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The effect of paylean on nursery pig performance

Abstract

A 28-d growth study with a total of 192 weanling pigs (PIC 210 \bar{A} – L42, 21 \hat{A} ± 2 d of age and 14.6 lb initial BW) was conducted to determine the effects on nursery pig performance resulting from feeding Paylean (5 ppm) for 3, 7, or 14 d after weaning. A Phase 1 diet containing 15% spray-dried whey, 3.75% fish meal, and 3% soybean oil was fed to all pigs for the initial 14 d. The diet contained 1.55% lysine, and DL-methionine and L-threonine were added to maintain minimum amino acid ratios. The dietary treatments were formulated with or without Paylean (5 ppm) replacing corn starch. All pigs were fed a Phase 2 diet based on corn and soybean meal, without added specialty ingredients, from d 14 to 28. From d 0 to 3, pigs fed the control diet had increased ADFI ($P<0.05$), compared with those fed Paylean. From d 0 to 7, as duration of Paylean feeding increased, ADG decreased (linear, $P<0.01$) and F/G became poorer (linear, $P<0.01$). Pigs fed Paylean had reduced ADFI ($P<0.04$), compared with that of pigs fed the control diet. From d 0 to 14, as duration of Paylean feeding increased, ADG (linear, $P<0.01$) and ADFI (linear, $P<0.05$) decreased and F/G became poorer (linear, $P<0.01$). There were no differences in ADG, ADFI, or F/G ($P>0.23$) when a common Phase 2 diet was fed from d 14 to 28 after weaning. Overall, d 0 to 28, ADG decreased (linear, $P<0.05$) and F/G became poorer (linear, $P<0.05$) as duration of Paylean feeding increased. Average daily feed intake was unaffected by duration of Paylean feeding ($P>0.13$). In addition, as duration of Paylean feeding increased from 0 to 14 d, ending weights tended to decrease (linear, $P<0.06$). In conclusion, feeding Paylean to nursery pigs after weaning reduced performance, and the reduction was greater the longer it was fed after weaning. Paylean should not be fed to newly weaned nursery pigs.; Swine Day, 2005, Kansas State University, Manhattan, KS, 2005

Keywords

Swine day, 2005; Summary Publication of Report of Progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 964; Kansas Agricultural Experiment Station contribution; no. 06-63-S; Swine; Paylean; Weanling pig

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THE EFFECT OF PAYLEAN¹ ON NURSERY PIG PERFORMANCE

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Summary

A 28-d growth study with a total of 192 weanling pigs (PIC 210 × L42, 21 ± 2 d of age and 14.6 lb initial BW) was conducted to determine the effects on nursery pig performance resulting from feeding Paylean (5 ppm) for 3, 7, or 14 d after weaning. A Phase 1 diet containing 15% spray-dried whey, 3.75% fish meal, and 3% soybean oil was fed to all pigs for the initial 14 d. The diet contained 1.55% lysine, and DL-methionine and L-threonine were added to maintain minimum amino acid ratios. The dietary treatments were formulated with or without Paylean (5 ppm) replacing corn starch. All pigs were fed a Phase 2 diet based on corn and soybean meal, without added specialty ingredients, from d 14 to 28. From d 0 to 3, pigs fed the control diet had increased ADFI (P<0.05), compared with those fed Paylean. From d 0 to 7, as duration of Paylean feeding increased, ADG decreased (linear, P<0.01) and F/G became poorer (linear, P<0.01). Pigs fed Paylean had reduced ADFI (P<0.04), compared with that of pigs fed the control diet. From d 0 to 14, as duration of Paylean feeding increased, ADG (linear, P<0.01) and ADFI (linear, P<0.05) decreased and F/G became poorer (linear, P<0.01). There were no differences in ADG, ADFI, or F/G (P>0.23) when a common Phase 2 diet was fed from d 14 to 28 after weaning. Overall, d 0 to 28, ADG decreased (linear, P<0.05) and F/G became poorer (linear,

P<0.05) as duration of Paylean feeding increased. Average daily feed intake was unaffected by duration of Paylean feeding (P>0.13). In addition, as duration of Paylean feeding increased from 0 to 14 d, ending weights tended to decrease (linear, P<0.06). In conclusion, feeding Paylean to nursery pigs after weaning reduced performance, and the reduction was greater the longer it was fed after weaning. Paylean should not be fed to newly weaned nursery pigs.

