Effectiveness of an Educational Interactive Video-DVD on Dairy Health Management Practices in Terms of Knowledge Gain among Dairy Farmers

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Abstract

This study was undertaken with the goal of improving the Indian dairy sector by enhancing knowledge and skill among dairy farmers on animal health care; thereby enabling increased productivity and minimizing economic loss. The study focused on members of milk co-operative societies of Kannur district, Kerala, India. Though the milk co-operatives were organized institutions, they lacked much needed knowledge and skill enhancement of their member-farmers. Most rural households in Kerala own television sets and DVD players. Hence, an educational interactive video-DVD on dairy health management practices was considered as an appropriate medium to disseminate knowledge on dairy health management practices to them. Sixty dairy farmers owning a DVD player and a television were selected as the sample population for study by means of proportionate random sampling among four milk co-operative societies identified in Kannur block. The findings of the study revealed that the majority of the respondents possessed medium level of knowledge at the pre-exposure stage, while in the post-exposure stage, a majority rose to the high knowledge category. The respondents who had low knowledge regarding various livestock diseases, their causes, symptoms, prevention and control gained considerable knowledge after exposure to the educational interactive video-DVD. The difference observed between the mean scores of knowledge level of respondents in pre and post-exposure stages was found to be statistically significant.

Introduction

Indian dairying has made significant progress during the post-independence period (since 1947) with milk production in the country growing at the rate of 4% to 5% per annum (Rajorhia, 2004[1]). This growth in the dairy sector was substantial and placed India as one of the largest producers of milk in the world with approximately 91 million tons produced during 2004-2005 (Kadian and Gupta, 2006[2]). Small and marginal farmers and landless laborers who derive a sustainable part of their livelihood from the sale of milk, own about 70% of cattle in rural areas (Singh, 2009[3]). The dairy industry's goal is to reach an annual milk production of 96 million tons by 2010 (Sethuraman, 2004[4]). It is rather unfortunate that despite being one of the world's largest milk producing countries, the per capita availability is among the lowest in the world, and is far below the world average of 285 grams per person (Mehta, 2004[5]). The government of India is making efforts to improve the productivity of dairy cattle by encouraging better health management practices, maintenance of hygiene, prevention and control of diseases and calf health management. The goal also includes educating dairy farmers about scientific dairy health management practices including hygienic housing conditions. It is estimated that about 3.2 million out of the total 5.5 million households in the State of Kerala in India are engaged in livestock rearing to supplement their income (Anonymous, 2006[6]). Kerala's strength in the field of livestock rearing include homestead settlement pattern, relatively high level of education among the members of a family, highly favorable agro-climatic conditions conducive for biomass production with a long tradition in livestock rearing.

Several studies conducted in Kerala identified the need to educate the dairy farmers in aspects of dairy health management, diseases and their control and maintenance of hygiene. Reduction in milk yield due to occurrence of diseases in dairy cattle was perceived as a serious problem among farmwomen in Kerala (Durgga Rani, 2004[7]). Need for knowledge and skill based training was recognized in specific areas like identifying the symptoms of contagious diseases, source of micro-organisms, use of disinfectants, disease control and preventive vaccination (Vimal Raj Kumar, 2003[8] and Lalitha and Seethalakshmi, 1999[9]).

Knowledge plays a vital role in bringing behavioral changes to an individual. Acquisition of principle knowledge brings desirable changes in better decision-making and attitude of an individual forming the basis for adoption of technology. Among various audio-visual media available, the emerging interactive video - DVD holds great promise in imparting technical skill to farmers. DVD - video communication has reached almost all villages and towns in India. Scope for providing interactivity envisages it as a good tool in bringing knowledge-centric dairy health management practices among livestock farmers. With these aspects in mind, the study was conducted with the objective of testing the effectiveness of the developed educational interactive video-DVD in terms of knowledge gain among the respondents.

Research Methodology

Development of an educational interactive video-DVD on dairy health management practices has been a pioneering attempt with no similar studies reported from India. It supersedes the use of video-CDs in terms of better picture quality and interactivity, requiring only a DVD player,

which has now become affordable to farmers. Unlike video discs, DVD discs do not wear out, has seven or more times the storage capacity wherein data could be stored in layers on both sides of the disc (Laaser, 2004[10]). These advantages make interactive video-DVD a desirable medium for dissemination of information.

