

Sows Can Flourish in Pen Gestation

Bob Ivey

**Adapted from March 15, 2004 Original article by Dale Miller, National Hog Farmer, Records document top reproductive performance and lower sow mortality rates as Maxwell Foods, LLC 80,000 sows thrive in pens; edited and updated by Bob Ivey on April 12, 2007*

In 1989, the Maxwell Family, owner/operators of Goldsboro Milling Company, which is ranked as the nation's top turkey producer and processor with the recent purchase of Butterball from Con Agra in partnership with Smithfield Foods, was faced with excess milling capacity. Recognizing the success of their neighbors in the pig business, they decided to diversify.

A call went out to Bob Ivey, veteran pork producer/seedstock supplier, to draft a blueprint for the company's entry into the growing North Carolina swine industry. Jim Maxwell was the family member most interested in the new venture and worked closely with Ivey.

Ivey, with his brother, Ted, had established Ivey Spring Creek Farms as a successful seedstock supplier and production management consulting firm.

Bob Ivey signed on as general manager of the new Goldsboro Hog Farms, headquartered in Goldsboro, NC. "We not only provided production management protocols, but also designed the facilities, provided cash flow projections and business management," Ivey explains. "Fortunately, they are a very progressive company. They allowed me to be very creative in my approach to swine production and were willing to give me all the tools and support needed to be successful."

Maxwell Foods, LLC built their first 1,000-sow farm in 1989. The Maxwells found they liked the hog business. Fueled by ample packing capacity in eastern North Carolina, they spent the next six years in rapid expansion, adding sows in increments of 2,000. By 1995, they had grown to about 66,000 sows.

Maxwell Foods, LLC currently ranks amongst the top 10 pork production systems in the U.S. with about 80,000 sows — all housed in pens during gestation.

Using the description "progressive company" and "pen gestation" in the same breath may seem a contradiction of terms to some — but not to Ivey.

He acknowledges that many systems use gestation stalls very successfully. While stalled gestation was not a United States welfare issue, he recalls the animal welfare pressures being waged in Europe before he began designing the Maxwell Foods system. He expected that similar animal welfare concerns would someday have an impact on U.S. production schemes. With the recent announcement by Smithfield Foods to phase out

individual gestation stalls over the next 10 years this decision has put Maxwell Foods in the spotlight in its use of pen gestation.

Much of the pressure to eliminate stalls has come not only from animal welfare groups but food retailers and restaurants in response to consumer demands. In 2006, Maxwell was approached by a major restaurant chain to be a supplier of more animal welfare friendly pork. During the process of working out the details of the program, Maxwell invited Temple Grandin to visit the company and review the system. Temple is recognized world wide for her efforts in improving livestock handling and animal welfare systems. “Many people thought we were really brave when we asked Temple in to review our system, but we believe her approval was very important,” stated Ivey. In Temple’s report on the visit she wrote: “They are setting the standard for large scale pork production. The entire industry can use them as a model.” Temple also noted that having the proper genetics and animal husbandry practices were also important to the success of the pen gestation system.

In the Maxwell system, newly weaned sows are moved to a row of individual stalls adjoining a breeding pen. Sows are turned into the breeding pens for estrous detection and then returned to the stalls. Boars are brought to the cycling females for stimulation during artificial insemination. Thirty-five days later, sows are pregnancy checked.

The advantages Ivey sees in the short-term stay in the stalls include:

- Individual feeding of sows to return them to their pre-farrowing body condition;
- Heat checking and artificial insemination is easier and more efficient; and
- Stalls help avoid injury from fighting or cycling sows riding each other during their most vulnerable post-lactation period.

“From an animal welfare standpoint, I felt I could defend keeping animals individually housed for 35 days, if it ever became an issue,” Ivey says. Temple Grandin also approved this short period of individual housing due to its animal welfare benefit.

Sows confirmed pregnant are sorted by size and parity and placed five sows per 8×10 ft., partially slatted pen. This provides 16 sq. ft. of space for each sow — 2 sq. ft. more than a typical 2×7 ft. gestation stall. “If you consider the walkway; most stalled buildings can easily be converted and sows have access to all of the space in the pen,” he adds.

