



## Appraisal of Feeding Practices Followed by Dog Owners in Ferozepur and Fazilka Districts

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### ABSTRACT

The present study, was conducted on 132 dog owners, sixty eight (38 from urban and 30 from rural), and sixty four (32 from urban and 32 from rural) from Ferozepur and Fazilka districts respectively and views regarding the feeding and management of their pets were recorded. Quantity of food items fed to dogs such as milk, veggie, and dal were higher ( $P < 0.05$ ) in urban areas of Fazilka whereas rice consumption was higher ( $P < 0.05$ ) in urban area of Ferozepur district. In rural areas of Ferozepur, the quantity of rice, veggie and meat offered to the pet dogs was higher ( $P < 0.05$ ) than that offered in rural Fazilka. The amount of bone offered was higher ( $P < 0.05$ ) in the rural Fazilka. Consumption of milk is significantly ( $P \leq 0.05$ ) higher in rural area and is 113% higher than urban area of Ferozepur. Veggies is the only food item which was fed significantly ( $P \leq 0.05$ ) in higher amount to the dog of urban areas (45.94g) in contrast to rural areas (15.63g) of Fazilka district. Milk, milk product, curd, sweet and dal given by rural dog owners to their dog was highest in Ferozepur district than Fazilka district. The microbiological parameters such as SPC and Coliforms were also well below the prescribed limits of the cooked dog foods. Based on the data available, it is clearly indicated that feeding practices followed by the dog owners in both districts has variable trends. Moreover, significant variations were observed in rural and urban area of the same district.

### HIGHLIGHTS

- Feeding Practices Followed by Dog Owners in Ferozepur and Fazilka Districts.
- Milk supplementation in dog diet was significantly higher in rural areas.

**Keywords:** Dog, Feeding Practices, Ferozepur, Fazilka, Rural, Urban

Indian household dog population is increasing by 26% every year and about 17% of the households own a pet dog. The dog population in Punjab is 4, 70, 558 (Livestock Census, 2012). Feeding of pet dogs has not been given much importance in comparison to other livestock species. However, use of nutritionally complete and balanced commercial diets has been cited as a contributing factor for longer life spans in pets (Kraft, 1998). The incidence of various health problems have been declined in pets, fed a commercial diet compared to pets fed homemade vegetable or raw meat diets (Rahaman and Yathiraj, 2000). Nutritious and balanced feeding help to attain best results from dogs. Most of the pet dog owners resort to unscientific feeding and management practices, because of

convenience leading to various health issues due to over or underfeeding leading to various complications. Currently, Indian pet industry has a value of more than ₹2,500 crore (<https://yourstory.com/mystory/63d06da1e9-pet-care-and-food-indu>) and still increasing at exorbitant rate. Limited knowledge of local market and mindset of dog owners the health of pets still gets affected. Feed and feeding habits change with change in areas. It is very important to know the feeding habits adopted by the dog

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owners in particular area to improve the feeding standards with minimum inputs. Therefore, an effort was made to study the feeding practices adapted by dog owners in Ferozepur and Fazilka districts of Punjab. Moreover, physicochemical properties of dog diet of these districts were also studied.

## MATERIALS AND METHODS

The present survey was carried out to study the dietary trends followed by dog owners in Ferozepur and Fazilka districts of South- West Punjab. The detailed methodology adopted is mentioned under following headings:

### Selection of Districts and preparation of survey proforma

Data were collected from two adjoining and bordering districts of Ferozepur and Fazilka. A sample survey was designed and survey proforma was prepared by the expert committee. This survey proforma included the queries regarding the feeding practices followed by the dog owners such as kind and quantity of food like cereal, milk and milk products, protein sources and non-veg food offered to their pets on daily basis.

### Selection of Dog Owners

Total 132 dog owners were randomly selected from the urban and rural areas of Ferozepur and Fazilka districts. 70 urban dog owners, 38 and 32 were Ferozepur and Fazilka Districts, respectively were selected. Similarly 62 rural dog owners, 30 and 32 dogs were from the rural areas of Ferozepur and Fazilka districts, respectively were interviewed either by visiting their homes or from owners visiting with pets in the veterinary hospitals of the area.

### Collection of dog food samples

The dog food samples were collected from the dog owners as per the availability of food. The dog feed samples were analysed for proximate, physicochemical (pH, Free Fatty Acids and Peroxide Value) and microbiological, (Standard Plate Count (SPC) and coliforms count parameters.

### Statistical Analysis

The data was analyzed using software package for social science (SPSS version 21.0) and SAS (2011). The

average values are reported along with standard error. The statistical significance was estimated at 5% level ( $P < 0.05$ ) and evaluated with Duncan's Multiple Range Test (DMRT).