The main features of a video-DVD are their menus and sub-menus that allow content selection and feature control. Each menu is a still-frame graphic with a number of on-screen buttons linking them to other contents on the disc. Selections could be made using arrow keys, numeric keys, select or enter key, menu key and return key which are available on the remote control unit of the DVD player. This facilitates the audience's seamless viewing and control to decide viewing order. These characteristic features of the DVD player and the DVD-video were utilized in creating interactivity in the video content developed for the study.

The video script was prepared by gathering scientific information regarding dairy health management practices through primary and secondary data sources. The contents of the script were classified into chapters, *viz.*, introduction, hygiene for dairy health and clean milk, identification of sick animals, disease prevention and control, calf health management, deworming the calf and vaccination schedule. A separate quiz section was included with questions relevant to the content in multiple-choice formats. The prepared script was translated into Malayalam, the vernacular language in the area of study, to make learning effective.

The necessary video scenes, photographs, illustrations etc., as per the script developed were first captured and assembled according to the story-board created using Pinnacle Studio version 9 video editing software. The audio editing software used for the off-camera narration was recorded and edited using Sound Forge version 8.0. The assembled video clippings were edited and incorporated with off-camera narration audio, background music, sound effects and menu links. The development of video – DVD took four months, with one month for preparation of the video script and three months for video editing and disc authoring.

The developed interactive video-DVD was then tested among the dairy farmers of Kannur district of Kerala State in India. Out of the nine blocks in the district, Kannur block was selected for the study based on high milk handling capacity. Among the six milk co-operative societies in the block, four blocks namely Mayyil, Kannur, Chirakkal and Kannadiparamba milk co-operative societies were selected based on high milk procurement per day. From the list of member-dairy farmers who possessed DVD-player and television sets, a sample of 60 respondents were selected by proportionate random sampling technique. Data pertaining to the study was collected from the respondents at two stages: pre-exposure and post-exposure to the educational component (video-DVD), with the help of a well-structured interview schedule consisting of 18 questions relevant to the subject matter taught. The video-DVD was played at the households on the same day of pre-exposure data collection. After one week, the knowledge test was repeated. Gain in knowledge was assessed by obtaining the difference between the knowledge levels at pre-exposure and post-exposure stages of the educational interactive video DVD. The impact of the video-DVD was assessed for the extent of skill transfer among the respondents, by evaluating adoption of 15 practices at its pre- and post- exposure stages.

Results and discussion

Situational and psychological characteristics of the respondents

Distribution of respondents according to their situational and psychological characteristics is presented in Table 1. The study revealed that a majority (41.67%) were old, nearly one-third (31.67%) young and just over one-fourth (26.67%) middle aged. Of these participants, 56.67% belonged either to primary, middle or secondary level of education group, whereas 11.67% possessed higher secondary level of education. A meager 8.33% each belonged to 'can read and write' and 'graduation and above' category. One-tenth (10%) of the dairy farmers were illiterate.

With regard to dairy farming experience, 56.67% respondents had more than 12 years of experience in dairy farming, 26.67% possessed 6 to 12 years experience and the rest (16.67%) had less than six years of farm experience.

75% respondents possessed a medium level of exposure to mass media, 16.67% and 8.33% had high and low exposure respectively. Contact with extension agency was medium with over one-half (56.67%) of the respondents, whereas one–fourth (25%) had low contact and the rest (18.33%) had high level of contact with extension agency.

Regarding herd size, a high majority (88.33%) possessed small herd (≤ 4 animals) and the rest (11.67%) had large herd (>4 animals). Daily milk production among majority (71.67%) ranged between 3.66 and 11.2 liters, and 18.88% attained over 11.2 liters per day and one-tenth (10%) had low milk production (less than 3.66 liters per day).

Majority (63.33%) exhibited medium level of innovation proneness while 21.67% and 15% had high and low level of innovation proneness respectively. Economic motivation was medium in 73.33% respondents, while 15% and 11.67% belonged to low and high category respectively. 70% respondents had medium decision - making behavior, 16.67% fell in low and the rest (13.33%) in high category.

