Learn to select the best replacement pigs for your sow herd within a given swine genetic population.

The ability to accurately select replacement gilts improves sow lifetime productivity and profitability for swine operations. For many farms, a sow must achieve three parities to cover her development and maintenance costs before turning a profit. When replacement rates increase due to nonproductive gilts, production and labor costs rise quickly. The goal is always to maximize profits, decrease labor, efficiently utilize facilities, and maintain the gilts reproductive and overall health.

Research on gilt selection is abundant and can be overwhelming to get started. This article highlights critical tools for selecting replacement gilts. First, we will review selection criteria for feet and leg soundness, body condition scoring, underline development, and age at first puberty. We will end this article by featuring new research on the relation between prepubertal vulva size and its impacts on reproductive performance.

Currently Used Visual Appraisal Methods

Feet and Leg Soundness
Following reproductive failure, structural soundness exams are the second highest reason as to why sows will be culled from the breeding herd. Ensuring proper limb development allows for sows to maintain proper condition during pregnancy, prevent lameness and to support the weight of the boar during mating if artificial insemination is not being used. Lameness is a major concern and can have downstream effects on the health of the gilt and her litter. It can lead to the gilt not willing to stand for a long enough time to consume an adequate diet to support her pregnancy and lactation. As a result, the gilt can reach a poor nutritional state which has a direct impact on reproductive health as well. Feet and leg soundness exams are paramount to gilt selection, learn more on this process through an instructional evaluation video produced by North Carolina State.

Body Condition Scoring
Ensuring proper body condition is important for estimating feed requirement and maintaining the adequate fat stores to sustain pregnancy and lactation. The target weight at which a gilt should be bred is around 300 to 330 pounds. Weight should be used as a guide rather than an exact mean to cull or not. The most important aspect to keep in mind when scoring body weight is to avoid extremes. While incorporating genetic differences, typically it has been found that gilts weighing less than 300 pounds have fewer total pigs born over three parities. Gilts with a lower body condition score can easily fall into a poor reproductive state. The same can be stated for the other extreme, which would be gilts that are considered overly fat, who tend to have difficulty farrowing and less total born piglets.

Although a gilt should maintain a certain level of backfat, measuring backfat with specific ranges does not provide a meaningful representation of longevity and lifetime performance. Visual assessment of body condition is sufficient for replacement criteria. Body condition scoring evaluations look as several places on the gilt, follow this instructional video from Penn State Extension to body condition score your gilts and sows.
Only using replacement gilts that have six or more functional teats on each side with the correct size, shape and location allow for the success of the growing piglets. The piglets should have easy access to the teats which requires adequate spacing. Teats that are nonfunctional, have poor spacing and are few in number should avoided when selecting replacement gilts. The Replacement Gilt Evaluation Pocket Guide, produced by the Pork Checkoff, can assist you in identifying desirable underline characteristics.

Gilt Fertility

Gilt reproductive performance and most importantly, longevity, are dependent on the physiological development of the gilt. The younger age at which she reaches puberty, the more likely she is produce large litters over a lifetime and return to estrus in a shorter number of days after weaning. Ideally, gilts reach puberty around 200 days. If it takes a gilt longer to reach her first estrus, she may develop issues with attainment of puberty and have a decreased overall reproductive performance. Issues could include an overall lower than average body weight and growth over lifetime. Avoiding these conditions minimizes replacement gilt costs and increases total profitability.

A gilt should only be bred at the second or third standing estrus; this includes having at least one receptive behavior and a recorded standing heat over a two-day period prior to breeding. Only if these criteria are met should she be moved to breeding herd. This ensures that the gilt is reproducitively mature and that insemination or breeding will be successful.

Prepubertal Vulva Size and Reproductive Performance

Selecting gilts that will become the most reproductively successful for your farm is a difficult task that encompasses environmental factors, genetics, and many different preferred traits. Studies completed at Iowa State University by Matt Romoser, have found that gilts with a larger vulva size at 15 weeks is an indicator of early reproductive tract development that results in greater piglets born through two parities. Prior to these findings the most reliable information was the age at which a gilt would reach her first puberty. Although this information is still highly valuable, understanding if a gilt will be reproductively sound or not. When classifying gilts, being able to identify the bottom 10% of vulva size is the most important. This allows for the unknown genetic variability from herd to herd to be accounted for. These below average gilts then should be directed toward meat production markets, rather than join a reproductive herd. The other 90% of the herd will most likely be more reproductively successful. Questionable gilts with an average vulva size should not be an immediate cull if they are structurally sound. At this 15-week mark, prepubertal vulva size and structural soundness can be determined. This makes it a great time to make a preliminary cut or not based off of more than one trait.

When selecting replacement gilts, it can become an overwhelming process that involves many different traits. It can determine whether your farm sees a higher profit or suffers from economic loss. These findings allow producers to make these difficult decisions sooner and if they are consistent with methods of selection, we will be able to set up our sow farms for a healthier and more successful future.

References


Statement of Authorship: Jessica Cover is the primary author on this article, with support from Matt Romoser and Elizabeth Hines.

Authors

Elizabeth Hines
Swine Extension Specialist
eah405@psu.edu
814-865-3267

Matt Romoser
Swine Specialist
Iowa State University
mromoser@iastate.edu

Jessica Cover
Undergraduate Student
Penn State University
jxc6154@psu.edu

extension.psu.edu

Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

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Code: ART-7592