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below 50°F. keeps for 4 to 5 days and there is practically no perceptible difference between fresh and such old milk. The cost of pasteurisation and transport from Anand to Bombay (260 miles of rail journey) is approximately Rs. 0-1-0 per lb. which includes all expenditure from collection to delivery in Bombay. It has been found that even in the hottest month the quality of milk remains good.

LIQUID MILK PRODUCTION AND ITS DISTRIBUTION

by

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I

I. The needs of the Situation

Introduction : Milk is the most healthful drink and food, for it is the most complete of all individual foodstuffs containing the desired nutritive ratios in perfect order as evolved by nature for proper physical and mental development of mankind at all stages. A well-organised drive for increasing milk production and its efficient marketing should constitute, in fact, an essential part of the "Grow More Food Campaign", for milk supplies the adequate quantities of fat and "first class" protein, so badly lacking in the Indian diets. In any study of production and distribution of fluid milk, one should not, therefore, restrict one's attention mainly to questions relating to the supply of milk to the people in some of the growing towns and cities, (in fact, the need appears to the administrator now more acute and more urgent), for it sharply narrows down the scope of the discussion. Besides, urban people constitute a small proportion of about 12% of the total population of the country, while people living in cities with papulation of one million and over are less than 3%.* If, on the other hand, we wish to extend its scope, we cannot, in a short paper, do more than perhaps touch in a broad way the wider aspects of the problem such as for example, the over-all development of the dairy industry, improving cattle position, and generally safeguarding and promoting public health and the economic betterment of producers and consumers alike. These two considerations, so to say, set the scope as well as the bounds of our discussion.

Milk Production and Consumption.

The yearly production of milk in British India was estimated as 700 million maunds valued at Rs. 300 crores. According to a recent survey of

* Cf. Over 40% of rural people live in villages with population under 500 persons, while about 45% live in villages with populations between 500 and 2000. These figurers re-emphasize the fact that in facing the problems of milk production and distribution in India one is dealing with an essentially rural population"—vide Report on Cattle and Dairy Industries in India, 1937. ch. III P. 17.

the Agricultural Marketing Department, the total gross milk production in the Indian Union is placed at 582.7 million maunds for which the country maintains 241.1 million cows, 19.6 million buffaloes and about 8.2 million milch goats.

Even though India is the largest producing country next to the U.S. A. in terms of total production, yet it occupies the lowest place in daily per capita production (8 ozs.) and consumption of milk (7 ozs.). Investigations conducted on milk consumption in India reveal that the consumption of milk and milk products are found to be completely absent in the case of some South Indian families, it is lower in the urban than in the rural areas and lower also in the lower income groups as against the higher ones,* thus indicating that milk consumption has a direct bearing on income levels and food habits on the one hand and on its production and facilities for procurement on the other. Further, about 75% of the milk is converted into *ghee* and the actual consumption of liquid milk approximates to a third of the total quantity produced. Hence the urgent need for raising the output of milk and for supplying pure and hygenic milk at cheaper rates within the purchasing capacity of every strata of community in urban or rural areas is evident. Even if we want to secure an intake of 15 ozs. per head per day under Indian conditions of 'economic circumstances and dietary habits' (which is only 3/7ths of the European standard), the present production in the Indian Union has at least to be trebled, particularly in view of the partition of the country and the consequent loss of Sind and parts of the Punjab.

II.

Problems of Production and Distribution

Owing to the varied and diversified conditions and practices obtaining in different parts of the country, it is not possible to describe here the various methods of production and distribution of milk. Therefore, an attempt is made to straight away deal with some of the major considerations pertinent to liquid milk production and distribution.

(a) *Need for improvement in yields.*

It is well-known that India has the largest number of cattle population in the world accounting for about a third (over 31%) of the world total. But in respect of yield of milk or other products the Indian cattle (about 60% are considered generally uneconomic and useless) are probably the poorest in the world. The average yield of milk per cow has been found to be as low as 600-750 lbs per lactation while the highest yields recorded per lactation in the case of some cows are observed to be

* Cf. Table Nos. 1 and 2 of the Report opp. cit.

