

Popular Article

Role Of Bio-Stimulation in Small Ruminant Productivity

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Introduction

Sheep and goats play a vital role in India's agro economy. Scientists have turned their attention on the enormous importance of sheep and goats in rural India. Meat, wool, and hair contribute to the farmer's income, and animal excrement fertilizes the soil. Food is in ever-increasing demand due to the growing global population of human and animal. Proteins are in particularly high demand. It is widely acknowledged that there is a significant and growing gap between available animal protein sources and demand. Improving productivity is a significant and difficult endeavor. Recently, the focus of production has shifted from dual-purpose lamb/kid and wool production to solely meat production. On the other hand, there is no need to emphasize the demand for and production of animal protein to meet the pressing needs of an ever-increasing human population today. The demand for animal protein will not only continue but will grow as the human population grows and their purchasing power grows.

In terms of our country's socioeconomic status, the meat business is in good shape, and there appears to be plenty of room for growth. Meat productivity is directly influenced by fertility rate, litter size, growth rate, and development. The degree of meat output is determined by "growth and development." Prior to attempting to improve the output of meat from sheep and goats, it is necessary to have a thorough understanding of the complex elements that influence lamb growth and development. Numerous studies have employed various growth-promoting bio stimulants, which differ terms of their source, origin, dosage, method of action, species specificity, and ability to promote growth. Aside from efficiency, safety and cost, possibly the most important factors in selecting an acceptable growth stimulant for large-scale use.

What are bio stimulants?

Bio stimulants have yet to be given a legal definition. The European Bio stimulants Industry Council, on the other hand, defines them as "substances and/or microorganisms that, when applied to plants or the rhizosphere, stimulate natural processes to benefit nutrient uptake, nutrient use efficiency, abiotic stress tolerance, and/or crop quality, regardless of nutrient content."

These are preparations made from animal, plant, or microbial live tissue. They are normally manufactured using particular methods from various organs, preferably the spleen, and are injected, implanted subcutaneously, or fed in small amounts on a regular basis with the purpose of promoting development and increasing performance of a variety of farm animal economic features.

Effect On Growth Rate and Feed Efficiency

Cinpav *et al.* (1963) achieved a 2kg average live weight increase advantage over controls when wethers of 33kg average live weight were injected s/c with 5 to 10ml of spleen extract at 10-day intervals during a 45-day fattening phase. In another experiment conducted by Sevyrev *et al.* (1962), treated ewes gained more weight than the control group. Ten s/c injections were given to treated ewes every five days during a 58-day trial. On the other hand, Bakuaskii (1966) found a 0.6 kg reduction in live weight in cross-bred withers treated with 2-, 3-, and 4-ml injections of excised parenchymatous organs compared to controls.

Biostimulator using spleen extracts from diverse species and in merino lambs increased weight gains by 9-15 percent, according to Safarov.

Effect On Physical and Chemical Composition of Carcasses

Cinapav reported that after the lambs were given the biostimulator, the average dressing % increased by 1.26 percent. The effects of placental suspension on 4-5-month-old male lambs' growth and development, as well as carcass features was analysed. Apart from the control group, two test groups were kept. In one series, test group one received fifteen injections and test group two received six injections. The interval between tests is 5.5 months. The average weight before slaughter of the test groups 1 and 2 was 14.2 and 11.5 percent higher than the control group, indicating a significant increase in growth rate attributable to bio stimulation (Anonymous).

Effect of on Wool Production

Vanenkov investigated the impact of tissue pre-treatment on sheep wool output. 500 wethers were given four injections of 5ml Filatov's extract of cow spleen at seven-day intervals on a farm, with the treatment group yielding 182 gramme more wool on average than the control

group. "Fine" and "coarse" wool sheep on a communal farm got a total of seven injections of spleen extract and skin tissue extract. Treated fine wool and treated coarse wool yielded 137 grammes and 157 grammes more wool on average than untreated controls, respectively.

Effect On Reproduction

Supplementing bio stimulants to ram sperm enhanced motility length by 1-2 days, conception rate by 9-15 percent, and the sex ratio was changed to 89:41 in favour of more female lambs according to Volosevic.

Abdunazarow found that extracts from six 1-day old fowl embryos refrigerated at 0 to 4 degrees Celsius, when added to glucose citrate semen extender, had a better effect on spermatozoa activity and survival than untreated semen dilutor. Due to the inclusion of bio stimulatory preparation, sperm survival was enhanced to eight days.

Conclusion

Bio stimulation can exert profound effects on reproductive activity via the hypothalamic system that generates pulses of gonadotropin-releasing hormone. Both male and female production can be affected by bio stimulation. The bio stimulation technique could be a valuable and practical way to improve animal reproductive efficiency. For higher production, the exact nature of the cues and the significance of bio stimulation in livestock species, particularly pigs, sheep, goats, and cattle, deserve more consideration. As a result, research into the bioassay and behavioural aspects of these pheromonic chemicals in farm animals is required.

References

- Abdunazarov, N. H. (1966). Glucose-citrate medium for ram semen with a fowl embryo tissue stimulator. Glucose-citrate medium for ram semen with a fowl embryo tissue stimulator.
- Chorey, P. A. (1973). *Studies on the effect of biostimulators for growth production in sheep* (Doctoral dissertation, Department of Animal Physiology, Post Graduate college of animal science, Indian Veterinary Research Institute, Izatnagar, Agra University, Agra.)
- Safarov, F. S. (1970). The effect of a tissue biostimulator on embryonic and post-embryonic development of lambs. *Uchen. Zap-azerb. sel'.-khodz-Inst. Ser. zhivot.*, (2), 38-41.
- Vanenkov, M. V. (1962). Effect of tissue preparations on wool production by sheep. *Zhivotnovodstvo*, 24(9), 37-38.
- Volosevic, A. P. (1966). The action of biostimulators on conception rate and sex of progeny in pigs. The action of biostimulators on conception rate and sex of progeny in pigs.

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