

## Attitudes of Turkish veterinarians towards animal welfare

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### Abstract

A survey was carried out to examine the attitudes of Turkish veterinarians towards animal welfare issues. The email questionnaire consisted of three sections of statements with a five-point Likert scale for choices of answer. The first section included statements examining the attitudes of Turkish veterinarians to animal welfare issues relating to European Union (EU) Legislation (93/119/EC, 95/29/EC, 2002/4EC and Council Regulation 1/2005). In the second, statements were designed to ascertain veterinarian attitudes towards the recently-passed Animal Protection Law, TR-5199. The statements in the last section were designed to assess the respondents' personal beliefs on a variety of welfare topics. The survey was sent to 615 veterinarians and the response rate was 40.2%. Turkish veterinarians expressed considerable support for the implications of animal welfare with the exception of statements regarding 'stunning of ruminants pre-slaughter', 'phasing out of battery cages for poultry' and 'not operating on animals for aesthetic purposes'. In addition, they did not agree with the statements related to 'ethological needs of farm animals' and 'effectiveness of EU laws and legislation in Turkey'. Females had higher mean values than males. The results of the survey indicated that significant concern for animal welfare issues is seen in the Turkish veterinarian population. Although the process of becoming a fully-integrated member of the EU will not occur rapidly, the influence of veterinarians could potentially enhance animal welfare in Turkey.

**Keywords:** animal welfare, attitude, European Union, legislation, survey, Turkish veterinarians

### Introduction

Prior to 2004, it was religious and cultural factors that primarily determined the thoughts and practices of Turkish people towards animals. On the 24th of June 2004, 'Animal Protection Law' (TR-5199) came into practice in Turkey (Anonymous 2004). A number of weeks later, at the beginning of semester one in September 2004, a module entitled 'Animal Welfare and Ethology' was introduced into the veterinary curriculum as a direct result of collaboration between Germany and Turkey regarding the European Union (EU) Twinning Project Programme (TR02/IB/AG-01).

The attitude and sensitivity of veterinarians towards welfare issues is fundamental — in whichever capacity they work ie as researchers or practitioners or in referral centres — they set an example for the layperson and have an opportunity to improve the welfare status of animals throughout the country. Dodurka (2000) indicated that:

"Considering that veterinarians are members of a profession, the matter of which is animal, veterinarians should be eager about being 'companions' to the animals and becoming thoroughly acquainted with the animals, no matter the sector in which the veterinarian works".

In Turkey, with the exception of academics, specialisation within the veterinary profession is rare and a practicing veterinarian tends to be responsible only for the various veterinary duties within his or her institution.

A number of studies have examined the attitudes of veterinary students, educators, consumers and certain religious groups on issues relating to animal treatment and experimentation and the welfare of farm animals. For example, Heleski *et al* (2005) studied the attitude of 157 academics in veterinary colleges towards welfare issues to explore their impact on animal welfare conditions in the United States and respondents were asked to express the extent to which they agreed with the importance of the Five Freedoms (FAWC 2004). Relatively few articles are available in the scientific literature (Rutgers & Barda 1994; Smith 1998; Raekallio *et al* 2003; Ozen *et al* 2004; Yerlikaya *et al* 2004; Heleski *et al* 2005) regarding veterinarians' attitudes towards certain welfare issues, eg the use of animals in research and animal pain. In particular, there are no published articles reporting the attitudes of Turkish, or any other potential EU candidate country's veterinarians toward EU animal welfare legislation.

The objectives of this study were: 1) to examine the attitudes of Turkish veterinarians towards EU Animal Welfare Legislation (93/119/EC, 95/29/EC, 2002/4EC and Council Regulation 1/2005) (Anonymous 1993; 1995; 2002; 2005); 2) to determine the manner in which Turkish veterinarians implement the recently passed Animal Protection Law (TR-5199) (Anonymous 2004) and 3) to assess veterinarians' personal beliefs on a variety of animal welfare topics.