“With five sows/pen, you are more able to get them sized up with the same type of animal,” Ivey explains. “That’s more difficult with larger groups. I think most of the dissatisfaction with pen gestation comes when you try to put too many sows into the pen. Due to their small size 6 gilts can be placed in the gestation pen at 13 sq. ft.

“People don’t want to go back to pen gestation because they seem to think it’s a sacrifice that they can’t manage,” he says. “It’s obvious by Goldsboro Hog Farms’ production levels that it can be managed without too much concern.”

Proof in the Performance

When producers become skeptical whether pen gestation will optimize reproductive performance, Ivey points to Goldsboro's top ranking in the AgriMetrics system, then cites the more widely used PigChamp recordkeeping system to reinforce reproductive performance (2003 PigChamp summary data representing 252 farms and approximately 225,000 sows appears in parenthesis below for comparison of key production measures). Data from 51 Goldsboro farms in full production during a 12-month period ending Sept. 30, 2003 recorded an 84.1% farrowing rate (81.96%), 10.1 pigs born alive/litter (10.57) and 2.48 litters/mated female/year. Pigs weaned/mated female/year tallied in at 22.7 (19.56) with an average litter weight of 141 lb. (79.09), at an average weaning age of 19.2 days (17.81).

Concerns about injury and death loss in pen gestation are laid to rest when he points to the 5.7% (9.1%) mortality rate. Culling rates are a self-imposed 52%. "We could easily set it at 45%."

Average parity for the period was 3.2. Non-productive sow days (NPD) came in at admirable 35.1 days. "When NPDs come in under 40, you can't have many recycles. We really focus on that," he says.

The Benefits of Pens

Ivey ticks off several reasons Goldsboro sows often outperform more popular stall gestation housing, and he offers management tips to make pens work:

Better water intake — High on his list of benefits is the near elimination of urinary tract infections. Ivey believes when sows move around more, they drink more water and, consequently, they urinate more. All are pluses associated with urinary tract health. Better health translates to less sow mortality.

"I don't agree with using water troughs because they restrict water intake," he adds. Nipple waterers are now being replaced with bowl waterers to minimize water wastage — a growing concern as lagoon levels are increasingly scrutinized.

Better floors — With less concrete floor erosion where sows eat and drink, "the water and feed aren't right there eroding the concrete, exposing the pebbles and sharp rocks that can cause feet and leg problems and shoulder sores," he says.

Ivey also believes sanitation is better in pens than stalls because sows work manure through slotted floors better.

Less maintenance — "Based on my experience, after 10 years, individual stalls wear out. Broken stalls can cause injuries," he concedes.

Sow condition — Typically, feeding levels are adjusted only twice. At weaning, sows are placed on full feed until bred and fed individually in stalls for 35 days to regain proper body condition. After passing the 35-day pregnancy check, sows are moved to pen gestation. Feed is cut back until their last 30 days of gestation, when feeding levels are increased based on parity and condition. "Because of the competition in the pens, the last 30 days seem to be the best time to adjust feeding levels," Ivey explains.

Mixing and fighting — The sows' 35-day stay in the stalls allows them time to recover from farrowing, nursing and weaning stresses. Once confirmed pregnant, groups of five sows or six gilts are matched up by size and parity. "You need to use some common sense," Ivey explains. "You don't put a 500-lb. sow with a 300-lb., first-parity gilt. There

is some aggressiveness when animals are first mixed to establish a social order which usually is over in just a couple of hours. It's not a problem.”

Sow health — “Another advantage is sows have nose-to-tail contact, so in these large sow herds you can stabilize (disease) subpopulations a whole lot quicker because the animals are better exposed to each other,” he says. Vaccination and medication is easier in pens if done when sows are eating. “You don't have to reach through the (stall) bars to treat them,” he adds.

Catching recycles — Occasionally, an open sow will slip through or abort her litter after the 35-day pregnancy check. “Another advantage for pen gestation,” says Ivey. “It is easy to recognize recycling sows in pens when they ride other sows.”

