CHAPTER - FOUR

COOPERATIVE DAIRY FARMING IN WARANA BASIN

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COOPERATIVE DAIRY FARMING IN WARANA BASIN

4.1 Introduction:

Agriculture still remains the major occupation of a majority of the farmers in Warana basin. The subsidiary occupation for the small and marginal farmers and landless labourers in the region is dairy farming. The development of dairy farming in Warana basin is mainly due to the favourable physical factors, which include natural resources like the soil, availability of green grass and water and the favourability of climatic factors. The irrigation facilities are well developed in the region alongwith the basic infrastructural facilities.

Dairy farming being an important subsidiary occupation of the people in Warana basin it helps to increase the income of milk producers. The activities were organized in the co-operative way. Due to the inception of Warana Cooperative Milk Union, the primary milk cooperative societies were formed in the villages and were linked to the Warana Cooperative Milk Union. This two-staged pattern alongwith the primary milk producers at the grass-root level has helped in accelerating the process of rural development.

4.2 Progress of Dairy Development:

The farmers in the Warana basin with a background of successful sugar cooperative factory, started a joint cooperative venture of dairy farming. Dairy farming was the age-old activity of the farmers in Warana basin. After Independence during the Operation Flood programme due to the introduction of high-yielding cross-bred milch animals and the availability of veterinary and other infrastructural facilities there was remarkable progress in the dairy development in the Warana basin.

Three important cooperative milk unions, namely, 1) The Kolhapur District Cooperative Milk Federation, Kolhapur (Gokul Dairy), 2) Shree Warana Sahakari Doodh Utpadak Prakriya Sangh Ltd., Amrutnagar (Warana Dairy), and 3) Shree Rajaram Bapu Patil Cooperative Milk Sangh Ltd., Islampur (Walwa Dairy) were started either in the region or in the vicinity of the region, out of which Warana Dairy has greater impact on the dairy development of the basin. The major part of Shahuwadi Tahsil comes in the area of operation of Gokul Dairy whereas the eastern villages are included in the area of operation of Warana Dairy, except for a few villages on the left bank of Warana river which are included in the area of operation of Warana Dairy; all other parts of Shirala and Walwa tahsils are included in

the area of operation of Walwa Dairy at Islampur.

(a) The Kolhapur District Cooperative Milk Federation, Kolhapur:

The Kolhapur District Cooperative Milk Federation was established in 1963 with the intention to cater milk marketing facilities throughout Kolhapur district. It was a district level milk federation of primary milk producers' cooperative societies. As the southern part of Warana basin on the right bank of the river is in Kolhapur district, except for the area of command of Warana Dairy, the remaining part was included in the area of operation of The Kolhapur District Cooperative Milk Federation. Thus, the primary milk cooperative societies in the southern part of the basin supply milk to the Kolhapur District Cooperative Milk Federation. However, there are many villages in the transition part, from which some societies supply milk to The Kolhapur District Cooperative Milk Federation; while other cooperative societies supply milk to Warana Dairy. The Kolhapur District Cooperative Federation commonly known as Gokul Dairy, processes milk and manufactures milk products at processing plant at Gokul Shirgaon. The Gokul Dairy supplies pasturised milk and milk products like skimmed milk powder, Ghee and Shrikhand to Bombay and the cities like Kolhapur, Ichalkaranji and many other towns in the southern part of Maharashtra.

(b) Shree Rajaram Bapu Patil Cooperative Milk Sangh Ltd., Islampur:

Established in 1975, this milk union is a Tahsil level milk union and is commonly known as Walwa Dairy. It collects milk from the primary producers in the villages situated on the left bank of Warana river. In general, the area of operation of this milk union coincides with the administrative boundary of Walwa tahsil. Milk is supplied to the urban centres in Sangli district, mainly Islampur, Sangli and Miraj.

(c) Shree Warana Sahakari Doodh Utpadak Prakriya Sangh Ltd., Amrutnagar:

This cooperative milk union was established in 1968. This milk union has a processing plant at Amrutnagar on the right bank of Warana river. Its area of operation covers the villages from either sides of Warana river. The total number of villages in the area of operation of Warana Milk Sangh are 176. These villages are from Panhala and Hatkanangale tahsils in Kolhapur district and Shahuwadi and Walwa tahsils in Sangli district. The milk union is commonly known as Warana Dairy. This dairy collects milk from wider region even beyond its area of operation, covering major part of Warana basin and also from northern parts of Karnataka.

The annual collection of milk as per the records of Warana Dairy was 624.3 lakh litres in 1992-93. The dairy processes the milk and manufactures milk powder, Ghee, butter, Shrikhand, Lassi etc., and supplies the milk and milk products to Greater Bombay and other parts of Maharashtra State. It also supplies milk to nearby cities and towns like Kolhapur, Pune, Ichalkaranji, Sangli, Miraj and Jaysingpur.

