PIG WELFARE

TOWARDS SHARED PRIORITIES FOR THE FUTURE

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The development of cheap food has been bad for farming. Rural livelihoods have been lost as incomes have declined. Production has been outsourced to countries with cheaper labour and plentiful land.

Cheap food has also been bad for animal welfare. Production has become more intensive to enable farmers to make a living. Confinement systems have developed. Basic welfare requirements such as bedding have been dispensed with, partly in order to reduce costs. Breeds have developed to meet the need for high levels of production, sometimes at the expense of their welfare. Imported pigmeat can be produced using systems which would not meet British welfare requirements.

Compassion in World Farming believes that farmers and animal welfare groups have a common interest in developing higher welfare standards. This could be good for rural livelihoods. It should be good for the public image of the farming industry. It will be good for animals.

Priorities for change

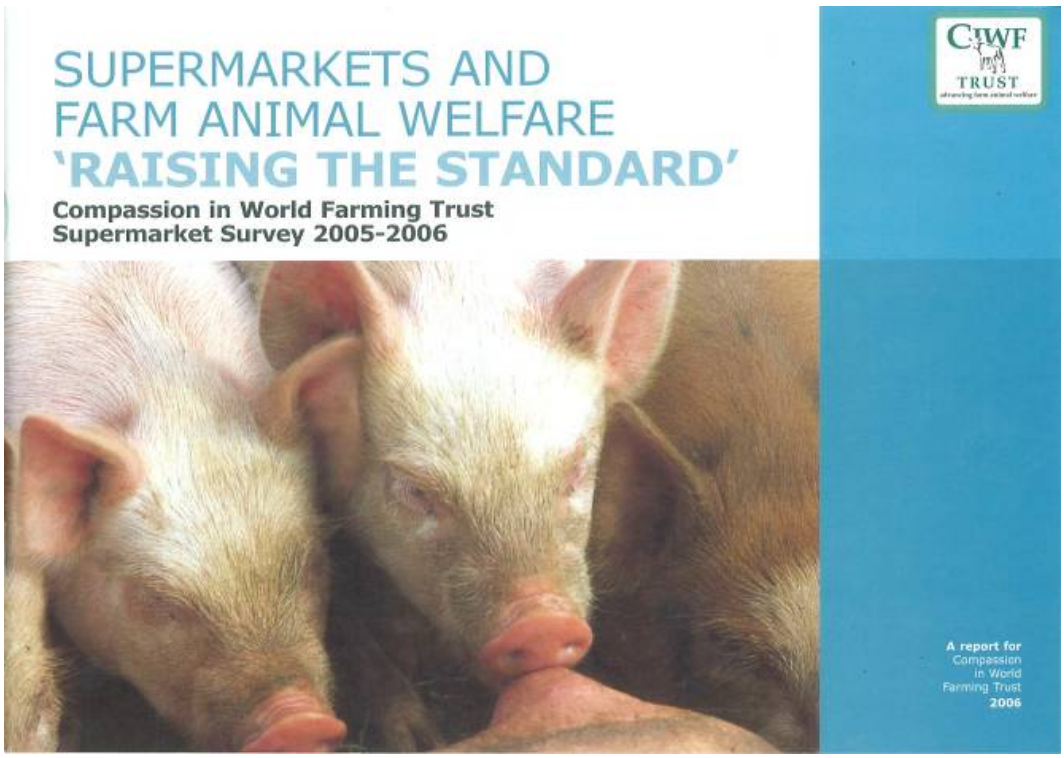
Compassion in World Farming's top priorities for change in the world's pig industry can be summarised as an end to "cuts and crates". This includes the phasing out of sow stalls, farrowing crates and of mutilations such as castration, tail-docking and tooth clipping.

To achieve this without swapping one animal welfare problem for another will require quality pig environments, management and genetics. For example, to avoid tail-biting without tail-docking requires an enriched environment and good stockmanship. It has been suggested that it also requires genetics selected to avoid protein metabolism problems (Edwards, 2006).

These issues are partly addressed by legislation. Sow stalls have been banned in the UK since 1999 and are due to be banned in the EU, except for the first four weeks of gestation, from 2013. Routine tail-docking has been banned, in principle, throughout the EU. Where permitted on a non-routine basis to prevent tail-biting, the farmer must be able to demonstrate that stocking density and environmental issues have been addressed.

There is a clear need for better enforcement, for example in the development of effective environmental enrichment to reduce the risk of tail-biting. This is an EU-wide issue. Legislation will have a further role in establishing bottom-line welfare requirements and ensuring that, as far as possible, a level playing field is established. However, the greatest potential for welfare improvement will come from development within the industry and the requirements of supermarkets and other buyers. Food industry lobbying is also essential to ensure that, as welfare standards are raised in the UK and Europe, production isn't outsourced to farms outside the EU which do not meet those standards.

Food industry lobbying



Compassion in World Farming's Supermarket Survey, 2006

Immediately after the UK sow stall ban, Compassion in World Farming lobbied the retail industry on pig welfare issues. Together with representatives of the UK pig industry, we lobbied key supermarket chains not to stock pigmeat reared in stall-based systems. Retailers responded in various degrees. Part of the intention was to provide support for British pig farmers now operating group-housed sow systems. One clear consequence of stall-free supermarket policies was that some Danish producers developed stall-free production specifically geared for the British market.

