

CHAPTER V

MILK MARKETING SYSTEM

This chapter gives a description on characteristics of marketing agents, marketing channels, quality combined with price of the raw milk, marketing cost and margin. These perspectives help us to understand the milk marketing system in the RRD.

5.1 Marketing agents

To see how milk marketing organises and how it functions, firstly we would try to enumerate and classify various marketing agents. Based on their functions, it is useful to classify them into two types: (1) intermediary agents who collect raw milk from the farmers and then sell it to processors, and (2) milk processors.

5.1.1 Intermediary agents

Intermediary agents were considered as a bridge between the farmers and the processors. They buy raw milk from the farmers and resell to the processors. They take title of the product and bear risk. Level of their profit depends on the difference between selling and buying prices.

Despite having the same function, intermediary agents varied by pricing practice, size, form of ownership, etc. Collectively, there were three kinds of intermediaries in the study areas, namely collectors, milk collection co-operatives and milk collection stations. The sample included 6 collectors, 1 collection co-operative

and 1 collection station. Some of their characteristics are expressed in Table 5.1 and following description.

Table 5.1: General characteristics of the intermediaries in the study area

Indicators	Units	Collectors	Co-operative	Station
- Years of milk business	Years	6.2	1.0	9.0
- Preservation capacity	Tons of milk	0.4	2.0	1.0
- Total value of fixed assets	Million VND	60.4	140.2	1,850.0
+ Means of transportation	Million VND	24.8	0	600.0

Source: Survey, 1999

5.1.1.1 Collectors

The collectors could be farmers themselves or merchants. Commonly, those farmers raised cows and collected milk from neighbor farmers to sell to milk processors. Their size was small; amount of the marketed milk was usually less than 100 kg per day. In addition to the farmers, there were also a few households who do business in collecting raw milk (merchants). Their size was larger than that of the farmers. Quantity of the traded milk ranged from 100 kg to 800 kg per day. Except for a few households having large amounts of traded milk, most of the collectors used a motorcycle to deliver milk.

There were some incentives that collectors had realized. Firstly, the collectors know the location of fresh milk shops where they might bargain for a higher price, and their own transportation means could help them go easily to those places. Moreover, the collectors have been carrying on a milk business for several years (an average of 6.2 years). Thus they have experience in marketing.

5.1.1.2 Milk collection co-operatives

The milk collection co-operative was existent only in Hanoi. About 4 years ago, it was reported that farmers had difficulty selling their milk. Most of the raw milk was delivered by the farmers themselves or collectors to fresh milk shops located in urban areas. Milk price was fluctuated according to conditions of the weather. When a Hanoi milk factory was set up, the milk market had remarkable changes. The farmers had more choices to sell their milk. Unlike others, Hanoi milk factory did not establish milk a collection network in the zone. There was only a collection point at the factory. This situation encouraged farmers to form milk collection co-operatives. However, because of financial constraints, only one milk collection co-operative was set up which has been operational since 1998. Others were being formed at the period of the survey. Therefore, the study focused on the only one co-operative, namely Phudong Milk Collection Co-operative.

The co-operative received support from the government in terms of initial investment. Most of its assets were provided through a Belgian - Vietnamese project. The co-operative at present has preservation capacity for two tons of raw milk per day. However, utilization was less than one ton of milk in a day. The formation and operation of the co-operative was based on Co-operative Law effective in 1997. Main contents are expressed as follows:

- Voluntary joining co-operative
- Equal and democratic management
- Mutual responsibility and benefit
- Sharing profits that should ensure interests of the members and the development of the co-operative
- Co-operative and community development

Each member is required to hold a minimum share of 300,000 VND. However, up to now benefits for the members in the co-operative did not differ significantly from that of non-members. Thus, it still did not attract farmers to join. Number of households participating in the co-operative accounted for 47.5% of the total households raising cows in the commune.

One of the constraints confronting the co-operative was limited marketing experience, since it had just entered the milk business one year ago (Table 5.1). In addition, the co-operative lacked the means of transportation which led it to rent a small truck to deliver raw milk everyday.

5.1.1.3 Milk collection stations

Besides common features of the region, each location had its own local circumstances. While collectors and the co-operative dominated in Hanoi zone, most quantity of raw milk in Hatay was delivered to milk collection stations.

Out of seven collection stations located in Hatay, six collection stations belonged to Nestle Milk Factory, and other one belonged to Center of Bavi Cow and Grass-field Research. All six stations of the former were run uniformly by managers of the factory. Levels of milk price applied at each station were the same, although they were located in different places. The whole expenditure on milk collection is accumulated into the cost of final product (e.g., yogurt). Because of these features, the study supposed that there was no difference between milk flows going to those collection stations and to the factory. Therefore, results of the study were based on an

interview with one remaining station, namely Bavi Milk Collection Station (Bavi station).

The Bavi station, which belonged to Center of Bavi Cow and Grass-field Research has quite long history. In 1958, Bavi Cow Raising Ranch was formed. Its main objectives were to provide milk to the Hanoi capital, and to do research in crossbreeding cattle. The station was one of the production units of the ranch. Under a centrally - planned mechanism, production activities of the station were based on planning indicators of the ranch as well as the government. After changing to a market-oriented economy, the ranch was reformed and renamed as Center of Bavi Cow and Grass-field Research (1989). All dairy cows and grassland were assigned to workers working in the ranch. The function of the ranch changed to research and service.

