

# TALKING FEED INGREDIENTS



## NEWS FROM ALIPHOS



NOVEMBER 2018

Aliphos will be present at EuroTier in Hanover.

**EUROTIER IN HANOVER FROM 13<sup>TH</sup> TILL 16<sup>TH</sup> NOVEMBER**

**Aliphos will be present at this year's edition of EuroTier, the world's leading trade fair for animal production.**

Two years ago we presented in Hanover our new flagship, Aliphos® Dical+. Today this project has become reality and production and sales of our new crystalline dihydrate dicalcium phosphate started in December 2017. In the meantime Aliphos® Dical+ is introduced in the main European countries and export markets. At this year's EuroTier we will present new developments and trial results of our products.

In hall 20 we welcome our customers, coming from all over the world, to inform them about these developments.

Our commercial and nutritional support teams will be present and answer your questions. But of course you are always welcome to enjoy a drink together with us.

*Practical information EuroTier:*

- From Tuesday 13<sup>th</sup> till Friday 16<sup>th</sup> November
- Place: Messegelände Hanover, Germany
- Aliphos booth: hall 20, E57



*Presentation of Aliphos® Dical+ at EuroTier in November 2016*



## **NUTRITIONAL VALUE OF ALIPHOS® DICAL+ WITH TURKEYS: NEW TRIAL RESULTS REVEAL A HIGH P-DIGESTIBILITY FOR ALIPHOS® DICAL+.**

**Earlier this year we performed a trial into the P-digestibility of Aliphos® Dical+ with turkeys. The experiment was conducted in the research facility of Wageningen Bioveterinary Research. The study involved male turkeys in which the pre-caecal phosphorus (P) and**

**calcium (Ca) absorbability of three different feed phosphate sources was determined.**

### **Introduction**

The tested feed phosphates were: Aliphos® DCP (DCP), Aliphos® Dical+

(Dical+) and Aliphos® Monocal (MCP). The study protocol was largely in line with the WPSA protocol for determination of P availability in poultry based on pre-caecal absorbability. During the pre-

experimental period the turkeys were placed in one floor pen bedded with white wood shavings (figure 1). At 16 days of age 240 turkeys were allocated to 24 experimental pens (0.75 m<sup>2</sup>). In total, four experimental diets were used: a basal diet and three diets with the feed phosphates. Each dietary treatment was



Figure 1 Turkeys placed in the floor pen

replicated six times. All diets were pelleted through a 2.5 mm die.

### Experimental diets

Diets were formulated to meet or exceed the recommendations for all nutrients except for P and Ca. For the formulation of the basal diet, mainly ingredients with a very low P and phytate content were used. The main components were maize starch, heat-treated maize starch, soybean meal, sucrose, potato protein and egg white powder. Oat hulls were

used to ensure adequate fiber content. The calculated (total) P- and Ca-contents of the basal diet were 3.0 g/kg and 3.9 g/kg, respectively. The calculated P-content of the test diets was 6.0 g/kg P with 3.0 g P per kg from the tested P sources and the Ca:P ratio was 1.3:1. The inclusion level of the products was based on the respective P contents. Titanium dioxide (5 g/kg) was used as indigestible marker.

Treatment	Diet	Test product	DM	Calcium	Phosphorus	Ca:P	Titanium
1	Basal diet (BD)	--	904 (909)	3.64 (3.9)	2.97 (3.0)	1.22 (1.3)	3.52 (3.0)
2	BD + DCP	DCP	898 (909)	7.65 (7.8)	5.73 (6.0)	1.33 (1.3)	3.50 (3.0)
3	BD + Dical+	Dical+	902 (909)	7.42 (7.8)	5.90 (6.0)	1.26 (1.3)	3.51 (3.0)
4	BD + MCP	MCP	912 (909)	7.48 (7.8)	5.85 (6.0)	1.28 (1.3)	3.55 (3.0)

Table 1: Nutrient content of the diets\* g/kg \* Between brackets formulated content

### Measurements

#### Production results

Body weight (BW) of birds per pen was determined at 0, 16 and 25 days. Feed intake (FI) per pen was determined from 0 – 16d and from 16 – 25d of age. Body weight gain (BWG) and feed conversion ratio (FCR) of the birds per pen were calculated for the respective periods.

#### Dissection and sample collection

At 25 days of age, all birds were euthanized. The content of the terminal ileum was collected from all birds in a pen (Figure 3). The digesta of all animals per pen were pooled and immediately frozen and stored at -20oC until further analysis.

