

## Abstract

Varium is a natural growth promoter for poultry, shown to reduce mortality and enhance feed efficiency in broiler chickens. Because of these results, a study was conducted using Varium on a commercial broiler facility in Peru. The objective of this study was to determine how Varium affected the performance of commercial broilers. Cobb-500 broilers (n=49,540 Control; 53,025 Varium) of both sexes raised in a total of 14 houses were used in a study conducted at a farm located in Chancay, Lima, Peru. The diet used for the research was the commercial diet typically used on the farm. Feeds for the Control treatment were the standard feeds while the feeds for the Varium treatment were the Control feeds with 1 kg Varium /MT feed (0.1%) added. Both treatments included an in-feed antibiotic. Feeding Varium decreased mortality by 40% compared to birds not fed Varium from hatch to 35 days of age. Weekly decreases in mortality were 54%, 19%, 27%, 50% and 53% for weeks 1 to 5, respectively, when Varium was fed. Birds fed Varium had an overall FCR of 1.49 compared to 1.64 for the birds on the typical feed. Females had a larger feed conversion response than males. Weight gain for broilers fed Varium was 2.18 kg and the Control group was 2.16 kg. Reduced standard deviation of the live weight at d-35 indicated improved homogeneity in the Varium group. Improvements in mortality and feed conversion resulted in increased European Efficiency Index from 350 to 400. Adjusted to 1,000,000 birds the added revenue from feeding Varium was over \$220,000 (US) with a return-on-investment for Varium of over 10:1. In conclusion, feeding Varium to commercial broilers in the study decreased mortality and improved FCR, while maintaining weight gain. Improved income on Varium fed birds showed a significant return-on-investment for Varium.

**Keywords:** Varium, Broilers, Growth, Villi, Gut Health

## Hypothesis

Varium improves broiler growth performance, gut health, and mortality.

## Objective

To evaluate the effect of Varium on broilers on a commercial broiler.

## Materials & Methods

- 102,565 Cobb-500 day-old broilers were allotted to 2 treatments
  - Control – typical diet with antibiotic
  - Varium - Control diet with 1 kg/MT Varium
- Birds were raised in 14 houses, Chancay, Lima, Peru (Table 1).
- Both treatments included an in-feed antibiotic.
  - Prestarter - Phosphomycin; Starter – Zinc Bacitracin; Grower - Lincomycin-Spectinomycin
- All birds had *ad libitum* access to feed and water.
- Body weight and feed intake were measured at d-35 for body weight, feed intake, and feed conversion ratio calculations
- At d-21 duodenum were collected from several birds and villi measured as an indication of gut health.

