Original Research

Milking and Calf Rearing Management Practices Followed by Gir Cattle Owners for Conservation of Gir Cattle in Ajmer District of Rajasthan

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Abstract

The present study was conducted in eight randomly selected villages of Ajmer district in Rajasthan. Data was collected through structured interview schedule. A total sample size was constituted with 160 Gir cattle owners. Perusal of data revealed that knuckling (87.50 per cent) was the main method of milking. All the respondents used to clean udder and teats, wash hand before milking and milked their cattle twice a day. None of the cattle keepers follow dry hand milking. About 56.25 per cent of the respondents used sand and clean water for cleaning of milking utensils. All (100%) of the respondents follow the practice of drying of the pregnant animals about 60 days before calving. About 82.50 per cent of the respondents adopt intermittent milking method of drying of the pregnant animals. Results indicated that 85.62 per cent of the owners cleaned and trimmed hooves of the calf after birth. Majority 93.13 per cent of the respondents did not cut the naval cord of calf. About 47.50 percent respondents allowed adlib quantity of colostrum to calf. About 51.50 per cent of the owners are feeding colostrums to calf within 2 hr of birth. It was found that 55.62 per cent of the owners allowed suckling of calf up to 6 month of age. Majority 91.87 per cent of owner did not perform deworming of calves.

Key words: Colostrum, Deworming, Knuckling, Livestock, Suckling

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Introduction

Livestock rearing and crop husbandry are the important components of mixed farming which influence agricultural economy leading to sustainable agriculture and are complementary to each other. In 19th livestock census according to Animal Husbandry Department, Rajasthan there are total population of indigenous cattle and exotic/cross bred cattle were 115.89 lakh and 17.35 lakh, respectively, with a total cattle population of Rajasthan is 131.34 lakh. Livestock sector plays a crucial role in shaping the rural economy of India. It is a major continuous income generating activity for the rural households. An efficient management needs a strong database. Efforts should be aimed to collect and correlate all available information. Therefore, it is imperative to obtain first-hand information on the existing milking and calf rearing management practices being followed by the Gir cattle owners. The self-sufficiency in milk production is possible only through the endorsement of improved management practices. Calves form the future dairy flock and they require good management skills and constant attention. Keeping these things in mind the present study was designed to garner information on different aspects of milking and calf rearing management practices under field conditions of Ajmer District.

Materials and Methods

The present investigation was conducted in Ajmer district of Rajasthan, which was selected purposively. The district comprised of 10 tehsils, out of which two tehsils were selected randomly. The selected tehsils were Bhinay and Bijainagar. Further, four villages from each selected tehsil were identified. From each village 20 respondents were selected randomly. Thus, the entire sample consists of 160 respondents from selected eight villages in two tehsils of the district.

With the help of experts and literature, different parameters regarding existing milking and calf rearing management practices in study area were enlisted. In each selected village, five cattle respondents with cattle rearing experience were interviewed. Firstly, the five cattle rearers were collectively asked to identify different practices in their village in relation to cattle rearing. Based on pooled information finally few parameters were considered for present study. Each respondent was asked separately about their existing milking and calf rearing management practices in study area, without having interaction with the remaining farmers. Thus, each Gir cattle owner had his own independent opinion. The following statistical treatments were used for interpretation of data-

Frequency Distribution: The total numbers of Gir cattle owners in the survey.

Percentage: Simple comparisons were made on the basis of percentage.

Result and Discussion

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Existing Milking Management Practices

The findings regarding the milking management practices followed by the respondents are presented in Table 1.

Table1: Existing milking management practices

Existing practices	Frequency	Percentage
1. Method of milking		
a. Full hand	0	0
b. Knuckling	140	87.5
c. Stripping	20	12.5
2. Stripping at the end of milking		
a. Yes	122	76.25
b. No	38	23.75
3. Place of milking		
a. Milking at the same place	134	83.75
b. Milking at separate and dry place	26	16.25
4. Frequency of milking		
a. Two times	160	100
b. Three times	0	0
5. Clean udder and teats before milking		
a. Yes	160	100
b. No	0	0
6. Wash hand before milking		
a. Yes	160	100
b. No	0	0
7. Change milker		
a. Yes	101	63.13
b. No	59	36.87
8. Cleaning of milking utensils with		
a. Sand and clean water	90	56.25
b. Ash and water	66	41.25
c. Cleaning agent and water	4	2.5
9. Drying of the pregnant animals 60 days before calving		
a. Yes	160	100
b. No	0	0
10. If yes, then which method you adopt		
a. Abrupt cessation	0	0
b. Intermittent milking	132	82.5
c. Incomplete milking	28	17.5
11. Type of milking pail		
a. Yes	160	100
b. No	0	0
12. Calf is allowed to suckle		
a. Before milking	20	12.5 12.50
b. After milking	0	0
c. Both times (a+b)	140	87.5

