Swine UPDATE

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K-STATE Kansas State University

Animal Sciences & Industry

Using Paylean® to Improve Finishing-Pig Profitability

What is Paylean® ?

Paylean® is the trade name for the compound, Ractopamine HCl, a feed additive marketed by Elanco Animal Health. It is neither a hormone nor a steroid, but rather is classified as a beta agonist. It works by directing nutrients away from fat deposition and towards lean tissue deposition. Feeding Paylean to finishing pigs has been shown to increase average daily gain and improve feed efficiency, as well as improve carcass leanness, dressing percentage, and primal lean cut yield.

Paylean has been approved for use in swine by the FDA under the following conditions:

- Paylean may only be fed to swine.
- Paylean may only be fed at a rate of 4.5 to 18 grams (g) per ton.
- Paylean may only be fed to finishing pigs weighing between 150 and 240 pounds.
- Paylean must be fed in a complete diet containing at least 16 percent crude protein.

What are the performance benefits with using Paylean?

Feeding Paylean the last 2 to 4 weeks before marketing improves both growth rate and feed efficiency. Research conducted by Kansas State University has demonstrated a 17 to 25 percent increase in gain and a 12 to 20 percent improvement in feed efficiency over the 2 to 4 weeks before slaughter (Figure 1). Numeric improvements (0.3 to 0.5 percent) in carcass yield also have been demonstrated. These improvements in gain and carcass yield have resulted in a 7- to 8-pound increase in live weight and 5- to 8-pound heavier carcass weights at slaughter. Typically, 80 percent of the value of feeding Paylean is derived from the increased weight of pigs marketed. Numerous studies have demonstrated improved carcass lean percentage when feeding Paylean. The improvement in carcass lean accounts for about 20 percent of the value of feeding Paylean.

What is the optimum dose and feeding duration of Paylean?

Research suggests feeding Paylean from 4.5 to 9.0 grams per ton for the last 2 to 4 weeks before slaughter, with the optimum duration of approximately 3 weeks. With this feeding strategy, Paylean feeding will begin after the heaviest 10 to 20 percent of the pigs have been sold. The biological response and economic return to Paylean decrease if fed for more than 4 weeks.

What are the economic implications of feeding Paylean?

Research conducted in commercial finishing facilities has demonstrated feeding Paylean to increase profitability (revenue – variable feed costs) by $ 2.55 to 4.80 per head when feeding at 4.5 or 9.0 grams per ton for 2 to 3 weeks prior to slaughter (Figure 2). In two separate trials, the 9.0 g/ton has consistently returned $ 0.70 to $0.80 more profit as compared to the 4.5 grams per ton feeding level. This increased profitability has been predominantly (70 to 80 percent) due to the increase in carcass weights in the set amount of days on feed. This is very important when interpreting Paylean's value for each individual producer. The economic benefits outlined above pertain to a producer who has limited finishing space or a fixed number of days for each finishing pig space. The improved feed efficiency essentially pays for the increased diets' cost when fed at 4.5 to 9.0 grams per ton for 2 to 3 weeks before slaughter. However, increasing feeding dosage or duration beyond

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Paylean, continued from page 1

these guidelines begins to significantly increase the feed costs per pound of gain. Producers who are currently maximizing sale weights and/or have excess finishing space without the desire or opportunity to push more pigs into their system receive much less economic benefit from Paylean. The economics of Paylean feeding are minimally affected by fluctuating grain price, but are marginally sensitive to slaughter price. (i.e., Net impact of Paylean increases or decreases with market price.)

If I market pigs multiple times from a group, when should I begin feeding Paylean?

Two points should be considered: 1) The greatest economic benefit occurs with two- to three-week feeding duration, 2) A majority of the economic benefit (80 percent) is from the added weight gain. Pigs that are marketed before the barn is closed out should already be at the economically optimal weight. So they will not derive as great of an economic benefit from consuming Paylean. The greatest economic benefit from Paylean is from the weight added to the lightest weight pigs, which are marketed at the end of the closeout period. Thus, our recommendation is to target the beginning of Paylean feeding at 21 days before close out of the group.

What are the concerns and potential pitfalls of feeding Paylean ?

