

# *Introducing Provia™ Prime Direct-Fed Microbial*



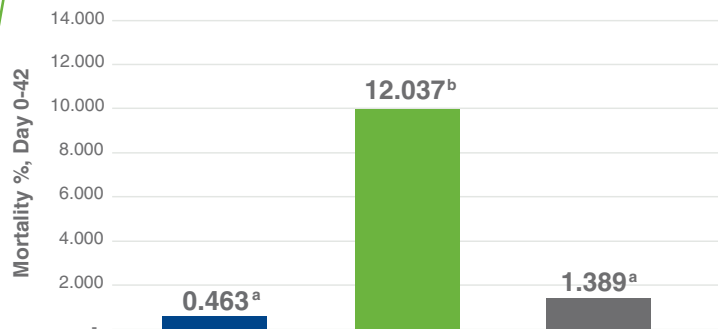
*A Direct-Fed Microbial Solution  
to Help Promote Health, Immunity  
and Weight Gain in Poultry*

**Provia™**  
**PRIME**



Figure 3. Mortality, Days 0-42

Provia Prime Trials: Mortality



Mortality

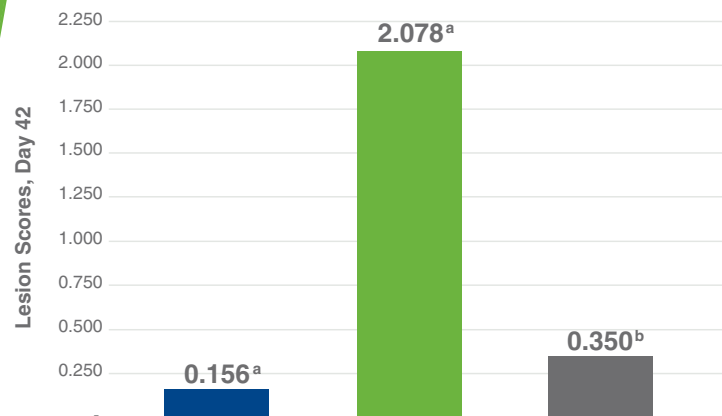
When feeding **Provia Prime**, optimized microbiome health has been shown in trials to help reduce mortality by more than 85 percent at 42 days (Figure 3.).

Lesions from Pathogens

Presence of lesions in the bird indicate the bird is under stress. Stress can come from many factors, including pathogens such as *Clostridium perfringens*, *E.coli* and *Salmonella*. The healthier the microbiome, the better able the bird is to withstand stress from pathogens. The optimized microbiome which resulted from feeding **Provia Prime** was shown in trials to help reduce lesions (Figure 4.).

Figure 4. Lesion Scores, Day 42

Provia Prime Trials: Lesion Scores



■ Negative Control (No Pathogen Present) ■ Positive Control (Pathogen Present) ■ Provia Prime (Pathogen Present)

<sup>a,b</sup> Means differ significantly ( $P < 0.05$ ) as determined by Least Significant Difference. Phibro Data, 2017.

As consumer, regulatory and financial pressures on both poultry integrators and growers make business success more challenging than ever, **Provia Prime** holds great promise for poultry producers. Healthier birds which are better able to withstand the stress of pathogens can help reduce costs of production, increase potential return on investment and help ensure plentiful and affordable protein for consumers.



## Provia™ Prime Helps Gut Microbiome Flourish

**Provia Prime** is a new direct-fed microbial (DFM) for poultry that helps optimize an animal's microbiome. A healthy microbiome can result in increased body weight and improved feed conversion and may also lead to lower mortality rates and reduced lesions and pathogens (such as *Clostridium perfringens*, *E. coli* and *Salmonella*) in commercial poultry production.

**Provia Prime** is in a class of *Bacillus*-based DFMs that have been shown to promote beneficial gut bacteria that can help improve immunity, foster gut health and act as natural growth promoters. **Provia Prime** helps the poultry industry meet growing consumer demand and maneuver increasingly complex regulations.

### Unique Broad-spectrum Four-Bacillus Combination

**Provia Prime** is a proprietary combination of four powerful probiotic strains of *Bacillus subtilis*, *Bacillus licheniformis*, *Bacillus coagulans* and *Bacillus amyloliquefaciens*. Each individual *Bacillus* strain was selected for its individual ability to enhance the microbiome. The four strains were combined to create a product with synergistic effects that enhance and diversify the microflora. **Provia Prime** contains a broad spectrum of diverse microbes that encourage a higher population in the gut of "good bacteria" known to support broiler health and increase yield.

### Durable Stability and Survivability

**Provia Prime** offers superb heat stability and a long shelf life with no refrigeration requirement and is able to stand up to most manufacturing processes. Its high viability, along with a high survivability rate against gastric acidity and bile salts, allows **Provia Prime** to consistently enhance microflora even under challenging conditions, which in turn helps promote not only health, immunity and weight gain in poultry, but also potential increased return-on-investment for poultry producers.