Table 1. Treatments

Treatment	No. Birds
Control	49,540
0.1% Varium	53,025

## Results

Figure 1. Growth Performance, D35

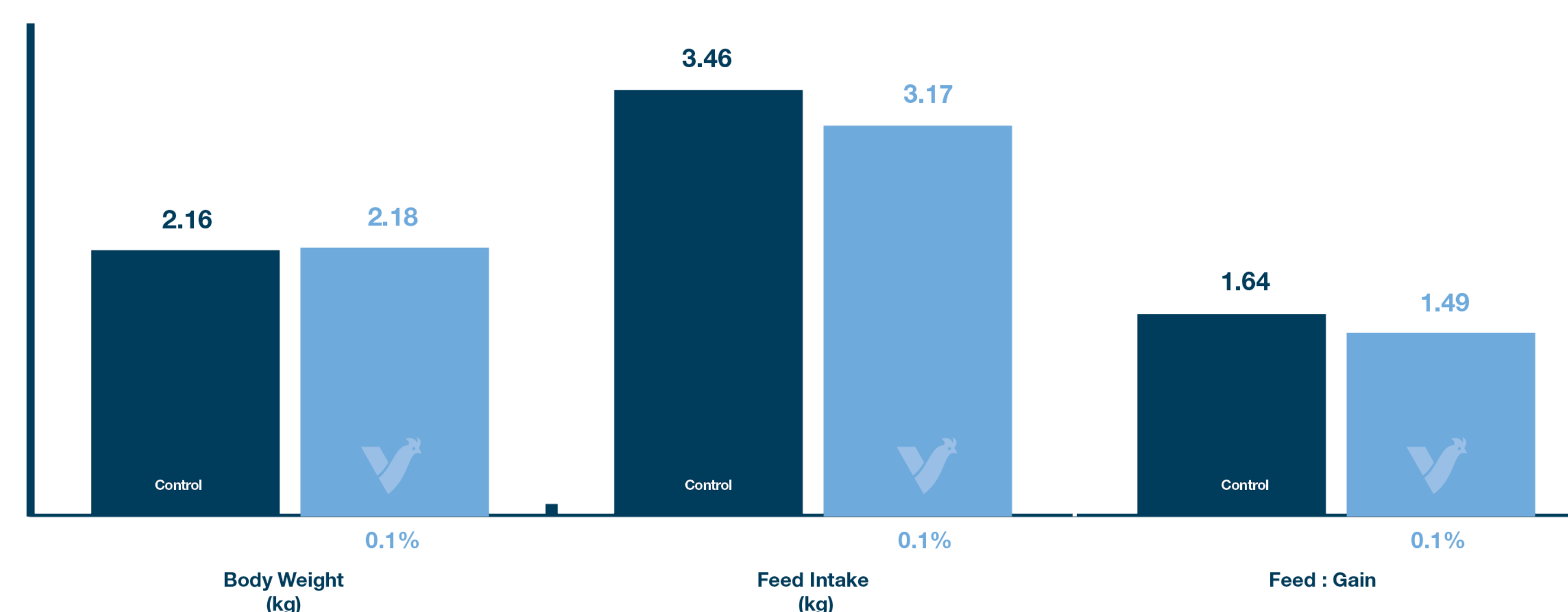


Figure 2. Accumulated Mortality, %

