Comparison of pig behaviour when given a sequence of enrichment objects or a chain continuously

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Abstract

Tail biting is a major problem in modern pig (Sus scrofa) production and results in a reduction of animal welfare and productive performance. Biting behaviour has been shown to be decreased by the use of enrichment objects. In this study, 108 pigs housed in a room with 12 pens were observed and a sequence of seven different enrichment materials was tested. Gilts and barrows were housed together and received a new enrichment object each week starting from three different points in the fattening period, ie 20, 40 or 70 kg bodyweight. Toy-contact and biting-penmate behaviour were observed during one hour at day of introduction and five days later. A continuous sequence of seven enrichment objects reduced biting-penmate behaviour and the number of wounds compared to providing only a single toy (chain). This study also confirmed that not every object was feasible as an enrichment object for growing pigs. Generally, the highest toy contact was observed together with the highest biting-penmate behaviour. Most toy-contact and biting-penmate behaviour was observed between 20 and 40 kg bodyweight and was decreasing over age. Providing a sequence of toys for the first time induced toy-contact behaviour while reducing biting-penmate behaviour but decreased after applying the same sequence for the second or third time. The presence of a single chain or a sequence of different toys had no effect on growth and feed conversion. The ideal sequence should maintain toy-contact behaviour without competition in order to avoid biting-penmate behaviour and reduced animal welfare.

Keywords: animal welfare, biting-penmate behaviour, enrichment objects, growth, pig, toy-contact behaviour

Introduction

Exploratory behaviour represents an important need in pigs (Sus scrofa) (Studnitz et al 2007). Even in intensive husbandry systems, pigs seem to be highly motivated to explore, even when feed is available ad libitum (Van Putten & Dammers 1976; Lyons et al 1995). When it is difficult or impossible to express this behaviour, the pig may redirect it towards penmates (Beattie et al 2000; Kelly et al 2000; Scott et al 2006a), possibly resulting in tail- and ear-biting behaviour (Van de Weerd et al 2005; Scott et al 2006b). Tail biting is rarely observed under extensive, semi-natural or feral conditions and can consequently be defined as ‘abnormal’ behaviour (Moinard et al 2003).

Tail biting is a major problem in modern pig production, reducing animal welfare and productive performance (Bracke et al 2004). This abnormal behaviour is a multifactorial syndrome and influencing factors have often included environmental features. Risk factors for tail biting are genetics, gender, age and weight, health status, rearing environment, indoor climate, stocking density and pen size, floor, feeding systems, food, rooting materials and toys (Schroder-Petersen & Simonsen 2001).

In an attempt to control tail biting, many farmers dock the tails of all newborn piglets. Controlled experiments show that docking is effective in reducing tail biting although, as these surveys show, not in eliminating it (Chambers et al 1995; Moinard et al 2003; Paul et al 2007). Moreover, in the European Union, routine docking of piglet tails is illegal (Commission 2001/93/EC of 9 November 2001), thus, alternative preventive strategies are needed.

Studies suggest that environmental enrichment can partly reduce tail biting through the provision of substrates (Arey 1993; Petersen et al 1995; Beattie et al 2000) which is in consensus with the current EU legislation (Directive 2001/93/EC). This Directive requires that pigs must have access to a sufficient standard of these materials to enable proper investigation and manipulation activities. Different forms of enrichment have been used in the past. Substrates such as peat, straw, sawdust and mushroom compost are effective types of enrichment (Beattie et al 1995). However, when these ‘rooting’ substrates are combined with slatted floors, potential problems with blockage of slurry systems occur (Van de Weerd et al 2006). Slatted floors are the most common husbandry systems in the EU