In comparison with the two above kinds, the station owned more modern equipment. Total value of fixed assets reached to 1.85 billion VND, which was about 13 times higher than that of the co-operative. This may be a main factor affecting positively the milk quality of the station. Another merit is that the station penetrated the Hanoi milk market many years ago. It was considered as the first comer to enter the Hanoi market. A period of nine years from the reformation was not so long but enough for the station to build a close relationship with its customers.

5.1.2 Milk processors

In this study, milk processors refer to milk processing factories and fresh milk shops. They buy raw milk from the farmers and/or intermediaries, and then process it. The processed products such as fresh milk, ice - cream, yogurt, etc. could be used for instant consumption.

5.1.2.1 Milk processing factories

There were two milk-processing factories located in the region. The first one named Hanoi Milk Factory belonged to Vietnamese Milk Company (state owned company). The factory started to operate in 1995. Its main product was sweet condensed milk with a capacity of 75 billion milk cans per year. In addition, the factory also produces some other kinds of product such as yogurt, ice - cream, UHT fresh milk, etc. According to a report of Hanoi Agricultural Department (1998), most of the materials used by the factory were imported. About 1,500 – 2,000 tons of material a year produced domestically were delivered to the factory, accounting for only 3% - 5% of the total amount of materials.

Another factory located in Hatay was Nestle Milk Products Processing Factory - a branch of Nestle Milk Company. The factory having 100% of foreign capital (US \$ 1.4 million) began to operate in 1997. Its main product was yogurt. Unlike the Hanoi Milk Factory, the Nestle Milk Factory used domestic materials entirely with initial capacity of 3 tons of milk per day. However, due to lack of raw milk, the factory only operated at 20% - 30% of its capacity for the last couple of years.

Because information on the factories was not available, the study did not have a chance to discuss further their activities.

5.1.2.2 Fresh milk shops

Fresh milk shops refer to places where fresh milk is processed and sold. Unlike the production procedure of milk factories supported by high technology and modern equipment, methods of fresh milk processing applied at shops is simple. Owners of the

shops use ordinary kitchen utensils such as pan, cooker, refrigerator, etc. to process it. Raw milk, shortly after buying from intermediaries/farmers, is heated to boiling point to kill bacteria and to partially extract fat from the milk. Then it is rapidly cooled to about 20-22°C and preserved at temperatures of 10-12°C. Commonly, owners of the shops boil milk once a day, and preserve it to serve their customers for the whole day.

Fresh milk shops are usually located in urban areas, particularly in Hanoi capital and a few tourist places of Hatay. Prior to having milk processing factories, the milk shops dominated the market in the RRD. They absorbed almost all amounts of raw milk produced in the region. The formation of the factories led to a large change in the milk market. Various kinds of milk product became more abundant, and so consumers had more choices to satisfy their demand. Many customers began to use milk products of the factory. Therefore, the number of the shops decreased significantly. At Hanoi capital, the number of the registered shops dropped from 150 in 1994 to 96 units in 1998 (Hanoi Agricultural Department, 1998).

The milk shops vary in sizes, with a daily turnover of 3 kg to 60 kg of raw milk. This largely depends on location. Normally, the shops located near schools, offices and dormitories are larger than others in size, and the distances between them is also closer. Except for some of the above places, it was not easy to find a fresh milk shop along the street. Very few shops specialized in processing and selling fresh milk. In contrast, the fresh milk and other soft drinks such as colas, pepsi, juices, etc. were usually sold together at the same shop. Thus, the amount of raw milk absorbed by fresh milk shops was small and varied by season.

5.2 Marketing channels

The common flows of raw milk in different marketing channels are presented in Figures 5.1 and 5.2. There were 8 marketing channels involved in raw milk trading:

- (1) Farmers - milk collection co-operative – milk factories
- (2) Farmers – the factories
- (3) Farmers – fresh milk shops
- (4) Farmers – consumers
- (5) Farmers – collectors – fresh milk shops
- (6) Farmers – collectors – the factories
- (7) Farmers – milk collection station – fresh milk shops
- (8) Farmers – the station – fresh milk shops.

In Hanoi, the main flows of raw milk were from farmers to collectors and to the co-operative, which accounted for 47.8% and 39.9% of the total milk output, respectively. There were very few farmers delivering their milk directly to the factory. Only 0.7% of the total milk output fell under this channel. The farmers realized that they must face a strict quality test, which took several hours. The complexity of the selling procedure was one of the reasons that did not encourage Hanoi farmers to sell their small amount of milk directly to the factory.

Contrary to the Hanoi case, the direct flow of raw milk from farmers to the factory reached 45.6% of the total milk output in Hatay, being the second most important marketing channel. This was due to the existence of milk collection stations in different locations. Another main flow of raw milk was from farmers to Bavi station. It amounted to 48.4% of the total milk output.

