Original Research

Perception of the Scientist and Student's regarding Factory Farming

Rahul Choudhary[1]*, Gautam Singh, Sumer Singh Sangwan, Rakesh Ahuja, Sarita Khatri and Sukh Pal Singh

Department of VAHEE, LUVAS, Hisar, Haryana, INDIA

[1]Department of VAHEE, Mahatma Jyotiba Fule College of Veterinary and Animal Science, Chomu, Jaipur, Rajasthan, INDIA

***Corresponding author:** drrahulmahla@gmail.com

Rec. Date:	Jan 27, 2018 11:10
Accept Date:	Apr 09, 2018 15:34
DOI	10.5455/ijlr.20180127111028

Abstract

One of the important issues concerning the veterinarians and welfare activists are factory farming. The demand of high efficiency in animal production has been achieved with confined production systems. However, these are believed to be compromising welfare thus giving rise to moral and ethical dilemmas especially among veterinarians. Given the lack of understanding about this issue, a study was conducted in Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar, Haryana to ascertain the perception of scientists and students about factory farming. The sample constituted randomly chosen scientists and students. The perception was conceptualized as positive or negative inclination towards acceptance of factory farming and was assessed using a questionnaire. The average score of respondents indicated neutral opinion about factory farming with scientists having far more acceptance than students. Veterinary education seemingly contributes significantly in shaping the perception towards factory farming. It is further argued that the respondent's opinion does not vary greatly indicating the influence of cultural and traditional values. Further research to understand the factors underlying perception is suggested.

Key words: Factory farming, Perception toward Factory Farming, Scientists

How to cite: Choudhary, R., Singh, G., Sangwan, S., Ahuja, R., Khatri, S., & Singh, S. (2018). Perception of The Scientist and Student's Regarding Factory Farming. International Journal of Livestock Research, 8(9), 114-121. doi: 10.5455/ijlr.20180127111028

Introduction

Factory farming is a modern form of intensive farming. In this rearing of livestock such as cattle, poultry and fish at higher stocking densities than with the other forms of animal farming (Fraser, 2005). Ethical arguments expressed about factory farming include that it abuses animals and affects their welfare. On the other hand, many have accepted it because of betterment of housing, nutrition and disease control.

McKendree *et al*. (2014) investigated the public attitude toward modern farming practice in pig. Participants viewed modern production systems as 'bad, cruel, and unnatural', which generated a high level of concern. Industrial efficiency was viewed negatively and invariably led to more traditional, smaller and lower intensity farms being preferred. Veterinarians have been a unique association for millennia. As interlocutors between people, animals and nature (pan), their role and knowledge (empathic, scientific and instrumental), was highly valued by society (Schwabe, 1978) but the veterinary profession today is caught in an ethical dilemma, having to serve the interests of clients and society on the one hand and the interests of the animals on the other. These conflicts of interests and responsibility of vets are not easily resolved without ethical deliberation. However, veterinary ethics boards deal only with professional codes of conduct such as possible malpractice, illegal use of drugs, and unfair competitive advertising (Fox M.W., 1992). In fact, the use of non-human animals for benefit represents a challenging dilemma. It is not difficult to appreciate the benefits of animal use, for example, those practices that lead to advance in medical science. But if we are fond of animals, we may feel uncomfortable when confronted with the fact that such practices cause suffering to those animals involved. This dilemma could be difficult for those who use animal for personal purpose, such as animal welfare persons and scientists who use animals in their research. Faced with this 'moral paradox', those involved in animal use practices may need to construct elaborate justifications for their actions (Herzog *et al.*, 2001). So the important question today is- how do people with access to similar types of information regarding the costs and benefits of 'animal use' reach opposing views on the topic? Little is known about the basis of attitude toward animal use (Arluke, 1988; Paul, 1995).

Hence the current study was conducted to determine the perception, and factors affecting this perception, of veterinary students as well as scientists concerning factory farming.