### Brought to You by Phibro Animal Health

**Provia Prime** is part of a family of products offered by Phibro Animal Health, a known and reliable advisor for nutritionists, feed mill operators and producers, globally. With a focus on providing dietary solutions to support customer needs, Phibro supports **Provia Prime** with its Dynamic Quality Assurance® (DQA®) Program and the Phibro technical support team.

### How Provia Prime Works

Direct-fed microbials are live microorganisms which, when fed at appropriate and regular quantities, support healthy microflora which, in turn, can confer health benefits for the animal. DFMs enable modification of the microbial population in the bird's gut by promoting favorable microflora and reducing the presence of unfavorable microflora. A healthy microflora is the first line of defense against invading pathogens and extremely important in the ability to fight off infections with enteric pathogens. The Bacilli spores used in **Provia Prime** survive stomach acid when taken orally, readily germinate in the intestines and colonize for seven to 21 days before being excreted.

### Provia Prime Development

The Phibro research and development team conducted a global search for the best microbiome-enhancing microbes within the genus *Bacillus*. All Bacilli were tested both *in vitro* and *in vivo* for their ability to support the growth of good bacteria that can help reduce pathogenicity and improve production. Once the ideal Bacilli were selected based on their individual performance, a combination was selected and tested to determine the ratio for each organism in the blend. Finally, the total CFUs per ton of complete feed were titrated for best performance feeding level.

In all trials, the final feeding rate yielded  $5.3 \times 10^5$  CFUs per gram of final feed.

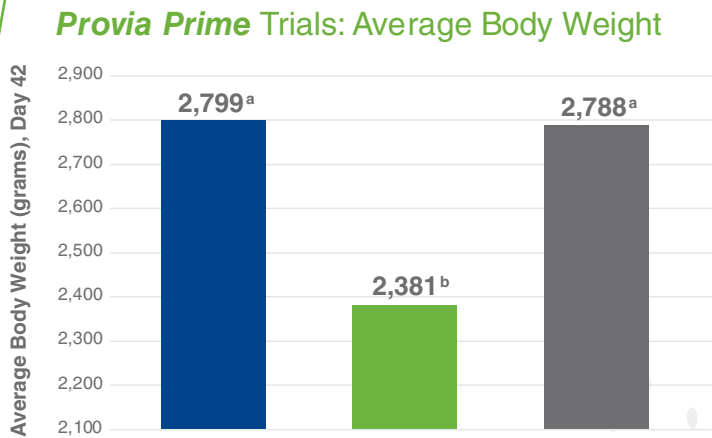
## Provia Prime Clinical Trial Results

Testing of animals fed **Provia Prime** analyzed the following:

- Broiler body weights
- Feed conversion
- Mortality
- Lesions from pathogens



Figure 1. Average Body Weight, Day 42



### Average Broiler Weights

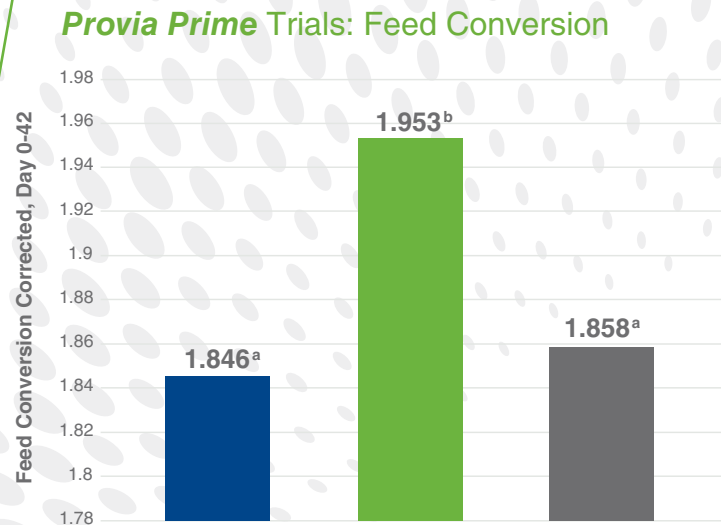
In the presence of *Clostridium perfringens*, *E. coli* and *Salmonella*, broilers fed **Provia Prime** were 15.7 percent heavier (Figure 1.), essentially the same result as when no pathogens were present.



### Feed Conversion

In the presence of pathogens, trials show that improvements to the microbiome when feeding **Provia Prime** delivered five percent better feed conversion rates (Figure 2.).

Figure 2. Feed Conversion, 0-42 Days



■ Negative Control (No Pathogen Present) ■ Positive Control (Pathogen Present) ■ Provia Prime (Pathogen Present)

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