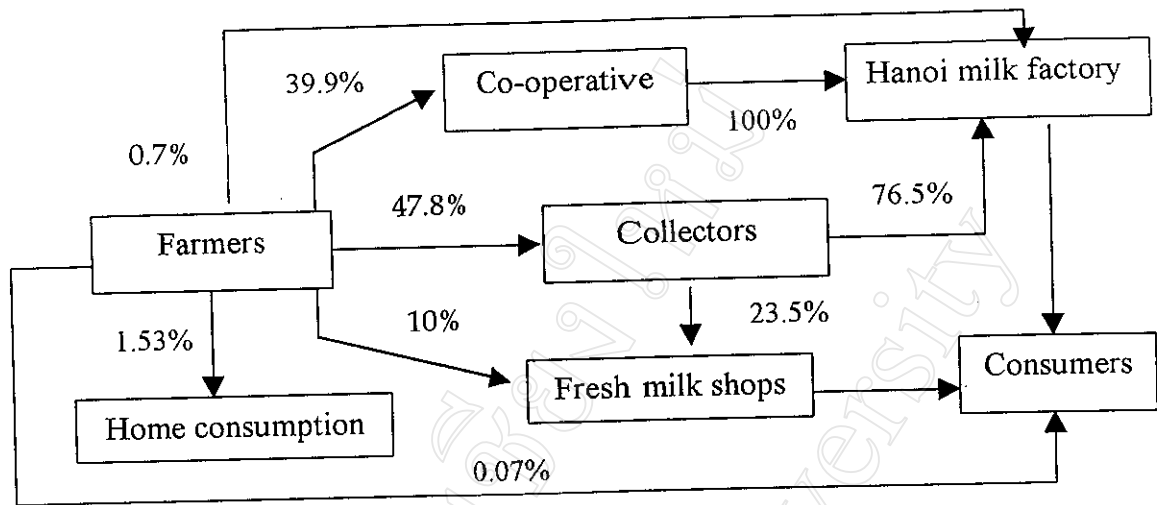


Figure 5.1: Milk marketing channels in Hanoi

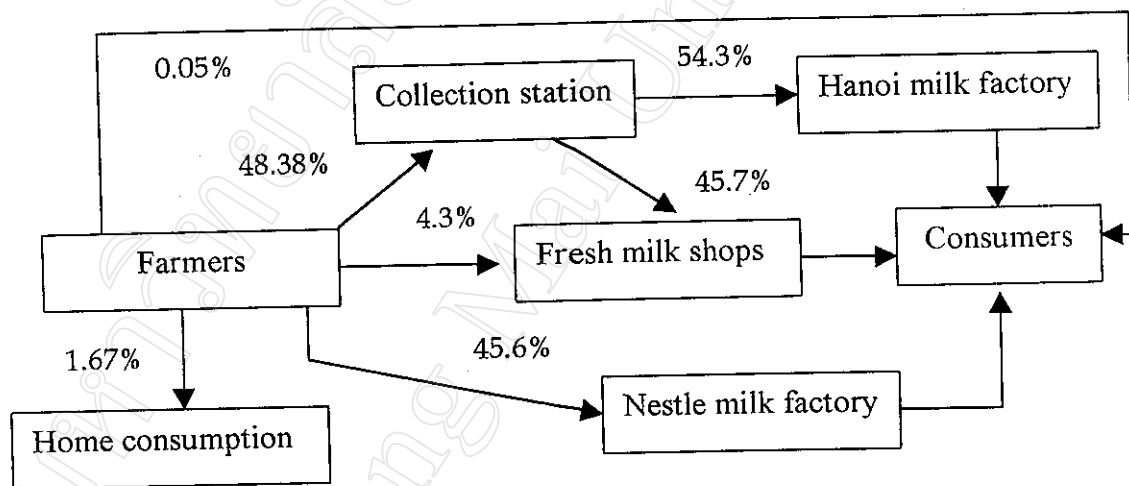


Figure 5.2: Milk marketing channels in Hatay

Note: The figures were percentages of the total milk supply

Source: Survey, 1999

Another marketplace that attracted farmers was fresh milk shops. These shops usually offered higher prices than others did. However, they are located far apart from one another in urban areas where farmers have a long travel time; so only 10% of the total milk output in Hanoi was delivered to them by the farmers themselves. The proportion of milk sold to fresh milk shops was even lower in Hatay, with only 4.3%

of the total milk output. Having advantage of first comer, Bavi station still dominated the flow of raw milk to fresh milk shops. About 45.7% of its milk quantity fell under this channel.

One remarkable point in marketing channels of Hatay is that milk collection station did not sell raw milk to Nestle milk factory, which is located in the same district. On the contrary, the milk was delivered to Hanoi milk factory, where the distance is about 70 km from the station. The difference in milk price between two factories may be the main reason to justify the case.

5.3 Number of buyers in the region

As mentioned above, there were 4 - 5 choices for the farmers to sell their milk in market. Those are to sell directly to the factories, to milk shops, to final consumers, to the co-operative and to collectors (with respect to Hanoi farmers), or to the collection station (in case of Hatay farmers). Concerning intermediaries, they have two marketplaces: fresh milk shops and the factories. However, it has not enough evidence to say whether the level of competition is high or low. To know that, we should consider the number of buyers and farmer's constraints in handing their products, as discussed below.

Tables 5.2 and 5.3 show how many buyers farmers and intermediaries could deal with before they decide to sell their milk (column A), and how many buyers they actually sold the milk to (column B).

Table 5.2: Average number of potential and actual buying agents in Hanoi

(Unit: persons)

Seller \ Buyers	Collectors		Co-operative		Fresh milk shops		Milk factory	
	A	B	A	B	A	B	A	B
Farmers	3.02	0.84	1.28	0.40	2.32	0.82	1.00	0.04
Collectors	3.40	0.00	2.00	0.00	16.40	12.00	1.00	0.40
Co-operative	5.00	0.00	1.00	0.00	4.00	0.00	2.00	1.00

Source: Survey, 1999

Table 5.3: Average number of potential and actual buying agents in Hatay

(Unit: persons)

Seller \ Buyers	Collection station		Fresh milk shops		Milk Factory	
	A	B	A	B	A	B
Farmers	1.00	0.60	2.03	0.33	1.13	0.43
Collection station	0.00	0.00	15.00	11.00	2.00	1.00

Note: A. Potential buying agents

B. Actual buying agents

Source: Survey, 1999

The data showed that farmers as well as intermediaries did not have many choices when selling their products. The average number of potential buyers whom farmers could contract with before they decided to sell their milk ranged from 1-3 persons. Except for fresh milk shops and Hanoi milk factory, other buying agents based in the same location (e.g., collectors vs. the co-operative, and the Bavi station vs. Nestle milk factory) offered similar prices. In addition, raw milk is highly perishable. Dairy farmers need to deliver it as soon as possible after milking. For these reasons, the distance between the dairy farms and buyers' location became the most

important indicator for farmers to select their buyers, followed by form and duration of the payment. Commonly, a farmer sold raw milk to the same buyer everyday. There were only 5.6% of the total sample households selling their milk to more than one buying agent.