Materials and Methods

The study was conducted at Lala Lajpat Rai University of Veterinary and Animal Sciences (LUVAS), Hisar. All the animal scientists at LUVAS, Hisar were taken as sample. Out of that, a sample of 50 members were drawn randomly by simple lottery method. Similarly, a sample of 120 students (100 undergraduates and 20 postgraduate) were drawn from the list of undergraduate students in each class (I to V professional year) was obtained and 20 students were randomly selected using earlier method. Similarly, a sample of Post-graduate students wwere selected for the study, resulting the total number of respondents were 170. The antecedent variables likely to affect students' and scientists' perception about factory farming were selected after thorough review of available literature and consultation with the faculty members. These were age, gender, educational qualification, history of pets, belief in animal mind, religiousness, extraversion, conscientiousness, agreeableness, neuroticism and openness. They were operationalized as presented in Table 1.

 DOI 10.5455/ijlr.20180127111028

Table 1: Operationalisation of independent variables

Variables	Operationalisation
Gender	Dichotomous
Age	Chronological age of respondents
Experience of pet animals	Schedule was developed
Belief in animal mind	Scale developed by Hills **(**1995**)**
Religiousness	Scale developed by Hernandez, (2011)
Level of education	Schedule was developed
Extraversion	Scale developed by John and Srivastava (1999)
Conscientiousness	Scale developed by John and Srivastava (1999)
Agreeableness	Scale developed by John and Srivastava (1999)
Neuroticism	Scale developed by John and Srivastava (1999)
Openness	Scale developed by John and Srivastava (1999)

The perception in this study was conceptualized as positive or negative inclination towards acceptance of factory farming. A schedule was developed to assess the perception of respondents towards factory farming. The following procedure was adopted to develop the schedule. A list of 81 statements reflecting opinion about factory farming was prepared initially. These statements were obtained from different sources like popular literature, scientific works, general discussion, etc. In the next stage, the statements which were ambiguous, irrelevant and not conforming to the criteria as suggested by Edwards *et al.* (1948) were deleted and a list of 52 statements was obtained. These statements were listed randomly and sent to 20 subject matter specialist (SMS) with well-defined instructions to perform careful and critical evaluation of statements. They were requested to give their responses as to whether the particular statement is favourable, unfavorable or ambiguous. They were requested to add/delete or modify any statement which they deemed fit for inclusion or deletion. Out of 20, 11 responses were received. Then the statements with more than 70 percent agreement scores were retained. Likewise, 29 statements were retained.

The respondent were requested to give responses on three-point continuum scale, i.e. agree, neutral and disagree and the scores 3,2, and 1 and 1,2 and 3 were assigned for positive and negative statements, respectively. Thus, the minimum and maximum possible obtainable overall scores were 28 and 44, respectively. The total score of each respondent was worked out by adding the scores of individual statements. The respondents were categorized in three groups of equal range based on their scores. (i.e. less favourable (28-46), favourable (47-64) and strongly favourable (65-84).

Results and Discussion

Background Profile of the Respondents

The observed age of the total respondents were 18-58 years indicating that respondents of all age groups were represented in the study (Table 2). A majority of the respondents were male with nearly one third being females. This is due to the fact that the veterinary profession is perceived in the society as masculine.

DOI 10.5455/ijlr.20180127111028

Further, a large percentage of the respondents were having experience of keeping pets. They were having varying degrees of extraversion, conscientiousness, agreeableness, neuroticism, and openness. Further, the respondents were having moderate belief in animal mind (BAM). This BAM is the term used for how we attribute to animal's mental capacities such as intellect, the ability to reason, and feelings of emotion (Hills, 1995). Similarly, the respondents were having varying degree of religiousness.

