

## CHAPTER VII

### SUMMARY AND RECOMMENDATION

#### 7.1 Summary

Although potential exists, milk production in Vietnam met only 8.6 percent of the total milk consumption. The study was thus conducted to unravel the underlying prospects and constraints.

The study focused mainly on analyzing milk production and marketing systems in the RRD, where milk output met less than 5% of the estimated demand for local consumption. The survey was carried out from March to May in 1999 covering two provinces in the RRD, namely Hanoi and Hatay. The random sampling method was applied to select 90 farm households and 30 marketing agents. Descriptive statistics, gross margin and production function analyses were used as the principal methods for data analysis.

About 95% of the total household heads were in the active age group of 24 to 60 years and more than 90 percent of them had at least secondary education. Being a hilly zone, Hatay farmers were assigned larger areas than Hanoi farmers. On average, a household located in Hatay holds 28.1 sao (10,116 m<sup>2</sup>), while this indicator was only 11.6 sao (4,176 m<sup>2</sup>) in the case of Hanoi households.

Farming system of the study area was characterized by the integration of crops, cultivated fodder, livestock, trees and off-farm activities. Livestock was considered as a major component of the system. It contributed to 73.3% and 68.1% of the total household income in Hanoi and Hatay, respectively. Among animal

species, dairy cow was a dominant sharing around 90 percent of the total value of livestock production. Cropping pattern, which mainly included food crops like rice, corn, and cassava, were offered to provide food for home consumption and feed for livestock production. Because a source of manure was available, average productivity of crops in the study were found to be higher than national levels. In addition to crops, fodder production played also important role in the system. Nearly 100% of the total households located in Hatay allocated their land for growing fodder. However, there only were 52% of Hanoi farmers cultivating grass.

Most farmers needed to borrow money at the beginning of their farm establishment. Two sources were available for them, namely formal and informal sources. About 17% of the total samples could borrow money from milk factories, but they then had to sell their milk to the factories. Thus, they have accepted any level of price offered by the factories. Some others, who did not have chances to get access to formal sources and to their relatives, had to borrow money from village lenders at high interest rates (i.e. 2% per month).

According to each of the ecological, economical and rearing conditions, different crossing formulas are being applied in Vietnam. The survey revealed that there were four kinds of breed being raised by households in the study areas. They are crossbred Sindhi, F1  $\frac{1}{2}$ , F2  $\frac{3}{4}$  and F3  $\frac{3}{8}$  blood of HF. In which, F2  $\frac{3}{4}$  blood of HF cow was adopted broadly by Hanoi farmers covering 67.2% of total cow populations. To the contrary, Hatay households considered both F1  $\frac{1}{2}$  and F2  $\frac{3}{4}$  blood of HF cows as main breeds to rear.

Dairy farms were small in size. The number of households having 1-3 heads of cow accounted for 60% of the total samples. On average, a Hanoi household

owned 3.7 heads of cow, which was about 0.5 heads lower than that of Hatay household.

The feeding regime of milk cows was different between lactation stage and dry period. Commonly, the quantity of concentrate fed to dry cows was about 25%-30% of the amount applied for milking cows. Level of feeding varied by farmers and by kinds of breed. Hatay farmers applied higher amount of fodder to a cow than Hanoi farmers did. The F2 cow - the breed has capable of producing high yield in the region was fed the highest level of feeding, followed by F1 ½ blood of HF cow.

Mastitis, retained placenta, milk fever, diarrhea and dyspepsia were prominent diseases in the study area. The main routes through which the disease might come were bad sanitation, poor milking practices and injudicious practices of feeding. Therefore, the improvement of the above conditions is the best way to prevent spread of the diseases.

Costs of raising a cow varied by types of breed and by location, but in general ranged from 7.5 to 11.2 million VND per milk cow within a year. Among cost items, cost of feed was the highest. Labour cost took second position as constituting about 21%-28% of the total variable cost. Total cost per kg of milk was the lowest for F2 cow production, which were from 2,600 – 2,830 VND/kg depending on location.

Analysis of the profitability of milk production revealed that the farmers could benefit from raising cows. However, net return was only moderate. On average, the net return per milk cow in a year was only around 600,000 VND. The farmers adopted raising cows because they could utilize their abundant resources.

Moreover, cow raising generated amounts of cash regularly for them, and supported crop cultivation.

In Hanoi, farmers ranked incidence of disease as their most important problem on milk production, followed by lack of fodder. Hatay farmers recorded that their most important constraint was the low price obtained for raw milk. Disease was considered as the second most important problem. The poor access to credit was ranked as the third most important constraint for both locations.

Analysis of the marketing system showed that about 98% of the total milk output of households entered the market through different channels. Most of the Hanoi farmers sold their milk to collectors and the milk collection co-operative. Only 0.7% of the milk output was delivered directly to the milk processing factory. On the contrary, there was 45.6% of milk output in Hatay sold to the milk factory. The remaining quantity was largely sold to the milk collection station. After buying raw milk from farmers; collectors, the co-operative and the collection station resold it to the milk processing factory and/or fresh milk shops.

Numbers of buyers in the raw milk market were limited. In 1998 there was only one collection co-operative located in Hanoi, and one collection station in Hatay. Most farmers knew only a few middlemen who lived in the same commune. Since raw milk is a perishable product and its price was quite unique in similar locations, most farmers delivered their milk to buying points which were located near their houses.