about ten times more, which is indicative of the scope of raising the level of yields.* Significant results in livestock improvement in India can be obtained only when the services of approved and quality bulls are made available in the village centres simultaneously, followed by a ruthless campaign of castration and ringing of scrub bulls and cows, establishment of concentration camps, prevention of slaughter of useful animals and elimination of uneconomic and useless cattle to make way for the rising generation should be taken in hand. The problem of increasing in yields is essentially a problem of improvement of the Indian milch cattle through improved methods of cross-breeding with animals of a high grade 'milk factor', through better feeding and caring, by providing facilities for adequate supplies of concentrated green fodder, *bhusa*, hay, etc. according to standard nutritional requirements and local conditions in different parts of the country and liberal provision of facilities for water supply, shelter and medical services for proper upkeep of the pedigree animals and its progeny and to protect them against all diseases. It is true that in a country like India it is not possible for an average ryot to maintain two types of animals one for purposes of milk and one for draught, as is done in some of the advanced countries of the West. Hence it is often advocated that in our breeding policy greater emphasis has to be laid on evolving dual purpose animals of high-grade milk and draught qualities suited to regional conditions of climate, feeding facilities and local requirements for milk, for agricultural and other operations. But even so, in a balanced breeding policy, the value of special breeds for special needs and the place of buffalo in our admiration for the so-called economic animal, *the cow*, should not be underestimated or lost sight of, as their importance is nowhere more clearly discernible than in the matter of milk supply to towns and cities. The buffalo, though more expensive, is still the dairy animal of India, as it outranks the cow both in average yields of milk and butter contents and, in fact, with the exception of the provinces of Bengal, Assam, C. P. and Berar, the proportion of milk contributed by buffaloes (though quantitatively many times less in numbers) is more than 50% of the total milk produced in the Province of Punjab, Bihar and Orissa, Bombay, N.W.F. Province, and in Madras, while in Sind and U.P. it accounts for 40% and 46.9% respectively. It is said that the dairy animal must always maintain itself and it is possible, if we can get a continuous production of milk and calves, by seeing that the breeding irregularities, if any, be corrected and that the animal is timely 'covered' by a bull in the fourth month of calving, even if it amounts to giving artificial inseminations to the animal.[1] In the first three or four months after calving, the yields recorded

* Cf. The Tamili one of the cows in the Indian Agricultural Institute. Pusa, has yielded 13,004lbs. of milk in a lactation period of 306 days which works out roughly more than half a md. per day.

are maximum and the animal may be allowed two or two and half months rest before calving during which no milk extracted. Such a process, of course, assumes that the animal is properly fed and looked after. If that is satisfied it calls for wider application with suitable adjustments consistent with the health and wellbeing of the mother. To supplement the meagre quantity of milk allowed to the calves, the technique of their artificial feeding on skim milk and gruel may be popularised, for such a thing not only go to increase likely the output of milk per animal but also ensure the proper upkeep of the calf itself.

(b) *Production costs and sale prices.*

In the table Nos. 1 to 5 shown in the Appendix, statistics regarding details of costs of production, sale prices and the number of animals (in a few cases) are presented relating to: (i) The Cooperative dairies and individual cattle owners, Nagpur (ii), The Swatantra Dairy Products, Akola (iii), *Gorakshan* Dairy, Akola (iv), The Telinkheri Dairy Cooperative Society, Nagpur, and (v) some of the individual members of the Telinkhery Dairy Cooperative Society Nagpur, while statement No. 6 in the Appendix gives particulars of 22 *Goshalas* in the Provinces of C. P. and Berar regarding total number of animals, total quantity of milk produced, sale rate of milk, etc. A cursory glance at the contents of these tables indicate that there are marked variations in costs of production among various units or among different individual components of the same unit at different localities or even in the same locality owing to a variety of factors like differences in the prices of the items purchased as cattle feed and concentrates, differences in other expenses incurred per unit of production as wages paid for labour, rent etc. and also on the yields themselves which depend on feeding, on the nature of the animal from the view point of milk and the exact time in its lactation period. Secondly, the output of milk in the *Goshalas* is generally small and in a few cases almost negligible or *nil,* their production costs are usually higher than other producing units in the same locality. Generally speaking, the figures supplied by them are mostly unreliable. There is no doubt that the accuracy of the data presented can be improved along with the accuracy with which the accounts are kept and, when taken for a series of years in order to assign accurate values for depreciation. Since the market is in close vicinity of production and since distribution is made by some of the individual producers themselves on cycles, or on mobile vans in

1. Cf. The Technique of artificial insemination has now reached a stage when it is capable of widespread application in the breeding of livestock. It has been practised with great success in the Soviet union where it was necessary to build up large herds of improved stock within a relatively short period of time. India is of course faced with similar problem.

case of the Telinkhery dairy farm, the marketing problems are simple and the distributive margins are not too high.

