



Module 12

The Application of Animal Welfare Ethics

Lecture Notes

Slide 1:

This lecture was first developed for WSPA by Dr David Main (University of Bristol) in 2003. It was revised by WSPA scientific advisors in 2012 using updates provided by Dr Caroline Hewson.

Slide 2:

Today's lecture looks at specific uses of animals and how each of the different ethical theories guides us in these cases. This lecture will discuss how ethical theories can be applied to a number of animal uses and how this should guide the treatment of the animals in our care. We will also investigate how our actions impact on environmental ethics.

This lecture aims to familiarise you with the practice of applying ethical theories, rather than examining issues in detail.

At the end of the lecture we will examine two frameworks that can help you make ethical decisions in practice.

Slide 3:

In the first lecture on ethics (Module 4), we saw that ethics concerns how we think people should act. That concern arises because actions may harm others, i.e. make them worse off than they are at present.

Ethical theory provides logical reasons why a particular course of action may avoid causing harm, and this helps us to decide how to act. We saw that there are five main ethical theories of animal use and these are listed on the slide. Each theory has some compelling logic, yet despite that they may not completely allay our moral unease in a particular case.

The theories may be categorised broadly into two types. There are obligation-based theories – known as deontological theories from the Greek word 'deontos', which means obligation. There are also consequentialist theories. These will be covered in the next two slides, and applied throughout today's lecture.

Slide 4:

This slide shows the three main consequentialist theories.

Recall that none of these three theories accord animals inherent worth. Rather, the animal's value lies only in the consequences of his/her use.

The contractarian argues that the consequences of the use for animals themselves do not need to be considered, whereas the other two positions do include the consequences for animals, to some degree.

Slide 5:

This slide shows the two deontological (obligation-based) theories. In these cases, animals are given intrinsic value and therefore the consequences of our actions for the animals themselves must be considered.

Slide 6:

We shall now consider four common examples of popular concern regarding animal use, using the five ethical theories to guide us in how to act. We will also use the examples to introduce you to some additional points. Please be aware that we will only be able to conduct a brief overview of the issues here. The goal is to accustom you to applying the different ethical theories so that you have a better understanding of why there can be such disagreement about the best way to treat animals, even if everyone wishes to do the right thing.

The main areas of concern we will look at are:

- breeding dogs with heritable defects
- farming animals for meat
- controlling infectious diseases in animals
- the use of animals in research.

Slide 7:

There is increasing concern that many dog breeds are selected for appearance without regard to the fact that these physical features are accompanied by impediments to physical functioning that increase the dogs' risk of suffering. Those impediments may be overt physical defects that interfere with their function (e.g. brachycephalic airway obstruction in breeds such as boxers, pekinese, bulldogs, etc.), or inherent genetic predispositions that increase their risk of disease (e.g. mitral valve disease in Cavalier King Charles spaniels).

Many people, including vets, feel that it is wrong to breed such animals and to profit from it when it is possible to breed dogs with a different genetic make-up that would reduce the risk of impaired physical functioning and associated suffering.

A very challenging philosophical argument in answer to that concern is called the 'non-identity problem'. The fundamental point here is that we are concerned about individuals who suffer – are worse off or harmed – because of their genetic make-up. However, the logic of 'non-identity' is that those individuals are born like that – the risk or reality of impaired physical functioning is part of their unique identity. It cannot make them worse off, as individuals, than they could otherwise be because, if the owners had selected parents who would produce a dog with a different appearance that would be a completely different individual from the dog in question.

This argument is logical and it does not in any way argue against treating those dogs and alleviating any suffering. However, it leaves most people uneasy because it does not solve the concern that dogs with those traits suffer, and that continuing to produce such dogs is somehow wrong.

In the next slide we will see how the five ethical theories deal with the breeding of dogs with genetic defects.

Slide 8:

- The 'contractarian' perspective is that current breeding practices point to an underlying human attitude that lacks understanding and compassion – two desirable traits to which humans should aspire. It is always better act virtuously, and we should breed healthier dogs because that is more consistent with virtuous behaviour. Also, healthier dogs would mean fewer veterinary costs for owners (e.g. at the time of birth for bulldog puppies, whose large heads often necessitate delivery by Caesarean section).
- Under 'utilitarianism', the goal is the greatest good for the greatest number, and we know that it is possible to breed dogs who are healthier. If we do, those dogs can have better lives and owners need spend less on veterinary care. Moreover, we as vets will also be happier that those breeds are being improved. So, improving breeding practices would increase overall happiness.
- 'Animal rights theory' is generally abolitionist. It seems very reasonable to argue for banning the breeding of dogs with hereditary defects. However, many rights scholars accept keeping companion animals. Moreover, if genetic knowledge can be used to improve the lot of brachycephalic and other genetically defective dogs in future so that they have the chance to live happy lives, might this be acceptable under rights theory? This is not entirely clear.
- The 'care ethic' implies an obligation to care for animals. As newborn puppies are initially in our care, until we sell them, the care ethic would seem to oblige us to support more careful breeding policies in future, in order to eliminate hereditary disease.

