

Analysis On Performance And Future Potential Of Dairy Cooperative Unions In Andhra Pradesh

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Abstract

Dairy production is traditionally an important source of livelihood for the rural population of India and an integral part of the crop-livestock production system. On the supply side there are a large number of unorganized and scattered small-scale producers in the rural areas. There is an increasing demand for milk products triggered by population growth, a rise in income levels and urbanization. The challenge is to bring together these groups in a way as to ensure fair incomes for producers and relatively low prices for consumers. This is complicated considering the perishability of milk, seasonal fluctuations of supplied quantities, as well as the lack of procurement technologies and transportation infrastructure in rural areas. Dairy cooperatives are considered a way to address these issues. By establishing cooperatively their own collection system and processing facilities, farmers can be assured a stable market and fair prices. Over the last decades dairy cooperatives have spread widely over India, now there are more than 76,000 village-level cooperative societies and 11 million producer-members in the different states of India. Therefore, this paper investigates performance of the primary dairy cooperative societies with respect to procurement of milk.

1.1 Introduction

India continued to be the largest milk producing Nation with an anticipated milk production of 210 million tons during 2019-20. According to the latest release of the Central Statistical Office, the growth in the agriculture and allied sectors is estimated to be 3.9 per cent in 2021-22. The agriculture sector experienced optimistic growth in past two years, accounting for a sizeable 18.8% (2021-22) in Gross Value Added (GVA) of the country registering a growth of 3.6% in 2020-21 and 3.9 % in 2021-22. Where Allied sectors including animal husbandry, dairying are steadily emerging to be high growth sectors and major drivers of overall growth in agriculture sector. As per Third Advance Estimates for 2020-21, total food grain production in the country is estimated at record 305.44 million tonnes which is higher by 7.94 million tonnes than the production of food grain of 297.50 million tonnes achieved during 2019-20. During the same period, the average annual incremental milk production was over twelve million tons. The variation between the growth rate in food grain production and milk production can be partially explained by the volatility factor in agricultural production and

robustness in milk production. India's estimated milk production in 2020-21 was 210 million tons, which is about 6.28 per cent higher than last year. Estimated per capita availability in 2015-16 was 337 grams per day, an increase of 4.7 per cent over the previous year.

1.2 Dairy Co- operatives

During the year, the milk unions covered about 0.17 million village dairy cooperative societies, with a cumulative membership of 16 million milk producers. The cooperative milk unions procured an average of 42.56 million kg of milk per day compared to 37.95 million kg per day in the previous year, marking a growth of about 12.08 per cent. The sale of liquid milk reached 32.09 million liters per day, recording a growth of 2.73 per cent over the previous year.

1.3 Statement of the problem

Dairy production is traditionally an important source of livelihood for the rural population of India and an integral part of the crop-livestock production system. Cattles and buffalos are fed on by-products of the crop-production and in turn

provide dung to increase fertility of the fields and are a source of draft-power. Milk, Butter and Ghee produced within the household are an important source of nutrition for the families and with increasing market access, allow for a regular cash inflow. Hence, dairy production is improving the viability of the household and the farming system.

An estimated 70% of rural households keep milch animals. The majority of them are small and marginal farmers owning over 60% of all dairy animals. Livestock production is mainly managed by family labour, especially by women (KURUP, 2001). There are over 330Mio heads cattle and buffaloes as in 2012 and the number continues increasing. The total amount of milk produced was 124,850,000 tons in 2012, while the average yield per animal was 1076kg of milk per year (FAOSTAT, 2014). The numbers show that the Indian dairy sector is characterized by large numbers of animals, very small herd sizes and low productivity.

I.4 Methodology

The data are collected from the primary sources of milk producer's cooperative societies and its dairy farmers through pre-tested and structured questionnaire which is developed based on the review of literature. At the first step, stratified random sample method was used to divide the district into four divisions. For conducting the study, 600 dairy farmers were taken as sample out

