

## FFA Dairy Foods Exam 2014

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

1. 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
  
2. Stabilizers are added to ice cream to:
  - a. Make ice cream seem more rich
  - b. Prevent formation of large, coarse ice crystals in the ice cream
  - c. Improve the whipping quality of the ice cream
  - d. Improve nutritional value
  
3. 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
  
4. An 8-ounce glass of milk provides 11% of the daily value of potassium, which helps to:
  - a. build and repair muscle tissue, and serves as a source of energy
  - b. maintain normal vision and skin
  - c. strengthen bones and generates energy in your body's cells
  - d. regulate the body's fluid balance and helps maintain normal blood pressure
  
5. Fuel Up to Play 60, the in-school nutrition and physical activity program designed to help encourage today's youth to lead healthy lives, is coordinated with:
  - a. National Dairy Council
  - b. National Football League
  - c. U.S. Department of Agriculture
  - d. All of the above
  
6. 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

7. 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 D
  - b. Vitamin C
  - c. Folic acid
  - d. Thiamin
  
8. What breed generally produces milk with the highest fat and protein content?
  - a. Ayrshire
  - b. Guernsey
  - c. Jersey
  - d. Holstein
  
9. 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
  
10. The Federal Milk Market Order program establishes class prices of milk based on market prices of \_\_\_\_\_.
  - a. Cheddar cheese, butter, and nonfat dry milk
  - b. Evaporated milk
  - c. Fresh milk and cream
  - d. All varieties of cheese
  
11. The protein in milk that forms curds when coagulated to produce cheese is:
  - a. Rennet
  - b. Whey proteins
  - c. Lactose
  - d. Casein
  
12. Which of the following is an example of an unripened cheese?
  - a. Cheddar
  - b. Cream
  - c. Parmesan
  - d. Asiago
  
13. 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

14. While most regular carbonated beverages contain about 7 teaspoons of added sugar per serving, the same amount of chocolate milk products contain approximately:
- 1 teaspoon
  - 2 teaspoons
  - 4 teaspoons
  - 6 teaspoons
15. To effectively sanitize a teat and maintain milk quality, how long must a teat pre-dip be left on the teat to be effective?
- 20 seconds
  - 30 seconds
  - 45 seconds
  - 1 minute
16. An 8-ounce glass of milk provides 16% of the daily value of protein, which helps to:
- maintain normal vision and skin
  - build and repair muscle tissue, and serves as a source of energy
  - strengthen bones and generates energy in your body's cells
  - regulate the body's fluid balance and helps maintain normal blood pressure
17. Hormones are naturally present in all of the following, **EXCEPT**:
- Humans
  - Animals
  - Plants
  - Water
18. Dairy cows are treated with antibiotics for all of these reasons **EXCEPT**:
- To promote growth
  - Only when they are necessary to treat and cure an illness
  - For a prescribed period of time to treat a specific illness
  - And milk from those cows does not make it into the food supply
19. Regarding bovine somatotropin, all of these statements are true **EXCEPT**:
- It is naturally produced in the pituitary gland of cows
  - It directs how energy and nutrients are used for growth of young cattle
  - It directs how energy and nutrients are used for milk production in lactating cows
  - It can be distinguished from recombinant bovine somatotropin (rbST)
20. 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**:
- Reduce muscle damage
  - Replace fluids
  - Rebuild muscle
  - Rest

