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Abstract

This paper draws on the results of 48 focus group discussions carried out across 7 European study countries to shed light on the public understanding of farm animal welfare; however the account that we provide does not follow typical social-scientific conventions. We do not try to 'capture' public opinion on this issue, as a survey might seek to do by fixing, stabilising and 'representing' its subject matter, nor do we attempt to produce an entirely 'coherent' version of what the public understands by farm animal welfare. Instead, we adopt a performative approach (see Mol, 2002; Law, 2004; Callon et al, 2009). This enables us both to explore the ways in which lay knowledges are grounded in everyday socio-material practices (such as shopping for food, cooking and eating) and to critically reflect upon how our scholarly attempts to engage with these lay understandings actively intervene with them and help to generate new hybrid knowledges that are partly public and partly academic. More specifically, we identify three distinct acts of knowledge production that *took place* within the focus group discussions and we dedicate a considerable amount of time and attention to describing the micro-contexts in which and through which each act of knowledge production was choreographed (Cussins, 1996; Thomson, 2005). We then outline what specific versions of farm animal welfare were being enacted within these particular discussions and through these particular contexts. Whilst this method reveals certain overlaps and consistencies between the different 'knowledge acts' or 'ways of knowing' farm animal welfare, it also reveals some startling contradictions and non-coherencies.

Key words: Public Understanding of Science, Farm Animal Welfare, Performative Methods, Situated Knowledges

1. Introduction

Over the course of the twentieth century there have been profound changes in animal farming across Europe. Driven by economic and technological rationalities animal production has increased and has been concentrated into ever larger production units (Hendrickson and Miele, 2009). These changes have in turn created new and potentially more severe risks to animal health and welfare (Blokhuis et al, 2003; Fraser, 2008). Recently, however, (prompted in part by a seemingly never-ending stream of bio-security and food safety scares) farm animal welfare issues have gained more prominence in the European Union's political agenda. Furthermore, a growth in public concern about farm animal welfare and food safety/quality has led to the emergence of niche markets for animal friendly products (e.g. organic, freedom food, free range etc.) especially in the UK (see Miele et al, 2005). These emerging markets for animal friendly products have been largely celebrated by NGOs[1] and policy makers (European Union Action Plan on Animal Welfare 2006-2010, European Union Animal Welfare Strategy, 2012-2015, see Europa 2011; 2012) as an opportunity for improving animal welfare via 'a consumer pull' and as a starting point for a new form of governance of animal welfare in Europe, where the existing regulation of animal farming practices[2] could be coupled with the regulation of claims about the 'animal friendliness' of foods, to reward the most committed producers/retailers (Blokhuis et al, 2013; Miele and Lever, 2013; Miele, 2011). These developments for improving animal welfare via a market mechanism have also led to new research in animal science on how to measure the welfare of farmed animals in order to communicate to consumers (or to make visible in the marketplace) the welfare status of animals that are reared for food production. This new focus on

[1] See for example Compassion in World Farming, http://www.ciwf.org.uk/about_us/default.aspx
[2] For example, the banning of the most unfriendly systems of production, such as battery cages for laying hens, veal crates and sow stalls etc.

'measures' of welfare has in turn led to new controversies and ethical questioning within animal welfare science (see Dawkins, 2012) concerning how we should define, measure and monitor farm animal welfare. Furthermore, it has meant that debates about what constitutes farm animal welfare are not just confined within technical and expert arenas but are being opened up to broader public scrutiny and consultation (see Fraser, 2008). This has in turn highlighted important commonalities but also significant differences between 'expert' and 'non-expert' understandings of, and concerns about, farm animal welfare and it has raised some broader questions about the nature and status of different forms of knowledge and the alternative modes of governance which they feed into (Evans and Miele, 2007; 2008; Miele et al, 2011).

It is from within this context that this paper is written. In particular, we seek to contribute to debates in 'Geographies of Scientific Knowledge' concerning the nature and value of lay knowledges (Davies, 2006a; 2006b; Whatmore and Landström, 2011) and the possibility of achieving meaningful citizen participation in both scientific knowledge making and in political debates concerning technological issues (see for example; Callon et al, 2009; Irwin, 1995; Michael, 2006).[3] In the paper we argue that the public understanding of farm animal welfare is complex and genuinely multiple (often to the extent of self-contradiction), as it is generated in and through an array of different practices, each with their own pre-occupations and tacit ethical imperatives (such as shopping, eating, cooking, pet care, care of self etc., see Miele and Evans, 2010; Evans and Miele, 2012). Furthermore, in line with Callon et al. (2009) and Callon and Rabeharisoa (2003) we contend that this complexity should be acknowledged and embraced as a way of enhancing democratic debate by challenging the frequently premature scientific-technical desire to close down the definition, scope

[3] This debate, pioneered by Dewey (1927), has been enriched by a variety of new contributions. For recent reviews, see (Marres, 2005; Lezaun and Soneryd, 2007; Fisher, 2000).

and framing of a given issue (see also Strathern, 2004; Wynne, 1992). Furthermore, we contend that the complexity and elusiveness of public concerns about farm animal welfare have significant implications for the governance of this issue, especially for those governance mechanisms which are reliant on consumer choice (such as 'free-range' or 'cruelty-free' labels).

