



Understanding attitudes to biosecurity in small scale pig keepers

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Contents

Research structure	2
Reasons for keeping pigs	2
African Swine Fever (ASF)	3
Pig transport	4
Feeding Practices	6
Contact with other pigs and keepers	7
Veterinary care/health issues/death	8
Pigs as pets	9
Discussion	10
Acknowledgements	10

Executive Summary

African swine fever (ASF) is a devastating disease of pigs and wild boar, which is well-established within parts of Russia, China and Europe. It is characterised by fever, loss of appetite, haemorrhages in the skin and internal organs, and in highly-virulent forms, death in 2-10 days. If ASF reaches the UK, it will be distressing for all pig keepers and could have a disastrous effect on the commercial pig production sector.

While the commercial sector should have high levels of biosecurity and be aware of existing regulations, very little is known about the attitudes to biosecurity and knowledge of ASF in small scale keepers (smallholders, backyard, and pet pig keepers).

The smallholders and crofters interviewed have a good knowledge and understanding of the regulations around movement, feeding and biosecurity. When asked what their understanding of biosecurity was, they gave knowledgeable answers about cleaning facilities and trailers, disinfecting footwear, changing clothes when leaving the holding and generally not being in contact with livestock from other holdings. Due to the nature of their premises, mainly rural and often off the 'beaten track,' the participants reported very little interaction with other pig keepers or stock other than their own. Smallholders that breed pigs tend to have a permanent cohort of sows and a boar on site. The offspring either leave the holding to go directly to the abattoir or are sold to other smallholders as breeding stock or for fattening by them before slaughter.



A smallholder's piglet enjoying a tummy rub

Most of the smallholders interviewed were aware of ASF, but none of the study participants were particularly concerned about their pigs contracting the disease, as they considered themselves too remote geographically in Scotland, had no feral pigs in their area as far as they knew, or because they had very little contact with other pigs or pig keepers.

You always think up in Scotland we're okay up here sort of thing you know and we're not close to any other pigs and things really, you know so it doesn't really bother me that much. (Keeper 3)

Due in part to the small numbers of animals kept, and that they are often seen more as 'pets with a purpose', i.e., as food or breeding stock for the sale of offspring, than a commercial enterprise, smallholders tend to have a 'personal' relationship with their animals: they name them and spend time petting and watching them. They stated that they would quickly know if a pig was 'off colour' or obviously ill, at which point they would call for veterinary attention. Some of the more obvious signs of ASF (reddening of the ears, conjunctivitis) may be more difficult to spot in smallholder's pigs as they tend to be darker skinned breeds, Oxford Sandy and Black, Tamworth, Large Black, and KuneKune for example. This close relationship is therefore particularly important with regards to the health and welfare of the animals.

Many participants were members of breed societies and Facebook groups and said these were their main sources of information regarding health and welfare. Participants believed that any disease incursion would be quickly notified via this communication channel. Some participants reported receiving information from 'the government' or APHA and found it useful, particularly during the early days when they were inexperienced keepers.

In addition to the smallholder study, a further interview was conducted with a pet¹ pig keeper from England. While this interviewee was very knowledgeable, a brief review of Facebook pet pig groups suggests that there are a cohort of pet pig keepers that are either unaware of the regulations around pig keeping or believe that their pet pigs are exempt. There are also some keepers that show

1 Pet pigs, also called mini pigs or micro pigs are distinct from smallholder's pigs in that they are generally kept as singles or in pairs, in houses and urban areas in a similar way to pet dogs



Pet pigs at home on the sofa

a lack of understanding of pig behaviour and good welfare and there may be an issue of carcass disposal in a suburban area.

This is possibly an important area for further research.

Research structure

This document reports the outcome from 16 semi-structured interviews with 13 female and 4 male (one interview was with a couple) Scottish smallholders and crofters (referred to as smallholders for ease of reporting) aged between 31 and 65 with varying degrees of educational achievement, though the majority had a university degree. Participants were recruited via Facebook groups (Oxford Sandy and Black pigs, Large Black pigs and Kune Kune pigs and the Scottish Smallholder groups) and by snowballing technique where participants contact friends and other interested parties on behalf of the researcher. One ad-hoc interview with a pet pig keeper in England will be discussed independently.

