



KEY WORDS

- ✓ Heifer
- ✓ Superovulation
- ✓ PMSG
- ✓ FSH
- ✓ Embryo Transfer

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EFFECTS OF FSH AND PMSG COMBINATION ON EMBRYO NUMBER AND QUALITY IN SUPEROVULATION PROTOCOL IN HEIFERS

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THESIS ABSTRACT

This study investigated the effects of superovulation protocols created using a combination of FSH and PMSG at different doses (500 IU and 1000 IU) on ovarian response, embryo number, and quality in Holstein heifers. In the study conducted on 30 heifers, the highest total follicle and anovulatory (non-ruptured) follicle count was observed in the 1000 IU PMSG group (Group 3). Conversely, the highest number of transferable embryos (9.00 ± 0.65), blastocysts (6.30 ± 0.37), and first-quality embryos (5.90 ± 0.50) were obtained in the group treated with 500 IU PMSG (Group 2). In conclusion, the 500 IU PMSG + FSH combination optimized embryo yield and quality in heifers, while higher doses such as 1000 IU triggered anovulation, negatively impacting yield.

APPLICATION AREAS OF THE THESIS RESULTS

The results of this study have direct and broad application in increasing the effectiveness and economic efficiency of biotechnological breeding methods in the livestock sector. In particular, the "500 IU PMSG + FSH" combination will provide guidance as an optimized standard protocol for producing the maximum number of high-quality transferable embryos from superior heifers, especially in Embryo Transfer (ET) centers and high-genetic-value breeding farms. The study's finding that high doses (1000 IU) increase the risk of anovulatory follicles will allow field veterinarians to avoid unnecessary hormone use, thereby reducing the risk of ovarian cysts and drug costs.

ACADEMIC ACTIVITIES

1. Eser, A., Bağcı, K., Alakuş, A., Cihangiroğlu, A. Ç., Karaağaç, İ., Yağcıoğlu, S., Arıcı, R., & Demir, K. (2026). Effects of Platelet-Rich Plasma Dose and Application Strategy on Post-Thaw Spermatological Parameters in Goat Semen. *Veterinary Sciences*, 13(3), 245. <https://doi.org/10.3390/vetsci13030245>
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