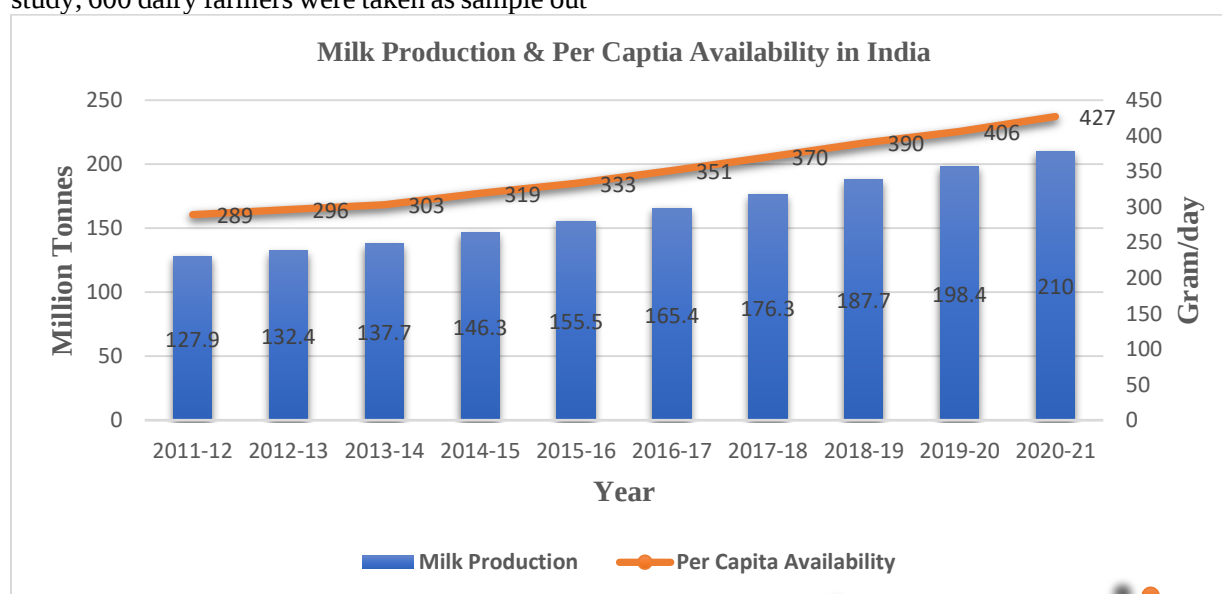
of 40,000 members who are registered in the village level dairy cooperative societies in Guntur district of Andhra Pradesh. This study is extended to explore the problems faced by the village level dairy cooperative societies. Therefore, 60 village level dairy cooperative societies were selected out of 600 registered societies for the purpose of conducting a survey on issues and challenges faced by them in view of procuring milk. A simple random sampling method was used to collect the data from each revenue division.

I.5 Objectives

1. To analyse the performance and future potential of dairy cooperative union by means of procurement of milk.
2. To explore the growth of dairy industry in India.

I.6 Dairy Industry in India: An Outlook

Milk is one of the most important sources of animal's protein in the diets of predominately vegetarian population of Indian people. Milk and milk products are the essential food items of human beings which provides sufficient nutritional supplements especially to the children. The milk production in the country was 17.0 million tons during 1950-51. A number of initiatives undertaken by the government helped improving the productivity of milk over the period.

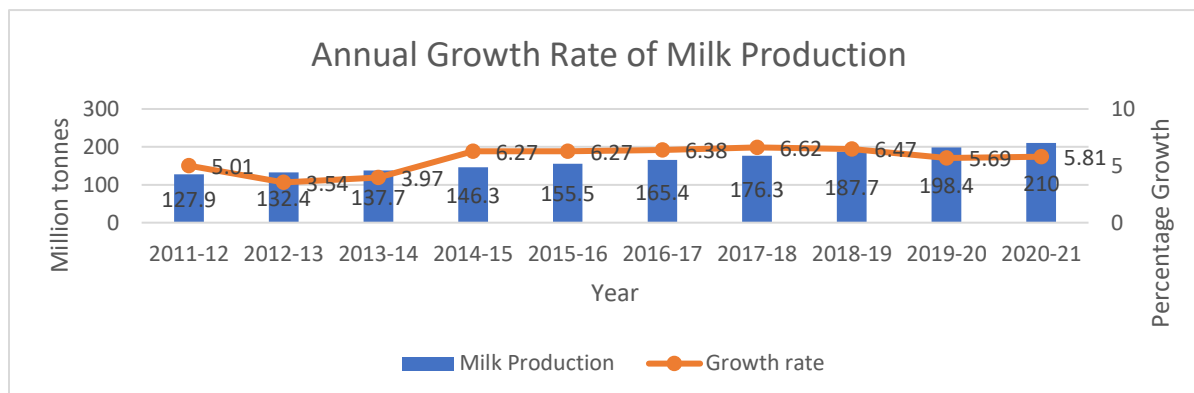


The graph shows there is a consistent increase in the production of milk over the years. The milk production has increased from 198.4 million

tonnes in 2019-20 to 210 in 2020-21 registering a growth of 5.81%. Also, the per capita availability of milk was at 130 gm/day in 1950-51. There has

