GOAT SYMPOSIUM
South African Goats: Performance Outside Their Native Environment

11 Reproduction performance of Boer-cross and Spanish goats. D. F. Waldron*, T. D. Willingham, and P. V. Thompson, *Texas Agric. Exp. Station, San Angelo.*

Data from Boer × Spanish (Bx) and Spanish (S) goats were analyzed to estimate the effects of breed-of-sire, parity, and body weight on fertility, ovulation rate, and litter size. Records from two production years were used. In 1995, first-parity does (N=128) were exposed in June and July at 15 mo of age. The kidding records were analyzed with a mixed model with breed (Bx or S)as a fixed effect, sire of doe (within breed) as a random effect and body weight as a covariate. The does were daughters of six Boer sires and six Spanish sires. Yearling Bx does had greater fertility, (58% vs 41%, $P < .1$) than S does when exposed in June and July at 15 mo of age. Yearling Bx does were heavier, (35.8 vs 33.3 kg, $P < .1$) than S does, but the regression of fertility on body weight was not significantly different from zero. There was not a significant difference between Bx and S does for litter size when kidding at 20 mo of age. The regression of litter size on body weight at breeding was $.04 \pm .01$ ($P < .01$) kids/kg. In 1996, first- and second-parity does (N=260) were exposed in October. Ovulation records were observed by laparoscopy and analyzed with a mixed model with age of doe and breed of sire as fixed effects, sire (within breed) as a random effect and body weight as a covariate. The yearling (n=107) and 2-yr-old (n=153) does were daughters of 16 Boer sires and 8 Spanish sires. Two-yr-old does had higher ovulation rates than yearlings (1.97 vs. 1.74, $P < .01$). There was not a significant difference in ovulation rate between Bx and S does. Bx does had greater body weight (36.0 vs 33.6 kg) than S at the beginning of the breeding season. The regression of ovulation rate on body weight at breeding was $.03 \pm .01$ ova/kg ($P < .01$). Bx does were heavier than S does, more fertile in the early breeding season and similar for ovulation rate and litter size.

Key Words: Goat, Reproduction, Ovulation rate

12 Potential to improve goat production in New Zealand through the introduction of Boer genetics. S-A. N. Newman and D. J. Paterson, *AgResearch, Flock House Agricultural Centre, Bulls, New Zealand.*

There is currently renewed interest in the role of goats in sustainable farming systems in New Zealand and Australia. Traditionally the goat industry has been driven by the fibre market but meat is of increasing importance, and goats are also used for pasture development and improvement. However the goat meat industry is limited by the inability to obtain sufficient quality product on a regular basis as most goats are of the smaller fibre breeds slaughtered as surplus males or aged females. The introduction of the Boer goat from South Africa offered the opportunity to improve growth and carcass traits through crossbreeding and to develop a dual-purpose dam breed using the Boer as part of a composite dam breed. Trials underway at Flock House Agricultural Centre in New Zealand since 1993 have examined live weight and growth rates, meat and fibre production of Boer and Boer × cashmere (crossbreds) compared to New Zealand cashmere goats. Boer goats were 1.3 kg heavier at birth and grew 1.5 to 2 times faster than cashmeres, reaching 31 kg at 12 months and 48 kg by 18 months of age, almost double the weight of the cashmeres. Live weight and growth rates of the crossbreds were intermediate, although many New Zealand farmers report crossbred growth rates are as high as for Boers. Boers reached the optimum carcass weight range, 9 -18 kg carcass weight, by 6 months of age, crossbreds by 12 months, while cashmeres did not achieve this weight until 18 months of age. Boer hoggets had similar fleece weights to cashmere and crossbred hoggets but lower yields resulting in lower down weights and fibre returns. Down and guard hair growth patterns showed differences in the magnitude of fibre growth but little difference in duration between genotypes. Fibre production from the top 25% of Boers was equivalent to that from the cashmeres, indicating potential to improve fibre production. Studies continue to investigate production efficiency, nutritional requirements, disease control and management factors required to exploit the potential of the Boer goat.

