

SPORE FORMING BACILLUS SUBTILIS

MAXBIOS is a new gut flora stabilizer for efficient and sustainable pig and poultry production based on the spore-forming probiotic strain *Bacillus subtilis*. The ability of **MAXBIOS** to germinate and proliferate in the intestines of broilers and swine allows it to be efficiently active on the intestinal level. This, in turn, enhances the digestion of nutrients, which leads to an improvement in feed conversion and growth.

PROVITA SUPPLEMENTS INTRODUCES A NEW PROBIOTIC STRAIN

Raising healthy animals with fewer antibiotics – this is a pressing challenge for animal husbandry. *Bacillus subtilis* based probiotics appear to be an effective alternative to the use of in-feed antibiotics in pig and poultry production. However, choosing a consistently performing strain has often been a challenge, which is why we developed a completely new *Bacillus subtilis* strain for **MAXBIOS**. This innovative spore-forming probiotic is approved as a feed additive for weaned piglets and chickens for fattening in the European Union. **MAXBIOS** (*B. subtilis* DSM 28343) is classified in the category ‘zootechnical additive’ as a ‘gut flora stabilizer’.

A POWERFUL PARTNER IN PIG AND POULTRY FEEDING

Bacillus species are advantageous for animal feeding because they form endospores that resist chemical and physical stresses, such as the pelletizing process or long-term storage under warm conditions. These heat-stable, spore-forming living microbes produce certain enzymes and consume oxygen that create an optimal environment for lactobacilli which positively influences the local immune response.



- Heat-stable probiotic strain
- Spore-forming, natural and safe
- Inhibitory effect on *C. perfringens*
- Promotes a beneficial microbiota

THE DIFFERENCE IS IN THE STRAIN

It took an extensive screening process to choose and develop an efficacious probiotic solution. The new *Bacillus subtilis* strain (DSM 28343) is a naturally occurring bacterial strain isolated from hay. It does not contain antibiotic-resistant genes, and it is not harmful to humans or the environment. For practical use, **MAXBIOS** can be combined with several coccidiostats and organic acids.



PERFECT COMPONENTS. MAXIMUM RESULTS.

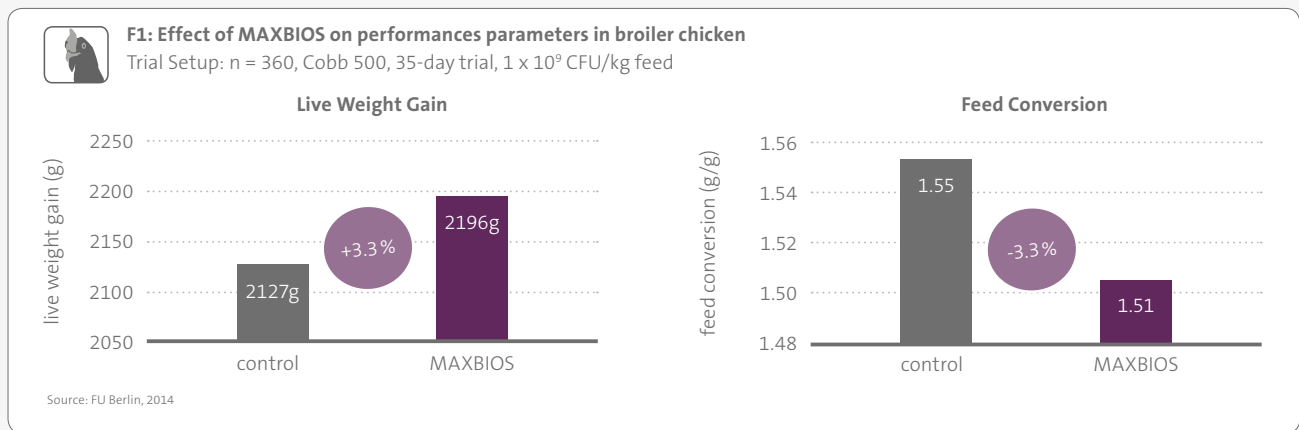
IMPROVED GUT INTEGRITY AND PERFORMANCE

ENHANCED DIGESTION, GROWTH IN BROILERS

B. subtilis is able to sporulate and multiply itself under optimal conditions, as proven in an ex vivo fermentation study in intestinal fluids of broiler chickens. The results clearly indicate that *B. subtilis* spores germinate and proliferate in broiler intestine, with the most efficient growth in the ileum.

Various in-vivo trials investigated the effect of **MAXBIOS** on live performance parameters in broiler chicken. The addition of **MAXBIOS** to starter and grower diets showed

consistent positive effects on production parameters. The ability of **MAXBIOS** to sprout and proliferate in broiler intestines allows it to be efficiently active on the intestinal level. This enhances the digestion of nutrients, leading to an improvement in feed conversion and growth. The results of these studies illustrate the contribution of a stable, direct-fed microbial to benefit poultry production without antibiotics (see figure 1).



GAIN, FEED CONVERSION BENEFITS IN PIGLETS

The results of an ex vivo fermentation study indicate that *B. subtilis* spores germinate and proliferate in pig intestines, with the highest proliferation occurring in the colon. Several efficacy trials demonstrated the positive effects of **MAXBIOS** on performance parameters in weaned piglets. Figure 2 shows the effects of **MAXBIOS** supplemented at

a dose level of 1 x 10⁹ CFU/kg in a starter and grower diet for weaned piglets from 25 to 66 days of age. Body weight gain was enhanced 5.5% for the treatment group at the end of the 42-day trial period. In addition, the feed conversion ratio was reduced by 8.5% compared to the control.

