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ASSESSMENT OF DAIRY FARM MANAGEMENT PRACTICES UNDER FIELD CONDITIONS OF TOBA TEK SINGH

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A survey study supported by Endowment Fund Secretariate University of Agriculture Faisalabad was conducted in rural areas (375 Chawan, 376 Bassi old, 376 Bassi new and 377 Massetain J.B) of Toba Tek Singh to investigate the ongoing practices at dairy farmers' level. For this purpose, thirty dairy farmers from each village were selected at random and personally interviewed by using the pre-tested interview schedule. Survey findings indicated that almost all the farmers were following the traditional practices for raising/managing their dairy animals. The awareness and adoption of recommended technologies was very limited. Majority of the farmers were depending on livestock for their livelihood. In time colostrum feeding and the practice about navel cord care were lacking. All the farmers had lay man idea and firm belief that colostrum feeding before dam placenta expulsion is injurious. The adoption trend for deworming and dipping of calves was only 33 and 31 %, respectively. Due to raising calves on traditional lines, up to 50% mortality was found. The adoption of recommended feeding management techniques (high yielding fodder varieties, silage making, balanced ration, urea treated wheat straw, urea molasses blocks) was nil. All the farmers were using cottonseed cake as a concentrate, and only 46.66 and 39.16 % farmers were adopting the practice of vaccination against (hemorrhagic septicemia & foot and mouth disease) and parasite control. The practice of mastitis detection and teat dipping did not exist. Milk letdown was done through calf (70 %), oxytocin injection (25 %) and concentrate feedings (5%). Majority of the animals were milked by females through folded thumb. Only 45 % respondents were washing the teat /udder of cow /buffalo before milking and 65 % were using the milk foam on teats. In brief, farmers were totally ignorant about recommended techniques hence the result high calf mortality, delayed age at maturity, low milk production, high cost of feeding and low profitability.

Keywords: Assessment, dairy management practices, field conditions

INTRODUCTION

In Pakistan, animal productivity is increasing at a slower rate compared to human population, resulting in deficiency of animal protein in the diet of our people. The annual milk is over 34 million tonnes because of which Pakistan is rated as the fourth largest milk producer in the world, but still the country has to import milk and milk products to fulfil the domestic demand. This import costs a huge amount of foreign exchange. Therefore, low dairy sector productivity requires to be enhanced to meet not only the dietary needs of human population but also to produce surplus to earn foreign exchange through exports. It is necessary because due to ever increasing human population and their living standards, the demand for animal protein particularly that of milk is increasing day by day. There is urgent need to take steps without further delay with the aim to assess the farmer's problems and disseminate the technologies imperative for profitable dairying. Efficient enhancement in production is only possible if farming community starts to adopt the recommended techniques and do away with the traditional practices. There are many factors responsible for low livestock productivity in Pakistan, but limited exploitation of genetic potential mainly due to underfeeding, high incidence of certain diseases, high calf mortality, late age of maturity in heifers and farming on traditional lines are leading factors that hinder livestock productivity Gill (1998).

Calf mortality at farmer's level is very high and almost 30% calves die before attaining the age of two months resulting into considerable monetary losses to the dairy farmers (Bilal, 2004). Keeping calves healthy is very imperative to prepare them as a replacement stock (future dairy animals). At farmer's level, calves constitute a neglected class of animals that are managed only traditionally (Shah, 1994). Colostrum is not fed in time (within an hour post calving) due to a wrong idea that colostrum feeding is injurious till the dam drops out placenta. Calf born without any immunity and colostrum feeding is highly prone to certain diseases (Swanson *et al.*, 1996).

At present, calf raising is not considered economical and is being ignored resulting into delayed maturity. The cost of rearing dairy replacement heifers can be reduced by accelerating growth and attaining early maturity (Hoffman *et al.*, 1996). Stunted growth badly affects the production capacity of the animals throughout their productive life. The initial growth has

good effect on early development and subsequently in attaining early maturity weight because birth weight is positively correlated with growth rate and the growth rate is correlated with early maturity (Heinrichs *et al.*, 1995).

