Improved Intestinal Health
through Phytogenic Feed Additives

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Increasing demand for poultry products
In view of rising demand for animal protein, the consumption of poultry products has been growing above average. Growing demand on the one hand and volatile prices for raw materials and poultry products on the other hand call for maximum production efficiency - from the hatchery to the processing plant.

Intestinal health as a prerequisite for performance
Intestinal health problems often remain undiscovered because they are not necessarily reflected in clinical symptoms of a disease. In early stages, intestinal illnesses usually occur in mild forms, e.g. reduced feed intake, presence of undigested feed particles in the excreta, uneven growth of a flock and poor feed conversion. Wet litter or liquid droppings are additional indicators of an upcoming digestive problem. Subsequently, clinical symptoms may develop and mortalities may increase.

The reason for impaired intestinal health results from a stress situation in many cases, evoked, e.g., by high stocking densities, feed change, variations in ambient temperature and moisture, excessive growth of pathogens or technical errors of feed and water supply. A shift of the intestinal microflora is a consequence; undesired microbes may multiply.

A growing potential for PFA
Nowadays, there are effective feed additives, such as PFA, having a real potential in poultry production.

Definition of PFA: Plant derived products used as feed additives in order to improve feed intake and/or performance of agricultural livestock.

Phytogenic substances have been used in human consumption from time immemorial. We have known them as spices, perfumes and medicines for centuries. Their positive effects were reported in many scientific publications: Appetizing effects, palatability enhancement, antimicrobial and antiviral efficacies, antioxidative effects, etc.

Improved intestinal health in poultry
Intestinal disorders usually cause a damage of the intestinal mucosa. The body’s reaction includes an accelerated renewal of the damaged tissues. This process is complex and required additional energy – in other words: Intestinal diseases go to the expense of performance.

The use of PFA contributes to prevent intestinal disorders. In broilers that were subjected to enhanced microbial challenge, these effects were shown recently.

Improved Intestinal Health through Phytogenic Feed Additives
Optimized feeding strategies are a significant success factor in modern poultry production all over the world. Innovative feed additives of plant origin may considerably contribute to the stabilization or improvement of intestinal health.
Phytogenic substances were able to reduce the microbial pressure and stabilize intestinal health.

Nutrients that are supplied in the feed are absorbed by means of the villi, which loom into the interior of the intestine (Figure 1). Optimal functioning of the villi is essential for high performances. In broiler trials, it was seen that supplementation of feed with a PFA increased villus length, hence resulting in an increased capacity for nutrient absorption (Figure 2).

**Improved performance as a consequence of improved intestinal health**

It was shown in several field reports that phytogenic feed additives may have a beneficial effect on broiler performance. Farms that used such additives reported a 2-5% improvement in growth rate and feed conversion.

In the following trial from Kasetsart University (Thailand), it was shown that dietary supplementation with the above-mentioned PFA enhanced growth performance of broilers, resulting in an increase in live weight gain and a reduction in feed conversion ratio (Figures 3 & 4).

Additional trials under local conditions in different Asian countries with standard and heavy broilers confirm this positive impact on broiler growth performance. Furthermore, there is growing evidence that PFA positively affect egg production, feed conversion and egg shell thickness in laying hens in Asian conditions (Nichol and Steiner, 2008).

**Conclusion**

Intestinal health is a prerequisite for optimal performance and profitability in poultry fattening and egg production, with optimized feeding strategies playing a central role. The incorporation of phytogenic feed additives in poultry diets can significantly contribute to intestinal health and, hence, profitability in poultry production.

**Figures 3 & 4:** Effect of a PFA (Biomin® P.E.P.) compared to an Antibiotic Growth Promoter in broilers