

Dairy Foods Career Development Event

1. The fat portion of whole milk contains . . .
 - a. fat-soluble vitamins.
 - b. unhealthy quantities of cholesterol.
 - c. most of the protein found in milk.
 - d. comprises approximately 17% of the total volume.

2. Casein, a protein found only in milk, contains . . .
 - a. approximately 3.5% fat.
 - b. calcium and magnesium.
 - c. all essential amino acids.
 - d. large quantities of vitamins A and E.

3. For young children the recommended daily allowance for calcium is 500-800 milligrams. About 73% of the calcium available in the food supply is provided by milk and milk products. What is the suggested daily consumption of milk per day for children?
 - a. 1 cup
 - b. 3 cups
 - c. 8 cups
 - d. 16 cups

4. The West continues to drive dairy production increases. _____, Arizona, New Mexico, and Idaho each expanded production by 8.5 % or more. In comparison, the four other top dairy production states of Wisconsin, New York, Pennsylvania and Minnesota had an average increase of just 1.4%.
 - a. Washington
 - b. Nevada
 - c. Florida
 - d. California

5. In _____, rBST, or recombinant Bovine Somatotropin was approved for commercial use in the United States as a safe and effective means to increase milk production in cows.
 - a. 1963
 - b. 1983
 - c. 1994
 - d. 1997

6. In 1908, the first compulsory _____ law (Chicago) was developed. It applied to all milk except that from tuberculin tested cows
 - a. tuberculosis
 - b. pasteurization
 - c. labeling
 - d. fat-testing

7. Yogurt is the product results from culturing of a mixture of milk and cream products with the lactic acid-producing bacteria, *Lactobacillus bulgaricus* and _____.
 - a. *Bacillus thuringiensis*
 - b. *Escherichia coli*
 - c. *Streptococcus thermophilus*
 - d. *Staphylococcus pneumoniae*

8. Pasteurization is a process named after scientist Louis Pasteur by which every particle of milk is heated to not lower than 145° F for not less than 30 minutes and promptly cooled to destroy any harmful bacteria that may be present without affecting flavor and food value. Another method, ultra heat treated (UHT) pasteurization, raises the temperature of milk quickly to at least 161° F for not less than 15 seconds, followed by rapid cooling. UHT pasteurization results in _____ for milk.
 - a. a longer shelf life
 - b. greater homogenization of fat globules
 - c. a flavor change
 - d. increased demand

- 9 In 1999, _____ milk sales provided the greatest increase in fluid milk consumption.
- flavored
 - whole
 - cultured
 - half-and-half
- 10 U.S. fluid milk product sales have increased with population growth, but per capita consumption has seen a steady 30-year decline. This decrease in per capita fluid milk consumption is attributed largely to ...
- consumer's demand for healthier beverages.
 - caffeine in soft drinks.
 - increased competition in the beverage market.
 - vitamins available in orange juice, but not in milk.
- 11 Because ice cream is a frozen product, the milk used to make ice cream _____
- does not need to be pasteurized.
 - does not need to be homogenized.
 - is often whipped to add air to the final product.
 - must meet the same safety standards as fluid milk.
- 12 In adults, low calcium intake, along with other factors, may result in bone deterioration called _____
- osteoporosis
 - macular degeneration
 - phosphoric edema
 - calcium deficiency
13. Nationally, production of cheese accounts for _____ % of total U.S. milk production
- 25
 - 45
 - 65
 - 90
- 14 Millions of Americans are not getting enough _____. That's why the National Dairy Council (NDC) and MilkPEP united to raise awareness of this issue. Dairy products are a strong source of this nutrient.
- fat
 - calcium
 - zinc
 - fiber
15. Pasteurization is a process by which every particle of milk is heated and promptly cooled to destroy _____ without food value
- pathogens
 - mold spores
 - off-flavors
 - off-colors
- 16 _____ is the form of sugar found in milk which causes digestibility problems in some people
- casein
 - sucrose
 - lactase
 - lactose
17. A layer of protein known as _____ surrounds lipid globules in milk. This protein is important because it contains all essential amino acids. (2000-10)
- casein
 - sucrose
 - lactase
 - lactose