**Table 1** Mean ( $\pm$  SE) Likert scale choices in response to questionnaire.

Statement	Overall score M	F	C	G	Mu	A	Mi	
Veterinarians should control the health status of animals pre-slaughter, not only to obtain safe food but also to give priority to the sick, weak or injured animals.	4.49 $\pm$ 0.82	4.48 $\pm$ 0.84	4.51 $\pm$ 0.75	4.34 $\pm$ 0.87	4.59 $\pm$ 0.65	4.50 $\pm$ 0.71	4.71 $\pm$ 0.68	4.00 $\pm$ 1.29
Suitable equipment, such as bridges, ramps or gangways should be used for loading and unloading animals.	4.79 $\pm$ 0.44	4.77 $\pm$ 0.46	4.85 $\pm$ 0.36	4.66 $\pm$ 0.48	4.84 $\pm$ 0.44	4.60 $\pm$ 0.70	4.89 $\pm$ 0.32	4.89 $\pm$ 0.32
Stunning of the ruminants pre-slaughter should be performed in Turkey.	3.70 $\pm$ 1.33	3.54 $\pm$ 1.38	4.30 $\pm$ 0.89 <i>P</i> = 0.003*	3.82 $\pm$ 1.27	3.63 $\pm$ 1.43	3.30 $\pm$ 1.25	3.79 $\pm$ 1.26	3.37 $\pm$ 1.50
Lactating cows spending more than 24 hours in slaughterhouses pre-slaughter should be milked.	4.29 $\pm$ 0.90	4.25 $\pm$ 1.11	4.30 $\pm$ 0.84	4.06 $\pm$ 1.09	4.37 $\pm$ 0.89	4.00 $\pm$ 0.67	4.46 $\pm$ 0.56	4.47 $\pm$ 0.84
The EU project of phasing out battery cages for laying chickens is reasonable from an animal welfare standpoint.	3.40 $\pm$ 1.30	3.31 $\pm$ 1.32	3.74 $\pm$ 1.15	3.27 $\pm$ 1.32	3.56 $\pm$ 1.29	3.60 $\pm$ 0.88	3.60 $\pm$ 1.29	3.53 $\pm$ 1.39

M: male, F: female, C: clinic owners, G: government, Mu: municipalities, A: academic, Mi: military. \* Difference between the genders.

## Materials and methods

### Questionnaire development

The questionnaire was developed on the basis of discussion with veterinarians, veterinary academics, and former veterinary students. Ten members of Ataturk University Veterinary College agreed to discuss and refine the pilot questionnaire and this served as our focus group; 10 members' interviews were conducted during the autumn semester of 2005. In the same period, email addresses of veterinarians were collected, on-line, via registered email groups and/or official veterinarian association websites located in various cities, in the Ministry of Agriculture and throughout a number of Universities in Turkey.

A five-point Likert scale was used for the survey. The ratings were scored from 1 ('strongly disagree') through to 5 ('strongly agree') (Tavsancil 2002). The questionnaire included demographics (eg gender and institution) and consisted of three sections of statements to examine the attitudes of participants towards animal welfare issues.

#### Section 1 — Statements regarding EU Animal Welfare Legislation (93/119/EC, 95/29/EC, 2002/4EC) and Council Regulation (1/2005)

We asked participants to express their level of agreement with 5 statements related to EU animal welfare legislation by using the 5-point Likert scale choices and these are presented in Table 1. An additional sixth statement was concerned with animal transportation; veterinarians were asked to estimate appropriate food-and-water break intervals for cattle undergoing a 30-hour journey. The choices were: 1) no rest needed for food-and-water breaks;

2) break every 20 hours; 3) break every 15 hours; 4) break every 10 hours and 5) break every 5 hours.

#### Section 2 — Statements regarding Animal Protection Law TR-5199, articles 7, 8 and 11

Respondents were asked to define their degree of support for the above Animal Protection Law, which has been in place since 2004. Four statements, concerning specific topics relating to this law, were presented in this section. Veterinarians were asked to quantify their support by using the 5-point Likert scale and these results are presented in Table 2.