Whether recycling sows are bred again depends on their history. If she has recycled before or she is older, she may be culled. Those that are rebred are sent back through the breeding area stalls, pregnancy checking and regrouping procedure.

Herd Stabilization- Another advantage to pen gestation is the ability to stabilize the herd during a TGE, PRRS, or other disease outbreak at a farrow to wean farm. With pens you can easily temporarily add additional gilts or sows to gestation pens to lengthen the time between outside herd additions. This allows the disease to become exposed to all breeding animals and by not fueling the disease with additional naïve breeding animals the pathogens will die out.

Converts — “We've bought a few farms that had gestation stalls, but we've converted them all over (to pens),” Ivey explains. In one case, during the early expansion years, another genetic line was being used in about half of the Goldsboro units. The company was convinced their animals performed better in gestation stalls. But when it came time to double the sow herd, they built another 1,000-sow barn with gestation pens. With the same genetic lines and the same manager overseeing both barns, “the side with the pen gestation outperformed the other,” he says. “The unit has now been converted to all pens.”

Ivey has had similar reactions when managers from stalled gestation units are hired to run a Goldsboro facility. “Most everyone likes our system better. They realize it's easier to move sows, the animals appear more comfortable and it's easier to find recycles,” he says.

Hand feeding — “The only thing employees don't like about our system is that we make them hand feed the sows at most farms. “I believe in hand feeding because I believe in the people-to-pig contact. When you hand feed, if all five sows don't come to eat, you know you have a problem in that pen.” The hand feeding also reinforces a positive association between people and the sows, which reduces stress when sows are moved. Records indicate gestation feeding averages 30 lb./sow/week.

Closing Thoughts

“Philosophically, I don't like individual stalls all the way through (gestation and farrowing). That's why our system is designed with pen gestation. I'm not saying an animal is less happy because it's in an individual stall.

“All I can say is, the animals seem to be more comfortable in pen gestation and that's reflected, I think, in their performance, with the added benefits of reduced maintenance costs,” Ivey explains. Genetics are an important part of pen gestation. You must have

docile females. The Ivey's pure genetic lines are housed in the same style system and therefore aggressive sows ("boss" sows) are eliminated at the nucleus level.

Unique Genetic Combinations

Maxwell has partnered with Ivey Spring Creek Farm (ISCF) in a genetic program unique to the swine industry. On the female side, the ISCF Chester White maternal dam has excellent pork quality and sow productivity traits. "This female is a key component for the quality in the ISCF Chester-Large White-Landrace cross females used extensively in the Maxwell system," explains Bob Ivey. "They are bred to the ISCF Duroc terminal sire to produce pork with excellent color and firmness that is juicy and tender.

"The Chester White is the Great Grand Parents in our system. These ISCF GGP females are bred to ISCF Large White boars to produce a ISCF CW-LW Grand Parent. These ISCF CW-LW GP females are then bred to ISCF Landrace to produce Parents which is it the majority of the Maxwell system. These parent females are then bred to ISCF Duroc boars to produce the market swine," he explains.

"The beauty of our program, by having three different white breeds, is I don't have to farrow a lot of purebred animals," he continues. "Heterosis is a freebie. More genetic progress is made through heterosis than anything — especially for maternal (reproductive) traits. By taking advantage of heterosis, we can take a few Chester White females and breed them to Large Whites, then breed those F1s (first-cross) females to Landrace to produce the parent females needed. Basically, we've captured 100% heterosis at every step except the great-grandparent (ggp) level. We can have very few animals at the ggp level.

"So, in other words, 1,000 Chester White Great-Grand Parents (CW) at a 50% selection rate can produce 5,000 Grandparents (CW-LY). Those 5,000 can produce 25,000 Parent (CW/LWxL) animals. It's very efficient multiplication in that it eliminates the handling, management and farrowing of a lot of purebred females. ISCF was founded in 1976. Bob and Ted Ivey, the principal owners, currently supply genetics to companies producing over 2.8 million market hogs annually.

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