18. A unique property of colloidal dispersions is that some can be made more stable by reducing the size of the dispersed phase. In milk, the dispersed phase, fat surrounded by protein, is broken into smaller globules by a filter. Because the globules are smaller they stay in suspension longer without separating. This process is known as _____
- heterogenization
 - pasteurization
 - colloidalization
 - homogenization
19. Because milk will influence the flavor of all products in which it is an ingredient, milk must have good flavor when it comes from the cow. Which of the following milk defects is not one that is attributed to the cow?
- feed
 - foreign
 - salty
 - flat
20. Which of the following cheeses were found to reduce tooth decay in laboratory rats?
- Brie, Mamembert, Brick
 - Cottage, Cream, Neufchatel
 - Cheddar, Swiss, Monterey Jack
 - Blue, Limburger, Roquefort
21. Lipolyzed flavor is caused by a chemical breakdown of milk fat. This flavor can be described as a combination of bitter, soapy, and unclean. Which of the following causes the chemical breakdown of milk fat?
- the enzyme lipase
 - pasteurization
 - exposure to sunlight
 - bacteria
22. Which component of milk is largely responsible for milk's ability to absorb and retain off-flavors?
- casein
 - whey
 - lipid
 - calcium
23. U.S. exports of frozen desserts increased 3.9% by volume and 3.1% by value in 1999. This suggests that the United States exported more frozen desserts in 1999 but at lower prices. This is likely due to lower ice cream prices resulting from
- lower butterfat costs.
 - lower protein costs.
 - lower somatic cell counts
 - high butterfat content in milk
24. Which of the following is not one of the top 5 importers of U.S. ice cream?
- Japan
 - Canada
 - Mexico
 - Russia
25. When comparing equal volume servings which of the following products contains the most sugar?
- Vanilla ice cream (10% fat)
 - Vanilla ice cream (16% fat)
 - Vanilla light ice cream (4% fat)
 - Orange sherbert (2% fat)
26. What state ranks #1 in production of ice cream and related products?
- California
 - Iowa
 - Alaska
 - Wisconsin

27. When comparing equal volume servings which of the following products contains the most calcium?
- Vanilla ice cream (10% fat)
 - Vanilla ice cream (16% fat)
 - Vanilla light ice cream (4% fat)
 - Orange sherbert (2% fat)
28. Which of the following most closely represents the International Dairy Foods Association's (IFDA) position about the safety of U S dairy products with regard to Foot-and-Mouth Disease?
- Consumers are safe if they avoid consuming dairy products in or from infected European countries.
 - Bovine spongiform encephalopathy (Mad Cow Disease) has never been diagnosed in the United States
 - Dairy products can carry the infectious agents which cause FMD, but the U S. has not had any confirmed cases of FMD
 - Foot-and-Mouth Disease (FMD) is not a risk to human health or food safety.
29. Which of the following most closely represents the IFDA's position on the safety of dairy products with regard to Bovine spongiform encephalopathy (BSE)
- The Scientific Steering Committee sees no evidence for transmission of BSE through milk.
 - Tests conducted by the Scientific Steering Committee indicate that BSE is transmitted through the milk of BSE infected mammals
 - The Scientific Steering Committee sees no evidence for transmission of BSE through milk because BSE is not transmissible to humans.
 - The Scientific Steering Committee concluded that their initial tests are inconclusive and will not yet make a recommendation about the safety of milk from BSE infected cattle.
30. The eight major food allergens which have been estimated to cause 90% of all food allergic reactions are:
- crustaceans, eggs, fish, beef, peanuts, soy, tree nuts and wheat.
 - crustaceans, eggs, fish, milk, peanuts, soy, tree nuts and wheat.
 - crustaceans, eggs, fish, pork, peanuts, soy, tree nuts and wheat.
 - crustaceans, eggs, fish, chicken, peanuts, soy, tree nuts and wheat.

