FFA Dairy Foods Exam 2015

Part I. There is ONE correct response per question. Completely fill in the scantron with your response.

1. The National Dairy Council is celebrating a landmark year in 2015. For how many years has the NDC been dedicated to promoting science and education related to dairy foods?
    a. 10
    b. 25
    c. 50
    d. 100

2. Which is the first-ever nationwide, multi-year program designed to inspire people to donate milk to hungry families?
    a. Healthy Food Bank Hub
    b. Great American Milk Drive
    c. Farm to Fork
    d. Fuel Up to Play 60

3. The USDA MyPyramid daily recommendation for consumption of foods in the "milk group" by teenagers is:
    a. 1 cup per day
    b. 2 cups per day
    c. 3 cups per day
    d. 4 cups per day

4. The Federal Milk Market Order program establishes class prices of milk based on market prices of _____.
    a. Evaporated milk
    b. Fresh milk and cream
    c. All varieties of cheese
    d. Cheddar cheese, butter, and nonfat dry milk

5. Hormones are naturally present in:
    a. Humans
    b. Animals
    c. Plants
    d. All of the above

6. The protein in milk that forms curds when coagulated to produce cheese is:
    a. Rennet
    b. Whey proteins
    c. Lactose
    d. Casein

7. Which of the following is an example of an unripened cheese?
    a. Cheddar
    b. Queso Fresco
    c. Parmesan
    d. Asiago

8. The 2010 Dietary Guidelines emphasize a total diet approach to health, which includes urging Americans to do all of the following, EXCEPT:
    a. Reduce calories
    b. Move more
    c. Make more nutrient-rich choices
    d. Increase portion size to reduce hunger

9. The "nutrients of concern" (specified in the *2010 Dietary Guidelines for Americans*), which Americans do not get enough of, *but dairy products supply a lot of*, include all of the following EXCEPT:
    a. Iron
    b. Vitamin D
    c. Calcium
    d. Potassium

10. Regarding chocolate milk, all of the following are true, EXCEPT:
    a. Flavored milk gives children more calcium without increasing fat and added sugars.
    b. Chocolate milk provides children with three of the five nutrients that fall short in children's diets.
    c. Chocolate milk contains the same nine essential nutrients as white milk.
    d. Chocolate milk causes hyperactivity in children.

11. If a person is lactose intolerant, she or he may be able to comfortably consume all of the following dairy products, EXCEPT:
    a. Lactaid® milk
    b. Aged cheeses
    c. Goat milk
    d. Greek yogurt

12. Dairy checkoff programs dollars support the Innovation Center for U.S. Dairy®, which do all of the following, EXCEPT:
    a. Promote the nutrient-rich benefits of dairy foods.
    b. Address challenges and opportunities to help grow dairy sales.
    c. Work to build a foundation of sound science to tell dairy's story of sustainability and environmental stewardship.
    d. Increase the price of dairy products.

13. Dairy products pack a powerful nutritional punch of nine essential nutrients, including all of the following, EXCEPT:
    a. Calcium, potassium, phosphorus
    b. Protein
    c. Dietary fiber
    d. Vitamins A, D and B12, riboflavin and niacin

14. Which of the following statements about cheese is NOT true?
    a. Process cheese is made from high-quality natural cheese
    b. Cheeses are naturally gluen-free
    c. Cheese is the #1 source of dietary sodium for Americans
    d. Cheese is the #2 source of dietary calcium for Americans

15. For every 100 pounds (cwt) of milk marketed, _____ cents are assessed for dairy promotion and research programs as authorized by the checkoff legislation.
    a. 10
    b. 15
    c. 20
    d. 25

16. Compared to soy milk, low-fat cow's milk has:
    a. Same calories
    b. Same protein
    c. Less fat
    d. All of the above

17. Compared to coconut milk, low-fat cow's milk has:
    a. Same calories
    b. Same protein
    c. Less fat
    d. All of the above

18. The vitamins and minerals in almond milk:
    a. Are typically less than than those found in cow's milk
    b. Are typically equal to those found in cow's milk
    c. Are typically higher than those found in cow's milk
    d. Must be added to reach levels naturally found in cow's milk