Retail lobbying on pig welfare developed into a broader approach based on a range of farmed species. Since 2002, Compassion in World Farming has published four supermarket surveys analysing supermarket policies and performance on key welfare issues and indicators (Compassion in World Farming, 2002, 2004, 2006 and 2007). Supermarkets were asked questions relating to the use of sow stalls and farrowing crates, the provision of bedding material for rooting and foraging behaviour and the percentage of pigmeat produced from progeny of sows kept outdoors. Waitrose, who won the award for overall performance in the 2005/06 Supermarket Survey, requires outdoor breeding and the provision of straw bedding for any pigs reared indoors. Notably, Waitrose also scores highly in surveys which document the percentage of British pigmeat sold (Porkwatch, 2007).

Compassion in World Farming recognises the need to celebrate progress as well as to campaign for future change. Since launching our Good Eggs Awards scheme in 2007, we have celebrated leading food companies across Europe for sourcing, or committing to source, cage-free eggs. Winners have included McDonald's, Starbucks, Sainsbury's, M&S, Unilever, JD Wetherspoons and other well-known European companies. These awards were designed to demonstrate that good welfare is also good for business and constituted the first piece of work to come out of our new Food Policy Unit, set up to positively engage with the food industry and to help it market animal welfare successfully.

Ian Burgess of the Co-op receives a Compassion Good Egg Award, April 2008

The Good Egg Awards will also play a major part in helping Compassion in World Farming demonstrate to policy makers and producers that European consumers (and subsequently the companies they buy their food from) are moving away from cage eggs. This will help to ensure that, when battery cages are banned in 2012, production isn't exported to countries which still use cages. There may be similar scope for awards, in the future, for high welfare policies relating to other species, potentially pigs.

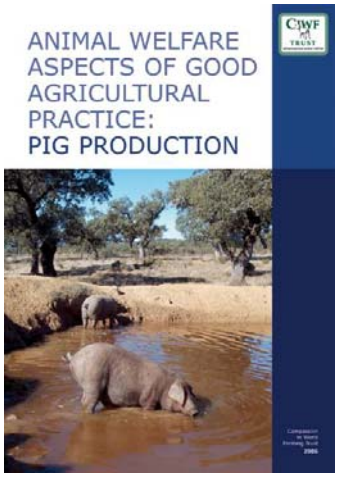
The drive towards higher welfare in pig production should provide particularly good opportunities for British farmers. British farming is sow-stall free. Castration is now rarely, if ever, practised, partly because of the age at which British pigs are slaughtered but specifically since the practice is banned under the certification rules of Assured British Pigs. The ban on the sow stall is rightly used as a marketing tool to argue the welfare benefits of buying British. We would like to see this used more.

34% of British sows are kept outdoors

There are other potential welfare benefits of buying British. For example, 34 per cent of British sows are kept in outdoor units that don't use farrowing crates. A significant proportion of piglets are reared in systems that provide straw bedding. Straw is more widely available in Britain than in some other pig farming countries. As supermarkets increasingly demand outdoor rearing, crate-free systems and the availability of straw, British farmers could be in a good position to meet their requirements.

Animal welfare: aspects of Good Agricultural Practice (GAP)

In 2006, Compassion in World Farming published a resource aimed at agricultural colleges *Animal Welfare Aspects of Good Agricultural Practice: Pig Production*. This includes a book, a film and a PowerPoint presentation.



Compassion in World Farming's range of educational materials for GAP: Pig Production includes comprehensive text book and DVD

The objective of producing these materials was to combine the findings of science with the practical knowledge of farmers to outline key ways to achieve good pig welfare. The book includes case studies from 25 farms from across the world. Compassion in World Farming does not endorse all the practices employed on these farms. Farms were included because they were demonstrating good practice in at least part of their system.

The book is available for purchase but can be downloaded free from the website **www.gapanimalwelfare.org** The DVD-ROM is available free from Compassion in World Farming. The entire package is available free for agricultural and veterinary colleges. The package can be ordered by mail, fax or by emailing **education@ciwf.org** Comments and evaluation are also appreciated, as the opinions of farming practitioners are crucial for the future development of pig welfare.

The GAP book outlines Compassion in World Farming's pig welfare case in detail.

The rest of this paper outlines our welfare argument on key issues.

1. SOWS

Compassion in World Farming's global priorities for breeding animals include:

- a phasing out of confinement systems such as the sow stall and the farrowing crate
- the provision of bedding materials such as straw to provide for foraging needs, nest-building and comfort
- improvements in management and genetics to address issues of sow aggression and piglet mortality in systems which now allow freedom of movement for sows.