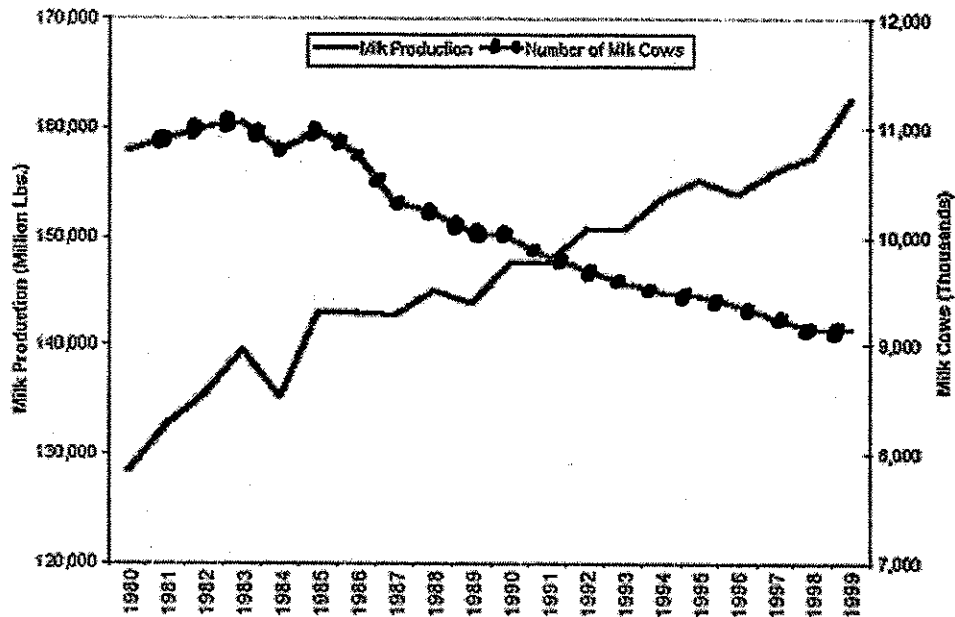
Analyze and Interpret Information

Use the attached statistical information to answer the following questions.

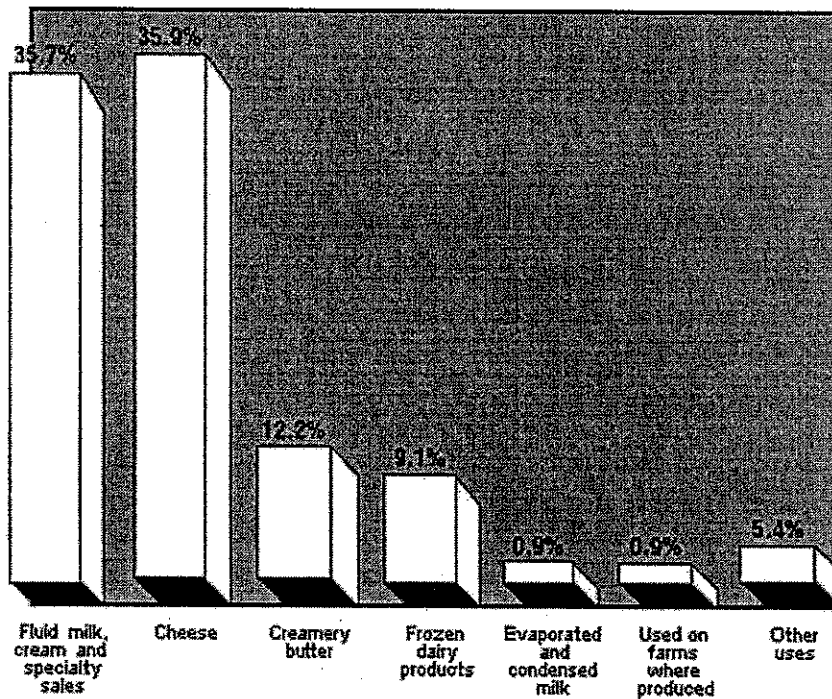
31. Which of the following pathogens is most likely to be a health concern in dairy products?...
- Listeria monocytogenes
 - FMD (Foot-and-Mouth)
 - Bacillus thuringiensis
 - HIV
32. Which of the following statements most accurately describes rBST?
- Compositionally and nutritionally, milk from BST-supplemented cows is no different than milk produced from unsupplemented cows.
 - Intensive research has shown that cows receiving supplemental rBST have a slightly higher incidence of udder infections
 - All cows have a naturally occurring BST in their systems, a protein hormone which stimulates milk production. The rBST is a synthetically developed version of BST.
 - All cows have a naturally occurring BST in their systems. Milk from cows receiving BST has a slightly elevated level of BST, but is not of nutritional or health concern to consumers.
33. Milk output per cow continues to _____ each year.
- decrease
 - increase
 - remain constant
 - fluctuate