19. While most regular carbonated beverages contain about 7 teaspoons of added sugar per serving, the same amount of chocolate milk products contain approximately:
    a. 1 teaspoon
    b. 2 teaspoons
    c. 4 teaspoons
    d. 6 teaspoons

20. According to the Food and Nutrition Board of the National Academy of Sciences, all people need at least _____ mg of calcium per day.
    a. 500
    b. 1,000
    c. 1,500
    d. 2,000

21. Some people try to claim that you can get as much calcium by consuming spinach, but you would have to eat 30 cups of spinach to equal the calcium in:
    a. One cup of fat-free milk
    b. Two cups of fat-free milk
    c. Three cups of fat-free milk
    d. A half-gallon of fat-free milk

22. An 8-ounce glass of milk provides 11% of the daily value of potassium, which helps to:
    a. regulate the body's fluid balance and helps maintain normal blood pressure
    b. build and repair muscle tissue, and serves as a source of energy
    c. maintain normal vision and skin
    d. strengthen bones and generates energy in your body's cells

23. The microbial standard for Grade 'A' raw milk from a single farm is less than _____ total aerobic bacteria per milliliter of milk.
    a. 50,000
    b. 100,000
    c. 200,000
    d. 300,000

24. Some researchers estimate that up to 55% of adolescents may be deficient in _____, putting them at increased risk for debilitating bone diseases. Milk is the leading source of this vitamin:
    a. Vitamin C
    b. Vitamin D
    c. Folic acid
    d. Thiamin

25. To effectively sanitize a teat and maintain milk quality, how long must a teat pre-dip be left on the teat to be effective?
    a. 20 seconds
    b. 30 seconds
    c. 45 seconds
    d. 1 minute

26. An 8-ounce glass of milk provides 16% of the daily value of protein, which primarily helps to:
    a. maintain normal vision and skin
    b. build and repair muscle tissue, and serves as a source of energy
    c. strengthen bones and generates energy in your body's cells
    d. regulate the body's fluid balance and helps maintain normal blood pressure

27. Dairy cows are treated with antibiotics for all of these reasons EXCEPT:
    a. To promote growth
    b. Only when they are necessary to treat and cure an illness
    c. For a prescribed period of time to treat a specific illness
    d. And milk from those cows does not make it into the food supply

28. Regarding bovine somatotropin, all of these statements are true EXCEPT:
    a. It can be distinguished from recombinant bovine somatotropin (rbST)
    b. It is naturally produced in the pituitary gland of cows
    c. It directs how energy and nutrients are used for growth of young cattle
    d. It directs how energy and nutrients are used for milk production in lactating cows

29. Research has shown that drinking milk after exercise can be as effective as some sports drinks in helping the body do all of the following, EXCEPT:
    a. Reduce muscle damage
    b. Replace fluids
    c. Rebuild muscle
    d. Rest

30. Frozen yogurt:
    a. Is essentially pure yogurt, but frozen
    b. Typically has lower fat and higher sugar than ice cream
    c. Is much more healthy than ice cream
    d. Can only contain all-natural ingredients

Turn the scantron over and turn to the next page to answer the remaining questions.

For questions 51 – 55, observe page 2 of Dairy Management Inc.'s "Total U.S. Monthly Milk Snapshot" July 2015 Issue, provided to you.

51. Of those listed below, which Non-Dairy Alternative Beverage has the LARGEST share of the Non-Dairy Beverage market?
    a. Almond
    b. Coconut
    c. Rice
    d. Soy

52. Of those listed below, which Value-Added Milk Segment has the largest share of the market?
    a. Raw
    b. Grass-fed
    c. Lactose-free
    d. Omega-3

53. Of those listed below, which products have the largest volume sales?
    a. Conventional milk
    b. Non-Dairy Beverages
    c. Value-Added milk
    d. Flavored milk

54. Of those listed below, which products have the largest volume share?
    a. Fat free milk
    b. Lowfat milk
    c. Reduced fat milk
    d. Whole milk

55. How are "Creamy" milk products defined?
    a. Non-homogenized
    b. Contain added fat
    c. Contain added protein
    d. Contain added calcium

Total U.S. Monthly Milk Snapshot

Value-Added Milk Segments

Lactose Free milk products continue to show strong sales increases (+14.6%) through 2015 and are being driven by growth within Branded products (both developed as well as new entrants).

