

POSTGRADUATE TEACHING IN FARM ANIMAL WELFARE AND ETHICS

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Final acceptance: 10 June 1996

Abstract

Animal Welfare 1997, 6: 105-121

A survey was performed in the Spring of 1995 to map postgraduate education world-wide in animal welfare and ethics. Twenty-one universities in ten countries on three continents were identified, that either offered, or had definite plans to start, postgraduate courses relating to animal welfare and/or ethics. Of these universities nine were European, one Australian, one New Zealand, one Canadian and nine were American. In Australia, Canada and the United States courses are given during a semester or quarter of a semester, while in Europe short but concentrated courses or seminars are more common, with several of them aimed at practising veterinarians rather than at postgraduate students. Interest in the subject of animal welfare and ethics seems to be increasing. Many of the existing courses were started during recent years, and two of the most comprehensive programmes offered were started in 1995. Also, four chairs in animal welfare were recently established or were advertised in Europe at the time of this survey. One chair had been established in 1994, in New Zealand, one was to be advertised in the United States and one in Canada. Another trend is towards the establishment of 'centres' for the study of animal welfare issues. Associated with these new chairs and centres, educational programmes will probably be started. Few of the present courses focus mainly on farm animal issues, instead they cover a large spectrum of the human-animal relationship. Ethics is a minor part of the courses as compared to the science and animal welfare components.

Keywords: *animal welfare, ethics, farm animals, postgraduate education*

Introduction

Farm animal husbandry in Western countries has, during the last four decades, become much more intensive and more industrialized. Farm units and herds have increased in size and the time each farmer spends per animal has become much less. In many cases farms have specialized in just one species of production-animal and often in only one age-group within that species (Ekesbo 1973). The environment of farm animals has changed considerably since new housing and management techniques have been introduced over time. Advanced breeding techniques have partly changed the genetic constitution of animals, or have the potential to do so in the near future. All this raises new possibilities, as well as dangers, for the welfare of farm animals (Ekesbo 1994).

Thus, contemporary animal husbandry raises many questions which not only relate to the welfare of animals, but also to the moral standards of society and the individual. Many of

the issues raised today about animal husbandry and welfare relate to ethical decisions about the value of farm animals in comparison to human interests. Therefore, it is important to include the study of ethics with the study of animal welfare.

Aim of study

The aim of this study was to survey the number of postgraduate courses offered or planned in farm animal welfare and/or ethics at universities world-wide. It was also to gain an insight into the scope of each course including; its duration, academic level, literature covered, and information relating to the type of students at which the course is aimed. Courses concerning experimental or companion animals exclusively have not been included in this survey. The term 'farm animals', in this survey, refers to species which are commonly kept for agricultural production.

To achieve these objectives, a survey on postgraduate teaching in farm animal welfare and ethics at university level world-wide was carried out by the Department of Animal Hygiene, Faculty of Veterinary Sciences (now known as the Department of Animal Environment and Health), Swedish University of Agricultural Sciences. At this Department there has been a continuous interest in issues relating to farm animal welfare and ethics (Algers 1994) and we aim to extend the postgraduate course programme to include an advanced course in animal welfare and ethics. This survey was conducted as part of the preliminary work for this course.

Materials and methods

The survey was conducted during February to May 1995. Since the scientific community concerned with postgraduate education in animal welfare and/or ethics is rather small and can be fairly easily identified, the people addressed in this survey were generally found through word-of-mouth by other people with an interest in the field. A request was also sent out on the following e-mail networks: Applied-ethology@sask.usask.ca, arlist@um.cc.umich.edu, rat-talk@hearn.nic.surfnet.nl.

In total, about 60 people in 12 countries were contacted personally either by mail, fax, e-mail or telephone. The countries were: Australia, Austria, Canada, Denmark, Germany, Great Britain, The Netherlands, New Zealand, Norway, Sweden, Switzerland and the USA.

After collecting the material and preparing a report, the people supplying the information were given the opportunity to comment on the written text of the report or add additional information.

Results

Postgraduate courses

This survey identified nine European universities, one Australian, one New Zealand, one Canadian and nine American universities that either offer postgraduate courses relating to farm animal welfare and ethics, or have definite plans to do so in the near future. An overview of these courses is given in Table 1. Four of the addressed people did not reply, which was about 7 per cent of the total number of replies.

In Australia, Canada and the United States the courses took place during a semester or quarter of a semester, while in Europe short but concentrated courses or seminars were more

common, several of them aimed at practising veterinarians rather than at postgraduate students. Several of the interviewed persons at universities not presently offering this type of course on animal welfare, expressed a wish to start some kind of postgraduate education on animal welfare in the near future. About seven universities had started planning for such courses and four universities had actually started courses during 1995. In general, much interest was shown in the results of this survey, as a source of information for the preparatory work of such courses.

Two Master of Science degrees are offered in animal welfare, one at the University of Edinburgh, Scotland and one at Tufts University, Massachusetts, United States. These courses also include some ethics. At the South Australian Centre for Veterinary Studies, University of Adelaide, South Australia, animal welfare can be included as one of two required 'core subjects' in a MSc degree in veterinary studies.

