

Five (5) reasons to use yeast metabolites in poultry

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In order to optimise bird health and production, it is important to feed diets that support gut health and immunity. Several classes of feed additives are available to poultry nutritionists; however, few are backed by science and rely on making claims that cannot be supported with evidence. Fortunately, some products have scientific research to support their claims, of which, yeast metabolites are one.

The five (5) key reasons for using yeast metabolites in poultry are:

- 1. Promote a healthier microbial balance in the gastrointestinal tract**
- 2. Support gut integrity**
- 3. Support a stronger immune system**
- 4. Improve production performance and efficiency**
- 5. Support antimicrobial stewardship**

The yeast metabolites that we've worked with mostly are the Diamond V products. We have confidence the following is representative their attributes.

So, what are yeast metabolites?

Put simply, yeast metabolites are compounds produced by yeast cells during fermentation. Depending on the fermentation conditions, the metabolites produced by the yeast differ. Some of the metabolites produced include oligosaccharides, organic acids, polyphenols, peptides, proteins and nucleotides. This is important to note as not all yeast metabolites have the same effect in animals and the concentrations and ratios of the aforementioned metabolites will influence the quality and the efficacy of the final product.

Let's take a look at some of the reasons why yeast metabolites should be used in poultry.

1 Promote a healthier microbial balance in the gastrointestinal tract

A high-quality yeast metabolite product can promote a healthy microbial balance inside the gut of the bird. This is achieved by providing nutrients to beneficial bacteria which can use these nutrients to grow and replicate. Through this process, the number of beneficial bacteria increases inside the gut and begins to outnumber the pathogenic bacteria. As the number of beneficial bacteria increases, their consumption of nutrients also increases and therefore reduces the amount of nutrients available for the pathogenic bacteria. Another benefit of promoting a more optimal microbial balance in the gastrointestinal tract is to reduce the number of bacteria such as *E.coli*, *Salmonella* and *Campylobacter* which are known human food safety concerns. Reducing the prevalence and number of these pathogens on farm contributes to improving food safety for people.

In addition, using high quality yeast metabolites aids in the promotion of volatile fatty acid producing bacteria such as *Lactobacillus* species and *Bifidobacterium* species. By promoting a healthier microbiome, the subsequent production of volatile fatty acids like butyric acid has a positive effect on gut health which in turn reduces the need to provide organic acids in the feed. This overcomes the handling, dose and efficacy concerns associated with some organic acid products.

2 Support gut integrity

Epithelial cells line the digestive tract and one of their functions is to keep unwanted things (e.g. pathogens) from leaking into the bloodstream. The space between the epithelial cells is referred to as a junction and in some circumstances such as when suffering a challenge from pathogens or even heat stress, these junctions become leaky and allow pathogens to enter the bloodstream. Tight junctions prevent pathogens from leaking into the bloodstream and causing infection and are key to supporting a healthier bird. Some of the metabolites produced by yeast metabolites facilitate tighter junctions and enable the bird to have stronger defences against pathogens. Other proven benefits of yeast metabolites are to promote improved villi density and height. Villi which number in the millions are finger like projections that line the small intestine. These structures increase the surface area of the intestinal walls and increases the ability to absorb nutrients. Therefore, if more of these villi exist (increased density) and are longer, this increases the surface area able to absorb nutrients and contributes to increased digestibility of nutrients.

3 Support a stronger immune system

Some yeast metabolites have been shown to support a stronger immune system. Providing support to the immune system of poultry allows the bird to be healthier, digest more nutrients, require less medications and be more productive. Research has shown that some of the bioactive metabolites produced by yeast support the innate immune system as well as the adaptative immune system. That is, the bird is better prepared to defend against an immune challenge (innate immunity) as well as respond to an immune challenge (adaptive immunity). This allows the bird to maintain a ready state – ready to respond quickly to challenges when necessary but won't overact to substances that are harmless.

4 Improve production performance and efficiency

It makes sense that a healthier bird is able to be more efficient. When under immune challenge or stress, up to 10% of dietary nutrients can be used to mount an immune response. Instead of having to use nutrients to fight a challenge, these can be used for normal growth and production thereby allowing the bird to be more efficient. Using a high-quality yeast metabolite product has been shown to improve feed conversion efficiency, improve meat yield in broilers, improve body weight gain, increase the number of eggs produced by layers as well as increase egg size and quality.

5 Support antimicrobial stewardship

By promoting a healthy microbalance in the gut as well as providing support to the immune system to defend against pathogens, it is possible when using a high-quality yeast metabolite product to reduce the amount of antibiotics used. This is the result of nurturing a healthier bird which is then less likely to require medication. Healthier birds are less likely

to become ill and require intervention. Less intervention means less medication and supports the efforts of antimicrobial stewardship.

When selecting a yeast product, it is important to understand how the product is produced. Many yeast products are in fact by-products from the production of other things and by the very nature of being a by-product, the overall quality, metabolite concentration and consistency between batches cannot be assured. Therefore, when deciding which yeast metabolite product to use, select one which is made in precise conditions to be a consistent high-quality product rather than being the by-product of something else.

If you are interested in further information, please feel free to contact me.

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