enhances development and post-transfer survival of *in vitro*-produced bovine embryos. Holstein COC shipped overnight in a portable incubator in oocyte maturation medium were fertilized with X-chromosome selected sperm from Holstein bulls. X-selected sperm were used because females were preferred. Morulae and blastocysts were collected at Day 7 after insemination and transferred at Day 7 after ovulation to lactating dairy cows subjected to a modified OvSynch protocol. In Experiment 1, conducted from June 29 to August 31, embryos were cultured in KSOM-BE2 alone, KSOM-BE2 with 100 ng mL^{-1} of Arg^3-IGF-1 or KSOM-BE2 with 10 ng mL^{-1} of recombinant BoGM-CSF. Treatments were added at Day 1 after insemination. As compared to control embryos ($17 \pm 2\%$), the percentage of cleaved embryos that became transferable morulae or blastocysts at Day 7 was increased ($P < 0.05$) by GM-CSF ($25 \pm 2\%$) but not by Arg^3-IGF-1 ($18 \pm 2\%$). There was no significant effect of treatment on pregnancy rate at Day 30 to 35 [34% ($n = 52$), 35% ($n = 51$), and 43% ($n = 55$) for control, GM-CSF, and IGF-1, respectively] or calving rate (27, 35, and 40%) although values were numerically greater for cows receiving IGF-1 treated embryos. In experiment 2, conducted from September 7 to February 1, embryos were cultured in KSOM-BE2 alone, KSOM-BE2 with 100 ng mL^{-1} Arg^3-IGF-1 added at Day 1 after insemination, or KSOM-BE2 with 10 ng mL^{-1} recombinant BoGM-CSF added at Day 5 after insemination. GM-CSF, but not IGF-1, increased the percentage of oocytes ($P < 0.03$) and the percentage of cleaved embryos ($P = 0.05$) that became transferable morulae or blastocysts at Day 7. The percentage of cleaved embryos becoming blastocysts was $14 \pm 1\%$ for GM-CSF, $14 \pm 2\%$ for Arg^3-IGF-1 ($P = 0.11$), and $10 \pm 1\%$ for controls. Treatment with GM-CSF increased ($P = 0.056$) the percentage of cows pregnant at Day 30 to 35 [34% ($n = 79$), 43% ($n = 107$), and 27% ($n = 44$) for control, GM-CSF, and IGF-1, respectively]. Data on calving rate are currently being collected; to date, 86% of calves were female. Results indicate that embryo competence for post-transfer survival can be enhanced by treatment with GM-CSF at Day 5 after fertilization.

Research supported by USDA Grant 2006-55203-17390, BARD Grant US-3986-07 and the Southeast Milk Dairy Checkoff Program. B.L. was supported by a CAPES (Brazil)/Fulbright Fellowship.

143 SUPEROVULATORY RESPONSE AND EMBRYO PRODUCTION INFLUENCED BY THE ADDITION OF LH AND EFFECT OF THE REPEATABILITY IN SANTA INÊS SHEEP

M. E. F. Oliveira[A], *I. C. C. Santos*[B], *J. S. P. Pieroni*[A], *R. M. Ferreira*[A], *M. F. Cordeiro*[A], *P. M. P. Nascimento*[C], *S. F. Souza*[A], *J. F. Fonseca*[C], *and W. R. R. Vicente*[A]

[A]UNESP, Jaboticabal, Sao Paulo, Brazil;
[B]Tecnopec ltda, Sao Paulo, Sao Paulo, Brazil;
[C]Embrapa Caprinos, Sobral, Ceara, Brazil