#### Section 3 — Personal beliefs related to specific welfare issues

The final section of the questionnaire included 6 statements designed to assess veterinarians' beliefs on general welfare subjects and animal welfare conditions and are presented in Table 3.

### The survey and statistical analyses

A total of 615 veterinarians were asked to participate in the survey by email during February and March 2006. Data were analysed using SPSS 9.0 (SPSS 1999) and statistically significant differences in mean values of Likert scale choices associated with demographic variables (gender and institution) were investigated using chi-square tests and *P* < 0.05 was considered significant (Zar 1999).

## Results and discussion

Two hundred and forty seven out of 615 veterinarians (40.2%) replied; twenty-one percent of whom were females. Yerlika *et al* (2004) reported that, at certain Turkish universities, females made up 28% of veterinary students and 41% of veterinary college educators, however Ozen *et al* (2004)

**Table 2 Mean ( $\pm$  SE) Likert scale choices in response to statements regarding Animal Protection Law TR-5199.**

Statement	Overall score	M	F	C	G	Mu	A	Mi
If I witness that somebody is making animals fight, I react: I warn the person involved he is breaking the law or report the incident to the relevant authorities.	4.57 $\pm$ 0.72	4.55 $\pm$ 0.74	4.66 $\pm$ 0.62	4.52 $\pm$ 0.84	4.53 $\pm$ 0.77	4.60 $\pm$ 0.70	4.60 $\pm$ 0.52	4.89 $\pm$ 0.32
I always anaesthetise the animal that I operate on, even if the procedure is brief.	4.57 $\pm$ 0.73	4.52 $\pm$ 0.79	4.77 $\pm$ 0.42	4.55 $\pm$ 0.73	4.53 $\pm$ 0.79	4.50 $\pm$ 0.85	4.73 $\pm$ 0.48	4.32 $\pm$ 1.06
I do not operate on animals for the purposes of aesthetics eg tail docking, ear cropping.	3.70 $\pm$ 1.32	3.57 $\pm$ 1.33	4.17 $\pm$ 1.16	3.68 $\pm$ 1.24	3.59 $\pm$ 1.44	4.00 $\pm$ 1.25	3.90 $\pm$ 1.25	3.32 $\pm$ 1.42
Sterilisation is preferable to euthanasia.	4.28 $\pm$ 1.07	4.21 $\pm$ 1.07	4.51 $\pm$ 1.03	4.35 $\pm$ 1.02	4.24 $\pm$ 1.06	4.40 $\pm$ 0.70	4.44 $\pm$ 0.82	3.42 $\pm$ 1.74

M: male, F: female, C: clinic owners, G: government, Mu: municipalities, A: academic, Mi: military. \* Difference between the genders.

**Table 3 Mean ( $\pm$  SE) Likert scale choices in response to statements regarding personal beliefs.**

Statement	Overall score	M	F	C	G	Mu	A	Mi
I believe that farm animals cannot express the majority of their normal behavioural repertoire in typical farm conditions.	3.40 $\pm$ 1.12	3.36 $\pm$ 1.13	3.55 $\pm$ 1.08	3.35 $\pm$ 1.13	3.23 $\pm$ 1.17	2.90 $\pm$ 0.99	3.62 $\pm$ 1.07	3.74 $\pm$ 0.93
I always do everything I can to prevent the animal from experiencing pain.	4.70 $\pm$ 0.58	4.64 $\pm$ 0.62	4.91 $\pm$ 0.30	4.72 $\pm$ 0.59	4.61 $\pm$ 0.67	4.60 $\pm$ 0.70	4.79 $\pm$ 0.45	4.68 $\pm$ 0.48
In my opinion animals in Turkey tend not to be treated in an humane manner.	4.07 $\pm$ 1.01	3.98 $\pm$ 1.04	4.42 $\pm$ 0.80	4.13 $\pm$ 1.04	3.91 $\pm$ 1.06	3.90 $\pm$ 0.57	4.10 $\pm$ 0.96	4.42 $\pm$ 0.96
I believe that EU animal welfare legislation will be effective in Turkey.	3.10 $\pm$ 1.35	3.05 $\pm$ 1.32	3.28 $\pm$ 1.43	3.11 $\pm$ 1.34	3.01 $\pm$ 1.38	3.00 $\pm$ 0.94	3.13 $\pm$ 1.24	3.32 $\pm$ 1.86
Application of animal welfare standards in a particular country depends upon the state of its economy.	4.14 $\pm$ 1.10	4.13 $\pm$ 1.11	4.19 $\pm$ 1.09	4.11 $\pm$ 1.21	4.19 $\pm$ 1.05	3.50 $\pm$ 0.85	4.02 $\pm$ 1.10	4.89 $\pm$ 0.32
Training courses and relevant qualifications in animal welfare are a requirement for Turkish veterinarians.	4.45 $\pm$ 0.76	4.44 $\pm$ 0.77	4.49 $\pm$ 0.72	4.54 $\pm$ 0.68	4.36 $\pm$ 0.89	4.30 $\pm$ 0.67	4.51 $\pm$ 0.64	4.32 $\pm$ 0.95