4.3 Growth of Cooperative Dairy Farming:

After the establishment of two important cooperative sugar factories in Warana basin at Warananagar and Chikali, it became possible for this organization to establish many other activities for the economic upliftment of farmers and landless labourers in the Warana basin. Other subsidiary activities like dairy farming and poultry farming were started in the region. Out of these, dairy farming in cooperative sector developed at a rapid rate and proved to be useful in enhancing the economic status of small and marginal farmers and landless labourers and other rural folks.

After 1960 as a result of the establishment of the three cooperative milk unions, namely, Gokul Dairy, Warana Dairy, and Walwa Dairy, a number of milk producers' primary cooperative societies were established in the region. During the first two decades that is,

upto 1980, the growth of primary dairy cooperatives was slow. The societies were organized mainly in large villages in the vicinity of the milk unions. However, a large number of villages in the western part of the basin were without any primary dairy cooperative society. After 1980 there was a rapid rise in the number of primary dairy cooperatives. In 1980 there were 173 milk producers' primary cooperative societies in Warana basin. In the villages near Warana river the number of milk producers' cooperative societies was very high. There are many villages with more than one primary dairy cooperatives. The number of primary milk cooperative societies was large in the eastern part of the basin, but the western part of the basin was lagging behind in the growth of milk producers' cooperative societies.

In the last decade, from 1981 to 1990 there was a rapid increase in the number of primary dairy cooperatives in the region. This was mainly due to the following reasons:

1. There was a rapid increase in the irrigation facilities.
2. Good network of roads was created in the basin.
3. Availability of veterinary services at major

nodal centres.

4. Availability of cattle feed and fodder.
5. Availability of chilling facilities.
6. Introduction of high-yielding varieties of milch animals.
7. Increasing demands for milk and milk products.
8. As a result of introduction of Operation Flood programme, there was very rapid increase in the milk production in the region.

All the above factors led to the foundation and spread of 'White Revolution' in Warana basin. As a result of all these factors the number of milk producers' cooperative societies increased to 390 during 1992-93. Before 1980 a large number of villages were not having even a single milk producers' cooperative society. At present there are many villages, having more than two dairy cooperatives each and there are many cases of villages each with 3 primary dairy cooperatives.

4.4 Milk Potential and Milk Collection:

It is necessary to evaluate the milk potential in the region and to compare it with the actual milk collection. Keeping in view the various aspects like the breeds of milch animals, their productivity, milk production pattern, calving months, lactation period and period of intervals between two calvings[1] the milk

potential can be calculated. Again, there is one more factor, namely, milk season to be taken into consideration. There are two distinct milk seasons, namely, flush season and lean season. Milk potential of the basin can be estimated as given below:

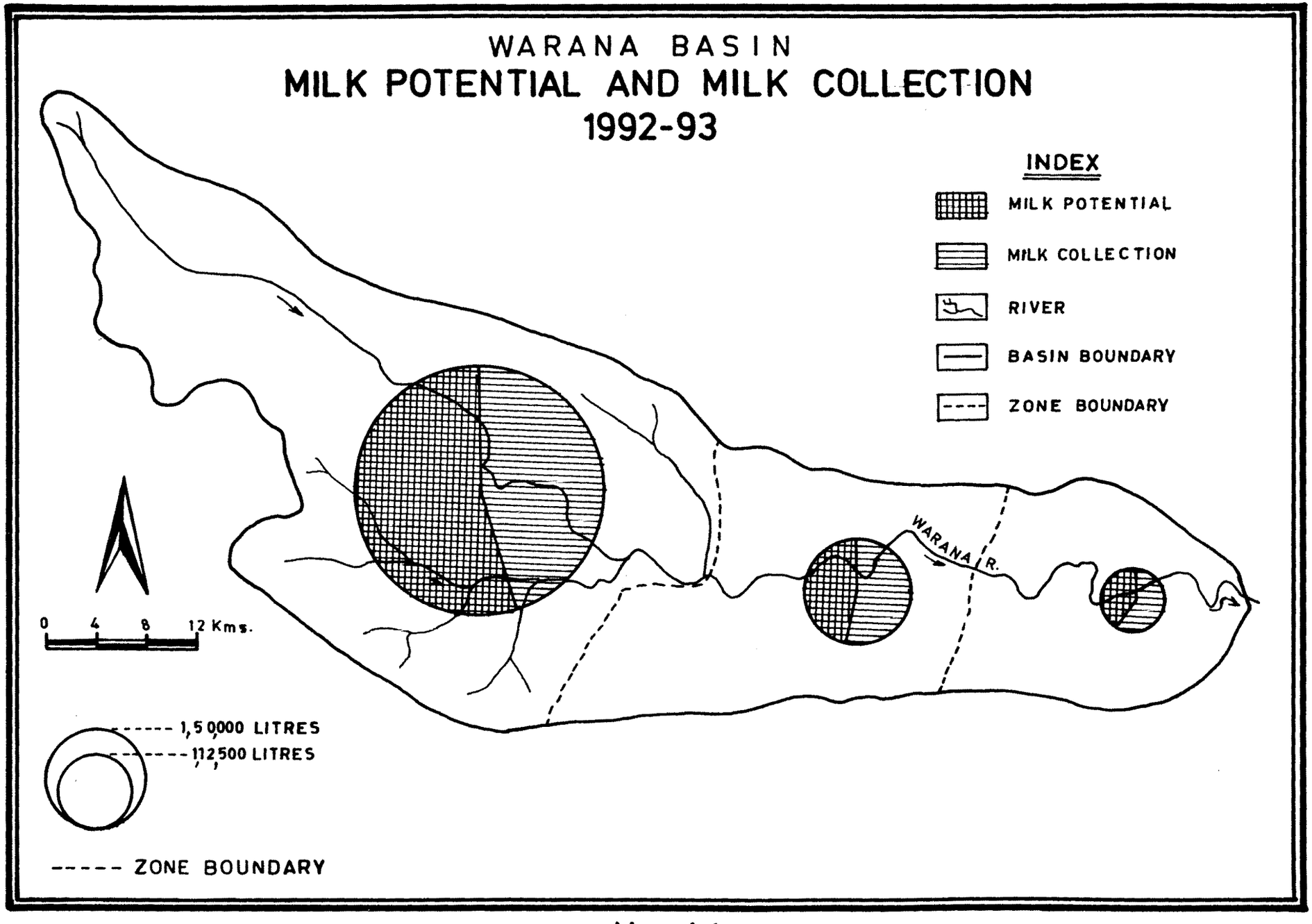
(A) Number of Milch Animals in Milk:

1.	Number of cows in milk during flush season	15,071
2.	Number of cows in milk during lean season (Approx. 2/3 of the number of flush season)	10,047
3.	Number of cross-bred cows	32,168
4.	Number of buffaloes in milk during flush season	56,661
5.	Number of buffaloes in milk during lean season (Approx. 2/3 of the number in flush season)	37,774
6,	Number of Mehasana and Murrah buffaloes	8,710

(B) Estimated Milk Production:

Milch Animal	Season	
	Flush	Lean
A - Cows:		
1. Cows' milk 2.5 litres per cow during flush season & 2.0 Ltrs. per cow during lean season	37,677	20,094
2. Cross-bred cows' milk (J. & H. and local cross-bred)	3,21,680	321,680
B - Buffaloes:		
1. Buffaloes' milk (Ltrs. per buffalo during flush season and 3 litres per buffalo during lean season)	2,26,644	113,322
2. Mehasana and Murrah buffaloes' milk (Litres)	78,390	78,390
Total:	6,64,391	533,486

As per the above estimate the milk production


WARANA BASIN
MILK POTENTIAL AND MILK COLLECTION
1992-93
INDEX
MILK POTENTIAL
MILK COLLECTION
RIVER
BASIN BOUNDARY
ZONE BOUNDARY
WARANA R.
0 4 8 12 Kms.
1,50,000 LITRES
1,12,500 LITRES
ZONE BOUNDARY

Map. 4·1

in Warana basin during flush season is 6,64,391 litres per day and during lean season it is 5,33,486 litres per day. The average estimated milk potential of Warana basin is 5,98,938 litres per day, that is, approximately 6 lakh litres per day. In the western zone the milk potential is the highest, that is, 3.58 lakh litres. In the middle zone, it is 1.47 lakh litres, whereas it is as low as 0.95 lakh litres per day in eastern zone. This is mainly due to the larger size of the western zone as compared to the other two zones.

The average daily milk collection in Warana basin including the cooperative and private dairies was 2.96 lakh litres during 1992-93, which is less than 50 per cent (49.47 per cent) of the estimated milk potential of the Warana basin. The favourable physical conditions, irrigation facilities, development of primary cooperative societies and private dairies, development of infrastructural facilities, a large number of cross-bred cows are the favourable factors in eastern zone of Warana basin. Hence the actual daily milk collection is the highest in the eastern zone. Owing to the lack of good network of roads, lack of irrigation facilities, meagre infrastructural facilities and adverse physical conditions the milk collection is the lowest in the western zone. The number of primary dairy cooperative societies is also small in the western

zone. This clearly indicates that there is a wide scope for the expansion of cooperative dairy development in the western zone of Warana basin.

4.5 Economics of Milk Production:

Dairying is an important subsidiary occupation in Warana basin. Cooperative dairy farming has assumed a position of paramount importance in the rural economy of Warana basin. Dairy farming gives supplementary income to small and marginal farmers and landless labourers. The income of the milk producers is directly related to the surplus milk, which is supplied to primary co-operative milk societies. As a result of the marketable surplus, milk producers get regular income.

Milk producers' income depends on the sale of F.Y.M. and sale of bull-caves. The expenditure is on green and dry fodder, veterinary aids, bank loan and interest on loan.

The economics of milk production in Warana basin are calculated on -

A - One local buffalo

B - One buffalo of improved breed

C - One cow of improved breed.