In Hatay, the farmers had fewer choices than Hanoi farmers had. Their average potential number of buyers was one collection station, two shops and one factory. Only a few households having better condition (e.g., means of transportation, market experience, etc.) could deliver their milk to fresh milk shops. Most farmers sold raw milk to either Bavi station or Nestle milk factory. The survey revealed that households borrowing money from the factory had to sell their milk to it. In addition, households who were assigned cows several years ago were liable to obtain veterinary services from the Bavi center. Thus, they also had obligation to deliver raw milk to Bavi station. This indicated that there were still farmers in Hatay not having any choice when selling their product.

Regarding intermediaries, two marketplaces they could sell raw milk to were fresh milk shops and milk factories. On average, a collector knew 16.5 shops selling fresh milk, from which they have had trading transaction with 12 shops. Similarly, there were 11 shops that the Bavi station has actually sold raw milk to. Although the number of shops seems high, milk quantity absorbed by them was small. According to records of Hanoi commercial department, fresh milk shops absorbed around one ton of raw milk per day and this amount varied considerably by season. Thus, it is said that the main market of intermediary agents is the milk factory. While, the existence of two factories located in different locations indicated their limited choices. All agents selling raw milk to the factories had to accept the standard of milk quality at a pre-

determined price. The above analysis implied that there was a low competition in the market of raw milk.

5.4 Mode of transportation

As we know, milk is a well-balanced food and so, it is ideal for development of bacteria. Berrett and Larkin (1979) reported that bacteria would reproduce once every 30 minutes in 70-90 °F. For this reason, milk must be conserved or processed as soon as possible to inhibit bacterial growth. Consequently, transportation means, which involve time of delivery, play important roles in assuring milk quality. The survey showed that selling agents used different mode of transportation (Table 5.4).

Table 5.4: Transportation means

Sellers	Major transportation means	Percentage of ownership (%)	Average distance to selling points (km)
Farmers	Bicycle	100	2.3
Collectors	Motorcycle	100	23.5
The co-operative	Truck	100	20.0
The station	Tanker truck	0	70.0

Source: Survey, 1999

Overall, the common transportation means used by farmers was bicycle. After milking, raw milk was contained in churns and delivered to buying agents. On average, the distance between the farmers' houses and the selling points was 2.3 km, and time of delivery was 42 minutes. According to Berrett and Larkin (1979) when milk comes from the cow, the temperature is ideal for bacterial growth. Therefore, both farmers and buying agents need to improve their own procedure so that raw milk

after coming from the cow, is put into conservation facilities as soon as possible. The time period of 42 minutes is still large enough for bacteria to reproduce at least once.

Intermediary agents delivered raw milk every morning by different means. Motorcycle was the major transportation means of collectors. Using this kind of means, they could move flexibly in Hanoi capital to reach the fresh milk shops. However, its disadvantage was that the capacity was limited. Thus, a few collectors having a large amount of traded milk utilized both small truck and motorcycle to deliver raw milk to the milk factory and to fresh milk shops.

Collectors and the co-operative used transportation means without preservation facilities to deliver raw milk. They contained the milk into churns and then transported to the milk factory by using a small truck. Because of this fact, some indicators of milk quality such as the temperature of the milk and number of bacteria did not usually meet the standards of the factory.

While the co-operative had to rent a truck to deliver raw milk, the collection station used its own tanker truck. The milk was being preserved during the delivery, so generally milk quality from the station was maintained and improved. This may be the main reason to explain the case of the higher price received by it.

5.5 Pricing and quality practice

Prices of raw milk were different depending on its quality as well as on types of buyers. Currently there are two sets of quality standards and thus, two pricing methods set by different buyers. The following section gives a brief description of this issue.

5.5.1 Pricing and quality practices at milk collection points, and Nestle milk factory

Collectors, the milk collection co-operative, the Bavi station, and Nestle Milk Factory used the same quality criteria to buy raw milk. Every morning and afternoon, usually before 8 o'clock (a.m.) and 6 o'clock (p.m.) farmers deliver their milk to the collecting points. Raw milk will be checked by simple quality tests, such as organoleptic tests (smell, appearance, taste), alcohol test, and lactometer test (for determining specific gravity of the milk). However, the most important criterion for pricing was the specific gravity of milk. There was six milk grades based on this indicator. Levels of milk price combined with their quality standards are expressed in Table 5.5

Table 5.5: Quality standards and respective price levels of raw milk

(Issued by collectors, the co-operative, Bavi station and Nestle milk factory)

Levels of specific gravity	Grade	Prices ('000 VND/kg)	
		Hatay	Hanoi
> 1.0321	Grade A	3.0	3.15
1.0301 – 1.0320	Grade B	2.8	3.1
1.0281 – 1.0300	Grade C	2.7	3.0
1.0261 – 1.0280	Grade D	2.6	2.9
1.0241 - 1.0260	Grade E	2.5	2.7
< 1.0240	Grade F	2.4	2.6

Source: Survey, 1999

Advantages of lactometer testing may be the main reason behind the choice of this quality indicator. According to Berg (1988), specific gravity of milk is the ratio of

the weight of a volume of milk compared to the weight of the same volume of pure water. Thus, it is often used as a rough indication of whether milk has been adulterated with water. Moreover, the buyer could estimate solid contents of the milk after having taken its specific gravity. Except for the above characteristics, the determination of specific gravity by using lactometer was simple. The test took short time, so it helped the buyer to be able to deal with many farmers during limited time schedules. The buyers as well as farmers could look at the lactometer reading to know what the specific gravity of the milk was, and thus they can determine their respective prices.

