ABSTRACT

THE USE OF ANTIOXIDANTS IN FROZEN SEMEN EXTENDERS
AND ESTROUS SYNCHRONIZATION METHOD
IN ARTIFICIAL INSEMINATION PROGRAM OF ST. CROIX SHEEP

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The objectives of this research are to determine the effectiveness of tris-citrate, lactose and skim milk as extenders in cryopreservation of semen; to study the influence of supplementation of vitamin E and BHT as antioxidants with certain doses on frozen semen quality; to determine the effects of progesterone intravaginal implant and its combination with estradiol benzoate on response of estrus, the depth of insemination into the cervix and conception rate; and to determine the effect of increasing dose of AI on conception rate.

Results of the first experiment revealed that the mean sperm motility and live sperm count after thawing as well as the mean percentage of intact plasma membrane and intact acrosome within milk extender (50.0, 62.5, 58.3 and 61.0 percent respectively) and the supplementation of 0.2 g vitamin E (51.9, 65.4, 61.3 and 64.2 percent respectively) were higher than the other treatments. The supplementation of 0.2 g vitamin E to the skim milk extender gave the best quality of frozen ram semen.

Results of the second experiment indicated that both treatments of progesterone alone and progesterone plus estradiol benzoate induced estrus in all treated ewes. The onset of estrus was earlier in the group treated with 0.1 mg estradiol benzoate than in the group treated with progesterone alone (32.31 and 42.31 hours respectively, after progesterone implant removal). The duration of estrus was longer in the group treated with 0.1 mg estradiol benzoate (70.92 hours) than in the group treated with progesterone alone (37.42 hours). Semen could be deposited at the second position of the cervix in 77.78 and 55.56 percent of ewes treated with progesterone plus estradiol and progesterone alone, respectively. The conception rate after insemination in the group treated with progesterone alone was not different with the group treated with progesterone and estradiol benzoate. The conception rate in the group treated with progesterone alone after insemination using 200 million motile spermatozoa was higher (77.8 percent) than 100 million motile spermatozoa (30 percent).

It is concluded that tris-citrate, lactose and skim milk may be used for semen cryopreservation, but skim milk seems to be better than the other extenders. Supplementation of 0.2 g vitamin E gave better sperm protection than the other treatment. The administration of estradiol benzoate after progesterone implant removal improves estrous response as well as the depth of semen deposition, but can not improve the conception rate compared with progesterone treatment alone. The increasing dose of insemination from 100 million to 200 million motile spermatozoa improves the conception rate in the St. Croix ewes.