M: male, F: female, C: clinic owners, G: government, Mu: municipalities, A: academic, Mi: military. \* Difference between the genders.

\*\* Difference between veterinary institutions.

found that the proportion of female practitioners working in clinics was 15%. The veterinarians working in clinics showed the highest proportion of responses with 34%, followed by government officials (28%), academics (26%), military (8%) and municipal officials (4%). No data were found about the gender and institutional distribution of the veterinarians in the country.

Mean results of Likert scale choices of Turkish veterinarians about statements related to EU Legislation (93/119/EC, 95/29/EC, 2002/4EC and Council Regulation 1/2005) are

shown in Table 1. The veterinarians showed values demonstrating concern (mean = 4.49) regarding veterinary control of animals pre-slaughter and for giving priority to sick, injured, or weak animals. Controlling the health status of animals, pre-slaughter, is an obligation according to Turkey Animal Health Legislation (TR-HSZ, 1989) (Anonymous 1989). By assessing health, the legislation aims to ensure meat safety, but includes no implications for welfare, such as the giving of priority to injured animals. The high level of support shown here by Turkish veterinarians is thought to

be empathy-based. It appeared that the veterinarians could understand and share the feelings of animals. This empathy may be a prerequisite for optimal care, maximal animal well-being and welfare (Fox 2001).

In the first section of the survey, the highest level of support (4.79) was for the need for animal loading/unloading equipment (eg ramps, bridges). Sabuncuoğlu and Coban (2005) recorded, however, that almost half of slaughter plants in eastern Turkey did not have loading ramps; thereby forcing animals to leap from the back of trucks, often leading to injury. This occurs despite the fact that Turkish slaughter plants have a legal obligation (TR-HSZ, 1989) to provide certain structures, including ramps, for licensing purposes (Anonymous 1989). It appears, therefore, that the periodic control of plants by the government has, thus far, been insufficient.

We found that the stunning of ruminants, pre-slaughter, garnered less support (3.70) among Turkish veterinarians. Mean values calculated for male and female veterinarians about the use of stunning differed significantly, with the mean for males lower (3.54) than that of females (4.30) ( $\chi^2 = 8.840$ ,  $P = 0.003$ ). Gender has been shown, in previous studies, to have a significant effect in terms of attitude towards animal treatment; with females frequently displaying greater empathy (Paul & Padberscek 2000). Although no significant differences were observed between institutions ( $P > 0.05$ ); veterinarians working in the municipalities (3.30), military (3.37) and government (3.63) had generally low mean values relating to the use of stunning. These groups may be more concerned with the impact animal practices may have on human health and safety, than they are regarding the welfare of individual animals. Those vets employed in clinics (3.82) and academics (3.79) supported the stunning with higher mean values. We hypothesise that as clinic owners also treat animals, it may very well be that there is an emotional component to their responses.

