

Reducing feed cost – a global task for poultry producers

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Producers of poultry meat were glad about the genetic developments during the last few years. More and more records were achieved: higher growth rates along with shorter growing periods and reduced feed conversions. This seemed to be the formula for profitable poultry meat production!

However, achievement of these goals requires an ever increasing density of dietary nutrients, particularly of protein and digestible amino acids.

Unfortunately, steadily increasing prices for raw materials, predominantly those of protein sources and amino acids, stand against this trend.

Thus, the 'cent business' of poultry meat production has become a balancing act between the birds' zootechnical potential and feed cost, which amounts to 55-60% of the total production cost, depending on the cost of raw materials.

In order to balance the cost of feeding with the achievable prices for live weight, different concepts, including reductions in ME MJ/kg and increases in digestible amino acids or blending of diets with wheat, were implemented.

Another option is the use of feed additives which encourages the birds' endogenous

	Control day 35	Digestarom day 35	Control day 42	Digestarom day 42
Final live weight (g)	1919	1954	2704	2727
FCR I	1.451	1.423	1.506	1.472
European efficiency factor	385	398	423	433
MJ/ME/kg live weight	19.044	18.687	19.887	19.423
Difference vs. Control (MJ/ME/kg live weight)	0	0.357	0	0.464

Table 2. Zootechnical results and energy calculation.

enzyme secretion, thus resulting in increased protein and amino acid digestibilities.

The advantage of using a feed additive is that its efficacy is high in diets with higher or lower nutrient densities.

In previous studies, especially under practical conditions, it was shown that the phyto-genic digestibility enhancer Digestarom Poultry had a positive impact on growth rate, feed conversion, medication cost and mortality.

Obtaining high levels

Experiments carried out at the Free University of Berlin measuring ileal digestibility coefficients in monogastric animals indicate a significant improvement in amino acid digestibility. This was the reason to investigate, in cooperation with the Institute of

Animal Nutrition in Berlin, the potential benefit of Digestarom Poultry in broilers fed optimised rations.

The trial was carried out as an efficiency test using male Cobb broilers. Parameters under investigation included live weight, feed consumption and feed conversion ratio (kg feed per kg gain, FCR) from 1-42 days of age.

The experiment included 20 birds per pen and six pens per treatment. In contrast to the recommendations of the breeding company, a three phase-feeding program was applied.

Birds were fed starter (week one and two), grower (week three and four) and finisher (week five and six) diets.

The diets met the requirements of the Society of Nutrition Physiology as well as those provided by the breeding company (Table 1).

The phyto-genic feed additive was included at a dosage of 150g/t of complete feed. There were no incidents during the entire trial. In total three animals died, one in the control, and two in the test group. Thus, mortality (1.25%) was significantly below the commercial average of 4.5%.

Due to the diet and optimal conditions in the experimental unit, FCR was significantly below the breed standard. Cobb indicates an FCR of 1:1.596 for day 35 and 1:1.70 for day 42. In the trial, birds in the control group achieved an FCR of 1:1.451 and 1:1.506 on day 35 or 42, respectively!

This is 11.6 or 19.4 points less in comparison with the breed standard (Table 2).

Despite this high level of efficiency, FCR was still 2.6 or 3.4 points lower in birds fed the phyto-genic feed additive.

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Table 1. Principle dietary components and calculated ingredients.

Principle components	Starter	Grower	Finisher
Soy bean meal (48%)	32.58	26.72	24.30
Corn (%)	30.99	30.99	30.99
Wheat (%)	25.79	30.16	32.30
Soy oil (%)	6.05	7.45	7.97
Ingredients (calculated)			
MEN (ME/kg)	12.65	13.12	13.34
Crude protein (g/kg)	222.10	200.00	190.00
Lysine (g/kg)	12.90	12.00	11.10
Methionine (g/kg)	5.90	6.00	5.70
Methionine/cystine (g/kg)	9.70	9.50	9.00
Crude fibre (g/kg)	24.30	23.50	23.30
Ether extract (g/kg)	82.70	96.60	101.80

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In energetic terms, 0.357 or 0.464 MJ ME/kg live weight were spared on day 35 and 42, respectively (Table 2). Taking into account the additional cost for the additive, the additional margin over feed cost amounts to 2.4 Eurocents/bird.

