Efficiency of measures for sow husbandry: Integrating farm income, animal welfare and public attitudes

TJ Bergstra* †, H Hogeveen †, EN Stassen ‡ and AGJM Oude Lansink †

† Department of Social Sciences, Chair Group Business Economics, Wageningen University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands
‡ Department of Animal Sciences, Chair Group Animals in Society, Wageningen University, De Elst 1, 6708 WD Wageningen, The Netherlands
* Contact for correspondence: tamarabergstra@hotmail.com

Abstract

In response to the public's concerns about animal welfare in swine husbandry, the pig (Sus scrofa domesticus) sector introduced improved measures to focus on single rather than multiple dimensions of animal welfare concerns without accounting for their impact on public attitudes. These measures failed to improve attitudes to pig husbandry. The present study uses a more comprehensive approach by evaluating animal welfare measures in terms of their effect on animal welfare, farm income and public attitudes. Four measures were defined for each of the following societal aspects of sow husbandry: piglet mortality; tail biting and the indoor housing of gestating sows. A simulation model was developed to estimate the effects of the measures and Data Envelopment Analysis used to compare measures in terms of their effects on animal welfare, farm income and public attitudes. Only piglet mortality measures were found to have a positive effect on farm income but they showed a relatively low effect on animal welfare and public attitudes. The most efficient measure was that which included straw provision, daylight and increased group sizes for gestating sows. The level of improvement of a measure on animal welfare did not necessarily equate to the same level of improvement in public attitudes or decrease in farm income.

Keywords: animal welfare, attitudes, efficiency, farm income, measures, pig husbandry

Introduction

In past decades Western societies have become increasingly concerned about certain aspects of animal welfare, such as pig husbandry (Verbeke & Viaene 2000; Meuwissen & van der Lans 2005; Verbeke 2009; Ingenbleek et al 2012; Bergstra et al 2017a,b). The response of the pig sector was often to introduce measurable components of physical animal welfare (Beekman et al 2002). For example, as regards ‘piglet mortality’ so-called motherless rearing was introduced, with the primary aim of decreasing mortality rates (Huysman et al 1994). Although such measures showed a degree of success, the public continued to harbour a negative attitude towards pig husbandry (Aarts et al 2001; Verbeke 2009; Ingenbleek et al 2012; Bergstra et al 2017a,b). This study therefore sought to address the reasons why attitudes toward piglet mortality do not improve if we decrease mortality rates.

Attitudes are determined by moral values (Rokeach 1968–1969), socio-demographic features (Knight et al 2004; Boogaard et al 2006; Knight & Barnett 2008; Bergstra et al 2015) and personal interests (Te Velde et al 2002; Bracke et al 2005; Boogaard et al 2006). Moral values develop through life and are sculpted via a combination of religion, culture, knowledge, education, law and social background (Fraser 1999). One way to differentiate moral values that play a role in animal husbandry is through the following three categories: i) animal conditions should promote good biological functioning; ii) animal suffering should be minimised and contentment promoted; and iii) animals should live relatively natural lives (Fraser 2003). These moral values are weighed against personal factors and interests that are measured against a specific context, eg pig husbandry, to form an attitude (Cohen et al 2009). Since the interests of pig farmers and the public differ, both groups will alter in their appraisal of these factors. Pig farmers’ interest in animal production (Bock et al 2007; van Huik & Bock 2007) and economics (Te Velde et al 2002; Bracke et al 2005; de Greef & Casabianca 2009; Bergstra et al 2017a) means they are more likely to focus on the financial implications of a certain measure. The public, on the other hand, are less concerned with farms’ economic status and their greater interest in animal welfare (both physical and mental) as well as human health (Te Velde et al 2002; Bergstra et al 2017) sees them focus more on the potential side-effects of measures. For example, regarding the use of antibiotics in pigs, farmers appreciate...