Table1. Distribution of respondents according to their situational and psychological characteristics (n=60).

S.No.	Characteristic	Category	Frequency	Percentage
Situational Characteristics				
1.	Age	Old	25	41.67
		Middle	16	26.67
		Young	19	31.67
2.	Education	Illiterate	6	10.00
		Can read only	3	5.00
		Can read and write	5	8.33
		Primary to secondary	34	56.67
		Higher secondary	7	11.67
		Graduation and above	5	8.33
3.	Experience in dairy farming	Greater than 12 years	34	56.67
		6-12 years	16	26.67
		Less than 6 years	10	16.67
4.	Mass media exposure	Low	5	8.33
		Medium	45	75.00
		High	10	16.67
5.	Contact with extension agency	Low	15	25.00
		Medium	34	56.67
		High	11	18.33
6.	Herd size	Small (≤4 animals)	53	88.33
		Large (>4 animals)	7	11.67
7.	Milk production	Low (< 3.66 liters)	6	10.00
		Medium (3.66-11.2liters)	43	71.67
		High (>11.2 liters)	11	18.33
Psychological Characteristics				
8.	Innovation proneness	Low	9	15.00
		Medium	38	63.33
		High	13	21.67
9.	Economic motivation	Low	9	15.00
		Medium	44	73.33
		High	7	11.67
10.	Decision making behavior	Low	10	16.67
		Medium	42	70.00
		High	8	13.33

Distribution of respondents according to their knowledge level on dairy health management practices at pre – exposure and post – exposure stages of the educational interactive video – DVD.

The distribution of the respondents according to their knowledge level on dairy health management practices at pre – exposure and post – exposure stages is presented in Table 2.

Table 2. Distribution of respondents according to their knowledge level on dairy health management practices at pre-exposure and post exposure stages (n=60).

S.No.	Category	Pre - exposure		Post – exposure	
		Frequency	Percentage	Frequency	Percentage
1	Low (0 – 6)*	16	26.67	0	0.00
2	Medium (7 – 12)*	43	71.67	8	13.33
3	High (13 – 18)*	1	1.67	52	86.67
* Number of correct answers in the knowledge test					

The data revealed that a majority (71.67%) possessed medium knowledge on dairy health management practices before exposure to the interactive video-DVD. 26.67% had low knowledge and just one respondent (1.67%) belonged to high knowledge category. However, the situation exhibited an overt shift upon exposure to the interactive video-DVD wherein, a high majority (86.67%) fell in high category and the rest (13.33%) belonged to medium category. This clearly indicated the effectiveness of the developed interactive video-DVD in bringing about higher knowledge gain among the respondents.

Distribution of respondents according to their knowledge on dairy health management practices at pre - exposure and post-exposure stages.

The number of respondents who had answered correctly at pre and post-exposure stages to each of the knowledge items listed along with the per cent increase in correct responses after exposure to the educational interactive video-DVD on dairy health management practices is presented in Table 3.

Table 3. Distribution of respondents according to their knowledge on dairy health management practices at pre - exposure and post-exposure stages (n=60)

