STATUS OF DAIRY FARMERS IN PARBHANI TAHSIL OF PARBHANI DISTRICT

BY

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B.Sc. (Agri.)

A thesis submitted to

Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani in Partial fulfillment of the requirement for the degree of

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2020

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I, hereby declare that this dissertation

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Place : PARBHANI

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This is to certify that **Mr. JAGTAP AMOL KAILAS** has satisfactorily prosecuted his course work and research for a period of not less than four semesters and that the thesis entitled **"STATUS OF DAIRY FARMERS IN PARBHANI TAHSIL OF PARBHANI DISTRICT"** submitted by him is the result of original research work and is of sufficiently high standard to warrant its presentation to the examination.

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This is to certify that the thesis entitled, **"STATUS OF DAIRY FARMERS IN PARBHANI TAHSIL OF PARBHANI DISTRICT"** submitted by **JAGTAP AMOL KAILAS REG. NO. 2018A / 69M** in partial fulfillment of the requirements for the award of the degree of **MASTER OF SCIENCE (Agriculture)** in the subject of **AGRICULTURAL HUSBANDRY** to the Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani has been approved by the Student's Advisory Committee after viva voce examination of the student in collaboration with the External Examiner.

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Place: Parbhani **(Jagtap Amol Kailas)**

Date: 30/09/2020 *Reg. No. 2018A/69M*

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Thesis Abstract

THESIS ABSTRACT

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ABSTRACT

The present investigation entitled "Status of dairy farmers in Parbhani Tahsil of Parbhani district" was carried out in Parbhani tehsil of Parbhani Random selection of Ten villages in Parbhani Tahsil of Parbhani district and Twelve farmers was selected from each village. Thus total sample size comprised of 120 farmers. The collection of information of each farmers by the method of 'Personal Interview' through questionnaire. It may prove useful to extension worker in identifying feeding practice to enable them to plan and execute extension education programme. There is tremendous scope to increase the milk production by using such fodder in diet of the livestock. With this view, majority of the findings was noticed which included the age structure of dairy farmers, education qualification in which 26.50 per cent were found to be secondary school educated. With regards to the main objective regarding the gap between recommended and adopted feeding practices, It was noticed that for dry feed, green feed and concentrates the gap of amount of feed given by certain category of farmer goes on decreasing with landless, small, medium and large farmer subsequently. With regard to animal wealth the majority of the dairy farmers posses animals in range of 1-2. Dairy farmers possessing 1-2 milch buffaloes, crossbred and indigenous cow share to the extent of 45.12, 66.67 and 87.05 per cent respectively. Maximum 67 dairy farmers out of 120 dairy farmers were marginal /small farmers. 34 animal owners were medium farmers. Then 13 dairy farmers were large farmers and 6 animal owners were landless. Coming to the milk transportation maximum numbers of dairy farmers carry the milk by motor cycle 47.5 per cent from milking point to milk market. Land holding also varies from one dairy farmer to another which is maximum 67 dairy farmers out of 120 dairy farmers were marginal /small farmers. 34 animal owners were medium farmers. Then 13 dairy farmers were large farmers and 6 animal owners were landless. Most of dairy farmer's i.e. 86 (71.66 per cent) dairy farmers expect Ensured supply of feed and fodder. Thereafter 78(65 per cent) dairy farmers expect proper veterinary aids, 63 (52.5 per cent) faces the problem of lack of pasture land. Whereas 59(49.16 per cent) farmers expected availability of proven sire, 56 (46.67 per cent) dairy farmer expect disease diagnostic facilities at door step. Then 44 (36.66 per cent) dairy farmer complained about high cost of feed.

Introduction

CHAPTER – I

INTRODUCTION

India is a vast country with diversified agro climatic conditions. Majority of dairy livestock owners families are engaged in agricultural operations for about 8-9 months in a year but agriculture alone is unable to provide necessary employment and income to the rural population, mostly a subsidiary occupation. Livestock is directly linked with very poor landless agricultural laborers as well as small and marginal farmers. Recognizing the importance of dairy husbandry, the Government of India initiated various dairy husbandry improvement projects like SLPP, TRYSEM, AICRP and TMP. The general objective of all these programs was to improve the cattle and thereby, enhance milk production per unit through effective breeding. (Godara, *et al*. 2018). Agriculture and animal husbandry have a symbiotic relationship, in which the agricultural sector provides feed and fodder for the livestock and animals provides feed and fodder for the livestock and animals provide milk, manure and draught power for the agricultural operations. Dairy sector is instrumental in bringing socio-economic transformation in India. It has created a lot of employment opportunities and also provides improved nutritional benefits. Animal husbandry, agriculture and allied activities have been the core livelihood for majority of the rural people since time immemorial. It provides productive employment, especially self-employment and the most valuable supplementary income to a vast majority of rural households, majority of who are small and marginal farmers and landless labors. Livestock provide increased economic stability to the poor masses. They act as cash buffer in case of small stock and as captive reserve in case of larger stock. Livestock sector is an important sub-sector of the agriculture of Indian economy.

Livestock is major source of income and employment for the rural population. Generally, income generated in rural area is 74 and 26 per cent from crop production and livestock, respectively. It is fact that commercial type of dairying can play vital role in rural economy. Dairy owners are running dairying by keeping crossbred cow, buffalo or local cow. Cost of milk production per litre was the highest for local cow followed by buffalo and crossbred cow. Also the return per rupee of total cost was higher for crossbred cow followed by buffalo and local cow. Manure

from dairy animals provides a good source of organic material for improving soil fertility and crop yields. Crossbred cow dairy enterprises was found to be profitable than that of other dairy enterprises. (Pawar and Pawar, 2010). India has emerged as the largest milk producer in the world, but the productivity of dairy animals is still very low. The low average milk production by the Indian cattle and buffaloes can be attributed to several reasons. Inadequate nutrition is the one of the largest factor responsible for low milk production in animals of well-defined breed. Nutritional, in general, remains the most critical constraints to increase animal productivity with the perpetual gap between demand and supply of digestible crude protein and total digestible nutrients. (Meena *et al*. 2014)

As per 19th livestock census, 2012 India's livestock sector is one of the largest in the world with a holding of 11.6% of world livestock population which consists buffaloes (57.83%), cattle (15.06%), sheep (7.14%), goats (17.93%), camel (2.18%).India has huge livestock population of 512 million which mainly includes cattle, buffaloes, goats, sheep and pigs. The total livestock population in India has decreased by 3.33% over the previous census. With annual milk production of 132.4 million. India ranks first in the world and contributes about 16 per cent to the world milk production (BAHS, 2014). The per capita availability of milk in India has increased from 130g per day in 1950-51 to 299g per day in 2012-13 which is little above the recommendation of ICMR i.e. 285g per day. As per FSS Act (2006), the per capita availability of milk in the year 2015 -2016 in India is 337 g per day and in Maharashtra is 239 g per day.

As per 19th livestock census 2012, total livestock population in Maharashtra, cattle 15.4 million, buffalo 5.5 million, goat 8.4 million, sheep 2.5 million. As per survey of Department of Animal Husbandry, Govt. of Maharashtra (2015) the total milk production *('000 MT)* is 9089 in the year 2013-2014. The per capita availability of milk in Maharashtra in 215g per day (2013-14), 239 g per day (2015-16). The dairy farmer of the Marathwada region maintains milch animals as a complementary business to agriculture. His way of looking to the dairying has not been changed from subsidiary to commercial business. Looking to the prosperous future of the dairy industry, the economic status of the dairy farmers of this region will be enhanced if they could look at the dairying as commercial enterprise. (Gangasagare and Karanjkar, 2009).

The total livestock population in Parbhani District, cattle is 0.36 million, buffalo is 0.096 million, goat is 0.13 million. The total milk production of Parbhani district is 157.1 (‘000 MT) (as per livestock census, 2012 Maharashtra state). The major finding of economic analysis in Parbhani district of Marathwada region of Maharashtra state revealed that the composition of milch animals on selected farm was 180, which includes 23 local cows, 60 crossbred cows and 97 buffaloes. At overall level total fixed investment on milch animals was 117541.19 of which share of crossbred cow was highest (46.48%) followed buffalo (34.86%) and local cow (18.66%). Whereas, working capital investment per animal per annum was highest in the case of crossbred cow (30833.13) followed by buffalo (29815.42) and found lowest for local cow (16987.29). The analysis also revealed that per liter cost of milk production was highest in case of local buffalo (26.05) followed by local cow (24.14) and lowest in case of crossbred cow (14.52) with input output ratio of 1.42 for crossbred cow followed by local buffalo (1.18) and then local cow (0.86) (Shrey and Kamble, 2015). The total dry matter requirement in Parbhani dist. is 1561(‘000 MT). The total dry matter availability in Parbhani district is 1552 (‘000 MT). (As per Department of Animal Husbandry, Govt. of Maharashtra, 2015).

Feeding and other maintenance constitutes the largest item of cost in milk production. It is, therefore, important that feed costs are to be at lowest possible level in order to make production profitable. For production of more milk, timely feeding of good quality ration in required quantity ultimately plays more than feeding otherwise. Selection of proper feed using right combination of feeds, feeding the adequate quantity with other related management practices are some of the ways which will enable the farmer to feed his cows and buffaloes more economically, increase their their efficiency and make the dairy more paying. The lack of understanding of the farmer about the importance of the management of livestock has also contributed intensify situation more severely. Farmers are following old traditional feeding and management practices and there is decline in production potential of milch animals. How best the animal be as a milk producer, if it is not properly fed and cared for, it will speedly deteriorated and will be uneconomical producer.

It is decided to study characterization and management practice of milch animals in rural area of Parbhani tahsil. Parbhani is fast developing Taluka in

Parbhani district with large no. of livestock. The geographical area of Parbhani taluka is 1131.40 sq.km. spread over 131 villages. Different crops such as jowar, wheat, tur, mug and cotton are grown in the area. The by-products of these crops are used as a fodder for livestock. There is tremendous scope to increase the milk production by using such fodder in diet of the livestock. With this view, the survey was carried out in areas of Parbhani Taluka with the following objectives:

1. To study the socio economic status of dairy farmers
2. To find out the gap between recommended and adopted feeding practices
3. To study the production status and income generation from dairy animals
4. To study the constraints in dairy farming

This survey shows the management status of dairy animals at farmer's doorstep. The emerging finding of the study may help in providing direction to current dairy development and also may prove helpful in working out dairy development strategy in future. it may prove useful to extension worker in identifying feeding practice to enable them to plan and execute extension education programme.

Review of Literature

CHAPTER – II

REVIEW OF LITERATURE

1. To study the socio economic status of dairy farmers.

Prasad *et al*. (1964) studied the socio-economic status and to identify problems faced by dairy farmers. The data was collected from 120 farmers, 40 from each village. The result indicated that majority of the farmer's belonged to the age group 36-50 years; the agriculture along with dairying was their main occupation and education level of 78 percent of dairy farmers was above high school. The average annual income from animal husbandry and agriculture was Rs. 46,000/- and Rs.1, 33, 000/- respectively; the average total annual income from all sources was Rs.1, 84, 000/-. The problems identified in selected villages were lack of knowledge about modern technologies, unavailability of veterinarian/para-vet, infertility in dairy animals, lack of agricultural market etc.

Sangu (1995) conducted a study on the impact of dairy cooperative societies on production, consumption and marketed surplus of milk in Meerut district of UP among member and non-member households. Average milk production per member and non-member household respectively were found to be 7.74 and 6.91 kg per day of which 26.72 and 25.78 per cent was retained for home consumption and the rest was sold. The milk production increased with size of landholding.

Rao and Singh (1995) while studying the impact of operation flood programme on the economics of the buffalo milk production in Guntur district of Andhra Pradesh found that the gross of milk production was Rs. 2,982.05, Rs.3,274.05, Rs.2,744.80 per annum on landless, small, medium and large categories. The average cost of milk production was Rs.2.80 per liter on the beneficiary households as compared to Rs. 3.75 per liter on the non-beneficiary households.

Shukla and Singh (1995) studied the impact of operation flood programme on the economy of rural milk producers in Kanpur district-Dehat (UP) and found that the overall average cost per milch animal and per household per annum was found to be Rs. 7,588 and Rs.18, 286, respectively in the programme area as compared to Rs.6, 854 and Rs.11,584 in the non-programme area. The average cost of milk production per liter was found to be Rs.3.59 and Rs.3.67 in programme and non-

programme areas, respectively. The overall average milk production per day per household was higher at 8.78 liters in the programme area as compared to 6.04 liters in the non-programme area. The average milk consumption per day per household was 2.23 liters and 1.92 liters in the programme area and non-programme area, respectively.

Patil *et al.* (2009) study was carried out to assess the knowledge level of dairy farmers in Nagpur district and to find the correlation between the socio-economic variables and the training needs. They conducted in 15 villages from 3 talukas of Nagpur district by personally interviewing 225 dairy farmers. Here, majority of the respondents (55.11%) had medium level of knowledge followed by the respondents with high level of knowledge (24.00%) while some of the respondents (20.89%) had low level of knowledge.

Rawal and Chandawat (2011) study was taken up in Matar taluka of Kheda district of middle Gujarat with the specific objectives to study the knowledge and socio-economic status of the dairy farmers in adoption of some improved animal husbandry practices. Most of the dairy farmers had high level of knowledge regarding breed improvement, nutritional management, water management, improved animal husbandry practices of milking management and disease control practices. The study showed that dairy farmers of the Matar taluka possessed medium to high level of knowledge regarding improved animal husbandry practices.

Shinde (2011) reported that the important traits such as age of first calving, lactation length, day period and milk yield per animal were the important factors in dairy farming. The average milk yield from cross breed cow was highest in case of commercial dairy farmers and also in case of buffalo in the irrigated talukas. In non-irrigated talukas the average milk from cross breed cow were 16 liters and highest was in case of commercial farmers lie- 17.6 liters. The average per capita availability/consumption of milk and milk products was much in irrigated talukas (1016 gms/ day) than in non-irrigated talukas (700 gms/day). The average price received for the milk of per litre of cross breed cows was Rs. 11.23, buffalo Rs.16.51 in the irrigated talukas. In the non-irrigated talukas the prices were Rs.11.51 and Rs. 16.50 respectively for cow and buffalo milk. The reasons for selling to a particular agency were remunerative price, timely payment regular collection etc. in both the

talukas group. 48 per cent and 82 per cent of the households have plan to increase their milk of production in irrigated and non-irrigated talukas respectively.

Bashir and Zubeir (2013) conducted to evaluate the husbandry practices, impact on socio-economic status of the herders and contribution of Baggara cattle in south Korrrrdofan state milk production, in addition to the constraints facing its production.

Chanie *et al.* (2013) conducted in and around Girja Woreda from September 2011 to March. 2012 to determine the economic impact of trypanosome in cattle. The result revealed that trypanosomosis as a disease of livestock in the area. The most important and the first problems affecting livestock productivity and agricultural activity as per 95 per cent of the respondents.

Mali *et al.* (2014) concluded that the price of milk should be fixed based on the cost of milk production so as to provide good price of the mild and to encourage the dairy enterprise. Extension agencies should encourage the dairy farmers to take up fodder cultivation to minimize cost of milk production. To provide good employment and income generation activities for dairy farmers, it is better to establish small scale industries to prepare the milk products like, ghee, curd, butter, cheese, cova etc.

Popker and Raju (2014) showed that majority of members are above poverty line and 55.6% of them earn between Rs.5000 to 10000 p.m. Also reveals that nearly 77.8% of the respondents are happy with the dairy business but 60% of them responded that new generation of their family should not continue with the same business.

Mooventhan *et al*. (2015) stated the socio-economic profile of tribal farmers of Chhattisgarh state. About 65.33 per cent percent of the tribal farmers were between 36 to 50 years of age group, more than one forth (34.67%) of the farmers were educated up to primary school level, less than half (39.00%) of the respondents had subsistence dairy farming + Minor forest products collection + labour as their sole occupations, nearly half (43.67%) of the respondents were marginal farmers, more than half (62.00%) of farmers were found with medium level of farming experience, about half (49.00%) of the respondents were at the income range of Rs. 25,001 to Rs.