Throughout the paper we draw on the results of 48 focus group discussions carried out across 7 European study countries to develop our contentions about the nature of lay understandings of farm animal welfare and to critically reflect upon our academic attempts to engage with them. By adopting a performative approach to knowledge production we are able to view lay knowledges about farm animal welfare as multiple and dynamic rather than singular and static. In particular, we are able to show that lay knowledges about farm animal welfare are complex, not necessarily coherent and prone to contradiction and paradox (see Law, 2004). Crucially, we contend that variations and inconsistencies within lay understandings cannot simply be attributed to 'segmentary' differences between different social or lifestyle groups (although these are undoubtedly important) but that variations also occur across different micro-contexts of knowledge production, in other words it is entirely possible and indeed likely that an individual's lay understandings of farm animal welfare might be self-contradictory when generated through different lived practices or when re-evoked through different academic methods. This in turn leads us to reject any simplistic or artificially 'pure' representation of 'the public understanding of farm animal welfare' and instead we identify *three micro-acts of knowledge production* that took place within each focus group. Secondly, by adopting a performative approach we are able to explore the ways in which lay knowledges about farm animal welfare are grounded in everyday social material practices, such as shopping for food and

eating. Finally, we are able to critically reflect upon our own academic ways of knowing or engaging with public understandings and we are able to take stock of the ways in which our own academic tools, apparatuses, methods, modes of questioning and conversational rouses add to rather than simply reflect what we seek to analyse (Law, 2004).

In the remainder of the paper we develop these arguments in more detail. We begin by explaining the background to this research, in particular we briefly outline the Welfare Quality approach to farm animal welfare and we explain the methods that we adopted when undertaking the focus group research. Secondly, we outline our performative approach to engaging with lay knowledges. Thirdly, we recount in detail three separate acts of knowledge production that occurred within the focus group exercises.[4] Finally, we conclude by summarising our key findings and by considering the broader implications of adopting this performative approach in our research.

2. Research context and methodology

This paper draws on work conducted for the EU-funded 'Welfare Quality®' project, which was set up by a Europe-wide consortium of animal welfare and social scientists. The primary goals of this project were to develop a new scientifically valid and *publically endorsed* standard for farm animal welfare and to develop a set of methods for assessing the welfare of animals on farms and at slaughter (see Blokhuis et al, 2003). In the project a variety of different quantitative and qualitative methods were used in order to gain a better understanding of consumers' views and perceptions of farm animal welfare and in order to gauge public reaction to the proposed scientific monitoring scheme. One of the key methods employed to assess the public

[4] For a full presentation of the results of this research see insert post review. Some specific aspects, such as the unquestioned ethical status of animal foods are already discussed in insert post review.

understanding of farm animal welfare consisted of 48 focus groups carried out in 7 European countries (France, Italy, The Netherlands, Norway, Sweden, Hungary and the UK). Six focus groups were undertaken in each country and each focus group consisted of people from similar socio-cultural or lifestyle backgrounds ('urban mothers', 'rural women', 'empty nesters', 'seniors', 'young singles' and 'vegetarian and politically active consumers'). National teams from each country also had the option of conducting an additional country-specific focus group, to study a group of particular interest (e.g. hunters in Norway or gourmets in Italy)[5]. During the focus groups a number of different practical tasks were undertaken, such as handling and commenting on products, sticking post-it notes on charts and reacting to pre-prepared scientific documents. We also attempted to approach the issue of farm animal welfare through a variety of different practical contexts, such as shopping for food, cooking, eating etc., as well as through more traditional methods, such as asking general, decontextualised, questions about participants' views. These methods helped us to trace the heterogeneous sites of engagement of members of the public with issues of animal welfare, from the intimacies of family meals, the budgetary and sensorial concerns of food shopping and cooking to more academic/ abstract discussions concerning human to nonhuman animal relations. Another key objective of the focus groups was to provide animal scientists working on the Welfare Quality® project with a list of consumers' farm animal welfare priorities and to identify any 'gaps' between the public understanding of farm animal welfare and the scientific definition of farm

[5] These countries and social groups were selected to try to gain a broad spectrum of different views about farm animal welfare. Each focus group contained people from similar backgrounds to ensure that there would be some commonalities to form the basis of discussions. We were primarily interested in exploring the range of possible sets of ideas and opinions existing around issues of farm animal welfare rather than making generalisations about the views of certain groups. The focus groups were carried out by different national teams (see acknowledgments). Each focus group was transcribed in full and then translated into English. The methodology employed during the focus groups and the criteria used to select participants are outlined in detail in insert post review (2007; 2008).

animal welfare, as contained within the proposed Welfare Quality® monitoring scheme.