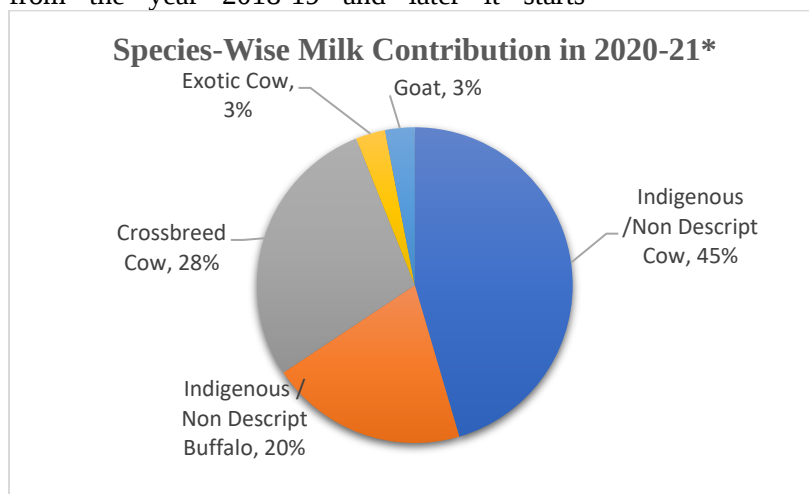
been steady increase in per capita availability of milk since 2000-01 with a marginal fluctuation in the previous periods. However, the per capita availability has sharply increased from 233 gm per day in 2004-05 to 352 gm per day in 2016-17. The analysis shows that during the 11th Five Year Plan (2007-08 to 2011-12) the per capita availability of milk has increased from 260

gm/day to 290 gm/day. In the 12th Five Year Plan, the per capita availability of milk was 299 gm/day in 2012-13 has gone up to 352 gram/day in 2016-17. Since, post 2017 the five year plans got dissolved, the per capita availability of milk was 370 gram/day in 2017-18 has gone up to 427 gram/day in 2020-21.



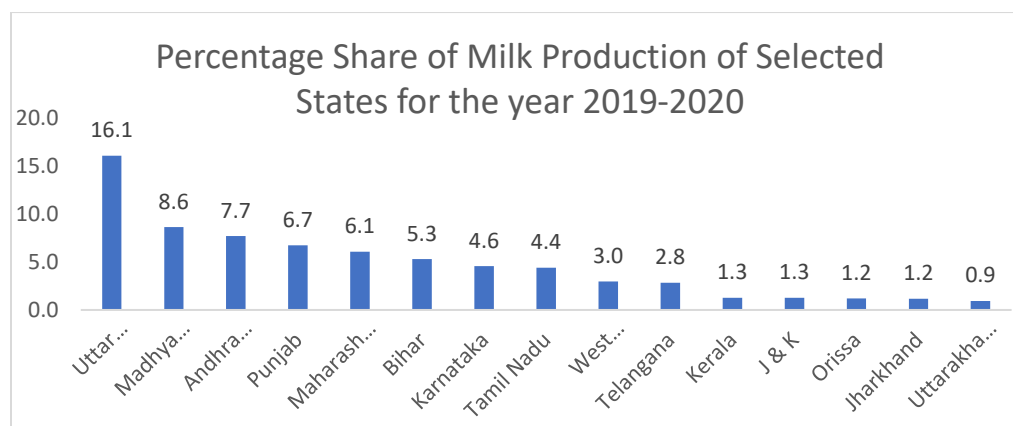
The above indicates the annual growth rate of milk production for the past ten reference periods. The annual growth rate shows a slight decrease from the year 2018-19 and later it starts

increasing slowly from the year 2019-20 and in the year 2020-21 the milk production registered an annual growth of 5.8%.



The above chart shows the contribution of milk production by Cattle, Buffalo, and Goat. The analysis shows nearly 45% of the milk production is contributed by Non-Descript Buffaloes followed by 28% by crossbreed cattle. The

Indigenous/Non-descript cattle contribute 20% of the total milk production in the country whereas Goat milk contribute 3% milk production and exotic cows contribute is 3% milk production.



The state-wise share of milk production vis-a-vis total milk production in the country are given in the above graph. The largest producer of milk is Uttar Pradesh with 16.1 % of the total milk production in the country followed by Madhya

Pradesh that produces 8.6 % of the total milk production. Andhra Pradesh and Punjab stand as the third and fourth largest milk producer states that produce 7.7 % and 6.7 % of the total milk production respectively.

