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www.ufaw.org.uk

Animal Welfare 2018, 27: 225-233
ISSN 0962-7286
doi: 10.7120/09627286.27.3.225

Evaluation of the CASH Dispatch Kit combined with alternative shot placement landmarks as a single-step euthanasia method for cattle of various ages

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Abstract

Humane euthanasia of cattle under field conditions presents special challenges for veterinarians and producers. The purpose of this study was to evaluate the effectiveness of the CASH Dispatch Kit captive-bolt system combined with improved shot placement landmarks as a single-step euthanasia method for cattle. Cattle destined for euthanasia for reasons unrelated to the study were utilised. Adult (> 2 years), young (6–24 months) and neonatal (< 1 month) cattle each received a single shot from the CASH penetrating captive-bolt pistol. An additional group of neonatal animals was shot with a non-penetrating muzzle attachment. The shot was placed on midline halfway between the top of the poll and an imaginary line connecting the lateral canthus of each eye. Following the shot, the animals were immediately assessed for loss of consciousness based upon: i) immediate collapse (if standing); ii) loss of eye reflexes with a centered, dilated pupil; iii) lack of co-ordinated respiration; iv) lack of vocalisation; and v) lack of a righting reflex. Lack of consciousness and heartbeat were assessed at 1-min intervals until cardiac arrest. All animals were adequately stunned by a single shot. Euthanasia via a single shot was successful in 28/31, 17/19, 8/10, and 9/10 adult, young, neonate (penetrating) and neonate (non-penetrating) animals, respectively. Reasons for failure included return of co-ordinated respiration and prolonged time until cardiac arrest. A single shot from the CASH Dispatch captive-bolt system will humanely euthanase most animals. However, the results of this study indicate that application of a follow-up step to ensure death is still needed in certain instances.

Keywords: *animal welfare, brainstem, captive bolt, cattle, euthanasia, single step*