75,000 about half (44.67%) of the respondents falling under the category of medium herd size followed by 35.67 percent in small and 19.66 per cent in large herd size, more than half (56.33%) of the tribal dairy farmers falling under the category of subsistence level of dairy production system.

Nakhore (2015) represented that the dairy farming was found to be most important source of family income and employment generation for members as well as non-members producers. Dairy farming is a profit venture to uplift the socio-economic conditions of the rural households which is self-sustaining economic activity provided Dimapur District Cooperative Milk Producers Union Ltd. regularly gives incentives to its members of the dairy farmers.

Selvaraj and Balajikumar (2015) concluded that the vital significance of dairying lies not only in the production of milk but also in being instrumental for introducing far-reaching changes in the socio-economic dimensions of rural life. Dairying and its related activities, properly nourished and nurtured, could turn out to be veritable mines perpetually unearthing jobs and opportunities in the rural areas in particular. The Indian dairy industry today is poised in milk production. One can visualize the rural India of the future transformed magically by the wide vistas of the infinite possibilities of dairying revolution.

Sarita *et al*. (2016) concluded that majority of the respondents were middle aged and literate up-to secondary standard of education having nuclear family with medium family size. Majority of the respondents possessed land with small and medium herd size. Majority of the dairy farmers had medium economic motivation. The majority of respondents were having low extension contact and mass media exposure. It is implicated from the study that the reach of extension contact was found to be low. So it is need of the hour to strengthen the communication channels and various sources of information so that each technology is being developed in research institutes could reach the farmers at large which would uplift their socioeconomic status and livelihood status.

Vekariya *et al*. (2016) indicated that majority (70.83) of the Maldhari dairy farmers belonged to middle age group, 40.83 per cent of them educated up to secondary level and 78.33 per cent from them belonged to OBC category, majority (59.17%) of Maldhari dairy farmers had medium annual income, 47.50 per cent of

Maldhari dairy farmers had large size of family and 70.83 per cent of them belonged to joint family, majority (54.17 per cent) of Maldhari dairy farmers had animal husbandry plus agriculture as main occupation. The socio-economic parameters viz. extension participation among Maldhari farmers was of medium level; they had medium level of experience in animal husbandry activities, used medium level of sources of information and had small heard size of animals.

Prasad *et al*. (2017) concluded that majority of the farmers had poor income. Farmer should be made to adopt the scientific farming practices which will lead to better future outcomes. The price offered for the sale of milk should be increased which in turn helps farmer to improve socioeconomic status and larger productivity.

Rachna et al. (2017) studied in Hisar district of Haryana. Among the 60 dairy farmers 73.3 per cent of respondents were middle aged with mean aged of about 43 years. The respondents had fairly good formal education with mean value of 4.23 which indicates that majority (96.6%) of dairy farmers were literate. Family structure of dairy farmers was 65.0 per cent of the respondents belonged to joint families and 35.0 per cent to nuclear families. The family land holding ranged from 1 to 6 acres with a mean 2.60 acres. 43.3 per cent of the respondents preferred to have a herd size of 3-5 dairy animals. The respondents in general had poor social participation with mean value as low as 0.16. Further, majority of the respondents had low level of extension contact with an value of 2.23. Mass media exposure of dairy farmers was also low with mean value of 2.65 which indicates majority (73.3%) of dairy farmers had low level of mass media exposure. However, economic motivation of dairy farmer was fairly high with mean value of 22.56. The dairy farmers in general had medium risk orientation with mean value 18.28. Socio-economic profile is important to provide valuable insight and has the potential to provide critical inputs for the design and implementation of support programmers to promote dairy farming for rural development.

Suresh *et al*. (2017) revealed that, cost of milk production per liter was highest in marginal land holder Rs. 21.19 followed by landless (Rs.20.44) and small farmers (rs.21.19) in member group land holding categories. Whereas as cost of milk production in member group was highest among the small farmers Rs.26.80, followed

by marginal farmers Rs.22.70. The differences in cost of milk production between the member and nonmembers was highest among the small farmers and the cost of milk production in nonmember was more than that of member, this shows that resource utilization among the member was optimum in compared to non member and since the availability of agricultural land and its by product utilization in the small farmers was more which cost Rs.6.36 highest among the other group.

Rajadurai *et al*. (2018) concluded that majority of the dairy farmers were middle aged (above 44.12years), landless, women and literate (80.10%) owning an average herd size of 4.01 numbers. Average annual income of the dairy farmers was Rs.1, 26,000 and from animal husbandry, Rs.72, 600. The major occupation of the respondents was dairy farming. Majority of the dairy farmers had an average experience of 25.50 years.

Dipu *et al*. (2019) concluded that the research demonstrates the salient socio-economic, farm and technological characteristics of the peri-urban marginal dairy farmers of Chittagong Metro Ares. Most of the farms are found to be in 'no profit' category. Unfair and unstable prices, poor financing opportunities, market need gap, lack of market linkage, storage facilities and value addition are found as major issue in the study area. The study output might help the future formulation of development program for the small and marginal dairy farmers' community.

Mzingula (2019) show that smallholder dairy cattle farming has a social impact on household food security due to increased crop yield (97.5%), milk consumption (74.8%) and selling of cattle (67.2%). Also, households improved access to education (79.2%), improved access to health services (84%) and increased assets (87.4%) such as buying of land, motorcycles and construction of houses. Moreover, dairy cattle farming has demonstrated economic impacts through direct income generated from selling milk (65.8%), using manure for agriculture (100%), income from selling cattle (71.7%) and perceived as a source of employment (92.5%). Income from selling milk contributes about 47 per cent of annual income of the household. Through cattle manure application on cropping farms, average household annual income. This study recommends the government to allocate more extension officers in rural areas, in order to enhance knowledge and skills of farmers that can help to

improve further their efficiency in dairy cattle rearing so as to increase their income and enhance food security for sustainable livelihood.

Nande *et al*. (2019) studied on socioeconomic status in relation with adoption Animal Husbandry Practices (AHPs) of dairy farmers. The finding revealed that the Annual income were highly significant with adoption of AHOs. It is indicated that high annual income of respondents might have help to get more adoption of AHOs. age of dairy cattle owner, education, number of family member, land holding capacity, daily milk production, herd size of animal, formal and informal source of utilization and mass media exposure these are found non-significant to AHPs.

Thankachan and Josepf (2019) reported that as regard to total family income, majority of the respondents (84%) have less than five lakhs per year and only three percent of the respondents have their annual income more than ten lakhs. Total family income constitutes both their income from primary occupation together with the income from dairying. Since dairying is a subsidiary occupation, the contribution of income from dairying of total family income is analysed and it could be observed that majority of the respondents (67%) irrespective of the member and non member group contribute to less than 15 % of their total family income from dairying. Only two percent of the respondents contribute more than 45% of their family income from dairying.

Gadhavi *et al*. (2020) showed that the majority (60%) of dairy farms had livestock along with agriculture as main source of income, whereas 40 per cent respondents had only livestock enterprise as a main source of income. Only 15 per cent of dairy farms that had other business together with livestock was slightly higher in south region. The study also revealed that majority of the respondents (55%) were of the middle age group, 40 per cent were graduates, and 75 per cent has experience in dairy farming for 5-10 years. Regarding the benefits of subsidy, most of the respondents availed subsidy for various farm-related purposes. About 80 per cent of the dairy farms had taken subsidy for livestock in the north region compared to only 30 per cent of the dairy farms in south Gujarat.

Sharma and Korake (2020) studied the analysis of production parameters of cows in comparison with socio-economic profile of dairy farmers. It is concluded that knowledge level and awareness level regarding health care

management of the dairy farmers of the region was low. Hence, it is recommended to provide more extension services such as training camp, awareness camp and clinical camps by government and NGDs to dairy farmers of the Ambajogai teshil.

2. To find out the gap between recommended and adopted feeding.

Saha *et al.* (1991) reported that most of dairy cattle rations are composed of straw as a bulk and restricted quantity of low cost concentrate. In addition, roadside/field grasses are also fed as and when available in quantities far less than the requirement.

Shirsat *et al. (*1991) conducted survey in five village of parbhani district and revealed that majority of (95%) respondent were feeding cotton seed cake to milking animal and 90.83 percent respondent were feeding concentrate at the time of milking where as 68.33 percent respondent supplied green fodder in proportion milk production.

Baelli and Manjula (1997) revealed that nearly 51 per cent of gavali s spent 5 to 8 hours every day in grazing majority of gavali s (63.33 percent) fed their animal twice a day.

Lall *et al. (*1998) studied nutritional status of lactating Murrah buffaloes maintained by landless, marginal, small, medium and large farmers in Faizabad district. They revealed that the average green fodder, dry fodder and concentrate fed round the year was 22.24, 6.25 and 1.09 kg/h/d however, their availability varied significantly ($P < 0.01$) between season. The average DCP, TDN and DM Supplied throughout the year to the animal averaged 0.53 ± 0.03, 6.43±0.16 and 12.15 ± 0.25kg/h/d respectively

Singh *et al*.(1998) reported that the landless, marginal, small, medium and large farmer were observed to feed 13.36, 13.60, 12.60,13.75 and 17.55 kg green fodder where as they fed concentrate 2.86,4.08, 4.71, 5.06 and 11.20 kg, respectively. It was observed that large farmer feeding significantly ($P<0.01$) high amount of green fodder and concentrate to their animal compared to landless and marginal farmer.

Gangasagare and Karanjkar (2009) revealed that the mean lactation milk yields of the milch animals fed with and without concentrate were 3337.06 and 1739.40 ltrs., respectively. Highly significant difference between these two means indicated an influencing role of concentrate feeding in increasing the milk yield of the

dairy animals. Farmers who did not feed the concentrate got lactation yield at significantly reduced rate than those who practiced feeding of concentrate. Irrespective of 'type' of concentrate used, about 54 per cent of the dairy farmers realized the importance of concentrate feeding to dairy animals. Feeding concentrates significantly increased milk production over sole roughage feeding.

Garg *et al.* (2010) conclude that the average calcium (Ca) content in straws of groundnut, *ragi* and soybean was high (0.97%), whereas, straws of sorghum and paddy had low (0.23%) level. Ca content in green fodder was 0.38 percent. Concentrate ingredients were particularly low (0.22%) in Ca. The phosphorus (P) content in crop residues and green fodders was 0.14 and 0.19 per cent, respectively, which was low, but higher (0.67%) in concentrate ingredients. The magnesium (Mg) content in roughages and concentrate ingredients was 0.38 and 0.32 percent, respectively. The sulphur (S) content was deficient in concentrate ingredients (0.13%) and crop residues (0.12%). Cobalt (Co) was deficient in the diet of animals.

Mutimura *et al*. (2013) the major feed used during the rainy season was Napier grass (*Pennisetum purpureum*), which accounted for 20% of the feeds. It was followed by roadside grass (10.5%) and maize stover (8%). The least used feed resources were groundnut haulms (1.1%) and home wastes (0.1%). The high variability of feed resources indicates the shortage of feedstuffs in the country. During the rainy and wet seasons the most purchased feeds were maize bran (11%), commercial concentrate (9.6%) and rice bran (8.9%). Interestingly, multi-purpose trees (MPTs) were harvested free of charge from neighboring farms and comprised up to 2.6% of feed resources.

Meena *et al*. (2014) concluded that there was 56.53% extent of adoption gap regarding feeding practices of dairy animals. Results indicated that the lowest (54.15%) extent of adoption gap existed among the small farmers where as the highest (59.22%) gap was observed among landless farmers in feeding practices of dairy animals. Path analysis explains that knowledge, education, mass media exposure and land holding were very imperative variables for minimizing adoption gap. Thus, the technology dissemination system must be geared up to organize campaigns, field days, demonstrations, exhibitions, kisan gosthi, kisan meal, discussions with farmers,

etc. so that farmers could acquire latest knowledge, that can lead to reduction in adoption gap in relation to feeding practices of dairy animals.

Sharma (2015) recommended that each adult lactating animal should be fed at least 40 kg diary and 2-3 kg of concentrate mixture depending upon the milk production level. In the field, it was observed that there is no provision of weighing green and dry fodder at small dairy farms so feeding of measured quantity of feed and fodder could not be adopted. Secondly, each farmer is procuring only one type of readymade cattle feed and is fed at the time of milking to the lactating animal but not to the dry or pregnant animal.

Godara *et al*. (2018) concluded that medium level of adoption was found in terms of feeding, breeding, and management and health care practices. Most of the dairy livestock owners adopted traditional system of management and have lack of awareness about different scientific practices related to dairy sector. As training found to influence the level of adoption of dairy management practices and in a positive way. KVK, animal husbandry department, cooperative dairies and state universities must periodically conduct training and awareness programmes with respect animal health care and management aspect to boost up level of adoption of dairy management practices. That would be provided sustainable security for livelihood of dairy livestock owners and their livestock.

3. To study the production status and income generation from dairy animals.

Cropp (1994) suggested that the input cost can be reduced through rotational grazing system. Such systems may reduce milk production costs per hundredweight and increase profitability. However, like anything else, a rotational grazing system requires proper management. Simply turning the cows out to grass is not the answer. Further, not all grass is not all dairy producers have the land resources conducive to grazing systems.

Dubey and Singh (2005) studied the productive performance of Sahiwal x Jersey maintained at Dairy Farm of Govind Ballabh University of Agriculture and Technology, Pantanagar, Uttaranchal and reported that the overall lactation milk yield was 2711.56 $\pm$ 46.93 kg.

Singh and Maharjan (2005) showed that the contribution of the dairy farming to the total household income is found to be significant in household level. This contribution is higher in small farmers and medium farmers as compared to large farmers because large farmers have other economic opportunities as compared to small farmers. Dairy farming is consuming household labour more efficiently as almost all labour use in the dairy is family labour. This indicates that diary sector development has direct impact on the contribution of household income in rural areas. The demand of livestock products like milk and milk product is increasing day by day as population increasing. Therefore, this sector can contribute for the betterment of the rural livelihood particularly to the small household, which has less opportunity to engage in provision of extension services; introduction of improved breed, good animal health service, and provision of cheap feed to the farmers, can enhance dairy production in the rural areas.

Mian *et al.* (2007) suggested that as dairy farming contributes successfully to the improvement of livelihood of rural women Government should support this sub-sector with adequate supply of feed at subsidized price. Moreover, the government should take effective steps so that grazing land should not decrease and khas land (government owned fallow land) should be earmarked for growing fodder or grass. Besides, an effective marketing channel should be developed to ensure fair price of milk for the dairy cow rearing women in the study area.

Lakshmi *et al*. (2009) studied the productive performance of HF X Sahiwal crossbred and reported the overall lactation milk yield as 2864.32 kg.

Nedelea *et al*. (2009) concluded that the rural and urban people can play a significant role in the agricultural sector by emphasizing dairy subsector in Bangladesh. Development initiatives over the last few decades clearly showed that sustained improvements in productivity and peoples' lives depend upon the recognition of the crucial role played by the poor farmers in production, processing and marketing in the small-scale entrepreneurial sector in the country. In addition, this IGA could give more social acceptability in a sense of self-sufficiency, generating consistent revenue, easy mode of loan facilities from the financiers/NGOs, waste management (dairy wastage could be used in the agricultural land as an alternative of fertilizer or help to generate fireworks for rural burner in kitchen). As an IGA, dairy is

one of the handful and important activities which can able to generate more revenue than the other activities to the rural and urban poor people.

Utami and Seruni (2014) reported that the farmers who raised dairy cattle with less than four animal units were more profitable than other strata in terms of obtaining more income and achieving somewhat higher. Therefore, small scale dairy farming can be useful in generating household income and enhancing household labour opportunity for rural society.

Kumawat *et al*. (2016) indicated that feed was the major cost component in total variable cost followed by lobour cost. Dry fodder was the major feed item for all types of milch animals followed by concentrates. The profit margin can be increased, by decreasing the cost of production. The average cost of production per litre milk was Rs. 14.27 and the average net return per litre of milk was Rs. 8.28. The input-output ratio was worked out 1.58 at overall level.