Table 2: Background profile of respondents

Variable	Possible Range	Scientists		Students		Overall	
		Observed Range	Mean± SD	Observed Range	Mean± SD	Observed Range	Mean± SD
Age (years)	-	26-58	40.10±10.62	18-34	22.06±2.32	18-58	27.36±10.22
Gender	0-1	0-1	0.32±0.47	0-1	0.40±0.49	0-1	0.38±0.49
Educational qualification	7-Jan	7-Jun	6.80±0.40	6-Jan	3.50±1.71	7-Jan	4.76±2.45
History of pets	4-Jan	4-Jan	1.72±0.88	4-Jan	2.34±1.29	4-Jan	2.16±1.22
Belief in animal mind	28-Apr	15-28	22.80±3.58	15-28	21.36±3.58	15-28	21.78±3.63
Religiousness	0-111	0-85	52.18±19.26	0-86	47.78±20.92	0-86	49.07±20.49
Extraversion	Aug-40	19-38	27.38±4.38	19-39	26.84±3.89	19-39	27.00±4.03
Agreeableness	Sep-45	29-44	35.64±3.72	20-44	32.49±4.47	20-44	33.42±4.49
Conscientiousness	Sep-45	24-42	34.46±4.45	21-43	31.12±4.21	21-43	32.10±4.53
Neuroticism	Aug-40	13-33	22.16±4.91	Nov-38	22.11±4.83	Nov-38	22.12±4.84
Openness	Oct-50	28-43	36.12±3.75	27-45	35.27±3.81	27-45	35.52±3.80

Perception of Respondents about Factory Farming

The minimum score obtained by the respondents was 42 while the maximum was 73. The average score of all the respondents was found to be 59.80±6.15 (mean ±SD) and the frequency distribution is depicted in the Fig. 1. Mean score obtained by students was 59.42 whereas mean score obtained by scientists was 82.06 (Table 3). This showed that the scientists were relatively more positive about factory farming than the students. On the whole, respondents held a moderate opinion about factory farming.

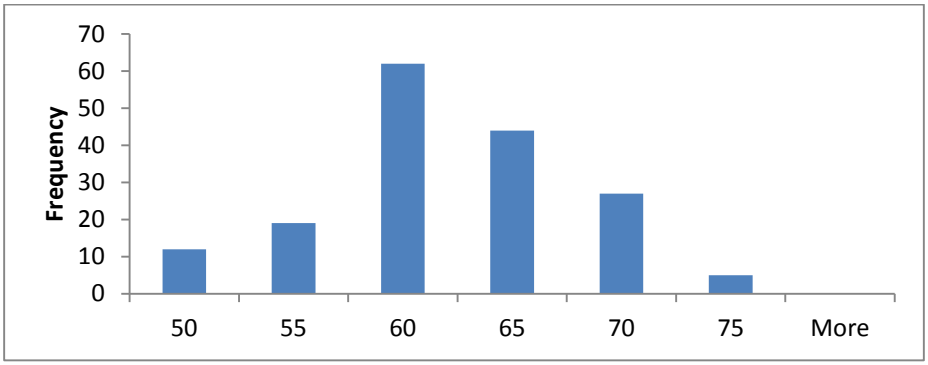

Fig.1: Histogram depicting frequency distribution of factory farming score of all respondents

DOI 10.5455/ijlr.20180127111028

Table 3: Classification of respondents on the basis of perception about factory farming.

S. No.	Factory Farming Level	Students(n=120)		Scientists (n=50)		Total (n=170)	
		Frequency (%)	Mean Score	Frequency (%)	Mean Score	Frequency (%)	Mean Score
1	Less favourable(28-46)	5 (4.17)	43.8	1 (2)	44	6 (3.53)	43.83
2	Favourable (47-64)	87 (72.50)	57.69	38 (76)	58.97	125 (73.53)	58.08
3	Strongly favourable (65-84)	28 (23.33)	67.57	11 (22)	68.27	39 (22.94)	67.77
4	Mean factory farming score	59.42		60.72		59.8	

Effect of Respondents Antecedents on Attitude toward Animal Rights

Perception about factory farming was not linked to demographic and personal characteristics, such as age, gender, religion as well as perceptions of the intelligence and cognitive abilities animals, whereas, educational qualification of the respondents was having an significant impact on the perception about factory farming (Table 4).

