STATUS AND CONSTRAINTS OF DAIRYING IN THE TRIBAL HOUSEHOLDS OF NARMADA VALLEY OF GUJARAT - INDIA

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ABSTRACT

The tribal dairy peasant is less progressive than its non-tribal counterpart in Gujarat. The status of tribal dairy farmers, and causes for their backwardness has been hardly elucidated. This study, undertaken in 2008-09, depicts the socioeconomic condition, herd characteristics, livestock productivity, and perceived constraints of dairy farmers of *Vasava* and *Tadavi Bhil* communities, dwelling in the tribal dominated Narmada valley, geopolitically a part of the Narmada district of Gujarat. Majority of tribal dairy farmers (53.75%) were in middle age range (31-50 years), educated from primary to secondary level (76.25%), of medium (5-8) family size (62.5%), and had marginal to small (2.5-5.0 acres) land holding (58.75%). Most of the farmers (65%) were members of dairy cooperative societies. Mixed farming (agriculture and livestock) was the vocation of majority of the farmers (91.2%). The herd size was medium (6-10) in majority (60%) of tribal households, and indigenous cows and buffaloes were maintained together in most of the herds (53.75%).The average productivity in majority of tribal households was <2 litres/day for indigenous cows, 3-10 litres/ day for crossbred cows, and 3-5 litres/ day for buffaloes. The major impediments were lack of capital for animal shelter (77.5%), high cost of feed (90%), non-availability of green fodder through out the year (73.75%), non-remunerative price for milk (87.5%), repeat breeding in cows (70%), relatively low conception rate in artificially inseminated cows (67.5%), inadequate knowledge about diseases and disease control systems (57%), high incidence of mastitis in crossbred cows (53.75%), and high cost of treatment (52.5%). The constraints identified in our study would serve as a prelude for launching pragmatic dairy development programs and intervention strategies to raise the socio-economic condition of tribal dairy farmers, and would contain the exodus of desperate young tribal, deserting home in search of jobs, outside the valley.

KEY WORDS

Constraints, Dairying, Gujarat, Narmada valley, Tribal

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INTRODUCTION

The dairy scenario in Narmada valley, geopolitically a part of Narmada district of Gujarat known as "Milk bowl of India" is depressing, because of low milk flow from this district to the market. It is primarily a tribal dominated district (78%) with extensive (37%) forest cover with high population density, small land holding, poor livestock productivity, and less employment opportunity (Stall *et al*., 2006; Singh *et al*., 2008).

Most of the dairy related information available on the tribal of this district is based on assumptions, casual observations, personal experience of visiting professionals, and stray reports, which are not adequate to formulate dairy development policies, programs, and intervention strategies for improving dairy production. This paper examines the socioeconomic profile, herd characteristics, milk production status, and constraints faced by tribal dairy farmers of Narmada district of Gujarat.

MATERIALS AND METHODS

This study was under taken in two villages, from each taluka in four talukas, *viz*., Nandod, Tilakwada, Sagbara and Dediapada of Narmada district in the year 2008-09. From each village, 10 tribal farmers were selected randomly with a total of 80 respondents. The tribal were *Vasava* and *Tadavi* Bhils.

The interview schedule developed for the study was used for collecting the information through personal interview. The information pertained to the status of the tribal dairy farmers, with respect to age, education, family size, land holding, affiliation to dairy organization, vocational diversification, herd size, herd composition, milk productivity, and the constraints perceived in adoption of improved dairy husbandry practices.

RESULTS AND DISCUSSION

Socioeconomic Profile: The socioeconomic profile of tribal dairy farmers is given in Table-1.

Age: The majority of the dairy farmers (53.75%) were in middle age-range (31-50 years). The young (10%) were not attracted to dairying, because of easy availability of factory jobs in industrially resurgent south Gujarat. Our findings are coherent with the reports of Sabapara (2009) and Prajapati (2012).

Education: The majority of the farmers (41%) had primary level of education, followed by secondary level of education (35%). Together, they constituted 76.25 percent. It is similar to the report (76.5%) of Chauhan *et al*. (2004). Availability of high school education near home is the reason that might have enticed the parents to send their children to school, besides engaging them as helping hands in farm operations. This agreed with the report of Durgga (2009).

Family size: The majority of the farmers (62.5%) were of middle size (5-8). The nuclear and middle size families are

involved in majority, in dairying operations, were also reported earlier (Gour, 2002). This is attributed to the preference of farmers for nuclear families, although it is stretched due to the presence of elders in the family.