(A) One local buffalo:

		Rupees
Cost of buffalo	...	6,000
Income: (for the period of 10 months)		
1. Milk - 4 litres per day @ Rs. 8/ltr.		9,600
2. F.Y.M. (8 carts @ Rs. 60/cart loads during 15 months)	...	480
	Total Income:	10,080
Expenditure: (for the period of 15 months)		
1. Dry and green fodder @ Rs. 0.50/Kg. (20 Kg. per day)	...	4,500
2. Concentrates @ Rs. 3.25/Kg. (300 days) (2 Kg./day)	...	1,950
3. Veterinary aids (Rs. 25/month)	...	375
4. Bank loan instalment	...	600
5. Interest on bank-loan (12 per cent)		400
	Total Expenditure:	7,825
Total Income	...	10,080
Net surplus expenditure	...	7,825
Net profit	...	2,255

(B) One buffalo of improved breed:

Cost of buffalo	...	12,000
Income: (for the period of 15 months)		
1. Milk - 9 litres per day @ Rs. 8/ltr.		26,280
2. F.Y.M. - 10 carts, Rs. 60/cart (loads during 15 months)	...	600
	Total Income:	26,880

		Rupees
Expenditure: (for the period of 15 months)		
1. Dry and green fodder @ Rs. 0.50/Kg (25 kg/day)	...	5,625
2. Concentrates Rs. 3.25/kg (5 kg/day)		7,312
3. Veterinary aids, Rs. 50/month	...	750
4. Bank loan instalment	...	1,200
5. Interest on bank loan	...	800
	Total Expenditure:	15,687
Total Income	...	26,880
Net surplus expenditure	...	15,687
Net profit	...	11,193
(C) One cow of improved breed:		
Cost of cow	...	7,500
Income: (for the period of 10 months)		
1. Milk - 15 litres/day, Rs. 4/litre		18,000
2. F.Y.M. - 10 carts, Rs. 60/cart (loaded during 12 months)	...	600
	Total Income:	18,600
Expenditure: (for the period of 12 months)		
1. Dry & green fodder Rs. 0.50/kg.(25 kg./day)		4,562
2. Concentrates. Rs. 3.25/Kg.(5 Kg./day)		5,931
3. Veterinary aids (Rs. 50/month)	...	600
4. Bank loan instalment	...	750
5. Interest on bank loan	...	500
	Total Expenditure:	12,343

		Rupees
Total Income	...	18,600
Net surplus expenditure	...	12,343
Net profit	...	6,257

Note: F.Y.M. = Farm Yard Manure

The above chart shows that the net profit per local buffalo is Rs. 2,253 and that of improved breed of buffalo is Rs. 11,193. Therefore, milk producers purchase improved buffaloes from Mehasana and Surat. Net profit per cross-bred cow is Rs. 6,257. Due to this reason milk producers also purchase cross-bred cows from Bangalore.

4.6 Shree Warana Sahakari Doodh Utpadak Prakriya Sangh Ltd., Amrutnagar - A Case Study:

4.6.1 Introduction:

This case study deals with the establishment and development of Shree Warana Sahakari Doodh Utpadak Prakriya Sangh Ltd., Amrutnagar (Warana Dairy). This case study has been described under the captions like Historical Background, Initial Phase, Area of Operation, Milk Collection, Distribution of Milk and Milk Products and Economic Status of Warana Doodh Sangh.

4.6.2 Historical Background of Warana Dairy:

After the Independence the first cooperative sugar factory venture was successful at Pravaranagar

in Ahmednagar district. In Warana basin this movement was started by Shri Tatyasaheb Kore. Warana Sahakari Sakhar Karkhana Ltd., Warananagar was started in 1959 at Warananagar. After starting the sugar factory there was a marked increase in the irrigation facilities and sugarcane production. This ultimately resulted in a remarkable increase in the availability of green fodder and sugarcane tops, which was responsible for the increase in milk production. Tatyasaheb Kore decided to establish a cooperative milk dairy in Warana basin. He started Shree Warana Sahakari Doodh Utpadak Prakriya Sangh Ltd., Amrutnagar (i.e., Warana dairy) in 1968. The Warana dairy started actual procurement activities in 1969-70. The National Dairy Development Board recommended the basin as separate Warana Milk District covering 300 villages. Maharashtra State Government has approved the dairy under its G.R. No. D.D.S. 1073/89684 dated 9.10.1974.

4.6.3 Warana Dairy: Initial Phase:

The successful achievement of 'Green Revolution' in the cooperative movement emboldened Shri Tatyasaheb Kore to take steps towards the achievement of 'White Revolution' with the help of the majority of farmers, especially small and marginal farmers and landless labourers. He took the decision of starting cooperative

dairy in Warana basin, and achieve progress in socio-economic conditions in the region. Shree Warana Sahakari Doodh Utpadak Prakriya Sangh Ltd., Amrutnagar was established in Warana basin. This cooperative dairy project was established on the lines of Amul Dairy at Anand in Gujarat State.