S. No.	Item / Question	Pre - exposure		Post-exposure		Per cent gain
		f	%	f	%	%
1.	What are the things to be kept in mind for production of clean milk?	49	81.67	59	98.33	16.67
2.	Name a disinfectant used for washing milking utensils	52	86.67	59	98.33	11.67
3.	What antiseptic solution should be used for washing the udder prior to milking?	44	73.33	59	98.33	25.00
4.	What is the correct procedure for milking?	41	68.33	57	95.00	26.67
5.	Name two diseases that attack cattle in your area	48	80.00	59	98.33	18.33
6.	Name any one disease of cattle which is communicable to man	3	5.00	40	66.67	61.67
7.	At what depth should the anthrax carcass be buried?	-	-	47	78.33	78.33
8.	Mention an important disease which causes abortion in cattle after six months of pregnancy	6	10.00	37	61.67	51.67
9.	What antiseptic solution is to be used for cleaning the feet of the cows affected with FMD?	39	65.00	59	98.33	33.33
10.	Name a disease spread by ticks	-	-	28	46.67	46.67
11.	Name two diseases caused by parasites seen in blood	-	-	17	28.33	28.33
12.	In which disease condition is the color of urine typically coffee colored?	1	1.66	39	65.00	63.34
13.	Mention the disease condition, which occurs in cattle soon after calving due to shortage of calcium in blood?	26	43.33	55	91.67	48.33
14.	Blood and clots in milk indicate which disease?	55	91.67	60	100.00	8.34
15.	What antiseptic is used for disinfecting the navel cord of newborn calf?	4	6.67	46	76.67	70.00
16.	When should colostrum be fed to the calf at the earliest?	47	78.33	60	100.00	21.67
17.	What is the age at which the calf is first dewormed?	46	76.67	60	100.00	23.34
18.	At what age the first dose of FMD vaccine is to be given in cattle?	9	15.00	56	93.33	78.33
'f' denotes the number of respondents who answered correctly '-' indicates none of the respondents answered correctly						

A perusal of the data revealed that the majority of the respondents possessed good knowledge with regard to item 1, 2, 3, 4, 5, 9, 14, 16 and 17. The knowledge level of respondents with

respect to item 13 was moderate before exposure to the educational interactive video-DVD. Their knowledge was found to be very poor regarding item 6, 8, 12, 15 and 18. It is interesting to note that the respondents did not possess any knowledge with respect to item 7, 10 and 11 at pre-exposure stage. This indicated that the respondents' knowledge with regard to clean milk production and calf health management was better when compared with knowledge on various diseases affecting cattle and their prevention and control. The situation changed completely in the post-exposure stage wherein a vast majority of the respondents answered correctly to almost all the knowledge items listed except for item 10 and 11 in which none had answered at pre – exposure stage, whereas in post – exposure stage it was answered by 46.67% and 28.33% respectively.

The data further revealed that among the 18 knowledge items listed, the highest percent (78.33%) increase in correct responses after exposure to the educational interactive video-DVD was obtained for the items 7 and 18. None of the respondents seemed to have knowledge on control and prevention of anthrax and only very few knew about vaccination schedule for FMD prior to exposure to the video-DVD. The gain in knowledge after the exposure to the interactive video-DVD was remarkable in case of these two items, which was an essential input for the effective control of these diseases.

70% of the respondents were found to have gained knowledge on item 15 after exposure to the video-DVD, which showed that the awareness about this practice was very less among the respondents before exposure as was evident from 76.67% of correct responses in the post-exposure stage.

The item 12 and 6 showed an increase of 63.34% and 61.67% respectively of correct responses respectively, after exposure to the video-DVD. This showed that a fairly higher percentage of the respondents had poor knowledge on blood parasitic diseases and zoonotic diseases of importance in the pre-exposure stage. Though the respondents seemed to be aware of a disease condition with coffee coloured urine, the name of the disease was unknown to them prior to the exposure of the interactive video program. Imparting knowledge on zoonotic diseases of importance in cattle is very important from public health point of view, which the developed video-DVD was able to achieve effectively.

The percentage of respondents who gained knowledge for the items 8, 13 and 10 was 51.67%, 48.33% and 46.67%, respectively. This indicated that before exposure to the video - DVD, a considerable number had less knowledge regarding various diseases, their causes and symptoms. Knowledge gain on these aspects would go a long way in efficient dairy health management for better production and productivity.

Between one-third and one-fifth respondents gained knowledge with regard to the items 9, 11, 4, 3, 17 and 16. It could be observed from the table that except for the item 11 in which none of the respondents responded on pre - exposure, more than 60% of them possessed knowledge on the rest of the five items mentioned above on pre - exposure stage itself. The respondents being practicing farmers might have learned these aspects owing to their long experience in rearing dairy animals.

Further, less than 20% of the respondents who did not posses knowledge on the items 5, 1, 2 and 14 gained knowledge in these aspects after exposure to the video-DVD.