(c) *Principles of Pricing.*

In the above cases, the chief factor in the matter of determination of sale prices is the efficiency of production or the level of costs of production per unit (one lb). There are apparently no complicated problems of processing, assembling, transport, marketing and delivery or other considerations that may enter into fixation of fluid milk prices (wholesale and retail), as also in different localities, in different seasons or in relation to quality, types of consumers, individuals or institutions, types of uses as for manufacture or consumption, or special services rendered. All of these have to be carefully examined in a study of an advanced system of milk production and distribution and they have a relevancy here, at least in so far as the big cities and scientific organisation of dairy industry in India are concerned. For instance, under the English Milk Marketing Scheme, the Milk Marketing Board was empowered to determine "prices at, below, or above which milk of any description may be sold" by any registered producer. While the price received by the individual producer is based on the pool price for his region, he may be eligible for obtaining additional sums *(premiums)* for special services such as "level delivery" or for supply of milk of the "accredited" quality standard or for compliance with special conditions. Milk used for manufacture is brought at the same price but rebates are allowed varying according to the use to which milk is put ensuring at the same time such milk will not again enter into the liquid milk market for disposal with a view to make profit. Actual variations of prices according to the month or season (summer, winter and rainy season) and according to the locality where produced or consumed are duly noted in deciding the general standard prices or minimum selling retail prices. In fact, under all the four schemes in Great Britain (the English Milk Marketing Scheme, the Main Scottish Milk Marketing Scheme, the Aberdeen and District Milk Marketing Scheme and the North of Scotland Milk Marketing Scheme), the Boards determine not only the prices at which milk may be sold by registered producers, but also the conditions on which such milk may be resold by means of re-sale clauses embodied in contracts or by the terms of the licenses issued to producer-retailers.

Collection, assembling, marketing and delivery are inseparably associated with the problems of processing, hygenic aspects and transport. In view of lack of adequate facilities for communications and of tropical climate conditions, greater care has to be bestowed than hitherto has been given on these aspects of preserving the keeping quality of the

milk. Although the 'loose' delivery of milk will have a wider application with regard to consuming areas situated at a short distance (especially in the country side), yet in urban areas where the danger of dirt and milk-borne diseases is likely to be greater, pasteurisation or heating of milk before bottling and artificial refrigeration (where transport over long distances are involved) are commendable. The need for prevention of adulteration through establishing relatively low single standard for all types of milk (cow's or buffaloe's) by effective methods of detection and inspection and through stricter ways of enforcement of the existing provisions by the municipal authorities on defaulters, and, above all, by maintaining a high degree of cleanliness in handling milk, in keeping the containers (designed to suit the prevailing local practices and types of transport) at all stages cannot be overemphasised. Needless to state that in effecting improvements in some of these and in allied directions, *cheapness* should be the guiding factor, as far as possible, in devising and selecting the ways and means amongst those applicable to a given process or situation. Investigations carried under the University of Wisconsin for a period of four years (1936-39) revealed that if the functions of processing and of distributing fluid milk were operated as an efficient and unified system publicly controlled, the possible economies and resultant savings would be considerable.

The last set of questions which may be referred to in this section are those connected with production and distribution of milk in big cities. The statistical data presented in the table below throw light on the broad position of milk problem in a few cities.[1]

Milk production in the city boundaries is not only objectionable from public health view point but economically also it is found expensive and

Particulars	Bombay	Madras	Lahore	Hyderabad (Dn.)	Lucknow	Bangalore
1. Number of cattle in :—						
(*a*) Cattle Stables..	15,679	11,863	7,531	5,958	2,238	1,047
(*b*) Private milch cattle keeper's premises	2,570	1,485	3,098	1,351	584	281
2. Percentage of milk produced :—						
(*a*) Within the Municipality ..	66.7	82.0	34.0	80.6	77.3	38.2
(*b*) Within 5 miles of the Municipality	33.3	7.3	28.0	14.1	8.7	42.2
(*c*) More than 5 miles outside the Municipality		10.7	38.0	5.3	14.0	19.6
3. No. of milk shops	971	56	593	255	289	24
4. No. of milk vendors	1,483	1,442	275	54	152	225

