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Review

Auditing animal welfare at slaughter plants

Temple Grandin

Department of Animal Sciences, Colorado State University, Fort Collins CO 80523, USA

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ABSTRACT

The OIE Welfare Standards on slaughter transport, and killing of animals for disease control are basic minimum standards that every country should follow. The OIE, European Union, and many private standards used by commercial industry have an emphasis on animal based outcome standards instead of engineering based standards. Numerical scoring is used by both private industry and some governments to access animal welfare at slaughter plants. Five variables are measured. They are: 1) Percentage of animals effectively stunned on the first attempt, 2) Percentage rendered insensible, 3) Percentage that vocalize (bellow, moo, squeal) during handling and stunning, 4) Percentage that fall during handling, and 5) Percentage moved with an electric goad. Each one of these critical control points measures the outcome of many problems. A good animal welfare auditing system also has standards that prohibit really bad practices such as dragging, dropping, throwing, puntilla, and hoisting live animals before ritual slaughter. On farm and transport problems that can be measured at the slaughter plant are: percentage of lame animals, percentage of thin animals, percentage of dirty animals, percentage with sores, bruises or lesions, death losses, morbidity, and percentage of birds with broken wings and legs.

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E-mail address: cheryl.miller@colostate.edu.

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1. Introduction

Animal welfare is becoming an increasing concern around the world (Seng & Laporte, 2005). Managers, veterinarians, and scientists need to become more knowledgeable on how to assess and audit animal welfare at the slaughter plant. The World Organization for Animal Health (OIE) now has welfare standards for slaughter, transport, and killing animals for disease control (OIE, 2009a,b,c; Shimshony & Chaudry, 2005). Standards for on farm welfare of beef cattle and meat (broiler) chicken have preliminary drafts. The OIE standards are basic minimum standards that both the developed and developing countries have agreed on. In addition to OIE standards, each country has its own animal welfare laws and standards (Defra, 2010; USDA, 2010; MAF, 1996). A third type of standards are private standards that have been created by either large meat buying customers, livestock producer groups, or scientific societies (Barnett & Hemsworth, 2009; Grandin, 2010a; FASS, 2010, National Pork Board (2008), Soil Association (no date). Some of these are stricter than either legislated standards or OIE standards. Legislative standards and private standards should avoid being in direct conflict with OIE by allowing practices that should not be used according to OIE standards.

2. Different types of standards

2.1. Animal based outcome standards

Animal based standards measure conditions that are outcomes of either poor management practices, neglect, abuse of animals, or poorly designed equipment. The use of animal based standards is recommended by many researchers (Main, 2009; Hewson, 2003; Wray, Main, Green & Webster, 2003; Wray, Leeb, Main, Green & Webster, 2007, and Webster, 2005). Some examples of welfare problems that can be measured with outcome standards are the percentage of animals that are emaciated, lame, bruised, have lesions, had missed stuns before slaughter or fell down during handling. All of these conditions are outcomes of many different bad practices or poor conditions. For example, lameness in dairy cows can be associated with different factors such as cubicle (freestall) dimensions, poor body condition, type of bedding, or lack of hoof trimming (Dippel, Dolezal, Breninkmeyer, Brinkman, March, Knierim & Winkler, 2009; Barker, Amory, Wright, Browey & Green, 2007) and lesions on chicken carcasses are related to litter quality (Allain, Mirabito, Arnould, Colas, LeBouquin, Lupo & Michel, 2009). An additional example is high numbers of cattle or pigs falling during handling. This can be caused by either slippery floors or causing animals to become agitated by over use of electric goads (Cockram & Corley, 1991; Grandin, 1998a; Gregory, 2007). Stunning methods that fail to produce insensibility can be caused by several factors such as lack of equipment maintenance, agitated animals that make stunner placement difficult, untrained people or poor design of equipment (Grandin, 1998a; Ewbank, Parker & Mason, 1992). Animal based standards are continuous measures that can be numerically scored. For example, an auditor or inspector records the percentage of animals that fall down, the percentage lame, or the percentage where the stunner fails on the first attempt.

One of the first animal based scoring systems for evaluating stunning and handling of cattle and pigs at the slaughter plant was developed by Grandin (1997, 1998a). Systems using numerical scoring of animal handling are also described in Maria, Villarrael and Gebresentbet (2004) and Edge and Barnett (2008). The European Union now has a major emphasis on the use of animal based methods for evaluating animal welfare (European Union Welfare Quality, 2009). In these programs, animals are evaluated for body condition, lameness, lesions, abnormal behavior, and many other measures. The OIE slaughter and transport guidelines also have animal based numerical scoring on the percentage of animals falling and electric goad use. In both OIE (2009a,b) and Grandin (2010a), handling practices need improvement if more than 1% of the animals fall during handling. The Food Safety and Inspection Service of the USDA has now adopted the use of the numerical scoring system that was developed by Grandin (1997, 1998a)(FSIS/USDA, 2009). The use of animal based scoring systems has resulted in great improvements in handling and stunning when it was used by restaurant companies to audit slaughter plants (Grandin, 2005, 2006). This system has been in use for over ten years by large meat buying customers in many different countries (Grandin, 2010b).

Each animal is scored as either acceptable or not acceptable. For example, the percentage of animals where stunning failed on the first attempt or the percentage of cattle or pigs falling during handling is tabulated. Draft documents for the OIE on the welfare of beef cattle and broiler chickens also have a heavy emphasis on animal based outcome measures.

2.2. Prohibited practices

To insure a minimum level of basic animal welfare some really bad practices such as beating or dragging animals are prohibited in both legislated and private standards (Grandin, 2010a; USDA, 2010, National Pork Board, 2008). For example, OIE slaughter standards state that certain practices should never be used such as dragging, dropping, or throwing animals (OIE, 2009b). The puntilla method of stabbing cattle behind the poll to immobilize them before slaughter or cutting tendons is also not permitted by the OIE. Scientific research clearly shows that the puntilla should not be used (Limon, Gultian & Gregory, 2008). Prohibited practices are a discreet measure because the prohibited practice is either present or not present. It is important to specify specific painful or stressful practices that are prohibited to avoid misinterpretation by different people. Both legislation and industry standards contain specific prohibited practices such as prohibiting dragging of conscious disabled livestock (Grandin, 2010a; USDA, 2010).

2.3. Input based engineering standards also called resource based

These are standards that specify exactly how to perform a procedure, specify space requirements or specify design of a piece