## RESULTS AND DISCUSSION

### Feeding practices followed by urban dog owners in Ferozepur and Fazilka districts

Feeding practices followed by urban dog owners in both districts (Table 1) showed that milk consumption (584.40 ml) was higher ( $P \leq 0.05$ ) in urban areas of Fazilka as compared to Ferozepur district. Feeding of milk product, curd, sweet, chapatti, and vegetables showed non-significant ( $P \leq 0.05$ ) difference in urban area of both the districts. Quantity of dal (43.75 g) and veggie (45.94 g) given to dog by dog owner of Fazilka district were higher ( $P \leq 0.05$ ) than offered to dogs by owners in Ferozepur district (17.11 g, 27.63 g). Consumption of rice fed to dogs of Ferozepur (92.11 g) was higher as compared to Fazilka district. As far as the consumption of non-vegetarian feedstuffs are concerned it was observed that quantity of eggs, meat and bone offered to dogs, shows no significant ( $P \leq 0.05$ ) difference between both the districts. In a survey of pet feeding practices, Dodd *et al.* (2019) found that 74% of the pet owners concern of feeding only plant based pet food was their nutritional completeness.

### Feeding practices followed by rural dog owners in Ferozepur and Fazilka Districts

The perusal of the data of rural dogs of these districts depict that milk, milk product, curd, sweet and dal given by dog owners to their dog was highest ( $P \leq 0.05$ ) in Ferozepur district than Fazilka district (Table 1). Rural areas of Ferozepur district showed higher ( $P \leq 0.05$ ) consumption of rice (66.67 g) and veggie (41.33 g) by dogs as compared to rural area of Fazilka. Similarly consumption of meat was higher ( $P \leq 0.05$ ) in Ferozepur district (167.33 g) as compared to Fazilka (96.88 g). But vice-versa in case of consumption of bone was observed as it was maximum ( $P \leq 0.05$ ) in Fazilka district (26.56 g). Laflamme *et al.* (2008) found that more than 90% of pet dogs fed commercial foods but 23.6% of dogs were fed with bones or raw foods at least on weekly basis.

**Table 1:** Comparative feeding practices followed by dog owners in Ferozpur and Fazilka Districts

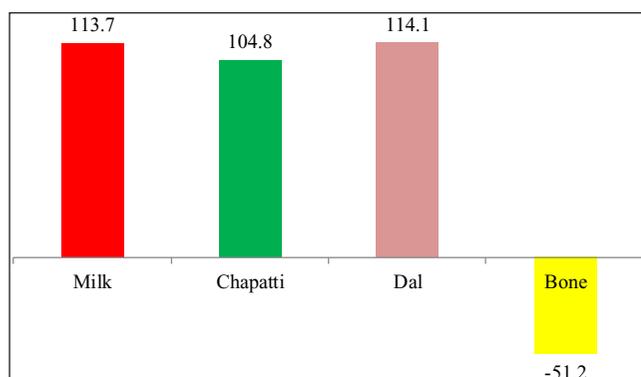
Variable	Ferozpur (68)		Fazilka (64)	
	Urban (38)	Rural (30)	Urban (32)	Rural (32)
Milk (ml)	340.80 <sup>bb</sup> ± 85.37	728.30 <sup>A</sup> ± 98.26	584.40 <sup>a</sup> ± 90.43	640.63 ± 95.14
Milk product (g)	314.50 ± 64.47	475.00 ± 104.22	387.50 ± 82.64	453.13 ± 100.91
Curd (ml)	102.63 ± 44.63	136.70 ± 44.65	134.38 ± 48.64	125.00 ± 79.04
Sweet (g)	9.47 ± 4.02	12.83 ± 3.40	12.34 ± 4.38	7.19 ± 3.30
Chapatti (#)	3.50 <sup>B</sup> ± 0.65	7.17 <sup>A</sup> ± 0.65	5.13 ± 0.72	6.38 ± 0.62
Dal (g)	17.11 <sup>bb</sup> ± 11.10	36.67 <sup>A</sup> ± 10.33	43.75 <sup>a</sup> ± 12.10	32.81 ± 10.33
Rice (g)	92.11 <sup>a</sup> ± 19.65	66.67 <sup>X</sup> ± 8.46	46.88 <sup>b</sup> ± 8.38	35.94 <sup>Y</sup> ± 8.19
Veggie (g)	27.63 <sup>b</sup> ± 10.44	41.33 <sup>X</sup> ± 8.33	45.94 <sup>aA</sup> ± 11.37	15.63 <sup>YB</sup> ± 9.14
Meat(g)	121.10 ± 22.47	167.33 <sup>X</sup> ± 38.28	89.06 ± 24.49	96.88 <sup>Y</sup> ± 37.07
Bone(g)	34.21 <sup>A</sup> ± 5.32	16.67 <sup>YB</sup> ± 6.84	25.00 ± 5.80	26.56 <sup>X</sup> ± 6.23
Egg (#)	2.42 ± 0.28	1.80 ± 0.27	1.65 ± 0.31	1.88 ± 0.26

Value in parenthesis represents number of respondents; Figures with different superscripts in a row differ significantly ( $P \leq 0.05$ ).

