1996

FFA STATE DAIRY FOODS EVALUATION EVENT

ANALYZE & INTERPRET INFORMATION

MILK FACTS

1995 Edition

MILESTONES OF MILK HISTORY IN THE U.S. - Page 4

1. What year did the now famous celebrity milk mustache advertising campaign begin ?

   a. 1993
   b. 1994
   c. 1995
   d. 1996

2. What year was the "Real" Seal dairy symbol introduced ?

   a. 1960
   b. 1970
   c. 1980
   d. 1990

MILESTONES OF MILK HISTORY IN THE U.S.

1611	Cows arrive for Jamestown Colony
1624	Cows reach Plymouth Colony
1841	First regular shipment of milk by rail-Orange County to New York City
1856	Pasteur experiments start.
1856	Gail Borden received first patent on condensed milk from both U.S. and England
1857	First successful condensery built by Gail Borden at Burrville, Connecticut
1878	Continuous centrifugal cream separator invented by Dr. Gustav De Laval
1884	Milk bottle invented by Dr. Hervey D. Thatcher Potsdam New York
1886	Automatic bottle filler and capper patented
1890	Tuberculin testing of dairy herds introduced. Test for fat content of milk and cream perfected by Dr. S.M. Babcock.
1892	Certified milk originated by Dr. Henry L. Coit in Essex County New Jersey
1895	Commercial pasteurizing machines introduced.
1908	First compulsory pasteurization law (Chicago) applying to all milk except that from tuberculin tested cows.
1911	Automatic rotary bottle filler and capper perfected
1914	Tank trucks first used for transporting milk.
1919	Homogenized milk sold successfully in Torrington, Connecticut.
1932	Ways of increasing Vitamin D in milk made practicable.
1932	First plastic coated paper milk cartons introduced commercially.
1933	Fluid milk included in Army ration.
1938	First farm bulk tanks for milk began to replace milk cans.
1942	Every-other-day milk delivery started (initially as a war conservation measure)
1946	Vacuum pasteurization method perfected
1948	Ultra-high temperature pasteurization is introduced
1950	Milk vending machines win place in distribution.
1955	Flavor control equipment for milk is introduced commercially
1964	Plastic milk container introduced commercially
1967	Nondairy milk substitute introduced in several markets.
1968	Official acceptance of electronic testing for milk is introduced commercially.
1974	Nutrition labeling of fluid milk products.
1975	Metric measurement equivalent introduced
1980	American Dairy Association launches the national introduction of the "REAL" (R) Seal dairy symbol
1981	UHT (ultra high temperature) milks gain national recognition
1983	Creation of National Dairy Promotion and Research Board
1988	Lower fat dairy products gain widespread acceptance. Low fat plus skim milk sales exceed whole milk sales for first time.
1993	Mandatory animal drug residue testing program established
1994	Bovine somatotropin approved for commercial use in U.S.
1994	Nutrition Labeling and Education Act requires mandatory nutrition labeling
1995	Launch of processor-funded milk mustache advertising campaign.

PER CAPITA SALES OF FLUID MILK ITEMS, 1974-1995 - Page 12

3. Which fluid milk products have shown a decrease in per capita consumption during the past 10 years ?

   a. whole milk & buttermilk
   b. whole milk & skim milk
   c. buttermilk & lowfat milk
   d. lowfat milk & skim milk

4. What fluid milk product has shown the greatest increase in pounds per capita sales since 1985 ?

   a. whole milk
   b. lowfat milk
   c. skim milk
   d. buttermilk

PER CAPITA SALES OF FLUID MILK ITEMS, 1974 - 1995

Year	Plain Whole Milk	Lowfat Milk	Skim Milk	Flavored Milk and Drinks	Buttermilk	Total
			(Pounds)			
1974	172.3	45.8	13.9	9.3	4.6	245.9
1975	168.0	53.2	11.5	9.6	4.7	247.0
1976	162.6	57.1	11.6	10.8	4.7	246.8
1977	154.9	61.1	11.9	11.4	4.6	243.9
1978	149.6	64.2	11.5	11.0	4.4	240.7
1979	144.6	67.0	11.6	10.5	4.2	237.9
1980	137.5	70.0	11.6	10.0	4.1	233.2
1981	132.5	72.6	11.6	9.3	4.0	230.0
1982	126.7	73.5	11.3	8.6	4.1	224.2
1983	123.5	75.4	10.6	9.1	4.3	222.9
1984	119.6	78.6	11.6	9.8	4.4	224.0
1985	116.7	83.3	12.6	9.7	4.4	226.7
1986	110.1	88.1	13.5	9.9	4.2	225.8
1987	105.7	89.6	14.0	10.1	4.3	223.7
1988	99.9	89.9	16.1	9.9	4.1	219.9
1989	92.1	96.3	20.2	9.6	3.7	221.9
1990	85.5	98.3	22.9	9.4	3.5	219.6
1991	82.7	99.7	23.9	9.5	3.4	219.2
1992	79.6	99.3	25.0	9.6	3.2	216.7
1993	76.1	97.1	26.7	9.6	3.0	212.5
1994[1]	74.3	95.6	28.8	9.8	2.9	211.4
1995[2]	72.1	94.6	31.0	10.0	2.8	209.3