Table-1. Socioeconomic profile of tribal dairy farmers.

Table- 1.1 Age(year)

Status:	Young (≤30)	Middle (31–50)	Old (>50)
No. (%):	8(10.00)	43(53.75)	29(36.25)

Table- 1.2 Education

Status	No. (%)
Illiterate	16(20.00)
Primary	33(41.25)
Secondary	28(35.00)
Above	3(3.75)

Table- 1.3 Family size

Status:	<5	5 to 8	>8
No. (%):	17(21.30)	50(62.50)	13(16.30)

Table- 1.4 Land holding (Acre)

Status	No. (%)
Landless	8(10.00)
Marginal (up to 2.5)	17(21.25)
Small (2.6 to 5)	30(37.50)
Large (>5)	25(31.25)

Table-1.5 Affiliation to dairy org.

Status:	Dairy co-op.	Dairy co-op. + Other
No. (%):	52(65.00)	28 (35.00)

Table- 1.6 Vocational diversification

Status	Agriculture + Livestock	Livestock + Other
Number (%)	73(91.20)	7(8.80)

Land holding: The majority of the farmers (37.5%) owned 2.6 to 5.0 acres of land. It is in proximity (37.00 %) with the findings of Durgga (2009).

Affiliation to dairy organizations: The majority of the farmers (65%) were members of dairy cooperative societies. However, 75% were dual/ multiple members of other organizations, including dairy cooperative societies, while 25% were not members of any organization. Although five dairy cooperatives, *viz*., Vadodara Dairy, Bharuch Dairy, Surat dairy, Nivalda Dairy, and Amiyar Dairy operate in the district, their services do not reach to large number of tribal dairy farmers (Singh *et al*., 2008).

Vocational diversification: Mixed farming (crop and livestock) system was followed by majority (91.2%) of the farmers. The result is consistent with the report of Patel (2005), who had reported that 85.8% of the farmers depended on farming and animal husbandry. Such deviation is not un-expected, since the study areas were different.

Herd characterization: The herd characterization with respect to herd size, herd composition, and the productivity of livestock in tribal households are given in Table-2.

Herd size: The majority of the tribal farmers (60%) had medium size herds (6-10). It was higher than the report (26.74%) of Gour (2002).

Herd composition: The majority of the tribal farmers (53.75%) maintained mixed flocks of indigenous cows and buffaloes. 16.25% of the farmers had indigenous cows, 3.75% had crossbred cows, and 11.25% were maintaining buffaloes.

Productivity: The average milk production of the indigenous cows maintained by majority of the tribal households (70.59%) was less than 2 litres. The majority of tribal households (73.33%) were maintaining crossbred cows, yielding 3-10 litres per day. Buffaloes in majority of tribal households (58.62%) were yielding 3-5 litres per day. In general, the indigenous cows were of low productivity, while the crossbred cows and buffaloes were of medium productivity in majority of the tribal households. Singh *et al*. (2008) have reported that the average milk productivity in Narmada district was 1.66 kg/ day that was 35.65% lower than the state average for Gujarat (2.58 kg/ day).

Table-2. Herd characteristics and livestock productivity in tribal households.

2.1 Herd size

Status:	Small (1 to 5)	Medium (6 to 10)	Large (>10)
No. (%):	15(18.75)	48(60.00)	17(21.25)

2.2 Herd composition

Status	No.(%)
Indi.cows (IC)	13 (16.25)
CB cows (CC)	3 (3.75)
IC+CC	6 (7.5)
Buffalo (B)	9 (11.25)
IC+B	43 (53.75)
CC+B	2 (2.5)
IC+CC +B	4 (5.0)

2.3 Milk yield (L/d) in Indigenous cows

Status :	<2L	2 to 4L	>4L
No. (%):	48(70.59)	16(23.53)	4(5.88)

2.4 Milk yield (L/d) in Crossbred cows

Status :	<3L	3 to 10L	>10L
No. (%):	2(13.33)	11(73.33)	2(13.33)

2.5 Milk yield (L/d) in Buffalo cows

Status :	<3L	3 to 5L	>5 L
No. (%) :	12(20.69)	34(58.62)	12(20.69)

Constraints in dairying

The constraints faced by tribal farmers with respect to housing, feeding, milking, breeding, and health care are depicted in Table-3.

