

CONSULTATION PATTERN AND FOLLOW UP TREATMENT PRACTICES BY DAIRY FARMERS IN PUNJAB

NEELA MADHAV PATNAIK*, JANCY GUPTA, PRIYAJYOY KAR and PARAG ACHARYA¹

Dairy Extension Division, ¹Division of Livestock Production and Management
ICAR-National Dairy Research Institute, Karnal-132001, India

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ABSTRACT

Antimicrobials, especially antibiotics are used throughout the world, across a diverse array of extensive and intensive livestock production systems. For ensuring prudent use of antimicrobials as a disease control measure on dairy farms, research is needed to study the consultation pattern and follow up practices in case of ailments of livestock taken by the dairy farmer empirically. The study revealed that Veterinary Doctor was ranked the most credible source by dairy farmer as far as treatment was concerned followed by paravet using Rank Based Quotient method. The prescribed antimicrobial dose was completed by 93.74 percent dairy farmers. Majority (96.85%) of dairy farmers go for allopathic treatment frequently. Empirical research on the pattern of antimicrobial use is a vital aspect for designing measures to tackle this growing problem of antimicrobial resistance.

Keywords: Antimicrobials, Consultation pattern, Dairy farmer, Milk production

Antimicrobial Resistance (AMR) is a major health problem, especially in developing countries like India, due to easy availability and higher consumption of medicines leading to higher incidence of inappropriate usage of antibiotics thereby greater level of resistance. The use of antimicrobials in livestock production is coming under growing criticism (Peter *et al.*, 2018). There are increasing reports of resistance to antimicrobial drugs used in veterinary medicine and also, concerns about the threat that may pose to both animal and human health, through the selection of resistance. Antimicrobial residues have been found in milk and milk represents a source where resistant bacteria can enter the human food chain (Unnikrishnan *et al.*, 2005). In the above context, the study was undertaken to understand the way dairy farmers follow the treatment instructions and the measures taken by them in case of disease occurrence which is of paramount importance.

MATERIALS AND METHODS

Sampling and data collection

The study was conducted in Punjab state which has been selected purposively keeping in view the highest milk productivity and per capita availability of milk (BAHS, 2015). Further, three districts (Ludhiana, Amritsar, Pathankot) were chosen randomly. From each district, 2 blocks were selected randomly and from each selected block, 2 villages were selected randomly. Thus study was conducted in 12 villages. From each village, 15 dairy farmers possessing at least 2 milch animals were selected using stratified random sampling method constituting a total sample size of 180. A semi-structured interview

schedule was developed which included a number of closed and open ended questions to gather information on antimicrobial usage in milk production. Descriptive research design was followed for the study. Primary data was collected in the month of January-March, 2017 from 180 dairy farmers as the respondents for the study. The data was analyzed using statistical tools such as Frequency, Percentage, Weighted Mean, and Rank Based Quotient to draw meaningful conclusions from the study.

RESULTS AND DISCUSSION

Consultation pattern by dairy farmer

The respondents were asked how did they approach when their livestock gets sick, i.e. whom they consulted for treatment and the way treatment process was carried out. Out of total respondents, 52 percent of dairy farmers reported they call the veterinarian whereas 19 percent reported they consulted the paravet immediately in case of ailments in cattle (Table 1). Out of those 16 percent dairy farmers preferring initial self-medication followed by consulting the Veterinary Doctor, majority were progressive farmers who were able to treat the commonly occurring diseases by themselves and in severe cases consulted the veterinarian. Economically poor farmers reported that they could not afford the services of veterinarian; hence they were going for self-medication initially with the help of indigenous technical knowledge (ITK) measures and left over medicines. They consulted veterinarian only when their animal is in severe condition of disease. None of the dairy farmers were going for exclusive self-medication which is a healthy sign which can be attributed to large number of veterinary institution and infrastructural facilities available in Punjab. Earlier

*Corresponding author: neela.patnaik@gmail.com

Table 1
Distribution based on consultation pattern by dairy farmer

S.No.	Personnel	Frequency	Percentage
1)	Veterinary Doctor	94	52.22
2)	Paravet	35	19.44
3)	Local quack	9	5.00
4)	Initially self-medication, if severe then vet doctor	30	16.67
5)	Initially self-medication, if severe then paravet	12	6.67
6)	Initially self-medication, if severe then local quack	0	0.00
7)	Self-medication only	0	0.00

studies also confirmed that dairy farmers usually consult the Veterinary Doctors in case of ailments in their cattle (Sawant *et al.*, 2005; Jones *et al.*, 2015; Ojo *et al.*, 2016).