Due to urbanization and the trend of agriculture towards cash crops, fodder area is reducing @ 2% per decade (Sial *et al.*, 1998). Also, there are two fodder scarcity periods (December-January and May-June) when there is chronic shortage of fodder leading to decrease in milk production to a large extent (Bilal *et al.*, 2001). Economic losses due to diseases are very high resulting into heavy monetary losses to the farmers. The incidence of parasitic infestation (both internal and external) in dairy animals also causes reduction in production and may act as predisposing factors for certain diseases such as Pica, Tick fever and theileriosis. Not only production losses occur but also milk quality is deteriorated mainly due to diseases, especially mastitis (Sharif *et al.*, 2007). In Pakistan, every third animal has the problem of a certain degree of mastitis (Muhammad *et al.*, 1995). Most of the above factors are adversely affecting the farmer's economy and discouraging him from adopting modern dairy farming. The present study was therefore conducted with an aim to asses the factors responsible for high calf mortality, delayed maturity, feed problems and economic losses due to diseases.

MATERIALS AND METHODS

The interviewing schedule was considered an appropriate tool for the present study, which was devised according to the requirements and relevance of the present research, to collect relevant data. The farmers were asked questions in a face to face manner while at their door step. The pre-testing of the questionnaire was done and further modification was effected.

The people actively engaged in farming were interviewed. The questionnaire included introducing practices related to calf management (colostrum feeding , method of feeding, navel cord care, deworming and dipping); feeding management (high yielding fodder varieties, urea treated wheat straw, balanced ration, urea molasses blocks); milking management (milk letdown, milking method, udder washing etc) and health management (vaccination, mastitis control program, control of internal and external parasites) of dairy animals. During survey, general information such as herd size, preferred species, main source of income, reasons of high calf mortality and low profitability was also collected. Data collected were subjected to analysis and presented in the form of percentage.

RESULTS AND DISCUSSION

Survey findings indicated that in the project area buffalo was the most preferred species. Majority of the farmer's were depending upon livestock for their livelihood. Herd size varied from 4-65 buffaloes and 1-5 cows per farmer. Heifer farming was a common trend in that area. Low profitability was due to high cost of production and sale of milk at low price (Rs. 18/litre).

Calf related management practices

Survey findings indicated that none of the farmer was feeding the colostrum to the calf in time (within an hour post calving). All the farmers had lay man idea and firm belief that colostrum feeding before dam's placenta expulsion is injurious. Maximum farmers were feeding milk to the calves by natural method (direct sucking). Navel cord care was almost nonexistent. The adoption trend for deworming and dipping of the calves was only 33.33 and 30.83 % respectively (Table 1). Due to calf raising on traditional lines, up to 50 % calf mortality was found in the project area. The results of this study

Table 1. Adoption trend about calf management related practices at farmer's level

Practices	Respondents #	Frequency %
Colostrum feeding prior to placenta expulsion	0	0
Colostrum feeding post placenta expulsion	120	100
Navel cord care	0	0
Deworming		
i) Yes	40	33.33
ii) No	80	66.67
Dipping		
i) Yes	37	30.83
II) No	73	69.17

are in line with those of Shah (1994) and Swanson *et al.* (1996) who reported that at farmer's level calves are the neglected class of animals managed only traditionally. The high calf mortality might be attributed to delayed colostrum feeding as the calf is born without immunity and colostrum is the only weapon to develop immunity.

Feeding the calves by natural means may lead to underfed or overfed calves. Severe underfeeding results into stunted growth of calves and overfeeding leads to diarrhea that may cause death. This observation was also supported by Ahmad and Jabbar (2000) who pointed out that at dairy farms calf mortality is a real problem and about 50% deaths occur during the first three months of age.