LIVESTOCK POPULATION IN INDIA BY SPECIES DURING 1951-2019 (MILLION NUMBERS)														
Species	1951	1956	1961	1966	1972	1977	1982	1987	1992	1997	2003	2007	2012	2019
Cattle	155.3	158.7	175.6	176.2	178.3	180	192.5	199.7	204.6	198.9	185.2	199.1	190.9	192.5
Buffalo	43.4	44.9	51.2	53	57.4	62	69.8	76	84.2	89.9	97.9	105.3	108.7	109.9
Adult Female Buffalo	21	21.7	24.3	25.4	28.6	31.3	32.5	39.1	43.8	46.8	51	54.5	56.6	55
Total Bovines	198.7	203.6	226.8	229.2	235.7	242	262.2	275.7	288.8	288.8	283.1	304.4	299.6	302.3
Sheep	39.1	39.3	40.2	42.4	40	41	48.8	45.7	50.8	57.5	61.5	71.6	65.1	74.3
Goat	47.2	55.4	60.9	64.6	67.5	75.6	95.3	110.2	115.3	122.7	124.4	140.5	135.2	148.9
Horses and Ponies	1.5	1.5	1.3	1.1	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.6	0.6	0.3
Camels	0.6	0.8	0.9	1	1.1	1.1	1.1	1	1	0.9	0.6	0.5	0.4	0.3
Pigs	4.4	4.9	5.2	5	6.9	7.6	10.1	10.6	12.8	13.3	13.5	11.1	10.3	9.1
Mules	0.1	0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1
Donkeys	1.3	1.1	1.1	1.1	1	1	1	1	1	0.9	0.7	0.4	0.3	0.1

Yak	NC	NC	0	0	0	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1
Total Livestock	292.9	306.6	336.5	344.5	353.2	369.4	419.6	445.2	470.9	485.4	485	529.7	512.1	535.8
Poultry *	73.5	94.8	114.2	115.4	138.5	159.2	207.7	275.3	307.1	347.6	489	648.8	729.2	851.8
NC: Not Collected; NA: Not Available * Includes Chicken, ducks, turkey & other birds														
Source: Livestock Censuses, Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture & Farmers' Welfare, GoI														

1.7 Data Analysis and Reporting

Table 4.1 Increase in feeder price

			Revenue division				Total
			Guntur	Tenali	Narasaraopet	Gurazala	
Increase in feeder price	DA	Count	14	16	14	12	56
		% of Total	2.3%	2.7%	2.3%	2.0%	9.3%
	N	Count	18	21	25	15	79
		% of Total	3.0%	3.5%	4.2%	2.5%	13.2%
	A	Count	33	43	40	43	159
		% of Total	5.5%	7.2%	6.7%	7.2%	26.5%
	SA	Count	85	70	71	80	306
		% of Total	14.2%	11.7%	11.8%	13.3%	51.0%
Total	Count	150	150	150	150	600	
	% of Total	25.0%	25.0%	25.0%	25.0%	100.0%	

From the table it is found, 51.0% of the total respondents strongly agreed towards the statement that increase in feeder price is one of the problems faced by the dairy farmers in the process of milk production, followed by 26.5% of

them agree the same statement. whereas 9.3% of the total respondents disagreed the same statement that increase in feeder price is one of the problems faced by the respondents in the process of producing milk.

Descriptive Statistics

Increase in feeder price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Guntur	150	4.2600	.99953	.08161	4.0987	4.4213	2.00	5.00
Tenali	150	4.1133	1.01358	.08276	3.9498	4.2769	2.00	5.00
Narasaraopet	150	4.1200	1.00281	.08188	3.9582	4.2818	2.00	5.00
Gurazala	150	4.2733	.94049	.07679	4.1216	4.4251	2.00	5.00
Total	600	4.1917	.98990	.04041	4.1123	4.2710	2.00	5.00

ANOVA

Increase in feeder price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.392	3	1.131	1.155	.326
Within Groups	583.567	596	.979		
Total	586.958	599			

From the above analysis, we can have understood that there is no difference in the opinions of the respondents across four revenue divisions of Guntur district towards the challenges faced by the dairy farmers in milk production. The

significance value 0.326 which is above the value 0.05 at 95 percent level confidential interval, there is no statistical evidence to reject null hypothesis. Therefore, H0 accepted.

