accordance with generally accepted methods. The conditions for feeding and keeping replacement young animals (bright) were the same, typical for most sheep-breeding farms in the eastern zone of the Republic of Kalmykia.

The essence of the dispersion of bright colors into the experimental groups was as follows: all tested individuals were assessed by passive-defensive and orienting reactions that they showed at the time of food consumption. As a rule, testing (assessment) is bright in order to reliably determine their inherent type of eating behavior (PP), was carried out early in the morning before the start of feeding and drinking at the time of a sufficiently pronounced background of food excitability.

In a specially designated place of the sheepfold, in the corral, in full view of all the animals, the shepherd poured dry food (grain rub) into a feeder with a feeding front for 10-15 heads. For testing in the corral, the yarns were launched in small groups (10-15 heads each) for 10-15 minutes.

The tested bright ones that approached the feeder in the first 5 minutes were marked with a special paint with 3 marks in the form of dots in the sacrum area, which came up after 10 minutes - they put 2 marks that approached the feeder in the remaining 5 minutes - one mark. It should be noted that for the
objectivity of the experiment, ear (individual) numbers were read and recorded for all the bright animals who passed the testing (assessment) to determine the type of eating behavior (PP) when eating food.

A brief description of the dispersed bright colors in the experimental groups in accordance with the 3 types of feeding behavior (PP) at the time of feed consumption is as follows:

- First type of PP. This type included individuals that quickly ran up to the feeder and, not fearing the presence of the shepherd, began to greedily eat the food. During the entire time of their stay in the pen, the bright ones did not leave the trough, they could hardly be driven away from it, but even after removing the animals from the paddock, they tried to re-enter the trough. The tentative behavior of these bright animals quickly transformed into a stable food one;
- Second type of PP. Individuals that entered the corral together with the 1st type were qualified for this type. Some of them ran to the trough, but having received marks, they ran away and did not approach the trough anymore. Other animals came to the trough after a while. They closely watched the actions of the shepherd, as soon as he departed, the animals rushed to the feeder and began to consume food;
- Third type of PP. The more cautious and fearful bright were attributed to this type. These individuals hardly entered the enclosure, stood in the far corner, did not approach the feeder. Sometimes the bright ones cautiously approached the feeder, grabbed the food and immediately ran back, not even getting a mark.

In the course of the experiment, the following parameters were taken into account: live weight is bright; fertilizing ability of ewes; wool productivity; fertility; litter survival.

The conditions for feeding and keeping replacement young animals (bright) were identical (the same), typical for most sheep-breeding farms in the eastern zone of the Republic of Kalmykia.

At the end of scientific and industrial observations, the obtained material was processed, and a corresponding conclusion was made.

3. Results

The dynamics of changes in live weight is bright in the age aspect depending on the type of feeding behavior (PP) at the time of feed consumption is reflected in table 2.

| Bright group - PP type | Live weight is bright, kg Age, months | Absolute gain in live weight, kg | Average daily gain, g. |
|------------------------|---------------------------------------|---------------------------------|------------------------|
| 1-1                    | 30.0±0.45 40.5±0.36                   | 10.5                            | 29.16                  |
| 2-2                    | 30.0±0.38 37.8±0.42                   | 7.8                             | 21.66                  |
| 3-3                    | 30.0±0.42 35.2±0.44                   | 5.2                             | 14.44                  |

Analysis of the data in table 2 indicates that for the studied period (from 6 months to 18 months) the greatest absolute increase in live weight (10.5 kg) with a live weight at the age of 18 months at 40.5 kg is noted in individuals from the 1st group of the 1st type of eating behavior (PP), whereas in their peers from the 2 and 3 groups of the PP, it was 2.7 and 5.3 kg lower, respectively.

The intensity of the arrival of ewes (bright) of the fine-wooled Grozny breed in the 1st sexual estrus and their fertilizing ability are closely interrelated with the type of their feeding behavior at the time of feed consumption (table 3).
Table 3. The results of artificial insemination are bright.

| Studied parameters                              | Bright group - PP type |
|------------------------------------------------|------------------------|
|                                                | 1-1        | 2-2        | 3-3        |
| 1. Bright in the group, total, goal            | 40         | 40         | 40         |
| 2. Inseminated bright in the 1st hunt for 20 days,% (head) | 70.0 (28) | 60.0 (24) | 55.0 (22) |
| 3. Number of inseminations per head for two cycles | 1.30      | 1.36      | 1.43      |

From the analysis of the data in table 3, it can be seen that in bright animals from the 1st group of the 1st type of PP, the sexual dominant was much more pronounced, they came to the state of the 1st sexual heat much more intensively (28 heads or 70.0%) than their peers from the 2 and 3 groups of the 2 and 3 types of PP, where the indicators are the following, respectively: 24 heads or 60.0%; .22 heads or 55.0%.

A similar picture of the advantage is observed in group 1 of the 1st type of PP and in terms of the number of inseminations per fruitful fertilization, one bright in 2 cycles (1.30) compared with peers of the 2 and 3 types of eating behavior, where there was inseminations were carried out more by 4.6% (1.36) and 11.0% (1.43), respectively. It is pertinent to note that all test subjects were inseminated in two sexual cycles.

The behavior of the experimental bright, depending on the types of PP at the time of their consumption of feed, was reflected to a certain extent on their subsequent fertility (table 4).

