

Importance of Genetics in Sow Group Housing

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There are gigantic differences in genetics between what sows were and what they are now. They are bred for specific physical traits and others that were not considered important, such as social traits, have been lost. We've gone twenty years without selection pressure to get rid of aggressive sows, especially in lean line pigs. The reason is simple: they were not being housed in groups so aggression wasn't a factor. This actually makes things worse because aggression was a factor when selecting animals to breed, in fact the most aggressive animals are the ones with the most gain (they are on the top of the peck order) and are the ones who are selected to breed. This is direct selection for production and indirect selection for social dominance.

Moving towards group housing will require moving towards group culls and group selections as well. This means we will be looking at making changes to how we select for traits, physical and behavioral, amongst a group of animals rather than by animal.

As we start to plan for the change to group housing we need to change some genetics and the quickest way to change genetics to select for good traits in boars, and then to select for breeding traits amongst sows. The first thing is to start with gilts when moving towards group housing, watching very carefully for aggressive sows and cull them out. There are some gentle lean line pigs that do not do well with aggressive sows. Removal of the aggressive sows and their offspring from the breeding mix entirely is the only way to reduce it.

Group housing depends on changes in facilities and on genetics. The emergence of lean line pigs in the 80's showed an increase in ear and tail bites at plants. Because producers were only seeing the behaviors in their own barns it wasn't until the pigs from many different barns and areas were observed together at the plants did this trend become 'visible'. This is an early example of 'bad becoming normal'. (Dr. Temple Grandin)

"Bad becoming normal" is simply the concept that when something bad happens within an environment, gradually but prolifically, it becomes perceived as "normal". Unless you approach the situation from a clean perspective, you don't notice it. The conditions worsen slowly over time and no one notices the change. Some examples of this are lameness in dairy cows, aggressive behaviour in sows and poor conformation in other livestock breeds. This becomes more acute with biosecurity as producers are not exposed to other animals to compare what they see as 'normal'.

It is possible to breed (Dr. Bill Muir, Purdue University, Dept. of Animal Science) lean, gentler pigs who do well in groups but cannot survive with aggressive sows. Dr. Muir's work included selecting gilts by group, rather than individuals, for non-aggressive behaviors. This has been shown to be very successful.

Previously, genetic pressure was for individual performance and bigger pigs, those pigs that were aggressive at the feeder were selected, but only for their physical traits of gain (aggressive eating). There was no need to consider their group traits and left the producers selecting for physical size and gain with little thought to disposition and behaviors. As it is done in cattle, it is essential to start disposition scoring for pigs, especially for boars, to ensure gentleness, positive gain, conformation and other traits which will allow for successful group housing.

By testing gilts in groups prior to breeding allows the producer to cull aggressive from gentle before they are bred. If a producer is unable to cull them before breeding they should have some stalls kept in each barn to isolate aggressive sows until they have their piglets and then cull the whole bunch (sow and offspring).

Some groups can be larger but even down to six pigs per pen - the pens that don't fight and have good gains you keep, cull pens that fight. Build genetic base by pen rather than by individual sows.

Observers need to watch the pens when group housing starts to mark aggressive sows and cull them out of the group as soon as possible. When it is first beginning they need to be observed constantly during the daytime hours. Cull very aggressive sows immediately, cull any sows that bite vulvas or cause injury. Scratches and marks for normal group interaction isn't a cull factor.

Motivation is genetics, behavior is learned and sows quickly learn bad behavior from aggressive sows. It is normal for some hierarchy challenges in any group, although it is easier for the gentler sows to do well in larger groups, and sows will 'rough' each other up. This is not the aggression that causes severe injury such as tail, ear and vulva biting. (This is based on the work of Dr. Bill Muir, Purdue University)

As we move towards group housing for gestational sows we need to also move away from individual selections in breeding. Future group housing planning will have static groups that stay together from a very young age.

The animal agriculture industry has chosen to make changes to the way sows are housed, it is up to the industry and their research partners to ensure that both the needs of production and concerns of welfare are met.