2015 YTD (Gal) (thru 7/12)	Vol. Sales	Vol. Share (TTL Milk)	Vol. % Chg.	Vol. Chg.
Total Milk	**2,092,261,622**	**100%**	**-2.3%**	**-49,358,640**
- Conventional	**1,930,148,323**	**92.3%**	**-2.8%**	**-54,682,011**
- Value-Added*	**162,113,299**	**7.7%**	**+3.4%**	**+5,323,370**

*Value-Added includes: Organic, Lactose Free, Omega 3, Creamy (tastes of higher fat level), Pre/Probiotic, Glass Bottle, Non-Homogenized, Grass-fed, Plant Sterols, and Raw milk products

- Organic	**100,883,170**	**4.8%**	**-0.2%**	**-171,252**
- Lactose Free	**52,437,895**	**2.5%**	**+14.6%**	**+6,694,504**
- Omega 3	**16,815,598**	**0.8%**	**-15.8%**	**-3,151,084**
- Pre/Probiotic	**3,998,206**	**0.2%**	**-6.9%**	**-294,410**
- Glass Bottle	**3,408,098**	**0.2%**	**-0.4%**	**-14,583**
- Creamy[3]	**2,131,857**	**0.1%**	**-58.9%**	**-3,050,164**
- Non-Homogenized	**694,584**	**0.03%**	**+45.9%**	**+218,616**
- Refuel	**620,585**	**0.03%**	**+12.4%**	**+68,409**
- Grass-fed	**302,249**	**0.01%**	**+84.7%**	**+138,613**
- Raw	**83,407**	**0.004%**	**+46.3%**	**+26,400**
- Plant Sterols	**24,709**	**0.001%**	**-86.1%**	**-152,734**

Multiple value-added products remain small pockets of vol. growth within the total milk category. Lactose Free milk is still displaying strong sales and remains the primary leader of volume growth for value-added products. Several other segments are much smaller in terms of vol. share, but are also increasing in sales through 2015.

(Note: each of the segments within Total Value-Added are not mutually exclusive definitions)

Non-Dairy Alternative Beverages

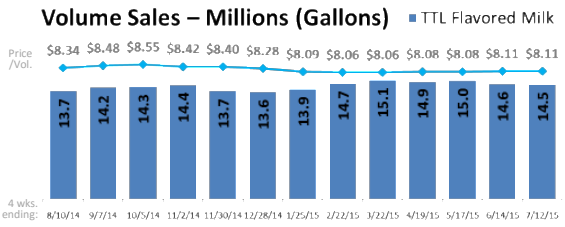
Non-Dairy maintains strong growth, while pricing is nearly unchanged through 2015. The sharp growth within AO Milk Sub.* is stemming from increasingly popular Cashew milk items.

2015 YTD (Gal) (thru 7/12)	Vol. Sales	Vol. Share	Vol. % Chg.
Non-Dairy Bev.	**128,405,487**	**100%**	**+6.4%**
- Almond	**84,975,548**	**66.2%**	**+8.8%**
- Soy	**26,531,401**	**20.7%**	**-9.0%**
- Coconut	**7,940,821**	**6.2%**	**+9.3%**
- AO Milk Sub.*	**7,643,466**	**6.0%**	**+64.0%**
- Rice	**1,314,252**	**1.0%**	**-13.5%**

*All Other Milk Substitutes include: 'Chocolate Drink', Goat Milk, Horchata, Cashew, and AO

Flavored Milk Trends

TTL Flavored Milk = Refrigerated + Shelf-Stable products



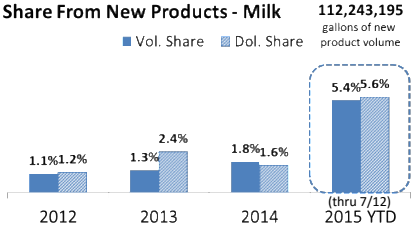
2015 YTD (thru 7/12)

Vol. Sales	Vol. % Chg.	Price/Vol.
103,433,431	**+4.9%**	**$8.14**

Total Flavored Milk volume remains strong more than halfway through 2015, while the average pricing per gallon has been quite stable this year.

