Today I will be discussing the strides the dairy industry is making in terms of value-added products. The efforts and research is spearheaded by Dr. Anthony Luksas and DRINC--Dairy Research, Inc.

Market needs, new technologies, and competition are the driving forces behind research and development at the DRINC Development Lab, which was founded on December 1, 1984.

The facility provides a link between basic research and commercial marketing of new technologies and products to expand the use of milk and dairy foods.

Ideas for development by the lab originate in the two divisions of DRINC. Dairy Research Foundation supports basic research through grant-in-aid programs at land grant universities.

DRINC Development, Inc., in addition to its basic mission of funding development by outside companies, reviews the scientific literature and current research for possible technologies applicable to the dairy industry.

Laboratory staff explore these possibilities to find methods to reduce costs of dairy production and processing and to find new products to expand the market for milk.

Some of the industry advances thus far are UHT milk, Charm test, freeze concentration, concentration of milk by ultrafiltration, and an impending on-farm penicillin test as well as the limited introduction of products such as Pillsbury's Figurines, Alba '66 and Alba '77.

DRINC laboratory creates new or improved products from basic knowledge, proves there is a market for them and that they can be manufactured in large quantities, and then offers them in finished forms to dairies and food companies to produce and sell.

A preliminary analysis of three new milk products developed by the Interface Laboratory are presented:
1. A high-calcium milk
2. A flavored, carbonated milk
3. A dietary milk

Future Prospects for Fluid Milk

Current sales and future prospects for fluid milk shows a stable trend for total fluid milk sales from 1965 to 1984 and a continuation of that trend through 1989, based on a statistical projection from 1980-1984 sales data.

Since 1965, whole milk has been on a straight-line, downward trend, with a projected volume of 25.3 billion pounds in 1989. Low-fat milk has been on a straight-line path of sales growth, projected at a volume of 22.2 billion pounds in 1989. Skim milk sales have been relatively static since 1965, with 1989 volume projected at 2.8 billion pounds.

Since 1982, flavored milk (primarily chocolate milk) and buttermilk have shown signs of increasing sales that may signal prospects for product and market development for specialized varieties of milk.

In terms of gallonage, the historic and projected sales of total fluid milk describe a mature milk market.

Regional Variations of Milk Sales

There are major regional differences by total volume of milk sold and by types of milk sold. The Pacific, Mountain, and West North Central areas have the highest per capita consumption, in pounds, of total milk.

Pacific and West North Central areas are highest in per capita skim and low-fat milk sales. Whole milk per capita sales are highest in the North Atlantic and West South Central areas.

Regional variations in sales volume of total milk and types of milk have a bearing on any new milk product introduction, particularly the selection of test market areas. Reasons for such variation can probably be accounted for by:

- Degree of urbanization by region.
  Skim and low-fat milk tend to be more popular in metropolitan areas, which vary in numbers and population by region.

- Regional pricing variations by types of milk.

- Variations in traditional consumer preferences.

Fluid Milk and Competitive Beverages

In total volume, by pounds or gallons, fluid milk is a mature, non-growth category, and is likely to continue that course, given no change in current marketing environments and current product line. More significantly, in share of the total beverage market, fluid milk is a declining product.

Two of milk's major beverage competitors, soft drinks and fruit juices and drinks, are projected at substantial sales gains by 2000: soft drinks from 11.5 billion gallons in 1984 to 17.4 billion gallons in 2000, a 45 percent gain. Fruit juices and fruit drinks are projected to increase in sales from 2.5 billion gallons in 1984 to 3.9 billion gallons in 2000, a gain of 51 percent. For the same period, milk sales are projected to remain at a constant level from 1984 through 2000, from 5.0 billion gallons to 5.1 billion gallons, a gain of 1.5 percent.

Market share realignment among milk and other beverages by the year 2000 indicates soft drinks moving up from 43.1 percent in 1984 to 51.4 percent, fruit juice and drinks from 9.4 percent to 11.6 percent, and milk slipping from 18.8 percent to a share of 15.1 percent.

Milk's competitive position is further illustrated by per capita estimates of consumption. From 1975 to 1984, soft drinks have widened their per capita advantage over fluid milk from 8.9 gallons to 22.1 gallons.

Soft drinks have competed with milk in several basic ways. Soft drinks have competed directly with milk by major occasions of daily
consumption. Soft drinks have achieved comparatively high shares of consumption volume at lunch and dinner, traditionally two of milk's primary occasions of consumption. Soft drinks have achieved the status of a beverage to complement food at regular meal times for many individuals and families, as well as a beverage preferred for snacking occasions. The increase in eating away from home accounts, in part, for the gain in soft drink consumption at lunch and dinner occasions.

Sales and Consumption of Milk and Soft Drinks

Regional variations in comparative soft drink and milk consumption are rather marked. West North Central, New England, Mountain, and Pacific regions have the highest indices, indicating a relative preference for milk. Southern areas have the lowest indices, indicating a relative preference for soft drinks. To some degree, climate is a determining variable of beverage preferences. Soft drink sales have been demonstrated to correlate highly with temperatures. However, other regional, cultural, and traditional factors have an apparent influence on comparative consumption of milk and soft drinks.

