In pursuit of better broiler performance

In modern commercial farming, every minute counts in the development of our chickens. Currently, broiler embryonic development time is roughly half of the total production time on the farm.

To ensure we are meeting the needs for optimal poultry performance, we need to be efficient, adaptable to local conditions and focused on balanced nutrition requirements.

ADM’s premix portfolio for poultry includes a complex mix of vitamins, minerals, trace elements and other additives (an average of 25 raw materials) to incorporate in feeds that are produced with high quality and safety standards at each stage of the development and distribution process.

ADM formulate and manufacture a variety of product ranges adapted for all classes and life cycles of poultry production.

As a global leader in animal nutrition, their competencies include a deep knowledge of raw materials, the ability to anticipate market trends, a combination of historical knowledge and a powerful capacity for innovation, an international network of top-level laboratories and R&D facilities, and a comprehensive portfolio of nutrition technology solutions and services.

ADM’s technical, industrial and commercial agility allows them to offer each customer exclusive and therefore more efficient solutions.

Not all organic trace minerals are created equally

Whereas it has been well established that the bioavailability of organic trace minerals (OTM) is higher than inorganic sources, attributes among OTM products remains poorly understood.

Nonetheless, OTM products clearly differ and thus their bioefficacy. One key parameter to consider is bonding strength (BST), which represents the bond strength between the mineral and binding molecule or ligand, for example amino acid (AA). The higher the BST, the greater the chelation strength and stability. Factors such as ligand type or pH can influence BST. A ligand with multiple AA and/or a diverse AA sequence can result in substantially higher BST. Conversely, acidic pH can result in the separation of the complex, negatively impacting specific OTM products.

The higher the stability, the greater the mineral bioavailability, which represents how efficiently OTMs are utilised by the animal. Among OTM sources, bioavailability could differ significantly depending on the source.

Furthermore, increased bioavailability not only brings benefits by reducing mineral dietary concentration and thus feed cost, it also minimises environmental footprint by lowering nutrient excretion in manure and soil.
The unique, safe, and natural source of the bioactive form of vitamin D

Maintaining strong eggshells and laying persistency while minimizing Ca mobilisation from bones are crucial for the hen’s longevity. This can only be achieved by a proper Ca absorption mediated by a good vitamin D metabolism.

Broilers, on the other side require strong bones and muscles, and proper immune reaction to achieve best performances in this ‘new era’ of reduced administration of antibiotics and coccidiostats.

Lameness and overall locomotion problems related to weak bones and immature cartilages are not yet overcome, and defects of the meat due to breast myopathies are emerging.

The quality of the day-old chick is now more than ever paramount for a successful production cycle. The breeder hen needs to be able to provide an optimal environment for the embryo. This not only includes a stable eggshell to prevent pathogens from entering but also sufficient nutrients deposition in the egg for the development of the chick.

Panbonis is a natural source of the bioactive form of vitamin D ([1,25-dihydroxycholecalciferol]. It is based on Solanum glaucophyllum, a plant that naturally produces 1,25(OH)2D in a glycosidic form (G-1,25(OH)2D). In contrast to other sources of vitamin D, G-1,25(OH)2D does not need further activation in the liver or kidney. 1,25(OH)2D stimulates calcium and phosphorus homeostasis, eggshell formation, bone mineralisation, fertility, and immune functions.

Supplying Panbonis to laying and breeder hens increases eggshell thickness and strength resulting in more saleable eggs and saleable hatch. It also increases the weight and quality of day-old chicks and supports the immune system, muscle formation and bone integrity in broilers.

Nutritional additives to achieve more on the field

During the last 20 years, the industry mainly focused on achieving higher trace elements bioavailability limiting the potential of these nutritional additives to achieve more on the field. But a new generation of active zinc source, already largely used in piglets, is now seeing a rise in broilers industry.

This new zinc source named HiZox is providing dual benefits from a pre-absorption effect on microbiota diversity to a post-absorption effect with high bioavailability. A recent trial coordinated by Aninine, a French supplier of precision minerals, could highlight that dual effect and improve both technical and economical performances. In this trial, involving 2,160 Ross 308 broilers divided into three treatments, zinc sulfate was used as a reference treatment and supplemented at 70ppm zinc.

The two other treatments were supplemented with either 70ppm zinc from potentiated zinc (HiZox) or 35ppm zinc from HiZox. At slaughter (35 days) broilers with HiZox were heavier (2,172g for 70ppm, 2,141g for 35ppm) than broilers with zinc sulfates (2,227 for 70ppm 2n), FCR was also improved by four points (from 1.34 with sulfates to 1.30 with both HiZox supplementation).

In parallel of performance measurements, samples from cloaca were taken and analysed. Potentiated zinc (HiZox) reduced drastically the intestinal E. coli count (38% lower than zinc sulfate).

