EFFECT OF BIOSTIMULANT PREPARATIONS ON GROWTH PERFORMANCE OF CALVES

Jumakulova Guzal Sayfiddin kizi
Turon University,
guzaljumaqulova1@gmail.com
Boymurodova Nilufar Shavkatjonovna
Turon University,

Abstract*. This study assessed the effect of two biostimulants on calf growth. Three groups were formed: one control and two experimental groups kept under identical conditions. The control group received a basal diet only.*

The first experimental group was injected with "Timozin" (1 mg/kg body weight), while the second group received bovine liver hydrolysate (12 g/day) for 90 days. At the end of the trial, live weight was measured. Results were expressed as mean ± standard error and compared with the control group.

Both treatments improved growth performance compared to the control group.

Introduction. Enhancing growth performance and productivity of calves is a critical objective in modern livestock farming. In recent years, increasing attention has been paid to the use of biostimulant preparations that improve metabolic activity, immune response, and nutrient utilization. Among such preparations, immunomodulators like "Timozin" and biologically active feed additives such as bovine liver hydrolysate are considered promising due to their potential to stimulate growth and development. Despite their widespread application, comparative data on their effectiveness under controlled experimental conditions remain limited. Therefore, the aim of this study was to evaluate and compare the effects of "Timozin" and bovine liver hydrolysate on live weight gain in calves over a 90-day period.

Methods. The experiment was carried out on calves divided into three groups: one control group and two experimental groups. Each group was maintained under similar housing and feeding conditions, except for the administered treatments. The control group received a standard basal diet without any additives.

In the first experimental group, calves were administered the biostimulant preparation "Timozin" at a dose of 1 mg/kg body weight via subcutaneous injection in the neck region over a period of 90 days.

In the second experimental group, bovine liver hydrolysate was included in the daily feed ration at a dose of 12 g per day for the same duration.

Live weight of the calves was measured at the end of the 90-day experimental period. The results were expressed as mean ± standard error, and percentage

differences relative to the control group were calculated to assess the effectiveness of the treatments.

Results. At the end of the experiment (90 days), the average live weight of calves in the control group was 72±0.5 kg. In the group treated with "Timozin," the average live weight reached 80±0.5 kg, which represents an increase of 8 kg or 11.1% compared to the control group.

In contrast, calves receiving bovine liver hydrolysate showed a higher growth response, with an average live weight of 84±0.5 kg. This corresponds to an increase of 12 kg or 16.7% relative to the control group.

The obtained results indicate that both tested biostimulant preparations had a positive effect on growth performance. However, the effect of bovine liver hydrolysate was more pronounced than that of "Timozin."

Discussion. The findings of this study confirm that the use of biostimulants can significantly enhance growth performance in calves. The observed increase in live weight in the "Timozin" group may be associated with its immunomodulatory properties, which can improve overall physiological status and resistance to stress factors.

On the other hand, the greater effect observed with bovine liver hydrolysate may be explained by its rich composition of amino acids, peptides, and biologically active compounds that directly support protein synthesis and metabolic processes. This likely contributed to improved feed efficiency and accelerated growth in calves.

From a practical perspective, incorporating bovine liver hydrolysate into the diet appears to be a more effective strategy compared to injectable "Timozin" under the conditions of this experiment. However, further studies involving larger sample sizes and additional physiological parameters are recommended to confirm these findings and to better understand the mechanisms involved.

Conclusion. Both "Timozin" and bovine liver hydrolysate positively influenced the growth of calves over a 90-day period. However, bovine liver hydrolysate demonstrated a superior effect, increasing live weight by 16.7% compared to the control group. These results suggest that liver hydrolysate can be effectively used as a feed additive to improve growth performance in calves.

References

1. Жумакулова Г.С. Гемолитические показатели крови мелкого рогатога скота, получившего тканевой биостимулятор // Инфекция, иммунитет и фармакология. – 2025. – №5. – С.151-156.
2. Arslan B., Xiong Y.L., Soyer A. Antioxidant properties of bovine liver protein hydrolysates and their practical application in biphasic systems // J. Sci. Food Agric. – 2024. – V.104. – P.2980-2989.

3. Ayasan T., Sucu E., Ulger I., Hizli H., Cubukcu P., Ozcan B.D. Determination of in vitro rumen digestibility and potential feed value of tiger nut varieties // South African Journal of Animal Science. – 2020. – V.50(5). – P.738-744.
4. Bazekin G., Skovorodin E., Dolinin I., Gatiyatullin I., Chudov I., Ezhkova A. The effect of new immunostimulants of tissue and plant origin on the morphological characteristics of the immune system's central organs and the dynamics of serum immunoglobulins // Adv. Anim. Vet. Sci. – 2021. – V.9(11). – P.1800-1809.
5. Kaxorov B.A., Jumakulova G.S. Complex evaluation of biostimulants for prevention of immune system disorders and highly productive cows and improvement of milk quality // International Journal of Genetic Engineering (Scientific & Academic Publishing Co., USA). – 2025. – V.13(5). – P.90-95.