Table 4.2 Low market price

			Revenue division				Total
			Guntur	Tenali	Narasaraopet	Gurazala	
Low market price	SDA	Count	7	10	8	5	30
		% of Total	1.2%	1.7%	1.3%	0.8%	5.0%
	DA	Count	10	16	20	16	62
		% of Total	1.7%	2.7%	3.3%	2.7%	10.3%
	N	Count	11	9	6	6	32
		% of Total	1.8%	1.5%	1.0%	1.0%	5.3%
	A	Count	50	55	47	55	207
		% of Total	8.3%	9.2%	7.8%	9.2%	34.5%
	SA	Count	72	60	69	68	269
		% of Total	12.0%	10.0%	11.5%	11.3%	44.8%
Total	Count	150	150	150	150	600	
	% of Total	25.0%	25.0%	25.0%	25.0%	100.0%	

From the able it is observed, 44.8% of the total respondents strongly agree towards the statement that low market price of milk is one of the problems faced by them in dairy forming, followed by 34.5% of them agree the same

statement Inversely 10.3% of the total respondents disagree the same statement, followed by 5.0% of the total respondents who strongly disagree the same statement.

Descriptive

Low market price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Guntur	150	4.1333	1.10925	.09057	3.9544	4.3123	1.00	5.00
Tenali	150	3.9267	1.22116	.09971	3.7296	4.1237	1.00	5.00
Narasaraopet	150	3.9933	1.23428	.10078	3.7942	4.1925	1.00	5.00
Gurazala	150	4.1000	1.10369	.09012	3.9219	4.2781	1.00	5.00

Total	600	4.0383	1.16868	.04771	3.9446	4.1320	1.00	5.00
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ANOVA

Low market price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.098	3	1.366	1.000	.392
Within Groups	814.020	596	1.366		
Total	818.118	599			

From the above analysis, we can have understood that there is no difference in the opinions of the respondents across four revenue divisions of Guntur district towards the challenges faced by

the dairy farmers in milk production. The significance value 0.392 which is above the value 0.05 at 95 percent level confidential interval, there is no statistical evidence to reject null hypothesis. Therefore, H0 accepted.

Table 4.3 Non-availability of labour

			Revenue division				Total
			Guntur	Tenali	Narasaraopet	Gurazala	
Non-availability of labour	SDA	Count % of Total	22 3.7%	7 1.2%	20 3.3%	14 2.3%	63 10.5%
	DA	Count % of Total	32 5.3%	27 4.5%	26 4.3%	40 6.7%	125 20.8%
	N	Count % of Total	57 9.5%	62 10.3%	50 8.3%	53 8.8%	222 37.0%
	A	Count % of Total	22 3.7%	24 4.0%	24 4.0%	25 4.2%	95 15.8%
	SA	Count % of Total	17 2.8%	30 5.0%	30 5.0%	18 3.0%	95 15.8%
	Total	Count % of Total	150 25.0%	150 25.0%	150 25.0%	150 25.0%	600 100.0%

From the table it is identified, 37.0% of the total respondents are neutral towards the statement that non-availability of labour is one of the problems faced by them in dairy forming, followed by 20.8% of them disagree the same statement.

Inversely 15.8% of the total respondents are equally agree and strongly agree the same statement, followed by 10.5% of the total respondents who strongly disagree the same statement.

Descriptive

Non-availability of labour

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Guntur	150	2.8667	1.17962	.09632	2.6763	3.0570	1.00	5.00
Tenali	150	3.2867	1.11930	.09139	3.1061	3.4673	1.00	5.00
Narasaraopet	150	3.1200	1.28971	.10530	2.9119	3.3281	1.00	5.00
Gurazala	150	2.9533	1.13715	.09285	2.7699	3.1368	1.00	5.00
Total	600	3.0567	1.19128	.04863	2.9612	3.1522	1.00	5.00

ANOVA

Non-availability of labour

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.553	3	5.184	3.703	.012
Within Groups	834.520	596	1.400		
Total	850.073	599			

From the above analysis, we can have understood that there is a difference in the opinions of the respondents across four revenue divisions of Guntur district towards the challenges faced by

the dairy farmers in milk production. The significance value 0.01 which is less than the value 0.05 at 95 percent level confidential interval, there is a statistical evidence to reject null hypothesis. Therefore, H₀ rejected.

Table 4.4 Low productivity

			Revenue division				Total
			Guntur	Tenali	Narasaraopet	Gurazala	
Low productivity	SDA	Count	2	7	2	5	16
		% of Total	0.3%	1.2%	0.3%	0.8%	2.7%
	DA	Count	12	14	13	9	48
		% of Total	2.0%	2.3%	2.2%	1.5%	8.0%
	N	Count	20	25	37	27	109
		% of Total	3.3%	4.2%	6.2%	4.5%	18.2%
	A	Count	49	40	43	43	175
		% of Total	8.2%	6.7%	7.2%	7.2%	29.2%
	SA	Count	67	64	55	66	252
		% of Total	11.2%	10.7%	9.2%	11.0%	42.0%
Total	Count	150	150	150	150	600	
	% of Total	25.0%	25.0%	25.0%	25.0%	100.0%	

From the table it is clearly visible, 42.0% of the total respondents strongly agree towards the

statement that low productivity of milk is one of the problems faced by them in dairy forming,

followed by 29.2% of them agree the same statement Inversely 8.0% of the total respondents disagree the same statement, followed by the least

2.7% of the total respondents who strongly disagree the same statement.

