



# Quantifying the benefits of Hemicell<sup>®</sup> in broilers

## A comprehensive review of seven studies

### Study objective

A comprehensive review (meta-analysis) of seven trials was conducted in order to quantify the benefits of including Hemicell in broiler diets from day 0 to 42-43 days of age.

### Trial selection criteria

- Diets contain practical U.S. ingredients and nutrient levels
- Pen trials conducted from day 0 to 42-43 days
- Phytase used at commercial levels
- On-label use for dose and duration
- Male-only studies
- Pen weights
- Feed consumption
- Mortality data

### Materials and methods

- Seven studies met selection criteria
- Total birds: 43,800
- 0 and 100 ml/ton Hemicell applied post-pelleting (no less than 72 Mu/ton of activity)
- Duration: day 0 to 42-43 days of age
- Statistical weighting of studies based on mean squared errors

### Statistical model

- Data analysis in SAS using MIXED and GLIMMIX procedures
- Forest plots constructed to visually assess whether treatment effect was uniform across studies

### What is a meta-analysis?

A meta-analysis is a comprehensive method for systematically combining data from several studies to develop a conclusion. This conclusion is stronger than that of a single study due to the:

- Increased number of subjects
- Greater diversity among subjects
- Accumulated effects and results

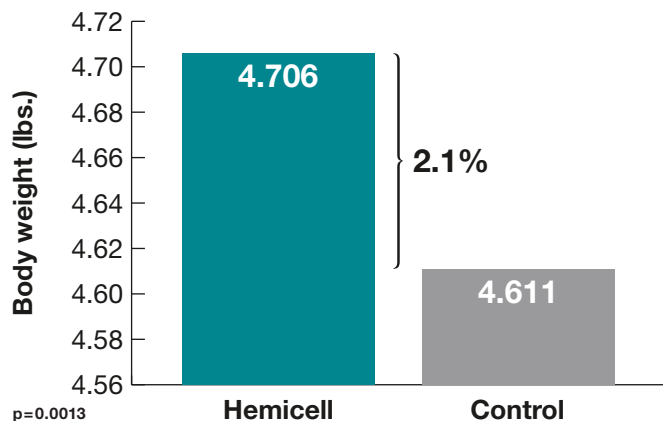
This meta-analysis used a weighting procedure to account for heterogeneity in error variances for growth parameters.

### Results summary

This seven-trial comprehensive review showed that feeding Hemicell from day 0 to 42-43 days of age to break down  $\beta$ -mannans ( $\beta$ beta-galactomannans) in soybean meal, thus minimizing the Feed-Induced Immune Response (FIIR), resulted in improvements in three factors: market weight, feed conversion ratio (FCR) and weight-adjusted feed conversion (WAFC).<sup>1</sup>

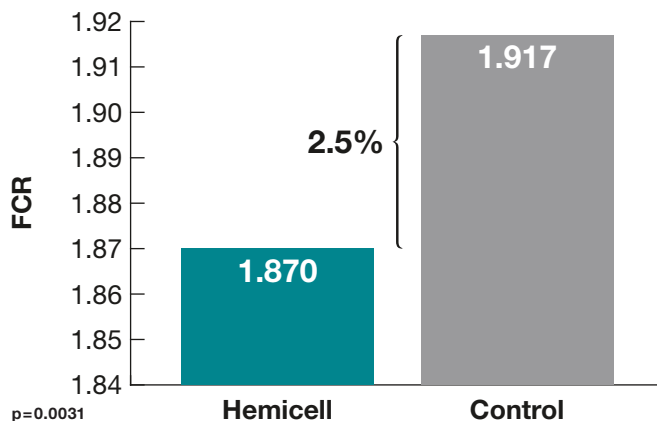
## Hemicell® comprehensive review results

### Market body weight (lbs.)



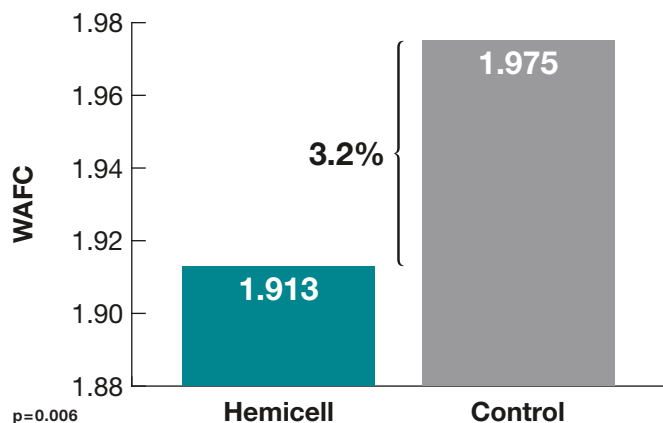
By breaking down  $\beta$ -mannans, Hemicell fed birds had an improved market weight of **0.095 lbs.**, a **2.1%** improvement over control.<sup>1</sup>

### Feed conversion ratio (FCR)



By breaking down  $\beta$ -mannans, Hemicell fed birds showed an improvement in FCR of **4.7 points**, or **2.5%**, compared to control.<sup>1</sup>

### Weight-adjusted feed conversion (WAFC)\*



By breaking down  $\beta$ -mannans, Hemicell fed birds improved WAFC by **3.2% (6.2 points)**, compared to control.<sup>1</sup>

\*Adjusted to 5 lbs. common body weight

### Conclusions

By breaking down  $\beta$ -mannans to minimize the Feed-Induced Immune Response (FIIR), Hemicell fed from day 0 to 42-43 days of age resulted in:

- **2.1% (0.095 lbs.) increase in market weight**
- **2.5% (4.7 points) improvement in FCR**
- **3.2% (6.2 points) improvement in WAFC**

This comprehensive review indicates that choosing not to address the Feed-Induced Immune Response (FIIR) from  $\beta$ -mannans in soybean meal results in quantifiable performance costs.

### Hemicell use recommendations

Hemicell is a unique, patented enzyme produced by fermentation of *Bacillus lentus* bacteria. The active ingredient is Endo-1,4- $\beta$ -D-mannanase.

**Species:** Broilers Layers Turkeys

**When:** Use Hemicell in diets containing 12% SBM or higher

**Recommended dose:**

Product (form)	Dosage per ton of complete feed
Hemicell (liquid)	100 mL enzyme with 0.90 L water

**Energy reduction (for high-energy diets):** Improved performance allows for a reduction of dietary energy up to **40 kcals/lb.**

**The label contains complete use information, including cautions and warnings. Always read, understand and follow the label and use directions.**

<sup>1</sup> Elanco Animal Health 2014. "Hemicell Broiler Meta-Analysis." Elanco Study Number ENZUS130029. Data on file.

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