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Expert consultation on weighting factors of criteria for assessing environmental enrichment materials for pigs

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Abstract

EC directive 2001/93/EC states that pigs must have permanent access to a sufficient quantity of material to enable proper investigation and manipulation activities. This directive requires further interpretation. In order to facilitate the further implementation of the directive into national, Dutch legislation a preliminary model was constructed to assess the value of different enrichment materials for pigs. Using an e-mail questionnaire expert opinion was elicited in order to 'validate' the preliminary model. In total 8 senior pig welfare experts assessed 33 assessment criteria ordered according to the conceptual framework underlying the preliminary model. Kendall's coefficient of concordance of the experts without missing values ($n = 6$) was 0.41 ($P < 0.001$), which is moderate. Assessment criteria that generated the highest weighting factor scores included exploration, animal–material interactions (AMI), tail and ear biting, and rooting (median expert scores higher than 8.0). The Spearman's rank correlation between the expert median scores and the preliminary model was 0.63 ($P < 0.001$).The scope for modelling and implications for ethical and political decision-making are discussed.

Keywords: Enrichment; Pigs; Housing; Toys; Validation; Assessment criteria

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1. Introduction

Environmental enrichment is important for animal welfare, as farm animals are often kept in barren environments (e.g. Young, 2003). For example, the Scientific Veterinary Committee of the European Commission (SVC, 1997) recommended providing the pigs with materials for investigation and manipulation, which may be bedding material or earth floors suitable for rooting.

In 2001 the European Commission adopted a directive (2001/93/EC) which states that: ''Pigs must have permanent access to a sufficient quantity of material to enable proper investigation and manipulation activities, such as straw, hay, wood, sawdust, mushroom compost, peat or a mixture of such, which does not compromise the health of the animals''. As of January 2005 this requirement applies to all holdings. This directive has been implemented in most EU memberstate's legislation, including the Dutch legislation.

A problem with the directive is that it leaves too much room for interpretation. It is not sufficiently clear what is proper investigation and manipulation, and what is required in this regard for providing acceptable enrichment. The directive specifies a number of materials as examples. However, the value of enrichment material is most likely determined not only by the type of material, but also by other properties of the material such as the amount and frequency of material provision.

Memberstates and individual farmers may, therefore, differ in their interpretation of the directive. This may compromise the level playing field, i.e. fair economic conditions for farmers, across EU memberstates.

When specifying the requirements implied by the directive the Dutch Ministry of Agriculture, Nature and Food Quality would prefer to formulate these in terms of goals rather than in terms of means. Ideally, this means that measurements should be taken on the farm to establish the welfare impact of the enrichment materials, e.g. the duration of object play and/or the degree of reduction in tail biting. Since this was not considered feasible at this point in time, the Ministry decided to nevertheless avoid a pure prescription of means (e.g. in the form of a limited list of allowed enrichment materials) and opted for a kind of prescription of intermediate goals, in the form of assessment criteria that were linked to enrichment materials on the one hand and known welfare performance measures on the other hand within the context of a model to assess the enrichment value of enrichment materials for pigs (see Bracke et al., 2006). This could allow farmers to meet stated objectives through different routes in farm specific solutions and would, furthermore, allow stimulating innovations towards a better provision of environmental enrichment for pigs.

The model, called RICHPIG, allows calculating scores for the (relative) value of different enrichment materials using a list of assessment criteria and procedures described earlier for welfare assessment in pregnant sows (Bracke et al., 2002a) and tail biting (Bracke et al., 2004). For the work presented in this paper a preliminary version of RICHPIG was used to identify assessment criteria, based on a systematic analysis of (part of) the scientific literature. RICHPIG allowed the calculation of weighting factors indicating the relative importance of the assessment criteria based on the analysis of the scientific information in the database. The model's weighting factors were compared with the scores given by the experts. This was done in order to generate a second validation of the model (the first validation being a comparison with an expert evaluation of enrichment materials, Bracke et al., 2007). It serves as a statement of how internationally recognised experts in the field assess the different assessment criteria for evaluating environmental enrichment in pigs, given the present state of science.

The aim of this paper/questionnaire, therefore, was to examine expert opinion concerning the weighting of assessment criteria for assessing enrichment materials for pigs and to determine how the scores relate to the scores of the preliminary RICHPIG model.