2012 **North Dakota FFA Convention**

Dairy Food Contest

Individual Problem Solving, Merchandizing, Nutritional Value, Trouble Shooting

EXAM [50 points]

Work individually to answer the following multiple choice and True/False questions.

General Industry Knowledge ***[2 points each]***

1. T/F – The per capital consumption of milk is increasing in the U.S.
2. T/F – The consumption of cheese has lagged other high fat products like cottage cheese.
3. T/F – Milk production per cow has been level while the number of farms has increased.
4. T/F – U.S. dairy cow numbers have stopped declining.
5. T/F – Milk is 87% solids and 13% water. (2 pts.)
6. T/F – The recommended amount of milk per day is how many servings for a growing person?
7. A gallon of milk weighs 8.6 pounds. If a dairy cow can produce 72 pounds of milk per day, how many gallons of milk does she produce per day?
    a. 8.2 gallons
    b. 8.4 gallons
    c. 8.6 gallons
    d. 8.8 gallons
8. The most valued component by weight in pricing of milk is:
    a. Milk fat
    b. Protein
    c. Lactose
    d. SCC
9. Which breed is considered the oldest?
    a. Brown Swiss
    b. Guernsey
    c. Holstein
    d. Jersey
    e. Milking Shorthorn
10. Which breed is regarded as the most efficient producer of milk?
    a. Brown Swiss
    b. Guernsey
    c. Holstein
    d. Jersey
    e. Milking Shorthorn
11. T/F - Sire summaries + linear score + visual evaluation of cow = tools for genetic improvement.
12. T/F - Energy density of the lactating cow diet can be increased with added fat.
13. T/F - Wet distillers' grains is one typical wet milling byproduct fed to dairy cattle.
14. T/F - Cows need a 6- to 8-week dry period (rest) in order to prepare for the next lactation.
15. What is the most common health concern of economic importance among all dairy animals around the world?
    a. Mastitis
    b. Metritis
    c. Acidosis

d. Milk fever

16. T/F – Two quarts of colostrum fed in the first two hours of life is an adequate amount for a calf to survive 95% of the time.
17. T/F – At birth, the rumen of a newborn calf is essentially nonfunctional.
18. T/F - If colostrum quality is poor, increasing the volume will always improve the survivability of the calf.
19. On the most current PDCA Dairy Cow Unified Scorecard, how many points do "Feet and Legs" receive?
    a. 15
    b. 20
    c. 25
    d. 40
20. Retail milk that has 3.25% butterfat is referred to as … ?
    a. Half and Half
    b. Raw Milk
    c. Skim Milk
    d. Whole Milk
21. In what season of the calendar year is ringworm usually the worst?
    a. Spring
    b. Summer
    c. Fall
    d. Winter
22. High somatic cell counts in milk indicate what?
    a. Mastitis
    b. Metritis
    c. Sub-acute seminal acidosis
    d. Laminitis
23. What is the condition caused by a Vitamin D deficiency?
    a. Scurvy
    b. Rickets
    c. Pellagra
    d. White Muscle Disease
24. Most calves are vaccinated against BVD, what do these initials stand for?
    a. Bovine Viral Disease
    b. Basic Viral Decongestant
    c. Bovine Viral Diarrhea
    d. Bovine Vaccine Disorder
25. Where is the blind spot in a dairy animal's field of vision?
    a. Directly behind them
    b. Parallel to them
    c. Directly to the right
    d. Directly to the left

KEY [50 points]

General Industry Knowledge ***[2 points each]***

1. f
2. f
3. f
4. f
5. f
6. 3-a-day
7. b.8.4 gallons ((72 lb. / 8.6 lb. per gal = 8.4 gallons))
8. b. protein
9. a. Brown Swiss
10. d. Jersey
11. t
12. t
13. t
14. t
15. a. mastitis
16. t
17. t
18. f
19. b. 20 percent
20. d. whole milk
21. a. spring
22. a. mastitis
23. b. rickets
24. c. bovine viral diarrhea
25. a. directly behind them

File: 3b IndividualDairyFoodsPartIIKEY_2012

2012 North Dakota FFA Convention

Dairy Foods Contest

TEAM PROBLEM SOLVING - PART III

[50 points]

