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EFFECT OF PROBIOTIC PRODUCT "BACELL" ON IMPROVEMENT OF STUD BULLS SEMEN QUALITY

The maximum possible use of prepotent sires is essential in the large-scale breeding in dairy cattle. This is due to the fact that the transmission of hereditary qualities of productivity and other breeding features can only be effective when semen producers are tested by the progeny quality are not only used in the herd for as long time, but also have high productivity of their own. Under own productivity of sire we understand the amount of the received ejaculates, sperm count per ejaculate, and their spermatozoa survival during the process of dilution, freezing and storage. As with any type of agricultural animals bulls own productivity is determined by hereditary (individual) characteristics and conditions of a concrete enterprise.

"Uralplemcentr" practices intensive technology for production of bulls' deep-frozen semen. It is impossible to ensure a high level of native sperm without organizing full-rate feeding of bulls. The recent advances in the science of farm animals feeding indicate that the use of probiotic products helps better absorption of diet nutrients, the microbial status is improved, biochemical and physiological processes are normalized, feed protein absorption increases up to 40% due to the influence of microorganisms.

Probiotic products impact the productive performance of farm animals: meat and milk production, slaughter rates, and meat quality.

OBJECTIVE: to study the effect of probiotic product "Bacell" on the qualitative and quantitative indicators of bulls' sperm production.

Two years old bulls were used for observations and tests conducted at JSC "Uralplemcentr" of Sverdlovsk region in March, April, May, 2008. The bulls were divided into two groups. The bulls of control group received a diet adopted for this age group while the bulls of the experimental group received the same diet plus 50 grams of probiotic "Bacell" every day.

"Bacell", registration number TAP-4.7/02100-1, is a microbial product containing an association of bacteria with pronounced probiotic properties, and cellulosolytic and gluconase activity.

RESULTS. 580 semen samples were studied. The volume of ejaculate received from the bulls that receiving probiotic product "Bacell" with their feed increased in average by 23% (Fig.1).

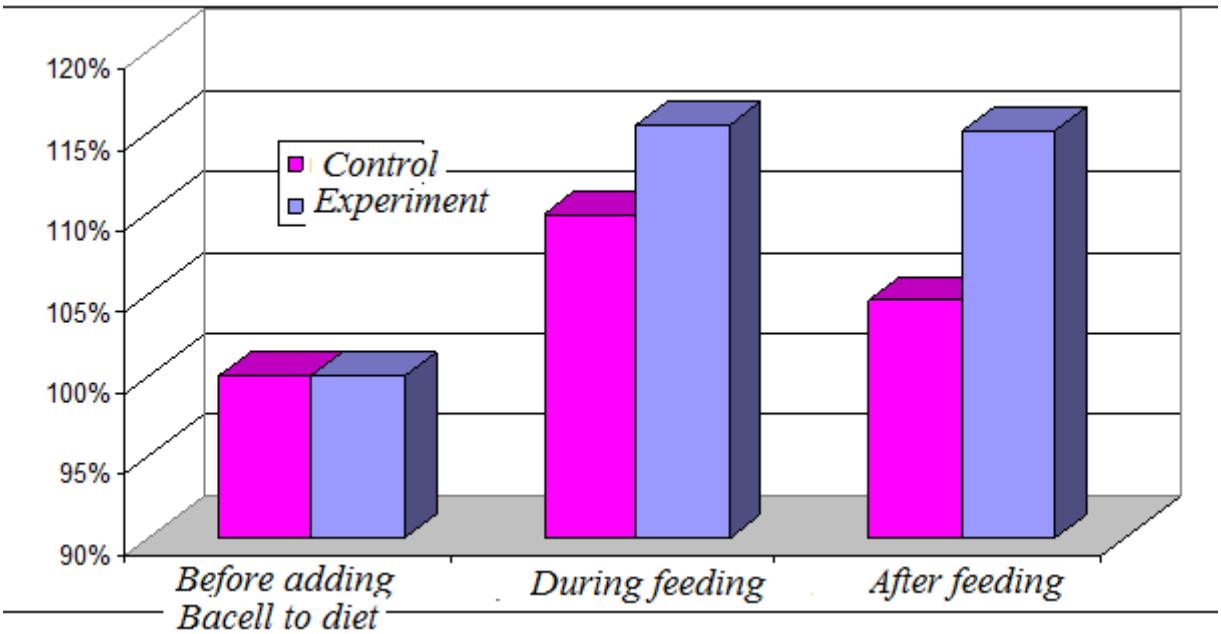

Fig.1. The change in ejaculate volume (%): before adding "Bacell" to feed (Weeks 1 to 4), during feeding (Weeks 5 to 12), after feeding (Weeks 13 to 19)

In absolute terms the amount of bulls sperm production in the experimental group averaged 5.5ml per collection compared to 4.9ml in control group.

Sperm concentrations showed 10% increase.

One of the most important indicators characterizing sperm quality is the survival rate after spermatozoa thawing. The survival rate in the control group was 96.6%. In the experimental group where the bulls received probiotic product Bacell daily, it was 96.9%. These results both in the control and the experimental group were within the physiological norm.

The number of frozen sperm doses is a key indicator of economic efficiency of the breed livestock farm. The bulls having the probiotic Bacell added to their feed (Fig.2) gave 20.3 sperm doses/collection more than those from control group (three months results).

