New Selection Tool to be Available to Katahdin Breeders This Year

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Ram scrotal circumference has long been part of a good selection program for identifying rams to use. In 2012, Katahdin breeders will soon have a new tool to be able to accurately compare scrotal circumference between flocks, even though feeding and management have large environmental effects that do not relate to genetics of scrotal circumference.

Using scrotal circumference as part of evaluating and selecting breeding rams is highly recommended. The table below provides ranges as recommended by the SID Sheep Production Handbook (Volume 7, 2002; available from American Sheep Industry). Research suggests that a scrotal circumference below the satisfactory level results in a ram much less likely to have adequate semen. Research by sheep scientists does not support maximizing scrotal circumference, because relationship with breeding capacity is not linear (bigger is not necessarily better). Having a ram with satisfactory circumference is good for most systems.

	Recommendations for Scrotal Circumference Range		
Ram Age	Questionable	Satisfactory	Exceptional
8-14 months	<30cm	30-36 cm	>36cm
> 14 months	<32cm	32-40 cm	>40cm

Research on many breeds finds that rams with above average scrotal circumference at early ages have daughters that mature earlier. This result is best used for those flocks needing ewe lambs that will lamb at close to 12 months of age. Rams with larger scrotal circumference measures are also expected to have daughters that have slightly more lambs born and weaned at older ages and over the course of their productive lives. Both of these are correlated with higher life-time ewe productivity.

The "new tool" aspect of scrotal circumference is based on research done by Virginia Tech scientists, Dr Dave Notter, Dr Scott Greiner and Lee Wright. They took a group of Katahdin ram lambs at weaning and followed scrotal development to 300 days of age, weighing and doing scrotal circumferences every few weeks. This research provides adjustment factors that will adjust weight and age of ram lamb to scrotal circumference. This data will allow the researchers to take a scrotal circumference and weight at 90 days of age and adjust to a circumference at 210 to 240 days of age, when a ram could be used for breeding. It allows comparison of rams at different weights and ages.

The real power of these scrotal circumference adjustment factors comes with their use in the National Sheep Improvement Program (NSIP). Later this year, there will be an EBV (estimated breeding value) for scrotal circumference for Katahdin rams in NSIP. This EBV for scrotal circumference can be compared between flocks and management systems. Quantity and quality of feed affect scrotal circumference in young ram lambs. Buyers are not able to directly compare scrotal circumference of two ram lambs from different flocks or different lambing seasons, but they will be able to directly compare scrotal circumference EBVs from rams in NSIP.

Even more important for producers is that the scrotal circumference EBV can be used to enhance genetic selection for ewe lambs likely to successfully breed at 7-9 months of age. Rams with genetically large scrotal circumference are associated with earlier maturity. The scrotal circumference EBVs also improve the accuracy of predicting numbers of lambs born and weaned. While the new scrotal circumference EBV should help producers improve the percentage of ewe lambs that can successfully breed at 7-9 months of age, not all flocks are advised to implement ewe lamb breeding. The decision to expose ewe lambs should be based on management decisions that their diet will have enough nutrients for continued growth as well as gestation. This is different from mature ewes, since they can be on maintenance ration for the first half to two-thirds of gestation.