The price of raw milk was pre-determined by buyers according to given quality standards. There were two sets of quality standards established by the two groups of buyers. The intermediaries i.e. collectors, the co-operative and the

collection station used the same quality criteria to buy raw milk. Their most important indicator in setting levels of price was specific gravity of milk. The highest price, which was offered for grade A, was 3,100 or 3,150 VND/kg depending on location. However, most milk output from farm households belonged to grade B whose prices were 2,800 and 3,100 VND/kg in Hatay and Hanoi, respectively.

Intermediaries bore risk because most of their milk was resold to Hanoi milk factory where stricter tests were applied. Raw milk has to satisfy criteria of organoleptic, chemical-physical components, and micro - organism. If raw milk meets all quality criteria of the factory, its price will be 3,550 VND/kg. Levels of discounted price depend on satisfied levels of each indicator. Having more advantage in terms of preservation facilities and transportation equipment, milk quality of the collection station was better than that of other intermediaries, so it obtained higher prices.

The owners of fresh milk shops offered higher prices than milk factories did, but the amount of raw milk bought by them was very small. Moreover, buying quantity and milk price fluctuated significantly according to weather conditions (i.e. demand for raw milk of a shop in winter was about one fourth of that in summer).

Marketing cost and margin were found to be significantly different between intermediary agents and processors. The owners of milk shops incurred marketing cost of 2,933.6 VND per kg of raw milk, which was about 2,303.2 VND/kg higher than that of the station. However, the highest net margin was also appropriated by them. On average, the owners of fresh milk shops enjoyed net margin of 1,014 VND per kg of raw milk, whereas collectors received only 272 VND/kg.

The outcome from statistical analysis indicated that milk output of household was correlated significantly and positively with dairy farm size, expenditure on feeds, labour, average percentage of HF blood in the household's cow herd, experience and the educational level of the household head. The results also showed that dairy farm size was the most important determinant of milk output, followed by concentrates and labours. Assessment of input use efficiency at mean level revealed that labour was slightly under-used, whereas concentrates and fodder were over utilized at the given prices of milk and respective inputs.

## **7.2 Conclusions and recommendations**

The farming system in the study area had commercial production oriented with close integration of dairy and crop components. Dairy farms did not compete in space with rice – the main crop in the region, but contributed to increasing productivity by supplying manure to the rice field. Other plants such as corn, cassava, and grass were largely cultivated to provide feed for rearing cows, so the competition for land among them was obvious.

Based on underlying quality standards, raising an F2  $\frac{3}{4}$  blood of HF was better in terms of benefit than rearing others. In the case of owning poorer raising skills and limited capital, dairy farmers could choose cows having lower percentage of HF blood in crossbred (i.e. F1  $\frac{1}{2}$  of HF blood cow). They might generate moderate net return to the farmer. Dairy farmers only benefited from rearing a crossbred Sindhi when they possessed idle resources.

The fear about incident of disease, lack of capital and fodder, and unsatisfied price were main reasons behind the low cow population in the study area. Thus, to develop cow herd in the region, it is first necessary to solve these constraints.

There was lack of cooperation among dairy farmers. For both locations, most farmers did not organize themselves into any kind of co-operative (i.e. credit group, or producer group). As a result, they had less bargaining power.

The price of raw milk was predetermined by buyers according to given quality standards. Thus, the best way to get higher price is the improvement of milk quality. There was still room for both dairy farmers and intermediary agents to receive higher price by this way.

Dairy farmers and intermediaries could receive higher prices from milk shops than from factories. In addition, the owners of milk shops also enjoined high net return. Thus, the development of the milk shop network may give benefit for both sellers of raw milk (farmers and intermediaries) and buyers (owners of the shops).

Given the small herd situation, an increase in milk output from the region must rely heavily on raising cows which have high percentage of HF blood (i.e. F2 cow), and on improving knowledge in husbandry techniques of dairy farmers.

In the context of existing milk production and marketing systems and with the concern of improvement of farmers' income, the government's interventions should be done efficiently in both fields. Based on the outcome of this study, several recommendations would be made as follow:

1. Training courses on husbandry should be held regularly and efficiently. Especially, new farmers should be trained before they start operating their dairy farms. Giving the farmers more knowledge in disease prevention, milking methods, and herd management may contribute to increasing milk output in the region. In addition, improvement of veterinary and milk collection networks at the raising zones is also very necessary.

2. Local leaders should pay attention on zoning concentrated grass production areas in order to limit the negative impact on crop fields (Page 38) and to contribute to providing enough fodder for feeding.

3. Dairy farmers should be encouraged into kinds of co-operation such as credit groups, marketing groups, and producer groups to help one other and have more bargaining powers.

4. Processing waste of dairy farms (i.e. urine, manure) should be taken into account by both authorities and dairy farmers. The government should partially support budget to the households applying technology of bio-gas manufacture from the waste of dairy farm, so that pollution is limited.

5. If the prices of raw milk and respective inputs are unchanged, the major productivity improvement should rely heavily on raising high percentage HF blood cows (i.e. F2 cows) and improving feed production. However, institutional interventions are very essential for rationalizing the system of milk pricing in the region. The government should seriously pay attention to price policy.

6. Many farmers in the study area had poor access to credit. Therefore, to improve breed and expand herd size, providing a reasonable credit system (longer term and low interest loan, simplification of lending procedure) is also very necessary.