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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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How pig flow can affect finishing mortality

Tara Donovan, DVM
The HANOR Company, Inc.

Introduction

Five years ago we were faced with a challenge to reduce finisher mortality in a multi-site system. The system was commingling piglets from three sow farms into 10,000-head nursery sites with one-week fills. The barns were run on an all-in, all-out by site basis. There were eight nurseries and 16 finishers with 10,000-head capacity in each. At the time our most common reason for death was ulcers from complicated respiratory disease. The pigs were experiencing respiratory disease complex with *Mycoplasma hyopneumoniae*, PRRS virus, swine influenza virus, circovirus, *Haemophilus parasuis*, and *Pasturella multocida* consistently being isolated from diagnostic cases.

After several attempts to combat the disease complex by vaccination strategy changes, including product, dose, timing, and combinations of these, we were unsuccessful at minimizing the mortality with any consistency. More attempts were made using antimicrobial therapy via water and feed. Therapeutic pulse medication strategies were used to target the highest mortality periods. These therapies produced mixed results. Some times of the year the results were much improved, but others yielded very little improvement.

Finally, we saw an impact from some of our interventions. Two of the most important changes were changing from pellet to meal feed and separating the pig flow to

single source. In this paper I will focus on the pig flow changes made in this system as well as in other production pig flows within our company that have proved successful in reducing finisher mortality.

System 1

As mentioned above, we took our true multi-site system and broke it into four different pig flows.

Our sow farms are run with segregated parity management where the gilts remain in one sow farm where they are bred, gestated, and farrowed. They are then moved to the older parity sow farms to join the mature sow herds. Based on information that was presented by Dr. Camille Moore at the Leman Conference in 2001, we were not taking advantage of the health benefits from keeping the pig flow from these two distinct sow populations separated. Therefore, our first change was to separate the P1 progeny from the sow progeny. **Table 1** depicts some production comparisons we were able to make.

When comparing vet-related costs for these two populations, Dr. Moore's data shows that he was able to save over 50% on the P2+ progeny. We have had a 15% reduction in feed medication costs from the ability to use less feed medications in some groups of P2+ pigs. But to date we have not changed our mycoplasma vaccination program. We continue to vaccinate P1 and P2+ progeny with two doses of mycoplasma vaccine.

Table 1: System 1 production comparison data.

System parameters	P1 progeny	P2+ progeny
<i>Nursery</i>		
Number of head	242,406	677,661
Weaning wt (lb)	12.1	12.9
Nursery out wt (lb)	58.6	55.9
Days on feed	50	46
Nursery mortality	3.17	2.58
ADG (lb/day)	0.92	0.95
<i>Finisher</i>		
Number of head	157,732	485,481
Ave market wt (lb)	267.8	269.9
Days on feed	104	105
Finisher mortality	4.79	4.75
ADG (lb/day)	1.99	2.01

Table 2: Performance parameters for the four different flows in System 1.

Wean-to-finish parameters	Commingled	Single sourced/ staged
Number of head	28,465	21,108
Weaning wt (lb)	12.4	13.3
Ave market wt (lb)	262.5	266.2
Days on feed	161	160
ADG (lb/day)	1.54	1.56
Total mortality	11.36	7.26

Table 3: Performance parameters for System 2.

Production parameters	P1 progeny	P2+ progeny Farm A	P2+ progeny Farm B	P2+ progeny Farm C
<i>Nursery</i>				
Number of head	242,406	123,843	164,378	79,344
Weaning wt (lb)	12.1	12.9	13.3	12.8
Nursery out wt (lb)	58.6	56.1	60.6	56.6
Days on feed	50	48	48	47
Nursery mortality	3.17	2.59	2.25	3.31
ADG (lb/day)	0.92	0.90	0.97	0.92
<i>Finisher</i>				
Number of head	157,732	49,907	85,318	40,028
Ave market wt (lb)	267.8	283.2	288.8	275.7
Days on feed	104	109	112	109
Finisher mortality	4.79	3.40	4.31	5.09
ADG (lb/day)	1.99	2.06	2.03	1.99

The next change we made was to split the P2+ progeny flow into three different pig flows based on sow farm source. So, with a total of four separate pig flows, our 10,000-head sites are now run continuous-flow. The buildings are filled on an all-in, all-out basis, if possible. This change has not come without some disadvantages. The transport of pigs from site to site is more difficult due to more groups with smaller numbers of pigs. We will be marketing out of several barns in the same week with smaller groups from each barn. One flow, Farm C, has proven to be challenging on the health side. **Table 2** indicates some performance parameters for the four different flows.

System 2

System 2 consists of two sow farms that had about 4000 sows combined. These two farms commingled their pigs at weaning into 1000-head wean-to-finish barns. The performance of the pig flow was challenging, as can be seen in **Table 3**. We changed the system to include segregated parity management in the sow farm. At the same time, we expanded both farms to fit the wean-to-finish system and allowed us to single-source the barns instead of commingle them. This was the only change we made to the system in this case, so we can credit the reduction in mortality to the change in pig flow.

The current system and pig flow consists of Farm 1, now a 2500 gilt farm that farrows only gilts on the site. After weaning, Farm 1 sends the sows to Farms 2 or 3 as replacements. Farm 3 is a 5000 sow farm that has its own nursery and finish system that is single-sourced. Their data is not presented here. Farm 2 was expanded to a 2500 P2+ farm that has been renovated to include a staging nursery. We also added a staging nursery to Farm 1 to allow one week's worth of weaned pigs to be staged for 7-10 days. As a result, they each send 1000 pigs every other week to the wean-to-finish sites to fill a barn from a single source. So far these changes have helped to improve the performance in the wean-to-finish system. We are still fine-tuning the system and currently are comparing the advantages of single-stocking versus double-stocking the barns through the nursery phase.

In summary, changes in pig flow prove to have an impact on grow/finish performance. With some creativity and a lot of teamwork, we have made a positive impact on finisher performance. Now we are fine-tuning the system with flow-specific vaccine programs, feed medications, and management processes.

