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Opportunities for Reducing Group Weight Variation Through Strategic Use of Solutein™ in the Nursery

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Introduction

Variability in pig weights within a group is a challenge in nearly all pig production models. With AIAO movement of pigs the variation associated with filling a room over time (7-10 days) creates a group with a large amount of variation to begin the growing process. Solutein is a water soluble source of globulin proteins which when provided post-weaning allows for significant improvements in weight gain (Borg et al., 1999b) and pig morbidity while under challenge (Borg et al., 1999a). We have investigated the opportunity for Solutein to be strategically applied to specific weight groups with the goal of reducing pig variation in a low labor intensity, economical manner.

Case 1

Pigs were individually tagged and weaned at 14-21 days of age and blocked by treatment in light, medium and heavy groups (Borg et al., 1999b). Solutein was offered through the drinking water system for 14 days at varying concentrations using a liquid proportionor (Dosatron®). Pig weights were collected on days 0, 7, 14 and 28. Significant improvements in average daily gain, average daily feed and G/F occurred during the 28 day trial due to Solutein application.

To study group variation the standard deviation (SD) and the mean of the control and treatment\Solutein groups were fit to a normal distribution curve (Figure 1). The variation in group weight is not dramatically reduced with Solutein use on all pigs. However, pigs fed Solutein become heavier. Figure 2 depicts the

normal distribution of pig weights when only the light block (bottom 33%) of pigs is offered Solutein. With this strategic application of Solutein and the weight gain associated with its use group variation was reduced.

Case 2

Three hundred forty eight pigs (initial age 14-18 days, average initial weight 10.2 lbs) were weaned, individually tagged and placed in eight separate pens in a wean-to-finish building. Pigs were blocked by heavy and light groups within treatments. Solutein was offered through the drinking water system for the initial seven days after placement with the use of a liquid proportionor. Individual pig weights were collected at day 0, 7 and 55. Pig weight gain was improved in the light and heavy groups ($p < .001$) from day 0 to 7 and in the light group ($p < .11$) from day 0 to 55. Means and standard deviations of the treatments (Solutein, control) and a group created and analyzed by combining the light pigs offered Solutein with the heavy control group are shown in table 1 and expressed graphically in figure 3. A range in pig weights for each scenario is provided and was calculated using a three standard deviation range. As noted in table 1, the group created by combining light pigs fed Solutein with heavy pigs on the control treatment has the lowest standard deviation and also a much reduced range of weights at three standard deviations from the mean (58.9 lbs. vs. 62.9 lbs.). This combination of treatments was created to provide an example of a production system that targets only the light 50% of the pigs with Solutein.

Conclusions

Solutein is a water soluble source of plasma proteins that provides improved flexibility of strategically targeting plasma proteins. In the trials reported in this paper pig performance was improved 65 and 68% in case 1 and 2, respectively. This improvement in daily gain and the relatively easy application of Solutein allows for improvement in the variability of weights within a group in the nursery.

References

Borg, B.S., J.M. Campbell, H. Koehn, L.E. Russell, D.U. Thomson and E.M. Weaver. 1999a. Effects of a water soluble plasma protein product on weanling pig performance and health with and without *Escherichia coli* challenge. Proceedings of Allen D. Lemay Swine Conference. Volume 26, pp. 23-24.

Borg, B.S., J.M. Campbell, L.E. Russell, D.U. Thomson and E.M. Weaver. 1999b. Effects of water soluble globulin on the performance of weanling pigs. *Journal of Animal Science* 77 (Suppl. 1):193.

Table 1. Mean and Standard Deviation of Treatments, lbs

	Mean	SD	3 SD Range
Control	54.17	10.48	22.73-85.61
LSHC ¹	55.45	9.81	26.02-84.88
All Solutein	56.27	9.92	26.51-86.03

¹ Light pigs on Solutein, heavy pigs control.

Figure 1. Weight Distribution of Pigs Treated and Untreated with SOLUTEIN

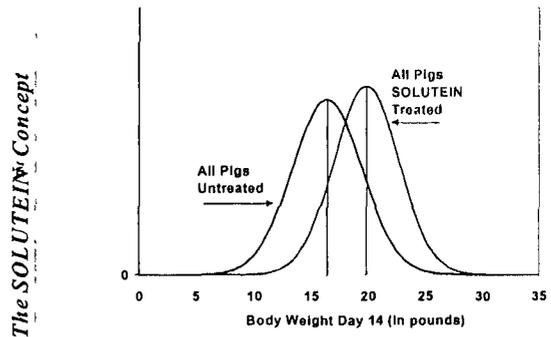


Figure 2. Weight Distribution of Pigs Treated and Untreated With SOLUTEIN

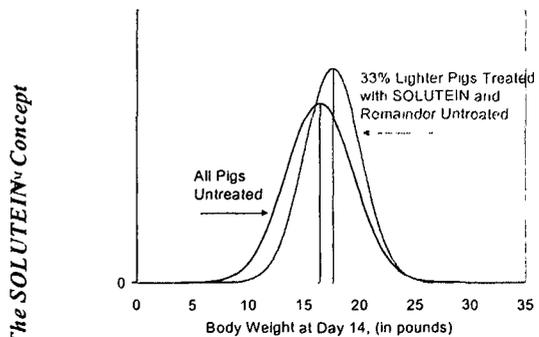


Figure 3. Weight Distribution of Pigs Treated and Untreated with SOLUTEIN