In this paper we draw on the research outlined above in an innovative fashion to identify three separate micro acts of knowledge creation that occurred within each focus group. In other words, we re-visit the focus group exercises and we focus on what actually happened on the ground, in the midst of things, as public understandings were being expressed and produced. However, before we go on to explore these three acts of knowledge production in more detail, we will use the next section of the paper to draw on a range of academic literatures to further develop our theoretical contentions regarding the performativity of both public understandings and our academic attempts to chart them.

3. A performative approach to lay and academic knowledges

The notion of 'performativity' has an interesting history. The concept initially emerged in the work of speech act theorists such as Austin (1962) and Seale (1969) to highlight the ways in which language is not just a passive reflection of the world but rather an active force within it. When we make a promise, reveal a secret, swear an oath of allegiance or declare 'I do' at the end of a wedding ceremony, we are not describing the world but rather we are 'doing things with words'. In these cases language works to culminate a set of social-material circumstances; it adds to an assemblage and is actively involved within it as part of a material-semiotic chain. Indeed, Deleuze and Guattari (1988) believe that the main function of language does not lie in its ability to transmit information or even in its use as a vehicle of communication but rather in its capacity to interact with, to order and even to transform material networks. They believe that language is best viewed as an active participant in practices rather than as a hollow reflection or representation of them.

More recently, the notion of performativity has been embraced by sociologists and geographers in their attempts both to understand the complex interconnections between materialities and meanings in everyday social practices and in their attempts to critically reflect upon knowledge making practices within natural sciences (see for example Latour, 1988); within medical practices (see Mol, 2002); within economics (McKenzie, 2006; Svetlova, 2012) and within sociology (Law and Urry, 2004). For example, authors such as Mol (2002) and Law (2004) have used the notion of 'performativity' to signal the ways in which both medical and social scientific discourses and methods can help to produce the very realities they seek to describe. As Law (2004, 143) states: "*Method is not, I have argued, a more or less successful set of procedures for reporting on a given reality. Rather it is performative, it helps to*

produce realities." The concept of performativity has also helped to form the cornerstone of actor-network or 'material-semiotic' approaches to social life (Latour, 2005) and to non-representational approaches within human geography (Thrift, 2007).

Part of the power of the concept of performativity is that it manages to avoid some of the pitfalls inherent in adopting either of the polar opposites of social constructivism or naïve realism. In particular, the notion of performativity challenges any simplistic notion that our scientific tools, apparatuses and ways of thinking can give us unmediated or direct access to an external reality that stands unaffected by our gropings. But equally, the notion of performativity challenges the idea that reality is socially constructed. Instead, and to quote Lien and Law (2011, p68) a performative approach "argues that social structures are being generated at the same time and in the same moment as scientific (or other) forms of classification or knowledge: that the social and the natural classifications are being enacted together in material practices."

These theoretical debates have very important implications for our current subject of enquiry. Firstly, they imply that academic attempts (like the focus group research described in this paper) to chart lay knowledges, will, to at least some extent, intervene with the very things they are trying to measure. In the remaining sections of the paper we will try to attend to the performative nature of knowledge production by highlighting the ways in which the different tools, prompts, devices and questions that we used in each 'knowledge act' both enabled us to 'attune' to different aspects of the public understanding of farm animal welfare and worked to 'perform' new knowledges that might never have existed or been brought to light outside of these settings. For example, we will show how the mix of 'attunement' and 'intervention' is very different between knowledge act 1, in which commonly encountered food items

were used as prompts for discussion and knowledge act 3, in which a less familiar scientific text was used as a prompt.

Secondly, adopting a performative approach draws attention to the radically situated, or 'worldly' nature of public concerns for animal welfare. Just as academic forms of knowing are refigured as tools rather than mirrors within a performative approach, so lay understandings must also be viewed as radically context specific, emerging from and realised within a specific context for a specific purpose, such as shopping for food or preparing a meal. Throughout our research and analysis we tried to attend to and explore the worldliness of lay understandings of farm animal welfare. In the coming sections, we will show how the knowledges and opinions generated in different 'knowledge acts' still *in part* bear the marks of their worldly origins, in terms of what is said (and not said), the manner in which it is said and the types of implicit and explicit points of reference that are evoked. In short, we will illustrate the 'worldliness' of public understandings of farm animal welfare.

To summarise, over the course of the next three sections, rather than simply presenting the results from our focus group research as a coherent whole, as if they had something to say about the public understanding of farm animal welfare in general, we will instead identify three distinct acts of knowledge production that *took place* within our focus groups. Furthermore, we will dedicate a considerable amount of time and attention to understanding how each act of knowledge production was choreographed (Cussins, 1996) and we will examine the micro geographical, social, material and conversational contexts through which the discussions about farm animal welfare emerged. We will then seek to outline what specific versions of farm animal welfare were being enacted within these particular discussions and through these particular contexts. Whilst this method will reveal certain overlaps and consistencies

between the different ‘knowledge acts’, it will also reveal some startling contradictions and non-coherencies. In short, we will be able to preserve and illustrate some of the complexity of lay understandings of farm animal welfare.