21. The 2010 Dietary Guidelines emphasize a total diet approach to health, which includes urging Americans to do all of the following, **EXCEPT**:
- Reduce calories
  - Move more
  - Make more nutrient-rich choices
  - Increase portion size to reduce hunger
22. 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**:
- Iron
  - Vitamin D
  - Calcium
  - Potassium
23. Greek yogurt differs from “regular” yogurt in the following ways **EXCEPT**:
- More fat
  - More protein
  - More whey**
  - Less lactose
24. Regarding chocolate milk, all of the following are true, **EXCEPT**:
- Flavored milk gives children more calcium without increasing fat and added sugars.
  - Chocolate milk provides children with three of the five nutrients that fall short in children’s diets.
  - Chocolate milk contains the same nine essential nutrients as white milk.
  - Chocolate milk causes hyperactivity in children.
25. If a person is lactose intolerant, she or he may be able to comfortably consume all of the following dairy products, **EXCEPT**:
- Goat milk
  - Lactaid® milk
  - Aged cheeses
  - Greek yogurt
26. Dairy checkoff programs dollars support the Innovation Center for U.S. Dairy®, which do all of the following, **EXCEPT**:
- Promote the nutrient-rich benefits of dairy foods.
  - Address challenges and opportunities to help grow dairy sales.
  - Work to build a foundation of sound science to tell dairy’s story of sustainability and environmental stewardship.
  - Increase the price of dairy products.

27. Dairy products pack a powerful nutritional punch of nine essential nutrients, including all of the following, **EXCEPT**:
- Dietary fiber
  - Calcium, potassium, phosphorus
  - Protein
  - Vitamins A, D and B12, riboflavin and niacin
28. Which of the following statements is **NOT** true?
- A single dairy cow yields about 6 to 7 gallons of milk per day.
  - Today's dairy farms produce almost 3 times more milk than farms of 1960.
  - Fresh milk straight from the cow is about 70 degrees F.
  - About 90 pounds of feed and hay are consumed by a dairy cow each day.
29. Which of the following statements is **NOT** true?
- It only takes 5 to 10 minutes to milk a single cow on today's dairy farms.
  - Dairy farming provides approximately 130,000 jobs in the US.
  - Of the approximately 51,000 dairy farms in the US, 98% of them are family owned.
  - A dairy cow will drink about 10 gallons of water each day.
30. Which of the following statements about cheese is **NOT** true?
- Cheese is the #1 source of dietary sodium for Americans
  - Cheese is the #2 source of dietary calcium for Americans
  - Process cheese is made from high-quality natural cheese
  - Most cheeses are gluten-free

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

**Part II. Observation and interpretation questions: turn the scantron over to answer the following questions.**

*For questions 51 – 55, compare the Nutrition Facts for the Silk (Organic Soymilk) and Horizon Organic Milk.*

51. What is the difference in calories will you ingest if you drink one serving of Horizon Organic Milk instead of Silk Soymilk?
- a. 0
  - b. 10
  - c. 20
  - d. 30
52. How many glasses of Silk Soymilk would you need to consume to attain 100% of your daily recommended intake of Vitamin D?
- a. 2
  - b. 3
  - c. 4
  - d. 5
53. How many glasses of Horizon Organic Milk would you need to consume to attain 100% of your daily recommended intake of Vitamin D?
- a. 2
  - b. 3
  - c. 4
  - d. 5
54. Which of the following statements is **TRUE**?
- a. Horizon Organic cow milk contains no folate (folic acid)
  - b. Horizon Organic cow and Silk Soymilk contain no trans fat
  - c. Silk Soymilk naturally contains the same amount of vitamins and minerals as Horizon Organic cow milk
  - d. No sugars are added to Horizon Organic cow milk
55. Which of the following stabilizers does Silk Soymilk contain?
- a. Sugar
  - b. Sea Salt
  - c. Calcium carbonate
  - d. Carrageenan

**For questions 56 – 60, observe the United States Department of Agriculture National Agricultural Statistics Service Iowa Ag News – Milk Production sheet (June 18, 2014) provided to you.**