Situation

The Thundar Dairy from Frisco County produces Grade A milk from a commercial herd with 990 lactating cows comprised of 960 Holsteins averaging 80 pounds of milk per day and 40 Brown Swiss cows averaging 69 pounds of milk per day. They have two sons starting college this fall and a daughter in high school and all are interested in dairying. The family recently moved to the area with intentions of expanding their dairying for future generations. For now, their herd management goal is to maintain milk yield and components while expanding the heifer facility. Since this is a new facility, emphasis is on neighbor relations while seeking additional property for expansion. Milk prices have been good, but are declining. The cost of production (namely feed costs) remain high, so marketing contracts are imperative. **Their current component and quality tests are:**

- Milk protein = 3.21%
- Milk fat = 3.72%
- Other solids = 5.61%
- Somatic Cell Count = 120,000 cells per milliliter

To complete this exercise you will need the following information.

Parameters for Determining Milk Value

The processor uses the current Federal Order Class III price data to set procurement policy to determine pay price and any premiums that apply:

1. Protein differential (**3.05%** base): **2.66/cwt. per 0.1% protein**
2. Butterfat differential (**3.50%** base): 1**.53/cwt. per 0.1% milk fat**
3. Other solids (OS) premium (**5.65%** base): **0.42/cwt. per 0.1% OS**
4. Somatic cell count (**350,000** base): **0.00076/cwt. per 1,000 SCC**
5. Bacteria plate count (**less than 25,000** for the month) to receive any premiums.

Given the information above, calculate the adjustments made to the price paid per hundredweight for milk with these components.

Milk Components: *(3 points each)*

1. Protein (PRO):

a) 0.043

b) 0.054

c) 0.039

d) 0.051

2. Butterfat (BF):

a) 0.053

b) 0.034

c) 0.103

d) 0.049

3. Other Solids (OS):

a) +0.017

b) +0.009

c) -0.017

d) -0.015

Milk Quality *(4 points each)*

Determine the premium adjustment (if any) based on the following Somatic Cell Count criteria.

Criteria	
Somatic Cell Count (SCC) Base	**Adjustment Rate ($/cwt.) per 1,000 cells**
0 - 350,000	+0.0025
350,001 - 450,000	-0.0015
450,001 - 750,000	-0.0025
750,000 - OVER	-0.0035

4. What is the SCC premium adjustment?

a) 0.537

b) 0.305

c) 0.611

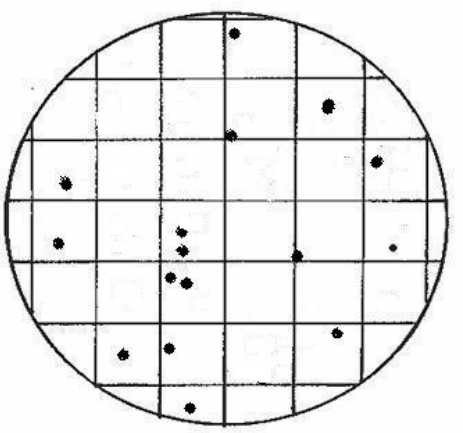
d) 0.575

Milk Quality

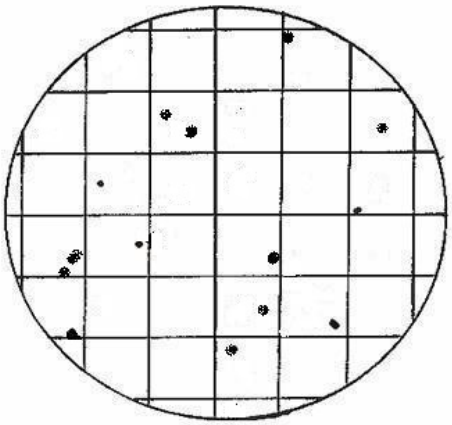
The control plate was determined clear, so analyze the dairy=s standard plate count (SPC) using the diagram of incubated plates below, determine the number of bacteria/ml. (The lab procedure for the bacteria plates used below is from a 1/1000 ml dilution.)

____ colonies

____ colonies



___ average colonies



5. What is the Standard Plate Count (SPC)?

a) 2.4×10^3

b) 1.7×10^4

c) 1.4×10^4

d) 2.0×10^4

Standard Plate Count (SPC)	Premium Rate $/cwt.
0 - 5,000	+0.20
5,001 - 10,000	+0.10
10,001 - 25,000 (base)	0.00 (base)
25,001 - 50,000	-0.10
50,001 - OVER	-0.20

6. What is the bacteria premium or discount using the above table?

a) +0.20

b) +0.10

c) +0.00

d) -0.10

e) -0.20

Milk Volume *(4 points each)*

This processor offers the following volume premium to help maintain a constant supply to market. Use the following table to answer Questions 7 and 8.

