

Crowding Reduces Performance of Weanling Pigs

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Summary

The effect of floor space allowance on the performance of weanling pigs was examined by housing groups of 17 pigs in pens with a floor space of either 5.58 m² (uncrowded) or 4.00 m² (crowded). Crowding adversely affected growth and feed intake by week 4 post-weaning. These data support the current recommendations on floor space allowance for weanling pigs.

Introduction

Floor space allowance is an important variable in pig production. However, the effect of floor space on performance is often examined by using different group sizes within a constant floor space. This confounds the results because group size per se may affect performance as well as floor space. In this experiment, floor space allowance was examined using a constant group size of 17 pigs, but housed in pens of varying square footage. According to the Recommended Code of Practice, (Agriculture Canada, 1993), floor space allowance can be calculated using the formula, $A = k BW^{0.67}$ where A = area in m² and BW is in kilograms. It is recommended that the coefficient, k , be 0.035 when fully slatted pens are used (ie. for a 20 kg pig, $A = 0.035 (20)^{0.67}$ or $A = 0.26$ m² per pig).

This experiment was part of a larger trial designed to examine the interaction of various dietary treatments and crowding on the growth and variability in growth of weanling pigs. There were no interactions, and only the main effects of the crowding are reported here.



“Crowding adversely affected growth and feed intake by week 4 post-weaning.”

Experimental Procedures

A total of 816 weanling pigs were assigned to either a crowded or a noncrowded treatment. A false back wall was installed in the pens designated “crowded” to provide the

Table 1. The effect of reduced floor space allowance on the performance of weanling pigs.

| Pen size | Uncrowded | Crowded | P value ^a |
|--|-------------|-------------|----------------------|
| | 17 pigs/pen | 17 pigs/pen | |
| BW, kg | | | |
| d 0 | 5.64 | 5.64 | ----- |
| d 8 | 6.49 | 6.51 | 0.71 |
| d 14 | 8.11 | 8.12 | 0.92 |
| d 22 | 11.53 | 11.49 | 0.74 |
| d 35 | 19.12 | 18.93 | 0.29 |
| d 42 | 24.12 | 23.62 | 0.03 |
| d 54 | 33.66 | 32.69 | 0.0004 |
| ADG, kg/day | | | |
| d 0-8 | 0.107 | 0.109 | 0.68 |
| d 9-14 | 0.256 | 0.262 | 0.51 |
| d 15-22 | 0.428 | 0.421 | 0.52 |
| d 23-28 | 0.485 | 0.480 | 0.73 |
| d 29-35 | 0.658 | 0.647 | 0.34 |
| d 36-42 | 0.714 | 0.671 | 0.003 |
| d 43-54 | 0.795 | 0.748 | 0.0002 |
| ADFI, kg/day | | | |
| d 0-8 | 0.133 | 0.138 | 0.26 |
| d 9-14 | 0.313 | 0.312 | 0.98 |
| d 15-22 | 0.521 | 0.529 | 0.49 |
| d 23-28 | 0.641 | 0.624 | 0.09 |
| d 29-35 | 0.861 | 0.838 | 0.04 |
| d 36-42 | 1.083 | 1.0445 | 0.01 |
| d 43-54 | 1.338 | 1.266 | 0.0001 |
| Gain:Feed | | | |
| d 0-8 | 0.794 | 0.780 | 0.63 |
| d 9-14 | 0.820 | 0.837 | 0.50 |
| d 15-22 | 0.827 | 0.798 | 0.12 |
| d 23-28 | 0.754 | 0.769 | 0.35 |
| d 29-35 | 0.765 | 0.773 | 0.39 |
| d 36-42 | 0.659 | 0.642 | 0.09 |
| d 43-54 | 0.595 | 0.591 | 0.61 |
| Total Feed Cost, \$/pig | | | |
| d 0 – 54 | 12.91 | 12.71 | 0.20 |
| Feed cost per kg of gain, \$/kg | | | |
| d 0 - 54 | 0.457 | 0.464 | 0.09 |

^aInitial weight was used as a covariate in the statistical analysis.

specified area of 0.23 m² per pig for the crowded treatment vs 0.35 m² per pig for the normal treatment (2.5 vs 3.75 ft²/pig). Using the Agriculture Canada recommendation of 0.035 for *k*, pigs with a floor space allowance of 0.35 m² are "crowded" at a bodyweight of about 30 kg, while those with the reduced pen size will be crowded at a bodyweight of about 17 kg.

Results and Discussion

An effect of crowding on growth was evident by the 5th week of this experiment when ADG was reduced by about 40 grams per pig per day in the crowded treatment. At this point in the experiment, bodyweight in the crowded treatment was about 19 kg or just slightly above the 17 kg predicted by the Agriculture Canada formula. A reduced feed intake was observed by the 4th week of the experiment in the crowded pens, when the pigs weighed almost 12 kg. Neither feed efficiency nor the cost per kg of gain were affected by floor space allowance and there was no effect of crowding on the variability in growth (data not shown).

Conclusions

Housing pigs with less than the recommended floor space allowance will reduce growth and feed intake. The current recommendations for floor space of weanling pigs would appear to be correct.

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