- ‘Respect for nature’ would also seem to support the notion that we should improve breeding policies. Better policies would arguably create a more ‘natural’ genetic make-up by which the animal’s and the breed’s nature is expressed. This would improve the genetic integrity of the breed and species, as well as enabling the dogs to fulfil their potential by being healthier and living longer, maximising the survival of the breed. However, not all proponents of respect for nature would accept this argument, pointing out instead that dog breeding is already unnatural, and artificial selection for either healthy or unhealthy traits remains unnatural.

Slide 9:

You can see from the overview of the case of breeding dogs that understanding ethical theory can give you a logical set of reasons in support of your views. Note that as scientists and vets in the field, we may not always go through such explicit analysis in justifying our sense that a welfare problem exists and that we should resolve it.

For example, Dawkins & Layton (2012) examined the case of broiler chickens. Modern broiler farming poses welfare concerns associated with the young birds’ rapid growth rate, specifically:

- painful limb deformities and circulatory disorder occur because the skeleton and heart, respectively, cannot accommodate the rapidly growing and oversized muscle masses
- parent birds are chronically hungry because the inherent rapid growth of the young stock is supported by a large appetite. If fed to appetite, the parent breeding stock would become obese and unwell, and farmers could not afford their loss in production or the feed itself, because the profit margins in broiler production are very small.

That paper does not concern itself with ethical theories about whether the birds are harmed by having been bred as they are. The authors focus on the general ethical principle that it is imperative to improve breeding practices, and that we should not assume that developing genetic lines of broilers with traits that support welfare – such as good walking ability – must necessarily disadvantage farmers because of necessitating the genetic trait of slower growth. Currently, however, that is the assumption, i.e. healthier birds will grow more slowly, but farmers will then make no profit on the birds unless the general public pays more for chicken, which would disadvantage us.

Slide 10:

This weighing of costs and benefits to birds and people is a common utilitarian approach. Let's see what utilitarianism can tell us.

- In a simple utilitarian framework, genetic lines of birds might have to be kept as they are, despite the associated welfare problems, because otherwise farmers would lose their livelihoods. However, it is difficult to weigh the suffering of broilers against the potential suffering of farmers who lose their livelihoods.
- In applying the more nuanced utilitarianism developed by Peter Singer (see Slide 12), better breeding seems to be an imperative because so many birds cannot otherwise have a good life. In fact, Singer's view is simply that we should not farm, because modern farming practices cannot provide animals with a good life.

We shall consider what our other ethical theories tell us here.

- Under a contractarian analysis, the human outcomes of lost livelihood or increased price of chicken meat might also make better breeding problematic, although that might be offset by the point that better breeding is a more virtuous way of farming and give consumers more peace of mind.
- Rights theory does not support farming, and so cannot support better breeding practices.
- The care ethic strongly supports better breeding practices.
- Respect for nature would seem to do so as well, but with the same objections as we saw for dogs, in that the selective breeding has resulted in breeds that are no longer 'natural'.

Slide 11:

As we see from the broiler example above, farming is a complex issue and one that is contentious for many people. Consequently, many people around the world avoid eating meat.

The principal ethical concerns that lead people to avoid meat are listed on the slide. Note that some views concern the effect of farming and slaughter on the animals, and others are more concerned with issues such as the basic dietary needs of our rapidly growing human population, around the world, personal health, or the indirect effects of farming on people and the local and wider ecosystems.

Vegetarianism is also practised by many people for religious reasons, e.g. Buddhists and many Hindus practise it as part of their belief in *ahimsa*, the avoidance of causing harm to other beings. Being vegetarian in that instance is an act of personal purity, and prevents one from suffering in a future incarnation. Some Christian communities also practise vegetarianism or periodic abstention from eating animal products; this is carried out for spiritual reasons such as to avoid increasing one's passions, or as penance.

These religious imperatives not to eat meat follow logically from the belief concerned; however, for those who do not share that belief, other intellectual reasons are needed to guide how we should act.

Slide 12:

We will start with the concern shared by many people that animals are harmed by farming and slaughter. This concern leads many people to avoid eating meat of any kind ('vegetarianism') and sometimes to avoid eating any animal products ('veganism').