Only one university, Colorado State University, USA, regularly offers postgraduate courses mainly focusing on the philosophical (ethical) aspects of animal welfare. A course started at Massey University, New Zealand, in 1996, is focusing on physiology related to animal welfare. The impression is that American courses usually cover a wide range of human-animal interactions while European courses often adopt a more narrow and more practically-oriented approach to animal welfare.

Very few courses, and none of the longer ones, deal only with the welfare of farm animals. This may be due to the fact that animal welfare groups were initially concerned with the welfare of laboratory animals and pet (companion) animals, whereas the issue of farm animal welfare (especially in the United States and in Australia) has only recently been the focus of public attention. All of the courses focusing on farm animal welfare issues are offered in Europe, and all of them are short courses/seminars lasting for a few days. The fact that there are no such courses offered in the USA might be explained by the small amount of legislation relating to the welfare of farm animals.

All courses offered are theoretical courses, but some include visits to, for example, abattoirs, farms or zoos. They are often multidisciplinary, with teachers from different faculties. Literature used varies and is usually a mixture of scientific articles and relevant books. One book used in many courses is *Animal Rights and Human Obligations* by P Singer and T Regan.

Europe

A few European universities regularly offer postgraduate courses in animal welfare and ethics. The MSc course offered at the University of Edinburgh in Applied Animal Behaviour and Animal Welfare was started in 1990. A 10-week course in animal welfare is also offered in connection with this course.

In England, the Royal College of Veterinary Surgeons established a certificate in Animal Welfare Science, Ethics and Law for veterinary surgeons, and a course to cover this syllabus commenced at the University of Cambridge in 1995. At the University of Bristol a number of short courses are offered to practising veterinarians. These courses focus on problems connected with abattoirs and transport of animals. At several English universities courses in animal welfare are offered to the veterinary students, who obtain their first degree after three years at university and their veterinary degree after another two or three years. Therefore, the animal welfare courses which are offered at these Universities are considered as

postgraduate courses. In some cases these courses can also be taken by other students, such as agricultural students.

In Germany, veterinary graduates can continue with specialized studies known as 'Weiterbildung'. This is an advanced education system attended voluntarily by students, which after an average of four years leads to a specialized degree, 'Fachtierarzt'. The conditions to acquire this degree are laid down by the Veterinary Chambers of the various 'Bundesländer' (States) and may, therefore, differ between different parts of the country. Since 1992 it has been possible to achieve a degree in animal welfare through this system. The conditions are that studies should include not only animal welfare issues but also animal welfare legislation and ethics, including ethics concerning the relationship between human and animal. There is also a programme of continuing education for all veterinarians in Germany ('Fortbildung'), consisting usually of seminars or short courses, and lasting for a few days. Many of these short courses cover subjects related to animal welfare issues (Rojahn personal communication 1995).

In Switzerland and Denmark, two-day short courses in animal welfare have been arranged for practising veterinarians and PhD students respectively. In both countries there are plans to organize more of these courses on a regular basis in the future. The University of Copenhagen organized a course in Bioethics for PhD students in 1994-95, corresponding to a quarter of a year of studies. It was arranged in connection with a project supported by the Danish Research Councils and there are no plans at present to repeat it.

In the Netherlands, a centre for animal welfare was recently established at Utrecht University, Utrecht. It is possible that postgraduate courses will be offered at this new centre.

In Sweden, postgraduate courses have been offered occasionally at the Swedish University of Agricultural Sciences, Department of Animal Environment and Health, Skara. An education programme is also held at this University for public health officers, who are responsible for the enforcement of animal welfare legislation in Sweden. There are plans to start an extended postgraduate course in animal welfare and ethics at this University in the future.

Australia and New Zealand

In Australia, an undergraduate course entitled 'Scientific and Ethical Bases of Animal Welfare' has been offered at Murdoch University, Western Australia, since 1988. Three other Australian universities have expressed an interest in this course, and from 1995 a course similar to the one at Murdoch University became part of a postgraduate veterinary course at the Centre for Veterinary Studies, University of Adelaide, South Australia. Animal welfare constitutes one of four core subjects offered at this Centre (the other subjects being Current Topics in Animal Disease, Reproductive Biology and Technology, and Animal Breeding and Genetics). Postgraduate training is offered at three levels: six-months study of one core subject and three elective subjects, is required for a graduate certificate in veterinary studies. Twelve-months study of two core subjects plus six elective subjects, is required for a postgraduate diploma and an additional six-month research project is required for a Master of Science degree.

In New Zealand, a course entitled 'Applied Physiology and Animal Welfare' started in 1996 as part of the Bachelor of Applied Science, Bachelor of Science and Master of Science

degrees. Animal welfare issues are discussed mainly from the angle of physiology, pain mechanisms and behaviour. The course, to some extent, introduces different philosophical orientations, and considers the role of scientists in setting societal guidelines regarding animal use.