1. *Vide.* Page 183 of the Report of the Cattle & Dairy industries of India, 1936. opp. cit Cf. also pages 138-141. *Ibid.*

unprofitable due to high costs of labour, rents, cost of transporting feeding stuffs to cities and particularly due to competition of the cheaply produced milk from rural areas, besides colossal waste of manure, heavy mortality of calves and the callous practice of sending the cattle to the slaughter house, when they become dry. For example, the price paid per one seer of milk in Bombay city is noticed to be the heaviest in the world, for price of one seer of milk in Bombay is Rs. 1, New York 0-8-0, London 0-7-7, Copenhagen 0-5-0, Sydney 0-5-0 and Auckland 0-5-0. Hence, keeping cattle in cities for commercial dairy purposes may be discouraged and facilities may be rendered for establishment of dairy colonies in the nearest and easily accessible rural areas. To those colonies run by private enterprise special concessions in respect of procurement of cattlefeed, facilities of transport, medical and even financial aid may be given provided that production and sale of milk are carried on by them under approved methods and conditions.

III

Government Policy.

There has been no well-conceived policy as such in respect of liquid milk production and distribution pursued either by the central government or by the provincial governments, till very recently. However, the beginning of organised dairying may be traced to the large-scale dairy farms by the military authorities in 1891 coupled with the introduction of cream separaters in 1889. The appointment of the Imperial Dairy Expert in 1920 and subsequently the creation of the post of the Animal Husbandry Expert to the Imperial Council of Agricultural Research, the Imperial Dairy Institute at Bangalore, apart from the work of the Livestock experts and Animal Husbandry section attached to the Director of Agriculture or the Director of Veternary services, the Provincial Marketing Sections and the Fodder and Grazing Committees in some of the Provinces and States are significant. Efforts are also made in establishing cooperative dairying (e.g. the Telankhery Cooperative Dairy, Nagpur, the Milk Supply Unions at Calcutta and Lucknow and the Cooperative Milk Unions recently started at Madras, Coimbatore and Cuddalore), establishing of village separating stations and the running of modern processing plants. But the report of Dr. N. C. Wright and the latest schemes, both of the central and the provincial governments, for the reorganisation of *Goshalas* and Pinjarapoles and the milk colonisation schemes in the provinces like Bombay to increase milk supplies to some of the important towns and cities, indeed mark a definite step in the rehabilitation of the dairy industry in the country as contrasted with the policy of drift and apathy in the past years. The recent plan prepared by the Dairy Development Adviser to the Government of India with a view to increase the total milk output of the country by about 10% in five years as well as

the plans of the Bombay government and the milk colonisation scheme of the Bombay city deserve special study.

Conclusion.

The above account discreetly leaves out of its purview questions connected with other dairy products like ghee, butter, cheese, butter milk etc. which can be exploited from the dairy industries established in the country side. The problem of liquid milk is essentially one of raising yields per animal and supplying it in an unadulterated form cheaply and in abundance to the urban and no less to the rural population and of giving a substantial rise in the income levels of the farmer and in the health and vigour of the bulk of the consumer lower-income groups which constitute the very base of the edifice of economic wellbeing of a nation. In realisation of this, direct government action and municipalisation[1] of distribution and production of milk may be substituted where *cooperation* is found inadequate or ineffective. The possibilities of the growth of the "cow-tree", (a species of S. American tree which yields an abundant quantity of white, nutritious juice that can be used as a substitute for milk). formerly experimented in parts of Bombay during eighteen nineties may be given due consideration for research and experiment as a substitute for milk.

APPENDIX

Table 1

Showing cost of production and selling rate per lb. of milk of Co-operative dairies and individual cattle owners in Nagpur during October 1949.

