

Genetic Value of Boars

By Chad Bierman, PhD.

Using boars of high genetic value is a key ingredient to profitability in a commercial pork production system. Not all boars within a boar stud possess the same genetic value. A key factor affecting genetic value is the population from which the boars were selected. Some populations, breeds or genetic lines are superior over others for certain traits, and will show profound performance differences in their offspring. Another factor includes the selection rate that occurs during the process of raising boars for semen production. Selection rate is defined here as the percentage of boars from a population that produce a saleable product (semen).

Selection rate is determined by the minimum number of boars needed to meet semen production demand; calculated by dividing the number of boars producing saleable semen by the number of boars raised in the pool they were selected from. Ultimately lower values of selection rates offer a more desirable outcome for producers. Therefore, a selection rate of 10% indicates the best-performing 10% of boars were able to deliver semen to farms, which is more desirable than a selection rate of 20%.

So what does this mean for the commercial pork production system? Average genetic economic merit is affected by the population size from which the boars came from. For example, a selection rate of 20% from a population of 1,000 animals will supply the same number of boars as a selection rate of 10% from a population of 2,000 animals. Using Babcock terminal sire index data with an average index equaling 100 and a standard deviation of 25, this difference results in selecting animals with indexes ≥ 121 (top 20%), or indexes ≥ 132 (top 10%). Assuming average genetic merit to be equal between the two populations, the population able to supply boars from the top 10% has a \$1.16 advantage in average genetic economic merit per boar over the other.

New technology has added to the effort to decrease selection rate, i.e. place a higher genetic value boar into the stud. Post-cervical artificial insemination (PCAI) coupled with a lower volume dose (half the volume compared to a conventional dose) enables Babcock Genetics Inc. to deliver semen having higher genetic merit to our customers. Babcock boar studs have the ability to package and distribute low-volume doses. The economic benefits are huge when considering the performance improvement in offspring sired from these higher genetic merit boars. A 2400-sow farrow-to-finish farm marketing 27 pigs per sow per year is realizing an additional \$37,584 in improved production from using higher genetic merit terminal sires. By ordering semen from Babcock Genetics, you will be taking advantage of the technology invested in genetic improvement with every dose, and further maximizing profitability through the use of elite sires from the genetic pool.