■ Feeding Paylean will increase the finishing diet costs by $19 to $30 per ton depending on the dosage (4.5 vs. 9.0 grams per ton). Therefore, strategic placement and management of the Paylean-supplemented diet is necessary to ensure that the right pigs get the right feed for the right amount of time, and that feed carryover and waste is minimized.

■ Feeding Paylean for more than four weeks is expensive, and the biological impact of Paylean is such that the marginal improvements in gain and feed efficiency are significantly reduced as the feeding duration is increased. We have found that monitoring Paylean cost per pig is an excellent tool for ensuring the proper amount for the proper time. Our target is to use $0.40 per pig of Paylean when feeding 4.5 grams per ton for the last 21 days before market.

■ Lysine targets need to be increased by approximately 0.3 percent, or to approximately 1.0 percent total dietary lysine when feeding Paylean. Other amino acids should be maintained in the proper ratio relative to lysine.

■ Switching pigs from Paylean-supplemented diets to non-supplemented diets before slaughter will cause a rapid loss of the improvements achieved while on the Paylean diets. This is why Paylean is recommended to be fed up to the time of slaughter without withdrawal.

■ Feeding replacement gilts Paylean before selection is not approved by the FDA. The rapid surge of lean growth associated with Paylean feeding late in the grow-finish phase conflicts with the gilt development goal of lifetime productivity.

■ Paylean is a concentrated (4.5 grams = 0.5 pounds per ton, 9.0 grams = 1 pound per ton) and potent biological product that needs to be handled with care during the mixing process. Individuals handling the raw product should wear protective gloves and a dust mask.

■ Regardless of whether Paylean is fed or not, gentle handling and proper loading procedures during marketing will improve meat quality and decrease the potential for downer pigs. These procedures may become more important when Paylean is used because of the improvement in weight gain and leanness.

Figure 1. Paylean's Effect on Daily Gain

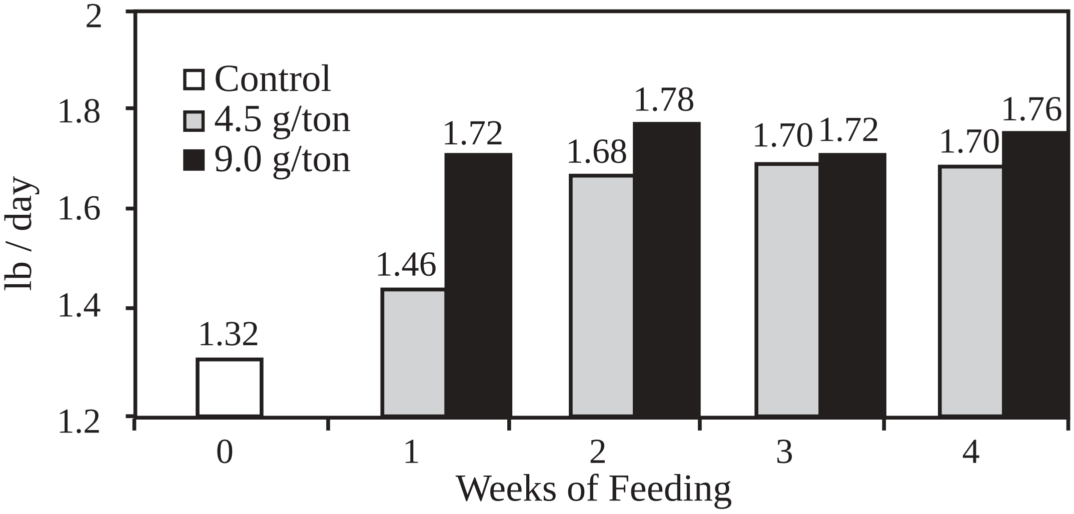
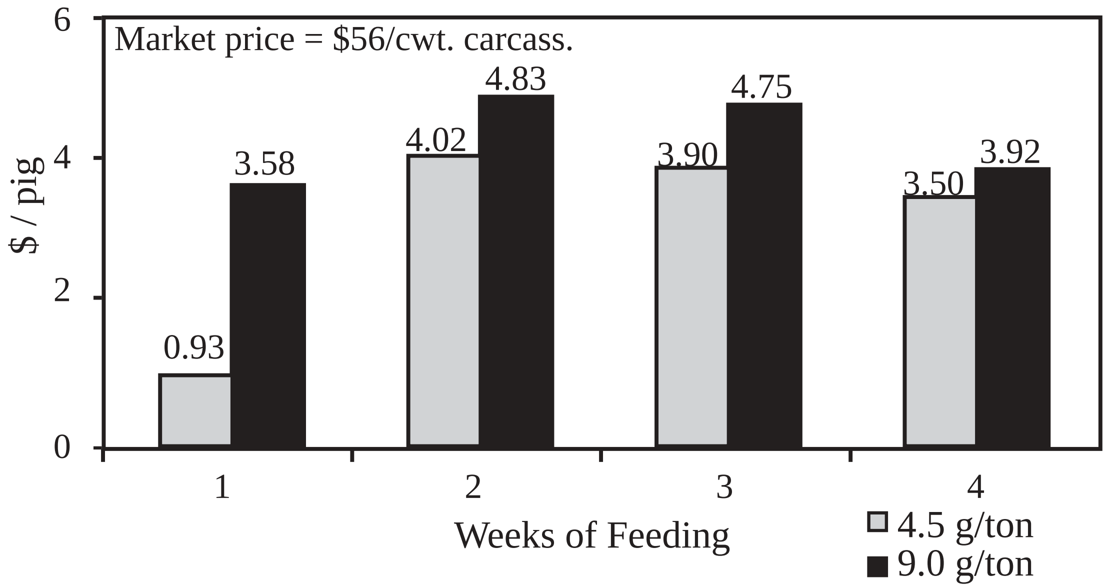


