IMPROVING PERFORMANCE AND GUT HEALTH USING PROBIOTICS

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Today's accelerated live production schedule leaves little time for birds' gut development. Birds are exposed to harmful pathogens like Escherichia coli, Clostridium perfringens and Eimeria daily. Without a healthy microbiome, these pathogens wreak havoc on health and performance – from reducing body weight gain and raising feed conversion to drastically increasing mortality. There is a global movement to reduce the use of antibiotics, both therapeutics and growth promoters (AGPs), to overcome antimicrobial resistance concerns and preserve the effectiveness of available antibiotics. Alternative strategies to support gut health and control microbial challenge are critical. Often overlooked is the transition period in which antibiotics are removed or reduced. This can have serious implications on bird performance if not managed accordingly.

Probiotics to support microbiota development

Research has shown that feeding probiotics from day one promotes the quick establishment of a positive microbiota and guards against colonisation by coliforms that negatively impacts growing animal performance. By helping to maintain optimum villi height and crypt depth, probiotics ensure the gut's ability to absorb nutrients for maintenance and growth in the presence of microbial challenge. They also help birds to cope better with nutritional stress in the gut. Of course, not all probiotic strains defend birds in the same way. Though most act as a shield by preventing harmful pathogens from adhering to the gut wall, products containing more than one probiotic strain are often more effective than a single probiotic strain, as functional diversity between the strains enables broader coverage and support. Both individually and together, each probiotic strain strengthens gut structure, slows the growth of non-beneficial bacteria, and encourages the growth of beneficial bacteria.

Busting antibiotic myths

A misconception has developed that Bacillus probiotics cannot be used effectively with common antibiotics. It is important to understand that probiotics and antibiotics have very different modes of action. Probiotics are living micro-organisms with multiple modes of action that work to strengthen gut function. By contrast, antibiotics are non-living chemical compounds that have a singular, specific effect such as killing the cell or stopping replication, and are often accused of reducing both pathogenic and beneficial bacteria counts. A recent study looked at performance and gut health in birds fed Avilamycin, a three-strain Bacillus probiotic (Enviva PRO) and their combination. (Avilamycin is approved as an AGP in Russia at 180g/ton feed. Avilamycin is not approved as an AGP in many global jurisdictions including the US and EU). The study demonstrated superior growth performance when both Enviva PRO and Avilamycin were used in combination versus Avilamycin only treatments (Table 1). The average daily gain of birds in the study showed the ability of Enviva PRO to improve daily gain on its own and with the use of Avilamycin. Clearly, the argument that antibiotics and Bacillus probiotics cannot be used together effectively is not true. For producers using antibiotics, these results offer a number of beneficial supplementation options, particularly during the transition period to reduced or no antibiotic use. For producers seeking to eliminate antibiotic use, it is perhaps most notable that the three-strain Bacillus probiotic enabled similar, and sometimes greater, improvements in growth and efficiency when used alone.

Table 1. Bodyweight corrected feed conversion ratio (FCRc) from 0-42 days in 800 male broilers, and average daily gain (ADG).

	FCRc		ADG	
Control	169[a]		58.8[c]	
Avilamycin	166[b]		59.8[b]	
Enviva PRO	160[c]	3.6%	61.5[a]	2.8%
Avilamycin + Enviva PRO	1.62[c]	2.4%	61.5[a]	2.8%

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