Another experiment at the experimental unit in Hyderabad, India, indicates a similar result. In this trial, a reduction in dietary ME and protein concentrations was implemented (Fig. 1).

During the last three days of the experiment, excreta were sampled and apparent digestibilities of energy and protein were determined. An increase in digestibility in birds fed Digestarom Poultry was confirmed in this trial.

Proper digestion

Another aspect of a proper digestion of the diet is related to animal health. This relationship was the focus of an experiment carried out at Schothorst Feed Research in the Netherlands.

The aim of this study was to provoke a more moist litter by feeding a 'stress diet', and to investigate the influence of Digestarom supplementation on litter score and foot pad lesions.

As hatched Ross 308 broilers were fed for 31 days. Lesion score, determined on day

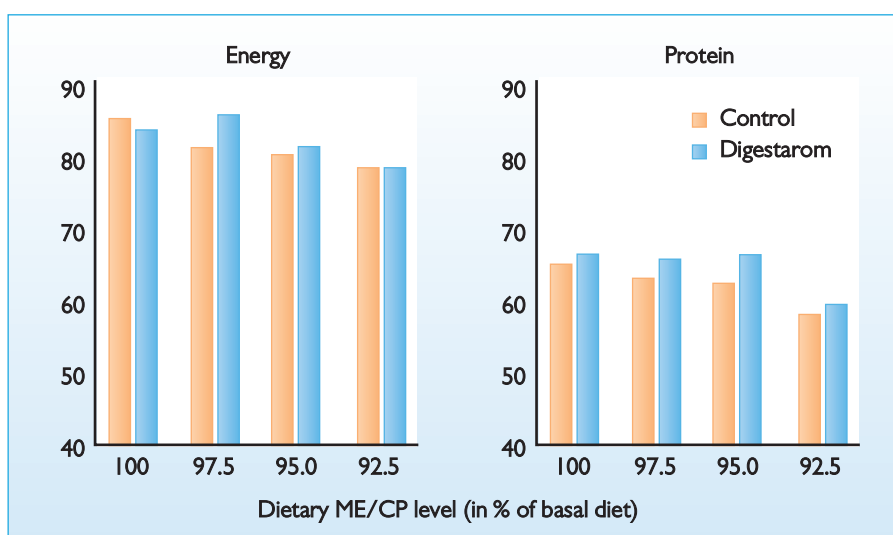


Fig. 1. Digestibility of energy and protein in broilers fed different dietary ME/crude protein levels.

31, ranged from one (no lesions) to four (severe lesions with necrosis).

The improvement in lesion score in the test group is due to a decrease in the number of severe lesions in comparison with the control group (Table 3). In the test group, there were 15.5 or 8.5% less animals with lesion scores of four and three, respectively. This is attributed to a drier litter and lower ammonia levels in the test group.

The improvement in zootechnical param-

eters is reflected in a higher EEF (+14 points). Based on current prices, this represents a return on investment of approximately 1:5.5.

Conclusion

Despite increasing per capita consumption of poultry meat from 9-11 kg in the last three years, poultry meat production is and remains to be a 'cent business' undergoing periodic up- and downturns, while prices for protein sources have steadily been increasing. In order to keep poultry meat production profitable, genetics were further developed and nutritionists implemented appropriate feeding strategies.

Using the digestive enhancer Digestarom Poultry helps to further improve feed conversion, making its use reasonable across different genetics and feeding programs. ■

Table 3. Zootechnical results and foot pad lesion scores (day 31).

	Control	Digestarom	Difference	P-value
Final live weight (g)	1582 ^a	1616 ^b	+34	0.01
FCR I	1.624 ^b	1.584 ^a	-0.04	<0.001
Mortality (%)	2.2	2.1	-0.1	
European Efficiency Factor	300	314	+14	
Lesion score	3.49 ^b	3.33 ^a	-0.16	0.04

^{a,b} Significant difference between groups