One of the most famous philosophical advocates of vegetarianism is Peter Singer. You will recall from Module 4 that his arguments, broadly, are:

- animals are sentient and can have preferences, but that does not include sufficient awareness to have a desire to keep on living
- it is therefore acceptable to kill animals for food if the following conditions apply:
 - they have had a good life (one in which they could satisfy their preferences)
 - they are replaced by other animals who would not otherwise have been brought into the world and given the chance to enjoy a good life, and
 - the animals can die painlessly and without suffering.
- However, because modern farming and slaughter in particular do not allow animals to have a good life, we should avoid animal products and we should certainly not eat animals.

Nevertheless, Singer also supports the idea of eating animal products from farms with high standards of welfare, since this marketplace pressure can help to raise standards of animal welfare generally.

Slide 13:

Singer's pragmatic view aligns with what many people around the world also seem to think. For example, in this course the module on economics (Module 31) as well as those on livestock production and on welfare assessment all explain aspects of quality assurance schemes which help to assure consumers that they are buying products from animals that were treated well in the different areas of ethical concern (physical functioning, mental state/feelings and natural behaviour).

You will recall from Module 4 on ethics that the ethicist Bernard Rollin believes there is an emerging social ethic in many countries in relation to farming. This ethic is a combination of utilitarianism, rights and relational approaches. Under this, people may feel ethically justified in eating meat if the animals have had lives that did not cause them to suffer (utilitarianism), and their right to live according to their nature was respected (rights theory). In this view we and our farmers continue with the 'ancient contract' of mutual advantage between stockperson and animals (relational). That is, we support the farmer in caring well for his/her animals in exchange for their products.

Slide 14:

Animal rights theorists disagree with such approaches. One notable scholar is Gary Francione who argues that veganism is the only possible diet that respects animal rights. That is, rights create a logical moral imperative not to farm animals or to consume any animal products, for food or any other reason. From this perspective, neither Rollin's nor Singer's pragmatic approach is tenable, and quality assurance schemes are misguided.

So far, this overview of reasons why some people do not eat meat and the underlying ethical arguments has only considered the animal. However, matters are complicated by the fact that animals are not the only subjects of ethical concern in the question of meat consumption. Consumers also have needs that they are seeking to meet: that is, we all have to eat something and get our fat and protein from somewhere.

Balancing these basic human needs against wider considerations, including the animals' needs, is an ethical challenge.

Slide 15:

This slide summarises some of the wider concerns in regard to *fairness* in the consumption of animal products.

A prevalent view in many societies is that animal products cause diseases, e.g. the association between saturated fat and heart disease, or red meat and certain cancers. Others take the view that animal products are an essential part of a pleasurable and healthy lifestyle, and meat consumption in particular can be a sign of affluence and social standing.

People with those concerns may generally have a contractarian view of farming, whereby they are not particularly concerned about the effects on animals, but more about the effect of their diet on their health, social standing, etc. For some, concerns about their own health are added to concerns about farming methods and animal welfare, and this informs their decision to be vegetarian or vegan. Conversely, for others, higher-quality meat from more welfare-friendly systems increases their sense of social standing. For yet others, being able to go to cheap fast-food restaurants is important.

A wider concern is that intensive farming relies heavily on the rapid growth of young animals until they reach slaughter weight, and this in turn creates a reliance on concentrated animal feeds, primarily cereals and crops such as soy. Growing these plants takes up large areas of land, which may displace local wildlife and people, and cause damage to local and wider ecosystems.

Moreover, ruminants in particular produce large amounts of methane when fed concentrated foods. This is considered to contribute significantly to greenhouse gases and has knock-on effects for the entire global ecosystem.

Perhaps most pressing of all is the knowledge that many millions of people in the world are poor, malnourished and do not have enough to eat. They quite rightly aspire to having enough income and food. It seems intuitively wrong that crops should be grown to feed livestock for

human consumption when the same land could be used to produce nutritious plant-based food that would ensure the poorest people no longer went hungry and could then be in a position to improve their lives and to be able to afford to eat meat products if they wish to.

The book cited on this slide (D'Silva & Webster, 2010) critiques these concerns in detail. For example, not all authorities agree that feeding cereal to livestock deprives hungry people of food. Instead, the argument is that we can easily grow enough feed for livestock and food for people, and the widespread hunger in the world is mainly a result of social inequality and problems such as conflict, poor governance in individual countries, poor infrastructure and poverty.

To sum up: the reasons why we might believe meat consumption to be right or to be wrong are not simple. Farming involves more than just animals and the local environment and local consumers. Balancing the immediate and more indirect human needs, animal needs and ecosystem in a way that is fair is complex, especially when those debating the issues may have conflicting ethical views on the many issues concerned such as:

- what constitutes good welfare
- whether animals should be farmed at all, and
- whether animals need to be considered in the moral debate about consuming animal products.