Grade A Volume Premium Program			
	Rate/cwt. *($0.00)*		**Rate/cwt.** *($0.00)*
60,001 - 90,000	.03	600,001 - 630,000	.57
90,001 - 120,000	.06	630,001 - 660,000	.60
120,001 - 150,000	.09	660,001 - 690,000	.63
150,001 - 180,000	.12	690,001 - 720,000	.66
180,001 - 210,000	.15	720,001 - 750,000	.69
210,001 - 240,000	.18	750,001 - 780,000	.72
240,001 - 270,000	.21	780,001 - 810,000	.75
270,001 - 300,000	.24	810,001 - 840,000	.78
300,001 - 330,000	.27	840,001 - 870,000	.81
330,001 - 360,000	.30	870,001 - 900,000	.84
360,001 - 390,000	.33	900,001 - 930,000	.87
390,001 - 420,000	.36	930,001 - 960,000	.90
420,001 - 450,000	.39	960,001 - 990,000	.93
450,001 - 480,000	.42	990,001 - 1,020,000	.96
480,001 - 510,000	.45	1,020,001 - 1,050,000	.99
510,001 - 540,000	.48	1,050,001 - 1,080,000	1.02
540,000 - 570,000	.51	1,080,001 - 1,110,000	1.05
570,001 - 600,000	.54	1,110,001 - OVER	1.08

7. What is the estimated monthly volume of milk produced? *(Hint: calculate average days per month for the year)*

a) 22,980 cwt.

b) 23,976 cwt.

c) 24,980 cwt.

d) 23,429 cwt.

8. What is the price adjustment for monthly milk volume shipped?

a) 1.08

b) 0.98

c) 1.05

d) 1.12

Milk Value *(6 points each)*

The following are used to price Grade A milk from the Upper Midwest Marketing Area this month. (Two points for each correct blank in this calculation, 22 blanks).

Class I **$18.10** @ 3.5% BF test

Class II **$16.59** @ 3.5% BF test

Class III **$15.72** @ 3.5% BF test

Class IV **$15.35** @ 3.5% BF test

The utilization of milk purchased to calculate the farm's blend price (Federal Order No. 30) is:

Class I **11.0%**

Class II **2.1%**

Class III **84.1%**

Class IV **2.8%**

Determine the potential adjusted Class prices for this farm=s production for the past month.

	Utilization		Production		Blend		**Class $**		Payment
Class I	_____	*x*	_____	*lbs. =*	_____	*lbs. x*	_____	*/cwt. =*	_____
Class II	_____	*x*	_____	*lbs. =*	_____	*lbs. x*	_____	*/cwt. =*	_____
Class III	_____	*x*	_____	*lbs. =*	_____	*lbs. x*	_____	*/cwt. =*	_____
Class IV	_____	*x*	_____	*lbs. =*	_____	*lbs. x*	_____	*/cwt. =*	_____
				Total pounds sold			Proceeds:	***Total=***	

Proceeds: *Blend Price (per lb.):* _____

Blend Price (per cwt.): _____

9. What is the calculated blend price per cwt. of all milk shipped?

a. $15.31

b. $15.40

c. $15.81

d. $15.99

10. What is the estimated farm gate price for this patron's milk with any incentives for this month? (Hint: Farm gate = premiums and discounts)

a. 17.70

b. 15.99

c. 17.07

d. 15.71

Total points: 49 plus 1 bonus for teamwork! = 50 points

File: 4a TeamTestDairyFoodsPartIIIQUIZ_2012

2012 North Dakota FFA Convention

Dairy Foods Contest

TEAM PROBLEM SOLVING B PART III

[50 points]

Situation

The Thundar Dairy from Frisco County produces Grade A milk from a commercial herd with 990 lactating cows comprised of 960 Holsteins averaging 80 pounds of milk per day and 40 Brown Swiss cows averaging 69 pounds of milk per day. They have two sons starting college this fall and a daughter in high school and all are interested in dairying. The family recently moved to the area with intentions of expanding their dairying for future generations. For now, their herd management goal is to maintain milk yield and components while expanding the heifer facility. Since this is a new facility, emphasis is on neighbor relations while seeking additional property for expansion. Milk prices have been good, but are declining. The cost of production (namely feed costs) remain high, so marketing contracts are imperative. **Their current component and quality tests are:**

- Milk protein = 3.21%
- Milk fat = 3.72%
- Other solids = 5.61%
- Somatic Cell Count = 120,000 cells per milliliter

To complete this exercise you will need the following information.