Table 4: Relationship of dependent and independent variables

Variable	Category (No. of respondent)	Attitude towards Animal Right				F value
		Less favorable (28-46) Mean±SD (No. of respondent)	Favorable (47-64) Mean±SD (No. of respondent)	Strongly favorable (65-84) Mean±SD (No. of respondent)	Mean±SD	
Age (years)	Young (upto 30) 132	43.80±2.05(5)	57.81±3.87(97)	67.27±1.89(30)	59.43±6.10	1.33
	Middle (31-45) 22	44±0(1)	58.50±4.10(16)	70±2.12(5)	60.45±7.10	
	Old (Above 45) 16	-	59.67±2.93(12)	68.75±2.36(4)	61.94±4.89	
Gender	Male 106	43.80±2.05 (5)	57.55±3.87(78)	68±2.28(23)	59.17±6.52	1.8127
	Female 64	44±0 (1)	58.96±3.67(47)	67.44±1.97(16)	60.84±5.38	
Educational qualification	B.V.Sc. 1 yr (20)	46±0 (2)	57.75±1.60(12)	67.67±2.34(6)	59.55±6.72	**2.36***
	B.V.Sc. 2 yr(20)	42±0 (1)	58.28±3.32(18)	66±0(1)	57.85±5.17	
	B.V.Sc. 3 yr(20)	42.50±0.71 (2)	55.36±3.86(14)	67.75±1.26(4)	56.55±7.66	
	B.V.Sc. 4 yr(20)	-	56.63±4.50(16)	67±1.83(4)	58.70±5.89	
	B.V.Sc. 5 yr(20)	-	59.63±2.83(16)	68±3.58(4)	61.30±4.38	
	M.V.Sc. (30)	-	58.65±4.73(20)	67.60±2.63(10)	61.63±5.93	
	Ph.D. (40)	44±0 (1)	58.97±3.60(29)	68.40±2.12(10)	60.95±5.91	
History of pets	No pets 73	-	57.92±3.88(59)	68.71±1.90(14)	59.96±5.60	0.19
	In childhood 38	46±0 (2)	58.79±3.49(29)	67.43±0.98(7)	59.71±5.61	
	In recent past 18	44±0 (1)	59.08±4.70(12)	67.20±2.17(5)	60.50±6.78	
	At present 41	42.33±0.58 (3)	57.13±3.64(25)	67.15±2.64(13)	59.29±7.36	
Belief in animal mind	Low (≤20) 64	44.67±2.31 (3)	58±3.69(51)	68±1.83(10)	58.94±5.91	1.4458
	High (>20) 106	43±1 (3)	58.14±3.96(74)	67.69±(29)	60.32±6.26	
Religiousness	Low (0-37) 45	46±0 (1)	57.62±4.49(37)	66.57±1.72(7)	58.76±5.60	1.04
	Medium (38-74) 109	43.25±1.89 (4)	58.38±3.57(77)	68±2.21(28)	60.29±6.25	
	High (75-111) 16	46±0 (1)	57.62±4.49(37)	66.57±1.72(7)	58.76±5.60	
Extraversion	Low (8-24) 47	44.25±2.06 (4)	58.24±3.64(34)	68.33±1.87(9)	58.98±6.84	1.005
	High (25-40) 123	43±1.41 (2)	58.02±3.93(91)	67.60±2.22(30)	60.11±5.87	
Agreeableness	Low (9-27) 21	-	57.29±2.08(17)	66.75±1.71(4)	59.10±4.29	0.7503
	High(28-45) 149	43.83±1.83 (6)	58.20±4.04(108)	67.89±2.18(35)	59.90±6.38	
Conscientiousness	Low (9-27) 24	-	58.05±3.40(22)	67.50±3.54(2)	58.83±4.27	1.1033
	High(28-45) 146	43.83±1.83 (6)	58.09±3.94(103)	67.78±2.12(37)	59.96±6.41	
Neuroticism	Low (8-24) 119	44±0 (1)	58.01±4.01(85)	67.70±2.24(33)	60.58±5.84	1.4532*
	High(25-40) 51	43.80±2.05 (5)	58.23±3.48(40)	68.17±1.60(6)	57.98±6.53	
Openness	Low (10-30) 18	-	58.15±4.43(13)	66.80±2.49(5)	60.56±5.59	0.0993
	High(31-50) 152	43.83±1.83 (6)	58.07±3.79(112)	67.91±2.09(34)	59.71±6.23	