Thus the respondents who had low level of knowledge regarding various livestock diseases, their causes, symptoms, prevention and control, gained considerable knowledge on exposure to the educational interactive video-DVD on these aspects. On the other hand, the respondents who possessed significant knowledge on hygienic and other general dairy health management aspects even at pre - exposure stage could further strengthen and refine their knowledge in these aspects more scientifically.

Differences in the mean scores of knowledge levels of the respondents at pre - exposure and post exposure stages.

Mean scores of knowledge level of the respondents at pre-exposure and post-exposure stages were analysed through Paired 't' test and the results presented in Table 4.

Table 4. Mean knowledge score at pre - exposure and post - exposure stages (n=60).

	Pre - exposure	Post-exposure
Mean score	7.98	14.91
Mean difference	6.93	
T-value	21.45**	

** Highly significant (P<0.01)

It is observed that the pre - exposure mean knowledge score was 7.98 and that of the post-exposure stage was almost double (14.91). The mean score difference was found to be 6.93. This implied that knowledge gained by the respondents with regard to dairy health management practices was substantial owing to exposure to the developed interactive video-DVD.

Therefore the developed educational interactive video-DVD proved to be effective in achieving higher knowledge gain among the respondents, which is supported by the 't' value of 21.45 which is statistically significant (P<0.01). This is in conformation with the findings of Sudeepkumar (1992[11]) and Rathakrishnan (1988[12]).

Impact of the intervention (interactive video-DVD) on adoption of dairy health management practices.

The adopters (a) and non-adopters (b) in the pre - exposure stage with regard to each of the 15 practices listed (Table 5) were initially found and recorded. Among the pre - exposure non-adopters, the respondents willing to adopt (c) and not willing to adopt (d) a practice after their exposure to the educational interactive video-DVD were identified. Finally, the total of pre - exposure adopters and post-exposure symbolic adopters (a + c) were obtained, to get a holistic picture expected in future.

Table 5: Distribution of respondents according to their pre - exposure adoption and post-exposure symbolic adoption (n=60).

S. No.	Practice	Pre - exposure adoption		Post-exposure symbolic adoption among pre - exposure non-adopters		Total adopters (a + c)
		Adopters	Non-adopters	Willing to adopt	Not willing to adopt	
		(a)	(b)	(c)	(d)	
1	Washing the animals daily	33 (55.00)	27 (45.00)	27 (45.00)	-	60 (100.00)
2	Removal of dung, urine and feed waste twice daily	59 (98.33)	1 (1.67)	1 (1.67)	-	60 (100.00)
3	Washing the animal and udder properly before every milking	55 (91.67)	5 (8.33)	5 (8.33)	-	60 (100.00)
4	Washing of hands before every milking regularly	60 (100.00)	-	-	-	60 (100.00)
5	Washing the milking utensils and equipments using detergents regularly	58 (96.67)	2 (3.33)	2 (3.33)	-	60 (100.00)
6	Full hand method of milking	18 (30.00)	42 (70.00)	40 (66.67)	2 (3.33)	58 (96.67)
7	Discarding the first fore milk	9 (15.00)	51 (85.00)	49 (81.67)	2 (3.33)	58 (96.67)
8	Maintaining 8 or 12 hours of milking interval	53 (88.33)	7 (11.67)	7 (11.67)	-	60 (100.00)
9	Milking out all teats completely after each milking	47 (78.33)	13 (21.67)	13 (21.67)	-	60 (100.00)
10	Observing the cows / buffaloes closely everyday to detect any signs of ill-health	47 (78.33)	13 (21.67)	13 (21.67)	-	60 (100.00)
11	Isolating sick animals from healthy animals	58 (96.67)	2 (3.33)	2 (3.33)	-	60 (100.00)

12	Taking extra care in disinfecting the animal sheds and its surroundings during disease outbreaks	58 (96.67)	2 (3.33)	2 (3.33)	-	60 (100.00)
13	Vaccination against Foot and Mouth disease	45 (75.00)	15 (25.00)	13 (21.66)	2 (3.33)	58 (96.67)
14	Feeding colostrums in new-born calves within 30 minutes of calving	49 (81.67)	11 (18.33)	11 (18.33)	-	60 (100.00)
15	Deworming calves within 2-3 weeks of age	53 (88.33)	7 (11.67)	7 (11.67)	-	60 (100.00)
Figures in parenthesis indicate percentage						

It is evident from the data that almost all the 15 dairy health management practices listed on the basis of the contents of the developed interactive video - DVD, was likely to be adopted by vast majority of the respondents in future leading to better health care, production and productivity of animals. Sudeepkumar (1992[13]) in his study revealed that nine out of eleven practices studied got a very high symbolic score. Jeyakumar (2002[14]) also observed that there was significant level of symbolic adoption among the sunflower farmers, when selected extension methods were used for transfer of technology.