4. Knowledge act one: Consuming welfare

INSERT FIGURE 1

4.1 Setting the scene

It is 5.30 in the afternoon on a summer's day in late June and we are seated around a large central table in an airy seminar room at Cardiff University. A video recorder with a wide angle lens is perched fairly discreetly at the opposite end of the room and two audio recorders lie at either end of the table. On top of the table are a range of different food products including items such as Tesco's free range chicken thighs, Farmhouse Freedom eggs, Tideford organic rice pudding and Tahira halal grill steaks. The participants reach for different products, carefully inspect them and begin to talk amongst themselves. Our group consists of two 'facilitators' (the current authors of this paper) and five 'participants', all of whom had been selected in accordance with previously agreed criteria.

The session has already been running for around half an hour, the participants have introduced themselves to each other and we have spent the vast majority of time discussing their everyday food practices in very general terms, covering topics such as what they like to eat, how often they eat out and where they usually buy their meat and dairy products. These topics of conversation had been prompted by us (the facilitators), partly to place the participants at ease but mainly to set up a practical lived context (i.e. that of everyday food practices) *through* which we could approach issues of farm animal welfare. This context was then further re-enforced through the use of a range of readily available food products, all of which staked some sort of claim to possessing higher animal welfare standards, and all of which were currently laid out on the table for the participants to get to grips with. This particular scene

would be repeated with 6/7 different socio-cultural groups and across six other European countries (48 times in total).

4.2 What version of farm animal welfare is being enacted?

Firstly, from the focus group discussions it was clear that during this particular exercise a version of farm animal welfare was being produced that was closer *to the fork than the farm*. In part this can be accounted for by the way in which this particular knowledge gathering/producing exercise was set up (intervention) but in part it also reflects the nature of human-farm animal relationships in many contemporary European countries (attunement) and the fact that food consumers have become increasingly separated and detached from systems of food production (see Serpell, 1996; Evans and Miele, 2012). This has significant implications for the ways in which farm animal welfare is understood in the public domain, as it becomes deeply intertwined with and indeed experienced through the medium of other sets of practices with potentially very different, sometimes tacit and deeply ingrained, (ethical) imperatives; such as shopping (and, for example, the need to get by on a budget) or eating (and, for example, the need to consume or provide healthy, tasty, or even uplifting food). As one focus group participant from Italy stated:

> "Animal welfare is a fundamental start to obtaining a positive contribution of meat to our health. Pushing this issue from a human perspective, if the animal is well you eat something that has been well created and your body assimilates it well." (Italian participant)

Secondly, this particular exercise, due in part to our use of material food prompts, enabled us to gain insights into some of the more practical-material-aesthetic dimensions of food-related animal welfare knowledges that, despite their great

importance, seldom receive academic attention (see Glennie and Thrift, 1992; Gronow and Warde, 2001; Miele and Evans, 2010). In particular, the exercise enabled us to gain insights into a hidden landscape of practical, ethico-aesthetic knowledges, which informed the participants' food choices (see Evans and Miele 2008; Miele and Evans 2010). For example, participants made connections between the taste, texture, appearance, smell and cooking properties (especially shrinkage) of animal foods and their perceived animal welfare status. As one participant from Italy stated:

> "In my opinion you see immediately an organically produced meat and a traditional one..., this organic one here is red, of a natural red; this other which is not organic has a colour that you see it was treated with some colourings…"

Finally, the types of animal-welfare knowledges generated through this exercise illustrated the ingrained connections between public perceptions about what constitutes farm animal welfare and the current landscape of animal-welfare friendly products (see also Miele et al, 2005). For example, in the UK and the Netherlands welfare-friendliness appeared to be indelibly associated with organic brands and many focus group participants uncritically equated 'organic' with 'welfare-friendly'. Participants from Sweden also associated the organic label 'KRAV' with high animal welfare and participants from Italy associated organic labelled goods and local products with high welfare. In contrast, in France welfare-friendliness was frequently associated with notions of product quality and with certain quality brands such as 'Label Rouge'. This is hardly surprising, as many of the labels on these types of quality products seamlessly mix and intertwine the rhetoric of food quality with the rhetoric of animal-friendliness[6].

[6] When we describe the views of participants from different countries we are only pointing to differences *within* specific 'knowledge acts'. We are not attempting to make *general* claims about the farm animal welfare views of different national and social groups. For example, within knowledge act 1, participants from different countries drew on their country-specific experiences of the market

5. Knowledge act two: 'Blue sky' welfare

INSERT FIGURE 2

5.1 Setting the scene

We are now over an hour into the focus group and the participants are just beginning to take their seats after a well-earned coffee break. Their next task will be to jot down some ideas on the yellow post-it note stickers, which lie on the desks in front of them. We have asked them to work alone for a short time to consider what farm animal welfare might mean for them and what a good life for farm animals might involve. Later we will ask them to share their ideas with the group as a whole, to post their notes on a large whiteboard at the front of the room and to work together as a group to produce a combined list of farm animal welfare definitions/concerns. Post-it notes, of course, provide a very limited canvas on which to express ones ideas and indeed this is part of their purpose; they force the author to be succinct. In this particular task however they functioned primarily as a prompt for discussion and participants were frequently asked to elaborate on what they had written and why they believed that a particular aspect of farm animal welfare was important.

