

TOWARDS A BASELINE ASSESSMENT OF ORGANIC PIG WELFARE

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Abstract

Animal Welfare 2003, **12**: 637-641

Organic farming is based on the premise that animal welfare is safeguarded primarily through good management; only when this fails are veterinary medicines used to intervene. As this premise is frequently quoted in marketing strategies, there is a need to assess the efficacy of this approach to reassure consumers. To move towards this assessment, a survey was conducted between August 1999 and April 2002 on nine organic pig farms located predominantly in the South West of England. This combined direct measurements of animals and facilities with structured questions to staff. The mean herd size (\pm standard error of mean) was 212 ± 74 sows, with all progeny being reared outdoors from farrowing to finish. The herds had been in existence for an average of 37 ± 7.0 months. Mange and lice were the highest-ranking current health concerns, and post-mortem report of endoparasitism was the highest-ranking historical health concern chosen by producers from a list pre-written by the experimenters. The main welfare issues reported by the primary stockperson were related to keeping stock clean and dry during periods of high rainfall, managing porcine dermatitis and nephropathy syndrome (PDNS) and postweaning multisystemic wasting syndrome (PMWS) within their herd, and recruiting and retaining good quality personnel. Facility assessment indicated good living conditions, with the exception of some wet paddocks during winter. Sow condition scores were not significantly different from accepted target values during pregnancy, at farrowing, or at weaning. Levels of lameness, skin damage and cleanliness did not cause concern in any class of stock.

Keywords: *animal welfare, organic production, pig*

Introduction

Organic pig production is based on the premise that animal welfare is safeguarded primarily through good management and only when this fails are veterinary medicines used to intervene. As this premise is frequently quoted in marketing strategies, there is a need to assess the efficacy of this approach to reassure consumers. The aim of this study was to collect baseline data concerning the on-farm welfare of organic pigs.

Materials and methods

Nine organic pig businesses located predominantly in the South West of England were recruited to take part in the study. Data were collected on their livestock units during the period between August 1999 and April 2002. Each producer was informed that personnel

would visit their unit on two occasions, once during the summer (August–September) and once during the winter (February–March). Because of subsequent foot-and-mouth disease restrictions, it was only possible to visit three of the participating farms during both the summer and the winter. Of the remaining farms, two were visited only during the summer and four were visited only during the winter. Data were collected through visual examination of the stock and the husbandry system facilities, and through qualitative interviews with the primary stockperson.

Visual examinations of stock were used to collect data relating to animal cleanliness (using a subjective five-point scale ranging from 5 = dirty to 1 = clean), skin damage (using the method described by Burfoot *et al* 1995), lameness (using a 1/0 method to indicate whether any lame animals were observed in a random sample of six), and sow condition (using the method described in MAFF 1998). Six randomly chosen animals in each production stage category were examined for each measure and an average value calculated for each farm where appropriate.

Visual examinations of the husbandry system and facilities were used to collect data, using a subjective five-point scale system, relating to the extent of denudation of paddocks (5 = fully denuded to 1 = full vegetation ground cover) and their wetness (5 = mud to at least hock level to 1 = totally dry). A similar scoring system was applied to the huts, with measurements being taken of the amount of bedding provided (5 = ample to 1 = absent), its condition (5 = dry to 1 = wet) and hygiene (5 = clean to 1 = dirty), and the presence of draughts (5 = totally draught-free to 1 = significant draught). Again, six randomly chosen paddocks/arcs in each production stage were examined for each measure and an average value calculated for each farm. The resulting data were tabulated and analysed using the one-sample Wilcoxon test in the software package Minitab.

Qualitative interviews with the stockperson were carried out to gather information concerning current and historical health problems in the herd (using a structured list) and the animal carer's current welfare concerns (allowing free responses). To elicit data concerning current welfare concerns, the questions were phrased verbatim: i) "Do you have any particular welfare concerns?", and ii) "What do you have to work hardest against to maintain good welfare in your stock?"

Results

The mean herd size (\pm standard error of mean) was 212 ± 74 sows (range 24–750 sows) with all progeny being reared outdoors from farrowing to finish (however, some herds were housed in large straw yards for 1–2 weeks pre-slaughter). The herds had been in existence for an average of 37 ± 7.0 months (range 9–80 months). Six out of the nine farms currently used, or had historically used, conventional prophylactic medicines to prevent the outbreak of disease in their stock. Only two out of nine farms currently used, or had historically used, homeopathic medicines of any sort.