(Key Words: Paylean, Weanling Pig.)

Introduction

Some consultants recently have reported that feeding Paylean to nursery pigs increases feed intake in newly weaned pigs. The consultants are using Paylean as a tool to help pigs get started eating feed quicker after weaning. Paylean is labeled only for use in finishing pigs and, thus, feeding to nursery pigs would be an off-label use. No scientific evidence exists on this practice. Paylean is a beta-adrenergic agonist that accelerates finishing pig muscle deposition by shifting nutrients toward lean tissue growth.

The objective of our experiment was to determine if feeding Paylean to nursery pigs directly after weaning for various lengths of time could enhance feed intake and, thus, improve nursery pig performance.

¹Paylean is a registered trademark of Elanco Animal Health, Indianapolis, IN.

²Food Animal Health & Management Center, College of Veterinary Medicine.

Procedures

A total of 192 weaned pigs (PIC 210 × L42, initially 14.6 lb and 21 ± 2 d of age) were blocked by weight in a 28-d growth study. Pigs were randomly allotted to one of four durations of Paylean feeding (0, 3, 7, or 14 d) in a randomized complete-block factorial design, with time and diet as the main effects of treatment. Each pen contained six pigs per pen, with eight replicates (pens) per treatment. Pigs were housed at the Kansas State University Swine Research and Teaching Center. All pens (4 × 5 ft) contained one stainless steel self-feeder and one nipple waterer to allow *ad libitum* access to feed and water.

Experimental diets were based on corn-soybean meal and were fed in meal form for the 28-d trial. The Phase 1 diet was fed from weaning up to d 14 and contained 1.55% total lysine (Table 1). The treatments consisted of either 5 ppm Paylean or no Paylean fed for 0, 3, 7, or 14 d, with pigs being switched to the control diet after the different Paylean durations. A common Phase 2 was fed from d 14 to 28 and contained 1.45% total lysine (Table 1). Pigs were weighed, and feed disappearance was measured, on d 0, 3, 7, 14, and 28 to determine ADG, ADFI, and feed efficiency (F/G). Data were analyzed as a randomized complete-block design, with pen as the experimental unit using the MIXED procedure of SAS.

Results and Discussion

From d 0 to 3, feeding nursery pigs Paylean did not affect ADG or F/G ($P > 0.11$), but pigs fed the control diet had increased ADFI ($P < 0.05$), compared with that of pigs fed Paylean. Treatment F/G means were variable due to the inherent variation in pigs

starting on feed during the first three days, and were influenced by one or two pens per treatment.

From d 0 to 7, as duration of Paylean feeding increased, ADG decreased (linear, $P < 0.01$) and F/G became poorer (linear, $P < 0.01$). Pigs fed Paylean also had reduced ADFI ($P < 0.04$), compared with that of pigs fed the control diet. From d 0 to 14, as duration of Paylean feeding increased, ADG (linear, $P < 0.01$) and ADFI decreased (linear, $P < 0.05$), and F/G became poorer (linear, $P < 0.01$). From d 14 to 28, in which a common Phase 2 diet was fed, there were no differences in ADG, ADFI, or F/G ($P > 0.23$).

For the overall trial (d 0 to 28), as duration of Paylean feeding increased from 0 to 14 d, ADG decreased (linear, $P < 0.05$) and F/G became poorer (linear, $P < 0.05$). Average daily feed intake was unaffected by length of Paylean feeding ($P > 0.13$). In addition, as duration of Paylean feeding increased from 0 to 14 d, ending weights tended to decrease (linear, $P < 0.06$).

