Pre-Planned Segregation: The Effect of Grouping by Weight at Weaning on Variability in Body Weight at Nursery Exit

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Summary

Variability in pig growth costs producers due to sort losses at marketing and reduced barn utilization. This experiment was designed to determine if pre-planned segregation (PPS), the separation of the total population of pigs into sub-groups expected to differ in performance, could improve barn utilization. A total of 2080 pigs, weaned over 8 weeks, were divided into groups based on weight at weaning. Segregation had no effect on variability of the entire group, or percentiles of the lightest or heaviest subsets of that group at d 50. Since it is expected that the rooms housing the heavier pigs would turn over more quickly, PPS could therefore be used to improve overall barn utilization.

Introduction

Variability in pig growth is emerging as a critical issue for pork producers. It has been estimated that variability

Figure 1. Treatment allocation for one room. The number of pigs per pen varied between weeks (15 to 18) but was constant within a week.
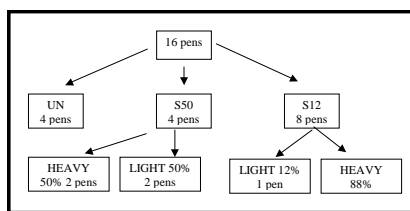
costs Saskatchewan pork producers $3.41 per pig at market due to sort losses and an additional $1.25 per pig sold due to reduced barn utilization.

One option for managing variability is called "pre-planned segregation" or PPS. PPS is the separation of the total population of pigs into sub-groups

expected to differ in performance. Under current operating methods, room throughput is dictated by the slower growing pigs. Segregating a heavier group allows the rooms housing these animals a faster turnover which will improve overall barn utilization is overall variability remains unaffected.

Objectives

1. To determine if PPS improves the uniformity of growth of the total population compared to contemporary pigs that remain in random weight groups.
2. To determine if the segregation of pigs by weaning weight will result in the faster growth of heavier pigs compared to contemporary pigs that remain in intact groups.
3. To determine if the segregation of pigs by weaning weight will result in the faster growth of lighter pigs compared to contemporary pigs that remain in intact groups.

Experimental Procedures

This experiment utilized all pigs (n=2080) farrowed over 8 weeks at PSC Elstow Research Farm Inc. Each week, all available pigs were weaned into one nursery of 16 pens. Genders were equalized across treatments, but not within pens. Pigs were weighed at weaning (d0) and on d9, 19, 29, 40 and 51.

The unsorted (UN) treatment represented the control. The sorted 50:50 (S50) treatment segregated the heavier half of the pigs from the lighter half. The sorted 12:88 treatment (S12) sorted the heaviest 88% of the pigs from the lightest 12% (Figure 1). The

Table 1. Initial and final (d50) body weights of the light and heavy subsets of the treatment groups.

	UN	S50 HV	S50 LT	S12 HV	S12 LT
Day 0 (kg)	5.82	6.86	4.93	6.31	4.16
Day 50 (kg)	31.17	33.55	29.15	32.35	26.77

Table 2. The effect of pre-planned segregation on bodyweight and CV for the entire data set, and the 12th and 50th lightest percentiles of each sorting regime

	Bodyweight (kg)		CV (%)	
	d0	d50	d0	d50
100th percentile				
UN	5.82	31.17	19.56	14.25
S12	6.04	31.70	19.96	14.15
S50	5.77	31.14	20.31	13.45
P value	*0.25*	*0.57*	*0.78*	*0.53*
12th percentile light				
UN	4.15	26.76	8.40	11.93
S12	4.16	26.77	7.63	12.49
S50	4.08	26.54	7.45	10.88
P value	*0.77*	*0.91*	*0.80*	*0.68*
50th percentile light				
UN	4.90	28.90	11.30	13.32
S12	5.07	29.17	12.35	12.54
S50	4.93	29.06	12.03	11.90
P value	*0.23*	*0.85*	*0.68*	*0.35*

coefficient of variation (CV) was calculated within a room and for the lightest and heaviest 12th and 50th percentiles for each sorting regime.

Results

The initial and final bodyweights of the light and heavy subsets of each sorting treatment are shown in Table 1. The differences between the light and heavy groups were maintained through to day 50. The CV at day 50 was similar between sorting regimes. Moreover, the CV of the 12th or the 50th percentile at day 50 was similar regardless of whether 0 (unsorted), 12% or 50% of the pigs had been removed at weaning (Table 2).

Implications

Segregating pigs by weight at weaning