Although, as yet, there are still to be any studies into the attitudes of Turkish people, in general, towards the pre-slaughter stunning of ruminants, we believe the comparatively low support originates from a cultural misunderstanding of the religious rules. Despite the proclamation of the Religious Presidency of the Turkish Republic that stunning did not contravene the Laws of Islam (Anonymous 2006), our findings suggest a general lack of awareness of this within society as a whole. With the exception of a small number of demonstrations held by academics at Istanbul University, the stunning of ruminants has never been practiced in Turkey. It seems that Turkish people, veterinarians included, were not accustomed to considering this an option.

Veterinarians agreed strongly (4.29) with the assertion that lactating cows ought to be milked when forced to spend upwards of 24 hours in the slaughterhouse. Many respondents (85 out of 247) added footnotes to their replies, most (52) of which were directly applicable to this statement. They stated that this practice was new to them but that they found it very interesting and humane.

Turkish veterinarians were virtually neutral (3.40) when asked about EU legislation phasing-out battery cages for laying chickens in the near future. The Eurobarometer survey (European Commission 2005) showed that the majority of EU citizens were in support of this project and prepared to pay extra for eggs from non-cage systems. Our findings suggest that, at present, this legislation does not appear to be particularly well supported by Turkish veterinarians, due perhaps to the technical and economic difficulties it would present.

Respondents were asked for recommendations concerning appropriate resting intervals for the feeding and watering of cattle during journeys of 30 h duration. The proportions of veterinarians nominating 5, 10 and 15 hourly breaks were 42.9, 43.7 and 10.5%, respectively. A further 1.2% felt rest should be given after 20 hours of travelling and 1.6% chose the 'no rest is needed' option. The majority of the participants agreed, therefore, that cattle should be fed and watered frequently during long journeys. However, Saatci *et al* (2005) recorded that no rests were given during the transportation of cattle from eastern to western Turkey. Although government veterinarians control certain documentation relating to the transportation of animals in Turkey, they do not have the authority to regulate designated breaks during transport.

Mean results of the Likert scale choices of Turkish veterinarians about the Animal Protection Law (TR-5199), which has been in place since 2004, are presented in Table 2. Turkish veterinarians showed social and professional sensitivity to animal fighting and strongly agreed (4.57) with the statement that taking action was warranted. Although no statistical differences were found between institutions ( $P > 0.05$ ), the greatest resistance to organised animal fighting came from the military. Turkish society is generally opposed to this practice which has been the subject of much media attention in recent years.

The veterinarians surveyed agreed strongly (4.57) with the statement concerning anaesthesia (Table 2). This is in contrast to the findings of Heleski *et al* (2004) who noted the findings of a survey conducted in the United States which revealed a majority of animal science faculty members unsure of or in disagreement with the following: "acute interventions that cause pain (eg castration) should be performed under local or general anaesthesia". There may be mitigating circumstances (eg a client unwilling to meet extra costs) preventing pre-operative anaesthesia being administered but the findings of this study suggest this component of the law (TR-5199) has been readily endorsed by veterinarians in Turkey.

The lowest mean values (3.70) were observed in response to the statement concerning the performance of surgical procedures for purely aesthetic reasons. Females were less inclined to perform such procedures compared to males (4.17 versus 3.57) and this difference was statistically important ( $\chi^2 = 15.343$  and  $P = 0.000$ ). Rutgers and Barda (1994) reported that there may be a conflict of interest between the wishes of the animal owner and the moral

responsibility of the veterinarian. In general, it would appear that this legislation has not entered daily practice yet, and the results point to certain defects in the control process.

Turkish veterinarians agreed that sterilisation of animals was preferable to euthanasia (4.28), although support for such action did not extend as far as military veterinarians for whom the level of support was lower (3.42). It was beyond the scope of this survey to determine whether or not these veterinarians had anything further to contribute on the subject. Turkish people have been showing increasing interest in the plight of stray animals in recent years (Coskun 2005). Many municipalities and social groups make serious efforts to sterilise and vaccinate these strays and the number of shelters for such animals is on the rise.