1a. Dry sows

Sow sham-chewing
(Photo © Marek Spinka)

Straw helps pregnant sows deal with their hunger

In Europe, particularly in Britain, many of Compassion in World Farming's priorities for dry sows are addressed by current or forthcoming legislation:

- The sow stall has been banned in the United Kingdom since 1999
- The sow stall is due to be banned throughout the EU, except for the first four weeks of gestation, from 2013
- Dry sows must be given a sufficient quantity of high fibre food to satisfy their hunger and need to chew
- All pigs must have access to manipulable material such as straw.

A top priority for future EU legislation is to make the sow-stall ban comprehensive to bring it in-line with British law. Sow stalls prevent sows from turning around, exercising, urinating and defaecating away from their lying area, from interacting effectively with other pigs and controlling their temperature through behaviour. Lack of exercise can lead to bone weakness and poorer cardiovascular fitness. Urinary disorders are common (Tillon and Madec, 1984), perhaps due to lying in proximity with their own excrement. Restrictions on behaviour result in abnormal behaviours such as bar-biting and sham-chewing.

The necessity of keeping dry sows on restricted diets to prevent obesity means that sows are likely to suffer considerably from hunger. In turn, this must increase the risk of aggression at feeding time. Under natural conditions, hungry sows may not be able to eat as much as they would like to but can always respond to their hunger by foraging. Hungry sows may resort to sham-chewing, even in group-housed environments, if fibrous food is not available. Sham-chewing should be taken as a likely sign that foraging needs are not being met. The requirement to provide sufficient high-fibre food should help to deal with this. The provision of bedding material, such as straw, means that the sows can always fill their stomach with fibrous food whenever motivated to feed.

British farmers have more experience than most at managing sows in groups with low levels of aggression. Keeping sows wherever possible in small stable groups is one key to this. Another is the use of scatter feeding systems or electronic feeding stalls to reduce competition at feeding time.

1b. Farrowing sows

Sows naturally farrow alone. Crushing mortalities are lower in free-farrowing systems with individual pens

Indoor farrowing system. Note individual pen with separate nesting, activity and piglet safety areas

Legislation on farrowing sows in Europe includes:

- Bans, with certain exceptions, or restrictions on the use of the farrowing crate in Sweden, Switzerland and Norway (Weschler and Weber, 2007)
- A requirement throughout the EU that nesting material such as straw must be provided where practicable to satisfy the instinctive need of the sow to build a nest before farrowing.

The farrowing crate is employed in most indoor farrowing systems, partly in order to reduce the number of piglets which are crushed by the sow. Although the farrowing

crate does provide protection for the piglets, it does not provide well for the needs of the sow (Weschler and Weber, 2007). The crate severely constrains her freedom of movement, preventing exercise. It frustrates her instinct to urinate and defaecate away from her resting area. It impairs her ability to initiate contact with her piglets. Perhaps most important of all, the crate frustrates her instincts to build a nest before farrowing, resulting in restlessness and frustration in the period before farrowing. This is a likely cause of an increase in the duration of parturition in crated systems, resulting in a higher rate of stillborns and reduced piglet vitality.

The legal requirement to provide nesting material to the sow before farrowing does not apply to systems where it is not technically feasible for the slurry system used in the establishment. It is clearly a priority that in any new unit, the slurry system is devised to allow for the provision of nesting material which has been shown to be of great importance to the sow (Arey, 1992). It must also be noted however that, although the provision of material such as straw is clearly vital for welfare, the sow also needs freedom of movement to satisfy her motivation to nest before farrowing (Jarvis *et al*, 2002).

We do not underestimate the challenge of developing an alternative to the crate which can be managed commercially without an increase in piglet mortality. However, there is a clear need on animal welfare grounds to move away from all close-confinement systems and an increasing expectation amongst the public that farm animals should have freedom of movement. Pressure on supermarkets from the public and from animal welfare groups is also increasing demand from retailers for crate-free systems.

This is one key reason why supermarkets such as Waitrose have moved to outdoor farrowing. We expect others to follow.

This is one good solution. Through breeding sows for good maternal characteristics and through increasing experience of management, outdoor breeders have been able to keep mortality levels down without farrowing crates. According to data we have calculated from industry statistics (Meat and Livestock Commission, 2001-06), mortality of piglets born alive in outdoor systems averages 9.63 per cent compared with 11.63 per cent for piglets reared indoors. While it is clearly more difficult to obtain accurate data of this kind for extensive systems, it is significant that numbers of pigs reared per litter are also slightly higher for outdoor systems.

However, it is also essential that good indoor producers should also gain access to higher welfare markets and for the industry to be prepared for a future in which legislation

and/or supermarket procurement policies require free farrowing. Can this be achieved without high piglet mortality?

In 1997, a revision of the Swiss Animal Protection Regulations required farrowing pens to provide sufficient space for the mother to turn around freely. Crates were only to be allowed in exceptional circumstances. The transitional period for this provision ended in June of this year. During this period, many farms introduced loose farrowing systems.

Recent analysis of data from farms which took part in the UFA2000 Swiss sow recording scheme has found that piglet mortalities in 173 farms using loose farrowing systems were no higher than those in 482 farms that used crates (Weber *et al*, 2007). Deaths due to crushing were significantly higher but this figure was counterbalanced by significantly lower numbers of deaths due to other causes.