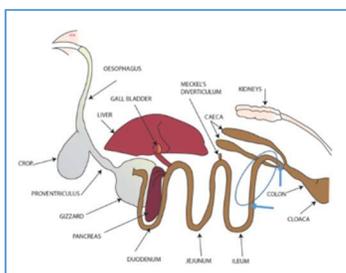


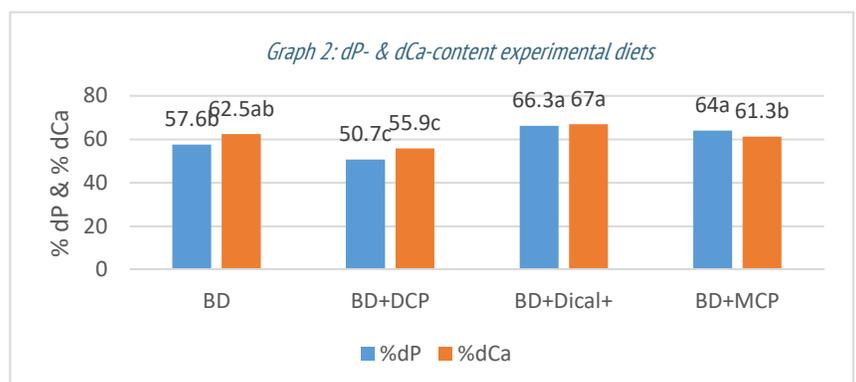
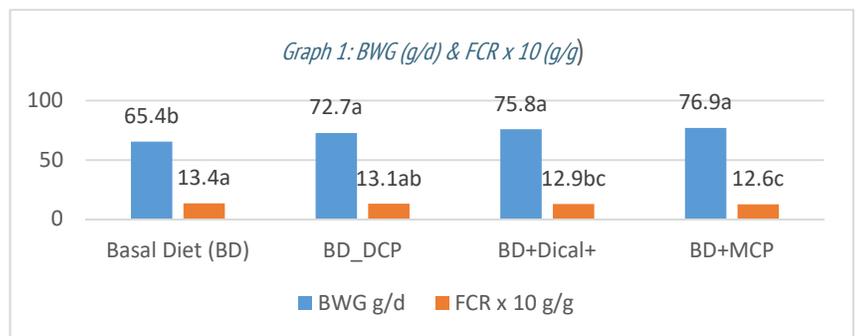
Figure 2: Site of collection of the digesta

### Results

Birds that received the basal diet had the lowest feed intake (FI) and highest feed conversion ratio (FCR). However, the FCR of the birds fed the basal diet was not significantly higher than the FCR of birds fed the diet with DCP (Graph 1). The poor performance of the birds fed the basal diet can be explained by the low P and Ca levels of this diet, which were below the requirements of turkeys.