There was a good geographical spread of Scottish participants (Figure 1). Holdings ranged from

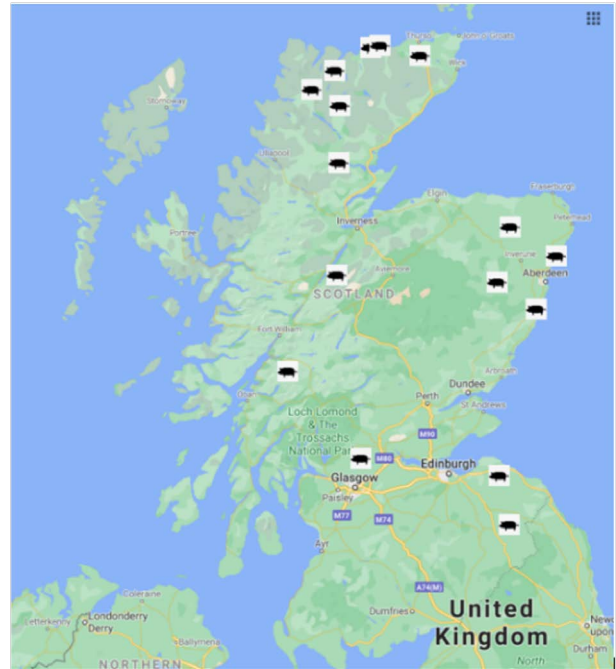


Figure 1 Sites of participants holdings

approximately 2 acres to over 200 acres on rough hill ground or more productive low ground. Experience of pig keeping ranged from completely novice first-time keepers to highly experienced keepers that had owned pigs for over 10 years. No keeper kept more than 15 adult pigs at any one time though many bred their pigs, so there were often more on the holding for short periods as piglets grew and were then sold. Although a small sample, saturation was reached in the 16 interviews i.e., no new information was being revealed in interview content.

Reasons for keeping pigs

None of the participants were making a significant income from pigs, but they felt that they were eating ethically, preserving heritage breeds and they had a great sense of satisfaction from raising and producing their own food. Participants also stated that pigs were useful for improving poor ground particularly on croft land and that they were easier to keep than sheep.

...we are wanting to be an overall 'farm' and have a little of this and that to make a whole picture... and they work not only as meat providers, but they also plough the field that they're in for us. (Keeper 1)



Pigs can be used to clear land

...it's not about making money as such but actually providing people with good quality food you know. I mean we probably do make a bit but it's not mega mega bucks you know. It pays for itself but only just. (Keeper 2)

Almost all the participants kept pigs for meat, either for their own consumption or to sell locally to friends, family, and neighbours. None of those interviewed sold meat via dedicated internet sites though some mentioned using Facebook to inform Facebook 'friends' that they had or would have pork for sale.

[We had] 12 meat boxes the last time out, the last lot of pigs and we didn't even get home and we'd delivered them all. We advertise them on Facebook and they just go like hot cakes. (Keeper 2)



Pigs mix happily with other livestock

While one or two people kept their pigs in the same area as other livestock, most did not, although their pigs could often touch other stock through a fence or lived on ground previously grazed by other animals.

The two castrates are quite happy in with the Pygmy Goats (Keeper 3)

... technically they could [mix] but there's a stock fence between them so they're not in the same field together, but they could touch noses type thing - I've never seen it happen to be honest. (Keeper 4)

African Swine Fever (ASF)

All the participants interviewed were aware of ASF at the time of the interview, either via information from animal health (APHA) or the breed societies and Facebook. Some participants who had not heard of it had 'googled' it when they saw it mentioned in the project information sheet prior to interview.

Q. Have you heard of African Swine Fever?

I had a wee Google of it yeah.

Right but you hadn't really heard of it before?

Not really much, I've heard of like Swine Flu [commonly confused with ASF] and things but yeah, no I hadn't really heard much about it. (Keeper 3)

Well, you know again because of...yeah like I say it was something I was always aware of and again [XX]on the Oxford Sandy & Black Face Book page is very good, she posts quite a lot of updates because I notice now I think there's quite a few cases in Germany and things like that. (Keeper 5)

Q. Have you heard about African Swine Fever before?

Oh yeah, probably through just being so... like the animal health, AHDB and the vet, just general awareness. (Keeper 6)

[We got] a booklet when we first got our pigs and registered the...you know registered the



AHDB ASF poster



The Kunekune Society Facebook page

croft number. We got sent a booklet which was about caring for pigs and it talks about African Swine Flu. (Keeper 7)

Although participants may not immediately recognise ASF, they all said that they would certainly be aware that an animal was seriously ill and call the vet.