When asked about the basis for intermediaries to set price, most of them replied that they based on the price of the Hanoi milk factory where large volumes of their milk was resold. Regarding some agents who latterly joined the milk business, they looked at local market price. Therefore, milk price is said to be quite unique in each location. Those levels of price were reported to be unchanged for a whole year. Moreover, they also did not fluctuate considerably in current years. This might be due to the reason that there was stability in the price level and quality standard of the Hanoi milk factory last years.

The data in Table 5.5 showed that most levels of price between subsequent grades varied by 100 VND/kg for both locations. Milk prices also varied by location. Overall, Hanoi farmers received a higher price than Hatay farmers did. For example, the Bavi station set a price at 2,800 VND per kg of raw milk belonging to grade B, while the co-operative in Hanoi offered 3,100 VND per kg of that milk. This may be a major reason behind the higher percentage of farmers being unsatisfied with the price in Hatay. The results of the survey on farmers' opinions about the above price levels indicated that 55% of the total farmers in Hatay were not satisfied. There were only

7.5% and 37.5% of them considering it as a satisfactory and acceptable level, respectively. About 68% of the total Hanoi farmers answered that those levels of price were acceptable. However, only 14% of the total farmers in Hanoi felt satisfied with the prices.

Based on this standard, most of the milk delivered to collecting points fell under grade B and C (Table 5.6). The grade B accounted for over 80% of total marketed milk amount in both locations. Although buyers offered six levels of milk quality, only the first four levels were common. This indicated that milk quality produced by farmers was quite good. However, the amount of raw milk having grade A was still small, constituting only 5.7% and 6.1% of the total marketed milk amount in Hanoi and Hatay, respectively. Hence, improvement of milk quality was necessary for farmers so that they could get a higher price.

Table 5.6: Milk quality practiced by dairy farmers in different locations

(Unit: %)

Location	Grade A	Grade B	Grade C	Grade D
Hanoi	5.7	83.7	10.0	0.6
Hatay	6.1	84.1	9.1	0.7

Source: Survey, 1999

Note: The figures are percentages of the total milk quantities marketed by farmers.

5.5.2 Pricing and quality practices at Hanoi milk factory

Generally, milk collection is done twice a day, in the early morning and late afternoon. Intermediary agents preserve amounts of afternoon milk overnight. Then this volume is mixed with the milk bought in the next morning, and delivered to the

factory. Any one who sells raw milk to Hanoi milk factory encounters a strict test of milk quality. The milk has to satisfy criteria of organoleptic, chemical-physical components, and microorganism. The regulations can be summarized as follows:

- Organoleptic criteria:

- Raw milk must be contained in aluminum or stainless steel containers.
- Status of the milk ought to be homogenized, unskimmed, and have no extraneous matter.
- Color of the milk should be yellowish tinge.
- Milk has to have specific smell of cow milk, free of off-flavor and -odors.
- The milk must not be precipitated when it is tested by alcohol of 75°C.

When above criteria are met, next ones will be checked.

- Criteria of chemical-physical components

- Total solids should be greater than 12%.
- Fat content should be equal or greater than 3.5%.
- Titratable acidity should be greater than 0.13% and less than 0.16% calculated as lactic acid.
- Temperature of raw milk should be less than 12°C.

- Micro-organic criteria

- The milk must be free from diseases being transmissible to human.
- Total number of microorganism is determined by methylen blue method.
The time that methylen blue decolors should be over or equal 3 hours.
- The time that lactic acid bacteria ferment milk sugar and form acid lactic should be more than 3 hours.

When all above criteria are met, price of raw milk will be 3,550 VND/kg at the factory. If the milk does not obtain these quality standards, the factory will not buy or buy at lower price. Discounted prices depend on satisfied levels of each criterion. Following information show discount levels of price based on an indicator of quality (i.e. temperature, or fat content, or total solids, etc).

If temperature is greater than 12°C, each higher 1° c will be discounted by 4.5 VND per kg of raw milk.

Unless time for bacterial fermentation is satisfactory, discount price will be 1500 VND per kg of raw milk.

Table 5.7: Discount levels of price according to a quality indicator

Fat (%)	Discount price (VND/kg)	Total solids (%)	Discount price (VND/kg)	Time methylen decolored (hours)	Discount price (VND/kg)
≥ 3.5	0	>12	0	≥ 3	0
3.3 - 3.5	100	11.7 - 12	100	3 - 2.5	200
3.0 - 3.3	200	11.5 - 11.7	200	2.5 - 2	400
< 3.0	Not buy	11.0 - 11.5	300	< 2	Not buy
		10.8 - 11.0	500		

Note: While considering one quality indicator (i.e. fat), remaining indicators (solids, temperature, etc.) were supposed to be satisfied with the standards of the factory.