United States and Canada

This survey identified one Canadian and nine American universities that offer postgraduate courses on animal welfare and ethics. Farm animal welfare makes up a minor part of the content of these courses. The courses covered by this survey include many types of human-animal relationships. That is, the course is not limited to one type of interaction between animals and humans, such as the use of animals in agriculture, but also includes the use of animals for experimentation and education, keeping of animals in zoos, as pets, for sports and hunting and in some cases even human interaction with wildlife. The courses also give a representation of the animal rights movement and their views, which may indicate the importance which this type of organization has in the American society. Some basic teaching in ethics is also a common feature of these courses.

Most of the courses are joint arrangements between faculties of veterinary and/or animal science and philosophy. The lectures take place during a semester or quarter of a semester. Many of the courses can be taken by final-year undergraduates as well as graduate students. There seems to be a substantial student interest in this type of course.

Some courses have been established since the early 1980's and in one case since 1978, but recently there has been an increase in the number of courses being offered. For example, Tufts University in Massachusetts offers a MSc course in 'Animals and Public Policy', which started in the Autumn of 1995. The Department of Animal Science at the University of California, Davis, will start a new course on 'Scientific Aspects of Animal Welfare' in the future. This course will complement the 40-hour course, 'Ethics in Animal Use', already offered. Washington State University traditionally has a strong emphasis on animal welfare issues and offers two courses on animal welfare and ethics that run for one semester each, and three courses on animal welfare related topics. Currently a 'Centre for the Study of Animal Well-Being' is being established at the University and the postgraduate education programme, concerning animal welfare issues, may expand further in connection with the establishment of this centre.

At the University of Guelph, Canada, a postgraduate course in 'Selected Topics in Animal Welfare' began in September 1996. It has an interesting interdisciplinary approach; the course is set up like a series of seminars, open for the entire University community of staff and students. Each semester a special topic is selected and faculty members from various departments, or invited lecturers, make presentations relating to the chosen topic. Students registered on the course must present a paper on the topic selected for the semester. For each student, the content of the presentation is established in discussions between the student, the student's supervisor and the course co-ordinator. For example, a student in philosophy might be required to elucidate the chosen topic in the light of a particular moral theory, a biology student to discuss it in the frame-work of evolution theory and a student in history to consider it against the background of social developments of a certain period, etc. These papers, together with the manuscripts from the lecturers' presentations, are compiled and published.

General interest in the subject of farm animal welfare and ethics

The overall impression gained from this survey is that there is a growing interest in the issue of animal welfare and ethics in Europe, Australia, New Zealand and in parts of the United States and Canada. This was also confirmed by the amount of interest shown in this survey. Several of the persons contacted expressed an interest in extending the postgraduate programmes of their universities to include or to extend education in farm animal welfare and ethics.

In the United States, the little legislation concerning farm animal welfare implies that it may be difficult to find a job after obtaining a degree in animal welfare and ethics. The same may also apply to many of the European countries (Ekesbo & Lund 1993, 1994). However, in places like California, the increasing interest by consumers about animal welfare has led to requests from trade and industry for people well-educated in animal welfare issues.

Europe

There are four new chairs being established in animal welfare in Europe, namely in The Netherlands, Denmark, Germany and Austria.

An interdisciplinary centre of animal welfare was recently established at Utrecht University, in The Netherlands. This centre is an interdisciplinary project involving the faculties of Veterinary Medicine, Biology and Medicine, and the Centre for Bioethics. A professor was nominated in 1995. In Denmark there are plans to establish a centre for animal ethics connected with the Royal Veterinary and Agricultural University of Copenhagen. In Germany, at the University of Giessen, a chair in 'Animal Welfare and Animal Protection' was advertised in 1995. There is also a relatively large interest shown by German veterinarians in the courses offered on animal welfare issues as part of the continued education programme. In Austria, a chair in animal welfare was advertised at the 'Institut für Tierhaltung und Tierschutz' at the University of Veterinary Medicine in Vienna (Littiz personal communication 1995). It can be anticipated that programmes for education in animal welfare will also be established in connection with these chairs.

At the University of Cambridge a chair in animal welfare has been established since 1986, and there are now more than 10 scientists involved in animal welfare related research at Cambridge.

Australia and New Zealand

In New Zealand, a chair in animal welfare was established in 1994 at Massey University. In Australia, the number of universities offering courses related to animal welfare are increasing and there 'seems little doubt that there is a national trend to provide students with a basic understanding of this area' (Johnson personal communication 1995).

United States

In the last few years the animal rights movement has become more active in issues concerning farm animal welfare, shifting its emphasis from laboratory animal issues. Farm animal related campaigns have increased public awareness (Shapiro personal communication 1995) and public interest seems to be greatest in eastern parts of the country and on the west coast. Other examples of a growing interest in farm animal welfare are the Massachusetts referendum campaign to pass a law on farm animal welfare (it failed) and the campaign to

ban the use of hot-iron face branding to mark cows (it succeeded) (Rowan personal communication 1995). At the University of California in Davis, California, an extension specialist is employed to provide free information on animal welfare issues to farmers, extension officers etc. This service is in heavy demand. The University is also extending its education programme as a result of increasing demand from Californian employers, requesting people educated in these issues (Price personal communication 1995).