Q. Do you think would recognise ASF in one of your pigs?

Yeah. I think we would. Yeah. It seems...the symptoms are quite a generalised symptoms, but the diarrhoea is the thing I think that would...because touch wood ours have never had that [diahorrea] but if you had all the symptoms at the same time you would pretty

much hedge your bets on that's what it would be. (Keeper 10)

I don't know [that I would recognise ASF] probably not. I would probably go hmm there's something not right with the pig and then I would go and do research, or I would phone my vet. So, I probably wouldn't go oh that pig's African Swine Fever. I would go there's something wrong with the pig. (Keeper 6)

Due to a combination of being geographically remote in Scotland, the absence of feral pigs/wild boar in their area, or because they had very little contact with other pigs or pig keepers, participants were not concerned about their pigs contracting ASF. However, should their pigs contract ASF all of the keepers interviewed were insistent that they would certainly make it public in order to warn others that it was in the area. Some but not all participants were aware of the impact ASF would have on the commercial pig industry.

Q. So you would sort of let people know that it's in the country and it's in your area?

Oh absolutely! Because at the end of the day you've got animal welfare there. It's a huge risk. (Keeper 5)

Well, we'd call the vet, and the vet would lead us the right route surely...because I mean the trouble is it would have such a devastating impact if you didn't do that, that it would...I mean that would just be pretty irresponsible. (Keeper 4)

Participants were asked about the best way of informing them of an increased risk or an incursion of ASF. Some believed that social media would be the fastest route while others thought that brightly coloured stickers on feed bags or leaflets included with the monthly feed invoice would be best. Interestingly, no-one mentioned the television news or newspapers as communication channels

Pig transport

Participants keeping heritage breeds, for example this keeper from the far north of Scotland, were willing to travel long distances to access new breeding stock.

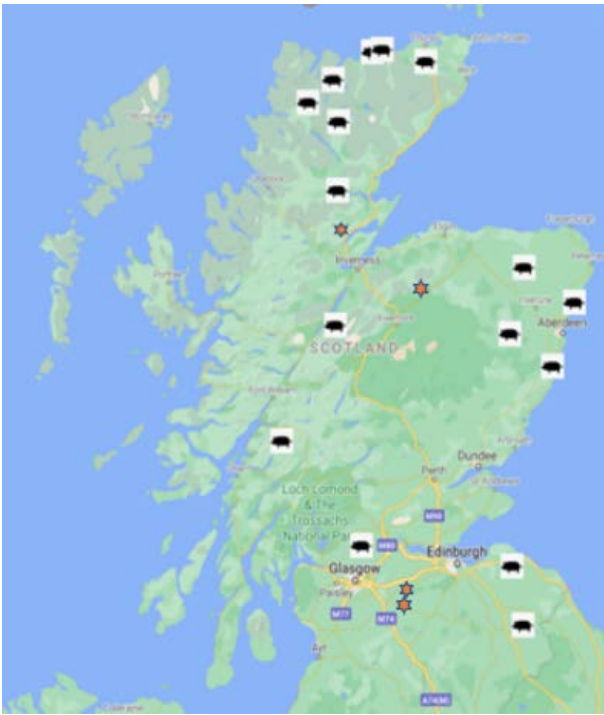


Figure 2. Orange stars show the location of the four abattoirs mentioned by participants

I brought the sow up from Wales, I brought the boar up from Sandringham – (Keeper 5)

Another who was particularly keen on KuneKunes talked of importing a boar from New Zealand, although ultimately the cost made them decide otherwise.

Live pigs can travel fair distances to their new homes. Newly weaned piglets are generally no larger than a Labrador dog, often smaller depending on the age and breed. Participants reported buyers picking piglets up in dog crates and /or in the back of a vehicle rather than in trailers.

Yeah, we've had people arrive, there is one that sort of sticks out, this lady and her mum arrived all the way from Thurso and the pigs were just going into their estate [car] which they'd lined with her mum's incontinence pads. [Laughter] It was the hottest day of the year and you just thought oh my god, all the way to Thurso [a five hour journey] with these two pigs. (Keeper 3)

So, the last lot went to Campbelltown, I've had some go to Gairloch, I helped a guy right up in Strathnavar and Bettyhill get started. They've gone to Aberdeen, they've gone to the Borders, quite a lot locally as well. (Keeper 8)

Those animals which were destined for slaughter often had to travel for up to two hours to reach an abattoir that would accept 'private kills' and small numbers of animals. Participants only mentioned four such abattoirs in Scotland (Figure 2. Grantown-on-Spey, Dingwall, Shotts, Wishaw). One participant was concerned about the welfare of their animals at one abattoir.