Source: Survey, 1999

In comparison with quality standards offered by intermediaries, the regulation of the factory is said to be much stricter. More quality indicators are tested, and so price received by selling agents may be low if their milk does not meet some quality

indicators. The survey result indicated that collectors and the co-operative received lower prices from the factory than Bavi station due to their poorer qualities. Commonly, their milk did not meet two or three indicators of quality. Consequently, aggregate levels of discount price went up to 200- 400 VND/kg. By using sample technique, milk quality from the co-operative and from the station observed over a few days is presented in Table 5.8 and Table 5.9, respectively.

These data showed that the indicator of total solids usually did not satisfy with the standard of the factory; so discount price of 100 VND was common for both locations. This may be because most amounts of raw milk that they bought from the farmers had the quality of grade B. Whereas the collection station had a little problem with respect to micro-organic test, numbers of micro-organism existing in the co-operative and collectors' milk sometimes were larger than regulated level. The time that methylen blue decolorized was less than three hours (the faster the methylen blue decolors, the higher the number of micro-organism exists in the milk). Therefore, aggregate levels of discount price were very high for a few days. For example, on the 20th of April 1999, total discount prices reached to 509 VND/kg; so the co-operative only received a price of 3,041 VND/kg from the factory. The poorer refrigerated facilities of the co-operative and collectors might largely explain the situation.

When asked about problems in the process of procurement at the factory, most of the middlemen have complained about its implementation of the strict tests. The sellers indicated that analysis of quality indicators was done by staff in a laboratory without their participation. After waiting outside for hours, they were announced which indicators met the standard of the factory and which ones did not meet. This made them unsatisfied, especially when they received a low price.

Table 5.8: Milk quality practiced by the co-operative (measured at the Hanoi milk factory)

Date	Traded amount (kg)	Quality indicators obtained by the co-operative					Discount price according to each quality indicator (VND/kg)					Total discount prices (VND/kg)	Received price (VND/kg)
		Fat (%)	Solids (%)	Temp. (°c)	Time meth. (hours)	Test of BF (s or un)	Fat	Solid	Temp.	Time meth.	BF		
1 st March	857	3.48	11.60	10	3.0	s	100	200	0.0	0	0	300.0	3,250.0
10 th March	852	3.50	11.74	13	2.5	s	0	100	4.5	200	0	304.5	3,245.5
20 th March	814	3.50	11.72	11	3.0	s	0	100	0.0	0	0	100.0	3,450.0
30 th March	874	3.51	11.76	12	3.2	s	0	100	0.0	0	0	100.0	3,450.0
10 th April	832	3.55	11.85	13	2.8	s	0	100	4.5	0	0	104.5	3,445.5
20 th April	850	3.50	11.71	14	2.4	s	0	100	9.0	400	0	509.0	3,041.0
30 th April	824	3.51	11.70	13	2.6	s	0	100	4.5	0	0	104.5	3,445.5
10 th May	749	3.53	11.82	14	3.5	s	0	100	9.0	200	0	309.0	3,241.0
20 th May	768	3.50	11.73	14	3.2	s	0	100	9.0	0	0	109.0	3,441.0
30 th May	812	3.52	11.81	15	2.6	s	0	100	13.5	200	0	313.5	3,236.5

Note: Temp. denotes for the temperature of raw milk, time meth = time period that the methylen blue decolors,

BF = bacterial fermentation, s = satisfied, and un = unsatisfied.

Source: Survey, 1999

Table 5.9: Milk quality practiced by the Bavi collection station (measured at Hanoi milk factory)

Date	Traded amount (kg)	Quality indicators obtained by the station				Discount price according to each quality indicator (VND/kg)						Total discount prices (VND/kg)	Received price (VND/kg)
		Fat (%)	Solid (%)	Temp. (°c)	Time meth. (hours)	Test of BF (s or un)	Fat	Solid	Temp.	Time meth.	BF		
1 st March.	564	3.52	11.76	10.0	3.5	s	0	100	0	0	0	100	3,450.0
10 th March	550	3.55	12.00	10.5	3.0	s	0	0	0	0	0	0	3,550.0
20 th March	548	3.50	11.72	11.0	3.0	s	0	100	0	0	0	100	3,450.0
30 th March	474	3.53	11.87	12.0	3.2	s	0	100	0	0	0	100	3,450.0
10 th April	436	3.56	12.01	11.5	3.3	s	0	0	0	0	0	0	3,550.0
20 th April	434	3.52	11.71	12.0	3.0	s	0	100	0	0	0	100	3,450.0
30 th April	426	3.51	11.70	11.0	3.2	s	0	100	0	0	0	100	3,450.0
10 th May	404	3.50	11.70	11.5	3.5	s	0	100	0	0	0	100	3,450.0
20 th May	423	3.51	11.71	12.0	3.2	s	0	100	0	0	0	100	3,450.0
30 th May	394	3.54	12.00	12.0	3.1	s	0	0	0	0	0	0	3,550.0

Note: Temp denotes the temperature of milk, time meth = time period that methylen blue decolors, BF = bacterial fermentation,

s = satisfied, un = unsatisfied.

Source: Survey, 1999

5.5.3 Price and quality practice at fresh milk shops

Fresh milk shops are said to be an attractive market for both farmers and intermediary agents. The owners of shops usually accepted higher prices than the factories. Moreover, they did not check criteria of micro-organism as well as chemical - physical components of raw milk. Commonly, only sensory evaluation is implemented by them. The survey results indicated that the price of raw milk at this market ranged from 3,500 to 4,800 VND/kg varying by shop and season. Overall, milk shops absorbing large amounts of raw milk offered lower prices than the small shops. Because of receiving higher price and undergoing a simple quality test, any one who has penetrated this market tries to maintain it. This might be considered as tangible ties that make the quality of the raw milk to be assured when it was sold to the shops.

