

The Facts about Paylean®

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Highlight

Paylean® is approved in Canada for use as feed ingredient for finishing barrows and gilts only. It is not approved to use it for breeding swine and pigs intended to be retained for breeding.

What is Paylean®?

Paylean® is a trademark of Elanco's brand of ractopamine or ractopamine hydrochloride, used as a feed additive in pork production.

Ractopamine is a small compound that binds to beta-adrenergic receptors in the body. The idea of using beta-adrenergic receptor (β AR) agonists to modify growth rate and body composition has been investigated for over 20 years. Ractopamine, developed and produced by Elanco Animal Health, becomes the first β AR product to be approved for use in finishing swine.

The effects of Paylean®

Paylean is able to take energy from fat growth and redirects it to promote the increase of muscle fiber diameter and the growth of lean muscle protein. Paylean® has been shown to increase hot carcass weight, dressing percent and loin eye area in pigs (Trapp et al., 2002), and can also reduce the number of days to market.

According to Elanco Animal Health literature, Paylean® fed at 18 grams per ton improved feed efficiency by 13%, increased average daily gain by 10%, reduced average daily feed intake by 6% and increased lean gain by 25-37% in research trials.

According to Elanco's news letter related to the Paylean® approval in Canada, it improves average daily gain and feed efficiency by 10-15%, and shows no adverse effects on meat quality.

The environmental effects

According to Sutton et al. (2001), average manure output was reduced by 3.9% in pigs fed Paylean® and nitrogen excretion can be reduced by 10.7 to 34.2%. Thus, the use of Paylean® can potentially reduce the amount of odor and increase the air quality of the surrounding environment.

Paylean® approved for use in Canada

Paylean® was approved for use in swine in Canada. It will be available this fall for Canadian swine producers according to Elanco Animal Health.

Paylean is approved in Canada for use in meal or pellet feed for finishing barrows and gilts only. It is not approved to use it for breeding swine and pigs intended to be retained for breeding. It is advised not to feed rations containing Paylean for more than six weeks.

Paylean products approved in Canada

Two brands of Paylean products were approved:

1. PAYLEAN 20 PREMIX contains ractopamine hydrochloride at 20 g/kg (Elanco).
2. PAYLEAN 100 PREMIX contains ractopamine hydrochloride at 100 g/kg (Elanco).

How to use Paylean® as a swine feed additive?

Two claims are approved in Canada for finishing barrows and gilts:

Claim 1 is for increased carcass leanness, increased dressing percent, improved rate of weight gain and improved feed efficiency. The concentration of the drug should be 10 mg/kg (0.001%) of the complete feed.

Claim 2 is for improved rate of weight gain and feed efficiency at the concentration of 5 mg/kg (0.0005%) of the complete feed.

In both claims, feed containing Paylean should be used continuously as the sole ration to finishing barrows and gilts, that are a minimum 70 kg starting body weight for no longer than 6 weeks. Paylean is recommended to be continuously fed for an average of 28 days prior to slaughter.

It is important to remember that Paylean increases growth (both in average daily gain and feed efficiency) and therefore, pigs will grow differently than they would normally. US experts advised to closely monitor each individual pig's growth and keep track of the days to the show in order to prevent animals from being over its optimal weight. The use of Paylean should be carefully planned so that it is within the law and able to keep the cost to a minimum and maximize results.

Can Paylean® replace genetic improvement?

No, it can not replace genetic improvement and turn a pig of poor genetics for growth and carcass quality into a top quality market hog. As a feed supplement, Paylean enhances swine productivity and is especially effective with better genetics. Research by Schinckel and colleagues indicates that while increased growth due to Paylean® can be seen in all pigs, the most dramatic increase can be seen in pigs that already have a greater genetic potential for lean growth. Genetic improvement is still the engine of the swine industry.

Paylean will not turn an average animal into an ideal animal. However, proper management, nutrition and housing, together with Paylean can greatly affect animals' performance. Paylean should be viewed as a management tool to enhance the genetic potential of animals, according to researchers.

Implications for genetic improvement programs

Although Paylean is not approved for breeding swine, swine improvement programs may still need to be reviewed once Paylean is widely used for pork production. For example, it needs to be checked whether economic weight for carcass leanness needs to be downwards adjusted. If an adverse effect on meat quality is found, there could be additional emphasis on genetic selection for meat quality.

It is very interesting to know whether there is an interaction between genetic lines and the effect of Paylean on different traits, such as growth rate, feed conversion and meat quality. Reports regarding this aspect have not been found.

Paylean effect diminishes over time

One of the most important things to consider when using Paylean is that the response is not constant over time. The response to Paylean is rapid during the first week of use, but the results begin to diminish as the program extends from weeks four to six. Each producer needs to determine the optimal conditions of Paylean use, consisting of the level and duration of use, and depending on the amount of payment gained for the additional lean produced.

Feeding it longer than recommended will not yield an additional response.

Paylean® trials in Canada

Some trials in the US implied that studies are needed to check for possible unfavorable effects of Paylean on meat quality and stress susceptibility. In Canada, research trials are being planned, i.e. at CDPQ and Prairie Swine Centre, which will look at the economic impact in Canadian hogs, and check whether there are adverse effects on critical factors such as the high quality of Canadian pork.

Does Paylean® work only for swine?

The effects of Paylean® are observed in many species, but it is approved so far only for use in swine as a feed ingredient.

Is the nutrition demand different for pigs fed Paylean?

Nutritional requirements are greater with the use of Paylean®. Pigs fed Paylean have slightly elevated protein requirements, especially lysine and some other amino acid. The Paylean label

indicates that feeds supplemented with the product should contain a minimum of 16% crude protein.

Can Paylean be used in higher concentration than approved?

According to US studies, increasing the dosage more than 18 grams/ton has shown absolutely no improvement in either on-farm performance or carcass parameters. It appears that a point of diminishing returns is reached when exceeding the dosage level.

Feeding it longer than approved is not legal and will not yield additional response.

How much does Paylean cost for each ton of feed?

The price in Canada is not clear. In USA, it costs US \$30 to \$40 per ton of feed (at 18 grams/ton), according to an extension paper of Chris Shumate and C. M. Wood (2003) at the VA Tech.

Concerns related to Paylean uses

Paylean® might lead to

- increases of heart rates and catecholamine levels. Pigs might be more sensitive to rough handling and increased stress during transportation..
- slightly higher shear force (less tender).

Overall, ractopamine has so far shown itself to be a product with numerous advantages and minimal negative effects.

Countries that approved the use of Paylean®

NORTH AMERICAS: United States, Mexico and Canada.

AMERICAS: Barbados, Bolivia, Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Panama, Peru, and Venezuela.

ASIA PACIFIC: Australia, Indonesia, Korea, Philippines, Thailand and Vietman.

AFRICA: South Africa