Key Words: Goats, Boer, Growth

13 Mohair production and marketing: past, present and future. B. J. May, *Angelo State University, San Angelo, Texas.*

The mohair industry started over 2000 years ago in the Asia minor region known today as the country of Turkey. Mohair comes from the Angora goat which derives its name from the city of Ankara,Turkey where the breed evolved. In the early and mid-1800's, Turkey exported Angora goats to South Africa and the United States. These were not the only countries receiving goats from Turkey but they along with Argentina were the only countries to establish a credible industry. In the early and mid-1980's, exports of Angora goats from both South Africa and the United States were made to Australia and New Zealand. From 1849 until 1965 the population of Angora goats in the U. S., primarily in the state of Texas, grew to over 4 million with a production of 14.3 million kg of mohair. From 1965 to the present, there have been fluctuations in U. S. production resulting in a net decrease to an estimated 4.5 million kg of mohair while world production has declined to 10.4 million kg. In the U. S., Turkey, and Argentina, goats are sorted by age, sheared, and the mohair is packaged in jute bags and then delivered to a regional warehouse. The mohair is sold to buyers on an "as is" basis better known as "original bag" or sorted by grade and sold as matchings. For the past twenty years, South Africa has sorted and classed it's mohair prior to sale on the auction system. The primary use of mohair throughout history has been textiles. Prior to the 1960's, the most common fabric use was for upholstery . With the advancement of spinning mohair in the brushed form, the market opened up for new products such as the classic mohair sweater. Today, mohair is used in a vast array of products such as sweaters, suiting, hand knitting yarns, upholstery, carpets and various industrial uses. Since the phase out of the government incentive program which supported the U. S. mohair price, and the declining demand for mohair, producers worldwide are looking for new avenues to market their mohair. These avenues could include grower-owned, value-added processing and product development.

Key Words: Mohair, Angora Goats, International

14 Mohair production and quality of South African, South African × Texan, and Texan Angora goats in a western Texas environment. C. J. Lupton and F. A. Pfeiffer, *Texas Agricultural Experiment Station, San Angelo.*

Highly selected South African (SA) Angora goats were imported into the United States to determine performance of their offspring under Texas (TX) conditions. Selection emphasis for the SA animals had been placed on mohair production, medullated fiber content, and staple length. Three SA bucks were bred to highly selected does of SA and TX origins to produce SA (28) and SA × TX (18) male and female kids. The kids were raised as a group with 6 highly selected contemporary TX male kids on a quarantine ranch facility at Kerrville, TX. Kids were shorn at 6-mo intervals and the mohair fleeces were weighed and evaluated for grease fleece production, percentage yield, average fiber diameter, staple growth rate, and medullated fiber content. For the third set of fleeces shorn (from 18-mo-old animals), mohair production by SA and TX males was not different (26.5 and 26.2 g/d, respectively, $P > .05$). However, for males, SA mohair was higher yielding (80.4 vs 73.2 %), coarser (41.5 vs 31.1 μm), faster growing (.88 vs .82 mm/d), and less medullated (.18 vs .96 %) than TX mohair ($P < .05$ for all reported differences). Clean mohair production of SA × TX males was higher than for SA and TX males (23.4, 19.0, and 19.2 g/d, respectively). All other properties were intermediate between SA and TX males. Mohair production by SA and SA × TX females was not different (23.2 and 24.4 g/d, respectively, $P > .05$). However, for females, SA mohair was higher yielding (81.8 vs 78.9 %), coarser (39.6 vs 36.4 μm), less medullated (.49 vs .99 %), and of similar staple length (16.4 and 15.9 cm/6 mo) compared to that of SA × TX mohair. Results of this preliminary evaluation on a very small number of highly selected goats indicate that SA genetics might be useful for improving the following traits in TX Angora goats: percentage yield, staple length, and medullation. However, these improvements would probably be accompanied by an undesirable increase in average fiber diameter and little or no overall increase in mohair production.

Key Words: Mohair, Angora goat

566 Boer goats-introduction and impact in North America. R. V. Machen, *Texas Agricultural Extension Service, Uvalde.*

The Boer goat was developed in South Africa from goats indigenous to that country. A formal registry and breeder's association was established in South Africa in July 1959, complete with breed standards as guidelines for selection and breeding. Strict adherence to these standards has resulted in a prolific, heavily muscled goat that is well adapted to semi-arid range environments. Animal health regulations and US-South Africa trade status precluded the importation of goats directly from South Africa. Boer embryos, taken from South Africa, were implanted in recipient does and the resulting offspring were quarantined in both Australia and New Zealand. Upon completion of the quarantine protocol, goats were first offered for sale in New Zealand in January 1993 and the first Boer goats arrived in the US in April 1993. The short-term impact of the Boer goat on the domestic meat goat industry is profound; one international and two national goat organizations have been established, numerous goat industry related periodicals have emerged and literally millions of dollars have circulated through the industry since 1993. The longer-term impact has yet to be determined. Preliminary research indicates Boer-sired offspring have a faster growth rate and more desirable carcass characteristics at a given age. Production efficiency and adaptability of the purebred Boer female have yet to be determined.

Key Words: Goats, Boer, Meat