56. Which state can brag the highest production *per cow* in May, 2014?
- a. Arizona
  - b. New Mexico
  - c. California
  - d. Wisconsin
57. Which state can brag the highest *total* milk production in 2014?
- a. Arizona
  - b. New Mexico
  - c. California
  - d. Wisconsin
58. How many cows were there in top 23 states in April, 2014?
- a. 854,000
  - b. 855,200
  - c. 8,540,000
  - d. 8,552,000
59. If the same number of cows in Iowa (listed for 2014) were to increase production to 2,000 lb per cow, how much total milk would they produce?
- a. 4,600,000 lb
  - b. 6,000,000 lb
  - c. 41,600,000 lb
  - d. 416,000,000 lb
60. Calculate the change in milk production from 2013 (in percent), for the state of Texas.
- a. 9.2%
  - b. 10.1%
  - c. 85.0%
  - d. 90.8%



<b>Nutrition Facts</b>	
Serving Size 1 Cup (240mL)	
Amount Per Serving	
<b>Calories</b> 90	Calories from Fat 35
% Daily Value*	
<b>Total Fat</b> 4g	6%
Saturated Fat 0.5g	3%
Trans Fat 0g	
Polyunsaturated Fat 2.5g	
Monounsaturated Fat 1g	
<b>Cholesterol</b> 0mg	0%
<b>Sodium</b> 120mg	5%
<b>Total Carbohydrate</b> 7g	2%
Dietary Fiber 2g	6%
Sugars 5g	
<b>Protein</b> 7g	14%
Vitamin A 10% • Vitamin C 0%	
Calcium 45% • Iron 6%	
Vitamin D 25% • Riboflavin 30%	
Folate 6% • Vitamin B12 25%	
Magnesium 10% • Zinc 8%	
*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
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g

**INGREDIENTS:**  
Soy Milk (Filtered Water, Whole Soybeans), Cane Sugar, Sea Salt, Carrageenan, Natural Flavor.

**VITAMINS & MINERALS:**  
Calcium Carbonate, Vitamin A Palmitate, Zinc Gluconate, Vitamin D2, Riboflavin (B2), Vitamin B12.

<https://www.whitewavefoodservice.com/wellness-beverages/silk-soymilk-singles>

<b>Nutrition Facts</b>	
Serving Size 1 Cup (240 mL)	
Servings Per Container 8	
Amount Per Serving	
<b>Calories</b> 120	Calories from Fat 45
% Daily Value*	
<b>Total Fat</b> 5 g	8%
Saturated Fat 3 g	15%
Trans Fat 0 g	
<b>Cholesterol</b> 20 mg	7%
<b>Sodium</b> 125 mg	5%
<b>Total Carbohydrate</b> 12 g	4%
Dietary Fiber 0 g	0%
Sugars 12 g	
<b>Protein</b> 8 g	
Vitamin A 10% • Vitamin C 2%	
Calcium 30% • Iron 0%	
Vitamin D 25% • Phosphorus 25%	
*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
Calories per gram:	
Fat 9	• Carbohydrate 4 • Protein 4

**INGREDIENTS:** Organic Grade A Reduced Fat Milk, Vitamin A Palmitate, Vitamin D3.

**Distributed by HORIZON ORGANIC®**  
Broomfield, CO 80021



Certified Organic by  
Quality Assurance International

**MADE IN USA**

1-888-494-3020 or visit  
HorizonOrganic.com

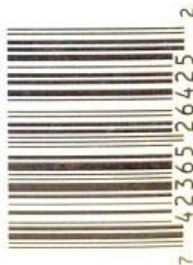
MFD at PLT # stamped above.



May be sold until midnight  
of date stamped above.

**PERISHABLE • KEEP REFRIGERATED**

Best if opened by sell-by date  
and used within 7 days.