[1] *Preliminary.*
[2] *Milk Industry Foundation Estimate.*
Source: U.S.D.A. Economic Research Service.

MILK PRODUCTION, PRODUCTION PER COW AND NUMBER OF MILK COWS, 1975-1995 - Page 24

5. Total milk produced in the United States has increased since 1975. What major factor accounts for this increase in production ?

a. numbers of milk cows
b. milk produced per cow
c. bigger dairy cows
d. more dairy farms

MILK PRODUCTION, PRODUCTION PER COW AND NUMBER OF MILK COWS, 1975 - 1995

Year	Milk Production	Milk Per Cow	Number of Milk Cows
	(Million Pounds)	*(Pounds)*	*(Thousands)*
1975	115,398	10 360	11 139
1980	128 406	11,891	10 799
1981	132 770	12 183	10.898
1982	135 505	12 306	11 011
1983	139 558	12.619	11 059
1984	135 351	12 541	10 793
1985	143 012	13 024	10 981
1986	143 124	13 285	10 773
1987	142 709	13 819	10 327
1988*	145,034	14 185	10 224
1989*	143 893	14 323	10 046
1990"	147 721	14.782	9,993
1991*	147 687	15,031	9 826
1992*	150 885	15,574	9 688
1993*	150,582	15 704	9 589
1994[1]	153 622	16 128	9 525
1995[2]	155 946	16 450	9,480

[1] Preliminary. [2] Milk Industry Foundation Estimate.
" Revised Source: U.S.D.A.

