

# TECHNICAL BULLETIN

## Broiler Performance Improvement with Safe-Guard® AquaSol: Very Mild Roundworm Burden Results in Performance Loss

### Introduction

Roundworms (*Ascaridia galli*) are known to cause significant loss in weight gain at low numbers. In 1958, Reid and Carmon<sup>1</sup> estimated weight loss in broilers due to roundworms in the breeds of that era, long before today's fast-growing, high yield breeds were developed. They estimated a weight loss of 1.39 grams of body weight per worm over a 3-week experimental period. Their studies indicated that weight loss is progressive from parasite burdens of one to about 40 worms per bird.

A study was conducted at a US broiler integrator growing nine-pound (62 day) broilers over three consecutive grow-outs. Six multi-house farms were selected for the study: half of the houses on each farm were left untreated and half were treated with Safe-Guard® AquaSol. The houses designated as control houses remained untreated for the duration of the study and the treated houses were treated for three consecutive flocks. The worm burden in all houses began high (average adult worm burden  $\geq 40$  worms per bird) in spring 2016 and naturally declined in

### KEY POINTS

- Weights were consistently higher in three consecutive flock cycles, on all six trial farms, in the houses treated with Safe-Guard® AquaSol. Average weight advantage: 20.7 pts (+2.4%)
- Feed conversion was consistently better in three consecutive flock cycles, on all six trial farms, in the houses treated with Safe-Guard® AquaSol. Average FCR advantage: 5.5 pts (-2.8%)
- Safe-Guard® AquaSol was highly effective in the treated houses: worm counts were consistently reduced or absent in every treated house on every farm in every flock cycle.
- Despite declining worm numbers in the untreated houses, houses treated with Safe-Guard® AquaSol continued to outperform the control houses, demonstrating that even low worm burden is enough to cause measurable performance loss.
- Today's fast growing and high yield breeds are susceptible to significant performance losses due to very low roundworm burden. Safe-Guard® AquaSol is an effective tool to reduce roundworm burden, protecting broiler performance.

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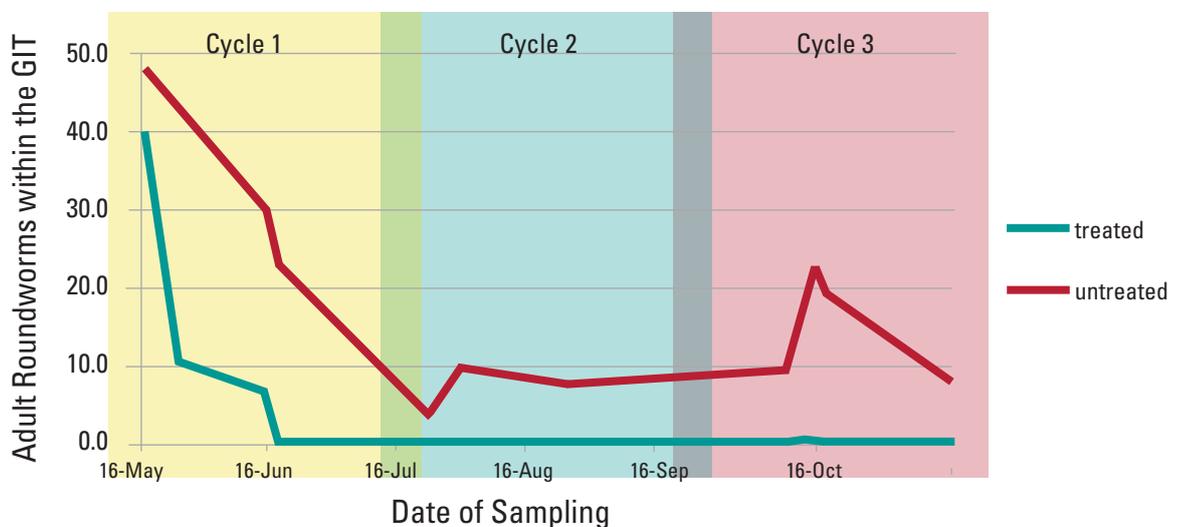
the control houses during the summer months, while the treated houses dropped to zero after treatment. Weight and feed conversion as well as worm burden were measured over the three consecutive flock cycles.

### Study Design

Six broiler farms, three with six houses, and three with four houses, were divided in half. Approximately 1.1 million broilers were involved in the study. The houses designated for Safe-Guard® AquaSol treatment were dewormed per label directions on days 28 and 56 in each of three consecutive flock cycles. The other houses on each farm remained untreated for the duration of the study.