Ectoparasitism (mange and lice) was the highest-ranking current health concern, and post-mortem report of endoparasitism was the highest-ranking historical health concern reported by the producers in the structured list (Table 1).

Sow welfare indicators

Sow condition scores were not significantly different from accepted target values during pregnancy (median = 4.0, first quartile [Q1] = 2.7, Q3 = 4.0 versus 3.25 for actual versus

Table 1 The top-ranking current and historical health concerns reported by producers (present on at least two of the farms where data were collected; on two of the nine farms, health-concern data were not able to be collected).

Current health concerns		Historical health concerns	
Description	Prevalence	Description	Prevalence
Mange and/or lice	4/7	Milkspot reported on livers	5/7
Lameness	3/7	Mastitis	4/7
Arthritis	3/7	Lameness	3/7
Meningitis	3/7	Meningitis	3/7
Vulval discharge	3/7	Vulval discharge	2/7
Mastitis	3/7	Udder damage	2/7
Erysipelas	2/7	Arthritis	2/7
Loss of condition	2/7	Pig-person aggression	2/7
Enteric parasites	2/7	Sows doubling up in farrowing huts	2/7
Septicaemia	2/7	Sun stroke	2/7
Vulva biting	2/7	Sudden death in growers	2/7
Pig-person aggression	2/7	Fox predation	2/7
Pneumonia	2/7		
Scouring in growers	2/7		
Fox predation	2/7		

target, respectively; $W = 18.0$, $P = 0.142$), at farrowing (median = 4.0, $Q1 = 3.3$, $Q3 = 4.0$ versus 3.5 for actual versus target, respectively; $W = 9.0$, $P = 0.201$), or at weaning (median = 3.0, $Q1 = 2.5$, $Q3 = 3.7$ versus 2.5 for actual versus target, respectively; $W = 13.0$, $P = 0.170$). None of the sows examined had a condition score less than 2. Levels of lameness and skin damage in sows were, on average, not significantly different from zero during pregnancy, at farrowing, or at weaning. When compared with a value of 1 (cleanest rating on the five-point scale), the sows were, on average, very clean during pregnancy (median = 1.8, $Q1 = 1.2$, $Q3 = 2.2$ versus 1 for actual versus target, respectively; $W = 17.0$, $P = 0.208$), at farrowing (median = 1.5, $Q1 = 0.5$, $Q3 = 2.2$ versus 1 for actual versus target, respectively; $W = 14.5$, $P = 0.463$), and at weaning (median = 1.9, $Q1 = 0.8$, $Q3 = 2.0$ versus 1 for actual versus target, respectively; $W = 11.0$, $P = 0.418$).

Welfare indicators for other classes of stock

When compared with a value of 1 (cleanest rating on the five-point scale), the boars had significantly poorer cleanliness scores (median = 2.0, $Q1 = 1.5$, $Q3 = 2.3$ versus 1 for actual versus target, respectively; $W = 21.0$, $P < 0.05$), whereas weaners (median = 1.6, $Q1 = 1.0$, $Q3 = 3.0$ versus 1 for actual versus target, respectively; $W = 17.5$, $P = 0.173$) and growing/finishing pigs (median = 1.6, $Q1 = 1.0$, $Q3 = 2.0$ versus 1 for actual versus target, respectively; $W = 16.5$, $P = 0.249$) had comparable cleanliness scores. The level of skin damage in boars, weaners and growing/finishing pigs did not differ significantly from zero.

Visual examinations of the husbandry system and facilities

None of the farms observed had a mean wetness rating greater than or equal to 3 in their farrowing paddocks during the summer; however, 57% of farms surpassed this criterion during the winter (median rating = 3.0, $Q1 = 1.0$, $Q3 = 3.5$). Twenty-five per cent of the farms observed had a mean wetness rating greater than or equal to 3 in their dry sow paddocks during the summer (median = 1.5, $Q1 = 1.0$, $Q3 = 2.7$), and 57% during the winter

(median = 3.0, Q1 = 1.0, Q3 = 4.0). Twenty-five percent of the farms observed had a mean wetness rating greater than or equal to 3 in their paddocks for other classes of stock during the summer (median = 1.5, Q1 = 1.0, Q3 = 4.0), and 57% during the winter (median = 2.0, Q1 = 1.0, Q3 = 3.5).