Revanasiddappa *et al.* (2017) cleared that the returns from dairy farming are not so great, more so far landless and marginal farmers. Their monthly incomes are very low and also the number of Milch animals they own. This impacts their earnings. The dairy farmers have to take dairy farming on a large scale, by owing more animals and adopting modern and efficient methods in order to improve the productivity and thereby their incomes.

Datta *et al*. (2018) indicated positive and statistically significant relationship between farm size and milk productivity and gross margin, also indicated that crossbred cow are providing higher economic benefits to the dairy farmers compared to the indigenous breeds. Despite being smallholder and subsistence, dairy farming shows potential for increasing returns to scale, and hence, there is a scope for further growth of the sector.

Jaiswal *et al*. (2018) concluded that the dairying contributes positively and significantly to the income and employment of rural farming households, especially the marginal and poor farmers, thereby providing them livelihoods and sustenance. Dairying helps in equitable distribution of income and employment among the rural farming households, thereby reducing the disparity in holding of resources by the rural communities. Dairying helps to boost the nutritional level and

hence the food security of the rural faming households, especially the marginal and deprived sections of the rural society.

Alqaisi *et al*. (2019) demonstrated that there is an opportunity for efficiency gains in the dairy industry with respect feed formulation. Based on dietary feed inclusion and price spreads, barly can be an important dairy feed grain which completely replaces wheat, corn, and sorghum at price spreads of less than 94%, less than 78%, and less than 67 per cent, respectively. Grain based feed scenarios represent the lowest nutrient variation while multiple meal feeds had the lowest costs. Furthermore, and on average, multiple mal feed scenarios provided 10 per cent higher dietary crude protein contents corn-pared to grain based feed scenarios .Meanwhile, multiple meal feeding cost was 11 per cent lower than that in the grain based feeding scenarios.

Sahu *et al*. (2019) concluded that dairying helps in rising income and employment among rural households. With a good strategy, well designed programmes, adequate resources and government initiatives, the country can achieve the goal of doubling farmer's income by the year 2025. Strong measures will be needed to harness all possible sources of growth in farmer's income within as well as outside agriculture sector. Dairy farming play a significant role in doubling farmer's income and it needs to maintain an annual growth rate of 5.3 per cent in milk production. Farmers should be aware of recent technologies interventions and focus on keeping healthy animals for producing good quality and quantity of milk. Switching over to organic dairy farming and IFS is very good alternative for obtaining additional gains. In order to double the farmer's income at individual level, it is imperative that in-milk animal productivity is enhanced further, milk price paid to farmers also need to be raised and develop more cooperatives. Thus dairy farming has that untapped potential whose improvement can help achieving the target.

4. To study the constraints in dairy farming.

Sambasiva (1985) reported that production of milk depends on feeding, breeding and management of animals. The fodders and 3 – 4 kg of wheat straw only whereas a cow yielding 8 kg milk will require 40-50 kg of green fodder with 1-2kg of jowar kadbi/ wheat straw. For high producing cows (> 10kg), 50-60 kg Berseem/

Lucerne/ Oats green with 2-4 kg of concentrate mixture will sustain the production capacity.

Sharma and Intodia (1991) revealed that the tribals and non tribals had only 14.78 and 40.44 percent adoption of scientific feeding respectively. Not a single tribal respondent has used balanced ration to the animal this was on account of poor economic condition of farmers and ignorance about technology.

Gangasagare and Karanjkar (2009) review the situation of dairying in Marathwada with the objectives to identify major constraints of the dairy farmers in adaption the recommended animal husbandry practices. Higher numbers of farmers have positive response to cool their animals. Significantly more numbers of farmers did not care to vaccinate and accept other health measures for their animals. Non-significant differences between dairy farmers adapting and non-adapting A.I. practices were recorded while significant difference was observed between the farmers adapting and not adapting the insurance policy.

Patil *et al*. (2009) concluded that as regards situational constraints in dairy enterprise, most of the respondents expressed their constraints as low milk production by local breeds, shortage of green fodder, lack of clean water and shortage of milk preservation facility in order of its nature and severity. With respect to financial constraints, majority of the respondents opined, delay in milk payment followed by inadequate money and lack of loan facility, high cost of concentrate and other feeds, high cost of high yielding breeds of animals and high cost of medicines respectively as their constraints in descending order. Referring to technical constraints, inadequate knowledge of diseases through prevention and control, followed by non-availability of artificial insemination facilities and timely veterinary services and non-availability of veterinary hospitals were responded as important constraints in order of its nature and severity.

Thakre *et al*. (2011) studied on constraints in adoption of scientific recommendation in feeding of dairy cattle. In the present investigation, the efforts were made to inquire the constraints in adoption of scientific recommendation in feeding dairy cattle in Sindewahi tahsil in Chandrapur District of Maharashtra. From the investigation, it was found that the adoption of scientific recommendation in feeding of animals was meagre. The main constraints involved in feeding of dairy

animals were financial, situational, infrastructural, personal, organizational and in technical aspects. Intensity of constraint was very high in small fallowed by landless, marginal, medium and large farmers.

Shinde (2011) stated the constraints regarding technological, marketing, institutional, infrastructure, diseases, feeds and environmental constraints. The farmers were asked to rank the important constraints in dairy farming. They have experienced and an index was constructed for different categories. In the non-irrigated region shortage of feed-particularly fodder turned out to be the most important constraint (2.40) and incidence of animal diseases (2.12). In the irrigated region, technological constraint were the most important (2.71), followed by institutional constraints (2.40) and infrastructure (2.39). The institutional and infrastructure problems were mostly related to the quality of infrastructure and institutional services in general environmental issues were at the bottom of the list.

Rathod *et al*. (2011) reported that the lower productivity and low fat content in the milk of the lower productivity and low fat content in the milk of the local breeds were the major constraints followed by poor adaptability of cross bred animals (64%) in the hot and humid climate of the region. Majority of farmers (87%) reported non availability of fodder round the year followed by inadequate knowledge about feeding (76%) as the major constraints in dairy farming. Also the majority of the farmers (72%) reported lack of timely Artificial Insemination (AI) facility followed by poor knowledge about AI (64%) , low conception rate through AI (57%) and difficulty in heat detection (52%). Health care of the animals was a major constraint for majority (84%) of the dairy farmers since they lacked timely veterinary and health care services. The study depicted that 71 per cent farmers felt the disease occurrence itself as the major constraint.

Quddus (2012) reported that the top ranked constraints were ill equipped and negligible services at centre, no provision for testing of animals, poor knowledge of farmers about health care of animal and inadequate knowledge about proper feeding and balanced ration. Need more knowledge on improved technologies through training, availability of reliable and continuous technical assistance, availability and low price of concentrate feeds, increased and timely provision of

medicine, increasing AI facilities, providing pure breed and strengthening extension services were the main suggestions from farmers.

Patel *et al*. (2013) stated the major constraints were lack of capital for animal shelter (77.5%), high cost of feed (90%), non-availability of green fodder through of out 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.

Surkar *et al*. (2014) recorded major constraints perceived by farmers were, unavailability of chilling facilities at collection centre, insufficient knowledge of farmers in terms of milk produce, lack of milk testing and animal screening facilities and unavailability of nutritious feed. Lack of co-operative societies and financial support to encourage scientific dairy farming were other major constraints faced by farmers. All these constraints may lay significant impact on milk production in terms of quality and quantity. For overall development of dairy sector in this area dissemination of knowledge, transfer of technology and role of dairy cooperatives would be crucial.

Sherasia *et al.* (2015) studied on impact of feeding balanced rations on milk production, methane emission, metabolites and feed conversion efficiency in lactating cows was conducted to evaluate the effect of feeding balanced rations on milk production, enteric methane emission, metabolites and feed conversion efficiency (FCE). In comparison to requirements, the dietary intake of protein and energy were higher by 25.0 and 12.7 per cent whereas, calcium and phosphorus intake were lower by 30.0 and 27.0%, respectively. Balanced feeding improved daily 4% FCM yield by 0.7 kg/cow (P<0.05) and intestinal flow of microbial nitrogen (N) by 37.0% (P<0.01), whereas, reduced (P<0.01) feeding cost by 17.0% and enteric methane emission (g/d/cow and g/kg milk yield) by 14.6 and 18.1%, respectively. Level of IgG, IgA, IgM and uric acid content increased significantly, whereas BUN

level reduced (P<0.01) from 18.2 to 15.0 mg/dl. FCE improved (P<0.01) from 0.8 to 1.0 and efficiency of microbial protein synthesis also improved (P<0.01) by 63.6 per cent owing to feeding of balanced rations indicating better performance of cows. Present study indicates that feeding nutritionally balanced rations improved milk production,

Shrey *et al*. (2015) studied the constraints perceived by farmers in crop-dairy mixed farming system on small farms in Parbhani district of Marathwada state. The constraints faced by farmers in crop production were varied crop to crop, but the common perception of farmers about constrains of crop production were that the non-availability of inputs at village level, high cost of inputs and lack of technical guidance in time were the major constraints reported by 100 percent , 87.67 percent and 71.67 per cent farmers, respectively. The analysis of constraints in dairy animal rearing in the study area were revealed that in case of local cow owner majority of respondent I.e. 100 percent were facing the constraints low productivity. Whereas in case of crossbreed cow majority of dairy owners (i.e. 100 percent) faced low price of milk, high cost of feed and fodder and lack of organized market as the major constraints in each case, followed by 93.34 per cent of respondents as non availability of land for fodder cultivation . Regarding constraints of buffalo milk production, 100 percent respondents opined to have constraints as lack of availability of credit. Beside these major constraints respondents dairy owners were also faced some other constraints in milk production and marketing of local cow, crossbred cow and of buffaloes.

Sing *et al*. (2015) reported the constraints faced by farmers in adoption of dairy as an entrepreneurship. The study revealed that all farmers entered into profession after getting training in dairy farming. The problems associated with adoption of feeding and health care practices were ranked first (61.8%) followed by constraints in adoption of milking practices (58.3%), breeding practices (51.0%) and housing practices (48.8%). Inadequate facilities of artificial insemination centre (71.1%), high price of concentrate mixture (84.4%), lack of capital for housing (66.7%), low economic grains (80.0%) and non-availability of adequate veterinary services (77.8%) were major stumbling block in adoption of the improved breeding, housing, milking and health care practices, respectively. There is dire need to frame

policy at government level to remove bottlenecks faced by commercial dairy farmers in order to adopt dairy as entrepreneurship.

Mooventhan *et al.* (2016) studied on Assessment of Tribal Dairy Farmers' Perceived Importance, Level of Awareness and Constraints in the Adoption of Good Feeding Practices Using Exploratory Factor Analysis. Study revealed that about one-fourth (27.67%) of the tribal farmers were aware about green fodder varieties, nearly half (43.0%) of the respondents were aware about the importance of colostrum feeding to calf with proper timing and quantity. The adoption results clearly indicated that about 24.66 per cent of the respondents cultivated cumbu napier green fodder varieties such as CO 3, CO(CN) 4 and CO(BN) 5. Regression analysis showed that the variables like age, occupational status, farm size, milk production and social participation had positive and significant relationship with good feeding practices. Constraints analysis revealed that majority (75.70%) of tribal farmers expressed the higher cost of concentrates, mineral mixtures and vitamin supplements as the major constraints in the feeding management of animals.

Sadashive *et al*. (2016) showed that the performance of the dairy sector in the study area is not up to the mark and they face many problems regarding breeding, feeding, health care, management and marketing in dairy enterprises. The major constraints in all these aspects of dairy enterprises were poor conception rate in breeding; Scarcity of drinking water in feeding; prevalence of disease in health care; poor housing of animals in management and low price of milk in marketing. However, these aspects can encounter by imparting frequent training to dairy farmers in the area with which they are concerned in their day-to-day life based upon judicious assessment and analysis of the training needs of the dairy farmers.

Suleiman *et al.* (2016) studied on Characteristics of dairy farming and its effect on milk production: case study of Unguja island of Zanzibar, Tanzania. It was found that a dairy farmer possesses, on average, seven dairy cattle (range 1-31) and two lactating cows (range 1-8). West district had bigger average herd size of 7.5 followed by North B with 7.3 and Central with 6.2 cows per farm but the difference was not statistically significant ($P>0.05$). West district had bigger average number of lactating cows (2.4) compared to Central (1.9) and North B (1.8), the difference was statistical significant ($P<0.05$). More than two thirds (72%) of the farmers interviewed

kept crossbreed dairy cattle that were managed mostly by intensive grazing system (65%). Only 61 per cent of the respondents had constructed shed for their dairy animals. About 86 per cent of the farmers provided maize bran, pollard or a mixture of the two as supplement feeds for their lactating cows, a practice which also differed significantly between the study districts ($P<0.05$). Average daily milk production was 7.6±3.6 litres per cow per day. Average milk production was higher in West district (8.0/litres/day) compared to Central (7.2 /litres/day) and North B (6.9 /litres/day), the difference between districts was statistically significant ($P<0.05$). It is concluded that dairy farming in Unguja Island operate under poor farm management, deprived hygiene and improper milking techniques that needs improvement to optimise milk production in terms of quality and quantity.

Panchbhai *et al*. (2017) recorded major constraints were ticks and other ectoparasites present in animal shed, milk production of local breeds is very low, dairy animals require large quantity of feed, higher cost of concentrate and cross bred animals are more prone to diseases. All these constraints may lay significant impact on milk production in terms of quality and quantity. For overall development of dairy sector in this area dissemination of knowledge, transfer of technology and role of dairy cooperatives would be crucial.

Prasad *et al*. (2017) reported that the major constraints faced by dairy farmers was low price offered for milk, frequent disease outbreaks, mastitis, availability of fodder while four per cent of the farmers were satisfied with their present farming situation.

Salo *et al.* (2017) Survey on Constraints of Improved Forage Adoption in Anelemo Woreda, Hadiya Zone, Ethiopia. The major constraints for improved forage adoption in the study area was a shortage of land (28.8%), shortage of forage seed (13.5%), lack of awareness and poor extension services. Livestock feed shortage (88%) and water shortage (12%) was the major problem in the study area. Therefore, integration of improved forage with crops, and with soil and water conservation structure is best opportunity for increasing adoption of this technology. Increasing accessibility of forage seed for the farmer

Sarita *et al*. (2017) studied the constraints perceived by the dairy farmers in Murah tract of Haryana state. In the area of breeding belief that

conceptions rate of artificial (78.67%) and belief that PD is harmful for pregnant animals (75%) were the most serious constraints perceived by dairy farmers. High cost of feed (82%) was the most serious feeding constraint followed by lack of availability of green fodder round the year (78.67%) and lack of knowledge about preparation of low cost balanced concentrate mixture at home (76%). In the area of management lack of knowledge and resources for cheap and scientific housing (72%) and cost of buffalo is very high (69%) were found the most serious constraints. High cost of treatment (79.67%) was considered as the most serious health constraints followed by lack of knowledge about common diseases and their preventive measures (72%).

Bera *et al*. (2018) identify the social, socio-economical, feeding, livestock management, breading, healthcare and marketing related constrains as perceived by the common dairy farmers in this region. And non-availability of pasture land, repeat breading problem and non-availability of artificial insemination (AI) centers, distress sell, non-remunerative price of milk and lack of proper training; were identified as some of the major limiting factors in the area. The indicated that proper planning and action plan need to be developed to support the growth of dairy farming in West Bengal.

Minhaj *et al*. (2018) concluded constraints in improved animal husbandry practices mostly related to economy of respondents are perceived as more serious for management practices, high cost of feed supplements or mineral mixture was perceived as most serious constraint followed by high cost of dry fodder and non-availability of pastureland for feeding practices, repeat breeding problem in dairy animals was perceived as most serious followed by poor conception rate of A.I. and lack of availability of breeding stock for breeding practices and high cost of treatment was perceived as most serious constraint for health care practices by the respondents. To overcome these constraints there was need to relook at the performance of rural banking system, micro finance institutions, packages of dairy loans and other schemes like Kisan credit cards and livestock insurance at grass root level, alternative models for delivery of health services are required that are less costly, and need for less costlier feeds and additives.

Material and Methods

CHAPTER III

MATERIAL AND METHODS

The detailed questionnaire was prepared to collect the information from the studied area about the dairy animals in respect of their feeding, management and constraints practices followed by the dairy farmers. The details of the materials used and the methods followed in conducting the present investigation was presented in this chapter under appropriate heads.