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13. If the cattle do not let down milk after the death of calf, practice followed		
a. Offer concentrate and feed	155	96.87 96.87
b. Apply oxytocin injection	5	3.13
14. Dry hand milking		
a. Yes	0	0
b. No	160	100

It was found that majority 87.5 per cent of the respondents followed knuckling method of milking. Only 12.5 per cent of respondents followed stripping method of milking. The results of present study are almost similar with the earlier findings of Sabapara *et al.* (2016), Manohar *et al.* (2013), Kishore (2013), Sinha *et al.* (2010) and Rathore *et al.* (2010) but in contrary to the results of Singh *et al.* (2014) and Bashir *et al.* (2013). About 83.75 per cent of the respondents milked cattle at the same place and 16.25 per cent milked at separate and dry place. Results are in agreement with Sabapara *et al.* (2016), Bashir (2013) and Gupta *et al*. (2008). The above results are contrary to the findings of Manohar *et al.* (2013), Sinha *et al.* (2010) and Rathore *et al.* (2010). Majority (76.25 per cent) of the respondent followed stripping at the end of milking. The results are similar with the results of Manohar *et al.* (2013) and Rathore *et al.* (2010). All the respondents milked their cattle twice a day and this finding is in line with the reports of Sabapara *et al.* (2016), Manohar *et al*. (2013), Bashir (2013), Rathore *et al.* (2010) and Gupta *et al*. (2008) but contrary to Sinha *et al.* (2010), who suggested that in rural areas, 55.4% farmers were milking once and only 41.1% twice in a day. All the respondents cleaned udder and teats before milking. These results are in agreement with the earlier findings of Sabapara *et al.* (2016), Singh *et al.* (2014), Manohar *et al.* (2013), Bashir *et al.* (2013), Sinha (2010), Rathore *et al.* (2010) and Bainwad *et al.* (2007) but in contrary with Kishore *et al.* (2013).

About 63.13 per cent of the respondents changed milker from time to time because some cattles will give milk to a particular person if milker is not changed. None of the respondents used scientific milking pail for milking. Similar observations were reported by Manohar *et al.* (2013), Sinha *et al.* (2010) and Rathore *et al.* (2010). Majority (56.25 per cent) of the cattle owners used sand and clean water for cleaning of milking utensils followed by ash and water 41.25 per cent and cleaning agent and water (2.50%). This finding is well supported by finding of Sabapara *et al.* (2016), Manohar *et al.* (2013) and Rathore *et al.* (2010) but in contrast with the finding of Singh *et al.* (2014).

Dry period of about 60 days was practiced by all the respondents. The reason for adopting this dry period as reported by the farmers was that they believed it reduced the occurrence of milk fever and improves the lactation yield in next lactation cycle. The results are almost similar with the results of Malsawmdawngliana *et al.* (2016) and Sabapara *et al.* (2016). Above findings are contrary with the findings of Sinha *et al.* (2010) reported that most of the farmers in all the areas were not using any drying off procedure and animals got

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self dried in 96.7% cases in rural areas and 98.9% each in semi-urban and urban areas. Majority (82.50%) of the respondents followed intermittent milking method for drying of pregnant cows followed by incomplete milking method (17.50%). The present findings are in line with the findings of Rathore *et al.* (2010). Majority (87.5 per cent) of cattle keepers allowed calf for suckling both times i.e. before and after milking. Only 12.5 per cent allowed calf before milking. These results are similar with the earlier findings of Manohar *et al.* (2013), Kishore *et al.* (2013), Sinha *et al.* (2010) and Rathore *et al.* (2010) but in contrary with the findings of Sabapara *et al.* (2016) reported that all the respondents allowed the calves to suckle before milking. About 96.87 per cent of the respondents offer concentrate feed for letdown of milk after the death of calf and only 3.13 per cent of the respondents applied oxytocin injection for letdown of milk in the study. The results obtained from present study were similar to the findings of Manohar *et al.* (2013). The practices of dry hand milking were not followed by any of the respondents. This finding is well supported by finding of Sabapara *et al.* (2016), Manohar *et al.* (2013) and Rathore *et al.* (2010).

From the results, it has emerged that though majority of the respondents followed one or the other ideal milking management practices, yet some gaps existed in adoption of certain critical practices by some of the respondents. Though knuckling is a faulty method of milking but is existing in area to major extent.