New Milk Product Introductions

Share From New Products - Milk



New product introductions for milk account for 5.4% of vol. thru 2015 YTD, stronger than observed in previous years. This is due to Dean's *Dairy* Pure product line, which is captured within new products since they have different UPC codes. Most of the top ten new UPCs are white gallons, though there are a few half-gallons too.

Product Spotlight

Lanco-Pennland Dairy
5th Quarter Fresh Chocolate Milk

5th Quarter Fresh contains 20g of protein per 14 oz. bottle, while being positioned as a sports recovery drink. The milk is sourced from Jersey and Guernsey cows and claims to have 40% more protein and calcium than regular flavored milk.

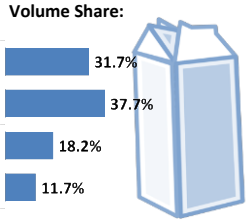
U.S. - July 2015

Milk Fat Content

Strong vol. growth in Whole Fat milk is coming from all eight standard regions, with the largest sales increases coming from the West and Plains regions.

2015 YTD (thru 7/12)	Vol. % Chg. vs. YA
Whole Fat	**+3.9%**
Reduced Fat	**-7.1%**
Low Fat	**+5.9%**
Fat Free	**-12.4%**

Volume Share:



[1]MULO+C retail channel includes: Grocery, C-Store, Drug, Walmart, Club (Sam's, BJ's), Dollar (Dollar General, Family Dollar, Fred's), Mass Merchandiser (Target, Kmart, Shopko), and Military (DeCA) commissaries

[2]Source: IRI Custom DMI Consumer & Shopper Insights Advantage Database

[3]Creamy milk products contain added calcium and claim to taste of a higher milk fat content

[4]Multi-Outlet + Conv. data covers approximately 68% of USDA fluid milk sales

Source: IRI Custom DMI Market Advantage Database

For questions 56 – 60, observe the Nutrition Facts for Breyers Natural Vanilla ice cream and Yoplait original low fat frozen yogurt (attached).

56. Yoplait *original low fat frozen yogurt contains _____ % (percent) fat.*
    a. 2
    b. 2.7
    c. 3
    d. 7

57. Yoplait *original low fat frozen yogurt contains _____ % (percent) sugar.*
    a. 7
    b. 19
    c. 22
    d. 25.3

58. Breyers Natural Vanilla ice cream *contains _____ % (percent) sugar.*
    a. 5
    b. 14
    c. 16.7
    d. 21.2

59. Breyers Natural Vanilla ice cream *contains _____ % (percent) protein.*
    a. 3
    b. 4
    c. 4.5
    d. 7

60. Breyers Natural Vanilla ice cream *weighs less (per serving) than Yoplait original low fat frozen yogurt because it has:*
    a. Fewer total ingredients
    b. Less sugar
    c. More air
    d. More fat

Nutrition Facts

Serving Size 1/2 cup (75g)
Servings Per Container 4

Amount Per Serving	
Calories 110	Calories from Fat 20
	% Daily Value*
Total Fat 2g	3%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Cholesterol 20mg	7%
Sodium 50mg	2%
Potassium 160mg	5%
Total Carbohydrate 22g	7%
Dietary Fiber 2g	9%
Sugars 19g	
Protein 4g	7%

Vitamin A 2% • Vitamin C 10%
Calcium 10% • Iron 0%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Protein		50g	65g

INGREDIENTS: Skim Milk, Milk, Sugar, Diced Peaches, Cream, Inulin, Contains less than 1% of Egg Yolks, Peach Juice Concentrate, Natural Flavors, Carob Bean Gum, Pectin, Carrageenan, Food Starch-Modified, Cellulose Gum, Apricot Juice Concentrate, Annatto Extract for Color, Cultures. .
CONTAINS MILK AND EGGS.
CONTAINS THE FOLLOWING YOGURT CULTURES: Lactobacillus Delbrueckii Subsp. Bulgaricus, Streptococcus Thermophilus.