3.1 Information about place of work

The data for present investigation entitled "Status of Dairy Farmers in Parbhani Tahsil of Parbhani District" was collected from different farmers specially who was rearing the cattle and buffaloes in Parbhani Tahsil of Parbhani district in Maharashtra state. The period of experiment was in the first 15 days of January month. A comprehensive questionnaire was prepared to collect information by personal interview with individual farmers.

3.2 General information about Parbhani Tahsil

3.2.1 Geographical situation

Parbhani, Aurangabad, Jalna, Beed, Osmanabad, Latur, Nanded and Hingoli eight districts in the Marathwada region of Maharashtra state. The Parbhani tahsil lies between 19.16$_o$ North latitude and 76.47$_o$ East longitudes. It is situated approximately at the central part of state and Marathawada region. Boundaries of Parbhni are at Northen side Jintur tahsil, at East side of Purna tahsil, and South side Gangakhed tahsil and West side Manvat tahsil of Maharashtra state. The area presents plane lands.

3.2.2 Climate

The climate of this Parbhani Tahsil is generally dry except during the South-West monsoon season. The year may be divided into four seasons.

1 Cold season : November to the end of February
2 Hot season : March up to the first week of June
3 South-West monsoon : June to September
4 Post monsoon season : October and first half of November

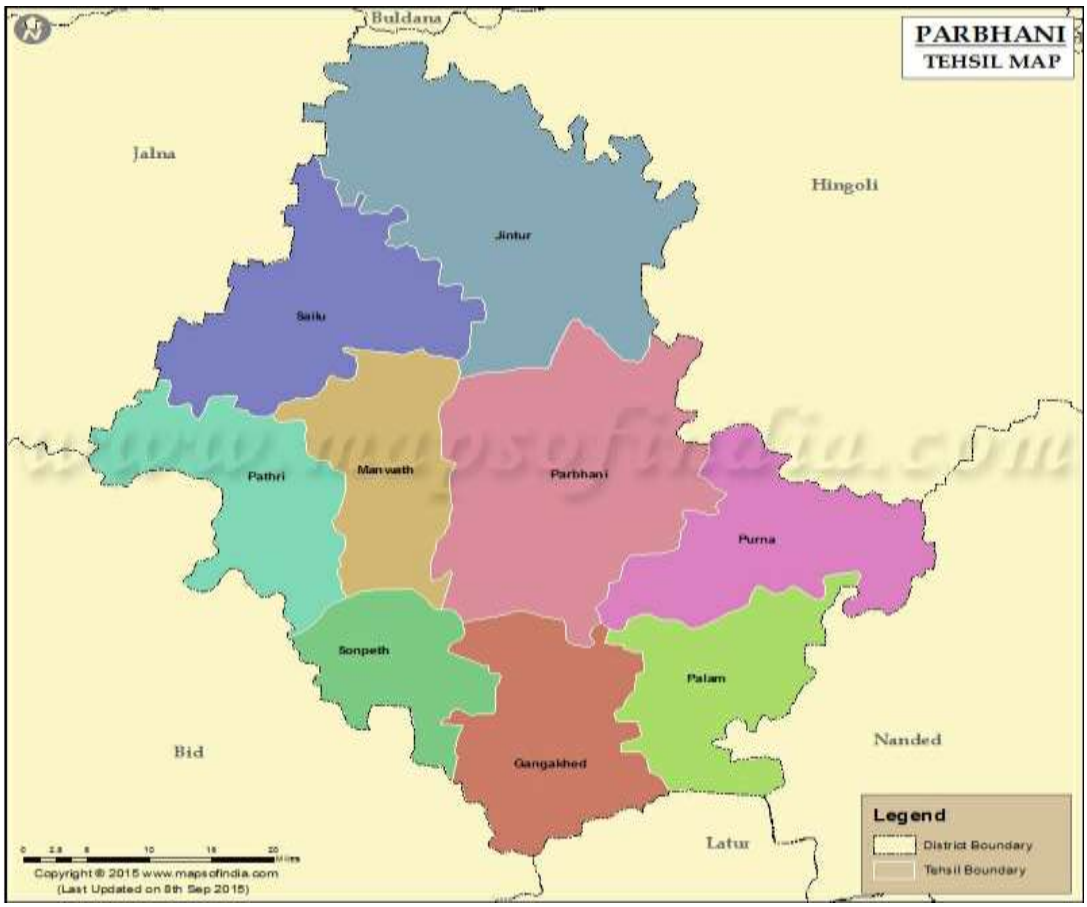


Fig.1: Map of Maharashtra state showing Parbhani district.

Temperature of the Parbhani Tahsil varies according to season during summer, it touches as high as 41^0C to 43^0C while, during winter season, it goes down as low as 5^0C to 8^0C. December is the coldest month, with the mean daily minimum temperature 13^0C and the mean daily maximum at about 29^0C. May is the hottest month of the year with the mean daily maximum temperature at about 42^0C. On individual days the temperature sometimes goes up to 45^0C to 46^0C.

3.2.3 Rainfall

The average annual rainfall of Parbhani is 774.59 mm. About 88 per cent of annual rainfall is received during the South-West monsoon season. The July is the rainy month in the year. Considering the general pattern of rainfall it is seen that the rainfall increases from West to East. On an average there are 47 rainy days in a year.

3.2.4 Soil and topography

Soils on plains interspersed with occasional stretches of shallow soils on the ridges. On the south side, the soils are deep and fertile particularly in Godavari valley.

They are derived from Deccan trap. They can be classified as light, medium and heavy according to depth, texture and location. The formation of rills and shallow ravines are observed near the bank of river.

In Parbhani district, the soils in the northern portion are light and medium. The southern part of Gangakhed taluka has lighter soils with undulating topography. The central part of the district of Pathri and Parbhani talukas have medium and deep black soils, however, the best soils are observed in the valley of Godavari. Deep soils are invariably found within the vicinity of river banks as a result of deposition of the eroded material brought by river in floods. The soils in the area have attained a high degree of maturity during the period of long ages. They consist of shallow medium and deep black types. The shallow soils are found near the foot of the hills. Deep black soils are regarded as good for wheat, cotton, sugarcane, jawar and groundnut, etc. for both kharif and rabi crops.

3.2.5 Crops

Agriculture being a seasonal occupation does not give full time employment to those who are dependent on it. This seasonal nature of agriculture in the tehsil attributed to the dependence of agriculture on the monsoon and inadequate

irrigation facilities. It provides favorable condition, leading to harvest of *Kharif* and Rabi crops.

Jowar (*Sorghum bicolar*), Cotton (*Gossypium sp*), Mung or Green gram (*Phaseolus aureus*), Tur or Pigeon pea (*Cajanus cajan*), Soybean (*Glycin max*), Bajra (*Pennisetum typhoideum*) are the crops taken in Kharif, Sunflower (*Helianthus annuus*) in post monsoon, Rabi Jowar (*Sorghum bicolar*), Bengal gram (*Cicer arientium*) and Safflower (*Carthamus tinctorius Linn*.) in Rabi. Summer Groundnut (*Arachis hypogea*) and vegetable. Crops are grown. Jowar Kadbi (*Sorghum bicolar* forms the major bulk of the ration for the ruminants. In addition, crop residues from Mung or Green gram (*Phaseolus aureus*), Groundnut (*Arachis hypogea*), Tur (*Cajanus cajan*) are also used for feeding the animals. Kharif season start in Jun-July and end in September-October. Rabi crops are generally sown in November and harvested in March.

3.2.6 Livestock population

Livestock, though non-descript, continues to be a valuable possession of the agriculturists in the Parbhani tahsil. The agricultural economy is also dependent on the cattle. The agricultural operations such as ploughing, harrowing, sowing etc. including irrigation and threshing are done by the drought animals. The livestock broadly includes bovine (cattle, buffaloes), ovine (sheep, goats).

Cows are maintained for milk production. Sheep are kept for meat, manure and wool purpose. Goats are kept for milk, meat and manure purpose. Species wise livestock population of the tahsil is given as follows.

3.2.7 Fodder

Fodder consists of stalk of Jowar, Bajra, Maize that are tied in bundles, husk of pulses, leaves and stalks of pulse crops, Groundnut straw. At many places jowar is grown principally for fodder wherever irrigation facilities are available. In addition to all these above mentioned, cakes of Groundnuts, Cotton seed and safflower are also utilized as a feed and are supposed to be the best food for livestock.

The data obtained for the study was collected by multistage random sampling technique. At first stage Parbhani taluka was selected.

a) Selection of villages: At second stage, random selection of 10 villages was made with 12 dairy farmers from each village Parbhani Tahsil.

3.3.1 List of selected villages from Parbhani tehsil

Sr. No.	Name of Village	Number of farmer
1	Bobade Takli	12
2	Pingali	12
3	Raypur	12
4	Balsa	12
5	Savangi	12
6	Sambar	12
7	Matkarhala	12
8	Dharasur	12
9	Devthana	12
10	Mandakhali	12

Twelve number of (cultivator) farmers were randomly selected from each village. Thus, the total sample size comprised of 120 farmers. The collection of above information of each dairy farmers, a method of 'Personal Interview' through questionnaire was followed. For this questionnaire, a standard preforma of questionnaire as adopted by 'NBAGR' was prepared and taken for survey.

3.4 The investigation include following studies

3.4.1 Socio economic status of farmer

Socio economic status of farmer includes information about individual farmer in respect of their age, educational level. Number of milch animals they possess, their land holding, family size, main and subsidiary occupation etc

Plate 1. Interview with farmers at the time of data collection

3.4.1.1 Age group

Socio economic status of farmer include information about age group of individual farmer were collected. It helps in categorization of selected dairy farmer according to their age as 20-30 year, 31-40 years, 41-50 years, 51-60 years and > 60 years etc.

3.4.1.2 Educational level

Categorization of selected dairy farmer according to their educational level were collected viz illiterate, primary, middle, secondary, higher secondary, graduate, post graduate and Ph.D. etc.

3.4.1.3 Classification of dairy farmers on the basis of herd size

The dairy farmers were further categorized into four groups according to number of animal kept by them viz, Upto 2, 3 to 4, 5 to 6 and more than 6 animals.

3.4.1.4 Classification of data on the basis of breed

The data was classified on the basis of cattle and buffalo breeds viz, indigenous cattle breed namely Red Kandhari, Gir, Deoni non-descript ans crossbreed cattle breeds and buffalo breed namely Marathwadi, Jaffrabadi and Murrah.

3.4.1.5 Classification of dairy farmer on the basis of land holding

One hundred and twenty respondents were randomly selected from 10 villages i.e. twelve dairy farmer per village from Parbhani Tahsil of Parbhani district. Selected respondents were classified into the groups on the basis of farm size. It refers to actual land possessed by the respondent's family in hectares, the respondents were categorized into four categories according to size of land holding viz, landless, marginal/small (upto 2 ha.), medium farmer (2 to 5 ha.) and large farmer (5 ha. and above).

3.4.2 Production and utilization status

The information on milch animals as regards to the species, their breeds, average lactation period and daily milk production and total milk yield, disposal of daily milk produced by way of household consumption and daily sale of fluid milk, ways of milk marketing i.e. milk cooperative societies, regular customers and private level processors, means of milk transport i.e. by walk, on bicycle, on motorcycle or by 4 wheeler.

3.4.3 Feeding status

The present picture and means to feed the dairy animals has been studied under following heads.

3.4.3.1 Grazing

The system of grazing followed by availability of grazing land in village and also availability of farmers having own grazing land has been studied and also the type of grazing area, its distance from animal stall and average time of grazing the milch animals were considered for this parameters.

3.4.3.2 Stall feeding

Most of farmers adopt stall feeding to their milking animals they were offering all types of feeds, self grown or purchased, green or dry fodder. The survey was made for collecting the information on type and quality of fodder fed to animals (i.e. whether, home grown or purchased), fed as such or chopped, whether fed alone or with concentrates, type and quality of concentrate, adopting feeding of mineral mixture and adopting new feeding practices or not.

3.4.4 Adoption of management practices

Adoption was the decision to make full use of innovation. The adoption with respect to management practices like housing, care and management, veterinary care, breeding, feeding, clean milk production and effect of occupation and literacy on adoption of dairy management practices were undertaken from the questionnaires.

3.4.5 Facilities expect for dairy activities

Facilities expect by dairy farmers for dairy activities was studied. It include easy loan facilities, availability of crossbreed animals, timely receipt of milk sale from collection centre, insurance of animals, veterinary – AI facility, ensured supply of feed and fodder, diseased diagnostic facilities at door step etc.

3.4.6 Major constraint in dairying

The constraints of an individual dairy farmer were studied. unavailability of green and dry fodder round the year, health care management, calf rearing constraint, reproductive problems, high cost of animal feed, unavailability of vet. aids, unavailability of pasture land, unavailability of proven sire / breeding bull at farmer's field all these constraints take in consideration.

3.5 Statistical Method

The data collected was be classified and tabulated as per the objective concerned and simple tabular analysis was followed for analyzing data, where the comparison was redundant only frequency and percentage was estimated (Panse and Sukhatme 1967).

Results and Discussion

CHAPTER IV

RESULTS AND DISCUSSION

The investigation of "Status of dairy farmers in Parbhani tehsil of Parbhani district" was carried out during the year 2019 – 2020. Results obtained are presented and discussed in the light of research work conducted to know the details of farmers position and prospectus of dairy sector in Parbhani tehsil of Parbhani district. Accordingly 120 farmers from 10 villages of Parbhani tehsil were investigated under following heads.

- Socio - economic status of dairy farmers
- Production and utilization status
- Feeding status of dairy animals
- Adoption of management practices
- Facility expect for dairy activity
- Care / facilities for livestock
- Constraints in dairying

4.1 Socio - economic status of dairy farmers

It includes the name of livestock owner, age, level of education, number of dairy animal owned, land holding, family size and occupation details of the family.

4.1.1 Age

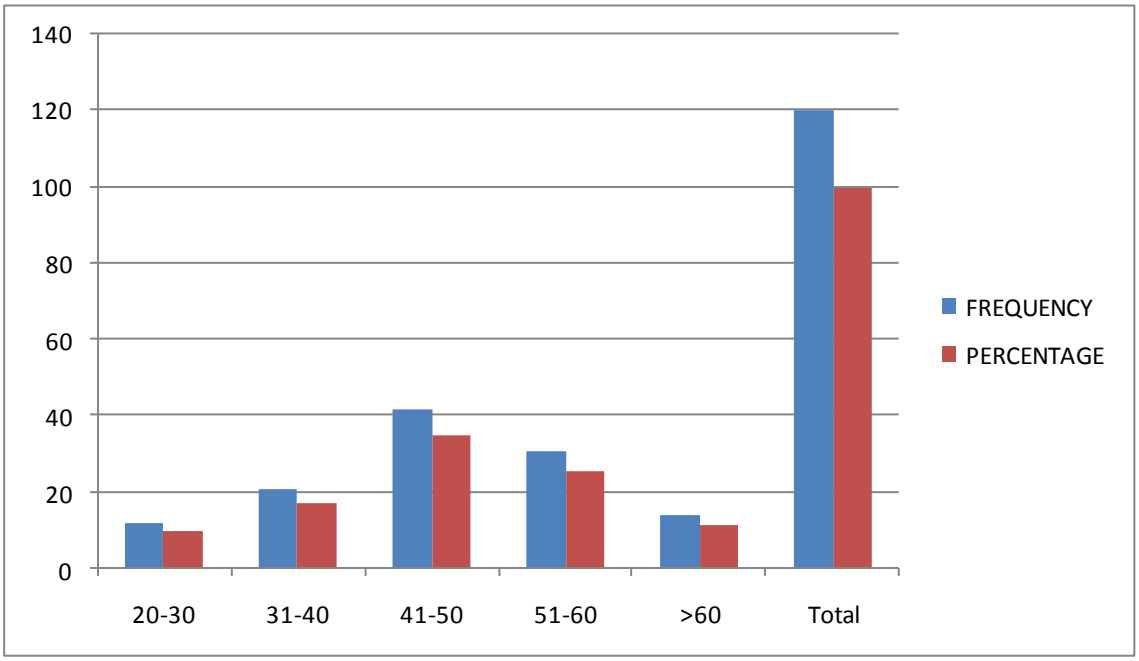
The farmers under study were interviewed for their age the result is presented in table 1.