In such debates, we may use scientific information to help us to understand the consequences of certain actions. For example, would changing a farming system make animals happier? Would they prefer one system to another? Would consumers pay more for that? What is the carbon footprint of free-range vs. intensively farmed meat?

A common assumption here is that science is objective and value-free. However, that is not so: subjectivity is part of the scientific method. For example, it influences whether we accept that qualitative measures may be valid, or only quantitative measures. It influences our interpretation of statistics and it also influences whether we think physical functioning, mental state or natural behaviour is the most important aspect of animal welfare.

Slide 16:

Broadly, we can say that, in terms of animal protection, there are two main views of farming and eating animals. One assumes that it is acceptable to kill them. This view also supports continual improvement in farming practices. The approach is grounded in a hybrid of ethical views, like the new social ethic, and it is reflected in quality assurance schemes and concern for animal welfare at the financial and political levels internationally. It has been called the 'animal welfare strategy' and it is currently prevalent worldwide.

The second approach does not assume that it is acceptable to farm or to kill animals. Here the assumption is that animals have inherent value and this calls for veganism.

However, note that wider ethical views are needed when we consider the sustainability of consumption of meat. That is an important issue for us as vets, and as citizens, because of its complex effects on human health, economics, ecosystem health, etc. Abolitionist answers do not seem adequate for the current reality of cultures and human existence globally. However, further discussion of the topic overall is beyond the scope of this lecture.

Slide 17:

That brief overview of the complex ethical concerns around meat consumption introduces the wider issue of the impact of our actions on the environment, both locally and globally.

Environmental ethics is a separate and broader field than animal use ethics, but we will touch on it here.

The first way of looking at environmental ethics is a human-centred view. In this view, only humans have intrinsic moral worth. All other species have moral worth according to their utility to humans.

In this view of ethics, we must not cut down the rainforest in order to grow soy or cereals to feed farm animals, because doing so might cause soil erosion which leads to flooding, Also, the forest contains plants which may cure human diseases or provide a habitat for indigenous people. You may recognise this as the contractarian view.

Slide 18:

Sentience-centred ethics extends intrinsic moral worth beyond humans to all sentient animals (those with the capacity to have feelings). In this view, it could be wrong to cut down the rainforest to feed farmed animals because it provides a habitat for many sentient creatures, which might include indigenous people, and also snakes, birds and primates. This is a utilitarian view.

Many environmentalists would claim that this is an insufficient extension of traditional ethics, as it denies moral consideration to most of the living world, which may not necessarily be sentient, yet which is part of an interrelated system of life that is necessary for the survival of sentient beings.

An alternative view is that of 'life-centred ethics' or 'biocentric' ethics. In this view, all living things, including non-sentient things such as plants, are granted intrinsic moral worth. Albert Schweitzer was an early proponent of this type of ethics, arguing that we ought to adopt an attitude of 'reverence for life'. Even though plants cannot have welfare, things may still go badly or well for them, so some people consider that they have interests which should be respected.

Slide 19:

An extended, holistic view of the world is the idea of 'environment-centred' ethics, or 'eco-centric' ethics. This ethic attempts to grant intrinsic moral consideration not just to living things, but to groups of living things, such as species and ecosystems. One proponent of this line of thought, Aldo Leopold, stated that 'a thing is right ... when it tends to preserve the integrity, stability and beauty of the biotic community'.

Eco-centric ethics therefore encompasses respect for biodiversity and provides one explanation for our concern when a species becomes extinct, especially when that happens as a direct or indirect result of human practices such as those related to livestock farming and meat consumption.

Slide 20:

You can see that this wide ethical approach is different from the narrow focus of most of the ethical theories of animal use that we are considering today. There are four principal differences between most animal use ethics and eco-centric ethics:

- Animal ethics tends to be very concerned with the lives of captive or domestic animals, whereas environmental ethics may have little to say about these unless the species concerned is endangered or the practice impinges on the environment.
- Animal ethics tends to be sentience-centred, so concern for plants, rivers and ecosystems is only of concern in as much as it affects sentient animals.
- Animal ethics focuses on minimising pain or death, whereas environmental ethics often views these as essential elements of nature. Environmental ethics is more concerned with species extinction and the destruction of ecosystems.
- Animal ethics focuses more on the welfare of individuals, whereas environmental ethics tends to focus on systems and structures. Therefore some environmentalists would be willing to sacrifice individual wellbeing in order to preserve the system. Indeed, it is possible to be concerned only about the 'wholes' such as species and not at all about the individuals of which the species is composed. For example, some hunters and anglers (or population control officers) might have these types of concerns.