Nutrition Facts

Serving Size ½ cup (66g)
Servings Per Container 12

Amount Per Serving	
Calories 130	Calories from Fat 60
	% Daily Value*
Total Fat 7g	11%
Saturated Fat 4g	20%
Trans Fat 0g	
Cholesterol 20mg	7%
Sodium 35mg	1%
Total Carbohydrate 14g	5%
Dietary Fiber 0g	0%
Sugars 14g	
Protein 3g	

INGREDIENTS: MILK, CREAM, SUGAR, TARA GUM, NATURAL FLAVOR.

breyers.com 800-931-2826

See bottom of container for "Tastes Best Before" date.

GUARANTEE: IF YOU ARE NOT SATISFIED WITH THIS PRODUCT OR HAVE ANY QUESTIONS OR COMMENTS, PLEASE SEND THE UPC CODE AND STAMPED INFORMATION FROM THE BOTTOM OF THIS CONTAINER TO: *CONSUMER RELATIONS,* ADDRESS LISTED ABOVE.

2015 ISU FFA Exam Key (scantron answers)

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

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

2015 Iowa FFA Milk Quality & Products CDE

Problem Solving Part 1 & Part 2

Chapter: _____ Chapter Number: _____

Team Member Names: _____ _____

_____ _____

Part 1 (2 pts. Each)

- Complete **Table 1**, then submit, and pick up a **Table 1 KEY** to utilize in completing the problems in Part 2.

  (see Table 1 and write answers on the sheet labeled **Problem Solving Part 1**)

- **For calculations purposes on part 2, use the following information:**

  - Milk weighs 8.5 pounds per gallon
  - 10 pounds of milk are needed to make 1 pound of cheese
  - 21 pounds of milk are needed to make 1 pound of butter

Part 2

Neatly write the answer to each of the following questions on the designated line. (If the judges cannot easily read an answer, the answer will receive zero points.)

1. A herd produces milk for a market that has 87% Class I utilization and 13% Class II utilization. Using the information in **Table 1**, calculate the blend price for the milk shipped.

   Blend price = (Class I utilization × Class I price) + (Class II utilization × Class II price)

   $ _____ **per hundredweight** (4 pts.)

2. If a grocery store sells milk for $4.09 per gallon, what price are they charging per hundredweight?

   $ _____ **per hundredweight** (4 pts.)

3. Use the information in **Table 1** to calculate the weighted average somatic cell count for a herd of three cows. The herd includes cows **8**, **10**, and **12**.

   Herd Average SCC: _____ **cells/ml** (4 pts.)

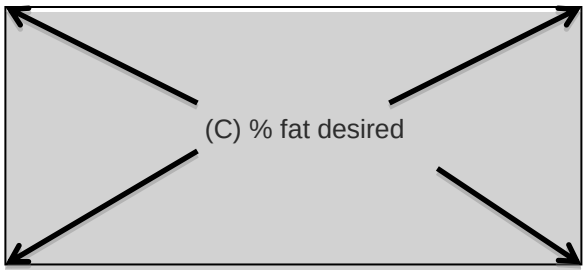
4. A dairy producer received $296,140 for 1.7 million pounds of milk shipped in May. What was the average price per hundredweight for the milk?

$ _____ per hundredweight (4 pts.)

A Cheddar cheese producer plans to standardize milk to <u>3.40% fat</u> prior to cheese making. First, the raw milk must be separated into cream and skim milk. The separation process yields fresh cream of <u>42% fat</u> and skim milk with <u>0.06% fat</u>.

The Pearson Square (below) can be used to determine, for a given volume of milk, how much cream and skim milk must be combined to attain a desired fat content.

(A) % fat in cream — difference of B minus C (D parts)



(B) % fat in skim milk — difference of A minus C (E parts)

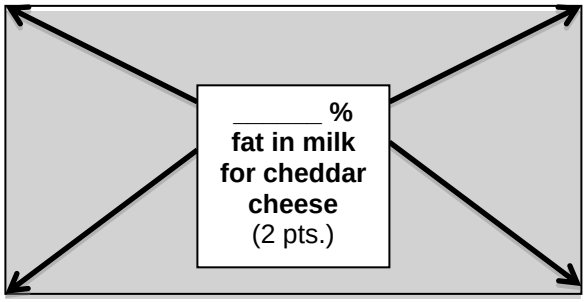
Sum of (D) + (E) = (X)

For a given volume of milk (Y), you need: (D) parts cream and (E) parts skim milk for (C) % fat milk.