At the end of the trial, HiZox group decreased the feed cost of production to produce 1-ton live weight (€ 682 vs € 695 for zinc sulfate) demonstrating that combining bioavailability and microbiota control can be key for performance.

Potentiated zinc also now offers the possibility to reduce zinc quantities supplemented and thus to reduce the pressure on this nonrenewable resource which is, in the end, also largely excreted in the environment.

Organic trace minerals delivered to the site of absorption

In the debate over trace minerals sources, organic trace minerals are the clear winner.

But if there was a world-class champion, Mintrex bis-chelated trace minerals from Novus would be it.

This unique mineral source combines the efficiency of highly bioavailable organic zinc, copper, or manganese with the added benefit of methionine source, HMTBa.

Mintrex trace minerals are delivered to the site of absorption avoiding antagonisms in the GI tract or from the diet that would otherwise diminish their effectiveness and the bird receives the full nutritional value of methionine so it can be reduced elsewhere in the ration.

Because it is made of more, replacing inorganic mineral sources with Mintrex trace minerals allow producers to reduce their total mineral supplementation by up to 50% while seeing the same or better results with less excreted into the environment.

So, Mintrex helps produce more salable meat in a more sustainable way. In trials, broilers fed Mintrex saw improved FCR of 2-3 points, improved body weight gain by up to 2%, and enhanced carcass quality and yield.

More benefits that deliver more for producers.

That is intelligent nutrition from Novus and how Mintrex bis-chelated trace minerals are made of more.

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Heat stress is a growing problem in the animal farming industry, causing significant economic losses and health issues.

One of the consequences of heat stress is oxidative stress, which can damage the body’s cells and proteins. Alleviating heat stress through antioxidant vitamin supplementation is important, with Vitalite C12, a stable form of vitamin C, being a strong antioxidant that helps maintain feed intake during the difficult period of heat stress. Electrolyte imbalance is another issue during heat stress, which can lead to changes in acid-base balance and suppression of feed intake. Tracelite Ions, a chelated form of essential minerals and vitamins for drinking water, can help restore electrolyte balance and support animal tolerance to heat stress.

Both Vitalite C12 and Tracelite Ions are important supplements for all animal species during the summer.

Trace elements such as copper, zinc, and manganese are essential for optimal health and performance of poultry. In order to avoid deficiency symptoms and associated health problems, sufficient levels of dietary trace minerals have to be supplied. It is important to consider the source of trace minerals supplemented to the feed. The Excential Smart hydroxy trace minerals from Orffa have a stable crystallised structure with smart covalent bonds. Orffa’s Excential Smart range contains high levels of the trace elements; Excential SmartC with a minimum of 54% copper, Excential SmartZ with a minimum of 56% zinc, and Excential SmartM with a manganese content of 50%

The high stability of these hydroxy trace minerals and their low solubility at neutral pH ensure low reactivity. This low reactivity is not only beneficial for premix and feed stability. Reduced complex formation with other feed constituents, such as phytate, also leads to a high bioavailability of trace elements to the animal. The higher absorption can lead to a lower excretion of trace elements to the environment. Furthermore, research has shown that compared to traditional inorganic trace mineral sources, hydroxy trace minerals can positively influence footpad health and growth performance of broilers.

Chicktonic is a soluble oral solution based on vitamins and amino acids. It may be used on arrival of chicks and pullets at farms for 4-5 days, to ensure that they start eating and drinking as soon as possible, which is essential to achieve their potential body weight at day seven, which is related to their final body weight. Chicktonic helps to correct and prevent avitaminosis and malnutrition, and works as a support treatment during high-demanding production periods and in stressful situations.

Chicktonic contains many hydrosoluble vitamins of the B complex and all fat-soluble vitamins (A, D, E and K), as well as 11 essential amino acids needed by poultry and the non-essential ones. Chicktonic helps to prevent avitaminosis, malnutrition, and works as a support treatment during high-demanding production periods and in stressful situations.

Absorption of the yolk sac and development of the intestinal system will also be improved with the use of Chicktonic, stimulating their growth and immunity. Chicktonic may also be used in cases where growth or egg production is diminished, compared to the expected on genetic tables; or in situations where deficiency of certain nutrients is suspected due to a lowered feed intake as a consequence of disease or suboptimal feed quality. Chicktonic contains many hydrosoluble vitamins of the B complex and all fat-soluble vitamins (A, D, E and K), as well as 11 essential amino acids needed by poultry and the non-essential ones. Chicktonic helps to correct and prevent avitaminosis and malnutrition, and works as a support treatment during high-demanding production periods and in stressful situations.

Nutrition guidelines on vitamin supplementation to improve attributes such as bone health and enrich poultry products. To ensure your birds are receiving and using the appropriate levels of micronutrients, utilise Verax on-farm testing services to detect any nutritional deficiencies prior to performance and welfare losses. By improving efficiency and sustainability, DSM can help you to drives your flock’s performance and profitability with confidence.