SUMMARY AND CONCLUSIONS

The data presented in this paper explore the answers to several questions raised about the Certified Milk Industry. These questions are from several sources, including nutritionists, health officers, consumers, and the certified dairy operators themselves.

The first issue is the question: "Is Certified Milk really safe?" The quality control program that is strictly enforced by the AAMMC as presented in "Methods and Standards" (in the appendix of this paper) would indicate that there is very little health risk inherent in Certified Milk.

There was a time when the spread of disease through milk was a very serious matter. Public health reports identified over 200 milk-borne epidemics in this country during the 1911-15 period. Testing programs, in effect since the early 1930s have done a lot to keep these diseases under control. Pasteurization and aseptic handling have produced a commercial milk supply that is free from disease organisms. Today, consumers need give little thought to the possibility that market milk might be unsafe.

Raw milk sales are a minor factor in our commercial milk marketing today. Some certified raw milk is available in some markets, but pasteurization of the total

supply for human consumption is compulsory in so many of our markets that most customers have no contact with raw milk.

Probably most farm families drink raw milk from their own supply. This is a very unsafe practice.

Raw milk is never sterile, even when it is produced under the strictest sanitary care. Milk is subject always to contamination with many organisms, a few of which can cause disease. The excellent nutritional balance of milk enhances the ability of any microbial contaminant to survive.

Disease organisms can be a problem in raw milk even if the total count is low. Certification minimizes this.

In the last half-century, our society has moved from a largely rural environment to a more urban way of life. Consumers are further away from the farms and ranches where food is actually produced; thus, more processing, storage, and transportation of food are required to provide the urban dweller with his daily diet.

A sophisticated food processing and delivery system has evolved which supplies the consumer with a greater variety of food with a higher level of safety than ever before in history. In spite of this, questions continue to be raised over both the safety and the nutritional value of our food supply (Deutsch, 1975).

The idea of food safety, as viewed by both scientists and government regulators, includes a constant comparison between risks and benefits. Even the consumer, although he

or she may not think in those terms, makes many day-to-day decisions on the basis of a judgment of the benefits to be achieved in comparison to the risks inherent in the act being considered.

It should be clear, however, that zero risk or absolute safety in any area, including food, is unattainable. If one accepts the concept that some risk is inevitable, the question arises as to who should judge whether a risk is "acceptable." There are moral and economic issues involved.

The concept of risk/benefit in foods has raised many problems for food scientists, regulatory officials, and the average consumer. All agree on the goal of a safe, wholesome food supply, continuously available in adequate amounts. However, in discussions as to the technology required to achieve this goal, the unanimity disappears. The complex food production and delivery system is not well understood by the average consumer, and it is human nature to fear or distrust what one does not understand.

The U.S. Department of Agriculture's Economic Research Service has estimated that the world food supply must increase about 2.4% per year if the increased world population is to be fed. Pressure on food production is increasing from year to year, and we will soon reach the point where every technological concept in food availability will be needed to keep up with population growth. Can raw certified milk survive this pressure? As increasing efficiency in producing food becomes necessary, it may become

impossibly expensive to produce raw certified milk. However, as long as consumer demand is sufficient, the inevitable price increases in the future should be able to keep raw certified milk on the market.

The next issue involves the consumers and their feelings about Raw Certified Milk. The price of milk in any form varies from state to state. In Atlanta, where Mathis Dairy is located, milk is one of the highest priced commodities (compared to other cities) that is commonly purchased. In New York City, Gates Milk is sold primarily in health food stores, where the cost is inevitably high. California, where Alta Dena dairy is located, has fared much better due to milk price controls.

Citing the most recent statistics (1976) compiled by the Bureau of Labor Statistics of the U.S. Department of Labor (month of September), one-half gallon of fresh, vitamin D milk sells in the Los Angeles-Long Beach metropolitan area for 14.5 cents below the U.S. average of 82.9 cents.

In March, 1975, when hearings were last held to eliminate California milk price controls, the U.S. average was 79.2 cents compared to 71.4 cents in the Los Angeles-Long Beach area.

Following is a list of all Standard Statistical Metropolitan Areas included in the September report which are prices published by the Bureau of Labor Statistics of the U.S. Department of Labor and are estimated from special

benchmark averages computed annually and adjusted for price changes to the current month as shown by data collected for the Consumer Price Index.

