



Yara's R&D department answers key feed industry questions

Yara, being at the forefront of R&D for decades, has recently teamed up with the University of West Virginia to explore two of the main concerns for the feed industry: the digestibility of different phosphorus sources and the effect inorganic feed phosphates have in pellet manufacturing. The first results of this collaborative work will be presented at the Global Poultry Science Association (PSA) Annual Meeting in San Antonio (TX).

The truth about digestible phosphorus

Inorganic feed phosphates are used in broiler feed formulation to cover phosphorus requirements. However, similarly to other nutrients, phosphorus is not fully absorbed and utilized by the animal in any feedstuff, including inorganic feed phosphates. The way phosphorus absorption is considered in feed formulation is of major importance because of the impact on animal performance, farm economy and the environment, but there is no global consensus on how to do this. Indeed, phosphorus from mineral sources (non-phytic phosphorus) has classically been assumed 100% absorbable, though this is not realistic. The choice of the most absorbable (or digestible phosphorus) feed phosphate source is therefore crucial to maximize farmer's profitability, improve animal health and minimize phosphorus excretion to the environment.

The first study tested the effect of different inorganic feed phosphates on early broiler performance and tibia mineralization. Broilers fed Bolifor® monocalcium phosphate (MCP) had better performances and more enhanced bone condition than broilers fed dicalcium phosphate (DCP) when diets were formulated to have similar non-phytic phosphorus content. The higher content of absorbable phosphorus of Bolifor® MCP in comparison with DCP explains this difference.

Another comparison based on a similar absorbable or digestible phosphorus content in diets containing Bolifor® MCP or DCP was performed. For this purpose, DCP diets required a 40% greater inclusion than the Bolifor® MCP diet. Similar results for broiler performance and bone condition were obtained for broilers fed either Bolifor® MCP or DCP when both diets were formulated on a digestible phosphorus basis. These results highlight (1) the advantage of a precise knowledge on phosphorus absorbability of the product and (2) the advantage of using a high absorbable source of phosphorus such as Bolifor® MCP.

Pellet durability increase with Yara Bolifor MCP

Diets with high levels of fat and fiber content, such as the ones based on corn distillers dried grains and solubles (ethanol co-products) are notoriously difficult to pellet. The addition of inorganic feed phosphates may also improve feed manufacture and pellet quality of these diets. In this context, the second study to be presented deals with the effect of different inorganic feed phosphates on feed manufacture and pellet quality. Pellet durability which refers to the resistance of the pellet to withstand transportation and handling without breaking is one of the most important factors to assess in pellet quality because of its notoriously positive impact on feed consumption and animal performance. Pellet durability increased when Yara Bolifor® MCP was included (New Holmen Pellet Tester), in comparison with diets containing monocalcium phosphate (MDCP) or defluorinated phosphate (DFP) (88.18 vs. 84.63, 83.02 %, respectively). Manufacturing diets containing Bolifor® MCP maintained similar amperage relative to diets containing DCP or MDCP and did not influence production costs. This second study reveals the importance of the inorganic feed phosphate source for pellet manufacturing and pellet quality.

The high phosphorus absorbability and phosphorus content in Yara's Bolifor® MCP contribute to maximize livestock production efficiency and business profitability whilst minimizing phosphorus voiding. Besides, the physical characteristics of Bolifor® MCP contribute to lengthen the pellet durability, which is probably the most important factor in pellet quality.

For further information contact: Isabel Ruiz, Technical Advisor Specialities Email: isabel.ruiz@yara.com