The competitive index of milk and soft drink consumption generally declines with increasing age, up to 60 years and older, when the index favors milk consumption. The age segment 13 years to 39 years is particularly competitive for milk, with soft drinks having a favorable index, on the average, among this age segment.

Females have a comparatively higher proportion of soft drink consumption relative to milk than do males.

For the key volumetric segment for milk, 13 to 39 years, females are more favorably disposed than males to consumption of soft drinks.

Family size is another correlate of competitive consumption of milk and soft drinks. In general, the larger the family, the more favorable the competitive index for milk. Family size and its correlation with beverage consumption reflects other factors. Younger, two-member families tend to eat relatively more meals outside of the household, occasions that favor choice of soft drinks at McDonald's, Burger King, Pizza Hut, etc. Larger families may be more constrained by budget limits to choose milk over soft drinks for their children.

Future Market Position of Fluid Milk

Continuation of current beverage marketing trends forecasts a static volume of total fluid milk sales and a decline in milk's share of a growing beverage market.

If the Profit Impact of Marketing Strategy principles are accepted, milk has to be more aggressively positioned to compete effectively in the total beverage market. Recent increased in milk promotion by means of advertising and nutrition education represent major marketing advances. However, new product development on a broad diversified scale that includes new milk varieties offering an expanded range of consumer satisfaction, new forms of milk packaging, new products for the retail market and the food service market, products with profitable margins for processors, distributors, retailers and food service operators, products for national distribution that are stocked within retail stores (dairy section, beverage section, refrigerated section, frozen section, etc.), and products that can be promoted at significant levels of dollar investment.

Opportunity Analysis for Three New Milk Products

Changing consumer interests and needs, new dairy technologies such as ultrafiltration, and new market and consumer developments have identified a number of opportunities for milk product innovation. Three priority areas include:

1. High-calcium milk beverages, milk that provides a high proportion of calcium RDAs.

2. Flavored, carbonated milk beverages as an alternative to soft drinks.
3. Dietary milk, offering multi-nutrient values and a comparatively low level of calories.

By design, milk product development and positioning would be direct to light-volume milk drinkers and non-milk drinkers, to maximize incremental volume gains from new product marketing. Heavy and medium-volume milk drinkers account for a substantial proportion of total milk consumption. Product development and marketing would endeavor to minimize any competition for the market for current milk products.

**High Calcium Milk**

Market and consumer opportunity for a high-calcium milk is based on epidemiological studies that have observed a high degree of calcium deficiency among females. For the 18 to 35 year segment, 66 percent of females do not meet calcium RDAs. Over 35 years of age, 75 percent do not meet calcium RDAs. The long-term systemic consequences of calcium deficiency, osteoporosis among other problems, are well-documented medically, and are beginning to be recognized by the public.

**Opportunity Analysis**

*For Flavored, Carbonated Milk*

Opportunity analysis for flavored, carbonated milks is based on the continued market growth of soft drinks and fruit juices and drinks. Flavored milks offer an opportunity to maintain milk's share of market, thus generating new milk sales volume in a growing total beverage market.

New flavored, carbonated milks can offer multiple values of refreshment, nutrition and social values. Flavored milks could be a dairy item for the food service industry, particularly fast food restaurants. Flavored milk would also expand milk's effective distribution among retail stores.

For the longer-term, flavored milk, packaged, named, and positioned in contemporary styles to attract the basic market of 16 to 39 year olds who have a competitive index of milk/soft drink consumption so favorable to soft drinks.

**Dietary Milk**

Opportunity for a dietary milk is defined first by the static growth of skim milk, despite its being advocated extensively as a beverage for weight control and low cholesterol diets. A product offering multi-nutritional values of protein, calcium, low lactose, low cholesterol, with acceptable body and palatability, at efficient calorie levels would satisfy what appears to be a significant latent demand among females in the age range of 18 to 39 years, and perhaps in the age of fitness, such a product might appeal to a segment of health-minded males.

Another and related aspect of the opportunity for a dietary milk is the current level and projected growth of the total category of diet foods, in terms of calories, fat levels, sweetening agents, added nutritional reinforcement, reduced sodium levels, etc. An independent research firm has estimated the 1983 retail and food service market for the total diet food category at $26 billion in 1983, with a projected growth to $41 billion in 1990, in 1983 dollars, a growth of nearly 60 percent. A dietary milk could move along that growth curve.

**Butter and Margarine Markets**

Both the retail and food service sectors are important butter markets, retail accounting for 54 percent of butter volume sales in 1979, food service accounting for 46 percent. By contrast, margarine's volume was primarily accounted for by retail trade, 93 percent as against 7 percent of volume in the food service market.