34. The size of the national dairy herd has been ...
- decreasing since 1980.
 - decreasing since the mid-1980's.
 - decreasing because of a smaller independent herd size average
 - Remaining constant.
35. The total number of milk cows, in the U.S., has decreased by _____% since 1980.
- 2
 - 10
 - 54
 - 89
36. As a percentage of total sales which of the following dairy products showed the greatest increase in sales from 1997-1998?
- flavored milks
 - chip dip
 - whole milk
 - buttermilk
37. Assume you are trying to decide how to best allocate your company's advertising dollars. Advertising focused at _____ would appear to target the greatest number of customers.
- specialty food stores
 - convenience stores
 - wholesale clubs
 - supermarkets
38. From 1980 to 1998, which product showed the greatest decrease in sales as a percentage of total fluid milk sales
- Flavored milk drinks
 - Lowfat (1%) milk
 - Reduced (2%) milk
 - Whole milk
39. In marketing, the "point of purchase" technique is often used near the cash register or check-out lane to market items via impulse buying. If increased exposure to a product increases the likelihood of impulse purchases which market would offer the greatest potential for "point of purchase" marketing?
- specialty food stores
 - wholesale clubs
 - convenience stores
 - chain drug stores
40. Compare the typical spending habits of consumers in 1970 with consumers in 1998. Which of the following statements best describes 1998 spending habits?
- Today, it would appear that consumers are more likely to eat at restaurants.
 - Today, consumers spend more time cooking than twenty years ago
 - Consumers are more likely to make food purchases at small grocery stores than large supermarkets.
 - A majority of food shopping is done at specialty food stores such as organic markets.