This study did not specify what these other causes are but a "failure to thrive" is a likely explanation. According to a recent review of research into loose farrowing systems (Weschler & Weber, 2007), a loss rate due to runts (piglets with a low birthweight or which did not grow well) was higher in Swiss farrowing crates than in loose systems. It is suggested that this could be due to weaker piglets being at higher risk of crushing.

This is likely to be true, but it is not the only explanation. Problems caused by delayed farrowing of sows in crates have already been alluded to. There is also evidence that sows given freedom of movement may feed their piglets better. The Danish Pig Board has been researching free-farrowing systems. They reported that, although crushing mortalities were 1.9 per cent lower in farrowing crate systems, culling rates for piglets which were weak or failing to thrive was 2.7 per cent lower in systems with loose farrowing sows (National Committee for Pig Production, 2004). Average weights at weaning were also higher.

A survey in *Pig Progress* analysed their results. It suggested that an increase in the sows' feed consumption was an indication that sows were more comfortable in free farrowing systems. The survey speculated that this was likely to result in increased milk production, leading to higher weaning weights (Dunn, 2005).

One can also speculate that, if a sow is producing more milk, the weakest piglets on the least productive teats will gain particular benefit. This is consistent with the experience of the pig manager at Sparsholt College who found that, since moving from farrowing crates to free farrowing, piglet weights have been more uniform (John Garrett, 2007, personal communication). It is also important to note that there hasn't been an increase in mortality with the change to free-farrowing in their new indoor straw-based system.

It must be acknowledged that, although several recent studies have shown that free-farrowing system mortalities are not significantly different from those in crated systems, some free farrowing systems have suffered high mortality through crushing (Weber *et al*, 2007). Weber notes that a close inspection of the latter studies suggests that high crushing rates occur particularly in smaller pens. Where the pens are larger than $5m^2$, "differences between loose and crated sows in terms of piglet losses were no longer detectable." This is consistent with earlier research findings which suggest that a sow needs space to manoeuvre so that she can co-ordinate her behaviour with her piglets to avoid crushing them when she lies down to suckle (Schmid, 1991).

Practitioners of free-farrowing systems stress the importance of good management and stockmanship in getting them to work without high mortality. Sows need to be in good condition. Selection for mothering ability in the sow is also crucial, as is selection for sustainable litter sizes and even birth weights (Weber, 2007). Another recent review strongly recommends keeping loose-housed farrowing sows individually in pens sufficiently large to include separate nesting and activity areas (Wechsler and Weber, 2007).

It is entirely proper for farmers to be cautious about moving to systems which involve risk and require experience for effective operation. This is all the more reason for the British industry to develop the expertise as soon as possible to ensure that Britain remains in the forefront of high welfare production.

Most crushing deaths occur in the first three days after birth. It would be an important step in the right direction to develop systems which release the sow a few days after farrowing. However, this wouldn't deal with the important problem of frustration during the nesting-building period or with the need of the sow to initiate contact with her piglets shortly after birth. This is not a long-term solution.

Compassion in World Farming urges the industry to build on its experience of high-welfare production and prepare for a future without sow confinement.

2. REARING SYSTEMS

Compassion in World Farming's global priorities for fattening animals include:

- A phasing out of mutilations such as castration, tail docking and teeth clipping
- The provision of spacious and enriched environments for all growing pigs
- Genetics and management which reduce piglet mortality (see previous section) and prevent tail-biting
- A move, over the longer term, to later weaning

2a. Avoiding mutilations

Legislation on mutilations in Europe includes:

- A ban on the routine use of tail docking and tooth clipping
- A requirement that measures to address issues such as stocking density and environment are taken before resorting to tail docking
- A requirement to use anaesthetics and analgesia are used if castrating or tail docking animals more than 7 days old

In addition to this, the certification rules of Assured British Pigs do not allow castration. Many farmers prefer not to castrate since it can be bad for growth rates.

Castration is likely to be the most painful of these mutilations. It is carried out to prevent "boar taint" in the meat and to control sexual behaviour in developing males. There is a widespread belief amongst some stockpeople worldwide that castration and tail-docking are not particularly painful for piglets. The argument commonly put is that piglets squeal when you pick them up, whether or not these operations are performed.

Scientific research has now clearly proved the more plausible theory, that castration is indeed painful. The reaction of piglets being castrated has been compared with that of piglets being sham-castrated - handled in a similar way but without the operation. The rate of squealing increases during castration (Weary *et al*, 1998) whereas it declines during sham-castration (see Figure 1). Another survey showed that the pitch of squealing also increases (Wemelsfelder and Van Putten, 1985) as castration proceeds (see Figure 2). The latter study also showed that recently-castrated piglets are less active and more likely to tremble, shake their legs, silde or jerk their tails. For 2-3 days after castration, piglets took longer to lie down and lay in a way which indicated their hindquarters were sore. Healing could take up to two weeks.

