Research Notes

ARM & HAMMER

CERTILLUS Eco reduced ammonia levels in broiler houses.

TRIAL OVERVIEW

An on-farm trial[1] was conducted to assess the impact of CERTILLUS™ Eco in an organic poultry complex. Ammonia readings and litter samples were collected from three control houses and three houses with birds fed Eco.

Broilers ranged from 42 – 45 days old. Litter samples were collected on-site and sent to the Arm & Hammer Animal and Food Production lab for assessment. Ammonia levels were measured on-site. The following methods were used:

Ammonia readings:

A volume of air was trapped under a testing apparatus that allowed for the measurement of the ammonia at the litter surface. The testing apparatus was placed on the litter for a defined number of seconds before a reading was taken with an ammonia tube measurement. This procedure was used as a means to minimize the disruptions caused by ventilation encountered when measuring on-farm ammonia levels.

- Readings were taken at four locations from the center of each house at distances of 100, 200, 300 and 400 feet from the front of the house

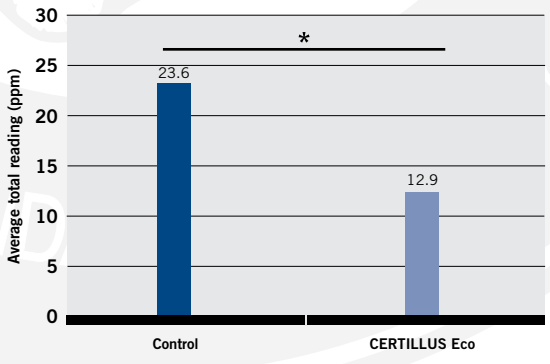
Litter samples:

- Four dry and four wet litter samples were obtained from the center of each house at distances of 100, 200, 300 and 400 feet from the front of the house
- Four wet litter samples were obtained from between the feed and water lines at distances of 100, 200, 300 and 400 feet from the front of the house
- A total of 48 samples were collected, each weighing approximately 0.5 – 1 pound
- Samples were analyzed for chemical composition and water activity

RESULTS

- A qualitative difference was observed between control and experimental houses
  - + More prevalent ammonia odor was detected in the control houses compared to those with birds fed CERTILLUS Eco
  - + Litter samples from Eco experimental houses were drier in appearance and feel than samples from control houses
- Average ammonia levels in CERTILLUS Eco-fed houses were 45% lower than the control houses (Fig. 1)

FIGURE 1: Ammonia Readings from Control and Eco-treated Broiler Houses



*Significant differences determined by t-test (P<0.05)

- Litter from houses treated with CERTILLUS™ Eco had significantly decreased moisture levels ($P<0.05$) and numerically decreased water activity readings compared to litter from control houses (Figs. 2, 3).
- Eco-fed houses had numerically decreased levels of ammonium (Fig. 4).

CONCLUSIONS

CERTILLUS Eco improved air quality through a reduction in ammonia levels and lowered litter moisture when fed to broilers in an organic poultry complex.

FIGURE 2: Average Water Activity from Control and Treated Litter Samples

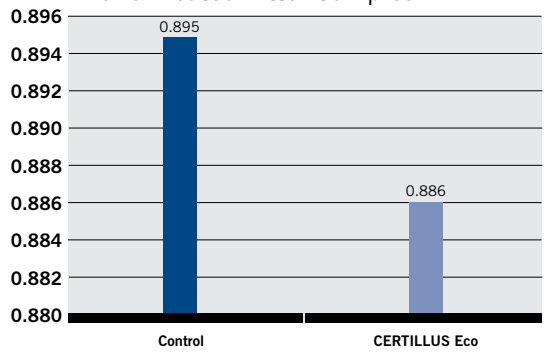
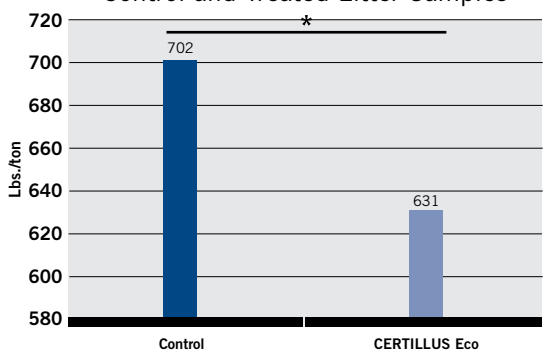
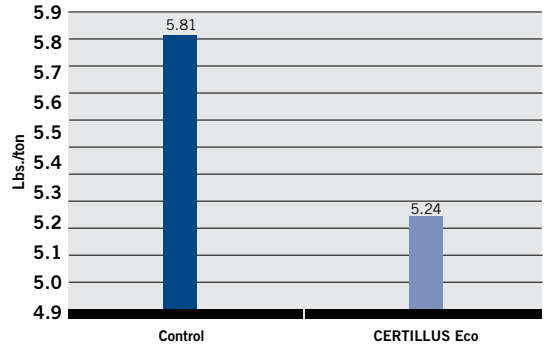


FIGURE 3: Average Moisture Measurements from Control and Treated Litter Samples



**Significant differences determined by t-test (P<0.05)*

FIGURE 4: Average Ammonium (NH_4-N) Levels from Control and Treated Litter Samples



1 Data collected and analyzed by ARM & HAMMER.™ Reports on file. 2018.