The Old School, Brewhouse Hill, Wheathampstead,
Hertfordshire AL4 8AN, UK
www.ufaw.org.uk

Animal Welfare 2012, 21: 487-495
ISSN 0962-7286
doi: 10.7120/09627286.21.4.487

Assessing pig welfare at stunning in Swedish commercial abattoirs using CO_2 group-stun methods

S Atkinson*†, A Velarde‡, P Llonch‡ and B Algers†

† Department of Animal Environment and Health, Faculty of Veterinary Medicine and Animal Science, Swedish University of Agricultural Sciences, Box 234, 532 23 Skara, Sweden
‡ Animal Welfare Subprogram, IRTA, Finca Camps i Armet s/n Monells, 17121, Girona, Spain
* Contact for correspondence and requests for reprints: Sophie.Atkinson@slu.se

Abstract

While regular monitoring of stun quality in abattoirs is now required by EU law, guidelines specific to species and stun method have not been adequately developed. Carbon dioxide (CO_2) gas stunning of pigs in groups is widely used because of efficiency and reduced pre-slaughter stress. However, some pigs may recover from the stun process if it is not correctly managed. In light of these concerns, this study aimed to develop and implement a standardised assessment for stun quality for use in commercial pig abattoirs. Eight abattoirs and 9,520 slaughter pigs were assessed for stun group size, stick time and stun quality. The stun system, CO_2 concentrations and exposure times were also investigated. A stun-quality protocol (SQP) identified and risk-rated symptoms signifying recovery of consciousness. In abattoirs using paternoster stun-boxes, pigs consistently showed no stun-quality problems despite 65% with stick times between 70 and 100 s. Stun-quality problems were detected in 1.7 to 3.3% of pigs in abattoirs using dip-lift stun-boxes and 75% of stick times were below 60 s. In 36 of 38 cases of inadequately stunned pigs, a combination of symptoms from the SQP was seen. Regular gasping preceded other symptoms in 31 cases and was a valid indicator of inadequate stunning. In response to the stun-quality assessments, two abattoirs serviced the stun machines (increasing CO_2 concentrations and exposure times). All pigs were adequately stunned in follow-up studies. Implementation of stun-quality assessments, such as developed in this study, can assure monitoring of animal welfare at slaughter, beneficial not only to the industry and relevant authorities but also the concerned consumer.

Keywords: *animal welfare, CO_2 stunning, commercial abattoirs, pig welfare, stun-quality assessment, stun-quality protocol*