None of the farms observed had a denudation rating greater than or equal to 3 (ie significantly denuded) in their farrowing paddocks during the summer; however, 29% of the farms observed surpassed this criterion during the winter (median = 2.0, Q1 = 2.0, Q3 = 3.0). One of the two farms where data could be collected had a denudation rating greater than or equal to 3 in their dry sow paddocks during the summer, and 43% during the winter (median = 2.0, Q1 = 1.0, Q3 = 4.0).

In the farrowing paddocks, without exception, ample, clean, dry bedding was provided (median ratings = 5). Similar data were observed for both the dry sows and the other weaner/grower/finisher progeny housing.

Interviews with the primary stockperson

The main welfare issues reported by the primary stockperson related to keeping stock clean and dry during periods of high rainfall, managing porcine dermatitis and nephropathy syndrome (PDNS) and postweaning multisystemic wasting syndrome (PMWS) within their herd, and recruiting and retaining good quality personnel (Table 2).

Table 2 Answers given by the primary stockperson to the structured interview.

Question	Answers	Frequency
Do you have any particular welfare concerns?	1. Management of lameness	2/9
	2. Management of PDNS/PMWS	2/9
	3. Recruitment of good personnel	2/9
	4. Keeping pigs clean/dry in high rainfall	2/9
	5. Management of endo- and ecto-parasites	1/9
	6. Management and prevention of scouring	1/9
	7. Mixing of pigs at slaughter	1/9
	8. Keeping worm burden down	1/9
	9. Providing the correct nutrition to pigs	1/9
	10. Weaning age too late	1/9
What do you have to work hardest against to maintain good welfare in your stock?	1. Keeping the straw levels up in arcs	3/9
	2. Keeping pigs clean/dry in high rainfall	3/9
	3. Management of PDNS/PMWS	2/9
	4. Management of endo- and ecto-parasites	1/9

Discussion

The organic sector of agriculture is one that is expanding rapidly. Consumers have a perception that organic food items guarantee the highest standards of animal welfare and food safety and are produced in an environmentally sustainable manner (Beharrel & MacFie 1991). Therefore, to retain consumer confidence in organic livestock production, a suitable method of measuring on-farm animal welfare is required (Waiblinger *et al* 2001). To initiate the formulation of such a tool, the aim of this study and other similar studies (eg Vermeer *et al* 2001) is to provide baseline data concerning on-farm pig welfare. The approach advocated in this study was based upon the Five Freedoms (Brambell 1965) and measured key aspects of animal health and welfare. In addition, the systems in which animals were kept were characterised in relation to factors that could impinge upon welfare.

Despite the economic pressures set against the use of conventional veterinary medicines (eg long withdrawal times), most of the producers assessed had used these where necessary (mainly in the initial phases of conversion to organic standards). Visual examinations of stock indicated that sow body condition fell within accepted parameters and was no cause for concern on any individual farm visited. All stock were clean and free from the type of skin damage which can arise through feeding-related aggression, and no incidences of tail biting, teat damage or facial damage in piglets were observed. The levels of lameness were also no cause for concern. In the interviews with producers, mange and lice were the highest-ranking current health concerns and this was confirmed through visual examination of stock, where both were visible. Some producers whose stock was affected were tackling the problem using herbal remedies and were considering other management interventions that could be employed before the targeted use of conventional medicines. Producers also reported being concerned when post-mortem reports of milkspot were received from the abattoir, and they attempted to reduce the occurrence of intestinal parasitism through paddock management strategies. During the winter assessment periods, where there had been very high levels of rainfall, the main welfare concerns reported centred upon keeping stock clean and dry. However, in the final period of assessment, the main welfare concerns were managing PDNS/PMWS and recruiting and retaining good quality personnel.

Animal welfare implications

Management appeared to be maintaining high standards of animal welfare within the systems assessed; however, keeping stock free from parasites required a high degree of effort from the primary stockperson. Each of the systems differed in many ways (eg soil type, drainage etc), and these differences made the management of many of the systems unique. Despite this, through good management, each producer's system had evolved to a state where animal welfare appeared not to be compromised. Future efforts are required to devise a suitable tool for collection of data that allows consumer confidence in organic livestock produce to be retained. When formulating such a tool, it may be important to incorporate correlations with actual herd health data to validate the accuracy of the data collected.

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