Although milk price at milk shops was usually higher, amount of raw milk absorbed by them was small. Therefore, it was not easy for everyone to enter this market. Commonly, only sellers of raw milk having suitable transportation equipment and understanding transportation conditions of the capital could participate in the marketing channel. The survey also revealed that about 59% of the total shop owners bought raw milk from their relatives and friends. Its remarkable characteristic is that buying quantity and price of raw milk fluctuated significantly according to weather condition. In summer and autumn (second and third quarters, respectively) demand for fresh milk was higher than demand in winter and spring. Hence, quantity of raw milk absorbed by shops was also larger (Figure 5.3). On an average, the owner of a shop bought 1.3 tons of raw milk in three months of summer (14.4 kg/day), while this number dropped to 0.5 tons in winter (fourth quarter).

The milk price also changed in the same trend. The raw milk sellers received higher prices in the hot season, which was about 4,300 VND/kg. On the contrary, due to lower demand in spring and winter, smaller amounts of raw milk was absorbed by shops, and the offered price was thus lower (an average of 3,900 VND/kg). The fluctuation of demand for raw milk made difficulties for sellers of raw milk, especially the sellers who participated only in one marketing channel, particularly to this market. Sometimes they could not sell out the quantity of raw milk due to sudden changes in weather conditions. The risk that was involved to farmers and intermediaries selling raw milk to the milk shops might be one of the reasons to explain why the price was higher when the amount purchased increased. This price-quantity relationship in the fresh milk shops sector could be considered as a thin market where prices are not indicative of supply and demand, and are subject to manipulation (Internet, [http://vms.www.uwplatt.edu/...](http://vms.www.uwplatt.edu/)).

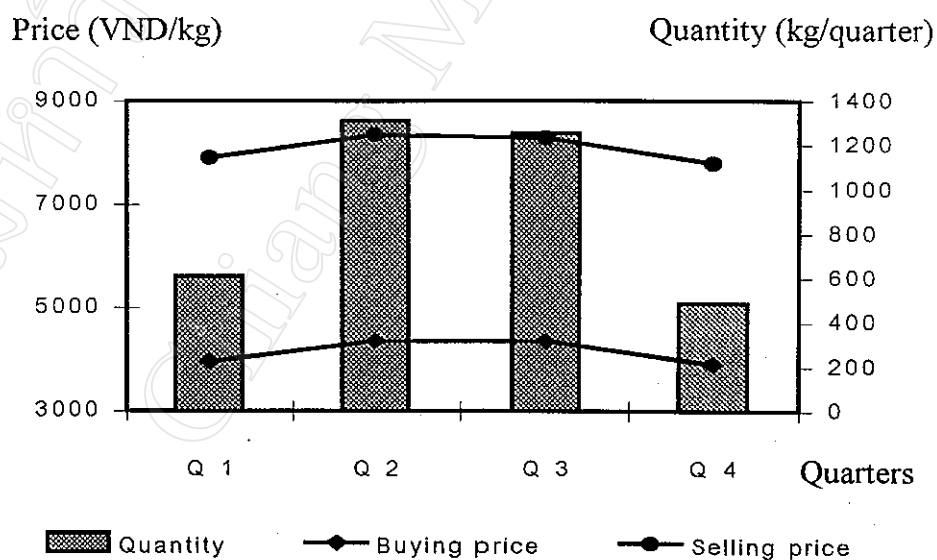


Figure 5.3: Average buying quantity and prices of milk shops in the study areas

5.5.4 Selling and buying price of intermediaries in the region.

Among intermediary agents, the collection station collected the highest volume of raw milk which reached an average of 25.8 tons per month. To the contrary, most collectors were small in size. They usually purchased less than 2 tons of the milk in a month. The survey indicated that 66.7% of the total sample collectors participated only in one marketing channel, i.e. to fresh milk shops. Because those shops absorbed limited amounts of milk, the buying quantity of the collectors was usually small. However, there was 33.3% of the total collectors having a large amount of traded milk. They could buy from 12 to 20 tons of milk per month and then sell it to both fresh milk shops and the factory. On average, a collector purchased 7.5 tons of milk in a month. As mentioned, benefits to members in the co-operative so far, did not differ significantly from that of non-members therefore, it was not so attractive for farmers to join. The co-operative bought an average volume of 18.6 tons of milk per month from its members.

Except for the price at some milk shops, the buying price of raw milk was pre-determined by buyers according to given quality standards. Moreover, the survey also indicated that buying prices, which were offered by intermediaries to collect raw milk from farmers, were rooted in the offer prices of the Hanoi milk factory. This feature might be one of the reasons to explain the difference between two levels of prices bid by agents in different locations. Overall, buying price of middlemen in Hanoi was 300 VND higher than that in Hatay. The milk quality was not found to be significantly different between the two locations (Table 5.6); so this gap was largely due to different offers.