Particulars	Bharat Dairy	Modern Dairy	Mr. Beniram	Mr. Lachchiram	Mr. Balaji
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Cost of concentrates ..	389 14 0	351 2 0	465 0 0	372 0 0	77 8 0
Hay+green+grazing	127 0 0	132 0 0	150 0 0	115 0 0	70 0 0
Pay of servants including shed cleaning ..	166 10 0	104 10 0	90 0 0	60 0 0	60 0 0
Depreciation + interest on hire stock	165 0 0	160 0 0	95 0 0	75 9 0	40 0 0
Depreciation + interest on cycles plus hire and repairs	42 12 0	21 0 0	15 0 0	10 0 0	5 0 0
Miscellaneous (medicine etc.)	19 13 0				
Total ..	911 1 0	768 12 0	815 0 0	632 0 0	252 8 0
Less transport charges recovered	44 13 3	——	——	——	——
Less for manure	25 9 0	25 0 0	25 0 0	15 0 0	19 0 0
Total milk yield in lbs.	2691 0 0	2399 8 0	9300 0 0	6200 0 0	982 0 0
Selling rate per lb. ..	0 5 0	0 4 6	0 5 0	0 5 0	0 5 0
Cost of production per lb..	0 5 0	0 4 11	0 1 5	0 1 7	0 4 0

Note :—The following abstract gives the number of animals (buffaloes & cows) and daily milk yield in each of the above.

1. Cf. *Milk distribution as a public utility*, by W. P. Martensow, 1940, Illinois, U. S. A.

Name.	Buffaloes		Cows		Daily milk yield.
	wet	dry	wet	dry	
1. Modern Dairy	14	11	3	5	80 lbs. (6 buffaloes are at the advance lactation).
2. Bharat Dairy	12	12	3	6	90 lbs. (5 buffaloes are at the advance lactation).
3. Mr. Beniram	12	5	9	4	250 lbs.
4. Mr. Lachchiram ..	6	4	6	7	130 lbs.
5. Mr. Balaji	4	—	7	3	50 lbs.

Table 2

Showing cost of production and selling rate of milk per lb. of the Swatantra Dairy Products, Akola, during September 1949.

Particulars	Amount			Particulars	Amount		
	Rs.	a.	p.		Rs.	a.	p.
Cost of concentrates	561	13	0	Received by sale of manure for 1948-49 =Rs. 600			
Cost of grass+hay+grazing sc. ..	823	6	0	∴(1/12th of it)	50	0	0
Pay of graziers, milkers and distributors	185	0	0				
Pay of shed cleaners	32	0	0	(B) Total ..	50	0	0
Depreciation and interest on animals (1/12 of 20% on total cost of Rs. 23,220/-) .. .. .. Rs. 28,980/- total cost shown in previous years. Rs. 5,760/- for depreciation at 20% / Rs. 23,220/- cost of animal for current year.	387	0	0				
Amount spent on distributing necessaries, cycles, hire and repairs	14	0	0				
Miscellaneous (medicines etc.) ..	55	0	0				
Total ..	2,058	3	3				

A)

Net Expenditure (A—B) =Rs. 2,008-3-3

	Mds.	Ozs.
Total milk production in the month	3,287	8

Cost of production of milk per lb = Rs. 0-9-9

∴ Selling rate per lb. = Rs. 0-5-6

Note :—In this case milk is sold at a loss (or at a price lower than the cost of production in the month for the selling rate depends also on the market value in the locality.

Table 3

Showing cost of production and selling rate of milk per lb. of the Gorakshan Dairy, Akola, for the month of September, 1949.

Pariculars	Amount Rs.	a.	p.	Number of animals :	Cost. Rs.	a.	p.
Cost of concentrates (app.) ..	915	0	0	Cows 43 at Rs. 300 each ..	12,900	0	0
Cost of grass+hay+grazing etc.	500	0	0	Bullocks 13 at Rs. 300 each	3,900	0	0
Pay of milkers, graziers, distributors and pay of shed cleaners	150	0	0	Bulls 4 at Rs. 600 each ..	2,400	0	0
Depreciation and interest on animals (1/12th of 20% on total amount of Rs. 23,750/)*	396	0	0	Calves 65 at Rs. 70 each ..	4,550	0	0
On distributing necessaries, cycles, hires repairs etc. ..	15	0	0	Total 125	23,750	0	0
Miscellaneous (medicines etc.)	25	0	0				
(A) Total ..	2,001	0	0				
Deduct (B) Received by sale of manure	25	0	0				

Net expenditure (A-B)=Rs. 1,976-0-0.
Total milk production during the month 3,608 lbs.
∴ Cost of production per lb = 0-8-9
Selling rate per lb. = 0-6-0

Note :—In this case also the milk has to be disposed of in view of the market rates at a rate less than the cost of production per lb.

Table 4

Showing the cost of production and selling rate per lb. of milk of the Telinkheri Dairy Co-operative Society, Nagpur, for September 1949.