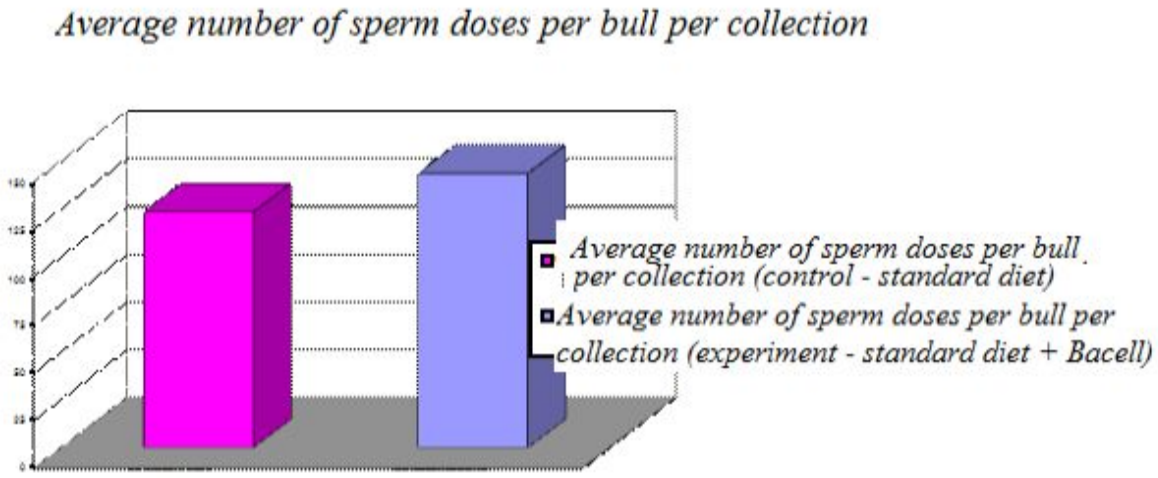

Fig.2. The average number of sperm doses after thawing per sire

The dynamics of obtaining sperm doses is shown in Figure 3.

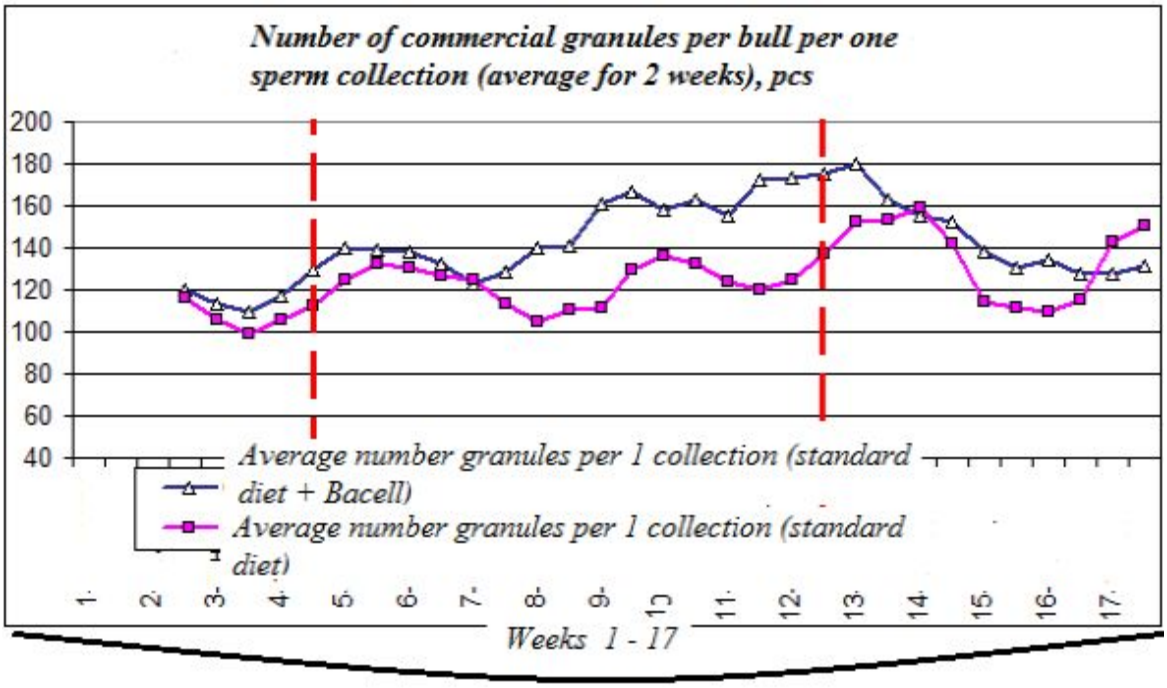

Fig.3. Number sperm doses per bull per collection (averaged performance for two weeks)

The diagram shows that prior to adding "Bacell" (Week 1 to Week 4) and during the first three weeks of feeding when experimental bull had Bacell added to their feed (Weeks 5 to 7) the pattern is very much the same for both the control and the experimental group. At the beginning of the period when the probiotic product was added the microorganisms populate the intestine thus improving the use of protein feed and physiology of digestive processes is normalized. Starting from Week 8, that is three weeks after probiotic product was added to the experimental group diet, sperm count for these bulls increased as well as the number of obtained sperm doses. It should be noted that this effect lasted 4 weeks after the cessation of adding Bacell to feed.

Economic benefit of using probiotic product "Bacell" is 748.6 rubles due to additional sperm doses received per one collection. Monthly benefit is 8 838 rubles per sire including the cost of probiotic "Bacell".

Conclusions: Adding probiotic product "Bacell" into the sire diet:

- helps to increase the ejaculate volume by 23% (5.05ml vs 4.9ml);
- increases the concentration of spermatozoa by 10%;
- gives 20.3 sperm doses per bull per collection more
- 1 ruble invested brings 143 rubles of profit.