

Enviva® PRO

Give your birds the best gut protection



Diverse *E. coli* challenges demand a diverse solution

Not all *E. coli* bacteria are the same. A subpopulation referred to as avian pathogenic *E. coli* (APEC), causes an opportunistic infection in poultry known as colibacillosis, which is associated with higher rates of morbidity, mortality and carcass condemnations. Understanding APEC populations in a flock, which are driven by underlying husbandry and environmental factors, can help you better evaluate the risk to poultry health and welfare. This understanding can identify targeted prevention and treatment measures.

A vital part of probiotics supporting health is the rapid development of a mature microbiota from day one. Research has shown that feeding probiotics from day one:

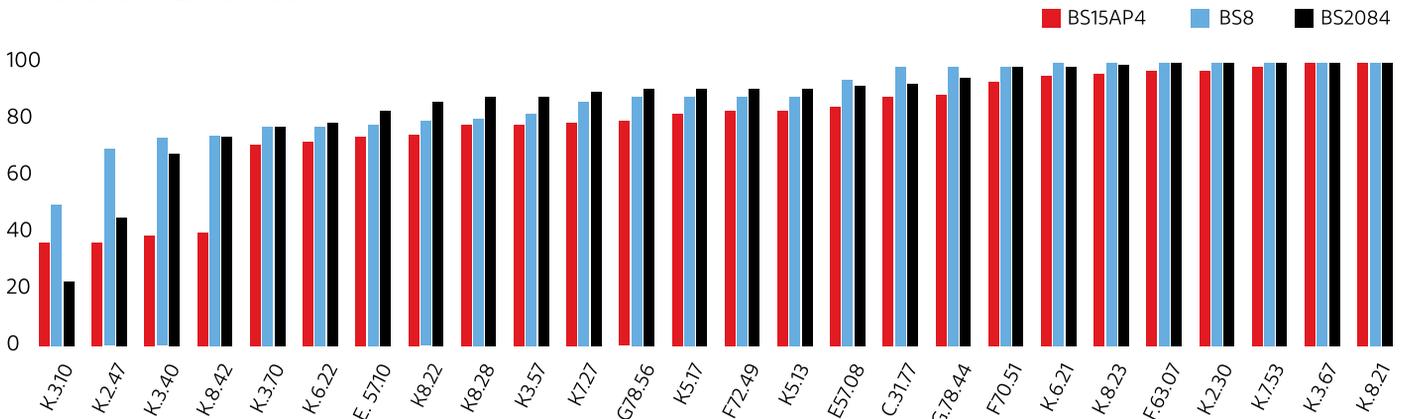
- promotes the quick establishment of a positive microbiota
- inhibits colonization and growth of non-beneficial bacteria
- drives immune development
- reduces the risk of unnecessary inflammation
- strengthens gut structure
- provides more nutrients to the host

Inhibit the growth of *E. coli*

The three strains of *Bacillus* in Enviva® PRO were selected from poultry because of their ability to produce diverse secretory compounds that attack pathogens such as *E. coli*.

Enviva® PRO consistently demonstrates strong growth inhibitions of APEC by up to 96% through successive treatment trials. Across the 26 strains tested here, the average inhibition was 85% versus the untreated control over a 14-hour assay period.

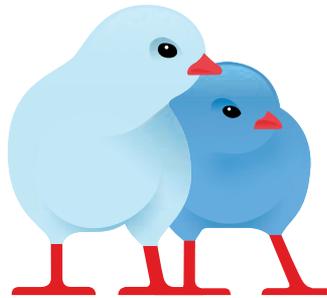
Enviva® PRO *Bacillus* demonstrate strong growth inhibition across diverse *Escherichia coli*



Enviva® PRO inhibits all *E. coli* strains by up to 87%

Combat the leading global cause of gut health challenges

With the removal or reduction of antibiotics, Necrotic Enteritis (NE) has become the leading global health challenge in poultry—making it more vital than ever for producers to understand the value of alternative solutions.



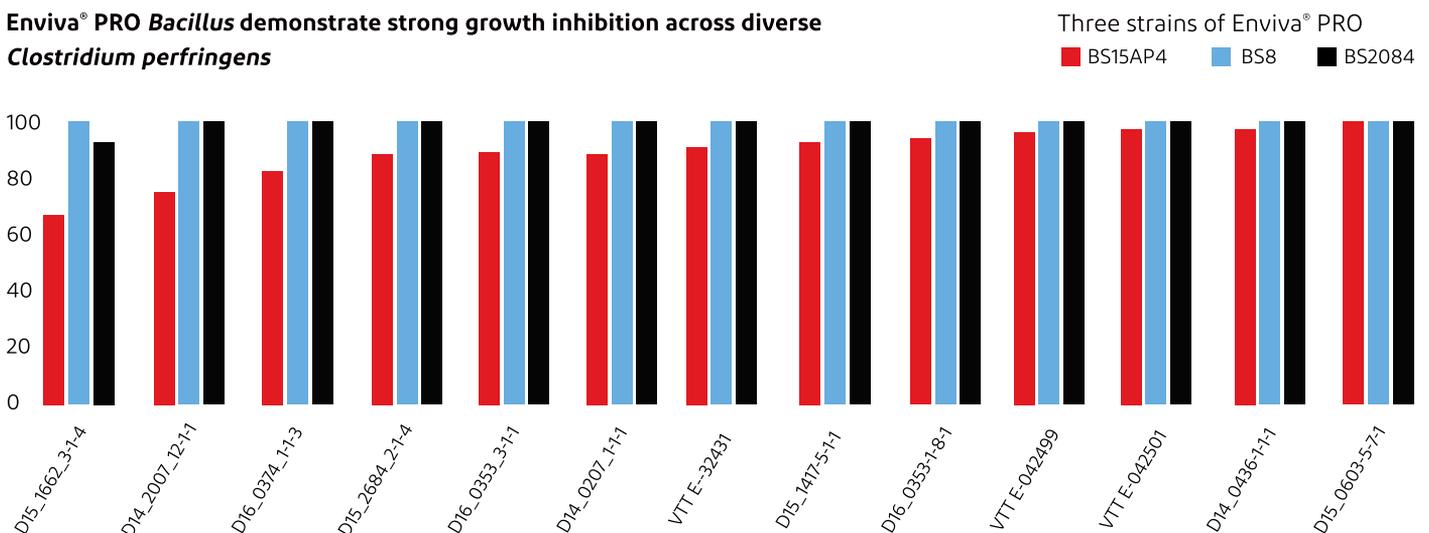
Caused by the pathogenic bacteria *Clostridium perfringens*, NE causes lesions in a bird's intestine, and in severe cases, can lead to a sudden increase in mortality, often between 14 and 42 days. The subclinical form of NE has become more prevalent causing significant reductions in bird performance characterized by poor digestion, reduced weight gain and increased feed conversion ratio without an obvious increase in mortality. Other potentially problematic pathogens may also cause these incidents in subclinical disease, including losses in production.

Protecting the gut against diverse *C. perfringens* challenges

The three strains of *Bacillus* in Enviva® PRO were selected from poultry because of their ability to produce diverse secretory compounds that attack pathogens such as *C. perfringens*. Research using a NE challenge model has shown that broilers maintained good performance during the challenge when probiotics were added to their feed.

Across the 13 unique strains tested here, Enviva® PRO consistently inhibited growth by as much as 99.9% versus the untreated control over a 14-hour assay period.

Enviva® PRO *Bacillus* demonstrate strong growth inhibition across diverse *Clostridium perfringens*



Enviva® PRO inhibits all *C. perfringens* strains by up to 99.9%

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