Slide 21:

Having talked about farming, we will move to the question of controlling infectious diseases in farm animals and others.

There are a number of infectious diseases that are highly contagious and may also be zoonotic. Examples are foot and mouth disease, swine vesicular disease, equine infectious anaemia and rabies. With the global nature of transportation (of feed, food, animals, and other disease-carrying vectors), and personal travel by air in particular, these diseases can easily be spread between countries and they can profoundly disrupt national economies and human wellbeing. Consequently, for economic purposes and to protect their export markets and

tourism, countries may operate a policy of slaughtering all animals within a given distance of known cases, sometimes testing for the disease first so that only infected individuals may be removed.

However, for highly contagious diseases, the entire herd including healthy animals may be slaughtered without testing.

For such diseases, the scope of the slaughter may need to be wide, based on models of disease spread, local wind forecasts, etc. For example: in 2001, when there was an outbreak of foot and mouth disease in the UK, nine million animals were slaughtered on farms and their carcasses were burned. This decision was made because the disease is highly contagious and causes high morbidity with a huge drop in production, which devastates the local economy, as well as preventing any export of animals and their products.

This culling of healthy animals caused immense distress across the nation, and the vets and other personnel who were involved were deeply affected. There was widespread doubt in some quarters that it was the right response to the disease (perhaps vaccination might have been a better response for the animals and their caregivers, while still protecting the economy?). However, vaccination would then have to be an ongoing national strategy and long-term expense, and the country would lose its valuable status, in the export and even tourist markets, of being an island that is entirely free of foot and mouth disease. The ethical arguments relating to that case are shown on the slide.

The contractarian view that you are now familiar with is 'consequentialist'. Under this theory, the only considerations are the costs and benefits to people. Therefore, large-scale culling is not a concern if it benefits people overall. However, if culling causes a lot of public distress which may adversely affect business in the long term, and, for example, reduce tourism, vaccination might be preferable even though it might be more expensive.

The utilitarian view need not be against culling as, although foot and mouth disease is not necessarily fatal for livestock, it causes high morbidity and a lot of suffering from lesions on the feet and in the mouth, and associated weakness and potential susceptibility to other infections. So slaughter before becoming ill is acceptable, especially because it would be difficult for farmers to afford the cost and care of many affected animals. Therefore, for human benefit as well, culling may be the best way to prevent suffering.

A proponent of utilitarian theory could also support vaccination. However, the long-term economic cost of the production and ongoing use of vaccines, and the effect of now being a country where foot and mouth disease is endemic, could adversely affect export status and income from exports, which might reduce the overall human benefit.

Animal rights theory is abolitionist regarding farming. However, under the circumstances of foot and mouth disease, the logical rights view would be to minimise the number of animals culled.

Relational ethics also permits culling because slaughter is part of the relationship. However, culling of the entire herd is deeply distressing to each farmer and not part of the mutually advantageous relationship, when vaccination is also a possibility, so a relational approach would wish to minimise culling.

Slide 22:

A very different example of the control of diseases concerns the control of wildlife such as rats, who may spread serious zoonotic diseases such as rabies, typhus and leptospirosis.

Rats are a highly adaptable and intelligent species, used widely in research and as pets. However, the wild species are feared and disliked and methods of their control have not been widely scrutinised ethically. Although most of us do not consciously subscribe to a hierarchical chain of being with humans at the top and all other species in a chain below us, starting with the most conscious and desirable and ending with the least, that is how some people view animals. Therefore, in Western cultures and most others in the world, rats are liked much less than dogs or horses or monkeys. (However, where stray dogs are a problem around the world, they may be feared and disliked as much as rats are.)

Wild rats are typically killed by laying poison, commonly agents that interfere with blood coagulation, such as warfarin and coumarin. They cause death by haemorrhage, typically over some hours or days. The death is thought to be painful because of haemorrhage into the joints and spleen, for example. The poison is typically put in grain that is coloured blue, so that people can recognise it, and this helps people to prevent their children and pets from eating the poison.

Sticky glue pads are also used to kill rats (they prevent the animal from getting away) and they then die from starvation, dehydration and exhaustion.

Applying our ethical theories:

- the contractarian will be not concerned about the rats' experience and will favour the cheapest, easiest, and most effective method that poses the lowest risk to people
- the utilitarian will be concerned about the rats suffering under both methods, but will also have to weigh up the risks and benefits to people, and would want research into which method is more humane.

According to animal rights philosophy, we are allowed to kill animals in self-defence. However, because each individual has inherent worth, rights theories do not allow the general rule that it is always acceptable to kill wild rats. Each case would have to be proved, including that there was no better way of protecting people such that it was necessary to kill the rats. For example, inspecting the house and ensuring all possible entry points for rats were blocked might be the first step.