Particulars	Amount Rs.	a.	p.
Cost of concentrates	4,269	6	6
Cost of hay, green, grazing	302	0	0
Pay of graziers & milkers	882	0	0
Pay of distributors+on distributing necessaries + on cycles, hire, repairs etc. ..	1,613	0	0
Pay of shed cleaners	152	8	0
Depreciation and interest on animals (1/12th of 20% on total cost Rs. 2,04,000)	3,400	0	0
Miscellaneous (medicines etc.) and establishments charge	921	3	6
Room rent	30	0	0
Total ..	11,570	2	0
Deduct amount received by sale of manure	35	0	0
Net expenditure for the month	11,535	2	0

Total milk yield in the month = 57979 lbs.
∴ Cost of production per lb. = 0-3-2
Selling rate per lb. .. .. = 0-5-0

* As per the table opposite

TABLE No. 5. Showing the cost of production and sale prices of milk per lb. for some of the individual members of the Telinkhery Cooperative Dairy Society. Nagpur, for September 1949 :—

Particulars.	Mrs. Parvatibai	Mr. Kushilal	Mr. Kedaram	Mr. Raghoo	Mr. Viswanath	Mr. Kishanlal	Mr. Lachiram	Mr. Laxman	Mr. Chaitram	Mr. Bhagwan-das
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Cost of concentrates ..	41 7 0	38 7 0	266 13 9	171 5 0	172 6 0	123 1 6	124 0 0	109 7 6	137 14 0	35 10 0
Cost of hay, grazing, etc.	5 8 0	5 0 0	13 0 0	12 8 0	12 0 0	10 8 0	10 8 0	6 8 0	6 0 0	3 0 0
Pay of graziers, milkers etc.	15 0 0	15 0 0	46 0 0	60 0 0	30 0 0	16 0 0	16 0 0	30 0 0	67 0 0	30 0 0
Pay of shed cleaners	5 13 10	5 13 10	5 13 10	5 13 10	5 13 10	5 13 10	5 13 10	5 13 10	5 13 10	5 13 10
Depreciation on animals..	61 14 11	56 4 10	146 6 2	140 12 1	135 2 0	118 3 9	118 3 9	73 3 1	67 9 0	33 12 6
Cost on distribution ..	17 4 3	17 3 10	42 11 10	50 4 7	50 5 5	70 2 5	70 3 0	55 8 9	55 10 10	14 4 7
Miscellaneous (medicines, rent etc.) ..	16 12 7	15 4 2	39 10 10 Rent 1 8 0	22 14 3 Rent 1 8 0	36 10 0 Rent 1 8 0	32 9 0 Rent 0 12 0	32 9 0 Rent 0 12 0	19 3 5 Rent 1 8 0	18 5 0 Rent 1 8 0	9 2 6
Miscellaneous expenditure by individual	5 0 0	5 0 0	10 0 0	10 0 0	10 0 0	10 0 0	10 0 0	5 0 0	5 0 0	4 0 0
Total ..	168 12 7	158 1 8	512 0 5	475 1 9	453 13 3	387 2 6	388 1 7	366 14 7	364 12 8	135 11 5
Less amount received on manure	1 5 6	1 5 6	1 5 6	1 5 6	1 5 6	1 5 6	1 5 6	1 5 6	1 5 6	1 5 6
Net Expenditure ..	167 7 1	156 12 2	510 10 11	473 12 3	452 7 9	385 13 0	386 12 1	365 9 1	363 7 2	134 5 11
Total milk produced in the month in (lbs)	621	620	1536½	1868	1809½	2522½	2524	1997	2002	513½
∴ cost of milk per lb.	0 4 4	0 4 0	0 5 4	0 4 2	0 4 0	0 2 5	0 2 5	0 2 11	0 2 11	0 6 2

Selling rate per lb is 0-4-3 in case of all individuals.

Note :—The sale price remaining the same, the cost of production per lb. of milk in the same period for some other members (the details of whom are not shown in the table) are found to work out as follows :—Mrs. Phundobai (0-2-6) Mr. Bhika (0-4-9), Mr. Sitaram (0-3-2) Baliram (0-3-1), Ramamtar (0-3-2),Kalloolal (0-2-7), Hemraj (0-4-7), Tilakchand (0-6-3), Dhunsing (0-4-2), C. J. John (0-2-11), Chunilal (0-2-7) Nandlal (0-4-?), Keshavlal (0-3-9) Mrs. Gadgil (0-2-10), B. Rathore (0-3-1) Kunjilal (0-2-10), Keshiram (0-2-8). These are sufficiently indicative of the relative efficiency of the various producing units as reflected in the relative costs of production of each.