Another way of looking at share figures is to compare each product by markets. Butter's share of total spread sales at retail is only 17 percent, margarine's is 83 percent. In the food service market, butter's share of total spread sales is 61 percent, margarine's is 39 percent.
Total market, per capita and share figures for butter and margarine, characterizing a mature market, define butter's market opportunity as developing competitive strategies and tactics to increase share of market, primarily by:

- New butter product development
- Developing cost efficiency of production and distribution for new butter products
- Developing butter products with sufficient margins for processors, distributors, and retailers to compete more effectively with margarine in distribution, product facings and promotion
- Developing butter products for the food service market to counter margarine and protect butter's valuable franchise among restaurants

Opportunity Analysis

Market Prospects

Expansion of the butter market by means of new butter product introduction would offer major benefits to the dairy industry, as outlined by statistics of spread consumption presented in the foregoing section.

- Reduction of government purchases of butter
- Increased milk utilization

UDIA studies of the consumer and food service spread market—butter and margarine—have identified an opportunity for:

- A lower-priced butter spread with acceptable taste and flavor qualities
- A butter product spreadable at refrigerated temperatures
- A butter product with sufficient processor margins to afford promotional dollars to develop the market
- A butter product with sufficient retail margins to generate distribution and shelf space
- A product that can serve both the retail market and the food service market

... all of which are designed product values of Butter/50.

Such product values in a new butter product can counter some of the constraints on the butter market:

- The price differential between butter and margarine, which established its market on the basis of attacking butter as the "high-priced spread"
- The superior volume of margarine's investment in advertising and sales promotion:
- total margarine advertising in 1982 was $21.5 million
- total butter advertising in 1982, brand and generic, was $7.7 million
- Technical improvement of margarine taste and flavor qualities to a trade-off level of reasonable quality for a price considerably less than the price of butter.
- Adaptation of consumer tastes to margarine to the degree that many younger people who were "raised on margarine" prefer its taste to the taste of butter
- In both the retail and food service markets, function related needs for a product that is spreadable at refrigerated temperatures. Cold butter is an operating problem for restaurants, requiring packaging in small serving units, use of ice with butter chips, causing spoilage, etc.
- Health and dietary issues: saturated fats and cholesterol, in particular,
which have led to proposed limits on butter consumption among health professionals, and promotion of margarine products containing no cholesterol

- Caloric concerns, which may be having more of a negative impact on butter than margarine, and which could be imposing some limits on the sales trends of total spread products (even though other types of oils and fats have been increasing in per capita consumption)

Market Planning

PIMS (Profit Impact of Marketing Strategy), an organization that has studied the economic performance of hundreds of companies, identifies the main driving forces of profitability as:

- Marketing high-quality products
- Technological innovation
- Competitive pricing, offering customer value
- Consistent, well-funded promotion to attain a significant share of market or market position
- High levels of volume production, which a significant market position requires
- Strong distribution and sales support

Positioning Strategies

A major volume opportunity for Butter/50 is minimizing the displacement of real butter in the marketplace. On the other hand, Butter/50 could be vulnerable to displacing sales of regular butter unduly. Assuming again that Butter/50 performs well in product evaluations, it would seem advisable to distance Butter/50 from regular butter by means of product and marketing positioning:

- Coining a generic name for Butter/50 that identifies it as a real dairy spread that has some of butter's desirable qualities, but not calling it butter in any form. Promoting a coined generic name would require sustained effort that could be more than compensated for by undisplaced butter sales and incremental sales of Butter/50.

- Promoting Butter/50 to margarine and blend products users:
  - by demography (younger, families with children)
  - by geography (in low butter development areas, which are primarily outside of the Northeast quadrant of the United States)

- Identifying Butter/50 with the REAL Seal, a requisite of any processor authorized to market the product (assuming patent protection)

Positioning Appeal

The main goal of positioning Butter/50 is to establish an optimal place within the primary zone of market competition, defined by product mapping of quality and price.

- Basic initial appeals suggested are high quality, competitive price and excellent value . . . a product with a unique flavor and texture

- A product that is easy to spread at refrigerated temperatures would be a secondary appeal, at least until basic product qualities have been established in the market

- Illustrated appeals could feature additive and spread usage (recommending regular butter for cooking and baking)

- Dietary appeals of reduced calories and cholesterol would be secondary to quality, price and value appeals
- Portrayal of users as younger families--young couples, families with young children--typical margarine users

- Positioning appeals targeted to the age segment 20 to 45 years, to average and above-average income classes, but not to the highest or lowest socio-economic groups

With the research that DRINC is conducting, the value-added products I have outlined today will be out in the market soon. Butter/50 is going into home placement now and will be available in test market at the beginning of 1987. High-calcium milk will be introduced to the trade at the end of 1986 and will be placed into test markets by mid-1987. Dietary milk will be available toward the end of 1987 and the carbonated milk will be introduced in 1988 at the earliest.

The future of value-added dairy products is bright and the industry is keeping up with the needs and desires of consumers.