**GRADE A**



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<http://calories.reachby.com/>



2014 ISU FFA Exam Key (scantron answers)

- |      |      |
|------|------|
| 1 B  | 51 D |
| 2 B  | 52 C |
| 3 C  | 53 C |
| 4 D  | 54 D |
| 5 D  | 55 D |
| 6 B  | 56 B |
| 7 A  | 57 C |
| 8 C  | 58 C |
| 9 C  | 59 D |
| 10 A | 60 B |
| 11 D |      |
| 12 B |      |
| 13 B |      |
| 14 C |      |
| 15 B |      |
| 16 B |      |
| 17 D |      |
| 18 A |      |
| 19 D |      |
| 20 D |      |
| 21 D |      |
| 22 A |      |
| 23 C |      |
| 24 D |      |
| 25 A |      |
| 26 D |      |
| 27 A |      |
| 28 C |      |
| 29 D |      |
| 30 A |      |

# 2014 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:

- |   |
|---|
| <ul style="list-style-type: none"><li>○ Milk weighs 8.5 pounds per gallon</li><li>○ 10 pounds of milk are needed to make 1 pound of cheese</li><li>○ 21 pounds of milk are needed to make 1 pound of butter</li></ul> |
|---|

### **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 82% Class I utilization and 18% 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 \$4.29 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 **3**, **4**, and **5**.

Herd Average SCC: \_\_\_\_\_ cells/ml (4 pts.)

4. A dairy producer received \$331,360 for 1.6 million pounds of milk shipped in May. What was the average price per hundredweight for the milk?

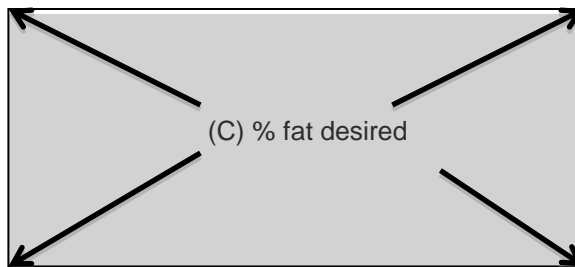
\$ \_\_\_\_\_ per hundredweight (4 pts.)

**A Cheddar cheese producer plans to standardize milk to 3.30% fat prior to cheese making. First, the raw milk must be separated into cream and skim milk. The separation process yields fresh cream of 40% fat and skim milk with 0.05% fat.**

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)

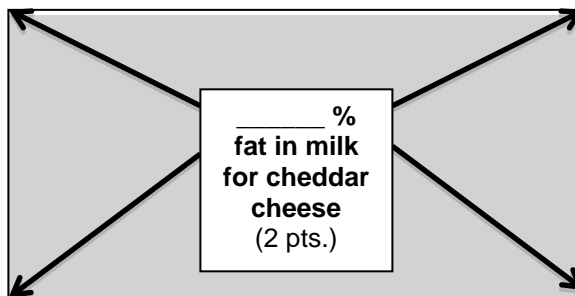
For a given volume of milk (Y), you need: (D) parts cream and (E) parts skim milk for (C) % fat milk.

For Y lb of milk at the desired fat content, you need:  $(Y / X) * C = \text{lb cream}$  and  $Y - \text{lb cream} = \text{lb skim milk}$

5. Use the information provided above and the Pearson Square below to calculate how much cream and skim milk must be combined to make 3500 lb of 3.30% fat milk. Complete the Pearson Square below for 10 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 3,500 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 3,500 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 4.1% Butterfat, 3.6% Protein, and 5.8% Other Solids. (Other Solids are paid a premium of \$0.24/cwt for each point above 5.0%.)

\$ \_\_\_\_\_ **per hundredweight** (4 pts.)

9. During one week (7 days), **cows 1, 2, 11, and 12** could produce an estimated total of \_\_\_\_\_ gallons of milk?

\_\_\_\_\_ **gallons** (4 pts.)

10. How many pounds of butterfat and protein would **cow 6** produce in one week?

\_\_\_\_\_ **pounds of butter fat** (2 pts.)

\_\_\_\_\_ **pounds of protein** (2 pts.)