On each farm included in the trial, one house of broilers dewormed with Safe-Guard® AquaSol and one house of non-dewormed broilers were designated for collection of gastrointestinal tract (GIT) samples. Samples collected from each of these houses consisted of six gastrointestinal tracts, which comprised the entire intestine extending from the gizzard to the cloaca, collected from randomly selected broilers within the respective house. From these GIT samples, enumeration of roundworms (*Ascaridia galli*) was made by a combination of counting of grossly visible adult worms and by screening 10% of the intestinal contents for enumeration of larval stages of *A. galli*. These samples were collected

**Figure 1. Average Worm Burden**

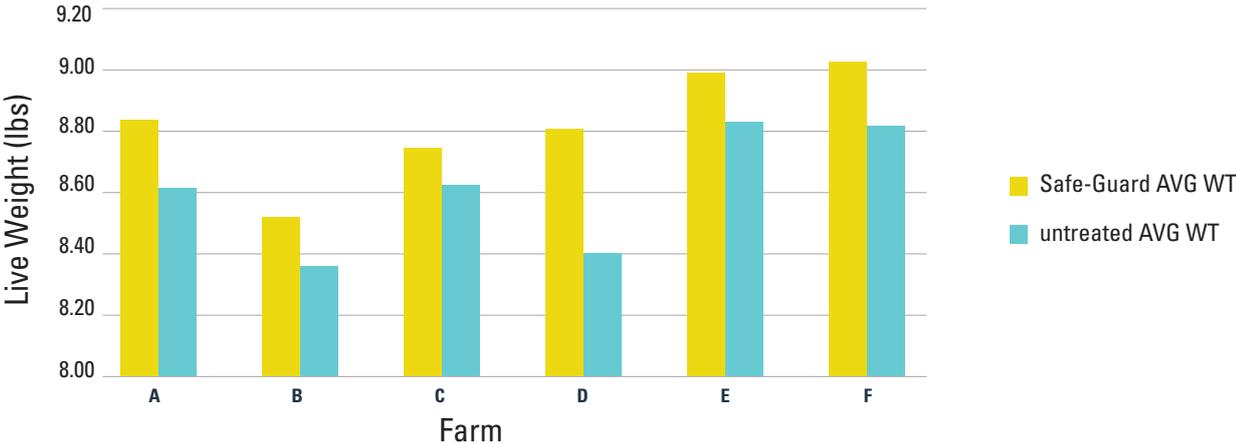


from birds immediately before and five to seven days after each treatment. As a result, over the course of this study approximately 864 GIT samples were collected (six dewormed and six non-dewormed GITs collected from six farms, at four points during the grow-out, over the course of three grow-out cycles).

### Results

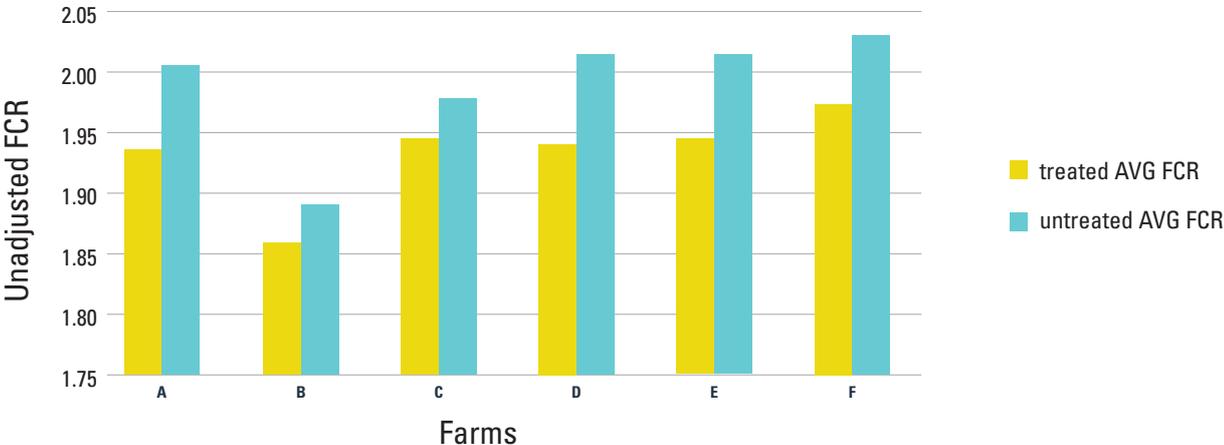
Results of the worm enumeration are shown in Figure 1. Final live weights of treated and untreated houses are summarized in Figure 2.

**Figure 2. Final live weight of Safe-Guard® AquaSol houses vs. untreated houses by farm: Average of 3 Flock Cycles.**



Feed conversion ratio (unadjusted) of Safe-Guard® Aquasol treated houses compared to untreated houses is found in Figure 3.

**Figure 3. Unadjusted FCR of Safe-Guard® AquaSol houses vs. untreated houses by farm: Average of 3 Flock Cycles.**



# CONCLUSION

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Worm enumeration demonstrated that the worm burden in the untreated houses was low, while the worm burden in the Safe-Guard® AquaSol houses was markedly reduced or zero. Even though the low worm burden was low in untreated houses, weight gain and feed conversion were measurably worse than weight and feed conversion in the houses treated with Safe-Guard® AquaSol.

## References

Reid WM, Carmon JL. 1958. Effects of numbers of *Ascaridia galli* in depressing weight gains in chicks. The Journal of Parasitology [Internet]. [cited 2017 Jan 05]; 44(2):183-186. Available from: <http://www.jstor.org/stable/3274695>