FIGURE 1: VOCAL RESPONSE OF PIGLETS TO CASTRATION

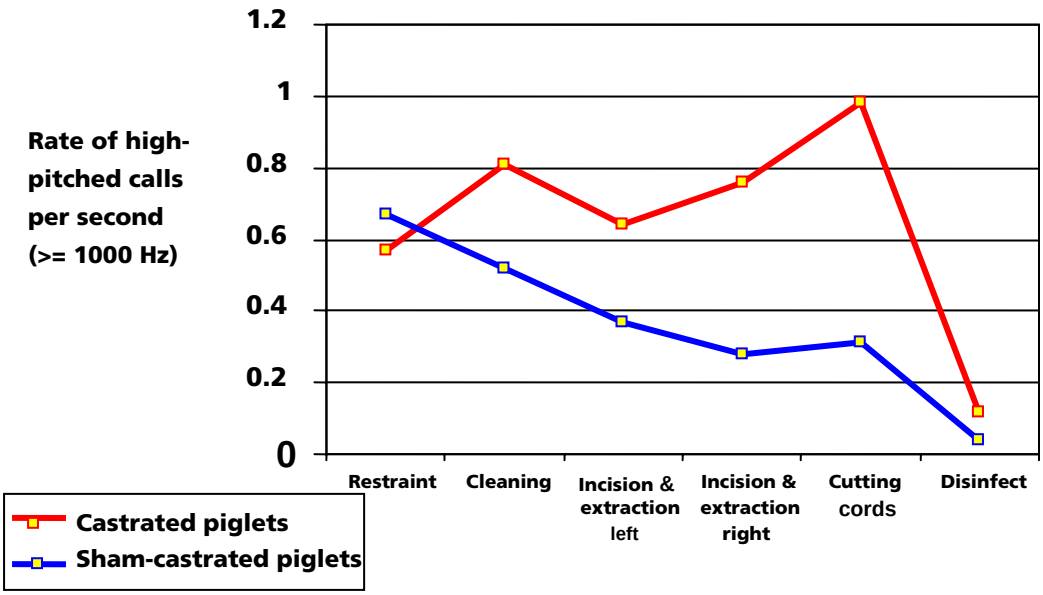
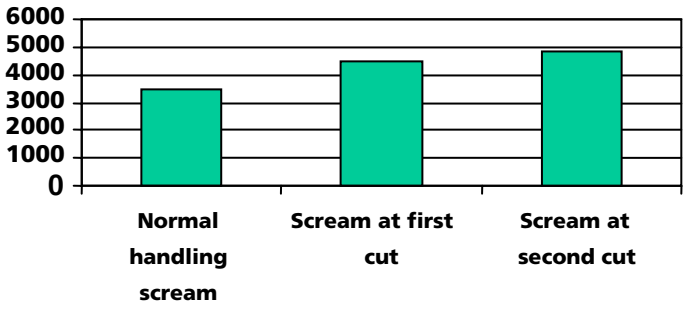


FIGURE 2: FREQUENCY OF SCREAMS DURING CASTRATION (Hz)



Tail-docking is carried out to reduce the incidence of tail-biting. This is also a painful operation. Recent research has also indicated that the combined process of tail-docking and ear notching piglets elicits a stronger pain response than handling alone (Torrey *et al*, 2007). During the process, piglets which were tail-docked and ear-notched vocalised at a significantly higher frequency than those who went through a similar handling procedure without the mutilations. After the procedure, there was also a higher tendency for the tail-docked animals to tremble and "jam their tails" than piglets which had just been handled. The experiment was carried out for groups of piglets aged either one day or three days. Age did not affect the results.

Alternative ways of preventing the scourge of tail-biting will be discussed in the next section.

Tooth clipping is carried out to remove the sharp needle teeth which piglets are born with so that they can compete for the teats with the most milk. The teats nearest the head produce the most milk and milk flow reduces the further the teat is down the body. The furthermost teats may only receive sufficient milk for growth if the mother is well fed and in good condition.

Competition for teats is strongest if the litter is large or if the mother is in poor condition and producing less milk. Cross fostering can also increase competition. The piglets can damage each other and their mother's udder whilst defending their teat. The risk can be reduced if the mother is in good condition and if litters are of a sustainable size.

Compassion in World Farming is opposed to all mutilations but recognises that there are ways of reducing the stress and pain which they cause. For example:

- Anaesthetics and analgesics should always be applied when carrying out castration, even on young animals
- Where tail-docking is carried out, only the tip of the tail should be removed
- Teeth should be ground or filed in preference to clipping.

Clearly, all of these processes should be carried out by appropriately trained personnel. There is a need to license suitable anaesthetics and analgesics for use throughout Europe and the rest of the world. Immunocastration is likely to have considerable welfare benefits compared to the surgical form. However, issues of animal welfare and operator safety require further assessment. Compassion in World Farming strongly urges the British industry to retain its castration-free welfare advantage.

Mutilations should be avoided because they cause pain and tissue damage and can make animals prone to infection. There is an even more powerful reason for developing alternatives to tail-docking and teeth clipping. These practices deal with the symptoms of the welfare problems they are designed to address, not their root causes.

