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Effects of stocking rate on measures of efficacy and welfare during argon gas euthanasia of weaned pigs

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Abstract

The objective of this study was to evaluate the effects of chamber stocking rate on facets of animal welfare and efficacy during euthanasia of weaned pigs (*Sus scrofa domestica*) with argon gas. Two hundred and thirty-three weaned pigs designated for euthanasia at a commercial production farm were randomly assigned to group sizes of one, two, or six pigs. Gas euthanasia of each piglet group was performed in a Euthanex[®] AgPro chamber. The chamber was filled with argon gas for 6 min in order to reduce the oxygen concentration to less than 2%. Pigs were then placed into the pre-filled chamber and gas flow was continued at a high rate to displace introduced air and re-establish a fatally low residual oxygen concentration. Pigs remained in the chamber for 10 min and were then removed to test for signs of sensibility and life. There was no significant evidence of an effect of stocking rate on focal pig latencies to onset of neuromuscular excitation or last movement, as scored from video recordings. Solitary pigs were more likely to pace and make righting attempts in the chamber than paired or grouped focal pigs, although pigs in higher stocking rate treatments tended to retain posture longer. The results of this study do not support seclusion during argon gas euthanasia as a method of improving animal welfare. The portable chamber did not facilitate a truly pre-filled atmosphere for euthanasia, although the procedure used in this study was consistently effective.

Keywords: animal welfare, argon, behaviour, euthanasia, pigs, stocking rate