Tufts University, School of Veterinary Medicine, Massachusetts, was the first University in the United States to establish a 'Center for Animals and Public Policy' in 1983. The centre is focused on a multidisciplinary approach to the study of animal related issues. (It started the MSc course in 'Animals and Public Policy' in the Autumn of 1995 as a result of growing demand.) About the same time Purdue University, Indiana, founded the 'Center for Applied Ethology and Human-Animal Interaction' to study the interdependency that exists among people, animals and the environment. In 1994, a 'Center for Research on Well-Being in Food Animals' was established, also at Purdue University. Among the primary goals of this course are to develop indicators of animal well-being and utilize these measures to improve understanding of how well-being may relate to behaviour, health and productivity of animals (Gustafsson 1996).

A 'Center for the study of Animal Well-Being' has been established at Washington State University as a co-operative effort between the College of Veterinary Medicine and the Department of Animal Sciences. It is financed through private endowments of US\$ 2.3 million and is hoped to be fully operational within the next few years. Additional funding will be generated from state and federal research grant sources. A chair in animal well-being science is to be established, and a faculty position (assistant or associate professor) in animal well-being was advertised in the Spring of 1995 (Gustafsson 1996).

Among other university initiatives specifically addressing animal-use related issues there is the Marie A. Morrow Professorship in Humane Ethics and Welfare at the School of Veterinary Medicine, University of Pennsylvania. The purpose of this programme is to help define the role of animals in society through study, discussion and basic research (Gustafsson 1996).

Also, in 1998 a quarterly scientific journal, *Journal of Applied Animal Welfare Science*, is to be introduced, farm animals being one of the four areas covered.

Canada

In Canada, the Centre for the Study of Animal Welfare was established at the University of Guelph in 1989. At this Centre, a postgraduate course in animal welfare was introduced in September 1996 because of growing demand. The existing undergraduate course was heavily over-subscribed (Duncan personal communication 1995). The Ontario Veterinary College at the same university established the first chair in animal welfare in 1992, and the University of British Columbia established the second chair in animal welfare science in Canada, in 1996.

Discussion

Coverage of courses offered

The ideal method of conducting this survey would have been to contact every university world-wide. This has, however, not been possible with the limited time and financial

resources available for this study. The survey therefore concentrated on countries where courses on animal welfare were likely to be found. Accordingly, the technique used for collecting information means that some courses of interest to the survey may have been overlooked. This applies especially to the United States where there are a large number of universities and colleges scattered around the country. Several of these might run courses of interest to this survey. As for Europe and Australia, the risk of overlooking some courses appears to be reduced, since there seems to be better contact between universities (in spite of the fact that in Europe these are located in different countries). Also, the persons concerned with the issues in question appear to be well-informed about what occurs in their own country as well as in neighbouring countries. In addition, many European universities include some teaching on farm animal welfare and ethics in their undergraduate courses in veterinary science and animal science. Animal welfare may also be included as a limited part (ranging from a few hours to days) of postgraduate courses in subjects such as, Animal Science or Veterinary Medicine. However, the method of data collection used in this survey probably managed to locate most of the major postgraduate courses offered which focus on farm animal welfare and ethics, although the four persons that did not reply is another source of uncertainty.

Therefore, it is concluded that this survey gives a good general view of the current situation in postgraduate animal welfare education and its development in the near future, although it has not been able to cover all courses at all universities world-wide.

Courses related to farm animals

Surprisingly few postgraduate courses are offered concerning animal welfare and ethics, and ever fewer relate mainly to farm animal welfare. This is especially surprising for the European universities, considering what a 'hot' issue animal welfare is among Western European consumers and consequently for politicians. It is in the interest of society in general, that politicians should be able to base their decisions about animal welfare issues on widespread scientific knowledge and find support from scientists and advisors educated in these issues.

It should also be of importance to provide students in veterinary and animal sciences with highly qualified teachers in the area of animal welfare. Veterinarians traditionally carry a responsibility for animal welfare, and since this is a growing concern for the public, it should also be addressed in the education of this profession. Today's students in animal science will create the animal husbandry of tomorrow and it is important that they are educated in the problems and possible solutions that relate to animal welfare and ethics.

It is also essential that the ethical component of animal welfare has a prominent role in these courses, since ethics based on scientific knowledge, rather than scientific knowledge alone, is the tool for deciding what should be considered as appropriate animal husbandry. When we have knowledge of how different treatments affect animals, then ethics provides the guidelines for how the relationship between man and animal can be improved.

