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Poultry Management & Welfare

Research summary

Assessing the efficacy and welfare impact of euthanasia methods for broiler chickens

About the study

Euthanasia is an essential component of broiler production management and welfare. If broilers become ill or injured, euthanasia may be the most humane way to reduce their suffering. Among the accepted euthanasia methods for poultry are: the use of blunt force trauma and captive bolt devices, cervical dislocation, and gaseous euthanasia.

The goal of this study was to evaluate the ability of euthanasia methods to induce instantaneous insensibility and reliable result in death with minimal pain and distress.

How we did it

The first portion of the research investigated on-farm euthanasia methods. Comparing time to insensibility and death, and traumatic injury and damage with three euthanasia methods: manual cervical dislocation, a mechanical cervical dislocation device and a non-penetrating captive bolt device.

The three on-farm euthanasia methods. A) manual cervical dislocation B) mechanical cervical dislocation C) is showing the Zephyr-EXL non-penetrative captive bolt device.

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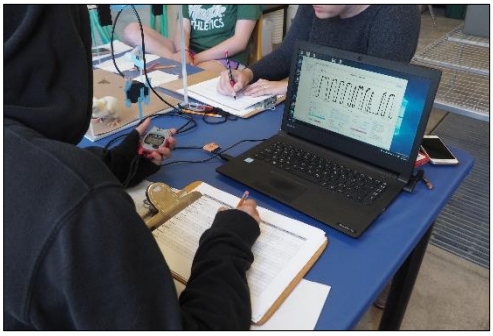
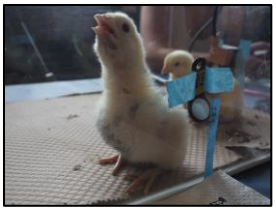
The second portion of the research investigated gaseous euthanasia for chicks and compared five different CO_2 euthanasia techniques. Measuring duration and frequency of distress behaviours, time to insensibility and death, we compared immersion in 70%, 80%, 90% and 100% CO_2 and four rates of gradual CO_2 induction.



What we found

In the first part, all methods were found to successfully result in insensibility and death. The non-penetrating bolt device was the fastest to cause insensibility but wasn't entirely reliable as it occasionally misfired. Manual cervical dislocation was the quickest to cause death and 100% reliable; however, it had a longer time to insensibility than the non-penetrating bolt device. Mechanical cervical dislocation resulted in insensibility and death but sometimes failed to do so in the required manner. Insensibility and death also took the longest with mechanical cervical dislocation.

When CO_2 is used to euthanize day-old chicks, all treatments caused distress. Overall, immersion into CO_2 resulted in the shortest time to insensibility and death, with the shortest duration of distress. Euthanasia with immersion into 80-100% CO_2 is more effective than with the gradual addition of CO_2.



In conclusion

None of the tested methods were considered 100% efficient and welfare friendly. However, most of them successfully induced insensibility and death in broilers.

Who we are

Dr. Bethany Baker is a researcher with a focus on poultry welfare, behaviour and management. This research was for her Ph.D., which she completed in July 2019.

Dr. Karen Schwean-Lardner is an Associate Professor at the University of Saskatchewan. Her research focuses primarily on the management and welfare of laying hens, broiler chickens, and turkeys.

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