We did use [XX], but between you and me I fell 'oot with them. Hmm! I turned up to...I had 3 pigs, 3 pigs to go into the slaughterhouse and I turned up and they said 'right in this door' and there was literally a river of blood running across the doorway opening and I said no they're not going in through that doorway. 'How no' everybody else's pigs do?' I said well I don't give a flying - about everybody else's pigs, I said there's nae pig of mine going across a river of blood to go into slaughter, I said that's ridiculous... So we moved to [another one] and they know what they're doing, they're responsible, the vet is actually seen so aye we were very impressed with [that one] like. (Keeper 12)

Because of the regulations around slaughtering at home, particularly those around the sale of home slaughtered meat, none of the participants killed their own pigs, though some had the necessary



Loading pigs Photo courtesy of Mrs Portly's kitchen

equipment and knowledge. All the interviewees found the distance they had to travel to slaughter to be the most difficult part of keeping pigs for meat. They were content that the animals had a good life on their holding with the best of care but putting them through an arduous journey seemed like a betrayal of trust.

That's the horrible thing about these pigs' lives going up the road when they're [ready for slaughter] ...by then they're quite big and you feel really mean about putting them through that journey. Its 2 hours, windy roads...we've had one batch that were sick. (Keeper 6)

...but what we're concerned about is all the regulations and things that make it hard for small producers like us and also this access to the...both the butcher and the abattoir. It's going...it does make it so that it's hard to make any money. (Keeper 7)

Nearly all the participants requested that the lack of slaughter facilities should be highlighted in this report. Many talked about a requirement for mobile abattoirs, and some mentioned a government document on mobile abattoirs²

Apparently, there was £160,000 worth of funding or something put aside for the whole project which has been spent entirely on studies and now there's no money for the abattoir. (Keeper 8)

The majority of the smallholders interviewed were all very particular about the cleanliness of their trailers, particularly following the transport of pigs. None of the study participants were aware of the AHDB #Muck free truck' <https://ahdb.org.uk/muckfreetruck> message, but as smallholders rarely use commercial hauliers due to the small numbers of animals being transported this was perhaps not surprising.

All of the study participants were aware of movement, tagging and standstill regulations and were able to quote them with relative accuracy. Some pigs were tagged at weaning, others just before the pigs left the holding depending on personal preference.

² The report mentioned could be 'Assessing the Viability and Sustainability of Mobile Abattoirs in Scotland'. Menzies, Wood and Dimambro, Enscape Consulting Ltd. Published March 2020 <https://www.gov.scot/publications/assessing-viability-sustainability-mobile-abattoirs-scotland/>

You need a Movement Form every time you move pigs or piglets yes, so if someone comes to take the piglets away. I make out the Movement Form and then they have to contact...for Scotland its ScotEID. (Keeper 3)

Q. Are you aware of standstill regulations when you bring pigs onto your holding?

Yeah. 21 days. It's like sheep and goats and pigs...I have to look it up each time, but there was...we had to time it right because we had some sheep going off or on, I can't remember what they were doing. We had to make sure that there was...it was alright, but it was alright, so yeah, I do know that there are [regulations] (Keeper 4)

Feeding Practices

All of the interviewees were adamant that they did not feed household scraps and meat products to their pigs and knew why they should not.

No! Oh no! No! Definitely not! It's so frowned upon. We've got...both my



Sign available from the National Pig association



Pigs exhibiting natural foraging behaviours

daughters work for farm shops, so we get veg, but it doesn't come into the house and it hasn't been in anybody's house. So, we're lucky that way but no (Keeper 3)

No. No. No. No. No we're quite careful about that because you know the whole traceability, I know that some people think the rule is silly but actually I don't... I want to be able to honestly tell people what they eat (Keeper 1)

Q. Do you know why it is illegal, why feeding scraps is illegal?

Well, it was all due to the...foot and mouth ... because they were always fed on swill wasn't it? (Keeper 2)

Participants in urban or country areas with a high human footfall had concerns, heightened during Covid-19 lockdown, that members of the public were feeding their pigs despite electric fencing and warning signs. Keepers in the study were worried about the effect it could have on their animals and the biosecurity of their holding.