Table 1: Age of dairy farmers

Sr. No.	Age group	Frequency
1	20-30	12 (10.00)
2	31-40	21 (17.50)
3	41-50	42 (35.00)
4	51-60	31 (25.80)
5	>60	14 (11.70)
	Total	120 (100.00)

(Figures in parenthesis shows percentage of respective farmers)

From the above table it was noticed that the maximum farmers were from 41 to 50 years of age. Followed by 51 to 60 and then 31 to 40 year age group. The data also reveals that the frequency of 12 farmers out of 120 between the age group of 20-30 engaged in dairy activity mostly for commercial purpose which shows the younger generation is also getting attracted to the dairy sector. The above 60 age group was mostly engaged in grazing their animals and also in the absence of working persons. Thombre and Pawar (1993) revealed that about 47 per cent crossbred cattle owner were between 31 to 45 years of age. The present observations are similar with these findings.



Graph No. 1 Different age group of dairy farmers

Plate 2. Interview with farmers at the time of data collection

4.1.2. Level of education

The data regarding the educational status of dairy farmers under study were presented in table 2

Table 2: Education level of dairy farmer

Sr. No.	Level of education	Frequency	Percentage
1	Illiterate	9	07.50
2	Primary school (1^{st} - 4^{th})	13	10.80
3	Middle school (5^{th} – 7^{th})	28	23.34
4	Secondary school (8^{th}-9^{th})	38	31.60
5	Higher secondary school (10^{th} – 12^{th})	23	19.25
6	Graduate	8	06.67
7	PG	1	00.84
8	Ph.D.	0	0.00
	Total	**120**	**100.00**

From table 2 it has been observed that maximum 31.6 per cent of dairy farmers were having secondary school education, 7.5 per cent were illiterate, 10.8 per cent have at least attended 4^{th} grade, 23.34 per cent were having middle school education and, 19.16 per cent having higher secondary school, 6.67 were having degree and 0.84 per cent having post-graduation and not a single dairy farmer completed Ph.D. If we compare the table no. 1 with table no. 2 then it can be easily understand that the number of degree holders was mostly from the age group of 20-30. Shinde *et al*. (1998) reported that 46.67 per cent of the respondents were illiterate, 25 per cent respondents were educated upto primary level, 15.83 per cent were educated up to middle school and remaining 12.50 per cent respondents attained high school and higher education.

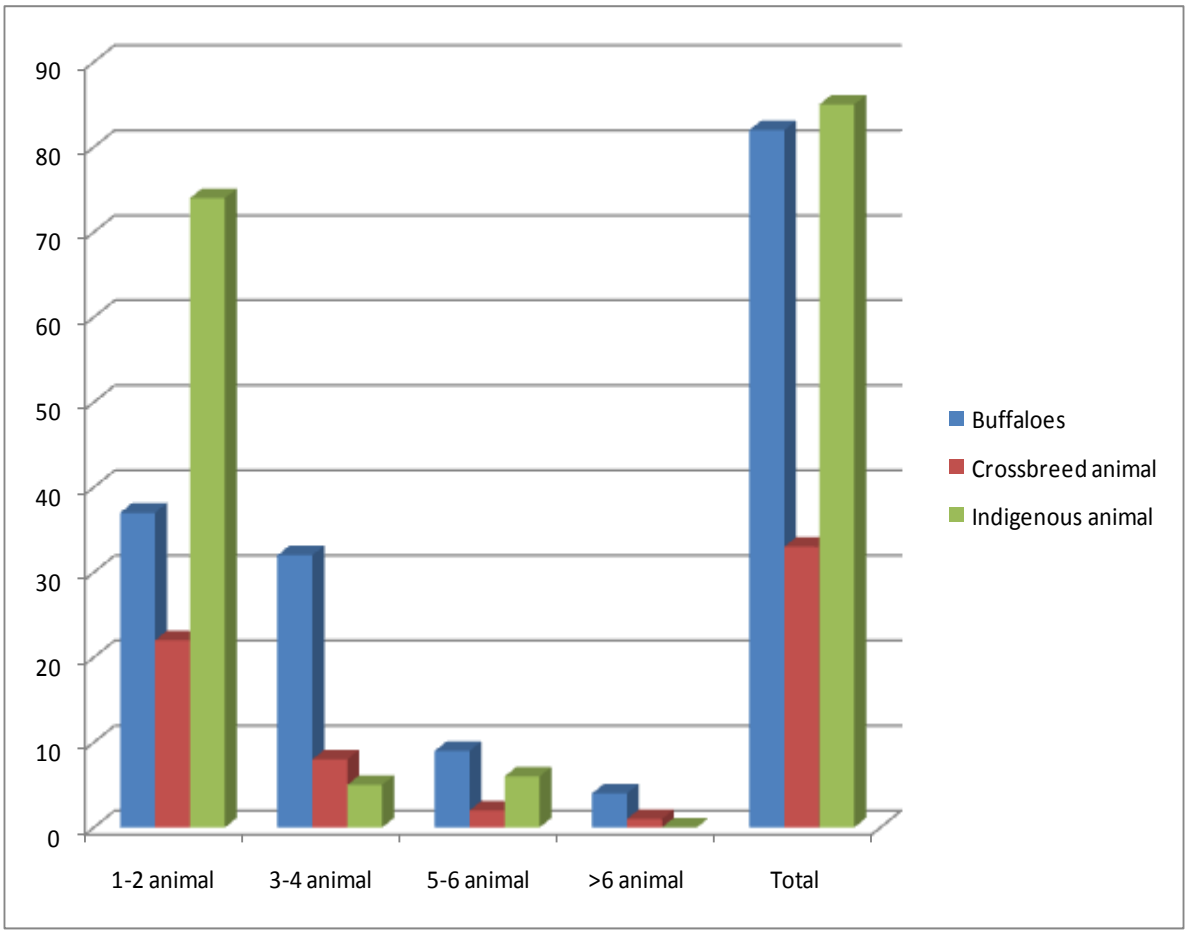
4.1.3 Animal wealth

The number of animals of livestock owner was grouped as 1-2, 3-4, 5-6, and above 6 and the study was conducted. The observations of there number was analysed and was mentioned in Table 3. It was seen that the maximum number of dairy farmers had 1-2 animals of both types i.e. buffaloes and cattle. In terms of buffalo it was 45.12 per cent and crossbred cows were 66.67 per cent and indigenous cows were 87.05 per cent. 3-4 buffaloes with 39.04 per cent, 5-6 with 10.97 per cent and more than 6 buffaloes with 4.87 per cent. The figures for crossbred cows for 1-2, 3-4, 5-6, >6 animals was: 66.67, 24.24, 6.06 and 3.03 per cent respectively, and for indigenous cows the corresponding figures are 87.05, 5.88, 7.05 and 0 . Sonwane *et al*. (2001) reported that maximum number of dairy farmers had 1-2 animals of both types buffaloes (60 per cent) and cows were (74 per cent). Present observations are similar with these findings.

Table 3: No. of dairy animals owned by dairy farmers

Sr.No	Animal owned	Buffaloes	Crossbreed cows	Indigenous Cows
		Frequency	Frequency	Frequency
1	1-2 Animals	37 (45.12)	22 (66.67)	74 (87.05)
2	3-4 Animals	32 (39.04)	8 (24.24)	5 (05.88)
3	5-6 Animals	9 (10.97)	2 (06.06)	6 (07.05)
4	>6 Animals	4 (04.87)	1 (03.03)	0 (00.00)
	Total	82 (100.00)	33 (100.00)	85 (100.00)

(Figures in parenthesis shows percentage of respective farmers)



Graph no. 2 Number of animals owned by dairy farmers

Plate 3. Interview with farmers at the time of data collection

4.1.4 Dairy cattle and buffalo breed

The data of different breeds of dairy animals of dairy farmer was studied and presented in table 4. It was observed from table 4 that out of one hundred and twenty dairy farmers 82 dairy farmers were having buffalo out of which 56 (68.29 per cent) dairy farmers were having Marathwadi breed followed by Jaffrabadi 18 (21.95 per cent) and after that Murrah 8 (9.75 per cent). Out of 120 dairy farmers 33 dairy farmers have crossbreed animals in which 19 (57.57 per cent) dairy farmers have Jersey breed followed by 14 (42.43 per cent) Holstein Friesian breed. In the indigenous breed out of 120 farmers 85 farmer have indigenous breed out of which 36 (42.37 per cent) dairy farmer pusses Non-descript cows, 34 (40.00 per cent) dairy farmer have Red Kandhari breed, 9 (10.58 per cent) dairy farmer have Deoni breed, and remaining 6 (7.50 per cent) dairy farmers have Gir breed.

Table 4: Category of dairy farmer based on cattle and buffalo breed

Sr. no	Species	Name of the breed	No. of animals and per cent	Total
1	Buffalo	Marathwadi	55 (68.29)	82 (100)
		Jafrabadi	18 (21.95)	
		Murrah	8 (09.75)	
2	Cattle	Red Kandhari	34 (40.00)	85 (100)
		Deoni	09 (10.58)	
		Gir	06 (07.05)	
		Non-descript	36 (42.37)	
3	Crossbreed	Crossbreed	33 (100)	33 (100)

(Figures in parenthesis shows percentage of respective farmers)

4.1.5 Land holding status of farmers

Land holding is one of the primary major factor in dairy management. Land holding determines the actual area of farmer under fodder cultivation and the quality and quantity of feed given to dairy animals. According to their land holding, dairy farmers were categorized into landless, marginal / small, medium and large.

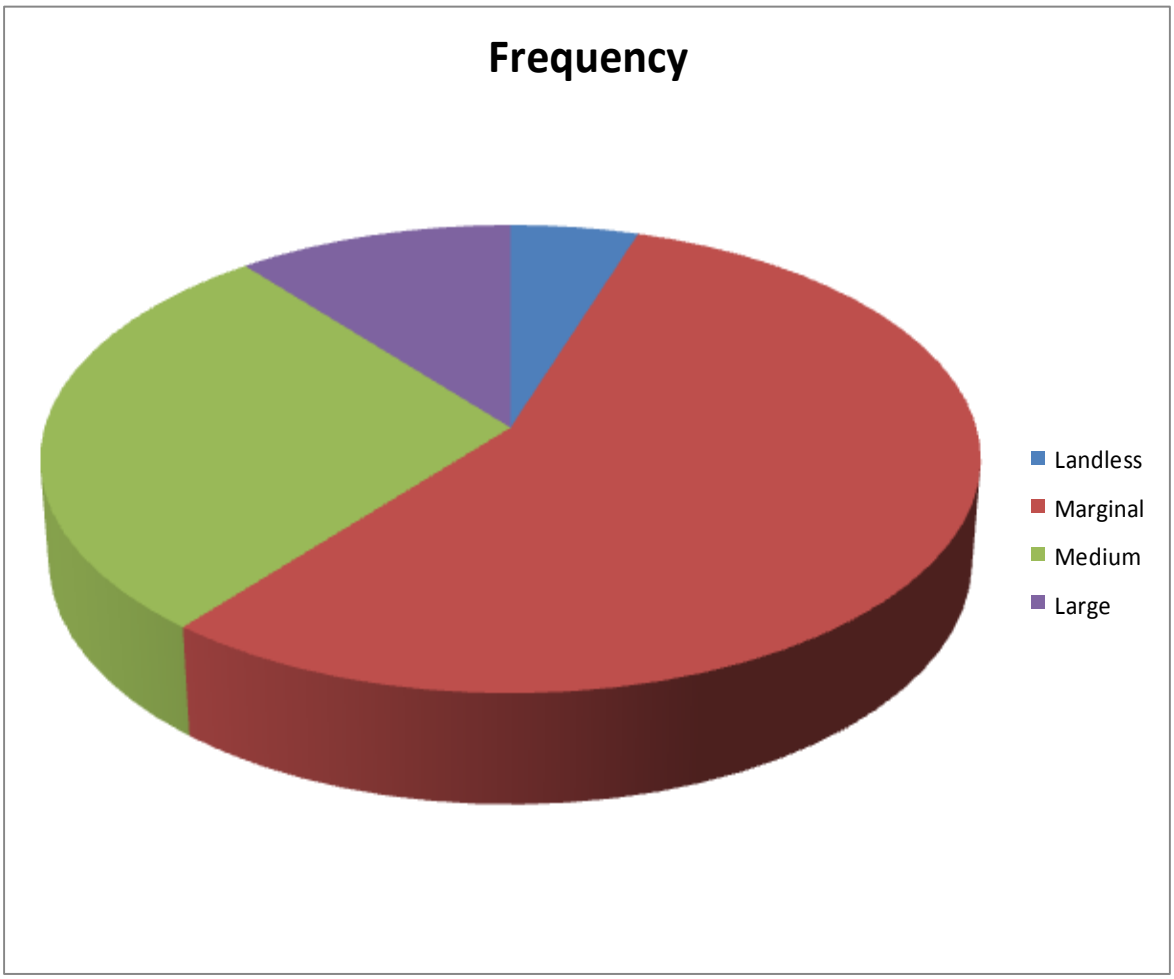
The results of the study were presented in table 5.

Table 5: Land holding status of dairy farmers

Sr. No.	Land Holding	Frequency
1	Landless	6 (05.00)
2	Marginal / Small (up to 2 ha.)	67 (55.83)
3	Medium (2 – 5 ha.)	34 (28.34)
4	Large (> 5 ha.)	13 (10.83)
	Total	120 (100)

(Figures in parenthesis shows percentage of respective farmers)

From the above table it was observed that most of the farmers are in the group of marginal land holding status which constitutes 67 (55.83 per cent) of the total land holding out of 120 dairy farmers. Among the 120 dairy farmers 34 (28.34 per cent) comes under the category of medium land holding status which generally includes land area between 2 to 5 ha. Followed by large (>5 ha.) land holders which generally constitutes 13 (10.83per cent) of the total 120 dairy farmers. Lastly comes landless dairy farmers who generally are 6 (5 per cent) in number out of 120. It has been observed that the landless dairy farmers are mostly from tribal community and daily waged people who derive most of their earning from dairy activity. Walthare *et al*. (1992) reported that 40 per cent dairy farmers had below 2 ha land holding, 43 per cent had 2 to 5 ha and 17 per cent dairy farmers had above 5 ha land holding.



Graph no. 3 Land holding status of dairy farmers.

4.1.6 Family size

The number of members in the family defines the family size which is an important factor influencing labour availability for crop and livestock production. In big families, the members have to work hard for earning more money incurring the family expenditure (Shinde *et al.,* 1998). Considering these, the data was collected, compiled and presented in table 6.

Table 6: Family status of dairy farmers

Sr. No.	Type of family	Total no. of members	Male	Female	Children
1	Single member	0 (00.00)	0 (00.00)	0 (00.00)	0 (00.00)
2	Nuclear family	302 (40.53)	92 (44.87)	88 (45.83)	122 (35.05)
3	Joint family	443 (59.43)	113 (55.13)	104 (54.17)	226 (64.95)
4	Total	745 (100)	205 (27.52)	192 (25.77)	348 (46.71)

(Figures in parenthesis shows percentage of respective farmers)

From table 6 it was observed that out of 745 members 443 (59.43 per cent) stays in joint family out of which 113 (55.13 per cent) were found to be males and 104 (54.17 per cent) females and rest were the children. The nuclear family includes 302 members out of 745 out of which 92 (44.87per cent) were males, 88 (45.83 per cent) were females and remaining i.e. 122 (35.05 per cent) were children. In a survey conducted in 10 villages not a single member family was found engaged in dairy farming. Singh and Chatterji (1989) reported a family size in two villages as 6.4 and 5.9 respectively. The presented study also revealed the ratio of nuclear to joint family of about 55: 44.