In the initial stage Warana dairy collected share capital from the milk producers at the rate of Rs. 500 per share. In 1969-70 there were 812 individual share-holders and only two society share-holders, with the total share capital of Rs. 4,11,445.

The Warana Doodh Sangh obtained 50 acres of land near Warananagar on lease for 99 years. The total financial requirement of the project was initially estimated at Rs. 251 lakhs of which 74 per cent loan was supplied by Bank of India and the remaining 26 per cent was the share capital. At present Warana Dairy is a leading cooperative dairy in Maharashtra.

4.6.4 Area of Operation:

The area of operation of the Warana Doodh Sangh was limited to 66 villages at the time of establishment. This area was coinciding with the area of operation of Warana Sugar Factory. This area of operation is spread on both sides of Warana river. This area is

distributed in Sangli and Kolhapur districts. Out of these 66 villages 25 villages were from Sangli district (Shirala - 6 and Walwa - 19) and the remaining 41 were from Kolhapur district (Panhala - 14 and Hatkanangale -27).

National Dairy Development Board recommended separate Warana Milk District having 300 villages. Out of these, 25 villages were connected to other milk unions. The 19 villages from Walwa tahsil were connected to Shree Rajaram Bapu Patil Doodh Sangh, Islampur and 6 villages from Shirala tahsil were connected to Shirala Tahsil Milk Union. Therefore, the remaining 275 villages were included in the area of operation of Warana Milk Union. These villages were from Shirala and Walwa tahsils in Sangli district and Shahuwadi, Panhala and Hatkanangale tahsils in Kolhapur district.

At present Warana Dairy is collecting milk from 176 villages in the area of operation. Warana dairy is also collecting milk from other parts of Kolhapur district and northern parts of Karnatak State.

4.6.5 Milk Collection:

A majority of the milk producers in Warana basin sell their milk directly to the milk venders at their villages. After the successful starting of Warana dairy on a cooperative basis, this cooperative movement percolated to the village level and milk producers started

primary cooperative dairy societies. These primary cooperative dairy societies collected milk from the milk producers and sold it to the milk unions.

Warana Dairy started milk collection from the primary cooperative milk societies from the year 1969-70. This milk collection is being done with the help of a private transport company, Ghatge Patil Transport company (G.P.T.).

In the first year there were four main milk collection routes and the total milk collection was 7.11 lakh litres. The monthly average milk collection was 0.59 lakh litres and daily average milk collection was 2,000 litres. In 1982-83 the total milk collection increased to 214.41 lakh litres. The monthly average milk collection was 17.86 lakh litres and daily average milk collection was 0.59 lakh litres. Since then, during the last 15 years the milk collection increased to 207.07 lakh litres and the milk collection routes, number of milk collection centres and the quantity of milk procured increased considerably.

In the year 1983-84 the total milk collection was 204.64 lakh litres. The average monthly milk collection was 17.05 lakh litres and average daily milk

collection was 0.56 lakh litres. In 1992-93 the total milk collection was 613.59 lakh litres. The average monthly milk collection increased to 51.13 lakh litres and average daily milk collection became 1.68 lakh litres. During the last ten years Warana dairy has collected 4,458.17 lakh litres of milk.

The following Table No. 4.1 shows milk collection of Warana Doodh Sangh.