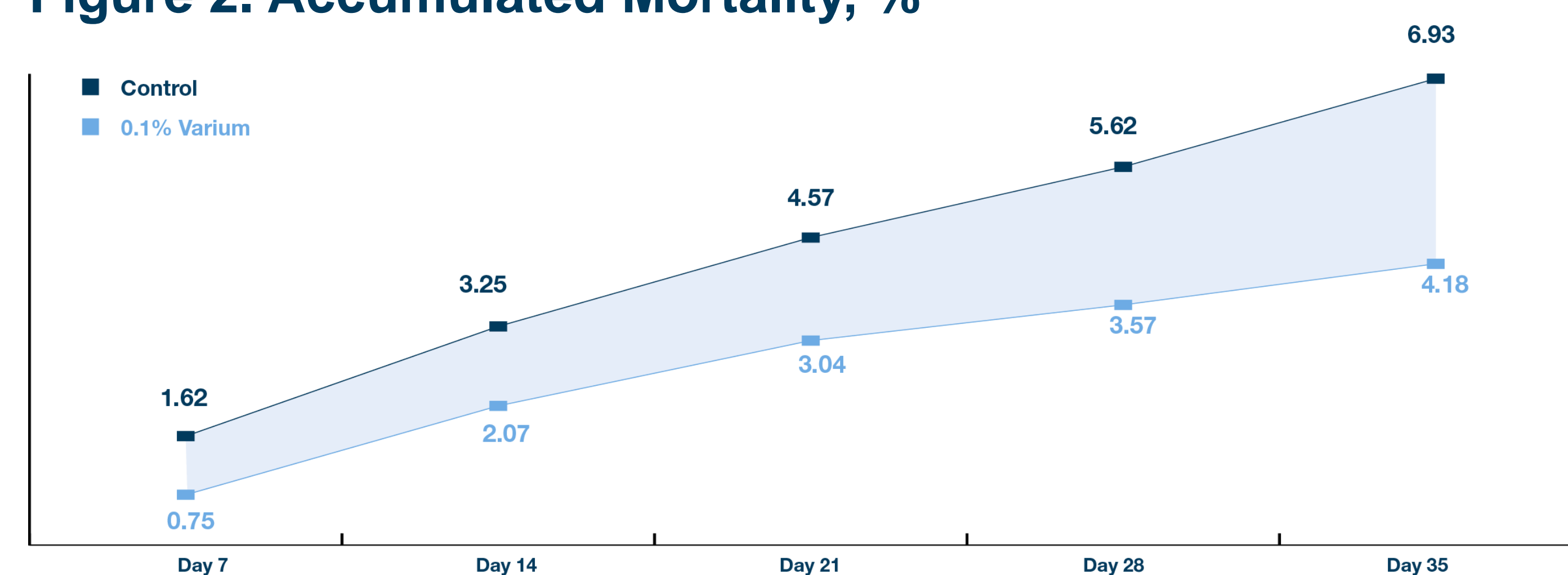


Figure 3. Duodenum Villi (µm), D21

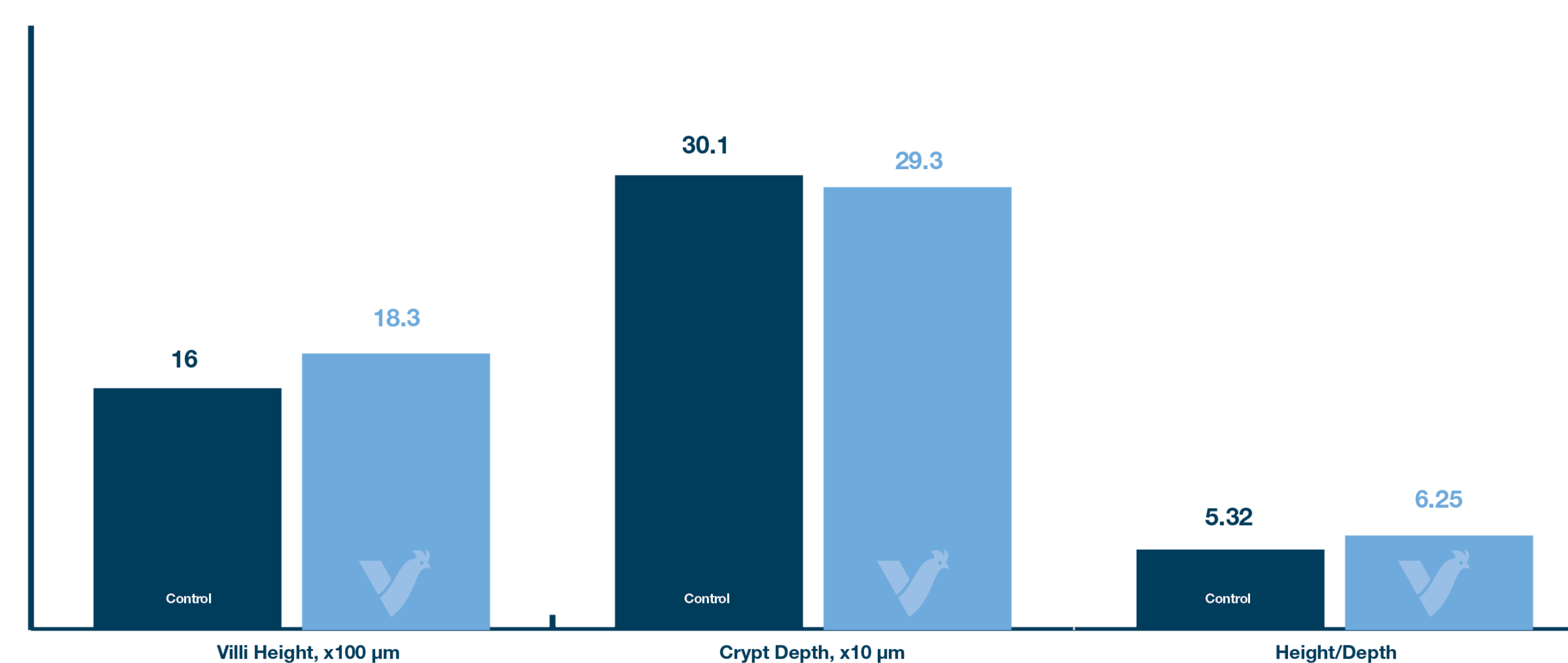


Figure 4. Estimated Total Villi Surface Area (TVSA)