Mean results of Turkish vets' Likert-scale choices regarding personal opinions on specific topics of welfare and welfare conditions in Turkey are presented in Table 3. The statement, 'farm animals cannot express the majority of their normal behaviours in typical farm conditions' tended to produce low mean values (3.40). Turkish veterinarians appeared unsure of farm animals' behavioural needs. When we consider that prior to 2004 the veterinary curriculum offered nothing in the way of animal ethology, it can be concluded that they were generally unaware of animals' behavioural needs. Obviously, in order to properly evaluate abnormal behaviour in a variety of species, it is first necessary to gain knowledge of their ethological traits. It has been reported that in the United States the notion that 'animals should have freedom to express normal behaviours' received low levels of agreement (Heleski *et al* 2005). Animal ethology modules have been part of the Turkish veterinary curriculum since 2004 and future veterinarians are expected to be more aware and empathetic about behavioural needs of the animals.

In the final section, veterinarian mean values were highest for the statement, 'doing their best for preventing animal pain'. The general mean value was 4.70 with females showing greater sensitivity than males (4.91 versus 4.64;  $\chi^2 = 4.882$  and  $P = 0.027$ ). As in prior studies, females expressed greater sensitivity than males regarding the emotional components of this study (Paul & Padberscek 2000; Tinga *et al* 2001; Ozen *et al* 2004). It is not currently known whether these observed gender differences are due to differences in the ethical socialisation of males and females or the result of deeper, fundamental and possible innate gender-specific empathic responses to animals and animal welfare (Serpell 2005).

The veterinarians agreed (4.07) that the treatment of animals in Turkey was not humane. Females had a higher mean value (4.42) than males (3.98) in response to this ( $\chi^2 = 4.052$  and  $P = 0.044$ ) and this may provide the strongest indication yet of the attitudes and sensitivities of veterinarians regarding welfare issues. It reflected an increasing interest in animal welfare by the Turkish people. According to the Special Eurobarometer (European Commission 2005), the majority of respondents (68%) of EU member states were unhappy with the welfare of both

battery hens and pigs; 55% also stated that animal welfare/protection did not receive enough coverage in their respective countries' agricultural policies. Humane and responsible treatment of animals is strongly associated with public awareness of animal welfare issues.

Another low mean value (3.10) calculated in this survey was seen regarding the statement: 'I believe that EU animal welfare legislation will be effective in Turkey'. The majority of EU respondents believed that there was EU legislation to govern animal transportation and slaughter but were less convinced of the existence of the legislation regarding the conditions under which animals were reared on farms (European Commission 2005). Although Turkish veterinarians had strong intentions about issues of welfare, they seemed unsure as to how past, present and future practices would fit together. It may prove to be a difficult task and one that will require more educational campaigns to help align cultural traditions with modern legislation.

Turkish veterinarians agreed with the statement: 'the practice of animal welfare standards in a country depends on the economic condition of that country'. Army veterinarians supported the statement with the highest (4.89) mean value. Institutional differences were significant ( $\chi^2 = 9.716$  and  $P = 0.045$ ). Supporters of the statement attached importance to technical and economic conditions in the provision of animal welfare. Municipalities, who provided the smallest value (3.50), might consider 'peoples' intentions' enough to improve the welfare of animals in a country. Although many factors such as intentions, traditions and culture have great influence on animal welfare practices, it may be simpler for a developed country to promote, organise, finance and support animal welfare actions.

Turkish veterinarians agreed that they needed training courses on animal welfare, with a high mean value (4.45). They were aware of a lack of knowledge and were keen to improve their professional education. Problem awareness seems to be an important ingredient in making progress. Ajzen (1988) stated that attitudes could be learned and changed by new information or experiences. Those attitudes are often related to awareness and education as much as they are to changes in specific practices, such as the use of anaesthetics or of livestock transport. For example, in New Zealand, almost half the veterinarian profession have changed their welfare-related activity in recent years. Educational initiatives were made and veterinarians interacted with other animal welfare agencies, the public and animal rights organisations. (Smith 1998).