2b. Addressing tail biting without tail-docking

Tail-biting can happen in any system. It can vary from one group of pigs to another. It can happen unexpectedly, even in farms which have been free of it for years. A wide range of factors have been blamed for tail-biting. Most come under one or more of the following headings:

a. A lack of foraging opportunities and of occupation
b. Discomfort, caused by draughts, heat, cold, disease etc., leading to restlessness
c. Overcrowding
d. Nutritional problems which may have a partly genetic basis.

Due to the importance of providing sufficient space and enriched environments for growing pigs, EU rules state:

"*Neither tail-docking nor reduction of corner teeth must be carried out routinely but only where there is evidence that injuries to sows' teats or to other pigs' ears or tails have occurred. Before carrying out these procedures, other measures shall be taken to prevent tail-biting and other vices taking into account environment and stocking densities. For this reason, inadequate environmental conditions or management systems must be changed.***"** (COMMISSION DIRECTIVE 2001/93/EC of 9 November 2001)

Compassion in World Farming believes that both the spirit and the letter of this rule are quite widely disregarded throughout the EU. Tail-biting can be partly controlled by tail-docking but it is not a good solution. It is a painful mutilation. More importantly, it doesn't deal with the welfare problems which were causing the tail-biting in the first place.

While there is no one simple solution to tail-biting, there is widespread agreement in the scientific literature that the provision of edible and manipulable material such as straw greatly reduces the level of it (for example Van Weerd *et al,* 2005 and Bracke *et al*, 2006).

The provision of manipulable material such as straw can reduce tail-biting because:

- It enables pigs to perform natural foraging behaviours
- It can provide activity for restless or uncomfortable pigs, keeping them harmlessly occupied for hours
- The provision of bedding may help prevent the pig becoming uncomfortable or restless in the first place.

The availability of pasture, as well as of a well-strawed bed, can provide the same benefits in a free-range system. Giving pigs plenty of space also helps reduce the problem.

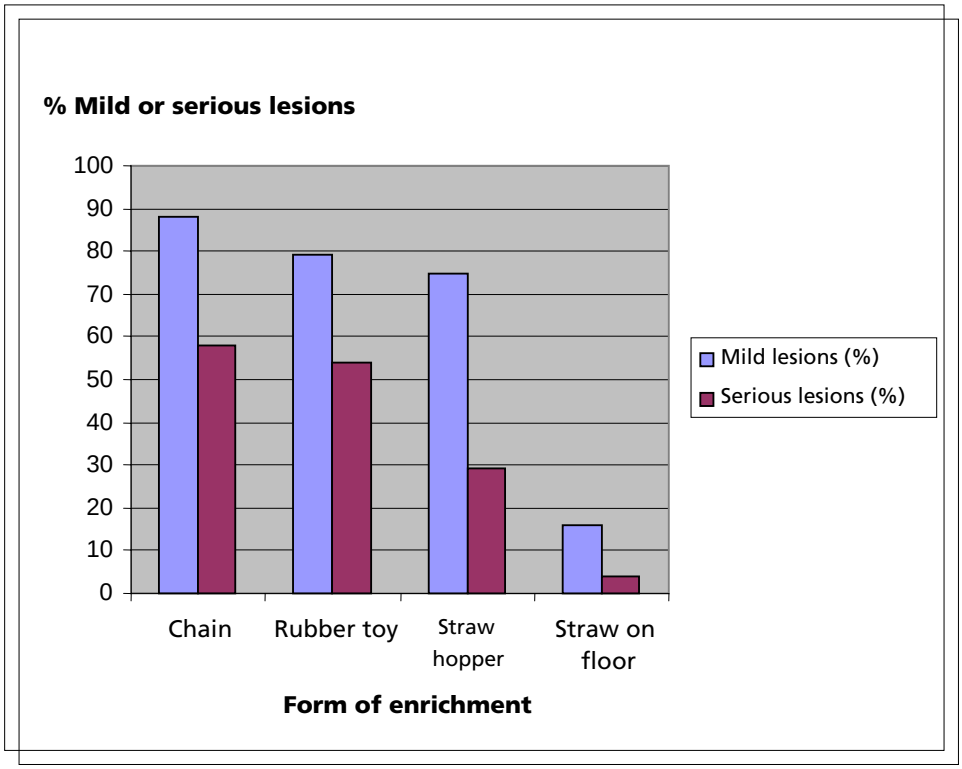
Straw bedding is not possible in some systems, especially those which are fully-slatted and those with slurry systems which cannot handle straw. This is very unfortunate but a range of enrichments can still be used to reduce the risk of tail-biting. These include physical objects such as metal chains and others of biological origin such as rope, wood, straw logs and a range of substrates such as straw and mushroom compost.

A range of enrichments have been tried with various levels of success. According to a study which looked at a wide range of papers on the subject, straw and compound enrichments were more effective on a range of welfare measures than rope, wood, roughage and a range of substrates (Bracke *et al*, 2006). These in turn improved welfare to a greater extent than metal objects such as chains. Fibrous enrichments work best, presumably because they are edible, meeting the goal of foraging behaviour. Using a range of enrichments, some introduced at different times to maintain their novelty value, is also clearly helpful.