Descriptive

Low productivity

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Guntur	150	4.1133	1.00693	.08222	3.9509	4.2758	1.00	5.00
Tenali	150	3.9333	1.17962	.09632	3.7430	4.1237	1.00	5.00
Narasaraopet	150	3.9067	1.03850	.08479	3.7391	4.0742	1.00	5.00
Gurazala	150	4.0400	1.07990	.08817	3.8658	4.2142	1.00	5.00
Total	600	3.9983	1.07870	.04404	3.9118	4.0848	1.00	5.00

ANOVA

Low productivity

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.138	3	1.379	1.187	.314
Within Groups	692.860	596	1.163		
Total	696.998	599			

From the above analysis, we can have understood that there is no difference in the opinions of the respondents across four revenue divisions of Guntur district towards the challenges faced by

the dairy farmers in milk production. The significance value 0.392 which is above the value 0.05 at 95 percent level confidential interval, there is no statistical evidence to reject null hypothesis. Therefore, H0 accepted.

Table 4.4 Poor availability of milking cattle

			Revenue division				Total
			Guntur	Tenali	Narasaraopet	Gurazala	
Poor availability of milking cattle	SDA	Count	4	3	5	3	15
		% of Total	0.7%	0.5%	0.8%	0.5%	2.5%
	DA	Count	20	25	18	17	80
		% of Total	3.3%	4.2%	3.0%	2.8%	13.3%
	N	Count	13	13	9	12	47
		% of Total	2.2%	2.2%	1.5%	2.0%	7.8%
	A	Count	40	48	47	39	174
		% of Total	6.7%	8.0%	7.8%	6.5%	29.0%

Total	SA	Count	73	61	71	79	284
		% of Total	12.2%	10.2%	11.8%	13.2%	47.3%
		Count	150	150	150	150	600
		% of Total	25.0%	25.0%	25.0%	25.0%	100.0%

From the table it is clearly obtained, 47.3% of the total respondents strongly agree towards the statement that poor availability of milking cattle is one of the problems faced by them in dairy forming, followed by 29.0% of them agree the

same statement. Inversely 13.3% of the total respondents disagree the same statement, followed by the least 2.5% of the total respondents who strongly disagree the same statement.

Descriptive

Poor availability of milking cattle

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Guntur	150	4.0533	1.16312	.09497	3.8657	4.2410	1.00	5.00
Tenali	150	3.9267	1.15913	.09464	3.7397	4.1137	1.00	5.00
Narasaraopet	150	4.0733	1.14749	.09369	3.8882	4.2585	1.00	5.00
Gurazala	150	4.1600	1.10569	.09028	3.9816	4.3384	1.00	5.00
Total	600	4.0533	1.14426	.04671	3.9616	4.1451	1.00	5.00

ANOVA

Poor availability of milking cattle

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.173	3	1.391	1.063	.364
Within Groups	780.120	596	1.309		
Total	784.293	599			

From the above analysis, we can have understood that there is no difference in the opinions of the respondents across four revenue divisions of Guntur district towards the challenges faced by

the dairy farmers in milk production. The significance value 0.392 which is above the value 0.05 at 95 percent level confidential interval, there is no statistical evidence to reject null hypothesis. Therefore, H0 accepted.

Table 4.5 Delay in payments

	Revenue division				Total	
	Guntur	Tenali	Narasaraopet	Gurazala		
SDA Count	15	8	12	13	48	

Delay in payments	% of Total	2.5%	1.3%	2.0%	2.2%	8.0%	
	Count	45	34	41	38	158	
	DA % of Total	7.5%	5.7%	6.8%	6.3%	26.3%	
	Count	17	19	23	20	79	
	N % of Total	2.8%	3.2%	3.8%	3.3%	13.2%	
	Count	36	47	45	29	157	
A	% of Total	6.0%	7.8%	7.5%	4.8%	26.2%	
	Count	37	42	29	50	158	
SA	% of Total	6.2%	7.0%	4.8%	8.3%	26.3%	
	Count	150	150	150	150	600	
Total	% of Total	25.0%	25.0%	25.0%	25.0%	100.0%	

From the table it is observed, 26.3% of the total respondents equally strongly agree and disagree towards the statement delay in payments is one of the problems faced by them in dairy forming, followed by 34.5% of them agree the same

statement. Inversely 13.2% of the total respondents are neutral towards the same statement, followed by 8.0% of the total respondents who strongly disagree the same statement.