The aim this study was to evaluate the effect of the addition of LH in superovulatory response and embryo production in Santa Inês sheep. Ten donors with 60.3 ± 10.7 kg and BCS of 3.9 ± 0.3 were superovulated in a cross-over design, with a 60-day interval. Estrus was synchronized with a progesterone-releasing intravaginal device (CIDR™; Pfizer Animal Health, Brazil) inserted on Day 0 and replaced by a new one on Day 7, that was maintained to Day 14. Two doses of 37.5 g of D-cloprostenol (Prolise™, Arsa, Buenos Aires, Argentina) were administered, on Days 7 and 14. Donors also receive 256 mg of pFSH (Folltropin™, Bioniche, Belleville, ON, Canada) in 8 decreasing doses, starting on Day 12. On Day 14, all females received 200 IU of eCG (Novormon ™, Syntex, Argentina). On Day 15, the animals were homogeneously allocated in 1 of 2 groups: Control (GC, $n = 10$) and treated (G-LH, $n = 10$). Ewes in GC did not receive exogenous LH, whereas ewes in G-LH were treated with 7.5 mg of LH (Lutropin™, Bioniche), on Day 15. All females were inseminated by laparoscopy, with frozen–thawed semen, 42 and 48 h after CIDR removal. On Day 21, the embryos were surgically collected. The superovulatory response was classified in scores: (0) 4 or fewer CL; (1) between 5 and 10 CL, and (2) 11 or more CL. Means were compared using Kruskal-Wallis test and percentages using chi-square ($P < 0.05$). Most of donors (70%, 7/10) from G-LH presented a superovulatory response classified as score 2, and the remaining (30%, 3/10) as score 1, whereas, half of the controls were classified as score 2 and half as score 1. Ovulation rate tended to be greater in G-LH (135/158, 85.4% *v.* 105/135, 77.7%, $P = 0.08$). The number of CL (mean ± SD) was 10.5 ± 3.8 in GC and 13.5 ± 4.84 in G-LH, but was not statistically different. The number of anovulatory follicles (AF) did not differ between groups (GC: 3.0 ± 3.2; G-LH: 2.3 ± 1.6), but the proportion of AF tended to decrease in G-LH (30/135, 22.2% *v.* 23/158, 14.5%, $P = 0.08$). Considering embryo production, there was no difference between GC and G-LH ($P > 0.05$) related to number of recovered ova/embryos (6.1 ± 4.6 *v.* 8.4 ± 5.2), viable embryos (3.8 ± 4.3 *v.* 4.2 ± 5.2), unfertilized (1.7 ± 3.4 *v.* 2.0 ± 2.9) and degenerated embryos (0.7 ± 0.7 *v.* 2.2 ± 2.9), respectively. Data showed that the addition of LH tended to increase ovulation rate and to decrease the proportion of AF, but did not affect the number of viable embryos.

144 PREGNANCY RETENTION OF BOVINE RECIPIENTS FOLLOWING TRANSFER OF EMBRYOS EXPOSED TO A PROSTAGLANDIN$_{2\alpha}$ RECEPTOR ANTAGONIST DURING COLLECTION

D. A. Roper, *F. N. Scenna*, *A. M. Saxton*, *J. L. Edwards*, *N. R. Rohrbach*, *and F. N. Schrick*

Department of Animal Science, The University of Tennessee, Knoxville, TN

Increasing efficiency and success of MOET continues to be a goal of researchers and practitioners. Although numerous studies report success in establishing pregnancies, fewer evaluate term development and report number of live calves born. In a previous study, Scenna FN *et al.* (2008 Reprod. Fertil. Dev. **20**, 154) exposed embryos to 3 different medium treatments while being collected from superovulated beef donors on Day 7. Medium treatments consisted of a commercially available medium plus 1 mL of DMSO (Control), commercial medium plus 100 nM of AL-8810 (AL100), or a commercial medium plus 1000 nM of AL-8810 (AL1000). Embryos were evaluated for grade and stage according to IETS guidelines. Embryos ($n = 1734$ at 6 locations across 13 replicates) were transferred (fresh or frozen in ethylene glycol) by 4 experienced technicians. Pregnancy rates were determined by ultrasonography 28 to 35 days after transfer and were increased in recipients receiving embryos collected in media containing