More people are passing the end of our road ... just this weekend I put up signs and like a fake camera to stop them because ... my daughter caught somebody again this week and one of the pigs had been sick, thrown up something but yeah...so we've put loads of signs up now. (Keeper 3)

All the keepers fed pig specific food bought either in bags or bulk and some bought vegetables specifically for pigs. Most people put the feed on the ground as they said that the pigs would just tip any receptacle over and that by scattering the feed the pigs were able to exhibit natural foraging behaviours.

We had feeding troughs in for them but yeah, they just trash them and it's another thing they end up tripping over and they could potentially hurt their legs on them. So, no I just feed to the ground. (Keeper 5)

Well, I hike it over the fence, most of us do because I think that the sort of enrichment value of them snuffling around for it is higher than the risk from worms and things. We actually just throw it out to them. (Keeper 6)

Contact with other pigs and keepers

With the exception of one breeder who had four pedigree boars standing at stud, participants had little contact with other pigs or their keepers, mainly due to remoteness of the holding or lack of necessity. Occasions where contact would take place included picking up or delivering pigs, occasionally taking a sow to be served by a boar, and rarely, attendance at a show or a smallholder festival.

There's a couple of locals that have our pigs, but it would never be I'll come and visit your pigs, I'll look over the fence but yeah, I don't really get in there. (Keeper 3)

Because of just where we stay, to be honest with you we're the only people around here [with pigs]. (Keeper 5)

Some participants mentioned family or friends that would take care of pigs while they were away, but



Showing a pig at a smallholder festival

few left home for any length of time and rarely together as a family.

Holidays! [Laughter] I don't think we've ever...actually we haven't once asked anybody to look after the pigs since we've been...because it's either one of us away or the other and we've never both been away actually. No. No so that hasn't cropped up yet. (Keeper 4)

Veterinary care/health issues/death

All the study participants were either registered with a veterinary (vet) practice or had spoken to a vet when the need arose. They commented that vets in general practice do not typically have much experience with smallholders' pigs and seem to be happy to 'leave the keepers to it'.

He [the vet] really said pigs they take care of themselves, they're quite hardy, they really don't need the kind of interference and the drugs and all that, that some sheep do, and we only do with the sheep what the vet and we agree on anyway. (Keeper 1)

Seeking vet services was rare; none of the keepers reported anything more than the very occasional request for veterinary attention. Smallholder pigs generally seem to be a robust and hardy outdoor type and are not subjected to the same stressors as



Courtesy of The Yorkshire Vet on Twitter

commercial pigs. None of the participants reported any issues in accessing veterinary attention during COVID-19 and the associated lockdown.

Do you know what they've never seen a vet. The boys [piglets] when they were young, when they were little, I had the vet come out and castrate them because I thought some of them would make pets and they did. But other than that, they've never seen a vet, not a single one of my pigs ever saw a vet. (Keeper 9)

Few participants regularly treated their pigs with anthelmintics (de-worming drugs), as their pigs were either grazed in rotation with other livestock, had very large areas to roam or the keepers sent faeces samples for worm egg counts and de-wormed as required. Most participants treated their pigs themselves following advice from vets, as vets are understandably reluctant to handle pigs without suitable facilities, which few smallholders have.

The vet suspected pneumonia, my gilt was actually very suspicious of him, so he [the vet] actually did struggle. He was obviously trying to get her temperature and so the vet struggled with her. So actually, the days after that you know I obviously just went in very quietly and just sat beside her and just when she wasn't even thinking about it, I just jugged her, but I will say by the third day she was getting a bit like oh what are you up to? (Keeper 5)

Keepers commented on the challenges of not having purpose built handling facilities, but as pigs rarely need attention the cost of handling facilities were believed to outweigh their worth.

We had one this year that had a swollen ear and I tried to inject it and oh I spent half my time chasing it for the needle because the needle got stuck in it and oh it was just a nightmare. (Keeper 2)

When faced with a sudden death of a pig, participants said that they would react differently depending on the age of the pig and the situation in which it was found. They accepted that an old animal can just die, or piglet be squashed by the mother. In a case of an unexpected death, they would request veterinary attention and perhaps send the animal for post-mortem. Dead pigs were either collected as fallen stock or buried on site, which is

contrary to Defra and APHA guidance (<https://www.gov.uk/guidance/fallen-stock>).

If one of them was just [dead] depending on which one it was, ...like an old sow so if she was just dead I would just think well its old age. If it was the younger ones I would probably put them for a post-mortem.