Feeding management of dairy animals

The adoption of recommended feeding management techniques was almost none. Maximum farmers were using traditional fodder varieties and only 9.16 % had awareness about the high yielding fodder varieties. Cottonseed cake was used as a concentrate by all the farmers. Due to farming on traditional lines farmers were facing the problem of fodder shortage especially during December-January and May-June. There was a general feeling at farmer's level that dairy farming is not very profitable. This might be due to high cost of feeding as cottonseed cake is costly and provision of low quality fodder to the animals as farmers had no awareness about the proper stage for cutting of fodder.

Table 2. Adoption trend of feeding, milking and health management related practices at farmer's level

Practices	Respondents #	Frequency %
Awareness about high yielding fodder varieties	11	9.16
Use of cottonseed cake as concentrate	120	100
Silage making	0	0
Urea treated wheat straw	0	0
Urea molasses block	0	0
Source of milk letdown		
i) Calf suckling	84	70
ii) Oxytocin injection	30	25
iii) Concentrate feeding	6	5
Milking by		
i) Male	30	25
ii) Female	90	75
Milking method		
i) Full hand	22	18.33
ii) Folded thumb	98	81.67
Udder / teat washing		
i) Yes	54	45
ii) No	66	55
Use of milk foam on teats		
i) Yes	78	65
ii) No	42	35
Vaccination against hemorrhagic septicemia		
i) Yes	36	30
ii) No	84	70
Vaccination against foot and mouth disease		
i) Yes	20	16.66
ii) No	100	83.34
Control of parasites		
i) Yes	47	39.16
ii) No	73	60.84
Mastitis detection and teat dipping	0	0

The results of this study are in line with those of Karim *et al.* (2005) who reported that cost per litre of milk is high at farmer's level and it can be reduced by feeding management. Adoption of techniques such as use of high yielding fodder varieties, silage making, use of urea treated wheat straw and urea molasses blocks can lead to ensure regular supply of quality feed/fodder, leading to reduced cost of feeding and boost in production and profitability. The above statement was also supported by Hussain and Jabbar (2001) and Gujjar and Shakil (2005).

Milking management

Most of the farmers were using calves for milk letdown (70 %) followed by oxytocin injection (25 %), and concentrate (5 %). Majority of the animals were milked by females through folded thumb. Only 45 % respondents were washing the teat / udder of animals before milking and 65 % were using the milk foam on teats. On overall basis, farmers were highly ignorant about the recommended milking management practices. There was a general response from the respondents that mastitis is the common problem in lactating animals. This might be attributed to frequent injury/ wound on teats due to calf's teeth, skin flora opportunist, and use of milk foam. These survey findings are in line with those of Bilal *et al.* (2004) who pointed out that milk letdown with the help of calves, milking by folded thumb, nonwashing of teat udder prior to milking are the predisposing factors responsible for high incidence of mastitis under field conditions.

Health management

Respondents were paying little attention towards the health management of dairy animals. The vaccination against hemorrhagic septicemia and foot and mouth diseases was being done by 46.66 % farmers and only 39.16 % were taking measures to control parasites. The practice of mastitis detection and teat dipping was not being observed. There was a common complaint from the farmers that every year so many animals die due to hemorrhagic septicemia even though these animals had been vaccination. The probable reason may be the use of low quality vaccine and use of a small dose than recommended Yaqub *et al.* (1997) pointed out that hemorrhagic septicemia and foot and mouth diseases are the major problems under field conditions and in time vaccination with recommended dose is the only successful preventive measure. Javed and Ahamd (1988) reported that parasites are responsible for huge economic losses under field conditions. This might be due to climate factors, poor husbandry practices and lack of knowledge on the part of livestock farmers.

CONCLUSION

Nonadoption of new technologies and farming on traditional lines are the evident factors responsible for low profitability, high economic losses and low profitability.

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REFERENCES

Ahmad, F. and M.A. Jabbar. 2000. Comparative efficiency of calf starter and conventional ration in buffalo sucking calves. 21st Annual Report, LPRI. Bahadurnagar, Okara-Pakistan.

Ahmad, F., S.A. Bhatti and I. Ahmad. 2004. Effect of urea molasses blocks on energy and nitrogen balance, growth performance and feed intake in Sahiwal heifers. 25th Annual Report, LPRI. Bahadunagar, Okara-Pakistan.