 DOI 10.5455/ijlr.20180127111028

Similar findings have been reported earlier. Heleski and Zanella, 2006 surveyed 87 students from Michigan State University to assess their attitudes and knowledge about intensive farm animal and found that 70 % of the students expressed favourable attitude toward intensive production system. Ethical issues associated with intensive farming mainly focused on life quality issues, which are stemming from housing animals in close confinement, popularly referred to as factory farming (the term popularized by Harrison (1964). Such issues are, still debated hotly in the scientific community. For instance, the literature evaluating the extent to which gestation stalls meet the needs of sows compared with alternative housing systems is hotly debated, with European scientists recommending phasing out gestation stalls on the grounds of behavioral deprivation and affective states, whereas Australian scientists reviewing the same literature deemed these stalls to improve sow welfare on the grounds of biological function (Fraser, 2003). In addition to the underlying value judgments, the replication of studies is often difficult (McGlone *et al.*, 2004). Similarly, the issues associated with laying hens illustrate how the behavioral and psychological aspects of welfare can conflict with pragmatic management concerns. Like the sow housing issue, there are ambiguities in the literature comparing the behavior, productivity, and mortality rates of hens kept in conventional battery cages vs. those housed in alternative systems, such as aviaries (Taylor and Hurnik, 1996). Citing cannibalism, Appleby (2003) argued that there is insufficient scientific evidence to require abandoning conventional cages. Flock *et al.* (2005) believe that feather pecking and disease susceptibility are also problematic in alternative forms of layer hen housing. Conversely, many animal advocates tend to underemphasize the problems associated with free-range and aviary systems, arguing that laying hen welfare is substantially compromised in barren cage-rearing systems and that alternative housing systems are therefore superior (Wilkins, 2004).

Opinions on ethical treatment of animals are often based on people's beliefs that animals have at least some mental capabilities (Allen, 1998) and several of the most compelling arguments about the welfare of farm animals in intense confinement relate to the animals' rudimentary cognitive capacities, such as sentience, feelings, preference autonomy (Regan, 1983), Yet the capacity of farm animals to demonstrate many of these mental states (and related others, such as memory, or intentionality) is not yet well understood. As a result, lack of information is becoming increasing problematic because (1) attribution of mental states to animals has been and will continue to be the basis for most animal welfare concerns; (2) currently, scientists cannot credibly refute or wholly justify the basis for concerns about animal mental states as influenced by current production standards; and 3) policymakers requiring validated, scientific information on animal mentality before incorporating such concerns into welfare standards are constrained by the shortage of information on the subject (Croney *et al.*, 2007).

A look back into the recent history can help understand the favourable opinion of respondents. Of late, the animal farms have underwent a process of reform, yielding larger-scaled and more specialized units, a

 DOI 10.5455/ijlr.20180127111028

process that was necessary in order to survive economically (Winter and Gaskell, 1998). Hence, the restructuring was supported by increased scientific research, technological improvements and the development of more efficient logistic system including refrigeration. Further, the increased production was accomplished by significant changes in production methods. Many extensive production systems gave way to more industrialized "confinement" systems, especially for those species that are fed on concentrated diets. Earlier, Chetna (2015) concluded that veterinarians face difficult choices while dealing with animals. On the one end there are strong cultural cues of oneness with animal (especially in India), and on the other hand, the strong economic logic often indicating otherwise. In the present study, the economic logic appear to be dominating the respondents' belief system (*ibid*).

Conclusion

To sum up, the results indicate that the veterinary education contribute in shaping of perception toward factory farming. Moreover, the respondents' opinion does not vary greatly indicating the influence of cultural and traditional values. To understand the factors better, further research is required about emerging bioethical issues.

Acknowledgements

We are very thankful to the Head, Department of Veterinary and Animal Husbandry Extension Education of Lala Lajpat Rai University of Veterinary and Animal Sciences for providing the facilities to conduct this study.