Conclusion

Dairy health management is important for disease prevention, safeguarding public health, increasing productivity and minimizing economic loss. Knowledge is recognized as one of the most important components of human behavior, which gives impetus to adopt new technology. Effective and efficient communication tools to disseminate farm information is a pre-requisite for promoting adoption of dairy innovations and practices. This study evaluated the utility of a video-DVD tool to educate farmers on dairy health management practices at their household. The findings of the study revealed that the respondents who had low knowledge regarding various livestock diseases and their causes, symptoms, prevention and control gained considerable knowledge on exposure to the educational interactive video-DVD. The respondents who possessed significant knowledge on hygienic and other general dairy health management aspects at the pre-exposure stage itself were able to further strengthen and refine their knowledge in these aspects more scientifically. The significant difference between the mean scores of knowledge level of the respondents in pre and post-exposure stages of the educational interactive video-DVD indicated that the developed educational interactive video-DVD was effective in achieving knowledge gain among the respondents. The tool can be multiplied and supplied to dairy farmers, which would help in increasing the principle knowledge and adoption of scientific

principles leading to increased production and productivity. This would help to enhance the income of dairy farmers and there by sustain their livelihood. The tool can be utilized at household level, which makes it convenient to use and saves the farmers' time too. With all these advantages, the tool may be made available in all veterinary dispensaries in the state for farmers' use.

End Notes: Vidya, P., C. Manivannan, and N.K. Sudeep Kumar. "Effectiveness of an Educational Interactive Video-DVD on Dairy Health Management Practices in Terms of Knowledge Gain among Dairy Farmers." *Online Journal of Rural Research & Policy* (5.7, 2010).

1. Rajorhia, G.S., 2004, "Dairy research for achieving excellence in product manufacture and marketing", Paper presented at XXXIII Dairy Industry Conference, *Indian Dairyman*, 56(10): 102-105. [back]

2. Kadian, S., and Gupta, S., 2006, "Effectiveness of a Video Compact Disc (VCD) on dairy Calf Management Practices", *Indian Journal of Extension Sciences,* 1(1):57-62. [back]

3. Singh, A., 2009, "Dairying, a livelihood option for food security", Paper presented at XXXVII Dairy Industry Conference, *Indian Dairyman,* 61(3): 142-146. [back]

4. Sethuraman, B., 2004, "Initiatives for achieving excellence", Paper presented at XXXIII Dairy Industry Conference, *Indian Dairyman*, 56(10): 57-61. [back]

5. Mehta, P.S., 2004, "Indian dairy sector: The challenges ahead", *Indian Dairyman*, 56(10): 153-156. [back]

6. Anonymous, (2006), http://www.kerala.gov.in/economy/lives.htm , retrieved on November 4, 2009. [back]

7. Durgga Rani, V., 2004, "Training needs of farm women of Thrissur Taluk in dairy and poultry farming". *Master of Veterinary Science Thesis*, College of Veterinary and Animal sciences, Kerala Agricultural University, Thrissur 680651. [back]

8. Vimal Raj Kumar, N., 2003, "Training needs of dairy farm instructors of the dairy development department of Kerala". *Master of Veterinary Science Thesis*, College of Veterinary and Animal sciences, Kerala Agricultural University, Thrissur 680651. [back]

9. Lalitha, N., and Seethalakshmi, M., 1999, "Decision making behavior of women in dairy sector – A micro study". *Master of Veterinary Science Thesis*, College of Veterinary and Animal sciences, Kerala Agricultural University, Thrissur 680651. [back]