4.1.7 Occupation

In village areas, the main source of life is agriculture. But now days dairy farming has become an supplementary source of income to rural households Dairying was only suited as economic activity. Thus the dairy has become a subsidiary occupation of rural families (Mote *et al*. 1997). Data regarding the occupation of animal's owners was represented in table 7. From Table 7, it was

revealed that maximum number i.e. 90 (75per cent) of the 120 of dairy farmers were engaged in agriculture and dairy farming. Whereas 6.67 per cent cattle owner was engaged in dairy, agriculture and service. 4.17 per cent engaged in dairy, agriculture and business and only 5.00 per cent milk producer totally depends on dairy business and remaining 0.84 per cent were busy in dairy, poultry and agriculture. . Mote *et al*. (1997) also find nearly similar results.

Table 7: Occupation status of dairy farmers

Sr. No.	Occupation	Frequency
1	**Dairy**	6 (05.00)
2	**Dairy+Service**	0 (00.00)
3	**Dairy+Business**	0 (00.00)
4	**Dairy+Agriculture**	90 (75.00)
5	**Dairy+Poultry**	0 (00.00)
6	**Dairy+Agriculture+Service**	8 (06.67)
7	**Dairy+Agriculture+Business**	5 (04.17)
8	**Dairy+Poultry+Agriculture**	1 (00.84)
	Total	120 (100.00)

(Figures in parenthesis shows percentage of respective farmers)

4.2 Production and utilization status

Production and utilization status include daily total milk yield, disposal of daily milk, way of household consumption and daily sale of fluid milk, ways of milk marketing, means of milk transport.

4.2.1 Milk production and utilization status:

The production and utilisation status of the dairy animals has been noted and studied and accordingly results were presented in table 8. Utilization status of milk by the rural households of the dairy farmers had also been studied and given in Table no. 8. The results from table 8 show that the average daily milk yield of buffalo was 5.47 kg, crossbreed cow was 7.92 kg and that of indigenous cow was 3.32 kg. The general lactation period of cows is 270 days and for buffaloes 290 days. Corresponding figures for mean total daily milk production / family for buffalo, crossbreed cow and indigenous was 12.08 kg, 15.03 kg and 5.74 kg respectively. Most of the farmers do keep the milk for home consumption. The amount of home consumed milk was 1.04 kg of buffalo milk and 1.60 kg of crossbred milk and 1.05 kg of cow milk. Overall table shows that crossbreed cow have higher daily milk production, total milk kg of indigenous cow milk was production, milk consumption and sale of milk than buffalo and indigenous cow. Singh *et al*. (1981) reported that on an average 23.03 per cent of the milk produced in Punjab was sold, 44.99 per cent consumed at home and remaining 31.98 per cent was converted into such product as butter and ghee. Dhiman *et al.* (1990) recorded the same trend of utilization of buffalo milk for the preparation of indigenous milk product chiefly the ghee. Regarding sale of milk about 12.40 kg of buffalo milk, 15.17 kg of crossbreed milk and 5.95 sold by the farmers in the market

Table 8: Milk production and utilization status of dairy animals

Sr. No.	Particulars	Buffalo	Cow	
			Crossbreed	Indigenous
1	**Avg. Daily milk yield / animal (kg)**	5.47	7.92	3.32
2	**Avg. Total milk production/family/day (kg)**	12.08	15.03	5.74
3	**Avg. Quantity of milk consumed (home) /day (kg)**	1.04	1.6	1.05
4	**Avg. Quantity of milk sold/day (kg)**	11.04	13.43	4.59

Price of milk was varied from species of animals and ways of milk marketing. Buffalo milk got high price in market than indigenous and crossbreed

cows because of high fat and protein content in milk than others. In the milk cooperative society price of milk was depend on fat content in milk. The price of buffalo milk at milk cooperative society was Rs. 30-40/- per lit. depending upon fat and crossbreed and indigenous cow milk was Rs. 25-30/- per lit depending upon fat. But the price of milk was higher when they sale milk to regular customers and consumers i.e. Rs. 50/-, Rs. 40/- and Rs. 40/- per lit of buffalo, crossbreed and indigenous cow milk respectively.

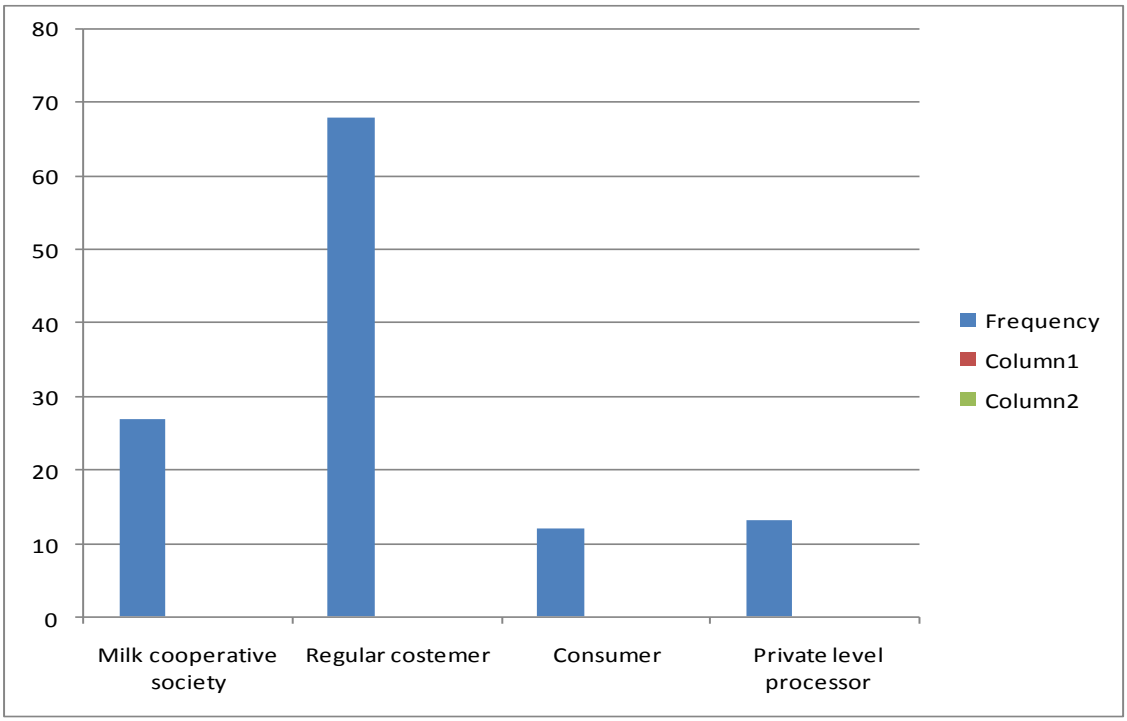
4.2.2 Milk marketing and price

Dairy farmers use different market to sale the milk i.e. milk co-operative societies, consumers, regular customers and private level processor. Accordingly the figures were shown below. Data regarding the disposal of milk was mentioned in table 9. From Table 9, it was observed that out of 120 dairy farmers maximum number of dairy farmers i.e. 68 (56.67 per cent) deliver their milk to regular customer whereas 27 (22.5 per cent), 13 (10.83 per cent) and 12 (10 per cent) dairy farmers sale their milk to the milk cooperative society, private level processor and consumers respectively.

Table 9: Ways of milk marketing

Sr. No.	Ways of milk marketing	Frequency
1	**Milk cooperative society**	27 (22.50)
2	**Regular customer**	68 (56.67)
3	**consumer**	12 (10.00)
4	**private level processor**	13 (10.83)
	Total	120 (100.00)

(Figures in parenthesis shows percentage of respective farmers)



Graph no. 4 Ways of milk marketing

Plate 4. Interview with farmers at the time of data collection

When the questionaries' was asked regarding the milk marketing to the farmers they specifically mentioned the lack of optimum minimum support price and fluctuation in milk prices at cooperative society level which was mostly hammering there income so most of them moved towards the private customers so that the dairy farmers could get better stabilised price for their milk.

Table no. 10 Milk price and total milk yield

Sr. No.	No. of particulars	Buffalo			Cows			Total
		Quantity in Liters	Price	Total	Quantity in Liters	Price	Total	
1	**Milk cooperative society**	2.1	35	73.5	3.1	25	77.5	151
2	**Regular customer**	6.3	50	315	7.8	40	312	636
3	**Consumer**	1.1	55	60.5	1.1	45	49.5	110
4	**private level processor**	1.2	50	60	1.04	40	41.6	101.6
	Total	10.71		509	13.04		480	998.6

From the above table it can be seen that in terms of cow milk utilisation pattern the dairy farmer sells his most of the milk to regular customer because of fetching good price. If we compare the data between cow and buffalo then we get that the total income obtained from cow is higher.

4.2.3 Milk transportation

The available source for transporting milk from farm to market site includes by walk, by cycle, on motor cycle and through a 4 wheeler. It was also observed that most of the local consumers visit to the cow shed early in the morning and evening for purchasing milk from dairy farmer. The observed data is analysed and presented in table 10.

Table 11: Means of milk transport

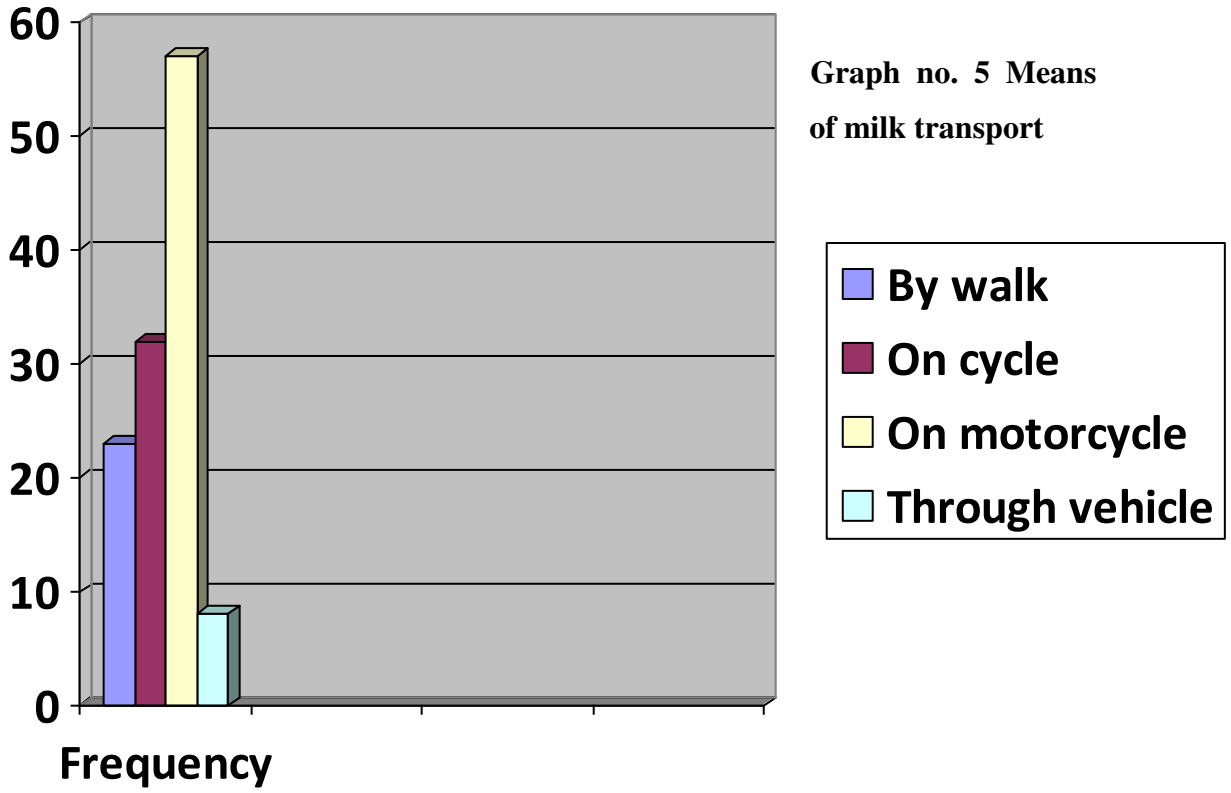
Sr. No.	Means of milk transport	Frequency
1	**By walk**	23 (19.17)
2	**On cycle**	32 (26.67)
3	**On motor cycle**	57 (47.50)
4	**Through vehicle**	8 (06.65)
	Total	120 (100.00)

(Figures in parenthesis shows percentage of respective farmers)

From table 11 it was clearly indicated that maximum number of dairy farmers i.e. 57 (47.5 per cent) out of 120 use motor cycle for transporting their milk from milking point to milk market, 26.67 per cent farmers carry milk on cycle, followed by 23 (19.17 per cent) farmers deliver their milk by walk and rest by vehicles which accounts for 6.65 per cent. It was observed that the farmers who deliver their milk by walk and cycle mostly lives in village and nearby area.

4.3 Feeding status of dairy animals

The fat percentage of milk, quantity, colour and most of the components of milk are determined by quality and kind of fodder. Hence, feed and fodder was important factor for milk production. Apart from the genetic capabilities of the animals, the milk production in dairy animals goes in response with quantity and quality of the feeds and fodder allowed to them. So that it was necessary to evaluate the present feeding status of dairy animals adopted by the dairy farmer on their own farm. The present investigation was therefore under taken to assess the feeding status of dairy animals in term of grazing, green roughages, dry roughages, concentrates and mineral mixture supplied. Data regarding the feeding status of dairy animals was presented here under.



Graph no. 5 Means of milk transport

4.3.1 Grazing

Feeding system was based on grazing of animals on native pasture and in nearby area. Ruminants receive part or most of the feed requirement through grazing on natural grassland. Large ruminant receive about 50-60 per cent of dry matter from crop residues. Data regarding the grazing of dairy animals was presented below.

4.3.1.1 Grazing distance

Grazing distance was distance between animal shed and grazing area. Bunds of field and native pasture were common grazing areas utilized in rural area. The grazing distance for dairy animal varied: the animals had to walk for 0.5 to 3 km to reach the grazing land. There was neither reserved grazing land nor common grass lands. The animals were brought in the field and allowed to graze the field boundries and low lying fields of conventional grasses.

4.3.1.2 Type of grazing

Generally native pasture and field bunds were utilized as grazing area. Dairy farmers generally use field bunds as grazing area. Nearly 85 per cent of owners took their animals for grazing on bunds/ boundaries, only 15 per cent of the farmers took the animal on the common pastures and road sides. Saha *et al.* (1991) reported that roadside and field grasses were utilized and available in their study area.

4.3.1.3. Time of grazing

Generally all dairy farmers take their animals i.e. cows and buffalo for grazing at 9 am – 11 am in morning and return during evening at 4 pm – 6 pm. Animals were engaged in grazing for about 7-8 hrs. Belli and Manjula (1997) also find similar results they reported that nearly 51 per cent gavalis spent 5 to 8 hours daily in grazing their livestock.

4.3.2 Stall feeding

During, the investigation, it was seen that dairy farmers feed their animals either dry fodder (purchased or homegrown) green fodder as per the availability. Except landless, all the dairy farmers did offer their animals roughages available either in the form of by product such as jowar and bajra whereas the landless animals owners purchase such fodder in the form of fodder maize, fodder jowar and sometimes green grass from the sugarcane fields were the major fodders and cotton seed cake, arhar / soybean guli were the concentrate available for feeding.

4.3.2.1 Gap between recommended and adopted feeding practices

It was necessary to find the gap between adopted and recommended feeding practices to study the specific amount of feed given by different category of farmers. Accordingly the four categories of farmer were studied which included landless, small, marginal and large farmer. Hence the detailed chart was prepared and presented below.

Table No.12 Gap between recommended and adopted feeding practices by landless farmer for average 300 kg animal

Sr. No.	Feed items	Recommended practices	Adopted practices by dairy farmers	Feed management gap
		Quantity(kg)/animal	Quantity(kg)/animal	Quantity(kg)/animal
1	**Dry fodder**	7	3.40	3.60
2	**Green fodder**	15	12.11	2.89
3	**Concentrates**	3.50	1.00	2.50

It was observed from the table that the landless farmer who mostly depended on grassland and pastures. The daily requirement of dry fodder for one animal was 7 kg but the only 3.4o kg was given. The recommended quantity of green fodder was 15 kg per animal but the given quantity was 12.11 kg and the availability of concentrates was just 1 kg which was suggested to be 3.50 kg.