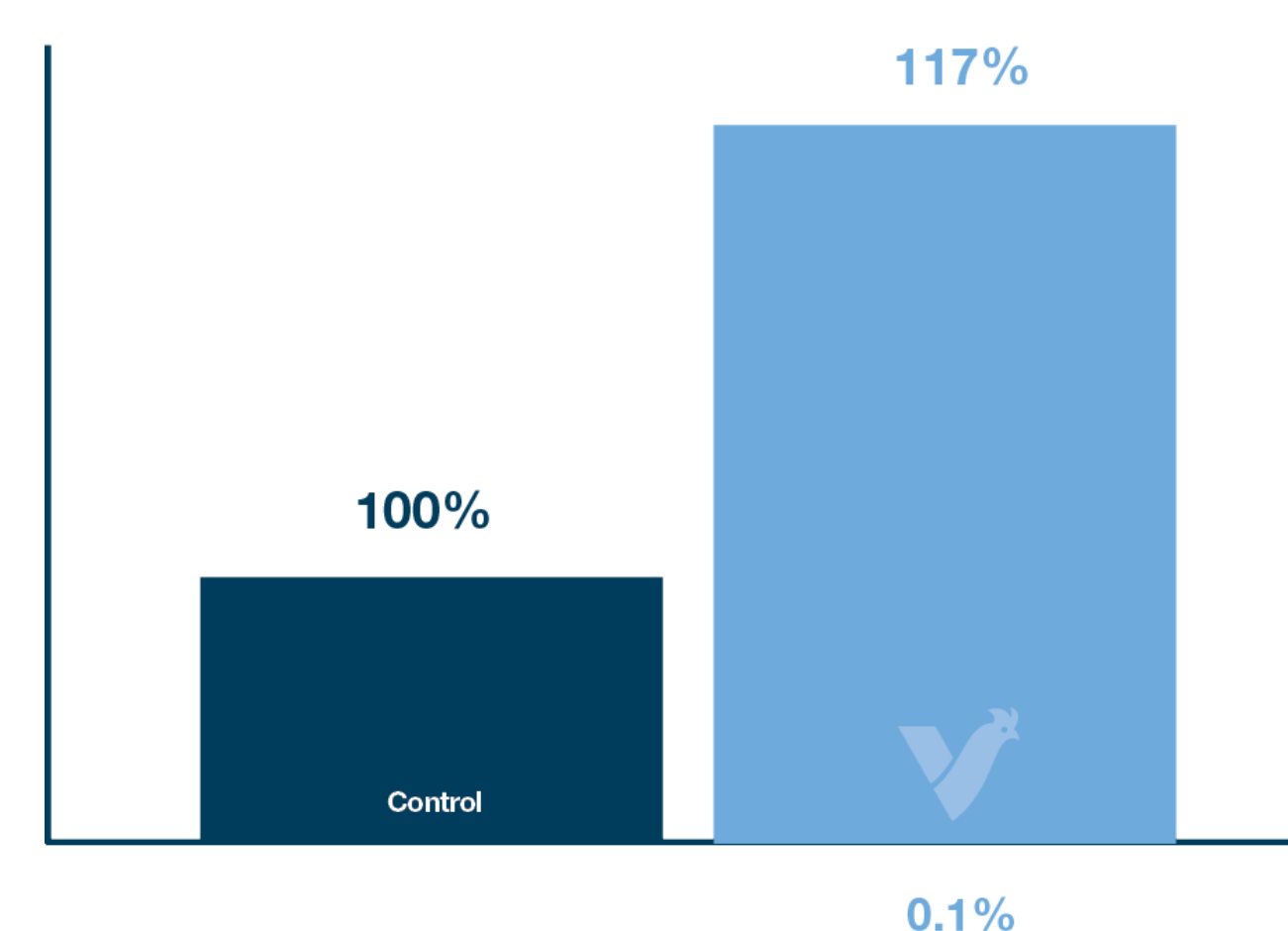
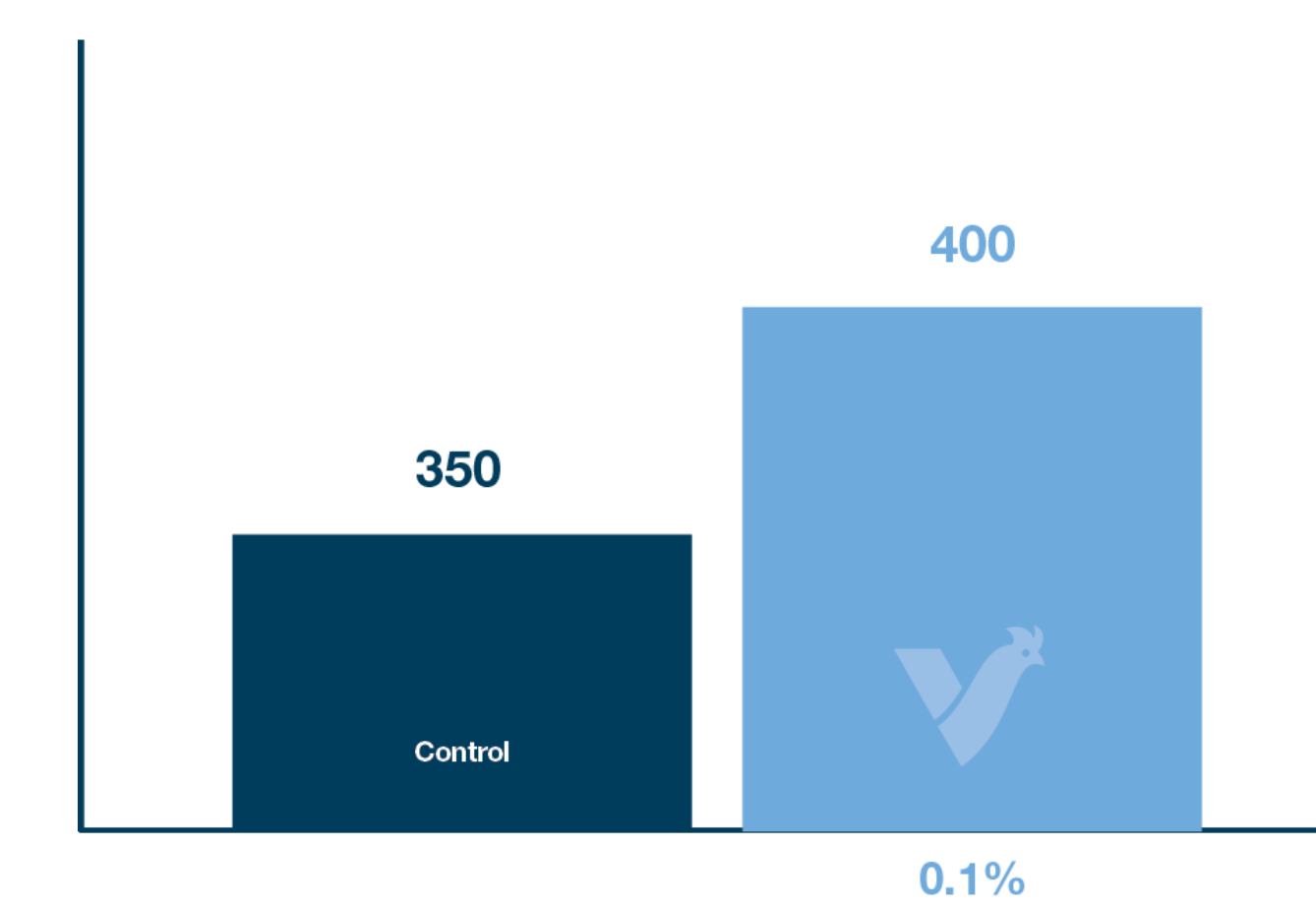


Figure 5. European Efficiency Index, D35



## Summary

Feeding Varium (1 kg/MT feed) to commercial broilers:

- Improved FCR 15 points - 1.64 to 1.49
- Reduced mortality 40% - 6.93% to 4.18%
- Improved EEI - 350 to 400 points
- Improved intestinal barrier functions and health by improving villi height, crypt depth, height/depth, total surface area in the small intestine

## Conclusion

Varium improves FCR, reduces mortality, improves gut health, and improves EEI in broilers resulting in a ROI of over 10:1.