

Pig Performance by Using Paylean®

Larry K. McMullen, swine field specialist, Iowa State University Extension
 Dr. Arlin Karsten, DVM, professor, Swine Center, Kirkwood Community College

ASL-R1795

Summary and Implications

The addition of Paylean® (ractopamine hydrochloride premix a product of Elanco Animal Health, a division of Eli Lilly and Company) at the 9 grams/ton level in the finishing diet for 28 days increased the production parameters of grow-finish pigs and resulted in a greater economical advantage over the pigs fed a traditional finishing diet. Paylean fed pigs exhibited a higher average daily gain during the feeding of the Paylean product, which translated into a higher gain advantage for the entire feeding period. Paylean fed pigs also provided a lower feed efficiency. Because of the increased carcass merit of the Paylean fed pigs a higher percent lean carcass was observed. As a result of these increased production and carcass parameters, a higher profitability advantage for Paylean fed pigs over the control pigs was evident. Therefore, the addition of Paylean in the grow-finishing diet will give added pig performance that will enhance the profitability of pork production.

Introduction

This demonstration project was designed to test Paylean® (ractopamine hydrochloride premix, a product of Elanco Animal Health, a division of Eli Lilly and Company) under commercial production conditions. The objective was to demonstrate whether the feeding of Paylean in the finishing diet would economically and effectively increase the production parameters of grow-finish pigs.

Materials and Methods

The study was conducted in a 100-head room of a modern double curtain finishing facility at Kirkwood Community College, Cedar Rapids, IA. There were three pens on each side of the room with a control treatment of no Paylean and a Paylean treatment of 9 grams/ton for 28 days. Treatments over two replications were assigned to each side of the room. Trial one was PIC 327 sired pigs from a YxL sow base with 47 mixed sex pigs on both the control and Paylean treatments. Trial two was Segher sired pigs from a YxL sow base with 54 mixed sex pigs on the control and 55 pigs on the Paylean treatment. All pigs were allotted to treatments by litter and sex. Pigs were ear tagged and then group weighed every two weeks. When the pigs were placed on Paylean, they were weighed individually and serial scanned for backfat and loin muscle area by an NSIF certified real-time ultrasound technician on days 0, 14, and 28. The calculated composition of crude protein, lysine,

total and available phosphorus, and calcium in the Paylean feeding phase for the control and Paylean diets are shown in Table 1.

Table 1. Experimental diets in Paylean phase.

| | Control diet | Paylean diet |
|---------------------|--------------|--------------|
| Crude protein, % | 14.20 | 16.90 |
| Lysine, % | 0.70 | 1.00 |
| Phosphorus, total % | 0.54 | 0.59 |
| Phosphorus, avail % | 0.27 | 0.30 |
| Calcium, % | 0.57 | 0.63 |

Results and Discussion

Trials one and two were combined to give the reported data. As indicated in Table 2, the performance parameters indicated an advantage for Paylean inclusion in the finishing diet. The Paylean fed pigs had an increased average daily gain for the entire trial while maintaining a lower feed efficiency. The Paylean fed pigs resulted in a higher finishing phase profitability as the margin over costs per head indicated a \$5.55 head advantage. Because of the cost of Paylean and the increased nutritional requirement with Paylean feeding, the feed cost per head was higher for the Paylean diets (Table 2).

Table 2. Performance parameters for entire project.

| | Control | Paylean |
|-------------------|---------|---------|
| ADG, lb/day | 1.88 | 2.04 |
| Feed eff., lb/cwt | 294 | 273 |
| Feed cost, \$/hd | 25.50 | 28.52 |
| Margin, \$/hd | 9.29 | 14.84 |

All of the pigs were fed the same diets until placed on Paylean. When the pigs averaged approximately 163 lb. Paylean was added to the diets. With the addition of Paylean, significant differences ($P=0.0001$) in average daily gain, backfat, and loin muscle area were noted in the feeding phases of 0 to 14 days, 14 to 28 days, and 0 to 28 days (Table 3).

Table 3. Performance changes during Paylean feeding phase.

| Parameter | Days on Paylean | | | | | |
|--------------|-----------------|-------------------|----------|-------------------|---------|-------------------|
| | 0 to 14 | | 14 to 28 | | 0 to 28 | |
| | C | P | C | P | C | P |
| ADG, lb | 2.00 | 2.58 ^a | 1.88 | 2.01 ^a | 1.94 | 2.30 ^a |
| BF, in. | 0.10 | 0.05 ^a | 0.11 | 0.09 ^a | 0.20 | 0.14 ^a |
| LMA, sq. in. | 0.73 | 1.40 ^a | 0.70 | 0.81 ^a | 1.42 | 2.21 ^a |

C, control; P, Paylean.

^a All parameters were significant at $P=0.0001$ for Paylean.

Table 4. Performance during Paylean feeding phase.

| Parameter | Days on Paylean | | | | | |
|------------|-----------------|------|------|------|------|------|
| | 0 | | 14 | | 28 | |
| | C | P | C | P | C | P |
| Weight, lb | 164 | 163 | 191 | 199 | 218 | 227 |
| BF, in. | .44 | .45 | .54 | .50 | .65 | .59 |
| LMA, in. | 4.96 | 5.03 | 5.69 | 6.43 | 6.39 | 7.24 |

C, control; P, Paylean.

Table 5. Lean gain on test.

| Feeding Phase | Control | Paylean |
|----------------|---------|---------|
| Begin to day 0 | 0.8573 | 0.8518 |
| Day 0-14 | 0.7400 | 1.2296 |
| Day 14-28 | 0.5642 | 0.7837 |
| Day 0-28 | 0.7188 | 1.0067 |
| Entire trial | 0.8019 | 0.9065 |

All marketed pigs were sold to the same packer. The control carcass data represents 70 head as the kill sheet on 18 head was lost at the plant. Pigs were weighed before loading to determine the amount of shrink due to transportation and handling. Paylean pigs were slightly higher in shrink; however, they were nine pounds heavier at the packing plant. The control pigs were slightly higher in yield. Paylean fed pigs produced a heavier hog that had decreased backfat and increased loin muscle depth; therefore, Paylean fed pigs were higher in percent lean (Table 6).

Table 6. Average kill sheet data.

| | Control | Paylean |
|-----------------|---------|---------|
| Harvested, hd | 88 | 93 |
| Live wt., lb | 223 | 232 |
| Carcass wt., lb | 174 | 179.5 |
| Shrink, % | 3.44 | 3.54 |
| Yield, % | 77.9 | 77.6 |
| Backfat, in. | 0.69 | 0.67 |
| Loin depth, in. | 2.17 | 2.28 |
| Percent lean, % | 53.35 | 54.30 |

Acknowledgements

This demonstration project was supported by a grant from Elanco Animal Health, a division of Eli Lilly and Company. We thank Dr. Tom Marsteller, DVM, Technical Consultant for Elanco Animal Health for support and technical advice in this project and to Brian Rittgers, Elanco Projects Manager, and Chad Steinkamp, Elanco Sales Representative.

Gratitude is given to Dr. Arlin Karsten, DVM, Kirkwood Community College swine production professor, for collaboration, cooperation and support of this project and to the Kirkwood Community College Swine Production staff and students who helped with this project.

We also thank Dr. John Mabry, Director of the Iowa Pork Industry Center, for providing the statistical analysis of the project data.