(Keeper 6)

We did [have deaths] with the first litter...5 in total died. But the first one died, and we never thought much about it ... and then the second we sent off to the vet lab and it turned out that it was a Vitamin E deficiency.

(Keeper 2)

Pigs as pets

Pigs as household pets appear to be increasingly popular in the UK, mainly kept in cities and urban areas. As the main subject of this study was smallholder pig keepers, only a single pet pig owner from England³ was interviewed. The owner had two pet pigs in a semi-detached property with an average sized suburban garden, which offered the pigs room to run, root and play.

I live in a town; the house is in a cul-de-sac, so it's built up. The garden has got houses all the way around it, so different neighbours can actually look over the fence and see the pigs. (Keeper 11)

The pigs are trained to toilet outside (one even rings a bell to go out) and are taken on regular, licenced walks⁴. This keeper had a very good knowledge of pig welfare, was aware of the regulations, and understood why feeding meat and household food is illegal. They also have a CPH number and are registered with their local authority. Having obtained their pigs from a reputable breeder, who was always on hand to offer advice and suggested that they take a pig care course prior to taking the piglets home, they were well educated before committing to their animals.

³ Following a single Facebook post no pet pig keepers in Scotland came forward for interview.

⁴ Owners that wish to walk pigs out-with the holding in which they are kept should obtain a walking licence from their local authority



A pet pig exploring the tumble drier



Facebook post about feeding household food to a pet pig

...before we got them we went up to the farm three times so we did our husbandry course first and then we went and visited them twice after they were born and then we could obviously spend time with them. (Keeper 11)

However, it seems that not all keepers are so well informed. There are sites on Facebook dedicated to pet pigs where keepers are posting photographs and videos of animals being fed illegal feedstuffs (cooked salmon, broccoli and peas, smoothies and cooked vegetables prepared in the household kitchen). Because these pigs are actually household pets they treated like a dog, receiving treats, sleeping on beds and playing with the family. In many cases they no-doubt have a good life where their needs are understood and catered for, but sadly less educated owners appear to have pigs that are becoming dangerous or violently rooting at or biting owners and are unable to exhibit their natural behaviours, often ending up in rehoming centres.

Discussion

Although the study was limited to 16 participants, the consistent information around their understanding of biosecurity, regulations and pig health and welfare would imply that smallholders are well informed on these issues and understand the requirement for regulations around feeding and movement. This understanding is comparable to the 2020 survey of pig keepers carried out by AHPA and yet to be published (personal communication with APHA).

Keepers are pragmatically emotionally attached to their stock and want to do the best by them. They are also in a position where sales of their product relies on personal relationships with the buyer, and honesty, traceability and good welfare is crucial to the success of their (albeit small) business. Respect and trust plays an important role in such a situation.

Participants had a 'casual' relationship with vets, stating that they rarely required veterinary attention for pigs and that any necessary treatment was generally carried out themselves following a discussion with their vet. In some cases, where male pigs are to go to rural, outdoor homes as pets the vet was used to perform castrations.

The biggest issue highlighted by nearly all the participants was access to abattoirs. Many found the distances they were required to travel stressful for themselves and their animals and pointed out that the cost of fuel and their time very quickly ate into any small profit they had hoped to make. However, the pleasure they get from keeping pigs and supplying themselves and locals with good quality, locally and ethically sourced meat was enough to convince them to continue production.

In comparison to smallholder keepers, it would appear that pet/micro pig keepers in general are not as well informed. Some of the pet pig keepers posting on Facebook groups demonstrated working practices around feeding regulations in particular that are illegal. This may come from confusion around the wording 'kitchen scraps or waste', as some people buy food to prepare especially for their pigs thus are not feeding 'scraps'. Many pigs appear to be housed in unsuitable conditions where they are unable to exhibit natural behaviours. In addition, little is known about the disposal of deceased pigs. As this area of the pet trade is increasing in the UK further research may be desirable.

So, I'm kind of just winging it really. I would like there to be a lot more information. Like I said the Association of Miniature Pigs in America on their website there's so much information, but the thing is it's not always legal for us to be doing the same in this country. I'd like there to be more information because they are becoming more popular. (Keeper 11)

Acknowledgements

We would like to extend sincere thanks to all of the participants in this study who gave their time to discuss pig keeping so openly and frankly and for sharing their photographs, which are used here and are theirs unless stated otherwise.



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