Table 4. Reproduction of experimental ewes of the 1st lambing.

| Group of queens - type of PP | Inseminated queens, head | Swearing by the queens (in fact), goal. | Breeding received, head (%) | Received lambs per 100 ewes,% |
|-----------------------------|-------------------------|----------------------------------------|----------------------------|-----------------------------|
|                             |                        |                                        |                            |                             |
| 1-1                         | 40                      | 40                                     | 44 (110%)                  | 110                         |
| 2-2                         | 40                      | 37                                     | 37(92.5%)                  | 92.5                        |
| 3-3                         | 40                      | 35                                     | 34(85.0%)                  | 85.0                        |

From the analysis of the data in table 4, it can be seen that, per 100 ewes that have licked, the highest fertility (110%) had individuals of the 1st type of eating behavior. Low fertility (85%) is observed in ewes of the 3rd type of feeding behavior (PP). The specific gravity of dry (barny) ewes in the experimental groups of the second and third types of eating behavior in terms of GNI was 7.5 and 12.5%, respectively.

The ethological characteristics of ewes, depending on the type of feeding behavior (PP), influenced their wool productivity (table 5).

Table 5. Wool productivity of ewes of the 1st lambing.

| Group of ewes - type PP | Unwashed (in physical weight) | Sheared wool, kg. | Washed (in pure fiber) | Washed (clean) wool output,% | Wool length, cm. | True length | True to natural length,% |
|-------------------------|-------------------------------|-------------------|------------------------|-----------------------------|-----------------|-------------|-------------------------|
| 1-1                     | 3.62                          | 1.64              | 44.4                   | 10.6                        | 12.7           | 119.8       |
| 2-2                     | 3.45                          | 1.54              | 44.6                   | 10.2                        | 11.9           | 116.6       |
| 3-3                     | 3.36                          | 1.49              | 44.3                   | 10.0                        | 11.5           | 115.0       |

From the data in table 5, it can be seen that type 1 PP ewes had shears of unwashed wool (in physical weight) and washed wool (in clean fiber) at the level of 3.62 kg and 1.64 kg, i.e. more than in ewes of the 2 and 3 types of PP, respectively, by 4.9 and 7.7%; 6.4 and 10.0%. The yield of washed (clean) wool in ewes of different types of PP was 44.4, 44.6; and 44.3% with an insignificant
difference. The natural length of wool in type 1 ewes of the PP turned out to be 3.9 and 6.0% more, respectively, than in ewes of the other two types.

The survival rate of offspring of ewes to the chop, depending on the type of feeding behavior (FS) at the time of feed consumption, is shown in table 6.

**Table 6. Survival of offspring of ewes.**

| Group of ewes - type PP | Obtained offspring (live lambs), head | Departure of lambs to chop from mothers, head (%) | Survival of lambs to beating from mothers, % | Slaughtered lambs per 100 ewes who have swallowed, % |
|-------------------------|-------------------------------------|-----------------------------------------------|---------------------------------|---------------------------------|
| 1-1                     | 44                                  | - (-)                                         | 100.0                           | 110.0                           |
| 2-2                     | 37                                  | 2 (4.4)                                       | 95.6                            | 94.5                            |
| 3-3                     | 34                                  | 4 (11.8)                                      | 88.2                            | 85.7                            |

Monitoring of the data in Table 6 showed that the greatest mortality of young animals (11.8%) with a survival rate of 88.2% was observed in queens from the third group of type 3 feeding behavior. The highest rates for obtaining offspring (44 heads), survival rate and lambs' yield to chop per 100 ewes that have clung to (100%) were recorded in individuals from group 1 of type 1 feeding behavior (PP).

4. **Discussion**

On the basis of the above, it can be noted that the typological features of the behavior of replacement birds at the time of consumption of feed, and subsequently of ewes of the 1st lambing, are largely reflected in their reproductive abilities and productive qualities.

Our experimental data are in complete agreement with the results of many years of research by D.K. Belyaeva and V.I. Martynova (1973), V.S. Zarytovsky, M.I. Lieva (1983), V.S. Zarytovsky, M.I.Liev, G.I. Emelyanov (1990), V.I. Velikzhanina (1975, 1995, 2004), Yu.P. Kosheleva (2000), S.T. Khachirova (2006), S.O. Chylbyk-OOL (2019), Yu.A. Yuldashbaeva and others (2020), who in their comprehensive studies reliably confirm the close interdependence of biological and economically useful characteristics of sheep and the type of eating behavior (PP) when consuming feed and plants.

5. **Conclusion**

In order to more efficiently use the replacement young sheep, in particular, bright, in the subsequent ewes for the repair and formation of the brood stock of sheep in the studied region - the Republic of Kalmykia, it is necessary to use in the industry quite accessible ethological and zoo technical methods that do not require significant material costs, but successfully implemented with the mandatory fulfillment of the following requirements:

- Preliminary selection (testing) is bright according to the types of food behavior (PP) when consuming feed (at the time of appraisal in farms of all forms of ownership);
- Repair and formation of brood flocks with repair flares, mainly of the 1st and 2nd types of eating behavior (PP);
- Strict adherence to the technique and rules for artificial insemination of selected sheep;
- The type of feeding behavior is bright should become a "marker" in their selection for the first fruitful mating, subsequently for the repair and formation of brood stock.

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