Evaluating Meat Quality of Gallus gallus domesticus After Treating With a Commercial Food Additive

Layman, Joscelyn (School: Hilltop High School)

American Livestock producers must balance the concern for animal welfare while creating a high quality meat product for consumers. This project investigates if using stress reducers in production animals would improve meat quality. It was hypothesized that broilers receiving a commercial additive designed for reducing stress would produce meat with higher pH values and darker coloration, both indicating better meat quality. Fifty male Cornish Cross broiler chicks were raised. After an initial two weeks of growth, the birds were split into a control and test group. The test group received 32 grams of commercial feed additive per 453.6 grams of feed. The animals were harvested by the Michigan State University Meat Lab at 6 weeks. The experimenter tested the chicken breast pH at 15 minutes and 24 hours post-mortem and coloration of the breast meat using a CR-400. Unpaired t-tests analyzed all results. This research found that birds consuming the commercial additive had a better overall meat quality compared to the control birds. The test group maintained higher average pH values at 15 minutes post mortem than the control group ($p=0.0001$). At 24 hours post-mortem, the test group continued to have higher pH averages than the control ($p= 0.0031$). The average L* the coloration score in the lower breast section was significantly lower ($p= .0016$) for the test group (52.71) compared to the control group (54.37).These results indicate that using a calming agent in chickens does result in better meat quality for consumers.

Awards Won: