



Gut microbial diversity – the key to gut health

Many factors can cause imbalance in the population of microbial species that inhabit the gut, including disease and the antibiotics used in prevention or therapy. Upsetting the microbiome balance in turn reduces feed digestion and conversion. *Restoring gut microbial diversity is the key to pathogen control and removing antibiotic resistance.* Here is how Alltech's gut health solution promotes diversity in the microbiome.

Repair and rehabilitation of the microbiome

Diversity in the microbiome is critical to gut health. Beneficial microbes form a protective barrier lining the gut to limit growth of pathogenic bacteria; Alltech's gut health solution works to normalize gut function through a process of microbial repair and rehabilitation. Firmicutes, one of the major groupings of gut bacteria, are largely gram(+) and can become overly predominant during gut health challenges. This over predominance reduces the diversity of the cecal microbiota of broilers and is often referred to as 'dysbiosis'. This type of microbiome imbalance can be repaired by enhancing or increasing microbial diversity. Recent research has shown that Alltech's gut health solution has the ability to influence microbial diversity by increasing the prevalence of the phylum

Bacteroidetes and decreasing the phylum Firmicutes. This reduction in the over predominance of one bacterial group and reversal of dysbiosis is one of the keys to the success in promoting gut health.

Pathogen control

Increasing microbial diversity is well-documented as being associated with increased resistance to pathogen colonization. Recent research demonstrated that enhancing microbial diversity has the potential to reduce the *Campylobacter* load in the caecum. Alltech's gut health solution has been demonstrated to reduce pathogen attachment to neonatal porcine intestinal cells.

Antibiotic resistance

Antibiotics, whether given in-feed or at therapeutic levels, can lead to a vicious cycle whereby overall microfloral diversity is decreased. Antibiotic use selects for the expansion of resistant species to the detriment of non-resistant commensal strains. By expanding the microfloral diversity we can also begin a process of resistance elimination. This is an added benefit of the rehabilitation program with Alltech's gut health solution.