Conclusions

Many universities seem to have noticed the increasing importance of the issue of farm animal welfare and ethics, and student interest also seems to be substantial. This survey has identified 21 universities in 10 countries on 3 continents that offer, or in the Spring of 1995

had concrete plans to start postgraduate courses relating to the issue of animal welfare. Many of the existing courses were started during the last few years, and two of the most comprehensive educations offered (at Cambridge and Tufts Universities) were started in 1995. It is anticipated that this trend will continue as, for example, there was much interest shown in this survey as a source of inspiration for planning future courses. Also, four chairs in animal welfare have been recently established or were advertised in Europe at the time of this survey. One chair was established in 1994 in New Zealand, one was to be advertised in the United States and one in Canada. Another trend is the establishment of 'centres' for the study of animal welfare issues. In connection with these chairs and centres, educational programmes in animal welfare will probably be started. From an animal welfare point of view this development is important. It should contribute to putting animal welfare on the agenda in these countries, as well as increasing our knowledge about animal welfare through more research activity.

However, few of the present courses focus mainly on farm animal issues. Also, ethics is a minor component in the courses as compared to the science and animal welfare components. It should be of importance when starting postgraduate courses focusing on farm animal welfare issues that ethics is also given a prominent role.

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Table 1 Universities offering, or planning to offer, courses in animal welfare and ethics in the spring of 1995. An overview of courses. (Empty space means that no comments were given in the survey).

University courses offered and/or planned and type of student at which course is aimed	Aim of course and subjects covered	Demand for course and comments
<i>Europe</i>		
<i>Denmark</i>		
<p>1. The Royal Veterinary and Agricultural University, Copenhagen</p> <p><i>Offered:</i> In December 1994 a two-day course in animal welfare and ethics was held for PhD students and other interested students.</p> <p><i>Planned:</i> A four-day course in animal welfare and ethics, offered once a year, with two parts: one basic part where a general ethical approach is made, and one applied part where the students apply ethical analysis to specific problems in today's animal husbandry.</p>		
<p>2. University of Copenhagen, Copenhagen</p> <p><i>Offered:</i> Course in bioethics for PhD students 1994-95, in connection with a project supported by the Danish Research Councils. Length of course: 20 days of lectures and 40 days of independent studies, in total 1/4 year of studies.</p> <p><i>Planned:</i> No more courses planned.</p>	<p><i>Aim of course:</i> To give students an introduction to bioethical problems and bioethical research in relation to philosophy, theology, medicine, gene technology, veterinary medicine and law.</p> <p><i>Course syllabus includes:</i> Bioethics in relation to gene technology • Philosophical bioethics • Bioethics in relation to human medicine • Bioethics in relation to law • Bioethical evaluation of technology • Animal ethics and welfare • Theological bioethics • Communicating bioethics</p>	
<p>3. Akademie für Tierärztliche Fortbildung (ATF)</p> <p><i>Offered:</i> A) Short courses or seminars as part of a programme for continued education.</p> <p>B) A specialized degree, 'Fachierarzt für Tierschutz', can be taken. This is a four year programme, which differs somewhat between the different states, but as a recommendation the participant should: - participate in 60 hours of specialized studies in animal welfare related courses or seminars offered in the programme for continued education; - present a thesis and publish a scientific article or have three scientific articles published.</p>	<p><i>Aim of course:</i> To secure a proper use, husbandry, care and nutrition of animals in relation to the species and the behaviour of the species, and including the animal welfare aspects of transportation, slaughter and killing, trade in animals and animal experimentation.</p> <p><i>Course syllabus includes:</i> Animal welfare legislation • Specific biology • Ethology • Animal welfare • Ethics • Housing • Animal hygiene, nutrition and care • Management • Transportation • Immobilization, slaughter and killing • Animal experimentation and alternatives • Physiology of pain and the prevention of pain and suffering • The ethics of animal-man relationships</p>	<p>The "Fachierarzt"-education is not institutionalized but credits for the course can be taken at different authorized institutions, also abroad.</p> <p>There is a relatively great interest in the subject among German veterinarians and the short courses and seminars on animal welfare issues are well-attended.</p>

<p>Great Britain</p> <p>4. University of Cambridge</p> <p><i>Offered:</i> A) A course is given to veterinary students in their fourth year of study: 14 hours of lectures plus videos. B) In 1994 the Royal College of Veterinary Surgeons approved a Certificate in Animal Welfare Science, Ethics and Law. Training for the certificate consists of a course of three different parts, each covering four days during which lectures are given. This time is spread over a period of nine months, with reading of literature in-between modules. The course is aimed at veterinary surgeons, qualified for at least three years.</p>	<p>B) <i>Aim of course:</i> To assist veterinary surgeons sitting the postgraduate Certificate in Animal Welfare, Ethics and Law. To inform others (not necessarily veterinary surgeons) who wish to learn more about these subjects.</p>	<p>The course started in January 1995 and there were 14 candidates.</p>
<p>5. University of Bristol</p> <p><i>Offered:</i> A number of short courses in further education are offered to practising veterinarians. The MSc course contains a module concerning welfare which can be taken separately. <i>Planned:</i> No more courses planned.</p>	<p>The MSc module concentrates on the humane aspects of handling of animals, especially at abattoirs and during transport.</p>	
<p>6. University of Edinburgh</p> <p><i>Offered:</i> A) MSc in Applied Animal Behaviour and Animal Welfare. Scheduled length of time: 9-12 months. The course is open for postgraduate students in biology, zoology, veterinary and agricultural sciences. B) A short course in animal welfare is offered for postgraduate students in disciplines related to biology. It requires 10 weeks of full-time studies and is preceded by some home studies.</p>	<p>A) <i>Aim of course:</i> To study the scientific assessment of animal welfare and to show how it can be applied in practical situations. <i>Course syllabus includes:</i> Animal behaviour • Neural basis of behaviour • Motivation • Cognition/welfare • Statistics • Transport, slaughter, stress • Environmental design • Philosophy/welfare • Pain • Animal welfare legislation • Companion animal problems • Human-animal interactions • Applied animal behaviour • Wildlife management • Pest control • Experimental experience B) <i>Aim of course:</i> To give an objective approach to problems associated with animal welfare, covering a variety of species.</p>	<p>A) 31 students attended 1993-94, 21 students attended 1994-95. Over 80 applications each year. The content of course modules may vary and all modules are not necessarily available every year.</p>
<p>The Netherlands</p> <p>7. Universiteit Utrecht</p> <p><i>Offered:</i> A one-year postgraduate course is organized for animal welfare officers at the Department of Laboratory Animal Sciences. (It does not deal specifically with farm animals.) <i>Planned:</i> Courses in animal welfare will be organized at the new Centre for Animal Welfare at Utrecht University, and the Department of Laboratory Animal Sciences.</p>		

