The Pharma Innovation Journal 2023; SP-12(6): 331-334

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; SP-12(6): 331-334

www.thepharmajournal.com
Received: 11-04-2023
Accepted: 13-05-2023

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Prospects and challenges of dairy farmers in Panchmahal District of Gujarat

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Abstract
The dairy industry in Gujarat faces various challenges that need to be addressed for its sustainable growth. This study focused on the current status and prospects of dairy in Gujarat, as well as the challenges faced by farmers in the district, Panchmahal. For that sake, 120 dairy farmers were interviewed with a structured schedule. Panchmahal district, a tribal dominated district of Gujarat has its own importance in the state due to its largest number of dairy cooperatives whereas milk production and productivity is very much low that needs effective technological interventions in breeding and feeding practices. Dairy farmers in the study area follow the conventional and branded feed for their animals in a proportion of 1.74kg and 3.48kg per day respectively. High price and poor quality of feed are the major issues for the dairy farmers in the district.

Keywords: Dairy farmers, feed, cattle

Introduction
Dairy is the single largest agricultural commodity contributing 5 per cent of the national economy and employing more than 8 crore farmers directly. India is ranked 1st first in milk production contributing 23 per cent of global milk production. Milk production in the country has grown at a compound annual growth rate of about 6.2 per cent to reach 209.96 million tonnes in 2020-21 from 146.31 million tonnes in 2014-15 (Economic survey, 2021-22). In spite of rosy picture of Indian dairy across the globe in milk production, productivity of it arise as a major issue in the sector; may be poor breed quality and efficient feed management may be the reason to be pondered on. To combat the issues, many feed industries come forward in the feed sector and their location mainly observed as per the milk yield of the areas in to consideration. In the meanwhile, some reports highlighted about global cattle feed market that is expected to grow from $74.70 billion in 2022 to $87.45 billion in 2027 at a compound annual growth rate (CAGR) of 3.2 per cent. Even, Asia-Pacific was the largest region in the cattle feeds market in 2022 (Cattle Feeds Global Market Report, 2023). Forecasts indicate that the Indian animal feed market will rise from USD 11.09 billion in 2019 to USD 13.35 billion in 2026 at a compound annual growth rate of 2.68 per cent (India Animal Feed Market Forecasts Report, 2021). As the India dairy market size is projected to grow from 124.93 billion in 2023 to 227.53 billion by 2030, at a CAGR of 8.94% during the forecast period, it will also results into the success of feed industry in the dairy sector as well.
Gujarat is the fourth largest milk producing state in the country, is sharing 16722 thousand tonnes of milk proceeded by Rajasthan, Uttar Pradesh and Madhya Pradesh. In the state, Banaskantha, Sabarkantha, Mahesana are the top three milk pouring districts of the state whereas Panchmahal district leads the state with maximum number of dairies (Directorate of Animal Husbandry, 2021). Besides this, the particular district is predominantly a tribal one where populace lives with animal husbandry after the agriculture for sustenance of their livelihood. This study is an attempt to provide valuable insights into the specific nutritional requirements of cattle so that farmers can provide them with the most nutritious feeds, which in turn will improve their health and productivity. This can lead to higher milk yields and increased income for the farmers.

Materials and Methods
The present research was bifurcated into two parts; *viz*., present status of milk production in the state and the Panchmahal district followed by problems faced by the dairy farmers in the particular district.

Fig 1: Panchmahal District of Gujarat (Study Area)

First part the study was done through secondary data analysis whereas the second part was basically a primary research of approaching the results. A total 120 farmers were interviewed through a structured schedule and after that collected data were analyzed through Weighted Average Mean. Here, each farmer was considered as a sample unit and from each household only one farmer was taken for the response. Weighted average mean was used for getting the opinion against different factors that were asked to the respondents. This survey was conducted in Panchamahal District of Gujarat. Area of Panchmahal District is 5,231 squre kilometer and population is 23.9 lakhs. Halol, Kalol, Ghoghamba and Godhara taluka of the district were selected and from each taluka equal number of respondents were taken for generating the responses.

Table 1: Panchmahal District profile

Particular	Remark
Geographical Area	5,231 Sq. Km
Total No. of Talukas, Villages	11, 1221
Total Population	2,390,776
Population Density	457 person/ Sq. Km
Literacy Rate (%)	70.99
Sex Ratio	949
Agro Climatic Zone	Middle Gujarat Zone
Climate & Soil	Sub-tropical climate, Majority black alluvial soil
Rainfall & Temperature	1047 mm, 14 - 45 Degree Celsius
Major Agriculture Crops	Rice, Maize, Wheat, Pulses, Groundnut, Tobacco
Major Horticulture Crops	Okra, Brinjal, Mango, Citrus

Results and Discussion

Perusal of the table 2 highlighted that Panchmahal district of Gujarat shared around 3.81 percent of the state cattle population (2,01,76,887) whereas milk production in thousand tonnes was quite negligible (only .002%) in comparison to the state production (16722.11 thousand tonnes). It was observed that productivity of cattle in comparison to the district was quite better but needs technological interventions for more improvement in feeding and breeding practices.