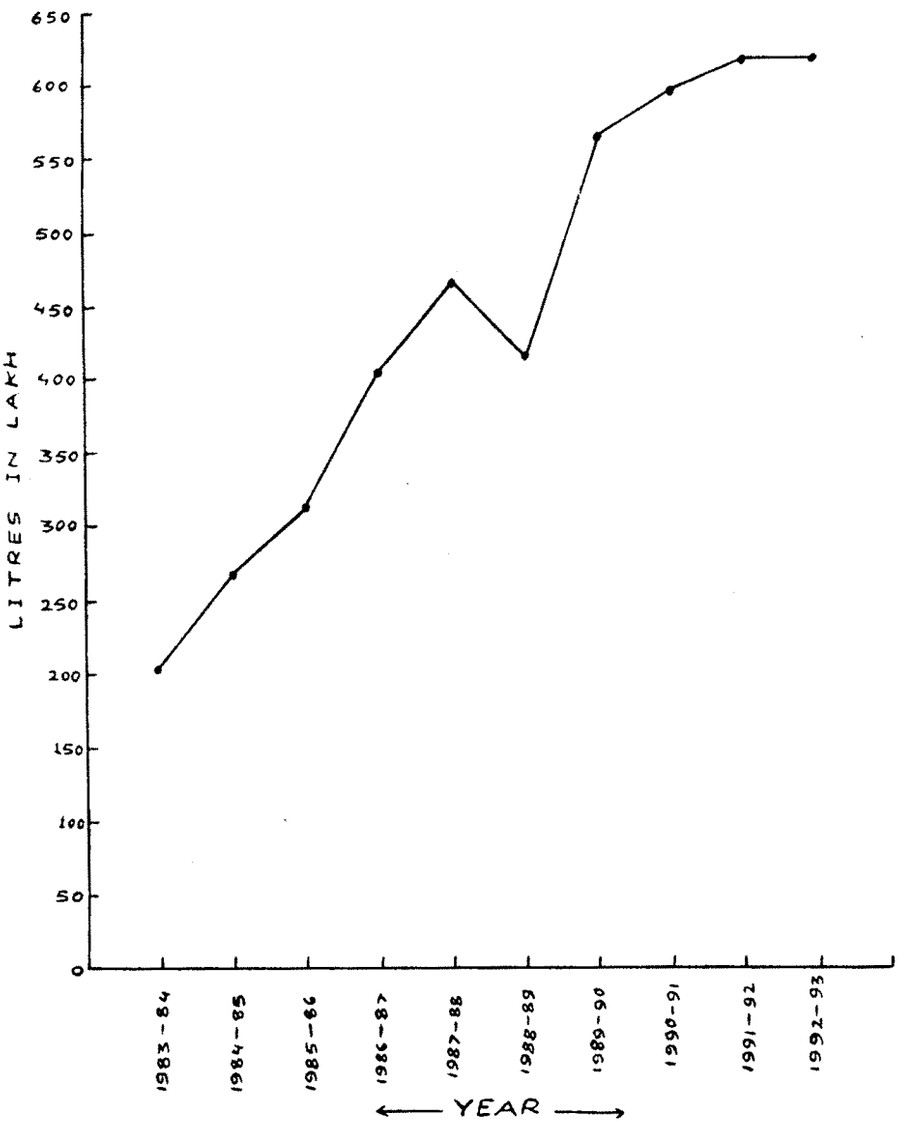
Table 4.1: Warana dairy: Total milk collection (1983-84 to 1992-1993 (Figures in lakh litres)

Sr. No.	Year	Total milk collection	Average daily milk collection
1	1983-84	204.64	0.56
2	1984-85	268.53	0.74
3	1985-86	311.99	0.85
4	1986-87	403.16	1.10
5	1987-88	463.00	1.27
6	1988-89	414.43	1.13
7	1989-90	567.42	1.55
8	1990-91	594.30	1.63
9	1991-92	617.11	1.69
10	1992-93	613.59	1.68

Source: Annual Reports of the Warana Doodh Sangh.

The foregoing table shows that milk collection was increased except in 1989-90. The main reason for

WARANA DAIRY
TOTAL MILK COLLECTION
1983-84 to 1992-93



GRAPH 4:1

the decreased milk collection during 1989-90 was due to the change in the financial year. This year milk collection was done only for nine months. Every year milk collection was more during flush season and less during lean season.

In the last decade the number of milk collection centres and the number of milk collection routes increased considerably. Milk producers purchased new types of high breed cows and buffaloes. Milk producers started using better quality of green fodder and cattle-feed. Veterinary and transport facilities also increased in this period. Warana dairy started collecting milk from out of its area of operation. At present the boundary area of Karnataka State plays an important role in the increasing milk collection of the Warana dairy.

4.6.6 Distribution of Milk and Milk Products:

Warana dairy at present collects milk from its area of operation and some other areas from northern parts of Karnataka. Upto 1976 this dairy used to collect milk from its area of operation and send it to government dairy at Miraj. A part of procured milk was also sent to Gokul Dairy at Kolhapur. The Warana dairy started its own processing plant at Amrutnagar in 1976. However, a large part of milk was chilled at Amrutnagar and

was sent to Bombay. The excess milk was converted into various milk products, milk powder and Ghee for the local sale. After the inception of pasturization and processing plant at Amrutnagar, the dairy reduced the milk supply to government dairy at Miraj and Gokul Dairy at Kolhapur.

Since 1976 Warana Dairy has been regularly supplying pasturized and processed milk to Bombay, New Bombay (Vashi), Pune, Kolhapur, Jaysingpur, Ichalkaranji, Sangli, Miraj and Ratnagiri urban centres.

Warana Dairy started its manufacturing plant at Amrutnagar on the lines of Amul Dairy in Gujarat State. From 1976 to 1982 the dairy processed the milk and manufactured milk products and Ghee (butter oil). Since 1983 the dairy started production of Warana Shrikhand and Warana Lussi. The production of important milk products of Warana Dairy are presented in Table No. 4.2.

