

# Lysolecithin improves energy utilisation in broilers

The effect of supplementing broiler diets with lysolecithin to improve the digestibility of dietary fat is well known. Wealleans et al. (2019) quantified its on growth performance across dietary crude fat contents and sources, based on a meta-analysis of 33 trials.

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In these 35- to 42-day performance trials, diets were supplemented with lysolecithin throughout the production period, either added 'on top', or after diet reformulation, reducing the dietary energy content by lowering the levels of added dietary fat.

They concluded that lysolecithin supplementation 'on top' consistently resulted in an improved feed efficiency, whereas they calculated from diet reformulations, that 125 and 250g/t could recover a dietary energy reduction of 57 and 73 kcal/kg feed, respectively.

Especially with today's limited availability of feedstuffs in many countries, price will be subordinated to feedstuff quality.

Nutritional aids like lysolecithins could present more degrees of freedom in feed formulation, i.e. reduce feed costs, while maintaining broiler productivity. As such, lysolecithins could be a powerful tool to allow a reduction in dietary energy concentration, without negative effects on broiler performance.

The digestibility of dietary fat is reduced:

- In young broilers.
- In diets with a lower US ratio (ratio between unsaturated and saturated fatty

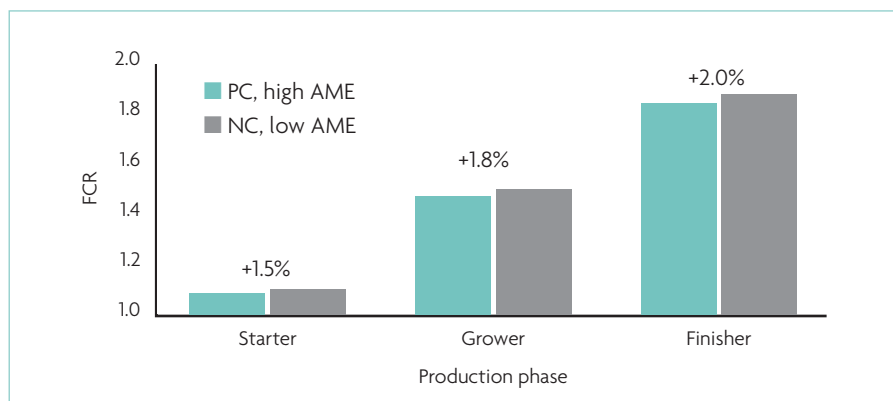


Fig. 1. Effect of a reduced dietary AME by 80 kcal/kg on FCR in starter (0-14 days), grower (15-28 days) and finisher (29-35 days) phase.

acids), like diets with higher inclusion levels of palm oil.

● In cases of compromised intestinal health (like subclinical coccidiosis), or digestive stress like high daily feed intakes, or high intestinal viscosity values.

Dietary fat and amino acid concentrations in the successive production phases are highly relevant to optimise the production performance of broilers and especially in concentrated diets, effects of lysolecithins will be more pronounced.

Olus Plus produces Elan Digest, a lysolecithin-based emulsifier as a feed supplement for young animals.

An experiment was done to determine the effect of Elan Digest on production performance of broilers during a 35-day performance trial. In this trial, the above mentioned factors were taken into account.

Broilers were housed in floor pens, situated in the middle of a broiler house, resembling usual health challenges during

commercial broiler production. Other circumstances are indicated in Table 1.

Male Ross 308 broilers were fed a 3-phase corn/wheat-based diet. The added fat content of the positive control (PC) diet, was reduced by 1.6% in exchange for wheat, to obtain the negative control (NC) diet with a reduced dietary AME content: 1.6% lower soya oil content in the starter and 0.8% soya oil and 0.8% palm oil contents in the grower and finisher diets.

Both control diets were fed without and with 125g/t lysolecithin (as 500g/t Elan Digest), resulting in four treatments (Table 2).

Broilers were housed in floor pens (eight replicate pens/treatment; 25 broilers/pen) on wood shavings.

## Results

The reduction of the dietary AME value by approximately 80 kcal/kg resulted in a higher FCR.

This effect increased with age from 1.5% (P=0.01) in the starter to 2.0% in the finisher phase (Fig. 1).

From 1-35 days of age, FCR on the NC diet was 2.5 points higher (P<0.05), and final body weight 13g lower (NS), than the PC diet, both without dietary Elan Digest supplementation (Table 3).

After correction for differences in the average final BW (using two points FCR per 100g BW), it was indicated that a reduction

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Table 1. Settings for the positive control diet in the successive production phases.

	Starter (0-14 days)	Grower (15-28 days)	Finisher (29-35 days)
Added fat	Soya oil	Soya oil/Palm oil	Soya oil/Palm oil
Added fat level (%)	2.6	1.2/2.6	1.7/4.3
Dietary US ratio	5.2	2.3	2.0
Coccidiostat	Maxiban	Sacox	None
Endoxylanase	Yes	Yes	Yes

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of dietary AME by 80 kcal/kg resulted in an increased FCRc by 2.7 points (P<0.05).

Dietary supplementation with 125g/t lysolecithin (as 500g/t Elan Digest) improved FCRc by 1.1 points on the PC diet and 1.7 points on the NC diet. The positive effect of lysolecithin supplementation to the NC diet was close to significance (P<0.10).

Based on this experiment, it was calculated that adding 500g/MT Elan Digest allows a reduction of the dietary AME by 50 kcal/kg (or 210 kJ/kg) for reaching a similar FCRc over a 35-day growth period.

This value is similar to the energy value calculated according to Wealleans et al. (2019), being 51 kcal/kg.

## Conclusions

Supplementation of a three phase broiler diet with lysolecithin (125g/t, as 500g/MT Elan Digest) allows a reduction of the dietary AME by 50 kcal/kg for reaching a similar FCR over a 35-day growth period. This would result in a return on investment of approximately 6:1 at the current wheat and fat prices. ■

References are available from the authors on request

	High AME (PC)	Low AME (NC)
<b>Starter</b>		
AME <sup>2</sup> , kcal/kg	2,870	2,785
Added fat/US ratio	2.6/5.2	1.0/5.2
Total dietary fat (g/kg)	5.2	3.6
<b>Grower</b>		
AME <sup>2</sup> (kcal/kg)	2,935	2,855
Added fat/US ratio	3.8/2.3	2.2/2.4
Total dietary fat (g/kg)	6.1	4.5
<b>Finisher</b>		
AME <sup>2</sup> (kcal/kg)	3,050	2,975
Added fat/US ratio	6.0/2.0	4.4/2.0
Total dietary fat (g/kg)	8.3	6.7

<sup>1</sup>Diets were fed with and without 125g/t lysolecithin; <sup>2</sup>Calculated according to CVB

**Table 2. Experimental set-up<sup>1</sup> to determine the effect of lysolecithin on broiler performance.**

**Table 3. The effect of lysolecithin supplementation on the positive (PC) and negative control (NC) diet.**

	Final BW (g)	FCR	FCRc
PC	2,610	1.464	1.465
PC plus lysolecithin <sup>1</sup>	2,623	1.456	1.454
NC	2,597	1.489	1.492
NC plus lysolecithin <sup>1</sup>	2,602	1.473	1.475

<sup>1</sup>125g/t lysolecithin