<p>Sweden</p> <p>8. Swedish University of Agricultural Sciences</p> <p><i>Offered:</i> A) Occasionally short postgraduate courses have been offered (one or two weeks). B) A course for public health officers and veterinarians in animal welfare issues is given once a year.</p> <p><i>Planned:</i> To extend the postgraduate programme.</p>	<p>There is a great interest among students in animal welfare issues.</p>
<p>Switzerland</p> <p>9. Veterinary Faculties, Universities of Zürich and Bern, in co-operation with Federal Veterinary Office, Animal Welfare Division</p> <p><i>Offered:</i> In 1992 a course for veterinarians on animal welfare and legislation was arranged by the faculties of Veterinary Medicine at the universities of Bern and Zürich. At the Veterinary Faculty, University of Bern, a 15-hour course for students is also given.</p> <p><i>Planned:</i> This course was repeated in 1996, and after that will hopefully repeat every two or three years. In Zürich a reform of student education is presently being conducted. The education programme on animal welfare was expanded in 1996.</p>	
<p>Australia and New Zealand</p>	
<p>Australia</p> <p>10. South Australian Centre of Veterinary Studies, University of Adelaide, South Australia</p> <p><i>Offered:</i> Animal welfare is offered as one of four 'core subjects'. Postgraduate training is offered at three levels: 1) Graduate certificate in Veterinary studies. Six months of study; one core subject and three elective subjects required. 2) Postgraduate diploma in Veterinary studies. Twelve months of study; two core subjects and six elective subjects required. 3) Masters degree in Veterinary studies. Eighteen months of study; two core subjects, six elective subjects plus research project required. The course includes 26 lectures and 52 hours of tutorials/practicals. It is aimed at postgraduate veterinary students but also graduates in other related disciplines.</p>	<p>The centre is a new postgraduate veterinary training institution with first student intake in 1995. Since it is a new course the interest for the course is small. It will be offered by correspondence in 1996.</p>

<p>New Zealand 11. Massey University</p> <p><i>Offered:</i> In 1996 a course in 'Applied Physiology and Animal Welfare' was given as part of the Bachelor of Applied Science and Bachelor of Science degrees and Master of Science degree.</p>	<p><i>Aim of course:</i> To illustrate the practical value or usefulness of physiology as a science; to show how physiological knowledge and practice contribute to enhancing animal welfare. To present physiology in an integrated fashion. To provide an understanding of animal welfare issues in farming and wildlife management. To help develop life skills, eg logical analysis of situations and problem solving abilities.</p> <p><i>Course syllabus includes:</i> Pain and pain mechanisms • Recognizing and minimizing suffering • Care and management of livestock • Diagnosis and treatment of some disorders in animals and people • Brain death and unconsciousness • Methods for humane destruction of animals • Value judgements about welfare or suffering • Philosophical orientations • Responsibilities and involvement of scientists in setting societal norms and the uses of scientific knowledge involving animals.</p>	<p>The demand for the present lectures on animal welfare is generally good.</p>
<p>Canada</p>		
<p>Ontario 12. University of Guelph</p> <p><i>Offered:</i> 'Selected Topics in Animal Welfare', 13 lecture hours during the Autumn semester (13 weeks), started in September 1996. The course is organized as an introductory lecture plus six two-hour lectures, presented as a seminar series by the Centre for the Study of Animal Welfare. The lectures are open to the entire University community. Students are required to write a paper on the topic chosen for the semester. Their papers and the lecturers' text are compiled and made available for the public. The course is open to graduate students from any department.</p>	<p>The course provides an interdisciplinary forum for the discussion of topics in animal welfare. Selected topics will be analysed in depth with input from various disciplines such as animal science, biology, philosophy, psychology and economics.</p> <p><i>Aim of course:</i> To provide students with information from the various disciplines that apply to the study of animal welfare and to foster a comprehensive understanding of selected topics in animal welfare. To foster contacts among facilities associated with the Centre for the Study of Animal Welfare, to increase awareness of animal welfare problems and solutions among the University Community, and to publish a series of proceedings.</p> <p><i>Course syllabus includes:</i> Ethological, biological, ethical, economical and veterinary aspects of topics (one per semester).</p>	<p>There is an undergraduate course offered, 'Animal Care and Behaviour'. The postgraduate course was started as the undergraduate course is very over-subscribed. There is a great general interest in animal welfare issues at the University.</p>