MILK COWS, MILK PRODUCTION AND INCOME BY STATES, 1994 - Pages 26 & 27

6. In 1994 what place did Iowa rank nationally in total pounds of milk produced ?

   a. 8th
   b. 9th
   c. 10th
   d. 11th

7. What State in the U.S. led the nation in pounds of milk produced per cow in 1994 ?

   a. Arizona
   b. Pennsylvania
   c. New Mexico
   d. California

MILK COWS, MILK PRODUCTION AND INCOME BY STATES, 1994

State	Number of Milk Cows[1]	Milk Per Cow	Milk Production	Sold to Plants and Dealers: All Milk	Sold to Plants and Dealers: Percent Grade A[2]	Sold to Plants and Dealers: Average Price[3]	Farm Cash Receipts from Milk & Cream: Value[3]	Farm Cash Receipts from Milk & Cream: Percent of Total Rec[4]
	(Thousands)	*(Pounds)*	*(Million Pounds)*	*(Million Pounds)*	*(Percent)*	*(Dollars per cwt.)*	*(Million Dollars)*	*(Percent)*
Alabama	37	13 514	500	496	99	14 70	72 9	2 5
Alaska	0.7	18 000	12.6	12	100	20 54	2 5	9 6
Arizona	116	18 397	2 134	2 126	100	13.10	278 5	14 5
Arkansas	61	12 344	753	732	98	13 90	101 7	2.0
California	1 235	20 258	25.019	24.678	98	11 79	2 946 5	14 7
Colorado	81	19 296	1 563	1 460	100	14 25	214 2	5 5
Connecticut	33	16.091	531	515	100	14.23	74 7	14 6
Delaware	10	14 190	142	141	100	13 70	19 3	3 1
Florida	176	14 903	2 623	2.618	100	15 60	408 4	6 7
Georgia	102	15 637	1 595	1 580	100	14 99	238 2	5 4
Hawaii	10 7	12 991	139	137	100	23 19	31 8	6 4
Idaho	208	18 048	3 754	3 710	91	12 30	456 3	16 3
Illinois	165	15 448	2 549	2 518	92	13 30	334 9	4 1
Indiana	145	15 566	2 257	2 207	90	13 40	295 7	6 1
Iowa	265	14 951	3 962	3 867	86	12 90	498 8	4 9
Kansas	78	14 167	1 105	1 091	96	12 80	139 6	1 9
Kentucky	168	11 946	2 007	1 923	96	13 90	267 3	8 2
Lousiana	79	11 709	925	910	100	14 10	128 3	6 5
Maine	40	15 975	639	621	100	14 25	89 6	17 8
Maryland	92	14 326	1 318	1 308	100	13 70	179 2	13 3
Massachusettes	29	15 517	450	426	100	14 77	65 4	13 2
Michigan	328	16 905	5 545	5 475	98	13 45	739 0	22 1
Minnesota	609	15 340	9 342	9 235	88	12 93	1 194 1	18 1
Mississippi	57	12 825	731	725	100	14 20	103 0	3 6
Missouri	197	13 807	2 720	2 674	93	13 20	353 0	8 3
Montana	21	14 619	307	292	100	13 77	40 5	2 0
Nebraska	77	14 416	1 110	1 080	88	12 80	138 2	1 7
Nevada	22 5	18 356	413	406	100	12 50	50 8	16 8
New Hampshire	20	15 650	313	308	100	14 00	43 1	26 8
New Jersey	24	14 292	343	338	100	13 80	46 6	6 2
New Mexico	165	20 152	3 325	3 268	100	11 90	393 9	25 9
New York	718	15 905	11 420	11 209	100	13 34	1 499 0	53 0
North Carolina	90	16 367	1 473	1 442	99	14 60	210 5	3 6
North Dakota	68	12 779	869	840	58	12 20	102 5	3 5
Ohio	294	15 374	4 520	4 495	94	13 30	597 8	13 3
Oklahoma	99	12 818	1 269	1 260	98	13 30	167 6	4 5
Oregon	100	17 140	1 714	1 621	98	13 00	218 9	8 6
Pennsylvania	639	16 009	10 230	9 872	99	14 27	1 444 9	38 7
Rhode Island	2 2	14 364	31 6	31	100	14 00	4 4	5 6
South Carolina	8	14 679	411	400	100	14 97	60 8	4 8
South Dakota	120	13 242	1 589	1 576	59	12 80	201 7	5 5
Tennesee	159	12 327	1 960	1 850	97	14 30	264 6	12 4
Texas	402	15 485	6 225	6 200	100	13 40	830 8	6 5
Utah	86	16 640	1 431	1 356	90	12 92	181 9	21 3
Vermont	158	15 519	2 452	2 417	100	13 64	330 6	67 7
Virginia	130	14 800	1 924	1 904	99	14 30	272 3	12 9
Washington	261	19 935	5 203	4 960	100	13 09	677 2	14 7
West Virginia	22	12 364	272	269	98	13 40	36 0	8 8
Wisconsin	1 494	15 001	22 412	22 117	91	12 99	2 873 7	53 5
Wyoming	7	12 771	89 4	87	75	12 30	10 7	1 3
United States	9.525	16 128	153.622	150,783	95	13 12	19,932 0	11 2

[1] Average number on farms during year including dry cows but excluding heifers not yet fresh. Total may not add due to rounding

[2] Percent of milk sold to plants and dealers that is approved by health authorities. [3] Does not reflect government withholdings or buyout payments

[4] Based on preliminary estimate by USDA of cash receipts from all farm products

Source: U S D A

PRODUCTION OF MANUFACTURED DAIRY PRODUCTS BY STATES, 1994 - Pages 28 & 29

8. What State in the U.S. produced the greatest quantity of butter in 1994 ?

   a. Wisconsin
   b. California
   c. Ohio
   d. Pennsylvania

9. What place was Iowa in Cheese production, other than Cottage Cheese, in the nation in 1994 ?

   a. 3rd
   b. 4th
   c. 5th
   d 6th

10 Iowa has a few very large frozen dessert manufacturing plants. What state ranked first in frozen dessert production in 1994 ?

   a. Pennsylvania
   b. Indiana
   c. California
   d. Texas

KEY

Wr Test

Problem Key

Dairy Foods

1996

SUBJECTIVE SCORE
INSTRUCTOR USE ONLY

100	90	80	70	60
50	40	30	20	10
9	8	7	6	5
4	3	2	1	0

PART 1

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

IMPORTANT!

- USE NO. 2 PENCIL ONLY
- MAKE DARK MARKS
- ERASE COMPLETELY TO CHANGE
- EXAMPLE: A B C D E

TO USE SUBJECTIVE SCORE FEATURE:

- Mark total possible subjective points
- Only one mark per line on key
- 150 points maximum

EXAMPLE OF STUDENT SCORE: 125

Dairy Foods

1996

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PART 2	
TOTAL	30

PART 2

Question	Key
51	C
52	C
53	A
54	C
55	B
56	C
57	D
58	B
59	D
60	C

10

NAME

Dairy Foods Contest Test

(Mark the best answer in the proper blank on the answer sheet.)