5.2 What version of farm animal welfare is being enacted?

As one can see from the description above, this particular scene, or act of knowledge production, differs substantially from the one outlined in the previous section. Indeed, it approaches the issue of the public understanding of farm animal welfare from a

availability of welfare-friendly foods when expressing their views about farm animal welfare, but there is no guarantee that these types of national differences would be significant in all other knowledge acts.

quite different direction. Rather than situating participants within everyday practices of food shopping and eating (in effect asking them to assume the micro-identity of consumers) it asks them to indulge in 'blue-sky' thinking and to speculate more abstractly about what might constitute a good life for farm animals. In other words we wanted our participants to adopt the micro-identity of 'concerned citizens', although, as we shall see shortly, things are far more complex than this categorisation affords.

Table 1 summarises some of the key issues that were raised during the post-it note exercise. We have also provided figures to illustrate the number of focus groups in which a given issue was discussed or pinned to the board during this particular exercise.

INSERT TABLE 1

We would like to make a series of observations in relation to the results depicted in table 1: To begin, it is important to note that the version of farm animal welfare that was being enacted through this specific post-it note exercise was conceptually and ideologically diverse and drew on diverse practical/experiential inspirations. This in part reflects the free-form nature of the exercise but it also reflects the number of different angles from which it is possible to approach the issue of farm animal welfare. Indeed from the exercise it was clear that participants had a range of different *subject matters* in mind when considering what farm animal welfare might be: some were focused on the animals themselves (their health, behaviour and emotions); others saw the issue in terms of the provision of resources and environments that were likely to ensure a good standard of living (outdoor access, natural environments); whereas others focused on aspects of human-animal relationships and in particular the role of

farmers as animal carers; still others viewed animal welfare in terms that inextricably connected it to food safety and quality and, of course, the vast majority viewed welfare as a combination of some or all of the above factors.

Looking at table 1, one can also see that ideas of 'the natural' (and in particular natural environments) featured prominently within participants' understandings. This privileging of natural environments as a route to improving welfare stands in contrast to current mainstream scientific understandings of farm animal welfare, which tend to prioritise issues of health, behaviour and to a lesser extent emotions over purely resource or environment-based understandings of welfare (although, see Turner and Edwards, 2004 for an exception).

This particular exercise also brought out some interesting national differences in participants' responses. For example, focus group participants from Italy, Norway and Sweden were more willing to talk about farm animal welfare in terms of fostering positive emotions in animals and even in terms of the importance of showing love and affection to animals than participants from other countries. Participants from Hungary placed more emphasis on veterinary and farmer care in achieving good animal welfare and seemed to be less tied to naturalism discourses. Participants from the Netherlands were particularly vocal in their critique of intensive animal farming systems.

Finally, we would contend that whilst this exercise (this particular enactment of what farm animal welfare might be) was conducted in an ostensibly abstract or 'blue-sky' fashion, the discussions that it fostered still bore the marks of the everyday lived practices through which lay knowledges are generated. For example, although the types of lay knowledges revealed through this enactment differ significantly from those revealed in act 1, it is clear that everyday eating and shopping practices were still helping to inform certain features of participants' understandings. This is most

clearly illustrated by the fact that animal feed and in particular the quality of animal feed (and not just the amount) was one of the most frequently mentioned issues across all countries and socio-cultural groups. Similarly, many participants felt that animal feed should be natural and appropriate for a given species; in particular they did not think that it was appropriate to feed cows with meat and bone meal from other cows, which is hardly surprising in the wake of the BSE crisis. As we have previously contended members of the public seem to be closer to the fork than the farm and the very fact that animal foods are ingested, literally taken into the body, helped to prioritise issues of food safety and quality within participants' perceptions of what constituted farm animal welfare; even beyond the direct context of food consumption.

6. Knowledge act three: Responding to animal welfare science

INSERT FIGURE 3

INSERT TABLE 2

6.1 Setting the scene

Immediately after finishing the post-it note exercise, we move on to what we hope will be one of the most insightful exercises of the whole session. We have left the post-it notes in position on their board at the front of the room as a reminder of the version of farm animal welfare that the participants had arrived at together as a group. We hoped that this would in some ways help to equip them for the task ahead. We then provide each member of the group with a handout explaining some of the basics behind the 'Welfare Quality' approach to farm animal welfare (see table 2). These

handouts were the result of an extended dialogue between us and the animal scientists who were in charge of developing the monitoring scheme (Miele et al, 2011). After going through the document with the focus group participants, we ask them about their overall impression of the list of ten concerns and we try to probe which categories they thought were the most important. Crucially, we also ask our participants whether the list developed by the scientists adequately covers all the issues that they had already discussed during the previous post-it note exercise.