In another study, a range of enrichments were tested on undocked weaned piglets. Straw was significantly more effective than chains or rubber toys at reducing tail lesions,

especially serious lesions (Zonderland *et al*, 2004). The provision of straw on the floor was significantly more effective than the provision of a straw hopper (see Figure 3).

FIGURE 3: EFFECT OF ENVIRONMENTAL ENRICHMENT ON TAIL-BITING IN PIGLETS
(after Zonderland *et al*,2004)



Frequent provision to ensure novelty is also important. Some experts argue that some new straw should be provided daily (Anna Valros, private communication 2007).

Although the provision of straw bedding is clearly the single most effective method of reducing tail-biting in undocked pigs kept indoors, it is not a total solution. Other factors are also involved.

One of these is genetics. One recent study found that the tendency to tail-bite was heritable in Landrace pigs (Breuer *et al*, 2005). Furthermore, the tendency to tail-bite was positively correlated with lean tissue growth rate. In other words, breeding for production traits has inadvertently selected for tail-biting problems.

Animals who have suffered a growth check post-weaning may also be likely to become fanatical tail-biters (Van de Weerd *et al*, 2005). Animals kept on a diet low in the amino-acid tryptophan showed an enhanced taste for a blood-soaked model tail (McIntyre and Edwards, 2002). All of this research, together with the common experience that protein

deficiency or imbalance is important and that runts are more likely to tail-bite, has led one eminent researcher to suspect that a malfunction in protein metabolism is a causal factor (Edwards, 2006). We note that later weaning, and any other steps which can prevent a growth check, may also prove to be helpful in reducing the incidence of tail-biting.

Genetic selection may be an important part of the solution to the tail-biting problem. Hopefully the work currently being undertaken by BPEX in association with a wide range of British pig farmers, will also suggest solutions to tail-biting problems in both tail-docked and undocked pigs.

It has been said that "contented pigs don't bite tails". Compassion in World Farming believes that the provision of fibrous bedding such as straw is a crucial part of keeping pigs contented. We question whether newly-built fully-slatted systems are compatible with the EU requirement to address environmental issues before resorting to tail-docking. We believe that any new system set up today should be designed to be compatible with the provision of straw. We believe that both retailers and the public will increasingly insist on enriched environments for all pigs.

2c. Weaning ages

Eastbrook organic farm where piglets are weaned at eight weeks or older

Sows naturally wean their piglets at 13-17 weeks old. In commercial practice, it is common to wean at 3-4 weeks old and as early as 2 weeks in the USA.

Early weaning is stressful for piglets because:

- of the sudden removal from their mother
- of a sudden change of diet at a time when they are still mainly dependent on milk
- they are usually mixed at this stage with other unfamiliar piglets
- they are taken away to a new alien environment
- they may be transported at this stage to a new farm.

These stresses are compounded by the fact that they often all occur at once. This can have a consequence for growth rates.

There has been a recent trend in Denmark towards later weaning to increase pig growth rates. In 2005, the average age at weaning was 31.6 (National Committee for Pig Production, 2006). Presumably by reducing stress levels, later weaning can also reduce losses from PMWS. EU regulations require that piglets are not weaned until they are 28 days old, except in "all-in, all-out" units where the limit is 21 days.

While later weaning would clearly be beneficial to the welfare of piglets, it can be at the expense of the sow. She can lose condition in the process. In turn, this can affect the growth and survival of her next litter (Donald Broome, private communication, 2005).

Piglets in organic systems cannot be weaned until at least 40 days. This minimises the risk that antibiotics will be needed to deal with diseases or digestive disorders resulting from early weaning. The Soil Association recommend that this be delayed until at least 56 days. It has been argued that this gives time for the piglets to become more independent of their mother whilst at the same time allowing the mother to regain condition before becoming pregnant again (Arey and Brooke, 2006). Use of breeds with higher fat reserves and sustainable litter sizes can also help to deal with the problem of farrowing sow condition.

Unfortunately, later weaning significantly increases the cost of pig production, as fewer piglets are produced per sow per year. However, Compassion in World Farming believes that later weaning is beneficial to the welfare of growing pigs. It should be a clear goal of higher welfare production for developing markets in which consumers are prepared to pay a proper price for pigmeat.

3. HIGHER WELFARE SYSTEMS

There is an increasing market for higher welfare products. Sales of free-range eggs lead the way. Free-range and organic chicken meat are now widely available. There is also an increasing market for free-range and organic pigmeat in its various forms.

This is potentially good news for animals and for farmers. Compassion in World Farming believes that free-range and organic farming have the potential to be higher welfare. However, the full welfare story isn't that simple.

Firstly, it would be good to see an increased market for good indoor-enriched systems. Secondly, it doesn't allow for variations within standards for free-range or organic systems. For example, the Soil Association requires that piglets are not weaned till 40 days but recommends a minimum of eight weeks. The farmer who follows the recommendation is likely to achieve better welfare but not necessarily a higher pay-cheque! Thirdly, welfare marketing doesn't allow for variations in the quality of stockmanship which is crucial to the achievement of welfare potential in any system.