Table No.13 Gap between recommended and adopted feeding practices by small farmer for average 300 kg animal

Sr. No.	Feed items	Recommended practices	Adopted practices by dairy farmers	Feed management gap
		Quantity(kg)/animal	Quantity(kg)/animal	Quantity(kg)/animal
1	**Dry fodder**	7	3.00	4.00
2	**Green fodder**	15	14.44	0.56
3	**Concentrates**	3.50	1.95	1.55

It was observed that the quantity fed by small farmer is usually higher than landless farmer. In terms of dry fodder the quantity was fed was 3 kg whereas recommended was 7 kg. The quantity of green fodder was slightly lower than recommended which was 14.44. And 1.95 kg concentrate was fed and recommended was 3.50 kg.

Table No.14 Gap between recommended and adopted feeding practices by medium farmer for average 300 kg animal

Sr. No	Feed items	Recommended practices	Adopted practices by dairy farmers	Feed management gap
		Quantity(kg)/animal	Quantity(kg)/animal	Quantity(kg)/animal
1	**Dry fodder**	7	3.99	3.01
2	**Green fodder**	15	14.50	0.50
3	**Concentrates**	3.50	2.50	1.00

The quantity of dry, green and concentrates fed to animal was higher as compared to small farmer

Table No.15 Gap between recommended and adopted feeding practices by large farmer for average 300 kg animal

Sr. No	Feed items	Recommended practices	Adopted practices by dairy farmers	Feed management gap
		Quantity(kg)/animal	Quantity(kg)/animal	Quantity(kg)/animal
1	**Dry fodder**	7	6.00	1.00
2	**Green fodder**	15	17	+2
3	**Concentrates**	3.50	4.00	0.50

Recommended feed of dry fodder was 7 kg but actually given was 6 kg. In terms of green fodder recommended fodder was 15 kg but actual 17 kg was fed which was higher than recommended. And the amount of concentrates given was 4 kg and the recommended was 3.50. Hence, it can be concluded that large farmer has higher potential to feed his cattle with good amount of feed surplus.

4.3.2.2 Feeding green roughages

The data on the quantity of green roughage fed to milch cow and buffalo by landless, marginal / small, medium and large farmers were compiled analysed for the interpretation of result. The results on these aspects was presented in table 12.

Table 16: Mean green roughages offered to dairy animals by various group of farmers.

Sr. No.	Types of Farmers	Mean daily green roughages offered (kg/animal)		
		Buffalo	**crossbred**	**Indigenous**
1	**Landless**	9.75	11.80	7.07
2	**Marginal/small**	10.15	12.16	7.72
3	**Medium**	12.03	14.10	9.00
4	**Large**	13.50	15.55	11.25

From the above table it can be observed that shows that one milch buffalo was offered 9.75, 10.15, 12.03, 13.50 kg / day green roughages by landless, Marginal / small, medium and large farmer respectively. From the figures, it could be seen that buffalo of landless farmer got least amount of green roughages in comparison to others. Buffalo of large farmer got highest amount of green roughages in comparison to others.

The quantity of green roughages offered to crossbred cow by landless, marginal / small, medium and large farmers was 11.80, 12.16, 14.10 and 15.55 kg/head/day respectively. From the figures, it was seen that crossbred cow of landless farmer got least amount of green roughages and crossbreed cow of large farmer got highest amount of green roughages in comparison to others.

The mean green roughage offered to indigenous milch cows was comparatively less than that offered for buffalo and crossbred cow by each type of farmers. The quantity of green roughages offered to indigenous cows by landless, marginal / small, medium and large farmers was 7.07, 7.72, 9.00 and 11.25 kg/head/day respectively. The statistical analysis of data for this parameter revealed that large farmers fed significantly higher amount of green roughages than others. The overall picture of table 11 reveal that among the three types of milch animals, the indigenous cows were most neglected by all the dairy farmers having offered the green roughage in the range of 7.07 to merely 11.25 kg daily. One buffalo could get roughage in the range of 7.75 to 13.50 kg/day in comparison with crossbred cow receiving between 11.80 to maximum 15.55 kg/day.

4.3.2.3 Feeding dry roughages

The amount of quantity of dry feed in terms of kilogram per animal was studied and the detailed data on the quantity of dry roughage fed to milch cow and buffalo by landless, marginal / small, medium and large farmers were compiled analysed for the interpretation of result. The results on these aspects were presented in table 12.

Table 17: Mean dry roughages offered to dairy animals by various group of dairy farmers.

Sr. No.	Types of Farmers	Mean daily dry roughages offered (kg / animal)		
		Buffalo	Crossbred	Indigenous/local
1	Landless	7.76	9.10	3.92
2	Marginal/small	8.03	8.16	4.47
3	Medium	9.40	11.80	7.71
4	Large	10.37	12.77	8.48

From the above table it can be understood that, one milch buffalo was offered daily 7.76, 8.03, 9.40, 10.37 kg roughages by landless, Marginal / small, medium and large farmer respectively. From the above figures, it could be seen that buffalo of landless farmer got least amount of dry roughages in comparison to others. However lall *et al*. (1998) recorded that the average green fodder, dry fodder and concentrate fed round the year was 22.24, 6.25 and 1.09 kg/head/day.

The quantity of dry roughages offered to crossbred cows by landless, marginal / small, medium and large farmer was 9.10, 8.16, 11.80 and 12.77 kg/head/day respectively. However there was difference of one unit between the quantity of dry roughages offered daily to crossbred cows by large and medium farmers. The quantity of dry roughages offered to indigenous cows by landless, marginal / small, medium and large farmers was 3.92, 4.47,7.71 and 8.48 kg/head/day respectively. The mean dry roughage offered to indigenous milch cows was comparatively less than that offered for buffalo and crossbred cow by each type of farmers. The statistical analysis of data for this parameter revealed that large farmers fed significantly higher amount of dry roughages than others. Table 12 reveals that among the three types of dairy animals, the indigenous cows were most neglected by all the dairy farmers having offered the dry roughage in the range of 3.92 to merely

8.48 kg/head/day. Further landless farmers could offer nearly half of the roughage offered by the large farmer. One buffalo could get dry roughage in the range of 7.76 to 10.37 kg /day in comparison with crossbred cow receiving minimum 9.10 to maximum 12.77 kg / day. Nearly similar finding were also reported by Nayak and Mitra (1983) as crossbred cows were fed from 9.92 to 11.23 kg dry fodder/day in different seasons.

4.3.2.4 Feeding concentrate

In addition to feeding of roughages, dairy farmers use to feed their milch animals with concentrates. The data collected for this parameter and presented in table 18. A Landless farmer could offer 1.30 kg of concentrate to his buffalo, while marginal/small 1.48, medium 1.90 and large 2.50 kg/head/day. The statistical analysis revealed that large farmers offered significantly higher concentrate than rest of the farmers. Unexpectedly landless farmers fed least concentrate to their buffaloes than other group of farmer. During the survey farmer has been informed that no quantity of concentrate fed was in proportion to the quantity of milk obtained daily. singh *et al.* (1998) reported that landless, marginal, small medium and large farmers daily feed 2.86, 4.08, 4.71, 5.06 and 5.66 kg concentrate respectively. The present observations are very low as compared with these findings.

Table 18: Mean concentrate offered to dairy animals by various group of dairy farmers.

Sr. No.	Types of Farmers	Mean daily dry concetrates offered (kg / animal)		
		Buffalo	Crossbred	Indigenous/local
1	**Landless**	1.30	1.80	0.74
2	**Marginal/small**	1.48	2.10	1
3	**Medium**	1.90	2.05	1.67
4	**Large**	2.50	2.33	1.90

The crossbred animals could get the concentrates from 1.80 to 2.33 kg/head/day irrespective of their production performance. The crossbreds also were preferred and fed more concentrate that buffaloes by every farmer. This may conclude that farmers give little more importance in managing cross bred cows. Chopra and Kurar (1983) reported that the intake of concentrate mixture ranged from 1.80 to 2.40 kg/head/day in crossbred which was lower than present result. Nevertheless indigenous cows due to their low milk yield performances have been neglected. Concentrate offered to indigenous cow varied from 0.74 to 1.90 kg/head/day. Table

18 reveals that large farmers did offer highest amount of concentrates to all categories of milch animals Raut and Amble (1969) reported that buffalo was fed with 5.75, 4.74, 2.34 kg/head/day green, dry fodder and concentrate respectively.

4.3.2.5 Feeding preserved roughages

In the 120 dairy farmers, not a single dairy farmer was aware about the method of preservation of roughages either into silage or hay. In the survey it was seen that the major problem in preservation of such roughages were lack of sufficient surplus green fodder and method of demonstration of preparation of either silage or hay.

4.4 Adoption of management practices

Different management practices were adopted for increasing the milk production by the dairy farmers such as adopting recommended feeding practices, enrich low quality fodder, supplements, use of stimulants for increasing milk production and veterinary aids etc. the present study was conducted to know the extent of adoption of these management practices by dairy farmers.

4.4.1

The dairy farmers in the survey area were not adopting any recommended feeding practices by taking into consideration the milk yield of animals, its body weight and proper use of available feeds for economic returns.

4.4.2

Urea feeding was also unknown to animal owners however 84 out of 120 dairy farmers use of jaggary to their animals but just after the calving and not during the lactation period.

4.4.3

In survey area not a single dairy farmers fed mineral and vitamin in proper proportion to their animals. Mineral imbalance was common occurrence in livestock throughout the continent affecting in a number of ways (Garge *et al*. (1999). However common salt was the only mineral used largely in the survey area. It was dissolved in water and sprayed on dry fodder and fed to dairy animals. This method of feeding mineral was also not done regularly and as per requirements. From the data, it was shows that 60 per cent of farmers fed common salt to their animals.

4.4.4

Regarding the use of a stimulant for increasing the milk production, it was informed that no dairy farmer use any such stimulant as hormonal preparation to increase the milk production of their animals.

4.4.5

Dairy farmers store the dry fodder either in open air or under shed. Quantity of stored fodder largely depends on their land holding. It was seen that on an average, a holding. Farmer's stores 750-800 bundles dry fodder. The period of storage depends on the number of animals owned by each farmer. The farmer stores such fodder till next season. Maximum farmer stores the dry fodder in open air in their fields while few owners store it under the shed near the cattle shed.

4.4.6

Provision of health care to the dairy animals in the survey area was very less and in only 2 out of 10 villages the veterinary dispensary units were available. Irrespective of the distance the farmer in difficult has to take his animal to the nearest veterinary units for treatment. The A.I. was available in some of the units.

4.5 Facility expect for dairy activity

One hundred and twenty farmers were interviewed and studied their expectation about dairy activity as easy availability of loan for dairy development, supply of crossbred animals and timely receipt of milk sale from collection centre, insurance of the animals. They were also asked for AI facilities, ensured supply of feed and fodder and disease diagnostic facilities at the door step etc. Result of this study shows that maximum number of dairy farmers i.e. 99 (82.05 per cent) dairy farmers expect veterinary facilities. Thereafter 88 (73.33 per cent) dairy farmers expect ensured supply of feed and fodder throuht the year, 62 (51.66 per cent) responded to timely receipt of milk sale whereas 45 (37.50 per cent) expected availability of crossbreed animals for higher milk production, 80 (66.66 per cent) dairy farmer expect disease diagnostic facilities at door step.

Table 19: Facility expect for dairy activity by dairy farmer

Sr. No.	Facility expect for Dairy activity	Landless	Marginal	Medium	Large	Total
1	Easy loan facilities	6 (100)	38 (56.71)	14 (41.17)	12 (92.30)	70 (58.33)
2	Availability of crossbreed animal	4 (66.67)	24 (35.82)	14 (41.17)	3 (23.07)	45 (37.5)
3	Timely receipt of milk sale	6 (100)	30 (44.77)	21 (61.76)	5 (38.46)	62 (51.66)
4	Insurance of animal	0	3 (4.47)	4 (11.76)	8 (61.53)	15 (12.5)
5	Veterinary facilities	6 (100)	54 (80.59)	32 (94.11)	7 (53.84)	99 (82.5)
6	Ensured supply of feed and fodder	5 (83.33)	49 (73.13)	28 (82.35)	6 (46.15)	88 (73.33)
7	Disease diagnostic facilities at doorstep step	4 (66.67)	40 (59.70)	25 (73.52)	11 (84.61)	80 (66.66)

(Figures in parenthesis shows percentage of respective farmers)

4.6 Care / facilities for crossbred cow

During the investigation, it was seen that out of two hundred dairy farmers 35 farmers have crossbreed animals. Crossbred cows were preferred by dairy farmer and this has been also seen that they offered comparatively more roughages and concentrates to crossbred cows than either milch buffaloes or indigenous cow. Some farmer provides extra facilities like washing and grooming and keeping hygienic condition of cattle shed.

4.7 Constraints in dairying

During the investigation, the data of constraints in dairying by each and every dairy farmer recorded. i.e. unavailability of green and dry fodder round the year, health care management, calf rearing problem, reproductive problems, high cost of animals feed, unavailability of veterinary aid at farmers door step, unavailability of pasture land, unavailability of proven sire / breeding bull at farmers field etc the data was presented in table 20.

Table 20: Constraints in dairying by various groups of dairy farmers

Sr. No.	Constraints	Landless	Marginal	Medium	Large	Total
1	**Inadequate availability of green and dry fodder**	6 (100)	51 (76.12)	28 (82.35)	1 (7.69)	86 (71.66)
2	**Health care management**	5 (83.33)	28 (41.79)	21 (61.76)	2 (15.38)	56 (46.67)
3	**Calf rearing**	6 (100)	18 (26.86)	24 (70.58)	2 (15.38)	50 (41.67)
4	**Reproductive problem**	1 (16.66)	34 (50.74)	17 (50)	3 (23.07)	55 (45.83)
5	**High cost of animal feed**	6 (100)	12 (17.91)	19 (55.88)	7 (53.84)	44 (36.66)
6	**Unavailability of veterinary aids**	4 (66.67)	44 (65.67)	20 (58.82)	10 (76.92)	78 (65)
7	**Unavailability of pasture land**	6 (100)	30 (44.77)	18 (52.94)	9 (64.23)	63 (52.5)
8	**Unavailability of proven sire**	2 (33.33)	18 (26.86)	19 (55.88)	2 (15.38)	59 (49.16)

(Figures in parenthesis shows percentage of respective farmers)

In case of constraints, about 71.66 per cent of the farmers have problem in inadequate availability of green and dry fodder. The problem of unavailability of veternary aids are faced by 78 farmers. Next to that 63 farmers face the problem of unavailability of pasture land. 49.16 percent of farmers were having the problem of unviability of proven sire and 55 farmers were having the reproductive problem and the problem of high cost of animal feed was faced by 44 farmers.. Kulkarni *et al.* (1990) identified the constraints in the adoption of dairy practices as non-availability of loan facility (100%), lack of preservation facility (100%), lack of knowledge (94.59%), cost of milk (79.35%) and non availability of veterinary aid centre (69.5%).

Summary and Conclusion

CHAPTER V

SUMMARY AND CONCLUSION

The present investigation was carried out to study the "Status of dairy farmers in Parbhani Tahsil of Parbhani District" of Maharashtra state. The sample consists of 120 farmers from 10 villages. Twelve numbers of farmers were randomly selected from each village and collecting the information through questionnaires. The selected villages were Bobade Takali, Raypur, Balasa, Savangi, Sambar, Matkarhala, Dharasur, Devthana, Mandkhali.

The objectives of study were as follows.

1. The feeding status of dairy animals in respect to concentrate, green and dry roughages
2. The recommended practices of feeding for higher milk production
3. The constraints in feeding

5.1 Socio-economic status of dairy farmers

5.1.1 Age

About 35 per cent dairy farmer from selected villages were in the age group 41 to 50 years. Followed by 51 to 60 and 31 to 40 year age group which were engaged in grazing their animals. While above 60 years age group watch the animals in the absence of working persons.

