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Editors

W. Christopher Scruton

Stephen Claas

Layout

David Brown

Logo Design

Ruth Cronje, and Jan Swanson;

based on the original design by Dr. Robert Dunlop

Cover Design

Shawn Welch

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Sow longevity measurement

John Deen

University of Minnesota Swine Group, St. Paul, Minnesota

Sow longevity has proved to be a problem measurement to identify and manage. It is one of those variables that we know when we see it but the current targets often skirt around the issues. The classic focus has been on culling rate and we have argued in the past that it is difficult to manage and, often, an indistinct measure. Conversely, though age at removal or death may be the most easily explained variable, it also has a limitation in that it does not focus on productivity.

To come to an assessment of sow longevity, it must first be stated why there should be an emphasis on this variable. My list would include the following:

- It is a welfare concern. Though it can be argued, quite rightly, that the length of life is not a measure of welfare in farmed animals, there should be a concern with the reasons for removal and mortality that are evident with decreased levels of longevity. Decreased levels of longevity are often correlated with increased mortality rates that involve some level of an agonal process, and removals are often due to some painful pathology, particularly lameness. Added to this is a transportation and sales system that is often more complex and prolonged than the hog marketing system.
- Is an economic concern. Replacement costs of breeding stock continue to increase. Introduction, acclimation, isolation, and initial breeding are also more expensive and risky than retention. Many of the removals also compromise sow unit capacity and output levels. It is one of the major costs of managing a sow herd and is one of the more inconsistent costs.
- It is a logistics concern. Removals are not consistent and vary from week to week and from season to season both in reasons and in levels. As we have previously shown, it is a function of supply of gilts but also the difference in population profiles from farrowing group to farrowing group results in a highly variable demand to fulfill.
- It is an employee morale concern. Removals, particularly mortality, are also a concern for employees. They require additional labor for removal from the facility, often treatment before hand, and extra labor for preparing new gilts. However the greatest concern is

simply the concern for the well-being of their charges and the ability to manage them correctly.

So what is a good measure of longevity? It should take a number of factors into account. The first is that longevity is more economically important in young ages than in older sows. In other words, the removal of a second parity sow should be much more of a concern than the removal of an eighth parity sow. Conversely, the need to retain a sow is much more for a young sow than an old sow.

The second concern is that there should be an emphasis on productivity. If we wish to reduce sow mortality we could simply not farrow sows as farrowing is the major initiator of on farm mortality. Yet retention of the sow demands that they remain productive. If we look at reasons for removal, litter size is a relatively minor concern. Most of the reproductive removals are due to factors that increase the farrowing interval. Thus the number of parities is often a good measure of longevity, rather than a real time measure.

The third concern is that the measures currently available may not properly guide the herdsman in removals. Much has been emphasized in repeatability of reproductive performance, and it appears that there are a few reasons to cull on the basis of any individual parity record, and reproductive reasons should often be suspect. The “three strikes and you’re out” rule can lead to a large proportion of sows removed being due to reproductive reasons when farrowing rates are low. Figure 1 shows one such estimate that we have made.