Table 4.2 reveals that during 1983-84, that is, the first year of manufacturing of milk products, the dairy produced 670.1 metric tons of milk powder, 345.9 metric tons of Ghee and 281 metric tons of Shrikhand. Since then with a few exceptional years, the production of milk products shows an upward trend, during the

Table 4.2: Warana dairy: Production of milk products (1983-84 to 1992-93)
(Figures in metric tons)

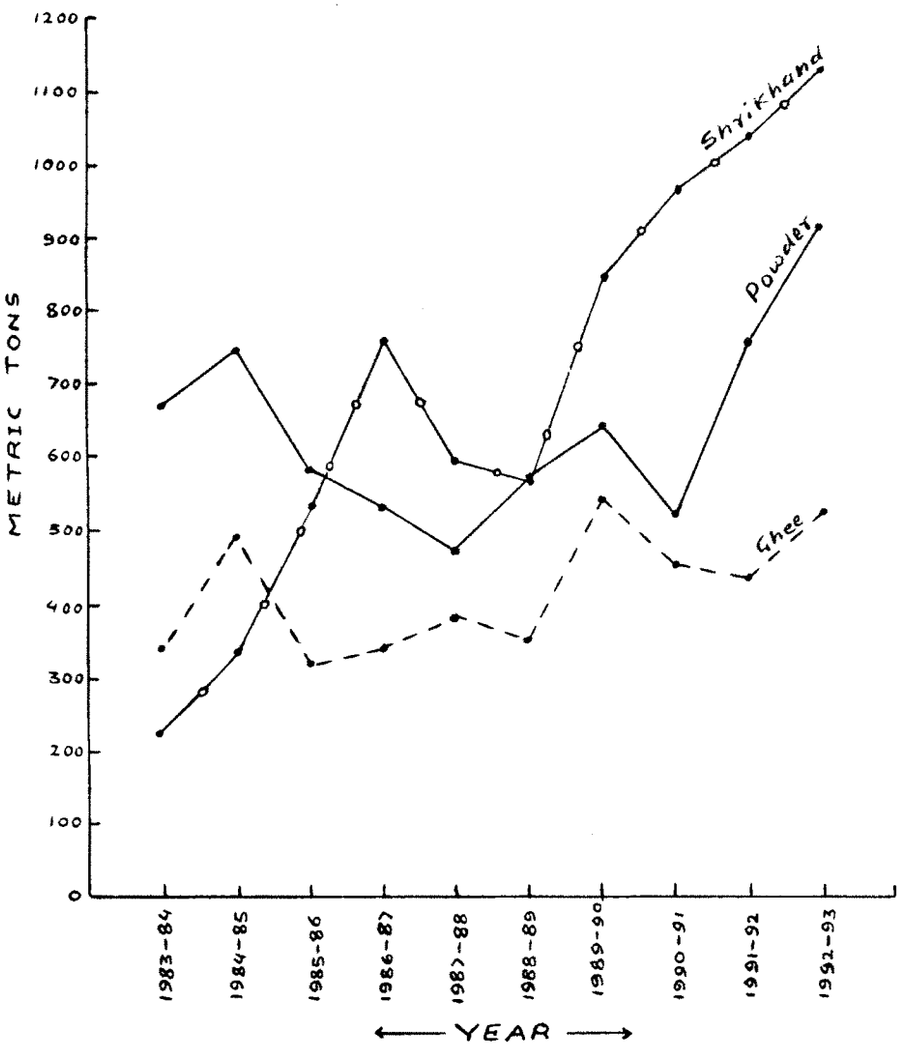
Sr. No.	Year	Milk products		
		Milk powder	Ghee	Shrikhand
1	1983-84	670.1	345.9	218.0
2	1984-85	736.3	492.5	334.0
3	1985-86	581.0	317.5	526.5
4	1986-87	527.4	340.9	753.6
5	1987-88	466.3	382.6	589.8
6	1988-89	567.2	351.5	557.3
7	1989-90	641.3	540.8	844.0
8	1990-91	524.6	449.9	960.9
9	1991-92	750.6	425.3	1,033.0
10	1992-93	906.5	515.2	1,129.5

Source: Annual Reports of Warana Doodh Sangh.

decade. Production of Shrikhand shows a comparatively rapid increase during the decade. Thus, it is clear from the above table that the total production of these milk products has almost doubled in 1992-93.

Warana Dairy also manufactures the other milk products like Lussi, butter, baby food, lacplus and mango shake powder etc.. These products are sold in major urban centres in Maharashtra, northern Karnataka and Goa. The demand for all milk products of Warana dairy is rapidly increasing due to strict quality control

WARANA DAIRY
PRODUCTION OF MILK PRODUCTS
1983-84 to 1992-93



GRAPH 4:2

and Warana milk products are gaining increasing popularity throughout the State.

4.6.7 Economic Status of Warana Doodh Sangh:

At the time of establishment of the Sangh, the farmers decided to collect Rs. 500 per share from the milk producer members and thus formed the cooperative dairy venture. In 1968-69 the number of individual members of Warana Doodh Sangh was 812; these members were treated 'A' class share-holders. The number of 'B' class share-holders, that is, the cooperative societies was only 2. At the time of inception the total share capital was nearly Rs. 41 thousand only and the total turnover during that year was Rs. 27 thousand.