1. How can flavors of kerosene, creosote, or fly spray in milk be explained when milk is not exposed to any of these substances?

   a. Oxidized milk tastes like fly spray.
   b. Rubber inserts in teat cups may be breaking down chemically.
   c. These flavors will occur in milk if the cow breathes odors from such substances.
   d. Flavor may be caused by certain bacteria in unclean equipment.

2. Salty flavor in milk can be attributed to two things:

   a. Too much salt in ration and impaired kidney function of the cow.
   b. Excessive feeding of minerals and dry roughage.
   c. Cows with mastitis and milk produced late in a cow's lactation period.
   d. Some sanitizers have a salt base, or it may be due to hard water used in cleaning equipment.

3. Oxidized flavor in raw milk can be the result of copper. The likely cause is:

   a. milk coming in contact with metal parts of the milking equipment that contains copper.
   b. copper ions that are in the air cows breathe.
   c. natural occurrences of copper in milk during first two months of lactation
   d. both a. and c.

4. Oxidized flavor in pasteurized milk likely was caused from:

   a. heating during pasteurization.
   b. milk in translucent plastic or glass bottles being exposed to light.
   c. milk being exposed to too much air before packaging.
   d. all of the above.

5. Lipolyzed flavor (rancid) may be the result of processing mistakes. To avoid this the processor must avoid:

   a. holding milk in large containers.
   b. keeping milk at 40 degrees F. for more than ten hours.
   c. adding even a small amount of raw milk to homogenized milk.
   d. both a. & b.

6. Which variety of cheese has the distinctive characteristic of large gas holes throughout the cheese?

   a. Swiss b. Colby c. Cheddar d. Monterey

7. Which type of cheese has the distinctive process method of mold ripening throughout the interior of the cheese?

   a. Cottage b. Limburger c. Blue d. Colby

8. What are the objectives of a Federal milk marketing order? IA-96

a. To assist farmers in developing a steady, dependable market by providing prices for their milk which are reasonable in relation to economic conditions.
b. To assure customers at all times of adequate supplies of pure and wholesome milk.
c. To regulate the price of milk so that consumers are always assured of a "cheap" food source
d. Both a and b are correct.

9. Because milk flavor 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?

a. feed b. flat c. salty d. foreign

10. Which one of the following is not a source of unpleasant odors and flavors that get into milk even when the milk is not exposed openly to such odors?

a. Cows inhale foul smelling air.
b. Certain odors such as fly spary is absorbed through the cows hide and gets into blood stream
c. Careless use of detergents and sanitizers in cleaning equipment.
d. Cows with mastitis.

11. Cows late in lactation may give milk that has a salty flavor. It is recommended that cows not be milked longer than:

a. 14 to 16 months
b. 12 to 14 months
c. 10 to 12 months
d. 6 weeks before freshening, as this is the only time that milk flavor is affected.

12. Milk that is described as tasting like wet cardboard or oily, metallic, and tallowy, is caused by:

a. oxidation b. bacteria c. sanitizers d. adding water to milk

13. 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?

a. bacteria b. pasteurization c. exposure to sunlight d. the enzyme lipase

14. Several faulty milk handling practices can cause the development of lipolyzed flavor in milk. One of the following **is not** a cause:

a. foaming of milk by any cause.
b. warming raw cold milk to 70-90° F and cooling it back to 40°F. This can happen by adding warm milk rapidly to a small amount of cool milk in a cooler.
c. processing mistakes such as adding a small amount of raw milk to pasteurized, homogenized milk.
d. pasteurization process.

15. All but one of the following are proper storage conditions for cheese to retain its original flavor and appearance:

a. Wrapped tightly to avoid exposure to air and subsequent drying out.
b. Store uncovered in a moist, dark area at temperatures between 55-65 degrees F.
c. Refrigerated (natural cheeses) at temperatures of 35-40 degrees F.
d. Pasteurization and addition of mold inhibitors used in processed cheese, cheese food, and cheese spread.

16. One of the following statements is not true about pasteurization of milk:
a. A process named after Louis Pasteur.
b. Process involves heating milk to not lower than 145 degrees F. for not less than 30 minutes and promptly cooling, or the process can be accomplished by raising temperature followed by rapid cooling.
c Pasteurization kills bacteria that may be present in milk.
d. The process improves the flavor of milk, but reduces the food value, particularly the itamin content.