Parameters for Determining Milk Value

The processor uses the current Federal Order Class III price data to set procurement policy to determine pay price and any premiums that apply:

1. Protein differential (**3.05%** base): **2.66/cwt. per 0.1% protein**
2. Butterfat differential (**3.50%** base): 1**.53/cwt. per 0.1% milk fat**
3. Other solids (OS) premium (**5.65%** base): **0.42/cwt. per 0.1% OS**
4. Somatic cell count (**350,000** base): **0.00076/cwt. per 1,000 SCC**
5. Bacteria plate count (**less than 25,000** for the month) to receive any premiums.

Given the information above, calculate the adjustments made to the price paid per hundredweight for milk with these components.

Milk Components: *(3 points each)*

1. Protein (PRO):

a) 0.043 **(3.21-3.05)x(0.0266÷0.1)=+0.04251**

b) 0.054

c) 0.039

d) 0.051

2. Butterfat (BF):

a) 0.053

b) 0.034 **(3.72-3.50)x(0.0153÷0.1)=+0.03365**

c) 0.103

d) 0.049

3. Other Solids (OS):

a) +0.017

b) +0.009

c) -0.017U **(5.61–5.65)x(-0.0042÷0.01)=(-0.01696)**

d) -0.015

Milk Quality *(4 points each)*

Determine the premium adjustment (if any) based on the following Somatic Cell Count criteria.

Criteria	
Somatic Cell Count (SCC) Base	**Adjustment Rate ($/cwt.) per 1,000 cells**
0 - 350,000	+0.0025
350,001 - 450,000	-0.0015
450,001 - 750,000	-0.0025
750,000 - OVER	-0.0035

4. What is the SCC premium adjustment?

a) 0.537

b) 0.305

c) 0.611

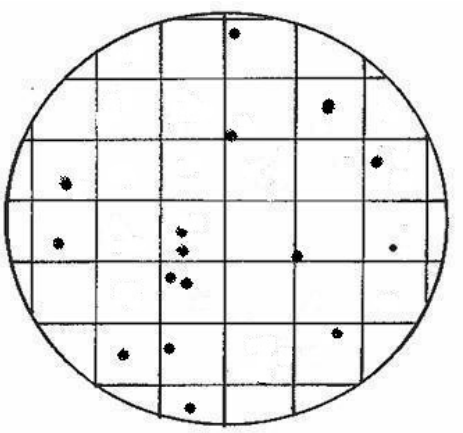
d) 0.575 **((350–120)x0.0025)=0.5750**

Milk Quality

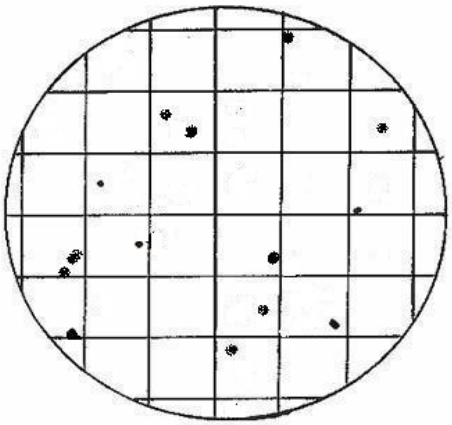
The control plate was determined clear, so analyze the dairy=s standard plate count (SPC) using the diagram of incubated plates below, determine the number of bacteria/ml. (The lab procedure for the bacteria plates used below is from a 1/1000 ml dilution.)

