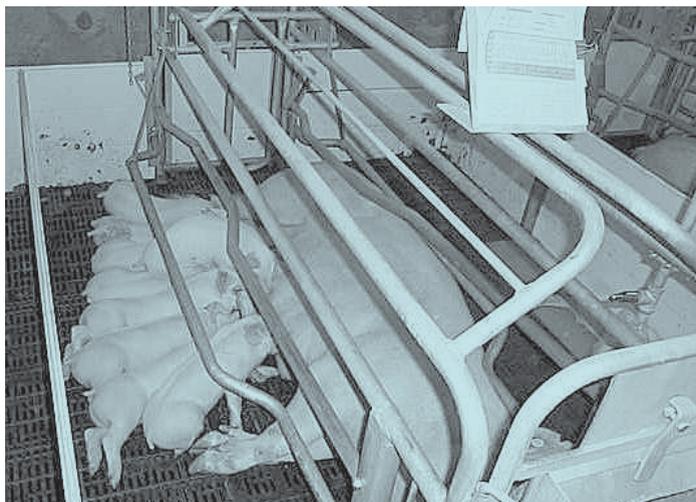


Savaging of Piglets: A Puzzle of Maternal Behaviour

Moira Harris^{1,2}, Renée Bergeron³, Yuzhi Li¹ and Harold Gonyou¹

¹Prairie Swine Centre Inc., ²Department of Animal and Poultry Science, University of Saskatchewan, ³Université Laval

“**M**other Kills Newborn Within Minutes of Giving Birth”. A headline such as this would be sure to raise concerns if printed in any newspaper in North America. Yet infanticide, the killing of one’s young, has been reported in many species, with various explanations given for its purpose in the cycle of life. The occurrence among pigs is great enough that it has been given its own term, ‘savaging’. It remains a



puzzle for pig producers who are concerned when they discover one or more otherwise normal looking piglets lying dead near the head of the sow or gilt.

Various explanations have been given for savaging: the sow is frightened by piglets approaching her head; the sow is in pain due to a difficult farrowing; or, the sow is disturbed by the presence of the herdsman. Various solutions have been suggested: remove all of the pigs immediately; give the sow a sedative; or, mix some beer into the sow’s mash. These suggestions may be effective, but unfortunately savaging occurs rarely enough that it is very difficult to study. A farmer with 100 sows, might encounter only 40 cases of savaging over a 10-year period. Similarly, few research farms experience sufficient occurrences of savaging to conduct relevant studies.

A universally held opinion is that savaging is more common among gilts than second or later parity sows. This raises concerns about the costs of savaging to start-up farms, which are populated entirely by gilts. Such farms pass through a period of 5-6 months

during which only gilts are farrowing. Part of our series of studies on savaging involved following seven new operations, totalling approximately 10,000 females, through the first two farrowing cycles. During this study we also imposed some environmental treatments on each farm, and compared the various genetic lines used within a farm.

The farrowing technicians on each farm assessed and reported the incidence of savaging for each litter. Farms varied considerably in the incidence of savaging reported. The proportion of gilts killing piglets on farms varied from less than 1% to greater than 5%. The overall average was about 3% of gilts. We have extrapolated our results to a ‘typical’ 1,000 sow operation as presented in Table 1. Our assumptions here, based on the practices on the farms we observed, were that 30% of the breeding females were replaced after the first farrowing, but that savaging was not used as a culling criterion. During the first farrowing cycle (all gilts), the farm would lose approximately 63 piglets due

to savaging. This averages out to about 1 pig per 20 farrowings, or 2.5 pigs per week. It has been suggested that ‘all-gilt’ farms are a particular problem in that a savaging ‘frenzy’ may develop within a room of gilts. We have concluded that such is not the case. The gilts in the second farrowing cycle, when farrowing rooms are shared with second parity sows, savaged at approximately the same rate as those in

the ‘all-gilt’ cycle. But true to form, the older animals in the second farrowing cycle savaged at half the rate of gilts; killing approximately 1 piglet per 40 farrowings.