Bilal, M.Q., M. Abdullah and M. Lateef. 2001. Effect of mott dwarf elephant grass (*Pennisetum purpureum*) silage on dry matter intake, milk production, digestibility and rumen characteristics in Nili Ravi buffaloes. J. Dairy Sci. 84(1): 347.

Bilal, M.Q. 2004. Dairy Farming. Zari Digest Publications, University of Agriculture Faisalabad.

Bilal, M.Q., M.U. Iqbal, G. Muhammad, M. Avais and M.S. Sajid. 2004. Factors affecting the prevalence of clinical mastitis in buffaloes around Faisalabad district (Pakistan). Int. J. Agri. Biol. 6(1): 185-187.

Gill, R.A. 1998. Dairy and Beef Production in Pakistan, Key note address workshop on dairy/beef Production at LPRI Bahadunagar, Okara-Pakistan.

Gujjar, S.R. and M. Shakil. 2005. Extension activities around Livestock Production Research Institute, Bahadurnagar (Okara) at farmer level. 26th Annual Report, LPRI. Bahadurnagar, Okara-Pakistan.

Heinrichs, A.J., S.J. Wells and W.C. Losinger. 1995. A study of the use of milk replacer for dairy calves in the United States. J. Dairy Sci. 78: 2831-2837.

Hoffman, P.C., N.M. Brehm, S.G. Price and A.P. Adams. 1996. Effect of accelerated post pubertal growth and early calving on lactation performance of primiparous Holstein heifers. J. Dairy Sci. 79: 2024-2031.

Hussain, R. and M.A. Jabbar. 2001. Palatability of urea molasses blocks and their effect on utilization of fodder in adult cattle and buffaloes. 22nd Annual Report, LPRI Bahadunagar, Okara-Pakistan.

Javed, S. and R. Ahmad. 1988. Identification of endoparasites in buffalo and cattle at livestock experiment station, Bahadurnagar, Qadirabad and around Bahadurnagar Farm. 9th Annual Report, LPRI Bahadurnagar, Okara-Pakistan.

Karim, M., A.H. Zafar, M. Akram and S. Najeeb. 2005. Economics of milk production under various farming systems in Okara and Sahiwal districts. 26th Annual Report, LPRI Bahadurnagar, Okara-Pakistan.

Muhammad, G., M. Athar, A. Shakoor, M.Z. Khan, F. Rehman and M.T. Ahmad. 1995. Surf Field Mastitis Test: An inexpensive new tool for evaluation of wholesomeness of fresh milk. Pakistan J. Food Sci. 5: 91-93.

Rafiq, M. 2004. Study on the nutritive value of urea treated and untreated sugar cane bagasse in growing female Sahiwal calves. 25th Annual Report, LPRI Bahadurnagar, Okara-Pakistan.

Sial, M.A., Z. Alam and G. Ali. 1998. Livestock Feed Resources and Requirements Scenario of Pakistan. Dairy Production Potential and Challenges Proc. National Seminar held at Faisalabad, May 29-30.

Shah, S.I. 1994. Animal husbandry. National Book Foundation, Islamabad, Pakistan.

Sharif, A., T. Ahmad, M.Q. Bilal, A. Yousaf, G. Muhammad, S. Rehman and F.M. Pansota. 2007. Estimation of milk lactose and somatic cells for the diagnosis of sub-clinical mastitis in dairy buffaloes Int. J. Agri. Biol. 99 (2): 267-270.

Swanson, K.S., M.R. Merchen, J.W. Erden and J.K. Drackley. 1996. Effect of accelerated post pubertal growth and early calving on lactation performance of primiparous Holstein heifers. J. Dairy Sci. 79: 2024-2031.

Yaqub, T., R. Ahmad and A. Ahmad. 1997. Isolation and characterization of Past. multocida from suspected cases of HS. 18th Annual Report. LPRI Bahadurnagar, Okara-Pakistan.