ALPHASOY GOLD

Mark Karimi, October 2020

Keep the pressure off your birds' gut

The hologenome theory of evolution argues that organisms evolve together with their microbiomes, and that the microbial community affects the general health of the host when it gets environmentally stressed. Our understanding of gastrointestinal microbiota and its interactions with host physiology and immune function has been significantly increased during the last two decades. It is now safe to say that the hologenome theory has proved itself to a large extent.

We've learnt that the microbial communities inhabiting the gastrointestinal tract (GIT) of birds play an important role in nutrient digestion, pathogen inhibition and interaction with the gut-associated immune system. Therefore, a balanced gut microbiota defines the health status of the gut, and of course a healthy gut supports the balance of the gut microbiota. What is 'gut health'? Gut health is defined as the ability of animal's gastrointestinal tract (GIT) to execute proper digestion, efficient absorption, and also other physiological functions to maintain homeostasis. A healthy gut supports the animal to withstand infectious and non-infectious stressors.

When we talk about gut health, we should make sure we are focusing on the cause of problems rather than being dragged away by the consequences. Bacteria like *Clostridium perfringens, Salmonella spp* or *Escherichia coli (E. coli)*, can somehow find their way into the gastrointestinal tract of the bird. They will not cause too much of a problem if they do not get support from their surrounding environment. However, problems may occur when there are excess nutrients in the hindgut. These nutrients help pathogenic bacteria to proliferate with the consequence of disruption of gut microbiome-host equilibrium. Such disruption affects the balance of mucus layer, epithelial cells and immune cells in the intestine, which consequently cause metabolic, pathogenic or sterile inflammation. Undigested proteins have been shown as a factor linked to the proliferation of *Clostridium perfringens*, coccidiosis and associated necrotic enteritis episodes in chickens. Such problems might not be easily cured without antibiotic application. The question is, why does the digestive system of a bird not do its job properly in the first place, harbouring and feeding its enemies with nutrients? Why does the expensive feed that we give to our birds to support growth and development end up as the pathogens' feed? Is it the nature of the bird to support pathogenic bacterial communities within its GIT? Or is it our fault for not effectively managing the bird's nutritional requirement?

Commercial poultry have no access to a large variety of feedstuffs. Their gut functionality is heavily reliant on the feed that we offer them and the environment that we provide during the whole period of their life. In terms of protein requirement, the plant (or animal) meals that we put in their feed may fulfil their amino acid (AA) needs. However, protein sources vary in their digestibility and AA composition. Moreover, the rate at which proteins are hydrolyzed and AA released is another issue to be considered. So, not only must the bird's requirement be carefully considered in feed formulation, but also choosing the right ingredients is highly important. A poultry nutritionist needs to know the full characteristic of each ingredient that he/she chooses in the feed, and when it comes to protein sources, it is even more important.

Soybean meal (SBM) is the most common protein source ingredient in poultry diets worldwide. However, soybean meals (and other plant protein sources) vary hugely in consistency and quality, depending on the variability of growing season, source of origin and also processing methods. Moreover, the anti-nutritional factors within conventional soybean meal sometimes reaches unbearable levels.

Here at Agilia, we've designed a unique process to remove all of these invariabilities as well as unlock maximum nutritional and functional value from soybean meal. The result is to create an innovative product called Alphasoy Gold. Within our unique process, the digestibility of all key amino acids have been improved by up to 2%, while all anti-nutritional factors reduced to a safe level. The protein digestion kinetics of soybean meal is also considerably improved in Alphasoy Gold as a result of reducing resistant protein and increasing fast digestible protein. By improving the rate of protein digestion and also increasing digestibility of the protein in the small intestine, there will be less chance of nutrient availability to harmful bacteria in bird's hind gut. In addition, the bioactive components of Alphasoy Gold support development of an optimal gut environment and create the right condition for effective digestion and absorption of nutrients. They also boost the bird's immune system with their unique immune-modulatory properties. All these properties create a healthy and efficient gut, which keep enteric pathogens at bay and support the gastrointestinal microbiota to the highest degree.