



**PERFORMANCE PRO-BIOTICS**  
DIRECT-FED MICROBIALS

## **BENEFITS OF INCORPORATING PERFORMANCE PROBIOTICS IN ANIMAL FEEDS**

[www.performanceprobiotics.com](http://www.performanceprobiotics.com)

Last Updated | **March 2012**

**Performance Probiotics family of products has been developed using the latest technological advances in microbiology, animal nutrition, immunology and product compounding information. In 1989 FDA adopted the term direct fed microbial (DFM) to refer to a source of live or viable naturally occurring microorganisms derived from bacteria, fungi, and yeast. Over the next few decades vast improvements have been made to demonstrate the positive effects of using organisms and other feed additives in diets to improve animal health and positively influence production parameters.**

The products compounded by Performance Probiotics clearly have been shown to positively affect and mediated animal health and production responses. Direct fed microbial bacteria and yeast have been selected from a pool of naturally occurring (non-GMO) bacteria and yeast for their ability to positively influence documentable production enhancements. These specifically selected bacteria are incorporated in Performance Probiotics products for their abilities to aid in digestion, ruminant health and productivity.

Bacterial DFM have been found to have a stimulatory effect on weight gain, enhance rumen development in young ruminants, and aid in digestion. Bacterial DFM's have been shown to help in the restoration of intestinal microflora preventing opportunistic development of pathogens. DFM's mechanism of action and response will vary due to the age, nutritional and hormonal status of the host animal. DFM's are incorporated in Performance Probiotics family of products for their ability to produce anti-bactericidal compounds such as weak acids or bactericins which inhibit the growth of pathogenic bacteria. They also competitively exclude pathogenic bacteria by competing for adherence sites or competing for nutrients in the intestinal tract.

The specifically selected DFM's produce nutrients and/or stimulatory growth factors which in turn stimulate other beneficial intestinal microorganisms within the animal's digestive tract. These beneficial bacteria stimulate the production of digestive enzymes which aid in the digestion of the feed fed to the animal. The direct feed microbials interact with the host to stimulate an immune response refer to as immunosenscence. The DFM's also produce digestive nutrients and growth factors which stimulate the host's cell metabolism or cell growth that can be demonstrated by the proliferation of ruminal papillae. Theses specifically selected direct fed microbials aid in the

detoxification of certain inhibitory compounds such as nitrates or amines or scavenge for oxygen thus improving feed utilization.

It is well documented in scientific studies that when the bacterial DFM's are added to animal diets these bacterial DFM's are able to colonize and adhere to the mucosal cell wall. This colonization competitively excludes pathogen organisms that have a negative affect in the lower gut compromising the animal's health status and negatively affecting production parameters.

Live (viable) yeast appear to be unable to effectively colonize the digestive tract. Yeast improves ruminal fermentation due to their positive stimulatory effects upon the rumen microbial population. Although yeast are unable to effectively colonize in the rumen, live yeast can remain metabolically active in rumen fluid for up to 48 hours. The addition of live (viable) yeast to animal diets aid in increasing the bacterial population in actual numbers of bacteria. This response in activity leads to an increase in the rate of fiber breakdown, enhanced fermentation rate and consequently an increase flow of nitrogen from the rumen. An increase in the percentage of organic matter digested is observed thus positively affecting animal production parameters and health considerations.

Other important ingredients have been incorporated in the compounding of Performance Probiotics family of products. These ingredients have been included in their formulation to enhance and aid in improving animal health and production parameters. The addition of specific enzymes has been added to aid in the host's digestion of feedstuffs by breaking chemical bonds. The enzymes essentially act as an aid in the pre-digestion of feedstuffs offered to the animal.



## BENEFITS OF INCORPORATING PERFORMANCE PROBIOTICS IN ANIMAL FEEDS CONTINUED

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These specifically selected enzymes enhance the host animal's ability to efficiently digest the various feed components such as starches, peptides, fats and cellulosic material in the diet.

In conjunction with the direct fed microbials and digestive enzymes, mannans are added for their ability to adsorb enteric pathogenic and aid in immunomodulation. Mannan oligosaccharides provide a mannose-rich source for the attachment and adsorption of pathogenic bacteria that will otherwise attach to the gut wall of the host animal. Since mannan oligosaccharides are not degraded by the animal's digestive enzymes, they pass through the digestive tract with the pathogen(s) attached thus preventing the colonization of the pathogenic bacteria. The addition of mannan oligosaccharides has been shown to increase both intestinal and serum IgG levels in animals. Consequently, a significant increase in the number of B lymphocytes in the intestine has been observed when an animal has received a pathogen challenge.

To maintain the integrity and the viability of the Performance Probiotics products during storage, patent pending technology has been employed to encapsulate the DFM's thereby extending their shelf life and improving the site specific viability of the direct fed microbial within the host animal. Oxygen scavengers have also been included during the compounding process to enhance microbial stability and extend the shelf life of Performance Probiotics family of products.

The Performance Probiotics family of products has been compounded using the latest innovations and scientific know-how to provide the most up to date scientifically formulated array of products that incorporate a specific ratio of direct fed microbials, digestive enzymes, mannans, patent pending encapsulation technology and storage enhancing ingredients. Performance Probiotics quest is to provide the most advanced scientifically based products incorporating technology and knowledge that is science and research based. Our goals are to offer products that will aid in improving animal health and positively affect production parameters. Performance Probiotics is committed to ongoing investigation and research to provide it's customers with leading edge products and technology for their animals.

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