6.2 What version of farm animal welfare is being enacted?

As one can see from the description above this particular exercise and this particular act of knowledge creation is very different from the two which have come before. Whilst in previous parts of the focus group we have figured our participants in the micro-roles of 'consumers' and for want of a better word 'concerned-citizens' we are now asking them to perform a much more specialised role, namely that of 'lay critics of science'. Indeed, we are hoping that their differently embedded takes on these issues will be able to supplement scientific understandings and we are even hoping to constructively mobilise their unfamiliarity with animal welfare science as a means of questioning its basic assumptions and challenging what it takes for granted (e.g. how it defines its scope and its ethical, methodological and technical presuppositions). The apparatus and socio-material-linguistic assemblage that we have constructed in order to achieve this has now taken us very far away from the popular understandings that we have been so eager to engage with and yet ironically it is these very popular understandings that we hope will re-emerge during the performance to disrupt the heavily domesticated knowledges apparent within animal welfare science.

The exercise generated some interesting results. In general participants across all study countries reacted very positively to the scientists' list of animal welfare concerns. This was particularly true in Italy, where participants believed that all the areas of concern listed were important. Many Italian participants were also strongly in favour of the last five concerns, which they felt went beyond the basic requirements of avoiding animal suffering to address issues of how to achieve positive aspects of animal welfare and wellbeing.

> "The ten categories selected …represent what we have said but in a deeper way" (Italian participant)

Participants from the UK also believed that the list of concerns was fairly comprehensive, although some commented that it failed to address certain issues around genetic modification and animal slaughter. Similarly, participants from Sweden felt that the list was 'good and comprehensive'. In contrast, certain participants from France were only really supportive of the first five areas of concern, as these were deemed to be appropriate and realistic (these are the concerns that deal with the animal's basic needs), while they were far more sceptical with regards to the final five concerns, which they believed to be unrealistic and too utopian for farm animals, given the current constraints of industrialised animal farming.

The responses generated in this discussion raise some very important issues regarding the ways in which members of the public treat scientific forms of knowledge and they highlight some of the potential problems involved in attempting to foster science-society dialogues. Despite our best efforts to represent the scientific list of animal welfare concerns in a non-technical fashion and despite our efforts to ensure that participants had sufficient time to develop their own ideas about what constituted farm animal welfare immediately prior to undertaking the task, there was

still a great deal of unquestioning deference towards experts' opinions on this issue. Indeed, the vast majority of focus group participants failed to spot some of the important differences between the version of farm animal welfare that they had produced during their post-it note exercises and the version of farm animal welfare that was contained within the animal welfare scientists' list of ten concerns. For example, as we outlined in the previous section, two of the most widespread farm animal welfare concerns identified by focus group participants included the importance of providing natural, outdoor environments and the importance of providing appropriate/natural food. Neither of these issues was *directly* addressed within the scientific list of concerns that we provided to the participants and yet in the vast majority of cases these differences were not even remarked upon. This again underlines the radical importance of context in generating lay knowledges and the vital need to attend to contexts when attempting to facilitate science-science dialogues.

7. Conclusions: Ways of knowing farm animal welfare

Throughout this paper we attempted to produce a performative account of the public understanding of farm animal welfare. In line with this approach, we outlined three separate acts of knowledge production that took place within the focus groups. In the first act of knowledge production, the focus group participants were located within the milieu of food consumption. This enabled us to begin to understand how a concern for farm animals emerges in this context and to explore some of the linkages between everyday practices of eating and shopping (and the pre-existing landscape of currently available welfare-friendly foods) and certain aspects of the popular understanding of farm animal welfare. Here animal welfare was closely aligned with issues of taste and

food safety (such as the quality and safety of animal feeds, the use of GMOs and the over-use of antibiotics).

In the second act of knowledge production, the public understanding of farm animal welfare was explored through a 'blue sky' or 'free-response' scenario. Within this particular enactment several different versions of what constitutes farm animal welfare emerged. One of the key features of this particular knowledge act concerned the importance that participants placed on natural and environmental considerations, such as the amount of space, access to outdoor environments and the animals' ability to perform natural behaviours. When undertaking this exercise participants seemed primarily to adopt the micro-identity of 'concerned citizens', rather than simply 'food consumers', however it is clear that food safety/quality concerns still influenced their understandings.

In the third act of knowledge production we explored how focus group participants responded to scientific understandings of farm animal welfare. This knowledge act highlighted some of the divergent outcomes that can arise when lay understandings are confronted with highly-ordered scientific representations of a given phenomenon. The key point to note here was that very few participants were able to spot the differences between the versions of farm animal welfare that they generated in their post-it note exercises (especially their assumed norms about existing animal welfare standards and their focus on naturalness, feed quality and outdoor access) and the scientific version of farm animal welfare that was now being presented to them. This highlights the radical importance of context both in elucidating lay knowledges and in fostering science society dialogues.