17. One of the following is not a true statement with reference to the care of cheese by the consumer:

a. Unopened jars of cheese spread will keep at room temperature for about three months, but once opened, it must be refrigerated and in a tight container.
b. Cheese that has dried out can be grated and stored in a covered container in a refrigerator.
c Cheese generally possesses its most distinctive flavor at room temperature; therefore, except for cottage cheese, it should be taken from the refrigerator about 30 minutes before serving.
d. Cottage cheese is most desirable when heated to about 180 degrees F. for serving.

18. Most natural cheeses such as cheddar and Swiss can be successfully frozen for up to two months or longer. One of the following is not a true statement regarding freezing cheese:

a Weigh ten pounds or less per package.
b. Package be not more than one inch thick.
c Be wrapped in airtight package.
d. Be frozen quickly at zero degrees F.

19. In the production of cheese, one of the first steps is to cause the milk to coagulate or clot. The coagulum is called:

a. Butter b. Whey c. Curd d. Buttermilk

20. One of the most significant factors controlling the properties of cheese such as firmness, time required for ripening, and length of shelf life is:

a. Type of coagulating agent used.
b. Fat content.
c. Moisture content.
d. All of the above.

21. There are over 2000 cheese varieties and names, and there are several ways in which cheese are classified. Under which of the following classification methods would "hard grating" cheese fall?

a. Manufacturing process
b. Consistency
c. Country of origin
d. General appearance

22. Which of the following best describes a step used in manufacturing cheddar cheese?

a. Curd particles kept separate.
b. Curd particles matted together.
c. Bacteria ripened throughout with eye formation.
d. Mold ripened throughout interior

23. Cheese generally possesses its most distinctive flavor when served at room temperature, with one exception which should be chilled when served. That exception is:

a. American pasteurized processed cheese
b. blue cheese
c. cottage cheese.
d. cheddar cheese

24. Which variety of cheese has the distinctive characteristic of large gas holes throughout the cheese?

a. Swiss b. Colby c. Cheddar d. Monterey, Jack

25. Which of the following is not a true statement?

a. Most cheese manufacturers use heat treated milk.
b. Heat treated milk and pasteurization have the same meaning and are terms used interchangeably
c. Heat treated milk is usually heated to a temperature short of pasteurization
d. Pasteurization is not a substitute for sanitation, but rather an additional safeguard

26. Which type of cheese has the distinctive processing method of mold ripening throughout the interior of the cheese?

a. Cottage b. Limburger c. Blue d. Colby

27. A recipe calls for one-half cup of shredded cheddar cheese to make six servings. If one cup of shredded cheddar equals four ounces of cheese, how many servings can be made from one pound of cheddar cheese?

a. 6 b. 12 c. 24 d. 48

28. Which three cheeses were found to reduce tooth decay in laboratory rats?

a. Cottage, cream, neufchatel
b. Brie, Camembert, brick
c. Blue, Limburger, Roquefort
d. Cheddar, Swiss, monterey jack

29. Specific gravity of milk is 1.032 at 60 degrees F. This means that a certain volume of milk weighs more than an equal volume of water. Water weights 8.34 lbs. per gallon. How much does a gallon of milk weigh?

a. 10.0 lbs. b. 9.5 lbs. c. 8.6 lbs. d. 8.36 lbs.

30. Federal Definitions and Standards of Identity specify the minimum levels of milk fat and solids-not-fat for the various milks shipped in interstate commerce. Whole milk contains:

a. not less than 3.25% milkfat and 8.25% solids-not-fat.
b. 0.3, 1.5 or 2.0% milkfat and not less than 8.25% solids-not-fat.
c. less than 0.5% milkfat and not less than 8.25% solids-not-fat
d. not less than 18% milkfat.

DAIRY FOODS CONTEST

Contestant No. _____

Name _____

School _____

Key 1996

ANSWER SHEET: ANALYZE AND INTERPRET INFORMATION

(Darken the circle opposite the question number to specify your answer - 2 points each.)

	A	B	C	D
1.	0	●	0	0
2.	0	0	●	0
3.	●	0	0	0
4.	0	0	●	0
5.	0	●	0	0
6.	0	0	●	0
7.	0	0	0	●
8.	0	●	0	0
9.	0	0	0	●
10.	0	0	●	0

TOTAL SCORE

Problem key

PART 2

NAME

Dairy Foods 1996

10

KEY (T) (F)

51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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(Dairy Foods) (1996)

KEY

PART 1

IMPORTANT

USE NO. 2 PENCIL ONLY

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- ERASE COMPLETELY TO CHANGE
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- Only one mark per line on key
- 150 points maximum

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PART 2	
TOTAL	

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50