Milk Production and Number of Cows: 1980-1999

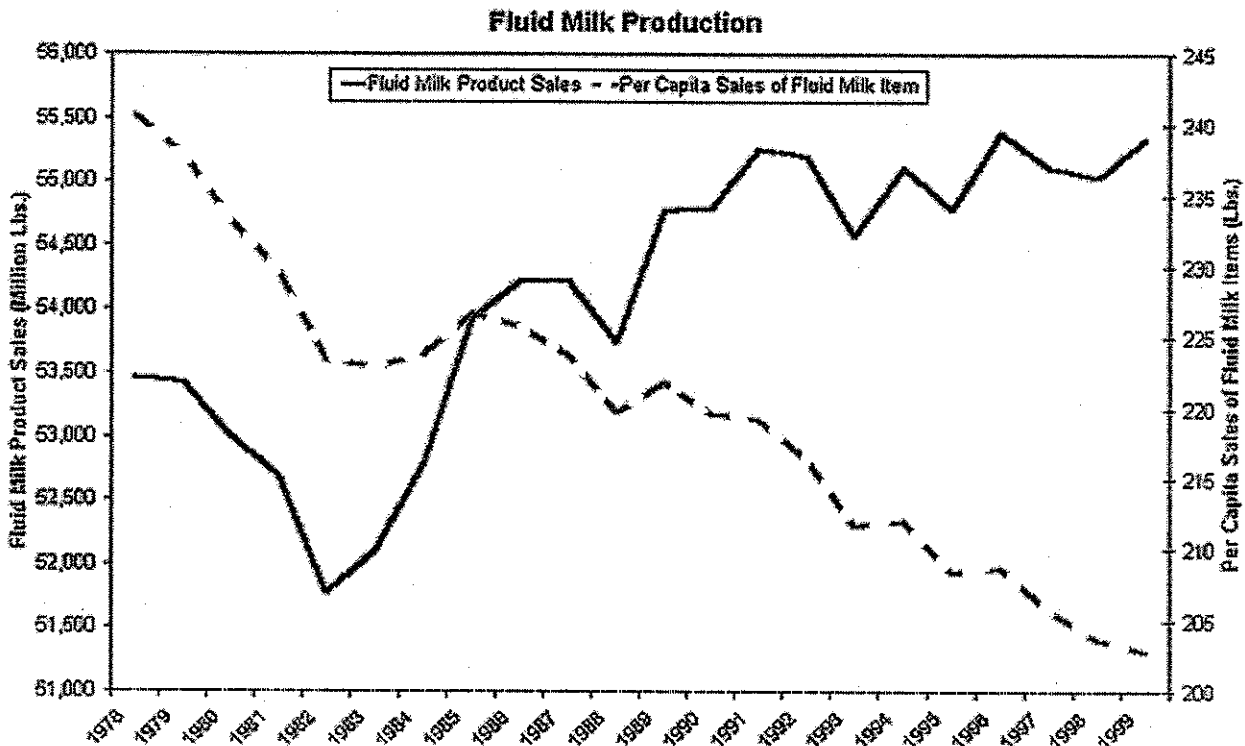


1999 U.S. Milk Supply Utilization, By Product



Fluid Milk Product Sales and Per Capita Sales of Fluid Milk Items: 1979-1999

U.S. fluid milk product sales have increased with the growth in population, but per capita consumption has seen a steady 30-year decline. This decrease in per capita consumption is attributed largely to an ever-increasing beverage market in which milk competes. Processors have recently responded to this decline by developing more varieties of milk (flavors and fat levels) in convenient, ready-to-go packaging consumers can enjoy on the road or away from home



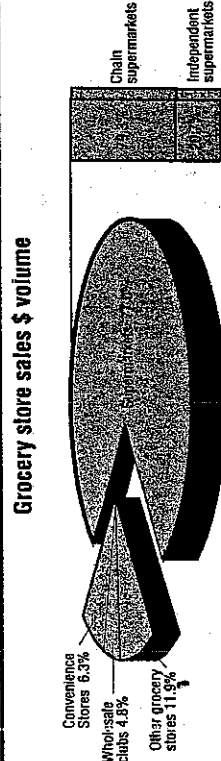
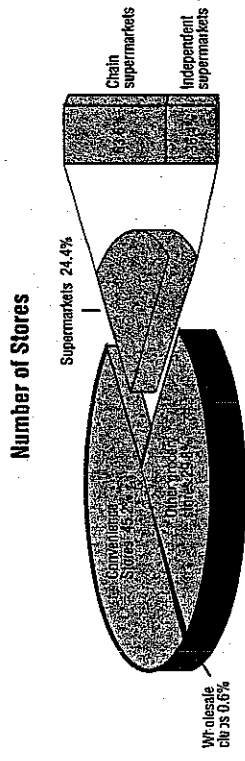
1250 H Street, NW, Suite 900, Washington, DC 20005
 P: 202.737.4332 - F: 202.331.7820