For Y lb of milk at the desired fat content, you need: (Y / X) * C = lb cream and Y – lb cream = lb skim milk

5. Use the information provided above and the Pearson Square below to calculate how much cream and skim milk must be combined to make <u>5000 lb of 3.40% fat milk</u>. Complete the Pearson Square below for 12 points.

_____% fat in cream (2 pts.) — **B minus C = _____ parts** (2 pts.)



_____% fat in skim milk (2 pts.) — **A minus C = _____ parts** (2 pts.)

Sum of (D) + (E) = _____ (2 pts.)

6. Using the information you entered for question 5, in order to have 5,000 lbs. of milk to make cheddar cheese at the desired fat content. How much cream and how much skim milk will you need?

_____ **lbs of cream** (4 pts.) and _____ **lbs of skim milk** (4 pts.)

7. Approximately how many pounds of Cheddar cheese will you end up with from the above 5,000 lbs of milk?

_____ **lbs of cheddar cheese** (2 pts.)

8. Utilizing the information in **Table 1**, calculate the per hundredweight value of Class I milk that is 3.9% Butterfat, 3.4% Protein, and 5.7% Other Solids. (Other Solids are paid a premium of $0.25/cwt for each point above 5.0%.)

$ _____ **per hundredweight** (4 pts.)

9 During one week (7 days), **cows 2, 4, 6, and 8** could produce an estimated total of ____ gallons of milk?

_____ **gallons** (4 pts.)

10. How many pounds of butterfat and protein would **cow 7** produce in one week?

_____ **pounds of butter fat** (2 pts.)

_____ **pounds of protein** (2 pts.)

2015 Iowa FFA Milk Quality & Products CDE

Problem Solving Part 1 & Part 2

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Team Member Names: _____ _____

_____ _____

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Part 2

Neatly write the answer to each of the following questions on the designated line. (If the judges cannot easily read an answer, the answer will receive zero points.)

1. A herd produces milk for a market that has 87% Class I utilization and 13% Class II utilization. Using the information in **Table 1**, calculate the blend price for the milk shipped.

   Blend price = (Class I utilization × Class I price) + (Class II utilization × Class II price)

   (.87 * 16.53) + (.13 * 14.67) =$16.29

   $16.25 to $16.35 per hundredweight (4 pts.)

2. If a grocery store sells milk for $4.09 per gallon, what price are they charging per hundredweight?

   $4.09/8.5*100 = $48.12

   $48.12 per hundredweight (4 pts.)

3. Use the information in **Table 1** to calculate the weighted average somatic cell count for a herd of three cows. The herd includes cows **8**, **10**, and **12**.

49 + 29 + 81 = 159 **49/159 = .308** **29/159 = .182** **81/159 = .509**

.308*80,000 = 24,640 **.182*160,000 = 29,120** **.509*1,250,000 = 636,250**

24,640 + 29,120 + 636,250 = 690,010

Herd Average SCC: 675,000 to 725,000 cells/ml (4 pts.)

4. A dairy producer received $296,140 for 1.7 million pounds of milk shipped in May. What was the average price per hundredweight for the milk?

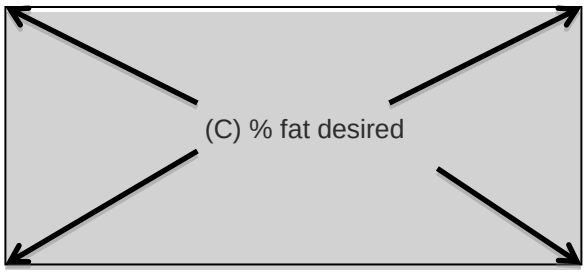
296,140/1,700,000*100 = <u>17.42</u>

<u>$17.42</u> per hundredweight (4 pts.)

A Cheddar cheese producer plans to standardize milk to <u>3.40% fat</u> prior to cheese making. First, the raw milk must be separated into cream and skim milk. The separation process yields fresh cream of <u>42% fat</u> and skim milk with <u>0.06% fat</u>.

