

Gilt Development: Impact of Boar Exposure

Modern genotypes of sows must be fed and managed differently compared to older style genotypes so that their inherent genetic potential for reproductive traits can be expressed. Clearly, today's female lines are quite different in body protein deposition rate, and muscle and protein mass at maturity. Concurrently, lines differ in fat deposition rates during growth and development and at maturity. The rate of sexual development has also changed among maternal lines. Gilts and sows today are placed in much more intensive production systems (i.e., lactation length, litters/sow/yr) with greater expectations (Table 1).

Table 1. Expectations for Sow Productivity Levels

Item	Past	Present
Pigs weaned, no./litter	8	10
21-d weaning wt, lb/pig	11	14
21-d weaning wt, lb/litter	≤110	≥140
14-d weaning wt, lb/litter	NA	≥110
Avg. milk yield, lb/sow/d	15	20
Litters/sow/yr	1.7	≥2.2
Pigs weaned/sow/yr	14	≥22

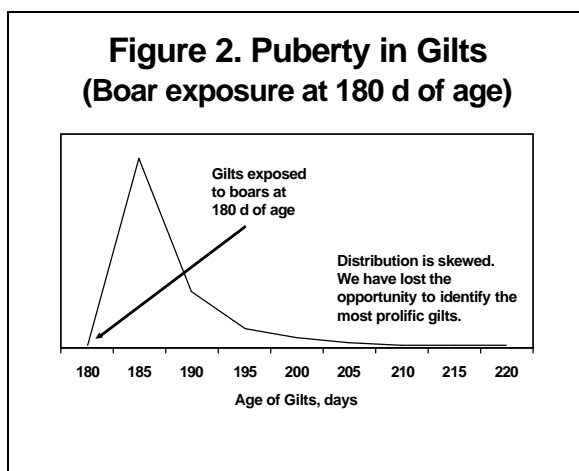
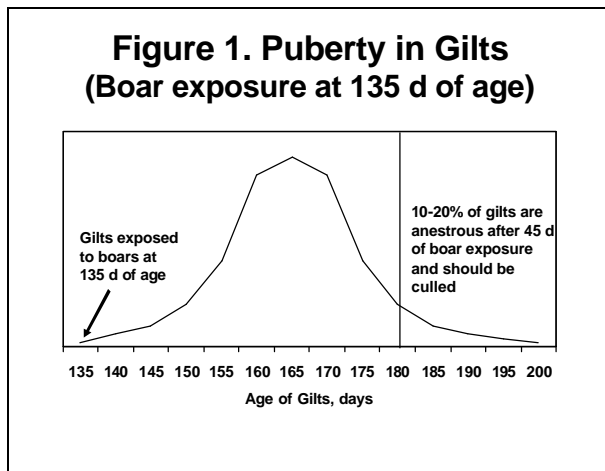
Many breeding stock companies offer specialized female lines that excel in genetic merit for reproductive traits. Thus, producers need to focus on those things under their control that affect gilt development and subsequent reproductive performance. Those factors include proper nutrition and feed management, facilities that are not crowded with good quality flooring to reduce injuries to feet and legs, and selection of animals that are structurally sound with good underlines. Many of these factors are addressed in detail in the Akey Swine Newsletter published in July 2002.

All things being equal, **one of the most accurate predictors of lifetime sow productivity and weaned pig output is age of gilts at puberty.** The younger the age a gilt reaches puberty, the better the likelihood she will be prolific and stay in the herd for an extended period of time, especially compared to gilts that reach puberty at a later age. Older gilts at puberty typically have lower lifetime productivity levels and poorer maternal traits.

What can be done to encourage early puberty in replacement gilts? **The single most effective tool to accomplish this objective is boar exposure.** To be effective, boar exposure should result in predictable, strong heats in gilts at young ages. Boars must be mature (≥12 months of age) and have excellent libido, including lots of saliva production since this is the source of stimulatory pheromones. Boars must be structurally sound and motivated to stand up to the rigors of heat

detection. During sessions of exposure, boars should be placed in pens of gilts or gilts should be taken to boar pens for best results. Fenceline contact is not adequate. Boar exposure needs to be done daily, including weekends, and gilts need to be exposed to boars for 10 to 15 min per session. Gilts should be individually identified and all estrous cycles recorded. This will help producers plan matings so that breeding targets can be met.

Age of gilts at first boar exposure is extremely critical. Consider the following: Spontaneous puberty in gilts without boar exposure will occur between 160 and 240 days of age. Exposing gilts to boars will induce puberty at younger ages. Akey recommends that gilts start receiving boar exposure at 140 to 150 days of age. This will allow for a normal, bell-shaped distribution of pubertal onset (Figure 1). Gilts that come into first estrus within 45 to 60 d of initiating early boar exposure typically will have the best maternal characteristics. Gilts that fail to cycle during this time frame should be culled, as they have shown themselves to be less than desirable in this important trait. Remember, young age at puberty is highly correlated with maximum lifetime productivity. This is particularly important in herds producing replacement gilts.



What happens if gilts are not exposed to boars until later in life (i.e., 180 to 200 days of age)? This practice, though still quite common in many production systems, does not allow producers to identify gilts with the most reproductive potential (Figure 2).

Although gilts will reach puberty at younger ages using earlier and physical boar exposure, do not breed gilts until they are 210 d of age and 280 lb of body weight. This will ensure gilts have adequate body reserves at first mating to withstand the rigors of subsequent reproductive demands.

Gilts must be selected more carefully and effectively (Akey Swine Newsletter, July 2002). Good feet and leg conformation as well as number and quality of teats all influence longevity and lifetime productivity. Using early boar exposure as well as good nutrition and feed management practices will go a long way toward building a prolific, stable sow herd.