U.S. Average	$ .89.2
Anchorage	$1.41.0
Atlanta	.97.9
Baltimore	.85.7
Boston	.78.6
Buffalo	.85.9
Chicago	.84.6
Cincinnati	.82.8
Cleveland	.72.8
Dallas	.85.9
Detroit	.72.9
Honolulu	1.10.7
Houston	.97.9
Kansas City	.79.2
LOS ANGELES-LONG BEACH	.68.4
Milwaukee	.79.9
Minneapolis-St. Paul	.77.1
New York	.85.3
Philadelphia	.87.8
Pittsburgh	.78.7
St. Louis	.83.0
SAN DIEGO	.70.0
SAN FRANCISCO-OAKLAND	.70.8
Seattle	.80.9
Washington, D.C.	.85.2

Raw Certified Milk is always somewhat higher in price than pasteurized milk. However, the survey results indicate that raw certified milk customers seem more than willing to pay this price.

The last issue involves the actual nutritional superiority of raw certified milk. The data presented in this paper show that the product does in fact have a significantly higher level of some water soluble vitamins than the other pasteurized milks tested. Since Americans are definitely becoming more nutrition conscious, and since milk is a very important item in most U.S. diets, it follows that Certified Milk could be well received on the American market. Even with increased nutrition awareness and education, however, Americans are not meeting our national dietary goals.

Nutritional considerations are vitally important factors in setting the direction for food and agriculture policy. As part of the U.S. Department of Agriculture's responsibility in this area, the Agricultural Research Service has begun to reexamine its national dietary guidelines (Peterkin, 1978).

The Committee report shows the sources of food energy, such as fat, protein, complex carbohydrate, and sugar for the "current diet" and for the proposed Dietary Goals. The current diet figures are based on the nutritive value of the U.S. per capita food supply (food disappearance). The committee report calls for:

1. A decrease from 42% to 30% of energy (calories) from total fat.
2. A decrease from 16% to 10% of energy from saturated fatty acids
3. No change in the level of energy from protein (12%).

4. An increase in total carbohydrate consumption to account for 55-56% of energy intake.

5. A two-fold increase in the energy from complex carbohydrates, mainly from grain products and some vegetables.

6. A decrease in sugar from 25% of energy to 15%. This refers to total sugars, including sugars found naturally in foods such as fresh fruit.

Dietary Goals are also specified for cholesterol--about 300 mg per day--and for salt--about 3 g per day. No goal or energy allowance is specified in the report for alcohol, which provides substantial amounts of energy in many U.S. diets. U.S. diets, as measured by food disappearance, do not meet the Dietary Goals. (Table 25).

Table 25. Dietary Goals and Food Consumption Patterns

Item	Dietary Goals	Food Consumption Pattern			
		Child, 6-8 years	Male, 20-54 years	Female 20 - 54 years	Average
Percentage of energy from:					
Carbohydrate	55-60	49	44	47	47
Sugar	10	18	14	16	16
Fat	30	38	42	39	40
Saturated fatty acids	10	14	14	14	14
Protein	12	14	14	14	14
Mg of cholesterol per day	300	312	553	374	412

(Peterkin, 1978)

To meet these goals, more people will have to decrease their consumption of highly processed and refined foods. New technology, while necessary to process enough foods for a year-round adequate supply, will have to channel its development into foods that can be processed efficiently. There will always, however, be a demand for fresh meat, dairy products, fruit, and vegetables in this country.

Raw Certified Milk is unique in that it is the only significant source of a complete food in our diet that is not processed in some form before being eaten. It is only appropriate that consumers have singled out this food as an issue involving their freedom of choice to buy a food and weigh the risk-benefit concept themselves. Some of the claims made for Raw Certified Milk may never be scientifically proven and some already have. Raw Certified Milk, although a minor factor quantitatively in our food market, is an outstanding example of the epitome of the highest quality of food that man has available. In every sense, it is a product that speaks for itself. From all indications, it is here to stay. Specific conclusions arrived at from this work include:

1. When Methods and Standards for Raw Certified Milk production are considered, risk of contracting disease from its consumption is highly unlikely.

2. Raw Certified Milk is respected by certified milk customers because it is one of the few highly nutritions

available that has not been processed.

3. Consumers of Raw Certified Milk are very concerned about the premium price they must pay for this milk, but remain staunchly willing to do so.

4. There may be an inherent factor in Raw Certified Milk that permits people who are allergic to pasteurized cow's milk to drink Raw Certified Milk without adverse effects.

5. There is a statistically significantly higher value of some of the water soluble vitamins in Mathis Raw Certified Milk than in pasteurized milk.

6. Sales of Raw Certified Milk are restricted by legalities in 14 states and by the lack of certified dairies in the United States. These factors would have to change before full-scale distribution could be achieved.

7. Further experimentation to prove or disprove some of the claims made for Certified Milk should be completed.