

Effect of Ractopamine in Finishing Diets: Economics

J.F. Patience¹, A.D. Beaulieu¹, J. Merrill², D.A. Gillis¹, and G. Vessie²

SUMMARY

Pigs were fed a control diet, or that diet supplemented with 5 ppm/kg ractopamine for an average of 27 days. Ractopamine improved growth and feed conversion, decreased backfat and improved loin thickness. The economic benefit accruing from the use of ractopamine will depend on market prices, grading grids and the current farm's carcass quality. Based on our experiment we estimate a "typical" return in the range of \$2 to \$3 per pig sold.

INTRODUCTION

Paylean® is a feed additive that was recently registered in Canada. The active ingredient of Paylean® is ractopamine, a beta-adrenergic agonist known to stimulate muscle growth and inhibit fat deposition. The final decision to use Paylean® will depend on the relative economics. Similar to other feed additives, there is a cost to using this product. Apart from the cost of the product there are costs associated with the additional nutrients and management required to exploit the performance expected with Paylean®.

MATERIALS AND METHODS

Approximately 530 animals were assigned to receive either a control or a diet supplemented with Paylean® to supply 5 mg/kg ractopamine (RAC). This was to provide an average of 28 days on Paylean® prior to slaughter.

All animals were fed a diet comparable to the barn's normal gilt finisher. The experiment consisted of two treatments: control or 0.25% Paylean®, equivalent to 5 ppm ractopamine. Except for total lysine which was increased to 1.00 % and the 5 ppm ractopamine; the Paylean®-fed pigs were fed a diet formulated to the same specification as the controls.

All pigs were shipped to Mitchell's Gourmet Foods in Saskatoon. Shipping occurred once per week. Pigs were shipped at 116 kg. Market weights were recorded on the morning prior to marketing. The room was completely emptied on week 14 of the growout period (week 6 of the experiment) as per normal barn procedure. Pigs not attaining 116 kg after 14 wk of growout are classified as tail-enders.

Because the economic impact of using ractopamine is dependent on individual farm circumstances, the calculations used different scenarios. We assumed a market price of \$1.40/kg and a net market value of \$149.00. Other assumptions are described under the appropriate table.

RESULTS AND DISCUSSION

Table 1 shows the performance and carcass parameters, which influence the economics of pork production. Additionally, the feed costs, associated with the use of ractopamine are described.

'Based on our data, the use of RAC would permit the close-out of a room or barn approximately one week earlier.'

Based on our data, the use of RAC would permit the close-out of a room or barn approximately one week earlier. Assuming that pigs are available to refill that room one week earlier, the net return per pig place would increase by almost \$5.00 per year (Table 2). Alternatively, the number of tail-end pigs could be reduced. Reducing the proportion of tail-end pigs from 7.5 % to 0.75 % would increase gross income by about \$2.17 per pig sold in a \$1.40 /kg market and assuming the tail-end pigs weigh an average of 81 kg, have an average index of 101.9 and receive a loin bonus of \$1.86.

Table 1. The effect of 5 ppm ractopamine on parameters influencing the economics of pork production.

Parameter	Control	RAC
Days on test	30.1	26.5
Tail-enders	20	2
# pigs condemned	0	2
# pigs DOA	0	3
Overall ADG, kg/d	1.08	1.22
Overall FCE	0.32	0.36
Kg feed/pig started	100.7	89.2
Backfat, mm	18.1	17.1
Loin thickness, mm	68.26	70.79
Carcass index	109.96	110.57
Carcass premium, \$	1.64	1.34
Carcass value, \$	118.77	119.08
Feed Cost (\$/Pig)		
Basal cost	13.73	12.19
Extra amino acids	0.00	0.59
Extra minerals and vitamins	0.00	0.21
Ractopamine	0.00	1.72
Total feed cost	13.73	14.71