Taking these three knowledges acts together, one can clearly see that it is not beneficial to talk of 'the public understanding of farm animal welfare' as if it is a

monolithic and stable entity. Instead, many benefits and fresh insights can be achieved by attempting to attend to the performativity, dynamism and diversity of public knowledges in the making. Indeed, we have shown that by setting up focus group research in a certain way and by analysing focus group discussions in a particular fashion, it is possible to gain important insights into the sets of everyday social material practices through which lay knowledges are generated. Furthermore, this approach enabled us to 'situate' lay knowledges about farm animal welfare and to gain critical insights into their production, for example we began to untangle some of the interconnections between public perceptions of farm animal welfare and public understandings of the benefits and risks of animal foods to human health. Moreover, we would contend that by preserving some of the complexities of lay knowledges about farm animal welfare and by keeping the definition, scope and framing of farm animal welfare issues open – as matters that can potentially be enacted and conceived in different ways by different groups enrolled in different sets of practices - we can enhance democratic debate about this issue (see Callon et al, 2009)[7].

Finally, we believe that this research has some important implications for the governance of farm animal welfare issues. In particular, the research highlights the fact that farm animal welfare is a complex and elusive object of governance. Product labelling is increasingly becoming an important EU governance strategy, especially in relation to food issues. Underlying the worth of labelling as a mode of governance is the implicit assumption that it is possible to achieve a consensus around the definition of the particular issue that is to be assessed, monitored and ultimately labelled. This applies to the labelling of animal welfare friendly products, where there is an

[7] This avoids some of the pitfalls of inappropriately smoothing over differences and turning 'farm animal welfare' into a discrete and defined 'object' of governing (see Foucault, 1991 and Miele et al, 2005).

assumption that it is possible to pin down a relatively stable and universally applicable definition of farm animal welfare. However, as our research has shown, whilst there are commonalities and shared concerns about farm animal welfare across EU citizens from different countries and between non-experts and experts, there are also significant differences. Furthermore, the nature of animal welfare concerns can change depending on the site of engagement, for example when eating a meal, when shopping for food, when engaging in more abstract debates, or when reacting to expert opinions. All of these factors present a serious, but perhaps not insurmountable, challenge to the likely effectiveness of product labelling as a standalone method of farm animal welfare governance.

Our research also highlights significant differences between expert and lay concerns about farm animal welfare. In particular, a number of animal welfare norms emerged from within these knowledge acts that are often neglected in scientific framings of farm animal welfare (e.g. the value of living outdoors, the value of naturalness in life cycles, feeding, sexual reproduction, the nature of human/animal relationships). If we are to ensure the democratic governance of farm animal welfare issues it is vital that these concerns are also taken into account alongside and in relation to scientific framings of farm animal welfare. However, as knowledge act 3 illustrated this is no simple task and requires a sustained engagement with public concerns and a sustained dialogue between science and society around issues of farm animal welfare.

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Figure 1: Participants inspecting products during the focus groups

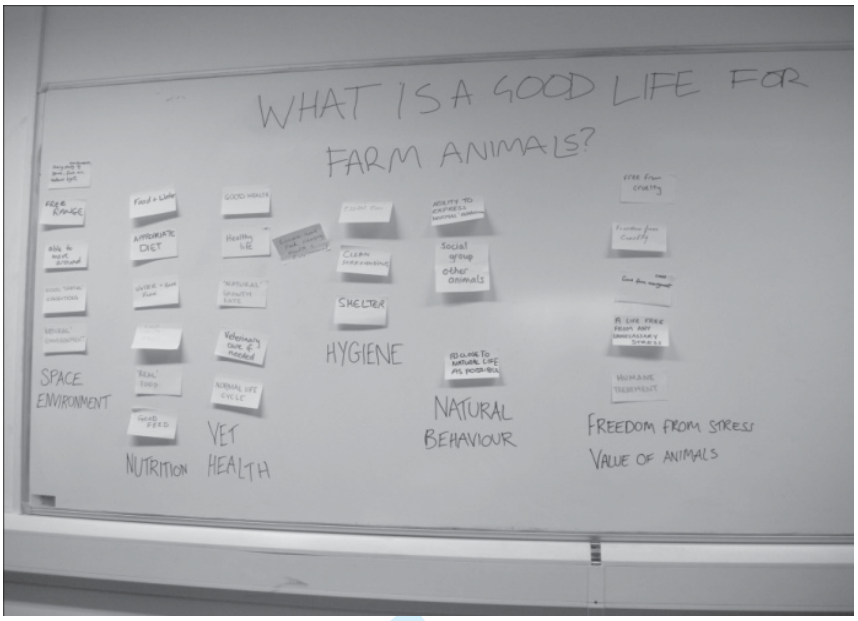

Figure 2: Post-it note exercise – what is a good life for farm animals?