The relational theories cannot help much, as wild rats are not welcomed into our houses and do not offer us a known return so there is no mutual relationship there. Therefore killing the rats by any means is acceptable and may be necessary to protect those animals with whom we do have a relationship, e.g. so that our dog or cow does not contract leptospirosis. A humane method is desirable, with care taken that a poisoned rat is not eaten by any of our own animals.

Respect for nature also does not present an easy solution: on the one hand, individuals are less important than the species, and rats are prolific and adaptable. However, the killing is not being done for the benefit of the species, and represents an attack on a wild-living species. Moreover, rats who are poisoned may be eaten by other wildlife. If that species is endangered, the death from eating the poisoned rat would be a great harm.

Slide 23:

Before we leave this consideration of wild rats, note that the tendency not to give the methods of controlling them the same moral status as we would the euthanasia of a pet rat or of a monkey differs from the idea of 'equal consideration of interests' discussed in Module 4.

Whereas equal consideration suggests that a similar interest deserves equal moral attention, no matter what species of animal is concerned (so equal pain in a fish or horse or human deserves equal consideration), the sliding scale devalues all animals' interests on the basis of species membership.

Slide 24:

You should now have a clearer understanding of how different ethical theories of animal use apply to real, topical ethical questions. We shall next look at the ethical issues around the use of animals in research.

Module 19 examines the welfare of laboratory animals. When we think of that, we typically think of medical research, which has the goal of improving human health. However, veterinary research also requires the use of laboratory animals. In addition, animals are also used to test the safety of new household products and cosmetics. You will see in Module 28 on human conflict that animals may also be used in research on aspects of weaponry and the injuries that they cause.

Given the range of uses for animals in the laboratory, and the purposes of this, you can imagine that our ethical theories may not always agree in this area either. An additional factor in our relative ethical concern is the preference that many people have for, say, dogs over rats and mice and for chimpanzees over fish, as we have seen in the sliding scale of moral concern mentioned previously.

Taking each theory in general, the slide outlines the position of each one.

- The contractarian is concerned only with human feelings: high standards of laboratory animal welfare may be set in order to allow the public and those working with the animals to have maximum peace of mind. However, the standards should also permit all necessary research so that humankind can benefit maximally from the knowledge.
- The utilitarian pays very close attention to the animal's welfare under the principle of equal consideration of equal interests for each animal. So, fish deserve as much environmental enrichment or pain relief, appropriate to them, as a chimpanzee does. Also, in the utilitarian view, everything must be done to minimise the use of animals in research. This is summed up in the principle of the '3Rs' which refer to:

- replace: where possible, rather than use animals in research, you use a non-sentient alternative. For example, you use tissue culture to study the effects of drugs on cells
- reduce: here the number of live animals needed is minimised, by e.g. appropriate study design, and use of inbred lines of mice with minimal genetic variation. However note that inbreeding may create bias in certain studies
- refine, so that you stop an experiment when the animal starts to show symptoms caused by, e.g. an induced fatal infection or a toxic drug, rather than letting them become sick and die.

However, this utilitarian humane approach is not completely satisfactory because the wider concern is that, for much medical research, the benefit to people is unknown or unclear at the start and is hardly ever immediate. Therefore, Peter Singer would argue that experiments on animals do not satisfy the criterion of clearly benefitting people much more than they burden the animals.

A further difficulty is how exactly we weigh up the burdens carried by the experimental animals (e.g. restricted housing, fear, pain) against the benefits to people.

- Rights theory is more radical here. Animal rights theory assesses the issue simply by asking if experimentation respects the animal's rights and preserves his/her dignity. As animals' intrinsic value gives them the right not to be killed and not to be used as a means to an end, this means no experimentation is permissible on animals, for any reason. So, there can be no animal testing even if any harm they suffer is very minor and the benefits to other people or animals could be immense. However, Sandøe and Christiansen (2008) argue that perhaps a moderate rights view might be applied in some cases. Therefore, animals would have the right to be protected from certain uses, e.g. those causing extreme pain, even if they benefit people, but other experiments would be possible.

The other ethical theories are not usually invoked in discussions of research ethics. A relational view might permit experiments as a variation on the contract of mutual benefit between the animals and their caregivers. However, the contract might fail, because it is not clear who the primary human contractor is: is it the technician who feeds and looks after the animal, the researcher who may only use some animals briefly, after which they are handed over to other researchers, or possibly the general public or others who are funding the research?

The 'respect for nature' view would probably take most issue with the genetic uniformity of laboratory animals such as mice, rats and beagles.