¹Prairie Swine Centre, ²Elanco Animal Health, Guelph, Ontario

Table 2. The impact of reducing the growout period by 1 week^a

	Control	RAC	Difference, \$/pig
Barn turn, wk	16	15	
Gross revenue, \$/pig	149	149	0.00
Feeder pig cost, \$/pig	67	67	0.00
Contract barn cost, \$/turn	16	15	1.00
Feed, trucking, etc, \$/pig	60	60	0.00
Net, \$/pig	6.00	6.00	1.00
Net, \$/pig place	19.50	24.29	4.79

^aAssumptions: Contract barn cost is \$52 per pig place per year; feeder pig valued at 45% of market hog; trucking cost is \$5; other cost \$5.

If producers are operating under a grading system that does not penalize heavier carcasses, the increase in growth rate could be converted directly into heavier pigs sold (rather than pigs of the same weight sold earlier). Using the growth data obtained from our experiment, and accounting for the additional feed required the return over feed cost would be an additional \$3.94 per pig sold (Table 3).

RAC decreased back fat thickness by 1 mm and increased loin thickness by 2.5 mm. In gilts, where backfat was unchanged and loin thickness increased by 2.4 mm, carcass index actually declined by 0.3. In barrows, backfat was reduced by 1.8 mm and loin thickness increased by 2.6 mm, carcass index actually increased by 1.6. Based on the results of our experiment, this increase in carcass index would increase gross income per pig by only \$0.80 in a \$1.40/kg market.

The increase in loin thickness observed as a consequence of using RAC would increase loin premiums on most farms. However, in our experiment, the control pigs already had a loin thickness of 68.3 mm, and loin premiums dropped from \$3.50 to 0.50 when loins exceeded 70 mm. However, if average loin thickness is 62.8 mm (Mitchell's Gourmet Foods, personal communication) and assuming a standard deviation of 6.8 mm (PSC Elstow Research Farm, unpublished) RAC would decrease loin premiums from \$2.56 to \$2.46 (Table 4). A change in loin premium structure would dramatically alter this scenario.

CONCLUSION

The actual benefit accruing from the use of RAC will depend on individual farm circumstances. However, based on our data, the "typical" farm will see a return of \$2 to \$3 per pig sold.

ACKNOWLEDGEMENTS

Strategic funding provided by Sask Pork, Alberta Pork, Manitoba Pork Council and Saskatchewan Agriculture and Food Development Fund. Specific funding for this project from Elanco Animal Health is gratefully acknowledged.

Table 3. The impact of marketing heavier pigs

	Control	RAC	Difference, \$/pig RAC - control
Market price, \$/kg	1.40	1.40	\$0.00
Value of heavier carcass ^a	0.00	5.83	\$5.83
Finishing feed cost, \$/tonne	150	150	\$0.00
Finishing feed cost, additional \$/pig ^b	0.00	1.89	-\$1.89
Net return			\$3.94

^aPigs on Paylean grew 13% more than control pigs over the 26 day feeding period, this resulted in a 3.6 kg more live weight, or a 2.9 kg heavier carcass. The value of the additional carcass is: \$1.40/kg x 2.9 kg x 1.1057 (index) + \$1.34 (loin premium)

^bFinishing feed requirement; 3.6 kg gain x 3.5 kg feed/kg gain = 12.6 kg feed x \$150/tonne.

Table 4. The impact of marketing heavier loins^b

	Control	RAC	Difference RAC - control
Average loin thickness, mm	62.8	65.3	+2.5 mm
Standard deviation, mm	6.8	6.8	0.00
Percentage of loins falling within;			
50 to 54 mm	12.7	6.6	
54 to 59 mm	21.4	15.2	
60 to 70 mm	51.2	53.7	
71 + mm	14.7	24.5	
Mean premium, \$/pig sold	2.56	2.46	\$ - 0.10

^aLoin premium: \$1.25 (50 to 54 mm); \$2.50 (55 to 59 mm); \$3.50 (60 to 70 mm), \$0.50 (71 + mm).