Review of wallowing in pigs: implications for animal welfare

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Abstract

Most modern production systems, especially in temperate climates, do not offer wallowing facilities to pigs and, to date, this has neither generated much concern in welfare science nor public debate on pig welfare. Nevertheless, wallowing is a natural behaviour of pigs which may be important to them. This paper systematically examines the overall importance of wallowing for pig welfare using principles developed in semantic modelling. As a first step, relevant citations were collected from the scientific literature. Secondly, since the importance of the attribute (‘wallowing’) is dependent upon the discrepancy between its best and worst levels, these levels were specified in relation to the status quo in pig husbandry, ie no pool (even during periods of overheating) and the ideal mud pool, respectively. Criteria for an ideal mud pool were formulated in terms of pool location and size, substrate, thermal conditions, body care and hygiene. Thirdly, available scientific information about wallowing was systematically described in relation to ten so-called weighting categories identified in semantic modelling (pain and illness, survival/heat stress, fitness, stress, aggression, abnormal behaviour, frustration, natural behaviour, preferences and demand). Fourthly, the welfare importance of wallowing was assessed by tentatively comparing it to several other welfare attributes, such as food, foraging substrate, social contact and non-castration. This leads to the suggestion that wallowing is important for pig welfare because of its multifaceted nature. It may even be very important when other forms of thermoregulation are sub-optimal. This paper, finally, discusses the ‘ethical room for manoeuvre’ concerning the (non-) implementation of mud pools in practice. An integrated approach is suggested to address related scientific, technological and ethical issues, because stakeholders are faced not only with scientific and technological gaps in knowledge but also with economical, ecological, food-safety and psychological barriers. As an important element of natural behaviour and positive welfare, the subject may provide an opportunity for pig farming. This should be recognised more explicitly in transition processes towards fully sustainable pig production systems.

Keywords: animal welfare, ethics, natural behaviour, pigs, semantic modelling, wallowing behaviour

Introduction

This paper addresses the question: how important is wallowing for pig welfare? For practical welfare evaluation, the concept of the Five Freedoms has been formulated (FAWC 2009). The Five Freedoms are, in an abbreviated form: (1) freedom from hunger and thirst; (2) freedom from discomfort; (3) freedom from pain, injury and disease; (4) freedom to express normal behaviour; and (5) freedom from fear and distress. Given these formulations, wallowing may be considered important because it may help to reduce heat stress and ectoparasite levels (eg Sambraus 1981; Van Putten 2000). As such, wallowing could load on welfare through the second, third and fifth freedom (discomfort, disease and distress, respectively). However, since farmed pigs are normally kept in thermocontrolled environments and are treated when suffering from ectoparasites, wallowing may not be important for pig welfare under these freedoms. Wallowing may also be important under the fourth freedom (normal behaviour). Here, again, it is not clear whether wallowing would classify. Wallowing is a normal behaviour of pigs in (semi-) natural environments, but its absence in most modern production systems may also be regarded as normal. By contrast, the Dutch Ministry interprets this freedom as ‘Freedom to express natural, species-specific behaviour’ (LNV 2007). This formulation would seem to include wallowing, and consequently require ‘protection’. At present, however, wallowing is not an issue of concern (Leenstra et al 2007; Cornelissen et al 2009), even in new designs for welfare-friendly and sustainable pig farms in the future (Van Eijk et al 2010a,b; Van der Peet et al 2010). De Greef et al (2003) stated, for example, that the environment should be such that wallowing is not necessary, perhaps implying that wallowing facilities are undesirable. Others, however, suggested that wallowing may be important (Sambraus 1981; Van Putten 2000; McGlone, personal communication 2010).

A more detailed scientific review, therefore, is needed to examine the welfare importance of wallowing for pigs. This paper will seek to do so using semantic-modelling princi-