Table 5.10: Quantity and pricing practice of intermediary agents

Agents	Aver. buying amount (ton/month)	Aver. buying price (VND/kg)	Selling price (VND/kg)		
			Average	At factory	At shop
Collectors	7.5	3,100.2	3,603.8	3,358.9	4,399.4
Co-operative	18.6	3,099.2	3,353.5	3,353.5	-
Coll. station	25.8	2,800.7	3,747.9	3,490.2	4,053.9

Source: Survey, 1999

When compared among intermediary agents, the highest selling price was 3,748 VND per kg with respect to the collection station, followed by collectors, 3,604 VND/kg, and the lowest one was 3,354 VND/kg in the case of the co-operative. The fact behind this result is that the selling price of middlemen depends not only on milk quality after preservation and transportation processes, but also on the marketplaces where they sold. At factory, milk quality of collectors and the co-operative was quite similar, so their selling price was not so different. For instance, the co-operative received average selling price of 3,353 VND/kg while that figure was 3,359 VND/kg with respect to collectors. In addition to the volume of the milk sold to the factory, the collector and the collection station also delivered their milk to fresh milk shops. On average, the station received 4,054 VND for a kg of raw milk at the shops. This was one of the reasons behind the lowest price received by the co-operative, who did not participate in this channel.

5.6 Marketing costs

Because information on activities of milk factories were not available, marketing costs in this study are mainly focused on middlemen (collectors, the co-operative and the collection station) and fresh milk shops.

Table 5.11 shows the marketing cost of each intermediary agent, which varies from 3 VND to 400 VND per kg of raw milk. The station had the highest marketing cost that reaches 630.5 VND per kg. The high cost for this agent was mainly due to additional transportation costs and depreciation. The marketing cost of collectors was similar to that of the co-operative.

Table 5.11: Marketing costs of intermediary agents

(Unit: VND/kg)

Items	Collectors		Co-operative		Collection station	
	Cost	Percent	Cost	Percent	Cost	Percent
Transportation cost	77.0	34.54	97.4	42.19	135.2	21.44
Labour cost	47.8	18.95	45.6	19.77	69.7	11.06
Electricity	23.5	9.05	15.5	6.73	58.4	9.26
Loss	12.8	6.05	11.1	4.81	13.2	2.09
Depreciation	42.1	18.03	32.4	14.05	298.6	47.37
Other costs	28.8	13.38	28.7	12.45	55.3	8.78
Total costs	232.1	100.00	230.8	100.00	630.4	100.00

Source: Survey, 1999

Concerning the cost component, the data indicated that the differences in marketing cost amongst middlemen were largely because of the differences in depreciation of housing, equipment and due to transportation costs. Owning more modern equipment, the collection station incurred depreciation cost of 298.6 VND per kg of raw milk, which was even higher than the marketing cost of collectors or the co-operative. While depreciation was a major cost of the station covering 47.4% of the total cost, transportation cost was the main cost of collectors and the co-operative. On average, collectors spent 77 VND to transport 1 kg of raw milk to buyers, which was

about 58 VND lower than that of the station. Although average distance covered per route was less, transportation costs of the co-operative was still higher when compared to this item for collectors. It reached 97.4 VND/kg. The result may be due to the fact that the co-operative had to rent equipment to deliver its milk at a fixed cost regardless of the volume of raw milk.

There was a difference in tax payment amongst marketing agents. The survey revealed that the collection station, which is a business unit of state-owned enterprise, had to pay turnover tax of 1% of the total sale value, whereas collectors did not pay any tax. This also made the marketing costs of the station higher than that of the others. In Table 5.11, other costs which largely included tax payment amounted to 55 VND/kg in the case of the station, but it was 29 VND per kg with respect to collectors and the co-operative.

Regarding fresh milk shops, the owners had to spend about three thousand VND to process and sell one kg of fresh milk (Table 5.12). Their major costs were labour, electricity, and fuel. In which, labour cost constituted 42.2% of the total marketing costs. Depreciation was also taken into account as a main cost item covering 9.1% of the total cost or 266 VND per kg of raw milk.

The difference between shops and intermediaries is that the owners of shops take responsibility for processing and selling fresh milk, whereas storage and transportation of raw milk are middlemen's main tasks. Therefore, components of the cost were slightly different. For example, the owners of milk shops did not have to incur transportation cost, which was a major cost of middlemen. Instead, they had to spend about 316 VND of fuel to process one kg of raw milk.

Table 5.12: Marketing costs of fresh milk shops

Items	Cost (VND/kg)	Percentage (%)
Fuel	316.5	10.8
Labour cost	1,238.8	42.2
Electricity	396.2	13.5
Loss	40.9	1.4
Sugar	186.0	6.3
Depreciation	266.4	9.1
Rent shop	198.1	6.8
Tax	120.0	4.1
Other costs	170.7	5.8
Total costs	2,933.6	100.0

Source: Survey, 1999

5.7 Marketing margins

The data in Table 5.13 indicated that net marketing margins were different for each type of marketing agent, which ranged from 24 VND to 1,014 VND per kg of raw milk. The owner of a milk shop received the highest net margin of 1,014 VND/kg, followed by the station with 316.8 VND per kg of raw milk. The big difference between net margins of the shops and middlemen showed high benefits for milk processors.

The findings revealed that intermediary agents could get higher margin if they sold their milk to both the milk factory and to fresh milk shops. The co-operative had only one flow of raw milk to the factory. Moreover, its quality of raw milk did not meet the standards of the factory. Consequently the co-operative had the lowest net margin, which was about 24 VND per kg of raw milk. The collection station had the

advantage of a lower buying price, but incurred high levels of transportation cost and depreciation. Thus, its margin was only slightly higher than that of collectors.

Table 5.13: Marketing margin of each marketing agent

(Unit: VND/kg)

Items	Collectors	Co-operative	Collection station	Shops
Buying price	3,100.2	3,099.2	2,800.7	4,228.4
Marketing cost	232.1	230.8	630.4	2,933.6
Selling price	3,603.8	3,353.5	3,747.9	8,176.1
Net margin	271.5	23.5	316.8	1,014.2

Source: Survey, 1999