



SCROTAL CIRCUMFERENCES IN WAGYU BULLS: A SURVEY

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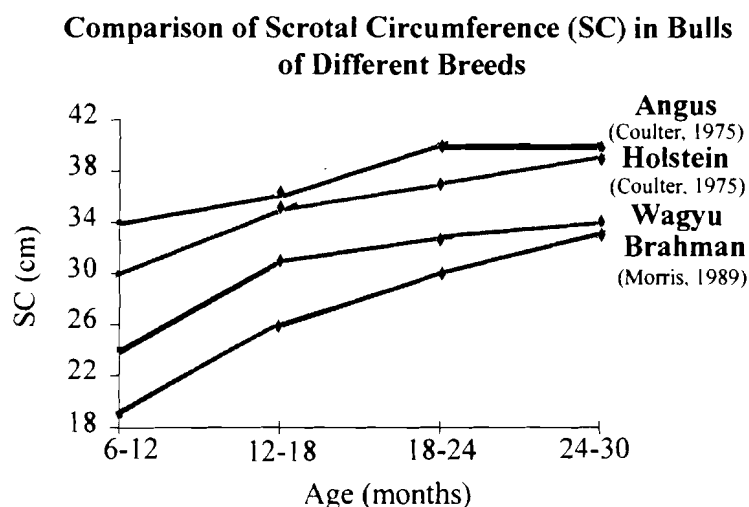
Although Wagyu are primarily exported to Japan, these cattle have a lot to offer the U.S. beef industry. Wagyu are known for their high quality beef which is attributed to their marbling ability. Cattle producers in the United States have been attracted to this trait throughout this decade. In addition, Wagyu bulls are beneficial for breeding heifers due to the low birth weights associated with this breed. In order to utilize these positive attributes most efficiently, it is important to study the characteristics that make this breed different reproductively from European breeds (*Bos taurus*). Wagyu producers report that both bulls and heifers reach puberty at an early age and that bulls are fertile. Questions arise, however, when Wagyu bulls do not pass breeding soundness exams due to small scrotal size.

Breeding soundness exams were developed by the Society of Theriogenology to predict fertility in bulls and are conducted regularly by licensed veterinarians. These exams evaluate various characteristics of the bulls; of those, the most important are scrotal size and semen quality. The Society incorporated standards for minimal measurements of scrotal size at different ages based on scientific research done on European cattle. This research found that scrotal size is positively related to the age at puberty of daughters and the fertility (semen quality) of the bulls themselves. Since it has been reported that Wagyu bulls are fertile and reach puberty at young ages, the question arises as to whether or not the breeding soundness exams accurately evaluate Wagyu due to breed differences.

The manual on breeding soundness exams from the Society states that these standards are applicable to European breeds of cattle and do not necessarily apply to other breeds such as Zebu cattle which tend to have smaller scrotal size. Figure 1 shows data from Wagyu, Holstein, Angus and Brahman cattle. This graph demonstrates that Brahman do not coincide with the standards followed in a breeding soundness exam up to 2 years of age and they are considerably smaller

than Wagyu. It is known that this is due to Brahman maturing later. These bulls are evaluated accordingly. In addition, the manual states that body weight has a greater correlation to scrotal size than does age. Wagyu are small framed cattle with the bulls weighing an average of 720 lbs as yearlings compared to 1100 lbs for yearling Angus bulls (1995 national average). Wagyu appear to be another exception to the rule.

Figure 1



Due to contrasts in the findings of previous research on European cattle in comparison with reproductive characteristics observed in Wagyu, Washington State University has been studying the reproductive traits of this breed. Scrotal circumferences were measured on 200 purebred and fullblood Wagyu bulls 6 months to 4 years of age over a 3-year period. The data collected show that approximately 50% of these bulls are not meeting the required minimum measurements determined by the Society of Theriogenology for the breeding soundness exams on average in all age groups (Table 1). However, their semen is of good to excellent quality.

Table 1

Minimal Scrotal Circumferences (SC) established by the Society of Theriogenology and Scrotal Circumferences Measured on Wagyu Bulls

Age (months)	Minimal SC (cm)	Wagyu SC (cm)
12-14	30	30
15-17	31	32
18-20	32	33
21-24	33	33
>24	34	35

This study has evaluated approximately 25% of all Wagyu bulls in the U.S. at this time and half of these will not pass the minimal scrotal requirements in spite of their semen quality. After this assessment of scrotal size, our next step in researching this breed is to determine age at puberty of heifers and to assess conception rates of bulls with high and low scrotal circumference.

The Wagyu breed appears to be very fertile, both males and females, despite the smaller scrotal size. They have good to excellent semen quality and reach puberty at an early age. With the marbling ability and calving ease, Wagyu can be very beneficial to U.S. producers. Information from these studies will help producers working with Wagyu to make good management decisions.

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