United States	
California	
13. University of California, Davis	
<i>Offered:</i> 'Ethics of animal use', 40-hour course during one quarter of a semester (10 weeks) taught once a year. Offered to both graduate and final year undergraduate students. A course of similar length focusing on animal welfare, 'Scientific Aspects of Animal Welfare', started in 1996.	The course has an emphasis on philosophical issues. <i>Course syllabus includes:</i> Definition of moral good • Animal care on campus • Animals in agriculture • Animal use in research • Animal use in teaching • Companion animals • Wildlife stewardship • Pet over-population • Evaluating your own work with animals.
Colorado	
14. Colorado State University	
<i>Offered:</i> A) 15 hour course, 'Ethical and Conceptual Problems in Veterinary Medicine', (runs for 15 weeks, one hour/week), for postgraduate veterinary students, offered since 1978. B) 45 hours course, 'Ethical Issues in Animal Science - Animal Welfare and Animal Agriculture' (runs for 15 weeks, 3 hours per week), for undergraduate and postgraduate agriculture students, offered since 1980.	A) <i>Aim of course:</i> To expose students to the nature of ethics, the emerging social ethic for animals, and how this ethic applies to various problems in their fields. <i>Course syllabus includes:</i> Historical and social background • The nature of ethics and philosophy • Ethical dilemmas and ethical decisions • The legal status of animals today • Animal research • Pain and suffering • Welfare and behaviour • Maximizing the interest of agricultural animals • Can animal welfare be researched?, Problems in beef, pork, dairy, etc.
Maryland	
15. University of Maryland	
<i>Offered:</i> Course in animal welfare, offered to upper-level undergraduates and graduate students in any discipline. Length of course: 40 one-hour class periods during one semester, taught once per academic year.	<i>Aim of course:</i> To present the varying viewpoints concerning the extent of human responsibilities toward animals and how those responsibilities should best be carried out, with particular reference to scientific evidence about the capabilities and appropriate treatment of animals. <i>Course syllabus includes:</i> History of attitudes toward animals • Animal welfare and animal rights • Contemporary use of animals and legislation • What are animals? • Scientific assessment of welfare: behaviour • Animal agriculture • Companion animals • Wildlife/zoo animals
	The present course is very popular and taken by 175 students. The 1996 course will be started as a result of increasing demand. The content of the 1996 course will be similar to the one now offered in Maryland.
	The veterinary course is compulsory and very popular. For the agricultural course 100 students are turned away every time it is taught.
	20-40 students were enrolled during 1993/1994 which is the maximum number that can be accommodated due to the discussion format used in the course.

<p>Massachusetts 16. Tufts University, School of Veterinary Medicine <i>Offered:</i> MSc course in 'Animals and Public Policy'. The course is expected to take 12-15 months to complete.</p> <p><i>Course syllabus includes three core courses:</i> 1) Animals and society - a general survey course that examines all aspects of human-animal interactions (history, companion animals, research animals, farm animals, wild animals, the animal protection movement, the physical and mental health impact of animals, animals as metaphors and symbols) and public policy aspects of those interactions. 2) Quantitative methods and reasoning - an introduction to basic statistical methods and survey approaches and their application in the areas of epidemiology, policy analysis and planning, as well as an introduction to psychometric attitude scales. 3) Qualitative methods - an introduction to the scholarly approaches employed in anthropology, history, some branches of sociology, philosophy and other disciplines and how one might determine good scholarship from bad.</p>	<p>60-80 students attend the course per year.</p>
<p>Minnesota 17. University of Minnesota <i>Offered:</i> A course is given for a quarter of a semester (10 sessions) entitled: 'Perspectives: interrelationships of people and animals in society today'.</p> <p><i>Aim of course:</i> To provide a foundation of knowledge about the interrelationships of people and animals which will help develop critical thinking about and evaluation of the complex human-animal relationships. To enable the student to critically analyse his/her own relationships with animals and that of others.</p> <p><i>Course syllabus includes:</i> What is the human-animal bond? • Ethical issues - welfare, rights, responsibilities, benefits/costs • Animals helping people • Animals and plants for food, biomedical research, clothing, shelter, well-being • How to have a better pet using natural behaviour etc • Between people and wildlife, raptors and wolves • Pet loss - grief and bereavement reactions of children/adults • Conservation biology - the new role of zoos • People, animals, plants, environment: where do we go in the future?</p>	