X,Y depicts the significant difference in variable between rural areas of both districts; a, b depicts the significant difference in variable between urban areas of both districts; A,B depicts the significant difference in variable between urban and rural areas of both districts.

### Feeding Practices followed by Urban and Rural dog owners in Ferozpur District

Data regarding feeding pattern of urban and rural dogs of Ferozpur district is presented in Table 1. Average milk consumption (728.30 ml) of dogs of rural area was more ( $P \leq 0.05$ ) in comparison to urban areas of this district. The milk consumption in rural areas was 113% higher (Fig. 1) than the urban areas of Ferozpur.



**Fig. 1:** Percent difference in use of food items by rural dog owners in comparison to urban dog owner of Ferozpur District

Non-significant ( $P \leq 0.05$ ) differences were observed between urban and rural areas w.r.t milk product, sweet

and curd consumption in this district. Seneviratne *et al.* (2016) also reported that in addition to normal diet, forty-nine per cent of dogs were fed milk as a separate meal.

Average number of chapattis (7.17) and quantity of dal (36.67 g) offered to dog in rural areas was higher ( $P \leq 0.05$ ) than urban areas. Dog owners of rural areas offered 105% more chapattis 114% more dal in contrast to urban areas. Feeding of rice and veggies showed non-significant ( $P \leq 0.05$ ) differences in rural and urban areas.

As far as the consumption of non vegetarian feedstuffs are concerned it was observed that consumption of bones (34.21 g) were higher ( $P \leq 0.05$ ) in urban areas of this district as compared to rural areas. Dog owners offer 51% less bone in the rural areas of Ferozpur district. However, quantity of eggs and meat offered to dogs revealed no significant ( $P \leq 0.05$ ) difference between urban and rural areas.

### Feeding Practices followed by urban and rural dog owners in Fazilka District

Interpretation of the data from urban and rural areas of Fazilka district regarding feeding of dogs (Table 1), indicated that veggies is the only food item which was fed significantly ( $P \leq 0.05$ ) in higher amount to the dogs

of urban areas (45.94 g) in contrast to rural areas (15.63 g). The rural dog owners offered 66% less veggies as compare to urban dog owners. Non-significant ( $P \leq 0.05$ ) difference in feeding of milk and milk products, cereals, and non-vegetarian feed stuffs were registered in urban and rural areas of this district.

### Physicochemical properties of dog diet of different districts

The dog feed samples collected from different areas were examined for physicochemical (pH, Free Fatty Acids and Peroxide Value) and microbiological, (Standard Plate Count, SPC) and coliforms count parameters. The data of dog feed samples (Table 2) revealed that, the pH value was less than 4.0 i.e. the samples were acidic in nature which might be due to the higher proportion of milk and milk products which when dried lead to acidic conditions.

**Table 2:** Physicochemical Properties of Dog Diet of Different Districts

Parameters	Districts	
	Ferozpur	Fazilka
pH	4.00 <sup>b</sup> ±0.19	5.11 <sup>a</sup> ±0.15
Free fatty acid (% oleic acid)	0.23±0.04	0.28±0.04
Peroxide value (meq/Kg)	0.71±0.11	0.61±0.16
TPC	2.52±0.06	2.80±0.17
Coliform	2.67 <sup>a</sup> ±0.08	1.35 <sup>b</sup> ±0.09

Figure with different superscripts in a row differ significantly ( $P \leq 0.05$ ).

Estimation of Free fatty acids and peroxide value (Table 2) revealed hardly any fat rancidity indicative of good quality of different food ingredients offered to the dogs. The mean value of the microbiological parameters such as SPC and Coliforms were also well below the prescribed limits of the dog foods indicative of fresh food being offered to pets. In contrary to the present findings the results found by Fredriksson-Ahomaa *et al.* (2017) concluded that 28% of the raw meat based diets (RMBD) showed enteric pathogens and *Campylobacter* was the most frequent (15%) pathogen found in the RMBDs, whereas all the samples were negative for *Campylobacter jejuni* and *Campylobacter coli*. *Salmonella* was detected in only 2% of the samples and, surprisingly, *Y. pseudotuberculosis*

was also detected in two samples. Similarly in other study Weese *et al.* (2005) observed that *Escherichia coli* was identified in 64% diets, *Salmonella* spp. were detected in 20% diets. Spore forming bacteria were identified in 16% samples on direct culture. *Clostridium perfringens* was identified in 20% samples. It indicated that microbial load was variable as per the freshness of diet.

### CONCLUSION

As per the data available, it is reported that milk, milk product, curd, sweet and dal given by rural dog owners to their dog was highest in Ferozpur district than Fazilka district. Veggies is the only food item which was fed significantly ( $P \leq 0.05$ ) in higher amount to the dog of urban areas (45.94 g) in contrast to rural areas (15.63 g) of Fazilka district. The microbiological parameters such as SPC and Coliforms were well below the prescribed limits of the cooked dog foods. It is clearly indicated that feeding practices followed by the dog owners in these districts has a variable trends. It may follow the trend of food consumed by the dog owners.

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