# 2014 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 82% Class I utilization and 18% 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)

$$(.82 * 20.57) + (.18 * 18.72) = \$20.24$$

**\$20.10 to \$20.30 per hundredweight** (4 pts.)

2. If a grocery store sells milk for \$4.29 per gallon, what price are they charging per hundredweight?

$$\$4.29/8.5*100 = \$50.47$$

**\$50.47 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 **3**, **4**, and **5**.

$$56 + 47 + 41 = 144$$

$$56/144 = .389$$

$$47/144 = .326$$

$$41/144 = .285$$

$$.389*161,000 = 62,629$$

$$.326*1,750,000 = 570,500$$

$$.285*211,000 = 60,135$$

$$62,629 + 570,500 + 60,135 = \underline{693,264}$$

Herd Average SCC: **680,000 to 705,000** cells/ml (4 pts.)

4. A dairy producer received \$331,360 for 1.6 million pounds of milk shipped in May. What was the average price per hundredweight for the milk?

$$331,360 / 1,600,000 * 100 = \underline{20.71}$$

\$20.71 per hundredweight (4 pts.)

**A Cheddar cheese producer plans to standardize milk to 3.30% fat prior to cheese making. First, the raw milk must be separated into cream and skim milk. The separation process yields fresh cream of 40% fat and skim milk with 0.05% fat.**

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)

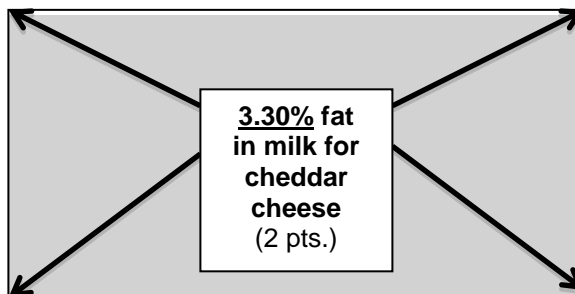
For a given volume of milk (Y), you need: (D) parts cream and (E) parts skim milk for (C) % fat milk.

For Y lb of milk at the desired fat content, you need:  $(Y / X) * C = \text{lb cream}$  and  $Y - \text{lb cream} = \text{lb skim milk}$

5. Use the information provided above and the Pearson Square below to calculate how much cream and skim milk must be combined to make 3500 lb of 3.30% fat milk. Complete the Pearson Square below for 10 points.

40.0% fat in cream  
(2 pts.)

**B minus C = 3.25 parts**  
(2 pts.)



0.05% fat in skim milk  
(2 pts.)

**A minus C = 36.70 parts**  
-----  
(2 pts.)

**Sum of (D) + (E) = 39.95**  
(2 pts.)

6. Using the information you entered for question 5, in order to have 3,500 lbs. of milk to make cheddar cheese at the desired fat content. How much cream and how much skim milk will you need?

$$\text{skim milk: } 36.7/39.95 * 3500 = \underline{3215.27 \text{ lbs.}}$$

$$\text{cream: } 3.25/39.95 * 3500 = \underline{284.73 \text{ lbs.}}$$

275 to 350 lbs of cream (4 pts.) and 3150 to 3225 lbs of skim milk (4 pts.)

7. Approximately how many pounds of Cheddar cheese will you end up with from the above 3,500 lbs of milk?

$$3,500/10 = \underline{350}$$

350 lbs of cheddar cheese (2 pts.)

8. Utilizing the information in **Table 1**, calculate the per hundredweight value of Class I milk that is 4.1% Butterfat, 3.6% Protein, and 5.8% Other Solids. (Other Solids are paid a premium of \$0.24/cwt for each point above 5.0%.)

$$\text{BF: } 4.1 - 3.5 = 0.6 / 1 = 6 * .18 = 1.08$$

$$\text{Prot: } 3.6 - 3.5 = 0.1 / 1 = 1 * .52 = 0.52$$

$$\text{OS: } 5.8 - 5.0 = 0.8 / 1 = 8 * .24 = 1.92$$

$$20.57 + 1.08 + 0.52 + 1.92 = \underline{24.09}$$

\$24.09 per hundredweight (4 pts.)