### Conclusion and animal welfare implications

The attitudes of veterinarians, stakeholders, producers and consumers should be assessed and understood before effective intervention strategies can be designed to moderate certain views to best promote animal welfare. The results of our survey indicated that Turkish veterinarians were particularly concerned about the state of animal welfare in their country despite uncertainties regarding the effectiveness of EU legislation. The study also reveals further indicators of the general view of animal welfare in Turkey.

The treaty establishing a constitution for the European Union (EU) was signed on October 29, 2004 by the heads of the states and governments of the 25 member states, as well as the three candidate countries, including Turkey. It aimed to ensure the increased protection of all animals.

One of the most important welfare topics needing implementation in Turkey would appear to be the pre-slaughter stunning of ruminants. The veterinarian, the animal scientist and the meat scientist can often be important and positive contributors to such a process (Grandin 1994). A useful first step should be to help convince the Turkish public and further collaboration between animal scientists and religious authorities would help inform people of the 'true' interpretation of their religion regarding stunning and the welfare of the animals in question.

It would be beneficial if the Turkish government could pay close attention to the provision of well-maintained loading facilities. In addition, it would be of benefit if the number of veterinarians in both governmental office and special foundations eg slaughterhouses were to increase. Another useful step would be the provision of government and university-organised courses on animal welfare, and current veterinarians should be certified. Having appropriate numbers of officially-trained staff trained is a necessity before Turkey's animal production industry falls into line with current EU legislation.

It is a distinct possibility that certain social, financial, psychological and pragmatic obstacles may slow the advancement of animal welfare in our country. More attention from the authorities, the media and animal welfare societies will be needed to facilitate the process, informing the public and protecting animals from unnecessary and/or unlawful applications of animal husbandry. In conclusion, the process of EU legislation accommodation may not be rapid but the influence of veterinarians can enhance animal welfare in Turkey.