As you know, laboratory research on animals is very contentious. Sandøe and Christiansen point out that, in pluralist societies, compromise is normal and necessary, and could be applied in the case of animal experimentation. They suggest a policy which is a compromise between all three viewpoints, and note that such compromises are prevalent in Europe, North America and Australasia.

Slide 25:

Broadly, the compromise policy has three elements:

1. The research question must be of vital importance.
2. There is no other way to study the issue except by using animals.
3. The animals should not have to suffer more than the experiment requires. For example, they should have enriched housing unless that would confound the results.

The authors point out that the three main ethical positions we have discussed could all accept this, as follows:

- Contractarians would be content because this would reduce public concern over unnecessary use of animals in research.
- Utilitarians might accept it because it focuses on maximising benefits or minimising harm. However, they could have concerns because the animals' interest such as, in our example, environmental enrichment is not given equal consideration to the human interest in the scientific findings.
- Rights: the abolitionists would not find the compromise acceptable because it still involves using animals as a means to an end. However, a moderate rights view might find it acceptable especially if research that caused prolonged or severe suffering was not permitted except in rare circumstances.

If we follow the utilitarian perspective, which is perhaps the commonest one, to guide us in accepting laboratory research, Peter Singer has pointed out that we cannot know at the outset that the research will be of vital importance, such that the benefits will ultimately be significant when compared to the costs to the animals.

For example, medical (and veterinary) research usually involves a prolonged sequence of studies starting with basic science studies, and proceeding to toxicity studies and then clinical studies. Each study builds on the results of the preceding one. Until most of them have been carried out, it cannot be certain that the research will be very beneficial in the so-called 'real world'.

A further point is that a significant proportion of commercial pharmaceutical research is not essential for human or animal good, in that it does not provide significantly more beneficial treatments than those that are already on the market. For example, there is no appreciable difference in safety and efficacy between most of the newer generation veterinary non-steroidal anti-inflammatory drugs (NSAIDs) that are currently on the market in many countries, such as meloxicam, carprofen and many others. However, the licensing of each one would have included basic toxicity and pharmacokinetic studies on laboratory rodents and dogs and cats.

Similarly with the development of vaccines against common veterinary pathogens, the free market encourages competing formulations of these medicines. There is relatively little additional benefit to the domestic animals needing vaccination, yet there are several different

brands of the same vaccine. This is not all bad by any means: competition in the market helps to reduce prices, and freedom of choice is an important aspect of many economies. Moreover, the market niche for a variety of vaccines or NSAIDs enables the companies concerned to make profits, which can then be passed on to shareholders, many of whom are investing in the companies as a way to grow their pension funds so that they can eventually retire.

Moving on to other concerns about the real importance of laboratory research: In the case of human medical research, some of the conditions in question are not life-threatening, e.g. baldness in men, myopia, or diseases that are caused by individuals' lifestyle choices, such as smoking.

A further problem in using animals in human medical research is that data derived from laboratory animals may not predict the action of the drugs in people.

These points are not meant to persuade you against the use of laboratory animals in research. They are simply facts that we need to incorporate into our ethical decision-making.

Slide 26:

To sum up what we have covered so far, we have seen four examples of animal use that are a common cause of ethical concern, and we have outlined the five main ethical positions in each case.

In doing this, we have uncovered some limitations and challenges in different theories.

When we considered the breeding of dogs, and then of broiler chickens with known heritable defects or predispositions to disease, we ran into the problem of 'non-identity' where having the genetic problems did not necessarily make those individuals worse off. However, our five theories all agreed that the breeding of such animals was problematic, albeit for different reasons, and better policies should be enacted.

We then considered the issue of eating animals, and this led us to wider ethical considerations and the concept of environmental ethics. We saw that animal ethics and environmental ethics differ quite markedly because animal ethics is predicated on concern for sentient beings, whereas environmental ethics includes non-sentient life and minerals as all having moral worth.

Next, we looked at the problem of controlling infectious disease in farm animals, and the spread of zoonotic diseases by wildlife such as rats. This reminded us of human bias towards certain categories of animal, independent of their sentience or other morally relevant attributes.

Last, we explored the complex issues of laboratory research, whether for human or primarily veterinary purposes. This introduced the concept of the '3Rs' and the problem that animals may be used in research which is not a major benefit to human or veterinary medicine.

In each example, we applied the main ethical theories in a very general and theoretical way. This is important because it helps us to understand the complexity of issues, and the reasons why people who all are concerned about animals may reach the same conclusion for very different reasons, or may not agree about the right course of action.

However, none of this is enough, perhaps, when we are vets in practice dealing with specific ethical challenges. Then we will need a more detailed framework, as we will have to make a real decision about how to act in a particular case. Our arguments are no longer purely intellectual exercises.