References

1. Allen, C. (1998). Assessing animal cognition: ethological and philosophical perspectives. *Journal of animal science*, *76*(1), 42-47.
2. Appleby, M. C. (2003). The European Union ban on conventional cages for laying hens: History and prospects. *Journal of Applied Animal Welfare Science*, *6*(2), 103-121.
3. Arluke, A. B. (1988). Sacrificial symbolism in animal experimentation: Object or pet? *Anthrozoös*, *2*(2), 98-117.
4. Chetna (2015). Animal Welfare: Perception of Scientists and Students. M.V.Sc. Thesis, Lala Lajpat Rai University of Veterinary and Animal Sciences (*Unpublished*), Hisar.
5. Croney, C. C. and Millman, S. T. (2007). Board-invited review: The ethical and behavioral basesfor farm animal welfare legislation. *Journal of Animal Science*, *85*(2), 556-565.
6. Edwards, A. L., and Kilpatrick, F. P. (1948). A technique for the construction of attitude scales. *Journal of applied psychology*, *32*(4), 374.
7. Flock, D. K., Laughlin, K. F., and Bentley, J. (2005). Minimizing losses in poultry breeding and production: how breeding companies contribute to poultry welfare. *World's Poultry Science Journal*, *61*(02), 227-237.
8. Fox, M. W. (1992). Superpigs and wondercorn: The brave new world of biotechnology and where it all may lead.
9. Fraser, D. (2003). Assessing animal welfare at the farm and group level: the interplay of science and values. *Animal Welfare*, *12*(4), 433-443.

DOI 10.5455/ijlr.20180127111028

10. Fraser, D. G. (2005).*Animal welfare and the intensification of animal production: an alternative interpretation* (Vol. 2). Food & Agriculture Org.
11. Harrison, R. (1964). Animal machines: the new factory farming industry. *Animal machines: the new factory farming industry*.
12. Heleski, C. and Zanella, A. (2006).Animal science student attitudes toward farm animal welfare. Anthrozoos, 19 (1), 3 – 16.
13. Hernandez and Brittany C (2011). The religiosity and spirituality scale for youth: development and initial validation." PhD diss., Louisiana State University. Accessed on June 3, 2016
14. Herzog, H., Rowan, A., and Kossow, D. (2001). Social attitudes and animal In D. J. Salem& A.N. Rowan (Eds.), The state of the animals 2001 (pp. 55-69). Washington, DC: Humane Society Press.
15. Hills, A. M. *(*1995*).*Empathy and belief in the mental experience of animals.*Anthrozoös*, 8*(*3*)*,* 132-142.
16. John, O. P., and Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin, & O. P. John (Eds.), Handbook of personality: Theory and research (pp. 102–138). New York: Guilford Press.
17. McGlone, J. J., Vines, B., Rudine, A. C., and DuBois, P. (2004). The physical size of gestating sows. *Journal of animal science*, *82*(8), 2421-2427.
18. McKendree, M. G. S., Croney, C. C., and Widmar, N. O. (2014).Effects of demographic factors and information sources on United States consumer perceptions of animal welfare. *Journal of Animal Science*, *92*(7), 3161-3173.
19. Paul, Elizabeth (1995). Us and them: Scientists' and animal rights campaigners' views of the animal experimentation debate. *Society & Animals*, *3*(1), 1-21.
20. Regan, T. (1983).The Case for Animal Rights University of California Press. *Berkeley, CA*.
21. Schwabe, C. W. (1978). *Cattle, priests, and progress in medicine*. Minnesota Press.
22. Taylor, A. A., and Hurnik, J. F. (1996). The long-term productivity of hens housed in battery cages and an aviary. *Poultry science*, *75*(1), 47-51.
23. Wilkins, D. (2004). The politics of hen welfare.*Welfare of the Laying Hen*, *32*, 34.
24. Winter, M., and Gaskell, P. (1998). The Agenda 2000 debate and CAP reform in Great Britain. Is the environment being sidelined? *Land Use Policy*, *15*(3), 217-231.

DOI 10.5455/ijlr.20180127111028