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### References

- Ajzen I** 1988 *Attitudes, Personality and Behaviour*. The Dorsey Press: Chicago, USA
- Anonymous** 1989 *Legislations for animal health*. Ministry of Agriculture, Turkey. Official Gazette in Turkey March 1989. Basbakanlik Mevzuati Gelistirme ve Yayin Genel Mudurlugu Necatibey Cad No 1084: Bakanliklar-Ankara 06100, Turkey
- Anonymous** 1993 *On the protection of animals at the time of slaughter or killing*. [http://europa.eu/eurlex/en/consleg/pdf/1993/en\\_1993L0119\\_do\\_001.pdf](http://europa.eu/eurlex/en/consleg/pdf/1993/en_1993L0119_do_001.pdf) (Accessed November 29 2007)
- Anonymous** 1995 *Directive 91/628/EEC concerning the protection of animals during transport*. [http://europa.eu/eurlex/en/consleg/pdf/1995/en\\_1995L0029\\_do\\_001.pdf](http://europa.eu/eurlex/en/consleg/pdf/1995/en_1995L0029_do_001.pdf) (Accessed November 29 2007)
- Anonymous** 2002 *On the registration of establishments keeping laying hens, covered by Council Directive 1999/74/EC*. [http://eurlex.europa.eu/smartapi/cgi/sga\\_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=32002L0004&model=guichett](http://eurlex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=32002L0004&model=guichett) (Accessed November 29 2007)
- Anonymous** 2004 *Animal Protection Law, Law number: 5199*. Official Gazette in Turkey July 2004. Basbakanlik Mevzuati Gelistirme ve Yayin Genel Mudurlugu Necatibey Cad No 1084: Bakanliklar-Ankara 06100, Turkey
- Anonymous** 2005 *On the protection of animals during transport and related operations and amending Directives 64/432/EEC and 93/119/EC and Regulation (EC) No 1255/97* [http://eurlex.europa.eu/LexUriServ/site/en/oj/2005/l\\_003/l\\_00320050105en00010044.pdf](http://eurlex.europa.eu/LexUriServ/site/en/oj/2005/l_003/l_00320050105en00010044.pdf) (Accessed November 29 2007)
- Anonymous** 2006 *Presidency of Religious Duties official website*. <http://www.diyenet.gov.tr> (Accessed May 15 2006)
- Coskun B** 2005 'If you look for a human'. Hurriyet, Turkish newspaper, 9 November, Dogan Medya Centre: Bagcilar-Istanbul, Turkey
- Dodurka T** 2000 *Psychology of Dog* pp 231-232. Remzi Publications: Istanbul, Turkey
- European Commission** 2005 *Attitudes of consumers towards the welfare of farmed animals. Special Euro barometer 229 / Wave 63.2 – TNS Opinion and Social*. TNS House: Westgate, London, UK
- FAWC** 2004 *Farm Animal Welfare Council. The five freedoms*. <http://www.fawc.org.uk/freedoms.html> (Accessed May 5 2007)
- Fox MW** 2001 *Bringing life to ethics: Global bioethics for a humane society*. State University of New York Press: Albany, New York, USA
- Grandin T** 1994 Religious slaughter and animal welfare: A discussion for meat scientists. *Meat Focus International* 3: 115-123
- Heleski CR, Mertig AG and Zanella AJ** 2004 Assessing attitudes toward farm animal welfare: A national survey of animal science faculty members. *Journal of Animal Science* 82: 2806-2814
- Heleski CR, Mertig AG and Zanella AJ** 2005 Results of a national survey of US veterinary college faculty regarding attitudes toward farm animal welfare. *Journal of American Veterinary Medicine Association* 226(9): 1538-1546
- Ozen A, Ozturk R, Yasar A, Armutak A, Basagac T, Ozgur A, Seker I and Yerlikaya H** 2004 An attitude of veterinary practitioners towards animal rights in Turkey. *Veterinary Medicine Czech* 49(8) 298-304
- Paul ES and Padberscek AI** 2000 Veterinary Education and Students' attitudes towards animal welfare. *The Veterinary Record* 146(10): 269-72
- Raekallio M, Heinonen KM, Kuussaari J and Vainio O** 2003 Pain alleviation in animals: attitudes and practices of Finnish veterinarians. *Veterinary Journal* 165: 131-135
- Rutgers LJ and Barda DB** 1994 Normative questions in veterinary practice: a survey. *Tijdschr Diergeneeskd* 119: 525-535
- Saatci M, Kaya S and Gurdal M** 2005 Livestock transportation from Kars city and animal welfare. *1st Conference on Animal Welfare and Veterinary Education in Turkey* pp 141-144. 9-10 June 2005, Ankara, Turkey
- Sabuncuoglu N and Coban O** 2005 The slaughterhouses from animal welfare standpoint in Erzurum city. *1st Conference on Animal Welfare and Veterinary Education in Turkey* pp 117-123. 9-10 June 2005, Ankara, Turkey
- Serpell JA** 2005 Factors influencing veterinary students' career choices and attitudes to animals. *Journal of Veterinary Medicine Education* 32: 491-496
- Smith CHB** 1998 Veterinarians and animal welfare. A New Zealand perspective. *Applied Animal Behaviour Science* 59(1-3): 207-218
- SPSS 9.0** 1999 *SPSS for Windows Release*. SPSS Inc Headquarters: Chicago, Illinois 60606, USA
- Tavsancil E** 2002 *Measurement of attitudes and data analyses with SPSS*. Nobel Publications: Ankara, Turkey

**Tinga EC, Adams CI, Bonnet BN and Ribble CS** 2001 Survey of veterinary technical and professional skills in students and recent graduates of a veterinary college. *Journal of American Veterinary Medical Association* 219: 924-931

**Yerlikaya H, Ozen A, Yasar A, Armutak A, Ozturk R, Bayrak S, Gezman A and Seker I** 2004 A survey of attitudes of Turkish veterinary students and educators about animal use in research. *Veterinary Medicine Czech* 49(11): 413-442  
**Zar JH** 1999 *Biostatistical analysis* pp 188. Prentice-Hall: Upper Saddle River, New Jersey, USA