Figure 2. Impact of Paylean on Profit per Pig (Over Negative Controls)



Tips for Increasing Summer Market Weights

Because average daily gain is seasonal, with the slowest growth rate during the summer, market weight is lowest during this season. There are several ways to increase weight out of the barn during the summer months. Some of these methods may be appropriate for your system.

Make sure pigs are comfortable. Remember that the reason that ADG is seasonal is because pigs don’t consume as much feed during the summer. So steps should be taken to make the pigs more comfortable to increase their feed intake. The main method to improve pig comfort is to cool the pigs by increasing air flow and providing water sprinklers. The water and air flow are both needed to allow pigs to evaporate heat from their skin to lower their effective temperature.

In addition to providing water sprinklers to cool the pigs, producers need to make sure adequate water is provided for consumption.

Increase days to market. Finding more finishing days is easier said than done. But producers need to make sure they aren’t wasting days during the summer months. For example, if the first pigs are normally removed from a barn at 4 weeks before dumping the barn, the time between first pulls and dumping the barn should be decreased during the summer. Because all pigs in the barn are growing slower, the first pigs marketed will be below the optimal weight during the summer unless you decrease the time before pulling them and dumping the rest of the group. For some production systems, moving to a system of dumping the barn without making any pulls is the most profitable approach during the summer months.

Review diet formulations. Increasing the energy level in the diet will increase ADG of finishing pigs. For each 1 percent fat added to a corn- or milo-soybean meal diet, ADG will be increased by 1 percent. So market weight can be increased by 2 pounds for every 1 percent fat added to the diet. If a producer does not use added fat during the winter, adding 5 percent fat to the diet in the summer can increase market weight by as much as 10 pounds.

Lysine levels also should be reviewed. Recent research at Kansas State University continues to indicate that the amino acid requirements of finishing pigs are increasing. We believe the reasons for the increase are improved genetic capability and improved health status of the pigs. In one of the systems where we conduct research, ADG is 20 percent higher than two years ago. The higher ADG and protein deposition requires higher levels of amino acids.

As reviewed in the previous article, market weight also can be increased by 6 to 7 pounds by adding Paylean® to the diet for the last two to three weeks before market.

DEPARTMENT OF ANIMAL SCIENCES
AND INDUSTRY
KANSAS STATE UNIVERSITY
MANHATTAN, KS 66506-3403

SWINE
UPDATE

Jim
Jim L. Nelssen
Extension Specialist
Swine

Bob
Robert D. Goodband
Extension Specialist
Swine

Mike
Mike D. Tokach
Extension Specialist
Swine

Steve
Steve Dritz
Swine Specialist
Food Animal Health and
Management Center

Kansas State University
Cooperative Extension Service
Department of Animal Sciences & Industry
Weber Hall, Room 213
Kansas State University
Manhattan, Kansas 66506

KSU, County Extension Councils, Extension Districts and U.S. Department of Agriculture Cooperating.