How bio-active peptides improve lean meat and feed conversion in fattening pigs

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With increasing raw material prices, feed costs will increase and will be a challenging factor in the sustainability of pig production. On average, feed costs accounts for 60% of the total production costs of pig farming. Another hassle to tackle is that the cost of feed is highly susceptible to changes in raw material prices on the world market.

Driven by the contemporary high feed prices, feed producers and pig farmers are always looking for innovative ways to reduce the major cost of pig production; the cost of feed.

In times where feed prices are relatively high compared to the price of the end product, in this case pig meat, some farmers tend to lower the production cost by reducing the price of feed. In most of the cases this is not the best option. It is clear that when the focus is only on costs, one can never optimise the production process. Reducing costs will be a short term solution.

Return on investment

In the long run, the return on investment will be the most important driving factor.

In this respect, a large number of natural complementary feed products have been screened over the years. Huvepharma has introduced Lianol Solapro, based on a highly digestible fermented potato protein.

This product has been shown to significantly improve carcase lean meat percentage, feed conversion and survivability in fattening pigs when included in the feed.

The recommended dose in fattening pig diets is 300g per tonne. The product should be included in the feed starting at a live weight of 35-40kg until slaughter.

During the production process a specific bacterial strain ferments the potato protein into bio-active peptides.

These bio-active peptides influence IGF-1 (Insulin-like Growth Factor 1) levels in animals as demonstrated in published data during IPVS 2010. IGF-1 secretion is the key element in a complex endocrine process which is determined by several glands. The most important one is the pituitary gland secreting growth hormone (GH). This GH secretion is directed by a specific release hormone. It passes the bloodstream, from where it reaches the liver and activates a number of GH receptors (GHR), determining the level of IGF-1 secretion (see Fig. 1).

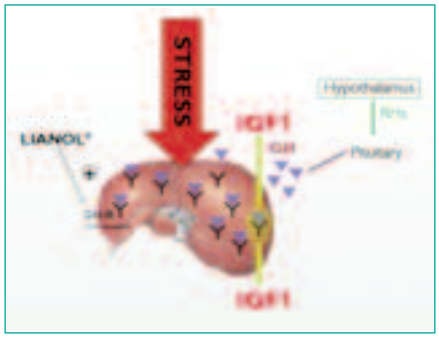

Fig. 1. IGF-1 secretion; mode of action of Lianol.

IGF-1 is involved in many metabolic processes including fertility, tissue repair (muscle, bones, etc), containing and regulating the heart muscle function and the regulation of body fat.

IGF-1 secretion by the liver cells can be affected by a number of factors, such as immune system activation due to infections, inflammation or viruses. Heat stress or a negative energy balance are also recognised to reduce GH receptor sensitivity (see Fig. 1) leading to reduced levels of IGF1.

This is induced through transcriptional gene silencing of the genes that encode for the GHR.

Lean meat percentage

Research of Florini et al. (1996) demonstrated that IGF-1 is an important mediator in protein accretion in skeletal muscle and other lean tissues. Therefore a trial was undertaken to take a closer look at the effect of Lianol Solapro on the lean meat percentage in fattening pigs. All animals in this study were housed on the same farm to exclude variation between farms. Housing conditions, feed and genetics remained unchanged during the trial period.

The trial was performed as a cohort study. Lean meat percentages for the first quarter of 2010 were compared with those of the first quarter of 2011. The pigs that had been slaughtered in the first quarter of 2010 received a control diet. Pigs slaughtered in the first quarter of 2011 received the same feed, except for an additional supplementation of 300g of Lianol Solapro per metric ton of feed.

All pigs were slaughtered in the same slaughterhouse, where the lean meat percentage of the carcases was determined.

In 2010, the control period, a total of 1,126 carcases and in 2011, the treatment period, 787 carcases were monitored.