5.1.2 Educational level

From the selected villages the maximum 26.50 per cent of dairy farmers were having secondary school education, 21.00 per cent were illiterate, 20.00 per cent were having primary education, 15.50 per cent were having middle school education and 10.50 per cent having higher secondary school, 5.50 were having degree and 1.00 per cent having post graduation.

5.1.3 Animal wealth

Dairy farmers possessing 1-2 milch buffaloes, crossbred and indigenous cow share to the extent of 45.12, 66.67 and 87.05per cent respectively. The corresponding values for 3-4 animal owners were 39.04, 24.24 and 5.88. The corresponding values for 5-6 milch buffalo and indigenous cow: 10.97, 6.06 and 7.05 and only 4.87 and 3.03 per cent of dairy farmers were with milch animals exceeding 6.

5.1.4 Dairy animal breed

Out of one hundred and twenty dairy farmers 56 (68.29 per cent) dairy farmers have Marathwadi buffaloes followed by Jaffrabadi 18 (21.95 per cent) and Murrah 8 (9.75 per cent), 19 (57.57 per cent) dairy farmers have Jersey breed and 14 (42.43 per cent) dairy farmer have Holstein Friesian breed, 36 (42.37 per cent) dairy farmer have Non descript cows, 34 (40.00 per cent) dairy farmer have Red Kandhari breed,9 (10.58 per cent) dairy farmer have Deoni breed and remaining 6 (7.05 per cent) dairy farmers have Gir breed.

5.1.5 Land holding

Maximum 67 dairy farmers out of 120 dairy farmers were marginal /small farmers. 34 animal owners were medium farmers. Then 13 dairy farmers were large farmers and 6 animal owners were landless.

5.1.6 Family size

Out of 745 members 443 (59.43 per cent) stays in joint family out of which 113 (55.13 per cent) were found to be males and 104 (54.17 per cent) females and rest were the children. The nuclear family includes 302 members out of 745 out of which 92 (44.87per cent) were males, 88 (45.83 per cent) were females and remaining i.e. 122 (35.05 per cent) were children.

5.1.7 Occupation

The occupation status of cattle owners in the study revolved that maximum number 90 (75 per cent) of cattle owners were engaged in agriculture. Whereas 8 (6.67 per cent) cattle owners were engaged in agriculture and service, 4.17 per cent engaged in agriculture and business, only 5.00 per cent milk producer totally depends on dairy business and remaining 0.84 per cent were engaged in agriculture and poultry.

5.2 Production and utilization status

5.2.1 Milk production and utilization status

The milk production status of dairy animals reflects the average daily milk yield of buffalo, crossbreed and indigenous cow was 5.47 kg, 7.92 kg and 3.32 kg respectively. Corresponding figures for mean total daily milk production / family was 12.08 kg, 15.03 kg and 5.74 kg respectively. The amount of home consumed milk was 1.04 kg of buffalo milk, 1.60 kg of crossbred milk and 1.05 kg of indigenous cow milk. With regarding sale of milk about 11.04 kg of buffalo milk,

13.43 kg of crossbreed milk and 4.59 kg of indigenous cow milk was sold by the farmers in the market.

5.2.2 Milk marketing

Maximum number of dairy farmers deliver the milk to regular customers 68 (56.67 per cent) whereas 27 (22.5 per cent) and 13 (10.83 per cent) and 12 (10 per cent dairy farmers sale the milk to the cooperative society, private level processor and consumers respectively.

5.2.3 Milk transportation

Maximum numbers of dairy farmers carry the milk by motor cycle 47.5 per cent from milking point to milk market, 26.67 per cent farmers carry milk by cycle. 19.17 per cent of farmers carry milk by walk. Very few vehicles were used by about 6.50 per cent dairy farmers.

5.3 Feeding status of dairy animals

5.3.1 Grazing

No specific grazing land was available in the area. The farmer had to take their animals to reach the low lying field, boundries, bunds etc. that too after the emergence of green grass after monsoon. The farmer takes his animals for grazing for about 7-8 hours. Grazing distance was about 0.50 - 3 Km.

5.3.2 Stall feeding

Most of appetite of animal was fulfilled in the stall where they were fed green maize, jowar grass from sugarcane field, straws of sorghum, bajra, gulli from tur, soybean, cotton seed cake and ground nut cake.

1. Feeding green roughages

Crossbred cow were fed with higher amount of green roughages than buffaloes or indigenous cows by all types of dairy farmers. Large and medium farmers offered significantly higher quantity of green roughage to all type of animals. Marginal and landless farmers offered minimum green roughages to each category of animal. Indigenous cows were most neglected mostly by dairy farmers having offered green roughage in the range of 7.07 to merely 11.25 kg/head/day.

2. Feeding dry roughages

Indigenous cows were mostly neglected by all dairy farmers having offered dry roughage in the range of 3.92 to merely 8.48 kg/head/day. In general crossbred cow were fed marginally higher amount of dry roughages than either buffaloes or indigenous cows by all types of dairy farmers. Large and medium

farmers offered significantly higher quantity of dry roughage to all type of animals. Marginal and landless farmers offered minimum roughages to each category of animal.

3. Feeding concentrate

Like roughage feeding, feeding of concentrate was biased by all the farmers towards crossbred cows which were fed the concentrate from minimum of 1.80 to maximum 2.33 kg/head/day as compare either to buffaloes (1.30 to 2.50 kg/head/day) or indigenous cows (0.74 to 1.90 kg/head/day). Similarly large farmers could offer significantly higher concentrate than other farmers, whereas landless offered about 1.30 kg concentrate daily to buffaloes. Marginal farmers fed 1.38kg/head/day. Landless farmers with indigenous milch cows fed significantly lower amount of concentrates (0.84 kg/head/day).

4. Feeding preserved roughages

In the 120 dairy farmers, not a single dairy farmer was aware about the method of preservation of roughages either into silage or hay. In the survey it was seen that the major problem in preservation of such roughages were lack of sufficient surplus green fodder and method of demonstration of preparation of either silage or hay.

5.4 Adoption of management practices

Adoption of standard management practices like feeding dairy animals as a balanced ration, enrich low quality fodder, use of supplement i.e. vitamin and use of any stimulant for increasing milk production were not followed by the dairy farmers of the selected villages. In survey area not a single dairy farmers fed mineral and vitamin in proper proportion to their animals.

5.5 Facility expect for dairy activity

Most of dairy farmer's i.e. 86 (71.66 per cent) dairy farmers expect Ensured supply of feed and fodder. Thereafter 78(65 per cent) dairy farmers expect proper veterinary aids, 63 (52.5 per cent) faces the problem of lack of pasture land. Whereas 59(49.16 per cent) farmers expected availability of proven sire, 56 (46.67 per cent) dairy farmer expect disease diagnostic facilities at door step. Then 44 (36.66 per cent) dairy farmer complained about high cost of feed.

.5.6 Care / facilities for crossbred cow

Crossbred cows were preferred by dairy farmer and this has been also seen that they offered comparatively more roughages and concentrates to crossbred

cows than either milch buffaloes or indigenous cow. Some farmer provides extra facilities like washing, grooming and keeping hygienic condition of cattle shed.

5.7 Constraints in dairying

Main constraint of maximum number of farmers i.e. 71.66 per cent of the farmers have problem of unavailability of green and dry fodder throught the year . Followed by the problem of unavailability veterinary aids which is faced by 78 farmers.

CONCLUSION

The findings of this study are first hand information and therefore, no concrete conclusion can be drawn. However the prominent conclusion as emerged from this study and suggestion there upon are briefed below.

- It was concluded from the results of this investigation that mostly illiterate are also engaged in these business. So there is need to educate them and bring them under scientific temper of rearing the dairy animals.
- Crossbreed animals have higher milk production and sale of the milk than indigenous cows and buffaloes.
- Quantity of green and dry roughages fed to buffalo crossbred cow and indigenous cow varied according to land holding. Landless farmers because of unavailability of land was not able to offer his cattle with good amount of green feed and had to mostly depend on pasture land. From the result it was observed that landless farmer could offer nearly half the quantity of the roughage offered by the large farmers.
- Feeding of green and dry roughage and concentrate to the dairy animals by the farmers without any scientific ground resulted in most of the feed loss and over consumption by cattle mostly developed fatigue in them so it was suggested that for potential milk production the dairy animals should be fed according to the quantity and quantity of milk produced.
- Non-adoption of recommended feeding and management practices shows negative impact on milk production.
- High cost of animal feed, inadequate availability of green and dry fodder around the year and very less availability of veterinary hospital was the major problems faced by the farmers.

Suggestions

1. For good economic milk yield it is essential to use of non conventional sources and nutritionally high quality roughages along with incorporation of green fodder in daily diet.

2. The improvement in feeding and management can be done by providing scientific and technical knowledge about cattle management, timely financial support and veterinary aids.

3. Using proper feeding method, scientific breeding, proper management and health cover practices by dairy farmers will result in increasing of income of dairy farmers inrural areas.

4. It is essential to guide the farmers through agricultural extension workers regarding scientific feeding of livestock.

5. According to thumb rule,

- The dry matter requirement is 2.0 per cent of live weight of dry cow, 2.5 per cent of indigenous lactating cow and 3.0 per cent of live weight of milch crossbred cow.
- Roughages requirement should be fulfilled as 2/3rd of DM through dry roughages and 1/3 through green roughages.
- The concentrate requirement of cattle for maintenance, production and pregnancy is satisfied as fallows,

A) The maintenance requirement of deshi cow and cross breed cow is 1 and 1.5 kg / head respectively.

b) crossbred milch breed cow and Lactating indigenous cow should be given 1 kg of additional concentrate allowance for every 2 and 2.5 kg milk produced respectively.

c) Pregnant cows should receive 1.5 kg / day extra concentrate allowance during advance pregnancy to meet extra need of nutrients for growth of foetus.

d) Breeding bulls in service should get 1 kg / day extra concentrate allowance to maintain good health and sex libido.

- Mineral mixture and common salt each cattle @ 25-50 gm should be given daily to fulfill mineral requirement of animal.
- Vitamin mixture @ 20-30 grams /100 kg concentrate mixture should be given daily to animals.
- When straw is used as sole roughages then 1 – 2 per cent lime stone powder should be added in straw.

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Appendix

APPENDIX

DEPARTMENT OF ANIMAL HUSBANDRY AND DAIRY SCIENCE
COLLEGE OF AGRICULTURE, VNMKV, PARBHANI
Questionnaire on Model Survey of Status of Dairy Animals

Name of student: **Jagtap Amol Kailas** **Reg. No.** 2018A/69M

Research guide: Dr. D. V. Bainwad, Asst. Prof., Dept. of AHDS, VNMKV, Parbhani

Title : Status of Dairy Farmers in Parbhani Tahsil of Parbhani District

A) Socio-economic status

1. **Name of the Dairy Farmer :**

2. **Age :** year

3. **Level of education :**
   1. Illiterate
   2. Primary
   3. Middle
   4. Secondary School
   5. Higher Secondary School
   6. Graduate
   7. P.G.
   8. PhD.

4. **Category of dairy farmer as per their livestock :**

a) Based on number of dairy animal:

Sr. No.	Category of dairy farmer	No. of Buffaloes	No. of cows	
			Crossbred	Indigenous
1.	1-2			
2.	3-4			
3.	5-6			
4.	>6			

b) Based on dairy animal breed:

Sr. No.	Name of buffalo breed	Name of Cattle breed	
		Crossbreed	Indigenous
1.			
2.			
3.			
4.			
5.			
6.			

c) Based on land holding:
1) Landless
2) Marginal/ Small farmer (less than or equal to 2 ha.)
3) Medium farmer (more than 2 ha. and less than/equal to 5 ha.)
4) Large farmer (Greater than 5 ha.)

5. Family size :

Type of Family	Total no. of members	Male	Female	Children
Single Member				
Nuclear family				
Joint family				

(Niranjan *et al.*1998)

6. Family occupation :

A) Main occupation of the farmer:

Activities	No. of persons engaged		
	Male	Female	Children
Dairy Dairy + Service Dairy + Business Dairy + Agriculture Dairy + Poultry Dairy + Agriculture + Service Dairy + Agriculture + Business Dairy + Poultry + Agriculture			

B) Production and utilization status

1) Milk production status

Sr. No.	No. of Particulars	Buffalo	Cow	
			Crossbreed	Indigenous
1.	Daily milk yield/ animal (kg)			
2.	Total milk production / family / day (kg)			
3.	Mean lactation period (Days)			

2) Milk utilization status

Sr. No.	No. Particulars	Buffalo	Cow		Total
			Crossbreed	Indigenous	
1.	Quantity of milk consumed(Home)/ day/ (Kg)				
2.	Quantity of milk sold/ day (kg)				

3) Ways of Milk Marketing and Price

Sr. No.	No. of Particular	Yes/No	Quantity (Litre)	Price (Rs.)	Total (Rs.)
1.	To milk co – operative society				
2.	Regular customers				
3.	Consumers				
4.	To private level processor				
		Total			

4) Means of milk transport

1. By walk :
2. On cycle :
3. On motor cycle :
4. Through vehicle :

C) Feeding status

1. Grazing

a) Distance from home : Km
b) Type of grazing : 1) Pastures 2) Bunds 3) Others
c) Hours of grazing : hours
d) Grazing area available :
e) Types of pasture available : in the grazing land
f) Backyard cultivation of fodder : area

2. Stall feeding

Sr.No.	**Quantity of feed offered (kg.)**		**Buffalo**	**Cattle**	
				Crossbred	**Indigenous/local**
1.	Roughages (Kg.)	Green			
		Dry			
2.	Concentrates (Kg.)	Energy rich			
		Protein rich			

I) Purchased / Home grown
II) Whether chaffed or fed as such
III) Fed during milking Yes / No

5. Preserved roughages

a) Whether fed or not : Yes/No
b) If fed, type : Silage / hay
c) Quantity (kg) :
d) Fed : Before milking / After milking

6. Source of fodder during scarcity:

D) Adoption of management practices

a) Are you aware of recommended feeding practices : Yes/No

If no, reason:

b) Do you enrich the low quality fodder : Yes /No

If yes (Which fodder and method)

c) Do you use supplements for increasing milk production : Yes/No

If yes (Specify i.e. use vitamin / mineral mixture)

d) Do you use any stimulants for letting down of milk : Yes/No

e) Which means do you adopt to storage the dry fodder

I) Open air II) under shed

f) Is there any vet. clinic available in the village : Yes / No

If yes (Private / Government clinic)

g) How regularly supply of milk is maintained :

h) Other management practices:

1. Rearing of calf :
2. Disposal of dry animal:
3. Vaccination :
4. Type of housing :
5. Culling :
6. Breeding of animals :

E) Which facilities do you expect for dairy activities?

State the reason in order of priority

a) Easy loan facilities
b) Availability of Cross breed animal
c) Timely receipt of milk sale from collection centre
d) Insurance of animal
e) Veterinary – AI facilities
f) Ensured supply of feed and Fodder
g) Disease diagnostic facilities at door step

F) Do you provide special care / facilities for crossbreed cow:-

G) Major constraints in dairying:

Constraints in:

1. Feeding the animals and unavailability of green and dry fodder round the year
2. Health care management
3. Calf rearing
4 .Reproductive problems
5. High cost of animal feed
6. Unavailability of Vet. aids at farmers door step
7. Unavailability of pasture lands
8. Unavailability of proven sire/breeding bull at farmer fields

Vitae

VITAE

1. Name of student : **JAGTAP AMOL KAILASH**
2. Date of Birth : 10/8/1996
3. Nationality : Indian
4. Domicile : Maharashtra
5. Gender : Male
6. Name of the College : Department of Animal Husbandry and Dairy Science, College ofAgriculture, Parbhani.
7. Residential Address : At. Vawi Thusi, Redgoan, Nashik 423111
8. Mobile No : 7248980812
9. Email ID : amoljagtap15@gmail.com
10. Academic qualification:

Sr. No.	Name of exam/Degree	University /Board	Year of Passing	Marks/CGPA	Division/Class
1.	B.Sc. (Agri.)	College of Agriculture, Loni	2018	7.8	First
2.	12th	Maharashtra	2014	78	First
3.	10th	Maharashtra	2012	90	Distinction

Signature of Student

(Jagtap A.K.)

Place: Parbhani

Date: 30/09/2020