



# CALSPORIN®

Probiotic *Bacillus subtilis* for laying hens



'Probiotics help to prevent and control gastro-intestinal pathogens and/ or improve the performance and productivity of production animals through various mechanisms', was stated in a recent report of the FAO (2016). Recently the Calsporin®, *Bacillus subtilis* C-3102, is approved by the European Commission as probiotic for laying hens. The probiotic has shown to improve laying hen performance and various avian trials confirm the beneficial effect of the *Bacillus subtilis* strain on gut health, confirming the statement of the FAO.

## HEALTHY MICROBIOTA

A healthy gut ensures optimal nutrient and mineral absorption which is essential for performance, shell quality and food safety of eggs. The commensal intestinal microbial population assists in feed digestion and can protect the host from pathogen colonization. These local bacteria compete with pathogenic species for epithelial binding sites and nutrients, positively support the host intestinal immune response and are able to control the growth of pathogenic bacteria.

Disturbance of the normal intestinal microbiota reduces the innate protective mechanisms and may increase the potential for pathogenic bacteria to bind to and colonize the digestive tract. Incorporation of viable spores of *Bacillus subtilis* in avian feed has shown to optimize the intestinal environment for the local beneficial microbes. Resulting in better performance and reduction of pathogenic pressure in the avian gut.

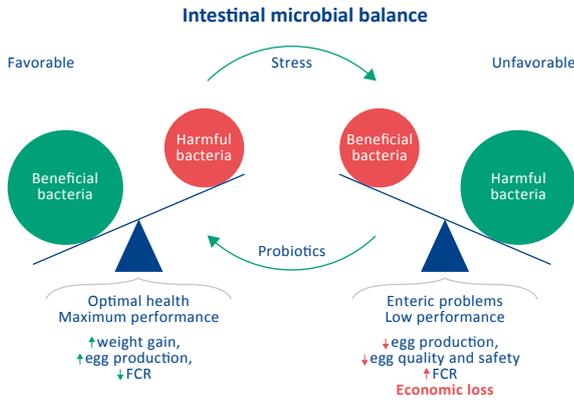
Worldwide experience with Calsporin® has shown the positive effect of the probiotic in young hens during early peak production and the ability to maintain performance and egg shell quality to extend the lifespan of the birds. Practical trials with Calsporin® in breeders show improved results on fertility and hatchability.

## Ensure gut health in early peak production

Laying hen farmers have limited possibilities for the use of antimicrobial products due to withdrawal times for eggs. The administration of *B. subtilis* to laying hen feed can be a safe and practical option, as numerous trial results have shown a reduction or even exclusion on the most common pathogens like *Clostridium perfringens*, *Salmonella*, *Escherichia coli* and *Campylobacter*.

## INTESTINAL MICROBIAL BALANCE

- Stress (e.g. feather pecking, heat stress) can result in an unfavorable microbiota and enteric problems
- Probiotics promote the favorable microbiota to ensure optimal nutrient absorption, essential for high performance, egg shell quality and food safety

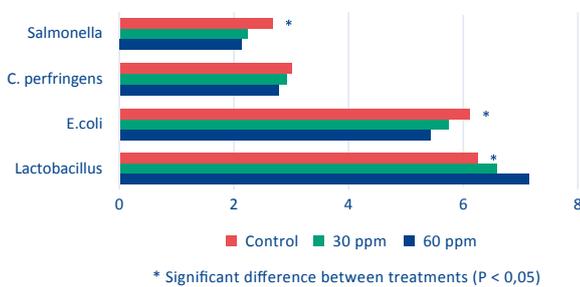


## *B. subtilis* C-3102 stimulates healthy gut microbes

### BACILLUS SUBTILIS SUPPORTS INTESTINAL HEALTH

- *B. subtilis* creates an anaerobic environment to favor growth of beneficial bacteria (e.g. *Lactobacillus*)
- Competitive exclusion and lactic acid production by local gut bacteria control and limit pathogenic bacteria such as *Salmonella*, *Clostridium*, *E.coli* and *Campylobacter*

#### Cecum broiler (Log<sub>10</sub> CFU/g)

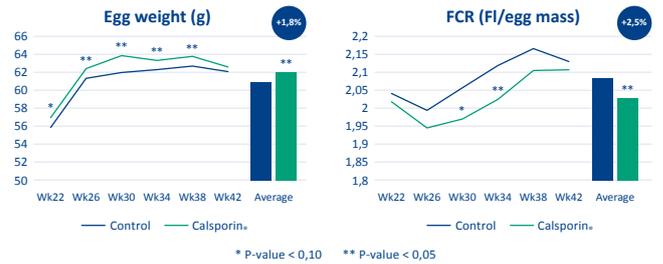


## LAYING HEN PERFORMANCE

Main focus of egg producers and feed nutritionist is the nutritional support of the young hens around peak production and solutions to prolong the laying period.

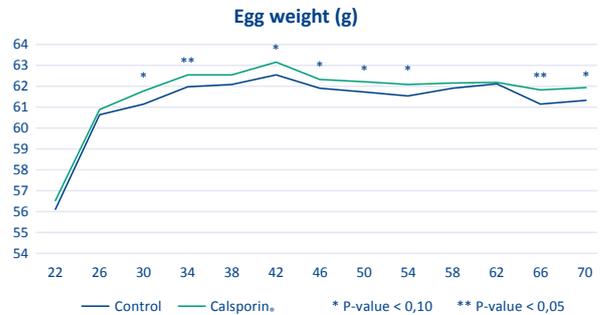
Calsporin® fed to laying hens in the first period of production, between 19-42 weeks of age, resulted in:

- Faster increase in egg weight
- Higher egg mass
- Improved feed conversion



Maintaining egg laying performance and egg shell quality are key for a long productive life. Inclusion of Calsporin® for one year to brown Tetra SL laying hens resulted in:

- Improved laying rate and feed conversion
- Larger eggs
- Reduced amount of egg disorders
- No differences in egg shell thickness and strength



## CALSPORIN®

- Spores of *Bacillus subtilis* C-3102
- EU authorization at 30 ppm for laying hens and breeders
- Stabilizes the gut microflora
- Support laying hen performance and gut health