The lean meat percentage significantly increased from 61.78 ± 3.82 (mean ± stan-

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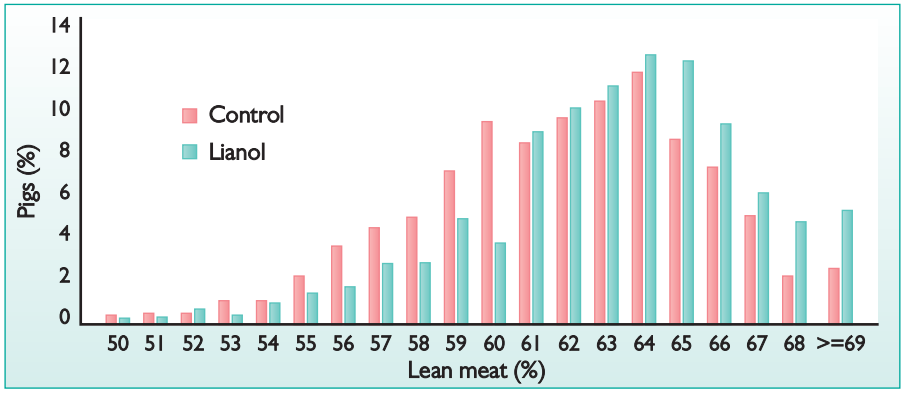
Fig. 2. The effect of adding 300g of Lianol Solapro per ton of fattening pig feed from 35-40kg live weight until slaughter.



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dard deviation) in the control group to 63.16 ± 3.92 in the Lianol group. The lean meat content distribution of both control and Lianol group is shown in Fig. 2.

This study clearly demonstrates a beneficial effect of this new complementary feedstuff on the lean meat percentage in fattening pigs.

It can be expected that the increased lean meat percentage will improve feed conversion. The deposition of lean meat consumes about three times less energy compared with the deposition of body fat.

So, from the results generated, it can be expected that Lianol will also affect the feed conversion ratio in fattening pigs. To verify this hypothesis, two consecutive well controlled field trials were performed on the same farm in Belgium.

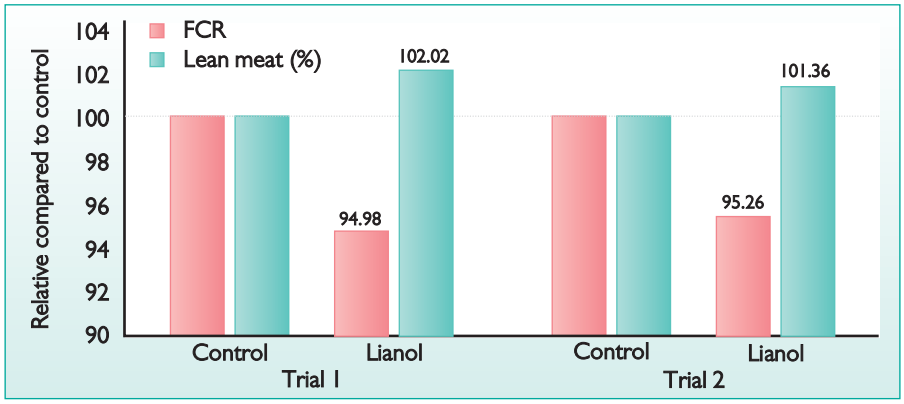

Fig. 3. The effect of Lianol Solapro on lean meat percentage and FCR. The control group is put at 100%.

The animals originated from Large White x Landrace sows and a Belgian Piétrain boar. In each trial 720 animals were equally distributed between a control group and a Lianol group.

The animals were simultaneously housed in the same compartment; all animals entered the trial at the same moment. In this way, effects of climate, disease pressure and other management factors can be excluded.

The diets were equally formulated. The Lianol group diet was supplemented with 300g of Lianol Solapro per ton of feed for pigs from 35-40kg until slaughter.

The daily gain, feed conversion (FCR) and lean meat percentage on the carcase were evaluated.

In the first trial the lean meat percentage increased from 59.36 to 60.56% in the control group and Lianol group respectively.

In the second trial, this percentage increased from 59.62 to 60.43% in the control group and Lianol group respectively. As a consequence of the higher lean meat percentage, the FCR improved by 5% in the Lianol group in both trials (see Fig. 3).

Significant reduction in costs

Under Belgian conditions, this improved lean meat percentage gained an extra benefit of €2.7 per carcase in the first trial and €2.2 per carcase in the second trial. On top of that, the improved feed conversion resulted in another extra benefit of €2.9 and €4.0 per slaughtered pig in the first and second trial respectively.

This research clearly demonstrates the potential of a natural complementary feedstuff such as Lianol Solapro to contribute to a more efficient fattening pig production.

With high feed prices and the never ending pressure on the price of pork, efficiency will be the thriving factor in fattening pig production. Products like Lianol Solapro contribute to a significant reduction in pig production costs ensuring the sustainability of the sector. ■