Existing Calf Rearing Management Practices

The Table 2 indicates that all the respondents attended the cattle as well as calf at the time of calving. Majority 85.62 per cent of the respondents were following the practices of cleaning the calf immediately after birth as well as trim hooves and allowed the dam to lick her calf immediately. These findings are in line with the observation of Saharan *et al.* (2015), Mahla *et al.* (2015) and Sagar *et al.* (2012). More than 93.13 per cent Gir cattle owners did not follow the practice to cut and disinfect the naval cord. Only around 6.87 per cent Gir cattle owners cut the naval cord with new blade or knife and tied with thread. It is due to lack of knowledge about the importance of these practices. These findings are in close conformity with the reports of Saharan *et al.* (2015), Mahla *et al.* (2015), Maousami *et al.* (2012), Sabapara *et al.* (2010) and Tiwari *et al.* (2009).

It was observed that 51.25, 12.50 and 36.25 per cent of the respondents provided colostrum within two hours of birth, 2 to 4 hours after birth and after fall of placenta, respectively. Similar findings were also noticed by Rathore *et al.* (2010), Sabapara *et al.* (2010) and Deoras *et al.* (2004) but do not fall in line with observed by Saharan *et al.* (2015) and Mahla *et al.* (2015). Quantity of colostrum feeding was *ad lib*, one quarter and half quarter by new born calf were followed by 47.50, 35.63 and 16.87 per cent of the respondents, respectively. These findings are quite similar to Saharan *et al.* (2015), Mahla *et al.* (2015) and Rathore *et al.* (2010), but do not fall in line with observation of Deoras *et al.* (2004). The majority (55.62 per cent) of the respondents allowed suckling to their claves up to six months of age, whereas, 41.88 and

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2.50 per cent of the respondents allowed suckling less than four months and above 6 months of age, respectively. These findings are in line with the observation of Saharan *et al.* (2015) and Mahla *et al.* (2015) but do not fall in line with observation of Maousami *et al.* (2012) and Sinha *et al.* (2010).

Table 2: Existing calf rearing management practices

Existing Practices	Frequency	Percentage
1. Attended the cattle at the time of calving:		
a. Yes	160	100
b. No	0	0
2. Clean the calf immediately after birth and trim the hooves:		
a. Yes	137	85.62
b. No	23	14.38
3. Cut and disinfect the naval cord of calf:		
a. Yes	11	6.87
b. No	149	93.13
4. Feeding of colostrum to the calf:		
a. Within two hours of birth	82	51.25
b. Two to four hours of birth	20	12.5
c. After dropping of placenta	58	36.25
5. Quantity of colostrum feeding:		
a. Adlib suckling	76	47.5
b. One quarter	57	35.63
c. Half quarter	27	16.87
6. Duration of suckling of calf:		
a. Weaning (just after birth)	0	0
b. Up to six months	89	55.62
c. Less than four months	67	41.88
d. More than six months	4	2.5
7. Deworming of calves:		
a. Yes	13	8.13
b. No	147	91.87
8. Lice/ticks eradication measures followed:		
a. Yes	125	78.13
b. No	35	21.87
9. Dehorning:		
a. Yes	0	0
b. No	160	100
10. Castration of male calf:		
a. Yes	0	0
b. No	160	100
11. Do you protect calf against inclement weather conditions?		
a. Yes	43	26.87
b. No	117	73.13

None of the respondents practiced weaning system of calf rearing. These findings are in close conformity with the reports of Rathore *et al.* (2010) and Deoras *et al.* (2004). Majority of the respondents (78.13 per

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cent) took control measures of lice and ticks eradication, but the practice of calf deworming was followed by only 8.13 per cent Gir cattle owners. The result of calf deworming practice observed in this study was contrary to the finding of Prajapati *et al.* (2015), Sagar *et al.* (2012) and Sabapara *et al.* (2010). Dehorning and castration of male calves were not followed by any of the respondents. These findings are quite similar as Malsawmdawngliana *et al.* (2016), Saharan *et al.* (2015), Mahla *et al.* (2015), Sagar *et al.* (2012), Rathore *et al.* (2010) and Deoras *et al.* (2004), but do not fall in line with observed by Chand *et al.* (2014) and Gupta *et al.* (2008).

Only 26.87% of farmers followed the practices to protect their calf from extreme weather. To protect the calf from severe cold in winter (December - February), they used gunny bags while in peak summer majority of respondents practiced to tie their calf under shady tree and occasionally bathe them to lessen the heat stress. This shows that farmers are aware of protecting their animals against inclement weather.

Conclusion

It may be concluded that milking and calf rearing practices followed by Gir cattle owners in Ajmer districts of Rajasthan are good but some lacunas like Knucling method, change milker, type of milking pail, dry hand milking and duration of suckling of calf are abruptly compromising with the hygiene and productivity of animal. However, disinfect the naval cord of calf and deworming of calf are making calves more prone towards diseases and hampering productivity.

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