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Weaning Age Scrotal Circumference in Bulls

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"The race isn't always to the swift, nor the battle to the strong, but that's the way to bet." - Damon Runyon

"Bulls with large testicles at weaning won't always have the largest testicles as yearlings, but that's the way to bet." - John Spitzer

My apologies to Damon Runyon. His quote is one of my favorites and I have certainly butchered it by creating the parallel above. Hopefully, my attempt at humor will help make a point.

At least once a year since 1988, I have written something for the *Carolina Cattle Connection* concerning scrotal circumference in bulls and how this relates positively to (1) fertility of the bull, (2) fertility of his sons, (3) age at puberty of his daughters, and ultimately, (4) fertility of the cow herd. Most everyone is now convinced that scrotal circumference is the one trait we can easily select for to improve cattle fertility. So much so that yearling bulls with a scrotal circumference of less than 30 cm at 12 months-of-age will not pass a Breeding Soundness Evaluation as outlined by the Society for Theriogenology. Additionally, many university and private test stations have rules stating bulls must have a 31 or 32 cm minimum scrotal circumference to qualify for sale.

With these thoughts in mind, one of my graduate students, Scott Pratt, analyzed data on 329 bulls which went through the Clemson University Bull Test, Clemson SC, between 1981 and 1986. We looked at scrotal circumference growth over the 140-day performance test by breed (or breed groups where we had small numbers per breed). We found this growth to be linear over that time period. Scrotal circumference growth averaged .06 cm per day for Angus, .05 cm per day for Polled Hereford, .06 cm per day for Simmental, .05 cm per day for other Continental breeds (Charolais, Limousin and Normande) and .07 cm per day for Zebu breeds (Beefmaster, Brangus, Santa Gertrudis and Simbrah).

You can use these as averages for scrotal circumference growth for your breed and assume scrotal circumference will increase by approximately that amount per day from a weaning to a yearling. For example, an Angus bull 225 days old at weaning should have an increase in scrotal circumference of 8.4 cm ($.06 \times 140$ days) by the time he is 365 days old.

While these scrotal circumference growth figures were generated from a small data set, they do represent "your bulls", or at least the bulls you have sent to the Clemson University Test Station. Recognize that these are averages; some bulls will grow slightly faster and some slower than expected. Also please recognize that data from other stations may not be the same. In one study at Colorado, scrotal circumference growth averaged only .04 cm per day over all breeds.

What does this mean to you? Look again at our example with the Angus bull. If the 225-day old Angus bull has a weaning scrotal circumference of less than 22 cm, he will not likely reach 30 cm by the time he is a yearling, and therefore, will not pass a Breeding Soundness Evaluation. If, as at the Clemson Test Station in 1992, he must have a yearling scrotal circumference of 32 cm to qualify for sale, he had better have a weaning scrotal circumference of 24 cm or more. You can make calculations for other breeds yourself.

Unfortunately, this is an oversimplification. We really need to be looking at adjusted yearling scrotal circumference as a qualifier for sale. We are frantically looking at different ways to do this and hope to have a proposal in place in the next year. This trait is too important to ignore. Scrotal circumference growth per day isn't the whole answer, but currently it looks like it will be the way to get an estimate of adjusted 365-day scrotal circumference. At least it's a start.

% Probability of Bulls Reaching 32 cm. Yearling Scrotal Circumference Based on Weaning Scrotal Circumference by Breed

Weaning SC	Angus	Polled Hereford	Simmental	Other Continental Breeds	Zebu Breeds
21 cm	0	0	0	0	0
22 cm	0	0	0	0	40
23 cm	0	0	0	0	100
24 cm	100	0	90	0	---
25 cm	---	0	100	0	---
26 cm	---	0	---	90	---
27 cm	---	50	---	100	---
28 cm	---	100	---	---	---

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