Treatment methods followed by dairy farmer

The dairy farmers were asked what treatment methods they undergo in case their dairy cattle falls sick over a 3-point continuum, used for the study. Majority (96.85%) of dairy farmers in case of ailments in their milch animals frequently preferred allopathic treatment followed by ITK measures (94.25%) as shown in Table 2. Allopathic treatment was occasionally followed by 9 percent dairy farmers possessing indigenous buffaloes and cattle which according to them rarely fell sick. As reported by dairy farmers, Ayurveda (37.59%) and Homeopathy (34.44%) were never a preferred choice for treatment although very few innovative farmers reported that they had tried ayurvedic and homeopathic treatment for their animals in the past but were largely unsuccessful in providing quick relief. The effectiveness of homeopathy and ayurvedic methods was still under question in curing animal diseases which demands further research in these treatment methods other than allopathic in case of livestock.

Precaution taken by dairy farmers for sick animals

The dairy farmers were given a multiple choice question to select one among the four options about the

Table 2
Distribution based on treatment methods followed by dairy farmer

S.No.	Methods	Frequently	Occasionally	Never	Weighted Mean (in percent)
I.	Ayurveda	0 (0.00)	23(12.78)	157(87.22)	37.59
II.	Homeopathy	0 (0.00)	6(3.33)	174(96.67)	34.44
III.	Allopathic	163(90.56)	17(9.44)	0 (0.00)	96.85
IV.	ITK Measures	149(82.77)	31(17.22)	0 (0.00)	94.25

Figures in parenthesis indicate percentage; Weights are Frequently (3), Occasionally (2), Never (1)

precautions they took when the animal fell sick (isolate sick animal, disinfect animal shed, both isolation and disinfection, none of the above). Out of total respondents, 18.89% of respondents reported that they neither isolated the animal nor disinfected the animal shed, 17.22% isolated the sick animal and 22.22% disinfected animal shed. 41.67% reported to have followed both isolation and disinfection by those farmers who were having a medium-large herd size with spacious animal housing system. Those farmers following isolation and disinfection measures were educated and were aware of the importance of isolation and disinfecting for better recovery of diseased animal and preventing the spread of disease to the healthy animals of the herd. Those dairy farmers who were not isolating cited a number of reasons which were lack of space, small herd size, and traditional mind-set that isolating will only deteriorate the health of sick animal and lack of awareness about the benefits of isolation.

Follow-up of treatment by dairy farmer

The respondents were asked on a 3-point continuum about how they follow the prescription practices prescribed by the veterinarian. It was quite alarming to find that not a single respondent discarded the milk of treated animal which has to done in case of diseased animals for 24-48 hours so that the antimicrobial residues in the milk are not consumed and get transferred into the human body (Table 3). The farmers opinionated that from economic point of view they were at a major loss and the price per liter of milk they were getting on sale was low compared to costs incurred on feeding and management aspects of the cattle/buffalo. The study revealed that 93.74% of the respondents reported that they purchased the full recommended dose of antimicrobial (Table 3). By default, in most of the cases the veterinarian charged the fees which included the medicines/antibiotics they provided to the farmers. If at all the farmers had to purchase from outside most of the time they did not purchase the full recommended dose. 90.70% of dairy farmers reported that they completed the course of antimicrobial prescribed. The discrepancy among the results of purchasing the full recommended dose (93.74%) and completing the prescribed antimicrobial course (90.70%) indicates that there may be cases of left over medicines. Upon probing, the dairy farmers agreed that sometimes they save the medicines if the animal recovers earlier so that they can use at later times in case of similar ailments. Sawant *et al.* (2005) reported twenty-four percent of the dairy farmers always completed the course of antibiotic treatment but failure to consult a veterinarian for treating sick animals, and failure to complete antimicrobial treatment course are some possible factors that can lead to inappropriate use of

Table 3

Distribution based on follow-up of treatment by dairy farmer

Practice	Always	Sometimes	Never	Weighted Mean (in percent)
Discarding the milk of treated animal	0 (0.00)	0 (0.00)	180(100.00)	33.33
Purchasing the full recommended dose	146(81.11)	34(18.89)	0 (0.00)	93.74
Completing the course of antimicrobial	130(72.22)	50(27.78)	0 (0.00)	90.70

Figures in parenthesis indicate percentage; Weights are Always (3), Sometimes (2), Never (1)

antibiotics.