FOOD EXPENDITURES AS A SHARE OF DISPOSABLE PERSONAL INCOME; 1970-1998

| Year | Expenditures for food | | | Proportion of income spent for food | | | |
|-------|----------------------------|-----------------------------|--------------------|-------------------------------------|-----------------------------|--------------------|------|
| | Disposable Personal Income | Away from Home ¹ | Total ² | At Home ¹ | Away from Home ² | Total ³ | |
| | (Billion Dollars) | (Percent) | (Percent) | (Percent) | (Percent) | (Percent) | |
| 1970 | 727.1 | 74.2 | 26.4 | 100.6 | 10.2 | 3.6 | 13.8 |
| 1971 | 790.2 | 78.1 | 28.1 | 106.2 | 9.9 | 3.6 | 13.4 |
| 1972 | 855.3 | 84.4 | 31.3 | 115.8 | 9.9 | 3.7 | 13.5 |
| 1973 | 965.0 | 93.1 | 34.9 | 128.0 | 9.7 | 3.6 | 13.3 |
| 1974 | 1,054.2 | 105.4 | 38.5 | 143.9 | 10.0 | 3.7 | 13.7 |
| 1975 | 1,159.2 | 115.2 | 45.9 | 161.1 | 9.9 | 4.0 | 13.9 |
| 1976 | 1,273.0 | 123.1 | 52.6 | 175.7 | 9.7 | 4.1 | 13.8 |
| 1977 | 1,401.4 | 131.8 | 58.5 | 190.3 | 9.4 | 4.2 | 13.6 |
| 1978 | 1,580.1 | 145.3 | 67.5 | 212.8 | 9.2 | 4.3 | 13.5 |
| 1979 | 1,769.5 | 162.2 | 76.9 | 239.1 | 9.2 | 4.3 | 13.5 |
| 1980 | 1,973.3 | 179.1 | 85.2 | 264.4 | 9.1 | 4.3 | 13.4 |
| 1981 | 2,200.2 | 191.0 | 95.8 | 286.8 | 8.7 | 4.4 | 13.0 |
| 1982 | 2,347.3 | 198.4 | 104.5 | 302.9 | 8.5 | 4.5 | 12.9 |
| 1983 | 2,522.4 | 209.0 | 113.7 | 322.7 | 8.3 | 4.5 | 12.8 |
| 1984 | 2,810.0 | 220.9 | 121.9 | 342.8 | 7.9 | 4.3 | 12.2 |
| 1985 | 3,002.2 | 230.7 | 128.6 | 359.3 | 7.7 | 4.3 | 12.0 |
| 1986 | 3,187.6 | 239.3 | 137.9 | 377.2 | 7.5 | 4.3 | 11.8 |
| 1987 | 3,363.1 | 249.0 | 146.3 | 395.3 | 7.4 | 4.3 | 11.8 |
| 1988 | 3,640.8 | 261.9 | 157.6 | 419.5 | 7.2 | 4.3 | 11.5 |
| 1989 | 3,894.5 | 280.9 | 165.5 | 446.4 | 7.2 | 4.3 | 11.5 |
| 1990 | 4,166.8 | 306.0 | 177.6 | 483.6 | 7.3 | 4.3 | 11.6 |
| 1991 | 4,343.7 | 319.5 | 183.1 | 502.6 | 7.4 | 4.2 | 11.6 |
| 1992 | 4,826.7 | 321.8 | 192.0 | 513.6 | 7.0 | 4.2 | 11.1 |
| 1993 | 4,829.3 | 327.7 | 204.9 | 532.6 | 6.8 | 4.2 | 11.0 |
| 1994 | 5,062.7 | 344.8 | 214.7 | 559.3 | 6.8 | 4.2 | 11.1 |
| 1995 | 5,355.7 | 360.4 | 222.6 | 583.1 | 6.7 | 4.2 | 10.9 |
| 1996 | 5,608.3 | 376.0 | 230.1 | 606.2 | 6.7 | 4.1 | 10.8 |
| 1997* | 5,795.1 | 380.2 | 237.9 | 678.1 | 6.6 | 5.1 | 11.7 |
| 1998 | 6,027.9 | 395.3 | 301.7 | 697.0 | 6.6 | 5.0 | 11.6 |

* Revised. ¹Food purchased from grocery stores and other retail outlets, including food purchased with food stamps and food consumed on farms. Excludes government-donated foods. ²Excludes food paid for by government and business, such as food donated to schools, prisons and other institutions, and expense account meals. ³May not add due to rounding.
Source: USDA, Economic Research Service.