Descriptive

Delay in payments

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Guntur	150	3.2333	1.37288	.11209	3.0118	3.4548	1.00	5.00
Tenali	150	3.5400	1.26188	.10303	3.3364	3.7436	1.00	5.00
Narasaraopet	150	3.2533	1.27014	.10371	3.0484	3.4583	1.00	5.00
Gurazala	150	3.4333	1.39710	.11407	3.2079	3.6587	1.00	5.00
Total	600	3.3650	1.32968	.05428	3.2584	3.4716	1.00	5.00

ANOVA

Delay in payments

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.765	3	3.255	1.849	.137
Within Groups	1049.300	596	1.761		
Total	1059.065	599			

From the above analysis, we can have understood that there is no difference in the opinions of the respondents across four revenue divisions of Guntur district towards the challenges faced by

the dairy farmers in milk production. The significance value 0.392 which is above the value 0.05 at 95 percent level confidential interval, there is no statistical evidence to reject null hypothesis. Therefore, H₀ accepted.

Table 4.6 Preserving quality of the milk

			Revenue division				Total
			Guntur	Tenali	Narasaraopet	Gurazala	
Preserving quality of the milk	SDA	Count	5	3	4	4	16
		% of Total	0.8%	0.5%	0.7%	0.7%	2.7%
	DA	Count	15	13	11	9	48
		% of Total	2.5%	2.2%	1.8%	1.5%	8.0%
	N	Count	31	36	25	34	126
		% of Total	5.2%	6.0%	4.2%	5.7%	21.0%
	A	Count	32	48	42	37	159
		% of Total	5.3%	8.0%	7.0%	6.2%	26.5%
	SA	Count	67	50	68	66	251
		% of Total	11.2%	8.3%	11.3%	11.0%	41.8%
Total	Count	150	150	150	150	600	
	% of Total	25.0%	25.0%	25.0%	25.0%	100.0%	

From the table it is found, 41.8% of the total respondents strongly agree towards the statement that preserving quality of the milk is one of the problems faced by them in dairy forming, followed by 26.5% of them agree the same

statement. Inversely 8.0% of the total respondents disagree the same statement, followed by the least 2.7% of the total respondents who strongly disagree the same statement.

Table 4.7 Lack of proper nutrition

			Revenue division				Total
			Guntur	Tenali	Narasaraopet	Gurazala	
Lack of proper nutrition	SDA	Count	2	7	2	5	16
		% of Total	0.3%	1.2%	0.3%	0.8%	2.7%
	DA	Count	3	5	2	6	16
		% of Total	0.5%	0.8%	0.3%	1.0%	2.7%
	N	Count	33	33	40	22	128
		% of Total	5.5%	5.5%	6.7%	3.7%	21.3%
	A	Count	49	39	53	49	190
		% of Total	8.2%	6.5%	8.8%	8.2%	31.7%
	SA	Count	63	66	53	68	250
		% of Total	10.5%	11.0%	8.8%	11.3%	41.7%

Total	Count % of Total	150 25.0%	150 25.0%	150 25.0%	150 25.0%	600 100.0%
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From the table it is identified, 41.7% of the total respondents strongly agree towards the statement that lack of proper nutrition is one of the problems faced by them in dairy farming, followed by 31.7% of them agree the same statement.

Inversely 21.3% of the total respondents are neutral towards the same statement, followed by 2.7% of the total respondents who are equally disagree and strongly disagree the same statement.

Descriptive

Lack of proper nutrition

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Guntur	150	4.1200	.91167	.07444	3.9729	4.2671	1.00	5.00
Tenali	150	4.0133	1.10512	.09023	3.8350	4.1916	1.00	5.00
Narasaraopet	150	4.0200	.89345	.07295	3.8758	4.1642	1.00	5.00
Gurazala	150	4.1267	1.02516	.08370	3.9613	4.2921	1.00	5.00
Total	600	4.0700	.98660	.04028	3.9909	4.1491	1.00	5.00

ANOVA

Lack of proper nutrition

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.713	3	.571	.586	.625
Within Groups	581.347	596	.975		
Total	583.060	599			

From the above analysis, we can have understood that there is no difference in the opinions of the respondents across four revenue divisions of Guntur district towards the challenges faced by the dairy farmers in milk production. The

significance value 0.392 which is above the value 0.05 at 95 percent level confidential interval, there is no statistical evidence to reject null hypothesis. Therefore, H₀ accepted.