We shall end this lecture by introducing you to two approaches that you could use in practice when faced with ethical dilemmas (complex situations that require a difficult decision to be made, because no one solution is entirely satisfactory to all parties concerned).

Slide 27:

One approach to try to evaluate ethical problems with animals is an 'ethical matrix'. In the matrix, different ethical theories are represented by rows and the viewpoints of the different parties to the ethical problem in columns. The intersection of each column and row then represents a different dimension of the ethical problem. As many columns and rows can be added as ethical theories, principles or parties to the problem are identified. The matrix may not enable a solution to the problem, but helps us to explore all its different aspects.

The example given on the slide considers the use of the cattle growth hormone bovine somatotropin (BST; also known as bovine growth hormone, BGH) to stimulate more milk production in dairy cows.

In utilitarianism, the cow is concerned with maximising her own welfare, the consumers are interested in the availability of safe food, and the producer is concerned with income and working conditions.

BST predisposes cows to mastitis and to metabolic exhaustion. So, using BST fails to maximise good and minimise harm for a cow. From the consumer's point of view, any health effects of milk from BST-treated milk could be identified, as well as the effect on the price and supply of milk. What effect will BST have on the farmer? Does its use threaten the farmer's health in any way? Would he or she be better off if he or she used it? Other issues for the consumer are that the milk must be safe for them to drink (it is), and whether the farmer and the farmer's staff were benefitting adequately from using the drug.

Under autonomy, the cow would be concerned with having the freedom to express her natural behaviour, the consumer would want total freedom of choice in buying products, while the producer would want the freedom to adopt certain practices or not.

Increased milk production is associated with a very large udder which may cause discomfort, making it harder to walk and more difficult for the cow to lie down and stand up. Would consumers know that milk had been produced in this way? Could they avoid it if they wished? Would it be labelled? Are alternatives available? What pressure for or against its use is the farmer under (e.g. economic or legislation, respectively)? Here, for consumers, labelling is necessary for autonomy, and for farmers the freedom to use the drug or not is important too.

Given all the benefits and risks identified by the preceding rows, under 'fairness or justice', we can attempt to see if they are borne equally among the parties. Are all the risks (e.g. farmer's income, cow welfare, consumer information) shared equally, or is the animal bearing all the costs while all the benefits are received by the farmer and the consumer?

Similarly, we can ask whether all consumers and farmers are affected similarly, or do some bear unfair costs?

This example demonstrates that although the matrix does not solve our problem, it can be used to raise questions about many aspects of the problem for each of the parties concerned. That way, we can avoid allowing unconscious biases such as our personal ethical view, or a sliding scale of moral concern, impede a full and fair consideration of each party's interests.

You can find the ethical matrix online at www.ethicalmatrix.net/

Slide 28:

The second approach follows a six-point framework in sequence. The 2012 reference on the slide provides a detailed example of using the framework, and the ethical matrix, in a practical situation, namely the surgical alteration of a horse's tail for showing purposes (i.e. for cosmetic reasons only).

In addition, Module 32, on the role of the vet, goes into the use of this framework in detail.

Briefly, the first step is to identify all the possible courses of action. If a possible course of action is missed out at this stage, you will not be able to consider its potential merits. This first step is a factual exercise only: no moral value is placed on any of the courses of action at this stage. You will use moral values later to decide on the best course of action.

The animal, owner and vet will all have an interest in the ethical dilemma. The animal is the only one who cannot speak for him/herself. The vet's role is to safeguard the animal's welfare and to represent the animal's point of view.

Having established the treatment options, and the interests of all the parties, and clarified your responsibilities as the vet, and the owner's responsibilities, the next stage is to identify the ethical issues and decide which one is most important. It is assumed that vets will act both lawfully and within a professional policy, if one exists.

Use a logical ethical theory in order to choose a particular course of action. Different ethical theories may be appropriate for different situations and if you know which one you are using, the reasons for your choice of action will be clear. This is useful for your own peace of mind, and if the owner or any authority later questioned whether you had made a good decision.

Once you have decided on your course of action logically, using ethical theory, there may be ways to reduce any harm caused by that situation. This might include using a better analgesic regime, or providing follow-up for the farmer to address any doubts or second thoughts that he or she may have after consenting to let you take the recommended action. Essentially, you are refining the welfare impact of the decision on all parties.

Slide 29:

This brings us to the end of our second lecture introducing you to the interaction of ethics and animal use.

You can see that the questions under discussion are complex, and you can understand why the subtleties of the logic, and conflicting conclusions that the logic may result in, may lead people to trivialise ethical reasoning as 'just subjective' or 'just preferences'. However, you now know from these lectures that ethical theories provide a logical set of reasons that underpin people's views about how we should act towards animals.