

RELATIONSHIPS OF SCROTAL CIRCUMFERENCE AND WEIGHT GAIN AT THE CORONA, NM RANGE RAM TEST

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(Key Words: Ram, Scrotal Circumference, Growth, Fertility)

Scrotal circumference is an excellent indicator of the sperm producing capacity of the testis. The objective of this experiment is to establish some guidelines to develop selection criteria to predict fertility of range rams. This criteria will also be used to establish minimal scrotal circumference standards similar to those established by the beef industry.

Fifty rams were randomly selected from the one hundred fifty rams being tested in Corona, NM. All rams have been on range and supplemented as needed. Starting in September 1992, measurements of body weight and scrotal circumference were recorded three times during the course of the year-long test. With the use of a scrotal tape, measurements were taken with both testicles pulled tightly down and then measured at the widest point. These measurements were taken on September 17, October 27, and December 17, 1992 and will be continued at a 45 to 60 day interval until the end of the year-long test. These data were statistically analyzed and regression coefficients as well as correlations were established for three measurement periods taken to date. Data were then pooled and correlated to obtain means of the three measurements of scrotal circumference and body weight. Blood samples have been taken during the testing period and testosterone concentration will be measured. At the end of the test a semen sample will be obtained to determine sperm concentration, motility, and morphology.

After analyzing the present data, the first measurement period's mean scrotal circumference was 24.95 ± 4.04 cm and the average body weight was 94.22 ± 11.58 lbs. The regression coefficient, using scrotal circumference vs body weight, was 0.278 cm/lb which indicates for each pound increase in body weight scrotal circumference increased by 0.278 cm. Results from the second measurement period indicated a mean scrotal circumference of 26.26 ± 3.14 cm and a mean weight of 107.8 ± 11.82 , showing a 1.31 cm gain of testicular size and a gain of 13.58 pounds of body weight from the initial measurement. The regression coefficient of the second trial indicated 0.155 cm/lb correlation of scrotal circumference to body weight therefore for every pound of body weight gained scrotal circumference increased 0.155 cm. The third measurement period resulted in a mean scrotal circumference of 27.51 ± 2.85 cm, a mean weight of 105.45 ± 11.07 lbs, and a regression coefficient of 0.139 cm/lb. The overall scrotal circumference gain vs total body weight gain indicated a 0.200 cm/lb regression coefficient. Therefore for every pound of body weight gain scrotal circumference increased by 0.200 cm.

In conclusion, correlations were found to be positive, thus indicating that growth and scrotal circumference are related. A slight drop in the correlations for scrotal size and weight gain was observed as the rams aged (dropping from 0.762 to 0.400 with 1.00 being maximum). The three body weight measures were more highly correlated with the first scrotal circumference measurement compared with subsequent measurements (0.762, 0.756, 0.726, with body weight measurement periods 1, 2 and 3, respectively). Therefore, the initial scrotal circumference measurement could be a good indication of growth and semen producing potential. As indicated, the study is currently in progress and more data is yet to be collected. The aid of blood samples

with fertility measurements should be helpful to this project and play a vital role in the outcome of the experiment.

POSTPARTUM REPRODUCTION AFTER REGRESSION OF THE CORPUS LUTEUM OF PREGNANCY AND (OR) PREPARTUM TREATMENT WITH GnRH

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(Key Words: Sheep, Reproduction, Postpartum, Prostaglandin, Anestrus)

Thirty-two Debouillet ewes will be used to study effects of regressing the corpus luteum (CL) of pregnancy and (or) prepartum GnRH on postpartum cyclicity. Ewes will be maintained under dry lot conditions and fed a pelleted alfalfa diet and corn at levels appropriate for stage of gestation. On day 85 (range 81 to 92 days) of gestation, 16 ewes will receive a saline injection while 16 ewes will have the CL of pregnancy regressed by 0.14 mg prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$)/kg body weight. In addition, one-half the ewes will be treated with 50 μ g GnRH 15, 11, and 7 days before lambing and remaining ewes will serve as controls. Ewes will thus be arranged into four treatments (8 ewes/treatment): no $PGF_{2\alpha}$, no GnRH; $PGF_{2\alpha}$; GnRH; $PGF_{2\alpha}$ plus GnRH. Blood samples will be collected weekly during gestation and on alternate days until 30 days after lambing. Progesterone will be quantified in these samples. In addition, blood samples will be collected before and at 15-min intervals after each prepartum GnRH injection. Similar samples will be collected intensively 5 and 15 days after lambing. Luteinizing hormone will be measured in all intensive samples. Results from this study should assist in determining if the anestrous, lactating ewe can be induced to cycle shortly after lambing.

ENDOCRINE AND OVARIAN CHARACTERISTICS OF EWES RECEIVING GLUCOSE BEFORE BREEDING

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(Key Words: Sheep, Reproduction, Glucose)

Effects of exogenous glucose before breeding on endocrine patterns, ovarian characteristics and reproductive performance were examined in 45 mature Debouillet ewes. Ewes received daily injections (i.p.) of either 0 (100 ml saline), 100 or 200 ml of a 50% dextrose solution. Treatments were administered from day 5 through day 16 of a fall estrous cycle. Five ewes from each group were studied intensively. Daily blood samples were collected during the treatment period to determine serum glucose, insulin and progesterone. On days 10 and 14, blood samples were obtained at 15 minute intervals for 6 hours to determine serum glucose, insulin, luteinizing hormone (LH), and growth hormone (GH). These 15 ewes were