In conclusion, feeding nursery pigs Paylean decreased pig performance, and the reduction was greater the longer it was fed. We speculate this may be because nursery pigs are in an extremely energy-dependent state for protein deposition already, and Paylean's ability to shift energy toward protein deposition may be limited. After pigs fed Paylean were switched to the control diet there were no changes in pig performance, indicating that there were not any carryover effects from the Paylean feeding. Paylean should not be fed to nursery pigs to enhance growth performance or feed intake directly after weaning.

Table 1. Diet Composition (As-fed Basis)^a

Ingredient, %	Phase 1	Phase 2
Corn	45.77	58.00
Soybean meal (46.5% CP)	29.13	35.21
Spray dried whey	15.00	---
Fish meal	3.75	---
Soybean oil	3.00	3.00
Monocalcium P (21 % P)	1.25	1.40
Vitamins and trace minerals	0.40	0.40
Limestone	0.65	1.05
Salt	0.35	0.35
L-lysine HCl	0.30	0.30
L-threonine	0.18	0.15
DL-methionine	0.20	0.15
Cornstarch ^b	0.03	---
Paylean	---	---
Total	100.00	100.00
Calculated values		
Total lysine, %	1.55	1.45
ME, kcal/lb	1,553	1,560
Ca, %	0.90	0.80
P, %	0.80	0.70

^aAll pigs were fed Phase 1 diet from d 0 to 14 and Phase 2 diet from d 14 to 28 after weaning. Paylean was included in the Phase 1 diet fed for the first 0, 3, 7, or 14 d after weaning. All diets were fed in meal form.

^bCornstarch was replaced to provide 5 ppm Paylean.

Table 2. Effect of Feeding Paylean on Nursery Pig Performance^a

Item	Control	Paylean (5 ppm)			SE	Probability, P <		
		3 d	7 d	14 d		Control vs. Paylean	Linear	Quadratic
d 0 to 3								
ADG, lb	0.36	0.33	0.27	0.28	0.059	0.17	0.11	0.67
ADFI, lb	0.29	0.24	0.25	0.24	0.028	0.05	0.13	0.32
F/G	0.86	0.74	1.56	1.00	0.481	0.55	0.42	0.53
d 0 to 7								
ADG, lb	0.28	0.26	0.22	0.19	0.030	0.03	0.01	0.93
ADFI, lb	0.34	0.28	0.31	0.29	0.024	0.04	0.16	0.30
F/G	1.28	1.12	1.50	1.61	0.121	0.19	0.01	0.14
d 0 to 14								
ADG, lb	0.43	0.39	0.37	0.34	0.028	0.02	0.01	0.74
ADFI, lb	0.49	0.44	0.43	0.44	0.023	0.02	0.05	0.12
F/G	1.17	1.15	1.19	1.31	0.054	0.27	0.01	0.09
d 14 to 28								
ADG, lb	1.18	1.14	1.12	1.11	0.052	0.27	0.23	0.79
ADFI, lb	1.54	1.50	1.50	1.47	0.063	0.31	0.27	0.92
F/G	1.32	1.31	1.34	1.32	0.018	0.62	0.41	0.79
d 0 to 28								
ADG, lb	0.80	0.76	0.75	0.73	0.038	0.09	0.05	0.76
ADFI, lb	1.02	0.97	0.97	0.95	0.040	0.13	0.15	0.58
F/G	1.28	1.27	1.30	1.32	0.020	0.26	0.05	0.54
Weight								
d 0	14.7	14.6	14.6	14.6	0.02	0.13	---	---
d 28	37.1	36.0	35.5	35.0	1.08	0.09	0.06	0.75

^aEach value is the mean of eight replications with 6 pigs (initially 14.6 lbs of BW) per pen. All pigs were fed the Phase 1 diet from d 0 to 14 and Phase 2 diet from d 14 to 28 after weaning. Paylean was included in the Phase 1 diet fed for the first 0, 3, 7, or 14 d after weaning.