



SWINE NEWSLETTER

A Leader in Nutrition Solutions.

February 2000

Paylean™ Supplementation of Swine Diets

Paylean™ is a feed ingredient that increases the amount of quality meat in high-value cuts and improves production efficiency. Paylean™ was approved December 1999 by the Food & Drug Administration for addition to swine diets. Paylean™ is Elanco's trade name of the β-adrenergic agonist, ractopamine hydrochloride. Beta-agonists are unique ingredients that direct nutrients away from fat deposition to increase the amount of lean tissue in the carcass. We expect considerable publicity to accompany this approval and the marketing program that will follow. Therefore, we felt it valuable to update you on the current status of Paylean™ in swine nutrition, and some of its potential benefits.

Research Results in Swine

Paylean™ is an extensively researched, proven product. Numerous studies clearly demonstrate improvements in growth and feed efficiency (Table 1) as well as carcass performance (Table 2) of finisher pigs. Responses depend on the dose fed (Table 3), duration of feeding, and diet formulation.

Table 1. Paylean™ Dosage Affects Growth Performance of Finisher Pigs ^a

Dose, ppm	ADG, lbs	ADF, lbs	F:G
0	1.84	6.60	3.62
5	1.97**	6.50*	3.33**
10	1.99**	6.42**	3.25**
20	2.02**	6.34**	3.16**

Summary, 20 trials; pigs/dose, ~480; avg. start wt, 147 lbs.

*Different from 0 ppm (P<0.05).

**Different from 0 ppm (P<0.01).

^a Pigs fed to a common weight of 230 lbs.

Table 2. Paylean™ Dosage Affects Carcass Performance of Finisher Pigs ^a

Dose, ppm	Hot carc. wt, lbs	Dressing %	Carc. length, in	Last rib BF, in	10 th rib BF, in	LEA, sq. in	Color score ^a
0	170.8	73.3	31.7	0.99	1.08	5.08	2.8
5	171.9*	73.7*	31.4**	1.00	1.06	5.51**	2.8
10	173.4**	74.1**	31.3**	0.98	0.99**	5.68**	2.8
20	173.3**	74.4**	31.1**	0.97	0.95**	5.80**	2.7

Summary, 13 trials; pigs/dose, ~200; avg. slaughter wt, 232 lbs.

^a Color of lean, 1 = pale, 5 = dark.

*Different from 0 ppm (P<0.05).

**Different from 0 ppm (P<0.01).

^a Pigs fed to a common weight.

Table 3. Percentage of Maximal Response Achieved By Feeding 5, 10, or 20 ppm Paylean™

Criteria	Dose, ppm		
	5	10	20
ADG	75	91	100
F:G	75	83	100
LEA	49	72	100
% Lean	55	70	100

Summary, 11 trials; pigs/dose, ~345; avg. slaughter wt, 230 lbs.

Paylean™ does not affect meat quality in swine, especially meat color (Table 2). The biggest response to Paylean™ occurs during the first 4 to 6 weeks of feeding. Paylean™ may reduce performance if the nutrient density of the diet is not adjusted to take into account the greater nutrient needs for lean tissue deposition. The label for Paylean™ will specify that it must be fed in diets containing a minimum of 16% crude protein. Akey will be working with you to develop the proper nutrition programs to optimize the effect of Paylean™.

Elanco Animal Health, the manufacturer of Paylean™, currently has 6,000 finisher pigs across the U.S. on Paylean™. They plan to send these pigs to different packers to assess the value of Paylean™ on carcass quality. The challenge is some of the methods used by packers (i.e., Fat-O-Meter backfat and loin probes) to assess carcass leanness may only detect about 33% of the impact of Paylean™.

Mode of Action

Paylean™ works through natural pathways in the body to enhance lean tissue deposition in the major muscles of the carcass. In this process, nutrients are diverted away from fat and toward lean tissue deposition (i.e., repartitioned). Paylean™ does not appear to be lipolytic (i.e., it does not break down fat tissue already in the carcass); however, it will result in reduced fat content as a percentage of the carcass due to an increase in carcass leanness. Because of this increase in lean tissue deposition, pigs utilize feed much more efficiently when fed Paylean™, and their growth rate is accelerated.

Current Status of Paylean™ Approval

Paylean™ was approved in December 1999 for use in finishing swine fed a complete ration containing at least 16% crude protein from 150 to 240 lbs bodyweight. The approved dose is between 4.5 and 18 g/ton (5 to 20 ppm) of complete feed. No withdrawal period prior to slaughter is required. Neither a feed mill license nor a veterinary feed directive is required for use. Currently, Paylean™ is not approved for use in combination with any feed-grade antibiotics. Elanco plans to offer it for sale beginning in June 2000.

Akey Research

As product becomes available, Akey has a series of experiments planned for immediate implementation to answer some of the more practical questions regarding use of Paylean™ in commercial operations. Akey research is designed to determine the optimum dose and duration of Paylean™ feeding for maximum economic return. Economics will be driven by cost of the product and higher density diets vs. expected improvements in performance and extra revenue generated at slaughter.

Summary of Paylean™ Impact

- Safe, proven product, extensively researched
- Increases rate and efficiency of gain
- Increases lean content of the carcass
- Minimal effect on meat quality
- Response depends on dose and duration of feeding
- Biggest response demonstrated within the first 4 to 6 weeks of feeding Paylean™
- Nutrient density of the diet must be increased to support increased lean tissue deposition
- Not approved in combination with feed-grade antibiotics
- No withdrawal prior to slaughter is required
- Product available June 2000