Friedman Rank Order Test

Hypothesis Testing:

H₀: There is no significant difference in the mean ranks of opinion of respondents towards problems faced by them in milk production.

H₁: There is a significant difference in the mean ranks of opinion of respondents towards problems faced by them in milk production.

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Increase in feeder price	600	2.00	5.00	4.1917	.04041	.98990
Low market price	600	1.00	5.00	4.0383	.04771	1.16868
Non-availability of labour	600	1.00	5.00	3.0567	.04863	1.19128
Low productivity	600	1.00	5.00	3.9983	.04404	1.07870
Poor availability of milking cattle	600	1.00	5.00	4.0533	.04671	1.14426
Delay in payments	600	1.00	5.00	3.3650	.05428	1.32968
Lack of proper nutrition	600	1.00	5.00	4.0700	.04028	.98660
Valid N (listwise)	600					

Ranks

	Mean Rank
Increase in feeder price	4.52
Low market price	4.30
Non-availability of labour	2.79
Low productivity	4.24
Poor availability of milking cattle	4.38
Delay in payments	3.44
Lack of proper nutrition	4.33

Among the variables used to analyse the respondent's opinion towards problems faced by them in milk production, increase in feeder price is given first rank followed by poor availability of milking animals which is given

second rank. In same way, delay in payments is given last rank which is considered as not a big problem in dairy farming.

Test Statistics

N	600
Chi-Square	374.401
Df	6
Asymp. Sig.	.000

a. Friedman Test

The above table displays individual mean for the variables used in the analysis, standard deviation, mean rank for each variable and test statistic including chi-square test value, degrees of freedom and p-value. It can be seen that, the chi-square value is 374.40, degrees of freedom is 6 and corresponding p-value is 0.000, it implies there is a significant difference between mean ranks of opinions of the respondents

towards problems faced by them in milk production.

References:

- Annual Report, "National Dairy development board", 2020-21.
- Annual Report, "Department of Animal Husbandry and Dairying, Ministry of

- Fisheries, Animal Husbandry and Dairying, Government of India”, 2021-22
- Lalgoulen Khongsai, “Growth and Development of Dairy Industry in India”, International Journal of Recent technology and Engineering, ISSN:2277-3878, Vol-8 Issue-5, Jan 2020.
 - B. Ganesh Kumar and Raj Vir Singh, “Resource Use Efficiency of Cow Milk Production in Tamil Nadu”, 2004.
 - Dr. A Sudharsana Reddy, Dr. M Padmavathi, “The Growth and Development of Dairy Industry in India”, International Journal of Scientific Research, Vol-5, Issue-6, DOI: 10.36106/ijsr, June 2016.
 - FICCI Paper on Development of Dairy Sector in India, July 2020.
 - Ghule AK, Verma NK, Cahuhan AK, Sawale P, “An Economic Analysis of Investment Pattern, Cost of Milk Production and Profitability of Commercial Dairy Farms in Maharashtra”, Indian J. Dairy Sci. 2012; 65(4).
 - Government of India, Ministry of Statistics and Programme Implementation, “Animal Husbandry Statistics”, September, 2011.
 - HimaBindu T, Subrahmanyam, “A Study of Financial Health of dairy industry in Andhra Pradesh based on Z score analysis”, International Journal of Marketing, Financial Services & Management Research 2012; 1(12).
 - Key highlights of the economic survey 2021-22, Ministry of Finance.
 - Michael Khoveio LL, Jain DK, Chauhan AK. Economics of Milk Production and its Constraints in Nagaland. Indian J. Dairy Sci. 2012; 65(6)
 - Sirohi S, Kumar A, Staal SJ. Formal Milk Processing Sector in Assam: Lessons to be learnt from Institutional Failure. Agricultural Economics Research Review 2009; 22: 245-254.
 - Rajendran, K., Mohanty, S. (2004): Dairy cooperatives and milk marketing in India: Constraints and Opportunities. Journal of Food Distribution Research 35 (2): 34-41.
 - Kurup, M.P.G. (2001): Smallholder dairy production and marketing in India: Constraints and opportunities, National Dairy Development Board. In: Ranegar, D., and Thorpe, W. (ed.): Smallholder dairy production and marketing: Constraints and opportunities. ILRI Proceedings.
 - Government of India, Ministry of Statistics and Programme Implementation, “Animal Husbandry Statistics”, September, 2011.