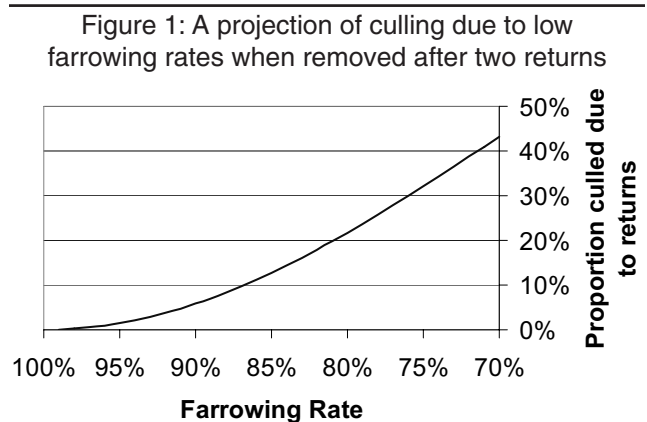
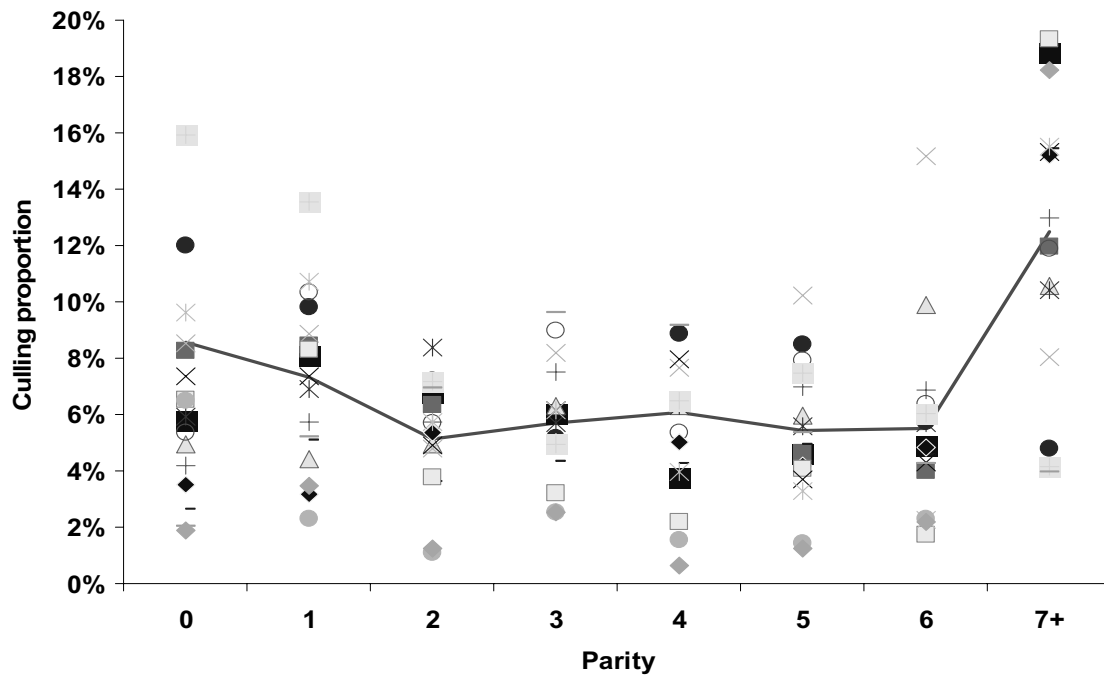


Figure 2: Distribution of culling rates among parities



We can thus rule out a number of historic measures for sow longevity. The first is simply the parity or age at removal. It is compromised by the fact that old sows can be retained so that the average parity or age is increased. These old sows can compromise productivity through lower performance, particularly due to variation in birth weights and lactation. Likewise, the removal rate can be manipulated by retention of unproductive or older sows. Though such practices often are unacceptable, restricted gilt supply often drives inefficient parity profiles.

The real measure should involve an identification of sows that should be retained and are not. Figure 2 shows the distribution among a number of herds of the removal rates within different parities. Of course, the oldest parities have the highest rates. The surprising aspect is that parity zero and one have higher rates than two through six and it is driven by a high level of variation in these early parities.

This exhibits two factors. The first is that this early culling appears to be controllable when comparing farms. The second is that non-reproductive factors should not be involved in early parity removals and yet we often find them reported. Hardiness can be a concern and gilt development should have a rapid effect on early parity survival.

Sow the measures should emphasize survival through the early parities, in our opinion. Reasons should be examined for removal of early parities independently of other sows. Likewise early parity removals should be an indice to itself.

The target indices should be the proportion of the herd removed in early parities, with the second or third farrowing being the cutoff. This would emphasize maintaining the most valuable animals in the herd and get them to a point where they can be more easily retained. Culling an old sow should be considered a success as it was maintained through its productive life and it should show nowhere in culling calculations. Instead, retention of the lower parity sows reduces their proportion in the herd and increases the proportion of the herd in more productive parities.

The other factor in sow longevity is mortality. Again there is variation in the proportion lost in various parities, though the effect is not as large, with higher mortality in some herds in the lower parities. It is affected indirectly by providing a lower proportion of the herd at risk.