16 colonies

_12_ colonies



_14_ average colonies



5. What is the Standard Plate Count (SPC)?

a) 2.4×10^3

b) 1.7×10^4

c) 1.4×10^4 **((16+12)/2=14)x1000=14,000; in scientific notation $1.4x10^4$**

d) 2.0×10^4

Standard Plate Count (SPC)	Premium Rate $/cwt.
0 - 5,000	+0.20
5,001 - 10,000	+0.10
10,001 - 25,000 (base)	0.00 (base)
25,001 - 50,000	-0.10
50,001 - OVER	-0.20

6. What is the bacteria premium or discount using the above table?

a) +0.20

b) +0.10

c) +0.00 **(14,000=[10,001 to 25,000 SPC range]=$0.00 adjustment**

d) -0.10

e) -0.20

Milk Volume *(4 points each)*

This processor offers the following volume premium to help maintain a constant supply to market. Use the following table to answer Questions 7 and 8.

Grade A Volume Premium Program			
	Rate/cwt. *($0.00)*		**Rate/cwt.** *($0.00)*
60,001 - 90,000	.03	600,001 - 630,000	.57
90,001 - 120,000	.06	630,001 - 660,000	.60
120,001 - 150,000	.09	660,001 - 690,000	.63
150,001 - 180,000	.12	690,001 - 720,000	.66
180,001 - 210,000	.15	720,001 - 750,000	.69
210,001 - 240,000	.18	750,001 - 780,000	.72
240,001 - 270,000	.21	780,001 - 810,000	.75
270,001 - 300,000	.24	810,001 - 840,000	.78
300,001 - 330,000	.27	840,001 - 870,000	.81
330,001 - 360,000	.30	870,001 - 900,000	.84
360,001 - 390,000	.33	900,001 - 930,000	.87
390,001 - 420,000	.36	930,001 - 960,000	.90
420,001 - 450,000	.39	960,001 - 990,000	.93
450,001 - 480,000	.42	990,001 - 1,020,000	.96
480,001 - 510,000	.45	1,020,001 - 1,050,000	.99
510,001 - 540,000	.48	1,050,001 - 1,080,000	1.02
540,000 - 570,000	.51	1,080,001 - 1,110,000	1.05
570,001 - 600,000	.54	1,110,001 - OVER	1.08

7. What is the estimated monthly volume of milk produced? *(Hint: calculate average days per month for the year)*

a) 22,980 cwt.

b) 23,976 cwt. **((960x80)+(30x69)x30.4 days/month)÷100=23,976 cwt.**

c) 24,980 cwt.

d) 23,429 cwt.

8. What is the price adjustment for monthly milk volume shipped?

a) 1.08 **2,397,648=1,110,001 & over [category of production], +$1.08**

b) 0.98

c) 1.05

d) 1.12

Milk Value *(6 points each)*

The following are used to price Grade A milk from the Upper Midwest Marketing Area this month.

(Two points for each correct blank in this calculation, 22 blanks).

Class I **$18.10** @ 3.5% BF test

Class II **$16.59** @ 3.5% BF test

Class III **$15.72** @ 3.5% BF test

Class IV **$15.35** @ 3.5% BF test

The utilization of milk purchased to calculate the farm's blend price (Federal Order No. 30) is:

Class I	**11.0%**
Class II	**2.1%**
Class III	**84.1%**
Class IV	**2.8%**

Determine the potential adjusted Class prices for this farm=s production for the past month.

	Utilization		Production		Blend		Class $		Payment
Class I	**11.0%**	*x*	2,397,648	*lbs.* =	263,741.3	*lbs. x*	**$18.10**	*/cwt.* =	$47,737.17
Class II	**2.1%**	*x*	2,397,648	*lbs.* =	50,350.6	*lbs. x*	**$16.59**	*/cwt.* =	$8,353.17
Class III	**84.1%**	*x*	2,397,648	*lbs.* =	2,016,422.0	*lbs. x*	**$15.72**	*/cwt.* =	$316,981.53
Class IV	**2.8%**	*x*	2,397,648	*lbs.* =	67,134.1	*lbs. x*	**$15.35**	*/cwt.* =	$10,305.09
				Total pounds sold			Proceeds:	***Total=***	**$383,376.96**
				Proceeds:	*Blend Price (per lb.):*				*$0.1599*
					Blend Price (per cwt.):				***$15.990***