The Pearson Square (below) can be used to determine, for a given volume of milk, how much cream and skim milk must be combined to attain a desired fat content.

(A) % fat in cream — difference of B minus C (D parts)



(B) % fat in skim milk — difference of A minus C (E parts)

Sum of (D) + (E) = (X)

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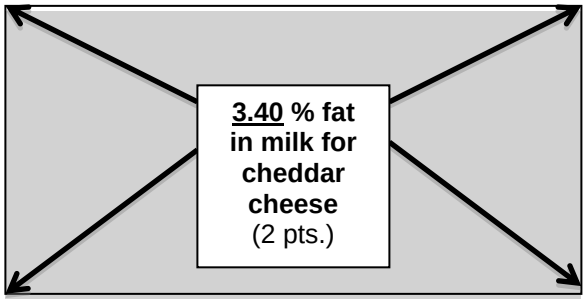
For Y lb of milk at the desired fat content, you need: (Y / X) * C = lb cream and Y – lb cream = lb skim milk

5. Use the information provided above and the Pearson Square below to calculate how much cream and skim milk must be combined to make <u>5000 lb of 3.40% fat milk</u>. Complete the Pearson Square below for 12 points.

<u>42.0</u>% fat in cream (2 pts.)

B minus C = <u>3.34</u> parts (2 pts.)



<u>0.06</u>% fat in skim milk (2 pts.)

A minus C = <u>38.6</u> parts (2 pts.)

Sum of (D) + (E) = <u>41.94</u> (2 pts.)

6. Using the information you entered for question 5, in order to have 5,000 lbs. of milk to make cheddar cheese at the desired fat content. How much cream and how much skim milk will you need?

skim milk: 38.6/41.94*5000 = 4601.81 lbs.

cream: 3.34/41.94*5000 = 398.19 lbs.

350 to 450 lbs of cream (4 pts.) and **4550 to 4650 lbs of skim milk** (4 pts.)

7. Approximately how many pounds of Cheddar cheese will you end up with from the above 5,000 lbs of milk?

5,000/10 = 500

500 lbs of cheddar cheese (2 pts.)

8. Utilizing the information in **Table 1**, calculate the per hundredweight value of Class I milk that is 3.9% Butterfat, 3.4% Protein, and 5.7% Other Solids. (Other Solids are paid a premium of $0.25/cwt for each point above 5.0%.)

BF: 3.9-3.5 = 0.4/.1 = 4*.17 = 0.68
Prot: 3.4-3.5 = -0.1/.1 = -1 = No Premium
OS: 5.7-5.0 = 0.7/.1 = 7*.25 = 1.75
16.53 + 0.68 + 0.00 + 1.75 = 18.96

$18.96 per hundredweight (4 pts.)

9 During one week (7 days), **cows 2, 4, 6, and 8** could produce an estimated total of ____ gallons of milk?

63+47+92+49 = 251*7 = 1757/8.5 = 206.71

206 to 207 gallons (4 pts.)

10. How many pounds of butterfat and protein would **cow 7** produce in one week?

23.0 to 23.3 pounds of butter fat (2 pts.) **72*.046 = 3.312*7 = 23.184**

20.3 to 21.0 pounds of protein (2 pts.) **72*.041 = 2.952*7 = 20.664**

Complete the Table 1, **cells A thru Y** (2 pts. per blank cell, **IF** legible)