#### Phosphorus- and calcium digestibility

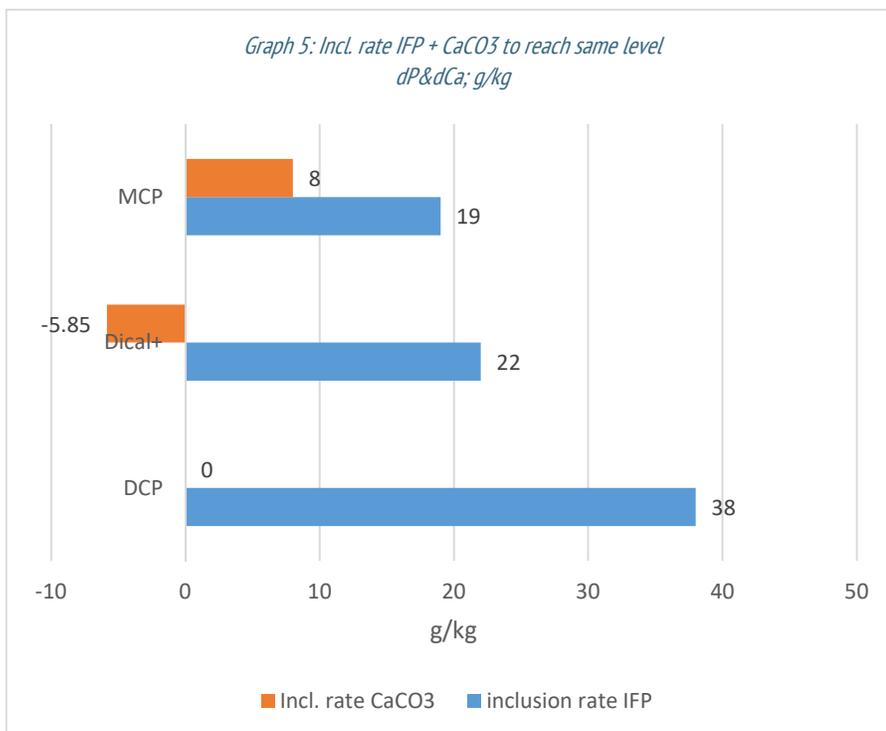
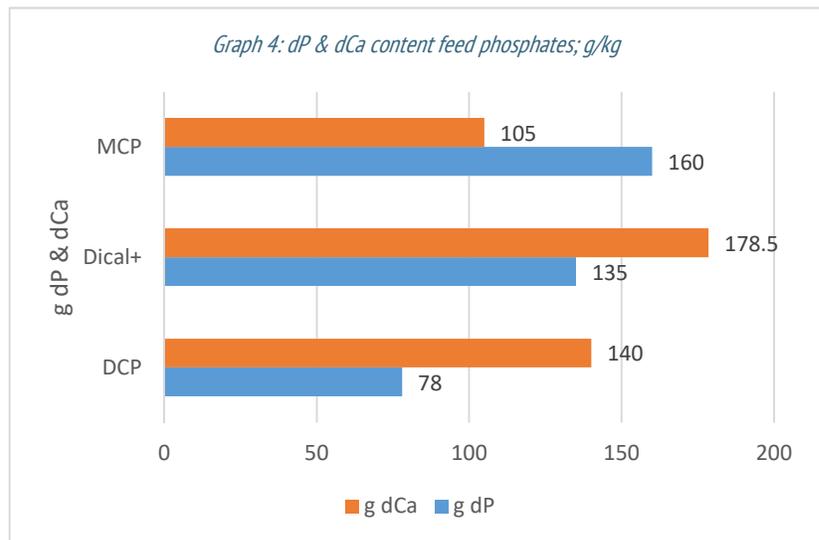
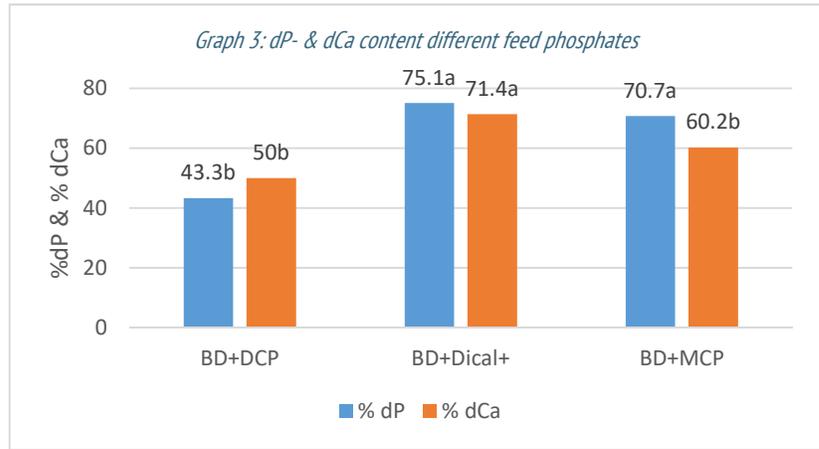
The P-digestibility of diet 2 (BD+DCP) was significantly lower than the other diets. The highest Ca-digestibility was found for the diet including Dical+, which was significant different from the Ca-digestibility of both the diets containing DCP and MCP (Graph 2).



The P digestibility of DCP showed a level of only 43.3%. Which was significantly lower than dP content of Dical+ or MCP. Dical+ scored numerically a higher value of 75.1% against MCP reaching a value of 70.7%. The Ca absorbability of Dical+ was significantly better than the Ca absorbability of DCP and MCP (Graph 3).

### Discussion

Overall the dP and dCa found in this trial are lower than found in earlier trials with broilers. However, it is known from literature that turkeys do absorb/digest minerals elements like P and Ca less efficient than in case of broilers. Also, it is obvious from this trial that there exist large differences in dP-content (and dCa) between anhydrous (DCP) and dihydrate dicalcium phosphate (Dical+). These differences are also obvious with other animals like broilers and pigs. However, differences in dP-content with these animals are not as large as in case turkeys.