RETAIL STORE FORMATS AND DOLLAR SALES VOLUME; 1998



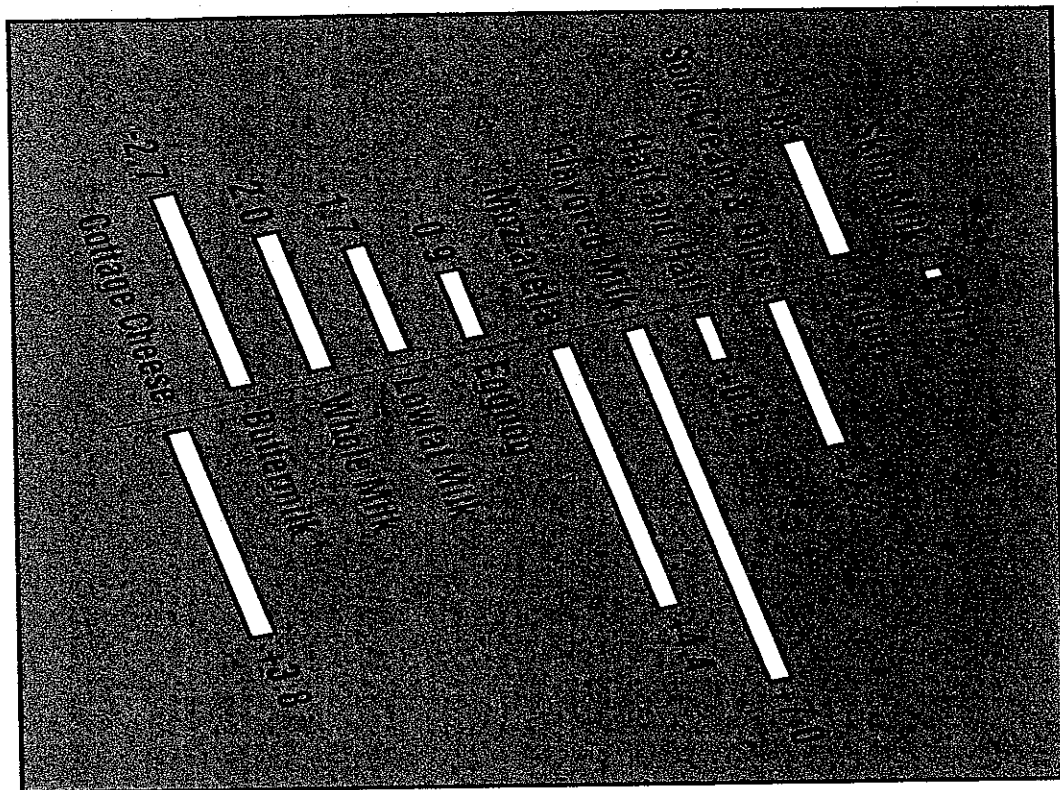
Source: Progressive Grocer Annual Report, April 1999

CONSUMER USAGE AND SPENDING AT VARIOUS RETAIL FORMATS; 1998

| Outlet | % Shopping | Weekly Trips | Weekly Spending |
|-----------------------|------------|--------------|-----------------|
| Supermarkets | 99 | 2.1 | \$73.40 |
| Mass Merchandisers | 77 | 1.5 | \$38.29 |
| Convenience Stores | 49 | 2.5 | \$14.53 |
| Chain Drugstores | 42 | 1.3 | \$20.74 |
| Wholesale Clubs | 27 | 1.2 | \$70.05 |
| Specialty Food Stores | 12 | 1.9 | \$24.44 |

Source: Progressive Grocer *65th Annual Report of the Grocery Industry, 1998.