Table 2: Comparative details of Gujarat and Panchmahal in different parameters

Particular	Gujarat	Panchmahal
Cattle Population (in number)	2,01,76,887	7,69,684
Milk production ('000 tonnes)	16722.11	409.51

***Source*:** 20th Livestock Census (2019), Bulletin of Animal Husbandry and Dairying Statistics 2022

When, feed consumption pattern in the district was taken, it was observed feed consumption pattern of cattle and stated that majorly farmers (48.33%) used both conventional and branded feed for their livestock, followed branded feed (20%), 16.67 percent used all three types of feed (conventional, branded, and cake), both conventional feed and cake (7.5%), branded feed (5%) and cake. Only 3 farmers (2.5%) used only conventional feed and none of the farmers used feed cake for their livestock. Majority of farmer used both conventional and branded feed because they were accessed to branded feed at cheaper rate due to availability of dairy cooperatives in their proximity.

Table 3: Feed consumption pattern of the farmers for their cattle

Pattern	Number of Farmer	Percentage
Conventional feed	3	2.50
Branded feed	24	20.00
Conventional and Branded feed	58	48.33
Conventional and Cake	9	7.50
Branded feed and Cake	6	5.00
All the feed category	20	16.67
Total	120	100.00

When bifurcation of feed consumption pattern in the study area was taken, it was observed that cattle consumed 3.33 Kg of conventional feed or conventional feed per day. In the "Branded feed" pattern, cattle consumed 4.25 Kg of branded feed per day. In the same time, farmers fed 1.74 Kg of conventional feed and 3.48 Kg of branded feed per day, with no cake consumption. Cattle also consumed 1.89 Kg of conventional feed and 2.22 Kg of cake per day. For the "Branded feed and Cake" pattern, cattle consumed 2.83 Kg of branded feed, and 3.5 Kg of cake per day. In the "the entire feed category" pattern, cattle consumed 1.25 Kg of conventional feed, 3 Kg of branded feed, and 2.5 Kg of cake per day.

Table 4: Category wise Feed consumption bifurcation (kg/day)

Pattern	Conventional feed	Branded feed	Cake	Total
Conventional feed	3.33	0	0	3.33
Branded feed	0	4.25	0	4.25
Conventional and Branded feed	1.74	3.48	0	5.22
Conventional and Cake feed	1.89	0	2.22	4.11
Branded feed and Cake	0	2.83	3.5	6.32
All the feed category	1.25	3	2.5	6.75

Perusal of the table 5 highlighted different problems faced by dairy farmers. Major issue faced by farmers is high price followed by poor quality, lack of storage, lack of credit, non-availability. The most significant problems faced by dairy farmers were quality and price. Lack of storage, lack of credit, and availability also some of the challenges for dairy farmers in the study area.

Table 5: Problems faced by dairy farmers regarding feed

Factor	VHP	HP	MP	LP	NP	WAM	Rank
High Price	55	37	18	10	0	4.14	1
Poor Quality	22	29	32	27	10	3.22	2
Lack of Storage	15	17	29	34	25	2.69	3
Lack of Credit	0	18	23	18	61	1.98	4
Non-Availability	0	0	9	44	67	1.52	5

(NP- No Problem = 1, LP- Low Problem = 2, MP- Medium Problem = 3, HP- High Problem = 4, VHP- Very High Problem = 5)

Conclusion

Panchmahal district, a tribal dominated district of Gujarat has its own importance in the state due to its largest number of dairy cooperatives whereas milk production and productivity is very much low that needs effective technological interventions in breeding and feeding practices. Dairy farmers in the study area follow the conventional and branded feed for their animals in a proportion of 1.74kg and 3.48kg per day respectively. High price and poor quality of feed are the major issues for the dairy farmers in the district.

Acknowledgement

This research work was done at International Agribusiness Management Institute of Anand Agricultural University, Anand. The desired technical support was provided by the institute at the time of this research work. So, researcher is thankful to the ambience that is provided by the institute during the research work. Information that is highlighted in this paper was taken out from the project work that was a mandatory programme to complete the academic tenure of the master degree in agribusiness management.

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