Table 1: The farm animal welfare concerns that were raised during the post-it note exercise[1]

	Total N=42	FR N=6	NE N=6	HU N=6	IT N=6	NO N=6	SW N=6	UK N=6
Feed								
Quality of feed	37	5	6	6	6	5	6	3
Appropriate/natural diet	31	6	5	3	6	4	2	5
Environment								
Amount of space	36	6	6	5	6	4	6	3
Outdoor access	30	6	6	1	5	4	4	4
Natural environment	16	1	2	1	4	1	3	4
Not intensive/factory farming	13	2	4	1	2	2	2	0
Health								
Good veterinary care	23	3	2	5	4	2	3	4
Good animal health	13	3	2	2	3	0	2	1
Behaviour								
Can express natural behaviours	17	3	3	0	6	2	1	2
Keep babies with mothers	10	3	1	0	1	2	2	1
Affect/emotion								
Avoid stress	19	5	4	1	2	1	4	2
Avoid pain and suffering	13	2	2	2	3	1	3	0
Pleasure/happiness	6	0	0	0	2	3	1	0
Human-animal relationships								
Farmer care/responsibility	29	2	6	6	4	4	5	2
Shown love or affection	10	0	1	2	2	2	3	0
Welfare off-farm								
Slaughter Issues	36	5	5	5	6	5	5	5
Transport Issues	35	5	5	4	5	5	6	5

[1] N=6 for each country as we excluded the additional country-specific focus groups that were conducted in some but not all countries. The figures must be interpreted with a great deal of caution, in particular they should not be taken to indicate the importance of a given farm animal welfare issue in the population at large, rather they should be taken as being indicative of the types of issues which were discussed during this particular exercise in different countries.

Figure 3: A scientist measuring a welfare criteria for the assessment scheme

Table 2: Extract from the handout that was used to inform focus group participants about the Welfare Quality® approach to farm animal welfare

ANIMAL WELFARE: TEN AREAS OF CONCERN
Animal scientists working on the Welfare Quality project have identified ten key areas of welfare concern to use as a starting point for assessing the welfare of cattle, pigs and chickens on farms, during transport and at slaughter. Researchers are also in the process of developing a range of welfare measures that can be used to assess each of these concerns. The ten concerns are as follows:
1. Hunger, thirst or malnutrition - This occurs when animals are denied a sufficient and appropriate diet or a sufficient and accessible water supply and can lead to dehydration, poor body condition and death. Malnutrition may also arise when diets are sufficient in volume but deficient in key nutrients.
2. Physical comfort and security - Animals can become uncomfortable and have problems lying down, getting up, resting and standing. This can occur when they are kept in inappropriately designed housing (e.g. insufficient space, poor ventilation, unsuitable flooring and bedding) or when they are transported in poorly designed or poorly ventilated vehicles.
3. Health: injuries - Animals can suffer physical injuries, such as skin lesions, bruises and broken bones due to factors such as poor bedding conditions, uneven or slippery flooring, enclosures with sharp edges and environments that promote aggressive behaviours between animals.
4. Health: disease - Animals can suffer a range of diseases (e.g. inflammation of the udder in cows or heart disease in broiler chickens). Poor hygiene, irregular monitoring and unnecessary delays in treatment can amplify these problems.
5. Pain (not related to injuries or disease) - In addition to suffering pain from injuries and disease, animals can experience intense or prolonged pain due to inappropriate management, handling, slaughter, or surgical procedures (e.g. castration, dehorning) and as a result of intense aggressive encounters.
6. Normal/natural social behaviours - Animals are denied the opportunity to express natural, non-harmful, social behaviours, such as grooming themselves and each other and huddling for warmth. Separating females from their offspring and preventing sexual behaviour are specific examples of this.
7. Normal/natural other behaviours - Animals can be denied the possibility of expressing other intuitively desirable natural behaviours, such as exploration, foraging, running, flying and play. The denial of these possibilities might lead to abnormal and/or harmful behaviours such as tongue rolling in cattle and feather pecking in chickens.
8. Human-animal relationship - Poor interactions with people can be reflected in increased avoidance distances and fearful or aggressive animal behaviours. This can occur due to inappropriate handling techniques (e.g. slapping, kicking and the use of electric prods), or when farmers, animal transporters or slaughterhouse staff are either insufficiently skilled or possess unsympathetic or non-compassionate attitudes towards animals.
9. Negative emotions (apart from pain) - Animals can experience emotions such as fear, distress, frustration or depression when they are kept in inappropriate physical or social environments (e.g. where there is mixing of unfamiliar groups of animals, or when there is not enough space to avoid aggressive interactions). These emotions can be reflected in behaviours such as panic, flight, social withdrawal and aggression and in behavioural disorders.
10. Positive emotions - Animals can also experience positive emotions such as comfort, satisfaction and excitement when they are healthy and kept in good physical and social environments. Positive emotions are difficult to assess but may be reflected in certain behaviours, such as: play, group activity, 'choice' of partner animals within a group, exploration, grooming, and by certain vocalizations.