Compassion in World Farming would like to see the development of tiered systems measuring welfare quality. The basic level would provide enriched environments without close confinement, avoiding mutilations wherever possible. Middle levels would provide outdoor access for the sows and, ideally, for their offspring. The highest levels would be entirely free-range with late weaning and no mutilations at all, including nose-ringing.

The US supermarket chain, Wholefoods Market, launched a five-tier animal welfare standards scheme to coincide with the 2007 opening of its first UK store in London (details at http://www.wholefoodsmarket.com/issues/animalwelfare/pigs.pdf). Its minimum first tier for pigs bans sow stalls and farrowing crates. It also requires bedding material such as straw. Level two requires outdoor access. By level three, the system is pasture-based with a minimum pasture-cover requirement (45 per cent). Tail-docking and teeth clipping are completely banned by this stage. Levels four and five include exacting welfare outcome measurements, for example, in relation to mortality and lameness. Higher levels of vegetation cover are required (although this could be tree cover) and nose-ringing and detusking are banned at these levels.

The object is to be inclusive of farmers who meet their bottom-line animal welfare requirements, whether free-range or housed. In addition, it provides an incentive for farmers to develop systems which are more exacting on a stage by stage basis. By the

higher tiers, the consumer is buying into good stockmanship through welfare outcome measures as well as higher environmental requirements.

Measuring stockmanship and welfare outcomes is likely to become an increasingly important feature of welfare marketing. These could include measures of sow or piglet mortality, lameness, or body condition of sows or piglets. It could include levels of injuries, sores, swellings and mutilations. It could include measures of abnormal behaviours such as bar-biting or sham-chewing. It could include air quality measures such as ammonia. For outdoor production it could include measures of range quality.

These could enable the welfare aspects of good stockmanship and husbandry to be rewarded. Some would be measured on farm, others at the slaughterhouse. Minimum standards could be set for pig production in general. A range of higher standards could be set for high welfare schemes aimed at niche markets.

5. ETHICAL CONSUMERISM

The market for higher welfare products is part of an increasing interest in ethical shopping. Consumers are also interested in environmentally friendly and local production. There is also support for the idea of fair prices for farmers.

The *Plough to plate* report (Business in the Community, 2007) recently surveyed a range of consumers, opinion leaders and food industry figures. They were asked to put a range of seven ethical issues, including the environment, fair trade issues and animal welfare in order. The results for the top five choices are as follows:

PRIORITY	CONSUMERS	OPINION LEADERS	INDUSTRY
1	Animal welfare	The environment	The environment
2	The environment	Animal welfare	Raising awareness of where food comes from
3	Local sourcing	Local sourcing	Fairer prices for producers
4	Fairer prices for producers	Fairer prices for producers	Local sourcing
5	Raising awareness of where food comes from	Raising awareness of where food comes from	Animal welfare

Clearly all of these are vital, but the high importance given by consumers to animal welfare suggests that high welfare farming should have a good commercial future. If food can be packaged with environmental quality and fair prices for farmers, so much the better.

CONCLUSION

The welfare of animals depends on a combination of good environments, appropriate genetics, nutrition, disease control and stockmanship. It is probably fair to say that animal welfare groups have tended to concentrate on environments and genetics (the latter especially in the field of broiler chickens and dairy cattle) whilst many in farming have emphasised the importance of stockmanship and husbandry.

Perhaps it is time for us to agree that all of these factors are important. A sow in a sow stall or farrowing crate is likely to suffer poor welfare, even if the stockmanship is excellent. The system does not have the potential to satisfy her behavioural needs. Similarly, a sow in a free-range or organic system will also suffer poor welfare if of an inappropriate breed, if diseased, if malnourished or if the stockmanship is poor. Good stockmanship is not a substitute for a barren environment. The reverse is also true.

There is also a discussion about the relative advantages of basic engineering standards (e.g.: restrictions on confinement systems, requirements for bedding, bans on mutilations) versus welfare outcome measures (e.g.: levels of tail-biting, lameness, mortality etc). Again, both are needed. We should be moving towards a pig industry without close confinement or mutilations and with enriched environments. Later weaning is a longer term objective but ultimately also a basic one. At the same time, we need measures of the success of good husbandry and stockmanship which are crucial to welfare.

Pig farmers and animal welfare groups need to work together in pursuit of common interests. Animal welfare depends on farmers. The good farmer or stockman is a practical animal welfare worker as many of them have quite reasonably pointed out! Animal welfare groups have an interest in the development of niche and not-so-niche markets. For example, the free-range egg industry now produces about 35 per cent of UK eggs. This 35 per cent is worth more than the 60 per cent or so that are still produced using cages. There must be a similar potential to develop higher welfare markets for pigmeat, whether straw-based or free-range, which will add similar value.

It has been said that developments like the sow stall, the farrowing crate and the fully-slatted pen are technological solutions to biological problems. We need solutions based on good husbandry which address the need to prevent aggression, keep sows in oestrus, avoid piglet crushing and maintain good hygiene whilst at the same time meeting the basic behavioural needs of pigs. Science will have its place in developing these solutions but ultimately progress will come through the care and expertise of farmers and stockpeople.

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