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PERCENT CHANGE IN PER CAPITA SALES OF
SELECTED DAIRY PRODUCTS, 1997-1998

PERCENT OF FLUID MILK SALES BY PRODUCT IN FEDERAL ORDER MARKETS; 1980-1998¹

| Category | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | (Percent) | | | | | | | | | |
| Whole Milk | 58.7 | 50.5 | 37.9 | 35.4 | 34.5 | 33.6 | 32.5 | 32.4 | 32.0 | 31.9 |
| Plain | 56.7 | 48.8 | 36.5 | 35.1 | 33.1 | 32.2 | 31.1 | 31.0 | 30.7 | 30.3 |
| Flavored | 2.0 | 1.7 | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.5 |
| Reduced (2%) Milk | 23.1 | 28.9 | 34.8 | 35.2 | 35.1 | 33.3 | 31.7 | 31.1 | 30.3 | 29.9 |
| Plain | 22.7 | 25.6 | 31.8 | 32.4 | 32.4 | 30.9 | 29.5 | 29.1 | 28.5 | 28.1 |
| With Solids Added | 6.4 | 3.3 | 3.0 | 2.8 | 2.7 | 2.5 | 2.2 | 2.0 | 1.8 | 1.8 |
| Lowfat (1%) Milk | NA | 6.0 | 7.8 | 8.2 | 8.1 | 9.4 | 9.9 | 9.9 | 10.1 | 10.3 |
| Plain | NA | 4.6 | 6.7 | 7.0 | 7.2 | 8.5 | 9.0 | 9.2 | 9.7 | 9.8 |
| With Solids Added | NA | 1.3 | 1.1 | 1.0 | 0.9 | 0.9 | 0.9 | 0.7 | 0.5 | 0.5 |
| Nonfat Milk | 4.6 | 5.1 | 9.9 | 11.1 | 12.1 | 12.9 | 14.6 | 15.3 | 15.8 | 16.0 |
| Plain | 2.9 | 4.0 | 8.0 | 8.6 | 10.3 | 11.3 | 12.7 | 13.5 | 14.0 | 14.2 |
| With Solids Added | 1.7 | 1.1 | 1.9 | 1.9 | 1.7 | 1.7 | 1.8 | 1.8 | 1.8 | 1.8 |
| Flavored Milk Drinks | 2.7 | 3.0 | 3.3 | 3.5 | 3.5 | 3.6 | 3.8 | 4.0 | 4.2 | 4.4 |
| Buttermilk | 1.6 | 1.9 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.2 |
| Total Reduced Fat, Lowfat & Nonfat Items | 38.0 | 44.9 | 57.4 | 59.5 | 60.3 | 60.6 | 61.2 | 61.5 | 61.7 | 61.8 |
| Milk and Cream Mixtures | 1.0 | 1.2 | 1.3 | 1.4 | 1.5 | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 |
| Light Cream | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 |
| Heavy Cream | 0.3 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 |
| Sour Cream | 0.7 | 0.9 | 1.0 | 1.1 | 1.1 | 1.2 | 1.3 | 1.2 | 1.3 | 1.3 |
| Total Cream Items | 2.1 | 2.7 | 3.0 | 3.2 | 3.2 | 3.2 | 3.4 | 3.5 | 3.7 | 3.8 |
| Yogurt | 1.0 | 1.6 | 1.6 | 1.7 | 1.8 | 1.9 | 2.3 | 2.2 | 2.4 | 2.4 |
| Eggnog | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Total Fluid Milk & Cream | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

¹Includes sales by handlers regulated under the New York - New Jersey Federal Order 1980-1992. Sales regulated by Federal Order handlers account for nearly three-fourths of total U.S. fluid sales. Note: Total may not add to 100% due to rounding. N/A = Not Available.
Source: USDA.

Dairy Foods Career Development Event 2001**Exam Key**

1. A
2. C
3. B
4. D
5. C
6. B
7. C
8. A
9. A
10. C
11. D
12. A
13. A
14. B
15. A
16. D
17. A
18. D
19. D
20. C
21. D
22. C
23. A
24. D
25. D
26. A
27. C
28. D
29. A
30. B

31. A
32. C
33. A
34. B
35. B
36. A
37. D
38. D
39. C
40. A