

A guide to purchasing boars

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What to look for when buying boars for the stud farm to reduce the cost of production of a dose of semen.

More Images High quality boars are an investment, not an expense!

When we look at the components of the costs of a dose of semen, the genetic cost includes the depreciation of the boar and any eventual royalty costs. These items are one of the major costs for the production of a dose of semen and can amount to 30 to 40 percent of the total costs. Knowing how to buy the correct boar at the right price will help stud farms remain profitable.



Recent new technologies including post cervical insemination and synchronized fixed time single insemination mean that in the future there will be a need for fewer boars of an even higher genetic merit. Inevitably these boars will have an even higher cost and knowing how to select the best boars will become even more important. Below is a brief list of points to consider:

Health status

The starting point in any buying procedure must be the absolute guarantee of the health status of the supply farm. There must be a close collaboration between the customer's veterinarian and the supply farm's veterinarian.

The customer will need to know and verify with documental evidence the following data from the source farm: Current health status, biosecurity measures operated, vaccination programs, frequency of veterinary visits and access to post visit reports, diagnostic testing (frequency and methodology), and the biosecurity aspects of the delivery vehicle.

Genetic value

The longer the boar remains in use, the higher the total production of semen doses and the lower the boar cost per dose. However, as the boar ages, the value to the end users falls in relation to the value of the boar's potential replacement, in terms of genetic merit. Determining the right time to cull is a very fine decision. Recently, a major international breeding company has developed specific software to calculate the right moment to cull an ageing boar.

Understanding boar genetics

Boar stud farms may be dedicated to a single-genetic source or more frequently operate on a "multi genetic" basis. In either case, it is important that a buying decision must be based on understanding the genetic program of the boar supplier.

Boars may be sourced from large international breeding companies, reputable national companies, or good individual pedigree breeders. Each of these sources will have different breeding objectives, methods of calculation, and numbers of animals tested.

The breeding objective in a genetic index must match the needs of the local market where the boar will operate. Quite often "centralized" breeding objectives need to be adjusted to meet local requirements.

Over the last 30 years, tremendous pig genetic progress has been made in traits, such as the reduction of back fat and the increase in litter size. However, how much further do we intend to proceed with these two traits before they will have a negative effect on meat quality and the problem of too many underweight pigs at birth?

Environmental factors

The birth weight of a boar has been shown to have a significant effect on the testicular weight and number of Sertoli cells in a study comparing low (1.17 kg) and high (2.02kg) birth weights. Along similar lines, birth weight also has been studied in relationship to adult reproductive performance. Strong positive correlations were found in higher birth-weight boars for training ability, sperm concentration and total sperm per ejaculate.

The effect of the litter size in which a boar is raised and consequential weaning weight also plays an important role in his future reproductive career. Boars raised in smaller litters were shown to have larger testicles than those reared in larger litters, probably due to the extra nutrition received in the active period of Sertoli cell mitosis. There also is a high correlation ($r=0.79$) between weaning weight and adult sperm production. The small-litter boars were much quicker to train for semen collection. The same study also highlighted that spring born boars have larger testes than autumn born boars.

A study of 47 prepubertal boars in tropical conditions, with testicle measurements taken during the growing phase, suggested that the largest testicles were found on boars which obtained maturity during the winter months.



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Physical isolation during the rearing period, as was once the case in central testing stations has been shown to have a negative effect on adult reproductive performance. This phenomenon has been largely overcome in group testing conditions with electronic feeding stations.

Leg conformation

When buying boars, insist on minimum leg and feet conformation standards for the terminal sire boars, and even higher standards for the GP boars.

The old English equine expression, "no foot, no horse," could quite equally be applied to boars standing at artificial insemination stud farms! In a study of 44 North American stud farms, 81 percent of the farms rated "feet and legs" as a primary reason for culling.

Terminal boars in traditional artificial insemination systems will potentially sire some 15,000 slaughter pigs. Recently, it was reported that in the United States, lameness is a cause of more than 9 percent of mortality in the finishing barns, with prevalence of up to 34 percent. The problem becomes worse, if we consider the effect of a GP boar that will sire some 3,000 breeding gilts, which will in turn produce approximately 150,000 slaughter pigs.

Fortunately, there is reasonably a good heritability in many foot and leg conformation traits. In just five generations of selection for improved front leg structure, significant improvements have been demonstrated. Therefore, it is imperative, that when buying boars, insist on minimum leg and feet conformation standards for the terminal sire boars, and even higher standards for the GP boars.

Testicles conformation

The next important point, which up to now has been largely overlooked by boar buyers, is the conformation of the testes. When assessing the conformation and dimensions of the testes, consider if the boar is a crossbred or a purebred. Crossbred boars tend to have larger testes at a given weight, and the larger the testes, the higher the sperm count. Unfortunately, long-term selection for lean growth rate over the years has had a negative effect on testicular growth rate and increased age at puberty.

A recent field trial involving 44 same genetic line boars involved the assessment of the testicles of young boars on arrival in the quarantine. A scale of 1 to 5 was used, with score 1 being small and score 5 very large. The subsequent productive career of the boars was monitored in terms of volume per ejaculate, concentration, total sperm numbers and forward motility. Data showed a strong positive trend of volume and total sperm numbers with increasing testicular size.

Novel methods of influencing the size of the mature testes have been studied by reducing estrogen synthesis in developing boars. The use of an aromatase enzyme inhibitor, given orally from 1 week of age generated larger testes and more Sertoli cells by seven months of age.

Reducing the endogenous estrogen delays puberty and allows a longer window for the proliferation of Sertoli cells. This technique was further refined with a reduced period of treatment (up to 12 weeks of age). By 10 months of age, treated boars had 25 percent larger testes. The straight line velocity (VSL) of spermatozoa measured with a CASA system in treated boars also significantly improved.

Written guarantee

Before the purchase of a boar, the basic principles must be agreed in writing with the genetic supplier. Apart from price and payment terms, find out:

What is the minimum genetic value to be accepted?

What are the minimum conformation standards to be accepted?

Have the boars been jump tested before delivery and any eventual semen analysis? The boars must carry a minimum guarantee on the ability to breed. That is, the ability to successfully mount the dummy sow, and produce viable semen within a specified time frame.

Fewer boars for breeding

New technologies will lead to fewer boars, which will inevitable cost more. The boar cost component of the semen dose cost will increase. As the boar stud farms increase their purchase budget, they must be far more demanding in their requirements for quality boars to avoid premature attrition. Few genetic suppliers have applied breeding pressure to traits such as feet conformation and testicle size. Genetic suppliers must be prepared to satisfy the requirements of a shrinking, but more highly refined pig market.

<http://www.wattagnet.com/159438.html>