We tested four hypotheses concerning savaging during this study. The first was that gilts that savage during their first farrowing are more likely to savage during their second. This proved to be true. Approximately 15% of savaging gilts killed piglets during their second parturition, whereas less than 1% of non-savaging gilts savaged as second parity sows. The second hypothesis we considered was that genetic lines would differ in their incidence of savaging. The farms in this study often had three or four lines present within their herds, but no differences were evident in the level of savaging among those lines. The third hypothesis was that getting gilts accustomed to the sounds of newborn piglets would reduce the level of savaging, perhaps by reducing their fear of newborns. The playback of newborn piglet sounds in farrowing rooms prior to the birth of the piglets did not affect

Continued on page 4

Continued from page 3

savaging levels. Our final hypothesis was that by leaving the lights on throughout the night, we would allow sows to be better aware of the movements of their piglets and they would be less likely to be startled and attack the young. Leaving the lights on throughout the night reduced savaging losses by about 40% during the first (all-gilt) farrowing cycle.

We also had the opportunity to study the incidence of offspring-directed aggression among farmed wild boar through collaboration with Université Laval. We videotaped 24 wild boar 'gilts' as they gave birth in well strawed farrowing pens. It has been suggested that savaging is an aberration in maternal behaviour due to the genetic selection occurring in domestic pigs. If such is the case, we would not expect to see savaging in wild boar. We did. Two of the gilts killed piglets, and another six showed some degree of aggression toward their young. On the surface it would seem that the potential for savaging existed in the wild progenitors of domestic pigs. However, in contrast to our study on large commercial units, there was a difference among the three genetic lines of wild boar that we studied with only one showing severe aggression toward their young. The number of animals per genetic line in this study precludes drawing any firm conclusions about genetic factors and savaging, but the results were striking.

During a final study we examined savaging in detail in a limited number of gilts and sows. We videotaped 101 farrowings in conventional farrowing crates and analysed the behaviour of the sows for 12 hours before the birth of the first piglet until the end of farrowing. Aggression toward piglets was observed in nine of the farrowings, although only five females actually killed a piglet. This suggests that some aggression occurs approximately twice as often as a piglet is actually killed. Savaging behaviour always started during parturition (birthing) and was characterized by

Item	Gilts	Sows		Combined
		savaged as gilt	did not savage as gilt	
First farrowing cycle				
# of females	1,000			1,000
# savaging	29			29
# live born	10,400			10,400
# killed by savaging	63			63
Second savaging cycle				
# of females	300	20	680	1,000
# savaging	8	3	6	17
# live born	3,020	215	7,285	10,520
# killed by savaging	15	6	12	33

Table 1: Expected levels of savaging on a typical 1,000 sow unit during the first two farrowing cycles.

attempted or actual bites, and shaking or throwing of the piglets. Piglets were attacked when they approached the sow's head or attempted to suckle from the front teats. Females that eventually attacked their piglets were likely to be less settled (more standing and lying activity) before parturition began, and took longer to deliver their piglets. There was only slight evidence that increased human activity in the farrowing room disturbed the sows and increased savaging. We found no difference in genetic lines, or any relationship between savaging and the condition of the sow, litter size or piglet characteristics. Dominant females (they were group housed during pregnancy) were somewhat more likely to attack piglets than were the lower ranking mothers.

The Bottom Line

So what have we learned? A 1000 sow operation can expect to lose about 100 piglets to savaging during its first six months of operation. Gilts savage more than sows, and we now have good evidence that farmers can reduce future savaging deaths by culling gilts who savage. Genetic selection during the process of domestication has apparently had little effect on the incidence of savaging in pigs and, perhaps

surprisingly, differences among genetic lines are not common. Some environmental factors seem to affect the incidence of savaging, with continuous lighting reducing the number of piglets killed, and there is some support for the hypothesis that disturbance by humans can increase aggressive behaviour. Savaging is not solely due to events during the actual delivery of the piglets, as females that eventually attack their young are more active during the hours immediately before giving birth. The reasons that sows savage remain somewhat elusive, but this series of studies has clarified some aspects of this intriguing, and sometimes costly, behaviour.

This series of studies represents the research portion of the Ph.D. program of Moira Harris in the Department of Animal and Poultry Science at the University of Saskatchewan. Funding for the research was provided by the Agricultural Development Fund of Saskatchewan. Program funding for the Prairie Swine Centre is provided by Sask Pork, Alberta Pork, Manitoba Pork Council, and the Agricultural Development Fund (Sask.). The collaboration of Heartland Livestock, Quadra Management and Université Laval was much appreciated. 