### Formulation consequences

Formulating a diet containing 6 g digestible P (dP) from which 50% originates from a possible inorganic P-source, then the inclusion rate of the different inorganic P-source can be calculated. Using anhydrous DCP an inclusion of 38 g/kg is needed whereas an inclusion of only 22 g Dical+ or 19 g MCP is needed to fulfill same requirement. If we look at the difference in dCa-content of Dical+ respectively MCP, then 22g Dical+ supplies 3.93g dCa and MCP only 2.0g dCa. If this has to be compensated (assuming a dCa content of limestone of 62.5%) than additionally you would need 8g limestone more to reach the same level of dCa as supplied by Dical+ in a diet based on MCP. When comparing with DCP, the use of Dical+ allows to decrease

the inclusion rate of limestone by 6 grams. (Graph 5).

The use of Dical+ offers at one hand a space saving in the formulations and at the other hand a major cost saving taking in account the huge difference in inclusion rate between normal DCP (anhydrous) and Dical+ (dihydrate).

### Conclusion

In this trial with turkeys, again the high value of Aliphos® Dical+, a dihydrate dicalcium phosphate, has been demonstrated. Same as with other species, Aliphos® Dical+ has a much higher dP and dCa-value than anhydrous DCP. In effect, the dP-level for anhydrous was such low that it is doubtful if anhydrous DCP is a proper feed phosphate to be used for turkey diets. In this trial also the difference in both dP and dCa between Aliphos® Dical+ and MCP were very obvious. The use of Aliphos® Dical+ for turkey feeds enable to calculate feeds close the P-requirements of the birds, and at the same time acts as a safety margin to formulate a proper diet for turkeys. At the very end Aliphos® Dical+ is a cost-effective feed phosphate to be use in all types of animal feeds, but certainly for use in feeds for turkeys.

Efficient nutrition is important as well for the farmer as for the environment. For this reason feed formulations should take in account nutrient digestibility, certainly also of minerals like phosphorus. Excess of phosphorus rejected in the environment can be the cause of eutrophication of surface water. Diets should be optimized so that the losses through excrements are as low as possible.

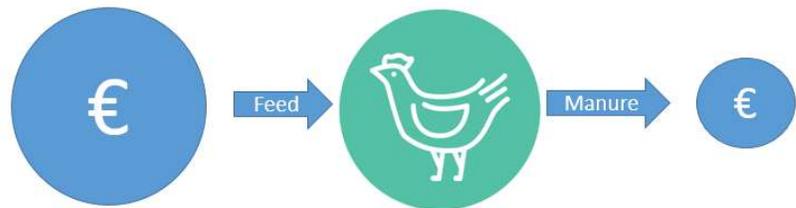
Losses of nutrients in the environment also mean losses of money. Nutrients and so money should stay in the turkey (or any other animal) and not be lost into the waste.

Efficient nutrition is at the same time economic and ecological.

For this reason Aliphos developed the "Digestible Euro Concept":

### DIGESTIBLE EURO CONCEPT:

$$dP = d€$$



For each Euro the farmer invests in its feed, the goal is that a maximum stays in the animal and a minimum is lost in the environment.

## ALIPHOS MEETING ITS CUSTOMERS

**Also in the past months Aliphos was present at several events to meet customers and to present new results of trials with our products.**

- Aliphos participated with a booth at the **SPACE** in France in September. Latest trial results of **Aliphos® Dical+** were shown to our customers.
- At **Vietstock/Aquaculture Vietnam** and at **LACQUA** in Bogota, Colombia, both in October, Aliphos gave scientific presentations about the latest performance and digestibility trials on **tilapia** with **Windmill® Aquaphos**
- At **Agrena Egypt** in Cairo from 25<sup>th</sup> till 27<sup>th</sup> October we were present with a booth and introduced our **Aliphos® Dical+** to the **Egyptian and Middle East markets**.
- Aliphos will participate at the **VIV Asia** in Bangkok, next spring from 13<sup>th</sup> till 15<sup>th</sup> March 2019

We will keep you informed about coming events at which we will participate.

MORE INFORMATION ON ALIPHOS AND ECOPHOS CAN BE FOUND ON [WWW.ALIPHOS.COM](http://WWW.ALIPHOS.COM) AND [WWW.ECOPHOS.COM](http://WWW.ECOPHOS.COM)



T. +31 10 445 2777 • Fax +31 10 445 2738  
[animalnutrition@aliphos.com](mailto:animalnutrition@aliphos.com) • [www.aliphos.com](http://www.aliphos.com)

MEMBER OF  
ECOPHOS GROUP