<p>Ohio</p> <p>18. Ohio State University</p> <p><i>Offered:</i> 'Issues Concerning the Use of Animals by Humans', 5 hours per week (50 hours in total), taught over four quarters of a semester each year.</p>	<p><i>Aim of course:</i> A) To develop an understanding of the historical, biological, ethical, nutritional and economic issues surrounding the use of animals to meet human needs. B) To provide students with an opportunity to bring their experiences to a common focus on the issue of using animals to meet human needs and desires.</p> <p><i>Course syllabus includes:</i> Historical review of use of animals • Review of animal welfare and animal rights • Animals in world food production • Involvement of animals in US food production • Non-food uses of animals • Intensive animal production • Foundation of ethics • Animal concern groups • Theological perspectives on use of animals for research and food • Controversial animal practices • Keeping animals in zoos • Use of animals in research; control of animal research • Pets and pet keeping • Human nutrition principles; vegetarians • Animal products/human diseases • Food borne infections from animal products • Hormones in animal production • Government agencies responsible for food safety.</p>
<p>Tennessee</p> <p>19. East Tennessee State University, College of Arts and Sciences</p> <p><i>Offered:</i> 'Animal Rights?' 31 classes of lecture/discussion during one semester. Food animals make up only a minor part of the course, this topic being discussed for about three weeks of the course.</p> <p><i>Planned:</i> No more courses planned</p>	<p><i>Aim of course:</i> To break down barriers to communication and to increase each side's understanding of the issue (animal liberationists and animal researchers). The discussion of animal experimentation is put into the larger framework of questions about the treatment of animals, eg the uses of animals in zoos and as pets.</p> <p><i>Course syllabus includes:</i> Historical views of animals • Contemporary views of animals • Intensive farming • Diet and nutrition • Ecological impact of/on animals • Hunting and furs • Other uses of animals: zoos, rodeos, circuses, pets • Pain and suffering • Treatment of laboratory animals • Regulatory animal use in teaching/research • Evolution • Ethology and animal minds/animal language • Darwin, species and mortality • The priority of human interests • The moral community.</p>

<p>Texas 20. Texas A&M University</p> <p><i>Offered:</i> Courses on animal welfare and ethics have been given for the last 15 years. At present, the following courses focus on different aspects of this issue: A) Agricultural ethics (undergraduate course, but may also be taken by graduate students); B) Humane, Public Health and Regulatory Aspects of Animal Use; C) Issues in Animal Agriculture.</p> <p>Courses on animal behaviour are given that include some lessons on animal welfare/ethics, as well as a course in laboratory animal management and health.</p> <p><i>Planned:</i> No more courses planned.</p>	<p><i>Course syllabus includes:</i> A) Analysis of moral and philosophical issues in agriculture including: hunger • Food distribution • Environmental policy • Resource allocation • Nutrition, health, treatment of animals • Application of scientific expertise in the formulation of agricultural policy; B) Thoughtful and humane use of animals in teaching, research and service • Benefits of biomedical research • Governmental policies, regulations • Public health implications • Management practices and public relations pertaining to animal use in research and teaching. C) Non-market factors related to food production and consumption • National and global nutritional, environmental, ethical, social and political issues faced by agricultural systems.</p>	<p>A) Good demand. B) Variable demand, the course is taught when 5 or more students register. C) Good demand. There is an active 'Cognitive ethology group' at the university which arrange seminars, some of which are related to animal welfare.</p>
<p>Washington 21. Washington State University, College of Veterinary Medicine</p> <p><i>Offered:</i> Courses in animal welfare/ethics: A) Reverence for Life. 15 lectures during one semester. B) Rights and Welfare of Animals. 31 lectures during one semester. Courses on related topics: Principles of Animal Care, Professional Orientation and Ethics, Applied Animal Behaviour (main emphasis: companion animals) Courses are open to undergraduates, graduate and professional (veterinary) students.</p> <p><i>Planned:</i> No more courses planned.</p>	<p>A) <i>Course syllabus includes:</i> Bioethics • Grief in people and animals • Ethics • The human-animal bond • Holocausts • Animal awareness • Vegetarianism • Animal experimentation and alternatives • Animal law and rights • Animals in entertainment • Cosmetic surgery • Euthanazing healthy animals • Intensive farming and wildlife • Endangered species and loss of habitat. B) <i>Aim of course:</i> For students to be able to: examine the ethics and philosophies contributing to human-animal relations; gain an understanding of animal behaviour which will assist in defining and assessing animal well-being; examine the controversies and current issues relating to the use of animals in agriculture and research; evaluate the impact of current and future legislation of farm and laboratory animal use.</p> <p><i>Course syllabus includes:</i> Historical overview • Philosophical perspectives • Domestication of animals • Ethics • Defining /assessing animal well-being • Animal behaviour • Use of animals for food, clothing and in research, and alternatives • Anaesthesia /analgesia • Animal protection organizations • Legislation • Hunting • Animals in sports/recreation/pets.</p>	<p>There is a great interest among students for the courses. The course 'Reverence for Life' has been going for 15 years.</p>