In 1992-93 the Warana Doodh Sangh was having 14,607 'A' class individual share-holders and 130 'B' class cooperative society share-holders; its share capital increased to 1.38 crores, turnover increased to 68.73 crores. Thus, this cooperative dairy union shows very rapid growth as far as the number of share-holders, share capital and turnover are concerned.

Table No. 4.3 shows the economic status of Warana Doodh Sangh during the last decade (1983-84 to 1992-1993).

Table 4.3: Warana Dairy: Economic status (1983-84 to 1992-93) (Amount in '000 Rs.)

Sr. No.	Year	Income	Expenditure	Profit
1	1983-84	6,335.2	6,313.5	21.7
2	1984-85	7,478.7	7,443.2	35.5
3	1985-86	12,092.2	12,063.0	29.2
4	1986-87	15,706.2	15,638.6	67.6
5	1987-88	15,873.1	15,540.2	332.9
6	1988-89	15,699.2	15,422.6	276.6
7	1989-90	23,274.4	22,989.8	284.6
8	1990-91	8,618.0	8,412.3	205.7
9	1991-92	9,087.2	8,961.2	126.0
10	1992-93	10,400.8	10,177.6	223.2

Source: Annual Reports of Warana Doodh Sangh.

The above Table reveals that the Warana Doodh Sangh runs in profit. However, it is clear from the table that there are fluctuations in the amount of profit during the decade. From 1983-84 to 1987-88 during the first half of the decade the profit range shows an upward trend with a maximum profit of Rs. 3.3 lakhs during 1987-88. However, during the next half decade there was a gradual fall in the profit range from Rs. 2.76 lakhs during 1988-89 to Rs. 1.26 lakhs in 1991-92. There were various reasons for the gradual fall in

profit margin, such as the fluctuations in the milk production and increasing competition from other cooperative dairies in Western Maharashtra, rapid increase in the rate of milk, resulting into increasing payments. The milk producers contended that the Sangh should pay more for the purchase of milk considering the factors including the increasing cost of transportation. However, the year 1992-93 shows remarkable increase in profit margin, which was Rs. 2.23 lakhs during 1992-93.

4.7 Summary:

Dairy farming is an important subsidiary occupation of the people in Warana basin. It helps to increase the income of the milk producers. The dairy farming in the region is mainly in cooperative sector. The milk producers in Warana basin have organised their own cooperative societies, which collect milk from milk producers and supply it to Gokul dairy, Kolhapur, Warana Dairy, Amrutnagar or Walwa Dairy, Islampur.

Rapid increase in the irrigation facilities, good network of motorable roads, availability of veterinary facilities, availability of cattle feed, fodder and green grass and introduction of high yielding varieties of milch animals in the region are the basic factors responsible for the growth of cooperative dairy farming. The establishment of three important milk unions either

in the region or in the vicinity geared up the development of cooperative dairy farming in the region. All these factors resulted into a kind of 'White Revolution' in Warana basin. In 1992-93 there were 390 milk producers' primary cooperative societies in the region.

The development of cooperative dairy farming in the region also increased the total milk production in the region. The average estimated milk potential of Warana basin is nearly 6 lakh litres per day and the average daily milk collection is 2.9 lakh litres (1992-93). Thus, it is clear that the milk collection in the region through cooperative sectors is less than 50 per cent of the estimated milk potential. There is wide scope for the expansion of dairy farming in the western part of Warana basin.

The economics of milk production worked out shows that the net profit per local milch buffalo is Rs. 2,255 and per buffalo of improved breed it is nearly Rs. 11,193 during one milking period. The net profit per cross-bred cow for one milking period is Rs. 6,257. Thus, it is clear that the improved breed of milch animal is more profitable; hence milk producers in Warana basin are replacing their local milch animals by the improved varieties.

Shree Warana Sahakari Doodh Utpadak Prakriya Sangh Ltd., Warananagar is an important dairy union in the region. Its area of operation though limited to 66 villages in the region, the actual Warana milk district recommended by the National Dairy Development Board includes 300 villages from Warana basin. The daily average milk collection at the time of inception was 2,000 litres which increased to 1.68 lakh litres. This figure shows the growth of cooperative dairy farming in the region. Along with the increase in the milk collection, the number of milk collection routes and milk collection centres increased very rapidly. Warana dairy also manufactures milk products like milk powder, lussi, Ghee, Shrikhand etc.. The dairy supplies processed milk and milk products to Bombay, Pune, Kolhapur, Sangli, Miraj, Ratnagiri and many other urban centres in Maharashtra. At the time of inception there were 812 individual members of Warana dairy. The number of society members was only 2 but in 1992-93 the number of individual shareholders increased to 14,607 and the society members increased to 130. During the same period the annual turnover increased from Rs. 27 thousand in 1968-69 to Rs. 68.73 crores in 1992-93. Thus, this milk union has brought about 'White food' in Warana basin.

NOTES AND REFERENCES

1 "Performance of Integrated Milk Cooperatives" C.G. Ranade, D.P. Mathur, B. Rangarajan, V.K. Gupta. Milk Production, p. 53.