Housing: Lack of own capital (77.50%) to construct a byre due to low level income, and high cost of construction (72.50%) forbids the tribal to construct a proper shelter for the livestock. Lack of farmer-friendly credit facility of public financial institutions like bank force the farmers (10%) to depend on the local money lenders, who charge exorbitant interest on loan. High interest rate on farm loans (13.75%) and lack of space for construction of house (12.5%) are additional constraining factors faced by the tribal for constructing a proper animal house. Kumar *et al*. (2006), Mohi and Bhatti (2006) have also observed that lack of own capital was a major constraint, faced by the farmers in providing proper shelter to the livestock.

Feeding: The major constraints related to feeding of dairy animals were high cost of feed (90%), followed by non-availability of green fodder round the year (73.75%), lack of knowledge of balanced ration (72.50%), lack of awareness about treatment of poor quality straw to improve its nutritive value (25.00%) and lack of knowledge about silage preparation (15.00%). Mohapatra *et al*. (2012) too had observed that high cost of concentrate (96.67%) and lack of facilities for growing green fodder (62.5%) were the major constraints faced by the tribal dairy farmers of Mayurbhanj district of Odisha.

Marketing: The majority of the farmers (87.5%) perceived that non-remunerative price for milk was a major constraint, followed by lack of knowledge in clean milk production (43.75%), and lack of preservation facilities for milk (31.25%). It is reported that the milk producers in the country side do not get proper remuneration, since they are forced to dispose the milk in the village itself, due to lack of marketing facilities (Mohammad and Gupta, 2011). Mohapatra *et al*. (2012) had observed that non-remunerative price for milk is a major constraint faced by the tribal dairy farmers (100%) in Mayurbhanj district of Odisha.

Non-availability of refrigeration facility forces farmers for distress sale of milk at a compromising price. Clean milk production is very important, since high microbial count of milk (> 10^5 cfu/ ml) makes it unfit for consumption, thus reduces its market value.

Breeding: The major constraints were repeat breeding (70%), low conception rate through artificial insemination (67.50%), followed by the belief that rectal palpation of animals for pregnancy confirmation would harm the animal and the foetus (40.00%), lack of availability of insemination service in time (26.25%), lack of improved bulls for breeding in villages (10.00%) and lack of knowledge of signs of heat (3.75%). The present finding is in agreement with the findings of Kumar *et al*. (2006); Mohi and Bhatti (2006).

Health care: The most important health constraints were inadequate knowledge of diseases and their control (57.00%), problem of mastitis in crossbred cows (53.33%), and high cost of veterinary treatment (52.50%). The results are in agreement with Kumar *et al*. (2006) and Sabapara *et al*. (2012).

Table-3. Constraints in dairying in tribal households.

3.1 Housing

Particulars	Number (%)
Lack of own capital	62 (77.50)
Lack of credit facility	8 (10.00)
High interest rate	11 (13.75)
Lack of adequate space	10 (12.50)
High construction cost	58 (72.50)

3.2 Feeding

Particulars	Number (%)
High cost of feed	72 (90.00)
Lack of knowledge on balanced ration	58 (72.50)
Lack of availability of green fodder	59 (73.75)
Lack of knowledge on enrichment of straw	20 (25.00)
Lack of knowledge on silage preparation	12 (15.00)

3.3 Marketing

Particulars	Number (%)
Non-remunerative price for milk	70 (87.50)
High cost of dairy utensils	5 (6.25)
Lack of preservation facilities for milk	25 (31.25)
Lack of knowledge on clean milk production	35 (43.75)

3.4 Breeding

Particulars	Number (%)
Lack of knowledge on Heat detection	3 (3.75)
Low conception rate by Artificial Insemination	54 (67.50)
Repeat breeding in cows	56 (70.00)
Lack of insemination facility in time	21(26.25)
Misconception about rectal palpation for PD.....	32 (40.00)
Lack of improved bulls for breeding in villages.....	8 (10.00)
Lack of buffalo bulls for natural service	0 (0.00)

3.5 Health care

Particulars	Number (%)
Problem of mastitis in crossbred cows	43 (53.75)
High cost of Veterinary treatment	42 (52.50)
Non availability of vaccines in time	3 (3.75)
Lack of knowledge about disease control	46 (57.00)
Distant location of Veterinary Hospital	4 (5.00)
Irregular visit of Veterinary Doctor	14 (17.50)

CONCLUSION

The poor economic status, low productivity of livestock, and various management constraints identified in this paper caused road-block for the progress of tribal dairy farmers in Narmada valley. A pragmatic approach by the state agencies, dairy cooperatives and national Dairy Development Board (NDDB) is needed to resolve the constraints.

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