

Strategies to Reduce Annual Replacement Rate of Sows

Annual sow replacement rates in US herds average 50%, with a range of 35 to 70% (PigChamp Summary 2000). Sow replacement rate is a combination of two events: culling and mortality. Culling is based on the relationship between individual sow characteristics, expected subsequent performance, and estimated performance of replacement stock. Sows are culled when they are either unsuitable for production or can be replaced by a more productive gilt.

In some herds, sow mortality is higher than pre-weaning mortality, an unheard of event until 4 to 5 years ago. Epidemiology data collected from 12 production systems representing 3.6 million parity records revealed the following statistics: 1) sow mortality peaked during the summer months, 2) 50% of sow deaths occurred within 3 weeks postfarrow (in summer, this increased to 65%), 3) the older a gilt at first farrowing, the lower the risk of mortality, 4) larger gilt pool size decreased the risk of sow mortality, 5) mortality risk increased when sows were kept in poor body condition, and 6) sows with fewer stillbirths were less likely to die in the subsequent parity.

A major breeding stock company conducted an investigation (December '98 to June '99) into sow mortality, where necropsy data was collected from eight production systems with $\geq 12\%$ sow mortality. Primary causes of death and/or euthanasia were 1) locomotor problems, 2) GI tract problems, including severe ulcers (average incidence, 45%; range, 16-79%), 3) reproductive complications, and 4) low 10th rib backfat depth (36% of sows had <13 mm).

To decrease annual sow replacement rate, mortality and/or culling must be reduced. Management plays an important role in minimizing sow replacement rate, with the following factors identified as having a significant impact:

1. Gilt selection. Lack of good phenotypic selection, especially in terms of leg and toe conformation, leads to females with structural weaknesses increasing the risk of downers. Extremely muscular hams may also be a good indicator of potential farrowing difficulties. Only sound gilts should be bred. Gilts that sit 'splayed' should be culled immediately before they become candidates for euthanasia.
2. Gilt development. Proper development of gilts pre- and post-mating is critical. Gilts bred too young and/or with inadequate body reserves at farrowing will not stand up to the demands of lactation, resulting in premature culling.
3. Gilt isolation and acclimation. Gilts not acclimated to the health status of the breeding herd are more susceptible to disease increasing the risk of death. Gilts should be received on medicated feed as per the recommendations of the herd veterinarian. Also, vaccination, cull animal exposure, and feedback should all be done in accordance with veterinary recommendations.

4. Health. Diagnostics, prevention and treatment of major diseases are critical for maintaining herd health and reducing sow replacement rate. Sows with infections often run fevers that result in reduced appetite increasing the risk of ulcers and mortality. Sick sows should be identified promptly and treated immediately to avoid secondary and potentially fatal complications. A close client-veterinary relationship is often necessary to develop herd specific programs that will help producers achieve their goals.
5. Mycotoxins. Presence of mycotoxins in feed often result in interruptions or reductions in feed consumption increasing the risk of ulcers. Mycotoxins in feed may also reduce the sow's immune function, making her more susceptible to disease.
6. Body condition. Sows maintained at a good constant body condition score (BCS) tend to be more productive and have increased longevity in the breeding herd. In herds where sows gain and lose large amounts of weight over successive parities, replacement rates tend to be higher. If sows do lose weight during lactation, replenish body reserves as soon as possible after weaning. Consider skip breeding weaned sows if they are young (parity 1 or 2) and thin (<2 BCS) to allow recovery of body reserves. Do not allow sows to lose excessive weight or condition before weaning (prevent <2 BCS). Split wean some pigs early from high weight loss sows, or wean high weight loss sows a couple of days early.
7. Cull based on herd average records. A thorough analysis of herd records may indicate a decrease in sow productivity after 5 to 7 parities, with a simultaneous increase in sow mortality. If so, producers should limit the number of sows greater than parity 5-7.
8. Removing culls. Cull sows should be removed in a timely manner. The longer these females are kept in the herd, especially if unsound, the higher the risk of downers and subsequent euthanasia.
9. Animal handling. Oftentimes, foot and other physical injuries occur when too many sows are moved at a time, or when employees are in a hurry and handle sows roughly. Sows moved long distances in narrow alleyways tend to bottleneck at corners or doorways, again increasing the risk of injury. Avoid these situations to reduce sow replacement rate.
10. Employee training. In many herds, recognition of signs of disease or stress in sows is missed until animals become too severely affected to recover. Observational skills of employees need to be emphasized and fostered, increasing the sense of urgency for care of individual sows. Correct decisions about immediate treatment vs. culling or moving sows from crates to pens influences whether or not sows recover, get culled or die.

Fine-tuning gilt selection and development, emphasizing herd health, maintaining good BCS of gilts and sows, proper handling of animals, and aggressive, prompt attention given to sick or injured females should result in reduced replacement rates in sow herds.