Table 1 **Part 1**

Cow Production						Feed	Premiums			Income Comparisons - Class I @ $16.53/cwt vs. Class II @ $14.67/cwt					
	Lbs. Milk per Day per Cow	**Butterfat %**	**Protein %**	**Milk pH**	**Somatic Cell Count** (cells/ml)	**Feed Cost** per Day	Butterfat premium per cwt $0.17 per 0.1 above 3.5%	Protein premium per cwt $0.47 per 0.1 above 3.5%	SCC premium per cwt $0.23 per cwt if less than 200,000 cells/ml	BEFORE PREMIUMS Base Per Day $ Value of Daily Milk if sold as Class I milk @ $16.53/cwt	BEFORE PREMIUMS Base Per Day $ Value of Daily Milk if sold as Class II milk @ $14.67/cwt	WITH PREMIUMS Class I: Total Per Day $ Value of Milk if sold as Class I milk @ $16.53/cwt	WITH PREMIUMS Class II: Total Per Day $ Value of Milk if sold as Class II milk @ $14.67/cwt	**Class I After Feed:** Milk Income minus Feed Cost per day	**Class II After Feed:** Milk Income minus Feed Cost per day
Example	**25**	3.6	3.6	6.4	199,999	**$6.75**	**$0.17**	**$0.47**	**$0.23**	**$4.13**	**$3.67**	**$4.35**	**$3.89**	-$2.40	-$2.87
Cow 1	57	3.8	3.6	6.4	290,000	$5.65	$0.51	$0.47	$0.00	$9.42	A	$9.98	B	$4.33	C
Cow 2	63	4.0	3.7	6.6	398,000	$5.85	$0.85	$0.94	$0.00	D	$9.24	E	$10.37	F	$4.52
Cow 3	56	4.2	3.5	6.5	161,000	$5.95	$1.19	$0.00	$0.23	$9.26	$8.22	$10.05	G	$4.10	$4.56
Cow 4	47	4.1	3.6	6.5	1,750,000	$5.25	$1.02	$0.47	$0.00	$7.77	$6.89	H	$7.60	$8.17	$2.35
Cow 5	41	4.5	3.6	6.5	211,000	$6.75	$1.70	$0.47	$0.00	$6.78	$6.01	$7.67	I	$0.92	J
Cow 6	92	4.2	3.5	6.6	160,000	$6.60	$1.19	$0.00	$0.23	$15.21	$13.50	$16.51	$14.80	$9.91	$8.20
Cow 7	72	4.6	4.1	6.3	250,000	$5.95	$1.87	$2.82	$0.00	$11.90	K	$15.28	$13.94	L	$7.99
Cow 8	49	4.8	3.7	6.4	80,000	$5.85	$2.21	$0.94	$0.23	$8.10	$7.19	$9.76	$8.84	$3.91	M
Cow 9	46	5.0	4.4	6.6	110,000	$5.55	$2.55	$4.23	$0.23	$7.60	$6.75	N	$9.97	$10.28	$4.42
Cow 10	29	3.6	3.5	6.5	160,000	$5.75	$0.17	$0.00	$0.23	$4.79	$4.25	$4.91	$4.37	-$0.84	-$1.38
Cow 11	105	3.5	3.5	6.7	195,000	$7.05	$0.00	$0.00	$0.23	$17.36	O	$17.60	$15.65	$10.55	$8.60
Cow 12	81	3.6	3.5	7.4	1,250,000	$6.05	$0.17	$0.00	$0.00	P	$11.88	$13.53	$12.02	$7.48	$5.97
Cow 13	63	3.8	3.6	6.4	175,000	$6.60	$0.51	$0.47	$0.23	$10.41	$9.24	Q	$10.00	$5.79	$3.40
Cow 14	56	4.0	4.2	6.5	760,000	$6.25	$0.85	$3.29	$0.00	R	S	T	U	V	W
Cow 15	43	4.6	4.2	6.6	181,000	$6.15	$1.87	$3.29	$0.23	X	$6.31	$9.43	$8.63	Y	$2.48

Problem Solving Part 1

o

Chapter: _____

Chapter Number: _____

Team Members: _____

_____

_____

_____

Neatly write answers on the corresponding lines below.

A.	$8.36	J.	$0.15	S.	$8.22
B.	$8.92	K.	$10.56	T.	$11.58
C.	$3.27	L.	$9.33	U.	$10.53
D.	$10.41	M.	$2.99	V.	$5.33
E.	$11.54	N.	$10.83	W.	$4.28
F.	$5.69	O.	$15.40	X.	$7.11
G.	$9.01	P.	$13.39	Y.	$3.28
H.	$8.47	Q.	$11.18		
I.	$6.90	R.	$9.26		

Table 1 **Part 1**

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Cow 1	57	3.8	3.6	6.4	290,000	$ 5.65	$0.51	$0.47	$0.00	$9.42	$8.36	$9.98	$8.92	$4.33	$3.27
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