9. What is the calculated blend price per cwt. of all milk shipped?

a. $15.31

b. $15.40

c. $15.81

d. $15.99 **(blend price calculated above and reported per 100 pounds)**

10. What is the estimated farm gate price for this patron's milk with any incentives for this month? (Hint: Farm gate = premiums and discounts)

a. 17.70 **15.990+1.7142 (adjust = +0.043+0.034-0.017+0.575+0.00+1.080)**

b. 15.99

c. 17.07

d. 15.71

Total points: 49 plus 1 bonus for teamwork! = 50 points

File: 4b TeamTestDairyFoodsPartIIIKEY_2012

NORTH DAKOTA STATE FFA CONTEST

MILK QUALITY AND DAIRY FOODS CONTEST

WRITTEN TEST

2012

MILK PRODUCTION: USING A NUMBER 2 LEAD PENCIL, MARK THE CORRESPONDING NUMBER ON THE ANSWER SHEET. DO NOT WRITE ON THIS TEST

1. Probiotic generally refers to live bacteria that ____affects the host's intestinal microbial balance.

a. negatively b. digest

c. beneficially d. infect

2. Washing the udder prior to milking stimulates the release of _____ which induces milk letdown.

a. estrogen b. testosterone

c adrenaline d. oxytocin

3. The actual name of the disease commonly referred to as Johne's Disease is"

a. Mastitis b. Tuberculosis

c. Ketosis d. Paratuberculosis

4. Heritability describes the degree to which offspring resemble their parents for a certain trait. Which of the following is the most heritable trait?

a. milk b. udder

c. body size d. feet legs

5. The three primary entry points of a pathogen into the milk supply are:

a. cows, insects, pesticides b. cows, people, equipment

c. herbicides, fungicides, insecticides d. None of the above

6. Under which of the following weather conditions would you expect to observe the greatest decreases in milk yield per cow and in percentage of fat and protein in that milk?

a. cold and dry b. hot and humid

c. cool and rainy d. warm and dry

7. What is the bacterial infection that occurs in the eyes of dairy cattle that can cause blindness and is thought to be spread by flies?

a. Johne's b. Pinkeye

c. Vitamin A deficiency d. Brucellosis

8. When injecting a drug into an animal, the wrong size needle size or drug amount per site can result in:

a. illegal drug residues b. reduced drug effectiveness

c. tissue damage d. All of the above

9. Until how many hours old will a calf's intestine absorb the disease-fighting ingredients of colostrum?

a. 48 b. 24

c. 12 d. 4

10. Exposure of milk to fluorescent lighting can cause _____ off flavor.

a. flat b. cooked

c. rancid d. light oxidized

11. When do lactating dairy cows most often acquire mastitis?

a. dry period b. early lactation

c. mid lactation d. late lactation

12. The greatest damage to the udder due to mechanical milking results from:

a. too low of a vacuum b. removing the machine prematurely

c. leaving the machine on to long d. wrong pulsating ration

13. The _____ test measures the fat content of milk.

a. Kjeldahl b. Mohr titration

c. Dumas d. Babcock

14. A somatic cell count above _____ in milk may indicate that a bacterial infection is present in one or more cows in the herd.

a. 500,000 b. 275,000

c. 300,000 d. 250,000

15. Which of the following is the name for milk that is remaining in the udder following the completion of milking?

a. Residual milk b. Skim milk
c. Fore milk d. Calf milk

16. Poisonous compounds produced by molds are referred to as:

a. Pathogens b. Mycotoxins
c. Allergens d. Vaccinations

17. A Holstein dairy cow that weighs 690 Kg will weigh:

a. 1000 lbs b. 1200 lbs
c. 1500 lbs d. 1700 lbs

18. A gallon of milk weighs _____ lbs.

a. 5.6 b. 7.2
c. 8.6 d. 9.4

19. The Dairy Herd Improvement Association (DHIA) provides:

a. payment for lost production b. premiums for high quality milk
c. milk testing and record keeping d. none of the above

20. _____ is the process of pumping raw milk through spinning cone-shaped discs to remove sediment.

a. standardization b. pasteurization
c. clarification d. separation

21. If a 1400 pound cow is eating an amount of feed dry matter equivalent to 4% of its body weight, how many pounds of feed dry matter is the cow eating?

a. 28 pounds b. 40 pounds
c. 56 pounds d. 18 pounds

22. Lameness or sore feet is often a sign of what digestive disorder?

a. retained placenta b. metritis

c. fatty liver disease d. acidiosis

23. A freemartin heifer is:

a. free of defects b. highly efficient

c. sterile 90% of the time d. a twin heifer born to a heifer

24. _____ is the general name for the class of bacteria that causes mastitis in dairy cattle.

