Project Summary

Application of water-based electrolytes to improve chicken resilience during transport to processing

Project No. PRJ-009120
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Introduction

High ambient temperatures provoke stress in poultry and can be related to poorer productivity, prostration and even death.

Meat chickens are particularly sensitive to heat stress as they approach processing weight, and the transport from the farm to processing site is an added stressor that can effect meat quality.

The effect on meat chicken supplemented with electrolytes and betaine was carried out on Ross-308 meat chickens to understand the effects on chicken performance and meat quality.

Key findings

- During winter, the electrolyte and betaine supplementation had no effect on growth performance or breast muscle meat quality.
- The data suggests that the best temperature for Ross-308 performance is lower than the 18-24°C that is currently accepted within the industry.
- Contradictory effects of electrolytes were found when looking at two high temperature experiments; in one trial, bird growth performance was improved with minimal effect on meat quality measures, however, the second trial showed electrolyte supplementation had no effect on growth rate, with significant effects on meat quality.
- There was significant effects on performance and meat quality between genders in all experiments.

Implications and recommendations

Meat quality and meat chicken performance were improved by electrolyte supplementation during periods of moderately high ambient temperature. However, these were inconsistent and probably not of sufficient magnitude to be of economic significance.

The value of electrolyte supplementation is likely to be more substantial when meat chickens experience heat wave conditions with temperatures above 30°C, although this is yet to be evaluated.

Publications

"The effects of pre-transport supplementation with electrolytes and betaine on performance, carcass yield and meat quality of broilers exposed to moderately high cyclic temperatures."

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Livestock Science, 205; 16-23, 2017.
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