STATEMENT No. 6. Showing total number of cattle, cows (dry and wet), number of calves born, quantity of milk produced and selling price of some *Goshalas* in the provinces of C. P. and Berar in September 1949.*

Name	Total number of animals	Number of Cows		No. of services rendered (only in case of Govt. bulls.)	Number of calves born		Quantity of milk produce	Sale price of milk
		dry	wet		male	Female		Rs. a. p.
1. Shri Gorakshana Sabha, Katol	36	14	5	..	..	..	....	....
2. Gorakshana Samstha, Wardha	59	14	45	..	..	..	2,168 seers	0 10 0 per seer
3. Gorakshana Samstha, Arvi	159	1	18	..	..	..	906 seers	0 8 0 a seer
4. Gorakshana Samstha, Hinganghat	199	42	21	5	1	1	781 ,,	0 12 0 ,,
5. Panjrapole Goshala, Jubblepore	38	10	6	..	..	..	428½ ,,	0 10 9 ,,
6. Shri Goshala, Katni	116	40	20	..	..	..	268 ,,	0 8 0 ,,
7. Sitharam Ramchandra Goshala, Harda ..	167	66	13	..	..	..	653½ ,,	0 8 0 ,,
8. Gurukul Goshala Hoshangabad	13	5	5	..	..	..	80 ,,	Not sold
9. Mahabir Goshala, Raipur	87	23	11	..	..	..	1203 ,,	0 10 9 per seer
10. Srikrishna Gosahala, Gondia	188	65	46	6	3	4	1000 ,,	0 12 0 ,,
11. Gopal Goshala, Tirora	51	23	6	..	..	1	129 ,,	0 12 6 per pal i
12. Gorakshana Samstha, Bhandara	60	20	7	..	..	..	410 ,,	0 10 0 per seer
13. Gorakshana Samstha, Kamgaon	89	10	33	..	..	..	1606½ ,,	0 12 0 ,,
14. Gorakshana Samstha, Shegaon	181	59	19	..	..	..	777 ,,	0 12 0 ,,
15. Gorakshana Samstha, Yeotmal	148	37	10	..	..	..	148½ ,,	0 8 0 ,,
16. Gorakshana Samstha, Akola	252	42	38	..	..	..	180¼ ,,	0 12 0 ,,
17. Sri Krishna Goshala, Tumsar	154	69	18	..	..	..	969 ,,	0 12 0 ,,
18. Sri Krishna Goshala, Bilaspur	111	44	3	..	..	..	75 ,,	0 8 0 ,,
19. Rashtriya Goshala, Dhamtari	48	42	6	..	3	2	900 ,,	0 10 0 ,,
20. Gopal Goshala, Bhatapara	114	38	19	..	..	..	744 ,,	0 8 0 ,,
21. Sri Pinjrapole Gorakshan Samstha, Malkapur	246	64	19	..	..	..	750 ,,	0 12 0 ,,
22. Pinjrapole Samstha, Karanja	235	86	14	..	..	..	....	....
Total ..	2751	814	382	11	10	10	18,801 seers	....

Note :—It may be seen that the number of calvings and application of the services of government bulls are nil except in Hinanghat and Gondia, while the output of milk is totally unrelated to number of wet cattle maintained (very low).

*Abstract showing distribution of *goshalas* in the various districts in C. P. and Berar (exclusive of States recently merged in the province during October 1949. :—

District	Number	*District*	*Number*
1. Nagpur	2	10. Raipur	3
2. Wardha	3	11. Bilaspur	3
3. Chanda	2	12. Drug	1
4. Chindwara	1	13. Bhandara	4
5. Betul	1	14. Balaghat	1
6. Jubblepore	2	15. Amraoti	4
7. Saugor	1	16. Akola	5
8. Hoshangabad (working now)	2	17. Buldana	7
9. Nimar	2	18. Yeotmal	4
Total	16	Total	48

N.B.—Out of 48 goshalas 20 are situated in the four districts of Berar and the maximum number is noticed in Buldana. In fact, the number and existence of goshalas are directly related to the existence of trading centres and trading communities as Marwadis