a. lactobacillus b. lactococcus

c. Ecoli d. staphylococcus

25. How many amino acids are considered to be essential in the dairy cow, and therefore are required in the diet?

a. 15 b. 21

c. 5 d. 10

MILK MARKETING

26. The most important variety of cheese produced from skim milk is:

a. Cottage Cheese b. Colby Cheese

c. Swiss Cheese d. American Cheddar

27. A food that contain less that _____ grams of fat per serving is considered a low fat food.

a. 10 b. 40

c. 1 d. 3

28. What is the justification of government involvement in the marketing of milk:

a. provide farmers price and income support

b. reduce price and income variability

c. improve market power of farmers

d. all of the above

29. Market equilibrium is reached when the quantity supplied is _____ the quantity demanded.

a. greater than
b. less than
c. equal to
d. none of the above

30. This product is made from addition of lactic acid producing bacteria to pasteurized cream containing less than 18% milkfat.

a. cottage cheese
b. sour cream
c. yogurt
d. gelato

31. The milk from cows being treated with antibiotics should be withheld from the supply because:

a. antibiotics curdle the milk
b. people are sensitive to antibiotics
c. antibiotics create high bacteria counts
d. antibiotics prevent proper cooling

32. Most bulk milk coolers are designed for every other day (EOD) pickup and must cool _____ of the volume of the bulk tank to 50 degrees within one hour and to 40 degrees within the second hour after milking.

a. 15%
b. 25%
c. 35%
d. 50%

33. Class 1 milk is used in:

a. Fluid milk order
b. Butter
c. Ice Cream
d. Cheddar Cheese

34. Cheese manufacturers realize greater yield from their milk when protein content is high and _____.

a. Carbohydrate content is low
b. Carbohydrate content is high
c. Somatic cell counts are low
d. Somatic cell counts are high

35. Fluid milk falls into what class?

a. Class I b. Class II

c. Class III d. Class IV

36. A load of hay consisting of large square bales averaging 750#/bale costs $85.00/bale. What is the cost of one ton of this hay?

a. $226.67 b. $221.50

c. $200.00 d .$236.85

37. The agency responsible for the development of standards and grades for milk and dairy products is:

a. FDA b. USDA

c. APHIS d. DHIA

38. Milk prices are often discussed in this term of measurement.

a. bu b. oz

c. cwt d. ton

39. Mathematical equations that use economic data to establish a minimum regulated price are:

a. Futures contract b. Hedge

c. Price formula d. Milk contract

40. The PPD (Producer Price Differential) is the value of milk above and beyond the _____ value:

a. Class I b. Class II

c. Class III d. none of the above

41. Yield of cheese is primarily determined by:

a. fat content b. protein content

c. water conten d. lactose content

42. The detection of added water in milk is easily determined by conducting the _____ test.

a. acidity b. phosphatase

c. freezing point d. ADV

43. Milk has a buffering capacity that maintains its PH at about:

a. 3.1 to 3.4 b. 4.1 to 4.4

c. 6.5 to 6.7 d. 8.2 to 8.6

44. Children (9-18) require ____servings of the milk group per day.

a. 6 b. 4

c. 3 d. 2

45. Dairy herds with somatic cell counts are more likely to produce a _____ favor of milk.

a. cooked b. rancid

c. feed d. garlic/onion

46. If a grocery store sells milk for $3.90 per gallon, what price are they charging per hundredweight?

a. 39.00 b. $45.88

c. $43.33 d. $3.90

47. Which product contains the most calcium?

a. butter b. skim milk

c. cottage cheese d. cheddar cheese

48. The fat content of reduced fat milk is _____.

a. 0.5% b. 1.0%

c. 2.0% d. 3.25%

49. This product is made with whey, a by-product of cheese-making that contains a high amount of nutrients.

a. Coffee-Mate non-dairy creamer b. pasteurized half and half

c. gouda cheese d. Velveeta

50. You are considering starting an on-farm cheese plant to process your own milk. You are milking 210 cows that are averaging 71 pounds of milk per cow per day. On a daily basis, how many pounds of cheese would you expect to produce from the milk produced?

a. 1491
b. 1754
c. 71
d. 710

ANSWER KEY

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