10. Laaser,W., 2004, "Regular article: DVD – Anew component in educational technology", *Learning technology newsletter,* 6(1): 51-57. [back]

11. Sudeepkumar, N.K., 1992, "Effectiveness of training on dairy farming technology", *M.V.Sc. Thesis,* Tamil Nadu Veterinary and Animal Sciences University, Chennai. [back]

12. Rathakrishnan, T., 1988, "Impact of agricultural telecast on farmers", *M.Sc. Ag. Thesis*, Tamil Nadu Agricultural University, Coimbatore. [back]

13. Sudeepkumar, N.K., 1992, "Effectiveness of training on dairy farming technology", *M.V.Sc. Thesis,* Tamil Nadu Veterinary and Animal Sciences University, Chennai. [back]

14. Jeyakumar, K. A., 2002, **"**Effectiveness of selected extension methods in transfer of technology to sunflower farmers", *M.Sc. Ag. Thesis*, Tamil Nadu Agricultural University, Coimbatore. [back]

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	Chapter in books	07	-
7	**Award / Medal received**	**09**	**-**
8	**Important achievements in Teaching**		
	❖ Regularly handling courses at UG, PG and Ph.D., level in the subject of Animal Husbandry Extension. ❖ Guided five M.V.Sc., two Ph.D., and one PGDBM as Chairman and was member of advisory committee for 11 M.V.Sc. / Ph.D., research. ❖ Received the Best Teacher Award – 2008, during the XIII Convocation of the University held on 20.11.2009. ❖ Introduced Certificate course on **"Soft Skill Development for B.V.Sc. & A.H. students and internees"**. ❖ **Course content developer** for e-course on Animal Husbandry Extension – Veterinarian in society.		

9	**Important achievements in Research**
	➢ Completed a pioneering research work on **"Manpower planning of veterinary personnel in Tamil Nadu",** India. ➢ As **HRD specialist** in the Project Monitoring and Implementation Cell, **Agricultural HRD Project (funded by the World Bank),** implement the Project at state level **Rs. 1.30 crores.** ➢ Completed a research project on **"Sheep farming towards sustainable livelihood – An analysis".** This provided a bench mark detail of sheep farmer and suggested policy charge for their development. ➢ **Developed Information Touch Screen Kiosk** for empowering the knowledge of pet owners, livestock farmers and entrepreneurs. ➢ **Six user friendly interactive touch screen modules** viz. pet care, clean milk production, mastitis, diagnostic service, first aid and certain frequently asked questions was **developed for the first time in** our state of Tamil Nadu, India. ➢ Guided and developed an **Information Technology (IT) enabled dairy advisory system** for the benefit of Dairy farmers in local language Tamil and English. ➢ Guided in the development **of Interactive DVD on Dairy Health Care and Management** for the benefit of dairy farmers.
10	**Placement and counselling created for veterinary graduates as Placement Officer** ✓ A total of **80 veterinary graduates were placed in private / quasi-government sector** ✓ Developed a strong linkage with **industries related to livestock and pets.** ✓ As placement officer organized **regular lectures to motivate / counsel** students to enhance their aptitude and attitude to match industrial needs.
11	**Journal / Professional Body**
	Editorial Board of various Journals ❖ **Councillor** for the publication of the **Journal of Extension Education**, Society of Extension Education, TNAU, Coimbatore ❖ **Member**, **Advisory board for the Indian Journal of Field Veterinarians**, Indore, MP ❖ **Technical Editor**, **Indian Journal of Extension Science**, Published by Indian Society of Extension Professionals, Division of Dairy Extension, NDRI, Karnal. **Membership in professional societies** **National** ❖ Life Member in Tamil Nadu Veterinary Council, Tamil Nadu, India. ❖ Life Member in Indian Society of Extension Education (Tamil Nadu Chapter), Tamil Nadu, India. ❖ Life Member, Indian Veterinary Extension Forum (IVEF), Pondichery. ❖ Member, Indian Journal of Field Veterinarians. **International** ❖ Member, Agricultural Research and Extension Network, Overseas Development Institute, London, UK. ❖ Life Member in International Extension Forum, India.