Ranking based on credibility of sources of treatment perceived by dairy farmer

Dairy farmers were asked to rank the various stakeholders in ascending order of credibility for health care aspects of milk production irrespective of their consultation pattern (Table 4). Using RBQ technique, the Veterinary Doctor was ranked the most credible source by dairy farmer as far as treatment was concerned followed by paravet. The researchers found that the credibility of Veterinary Doctor was unquestionable on many grounds as opined by the dairy farmers but in case of minor diseases, the farmers preferred paravets as they charged less. The findings are in tune with the findings of Ison and Rutherford (2014) who reported the advice of veterinarian according to dairy farmers was more credible than other sources. At Pathankot district, the farmers having small herds that too local buffalo breeds, usually consulted medicine store personnel and obtained medicine over-the-counter and consulted village quacks also in case of ailments. However, they unanimously agreed that the Veterinary Doctor was the most credible person. The milk vendor and milk co-operative official ranked, respectively at the bottom as the farmers perceived them relatively less capable in giving suggestions/advice related to health aspects.

From the social science point of view, research on antimicrobial use is still an unexplored field with very few attempts by researchers on consultation pattern and treatment procedures followed by farmers at field level. Much research has been focused on lab experiments dealing with antimicrobial resistance but field study is very crucial to formulate policies if at all the risk due to antimicrobial resistance is to be tackled. In the present scenario of increasing concerns regarding antimicrobial resistance, Veterinary Doctors and paravet should be targeted as a major actor for stewardship programs for

Table 4

Ranking based distribution on credibility of sources of treatment perceived by dairy farmer

S.No.	Personnel	RBQ Values	Ranks
1.	Veterinary Doctor	92.73	I
2.	Paravet	78.84	II
3.	Over - the- Counter(OTC)	53.26	III
4.	Other Dairy farmer	50.41	IV
5.	Private Milk Vendor	45.08	V
6.	Milk Co-Operative Official	34.86	VI

prudent antimicrobial usage in the livestock sector. Awareness drive and suitable measures need to be taken up by various stakeholders associated with dairying so that the farmers can have better knowhow and information regarding the disease symptoms, withdrawal period of treated animals, and benefits associated with discarding of milk.

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REFERENCES

- Basic Animal Husbandry and Fishery Statistics, Govt. of India. (2015). AHS series 16. Government of India, Ministry of Agriculture, Department of Animal Husbandry, Dairying and Fisheries Krishna Bhawan, New Delhi. pp. 1-174.
- Ison, S.H. and Rutherford, K.M.D. (2014). Attitudes of farmers and veterinarians towards pain and the use of pain relief in pigs. *Vet. J.* **202**: 622–627.
- Jones, P.J., Marier, E.A., Trantera, R.B., Wub, G., Watson, E. and Teale, C.J. (2015). Factors affecting dairy farmers attitudes towards antimicrobial medicine usage in cattle in England and Wales. *Preventiv. Vet. Med.* **121**: 30–40.
- Ojo, O.E., Fabusoro, E., Majasan, A.A. and Dipeolu, M.A. (2016). Antimicrobials in animal production: usage and practices among livestock farmers in Oyo and Kaduna States of Nigeria. *Trop. Anim. Health Pro.* **48**: 189–197.
- Peter, R., Müntener, C., Demuth, D., Heim, D., Stucki, F., Mevissen, M., and Bodmer, M. (2018). AntibioticScout.ch: Decision support for the prudent use of antimicrobials: Application in cattle. *Schweizer Archiv für Tierheilkunde*. **160**(4): 219-226.
- Sawant, A.A., Sordillo, L.M., and Jayarao, B.M. (2005). A Survey on Antibiotic Usage in Dairy Herds in Pennsylvania. *J. Dairy Sci.* **88**: 2991–2999.
- Unnikrishnan, V., Bhavadasan, M.K., Surendranath, B. and Chand, R. (2005). Chemical residues and contaminants in milk: a review. *Indian J. Anim. Sci.* **75**(5): 592-598.