9. During one week (7 days), **cows 1, 2, 11, and 12** could produce an estimated total of \_\_\_\_\_ gallons of milk?

$$57 + 63 + 105 + 81 = 306 * 7 = 2142 / 8.5 = \underline{252}$$

252 gallons (4 pts.)

10. How many pounds of butterfat and protein would **cow 6** produce in one week?

27 to 27.30 pounds of butter fat (2 pts.)

$$92 * .042 = 3.864 * 7 = \underline{27.048}$$

22.4 to 22.70 pounds of protein (2 pts.)

$$92 * .035 = 3.22 * 7 = \underline{22.54}$$

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 @ \$20.57/cwt vs. Class II @ \$18.72/cwt						
	Lbs. Milk per Day per Cow	Butterfat %	Protein %	Milk pH	Somatic Cell Count (cells/ml)	Feed Cost per Day	Butterfat premium per cwt \$0.18 per 0.1 above 3.5%	Protein premium per cwt \$0.52 per 0.1 above 3.5%	SCC premium per cwt \$0.24 per cwt if less than 200,000 cells/ml	BEFORE PREMIUMS Base Per Day \$ Value of Daily Milk if sold as Class I milk @ \$20.57/cwt	BEFORE PREMIUMS Base Per Day \$ Value of Daily Milk if sold as Class II milk @ \$18.72/cwt	WITH PREMIUMS Class I: Total Per Day \$ Value of Milk if sold as Class I milk @ \$20.57/cwt	WITH PREMIUMS Class II: Total Per Day \$ Value of Milk if sold as Class II milk @ \$18.72/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	\$0.18	\$0.52	\$0.24	\$5.14	\$4.68	\$5.38	\$4.92	-\$1.37	-\$1.84
Cow 1	57	3.8	3.6	6.4	290,000	\$5.65	\$0.54	\$0.52	\$0.00	\$11.72	A	\$12.33	B	\$6.68	C
Cow 2	63	4.0	3.7	6.6	398,000	\$5.85	\$0.90	\$1.04	\$0.00	D	\$11.79	E	\$13.02	F	\$7.17
Cow 3	56	4.2	3.5	6.5	161,000	\$5.95	\$1.26	\$0.00	\$0.24	\$11.52	\$10.48	\$12.36	G	\$6.41	\$4.56
Cow 4	47	4.1	3.6	6.5	1,750,000	\$5.25	\$1.08	\$0.52	\$0.00	\$9.67	\$8.80	H	\$9.55	\$8.17	\$4.30
Cow 5	41	4.5	3.6	6.5	211,000	\$6.75	\$1.80	\$0.52	\$0.00	\$8.43	\$7.68	\$9.38	I	\$2.63	J
Cow 6	92	4.2	3.5	6.6	160,000	\$6.60	\$1.26	\$0.00	\$0.24	\$18.92	\$17.22	\$20.30	\$18.60	\$13.70	\$12.00
Cow 7	72	4.6	4.1	6.3	250,000	\$5.95	\$1.98	\$3.12	\$0.00	\$14.81	K	\$18.48	\$17.15	L	\$11.20
Cow 8	49	4.8	3.7	6.4	80,000	\$5.85	\$2.34	\$1.04	\$0.24	\$10.08	\$9.17	\$11.85	\$10.95	\$6.00	M
Cow 9	46	5.0	4.4	6.6	110,000	\$5.55	\$2.70	\$4.68	\$0.24	\$9.46	\$8.61	N	\$12.12	\$10.28	\$6.57
Cow 10	29	3.6	3.5	6.5	160,000	\$5.75	\$0.18	\$0.00	\$0.24	\$5.97	\$5.43	\$6.09	\$5.55	\$0.34	-\$0.20
Cow 11	105	3.5	3.5	6.7	195,000	\$7.05	\$0.00	\$0.00	\$0.24	\$21.60	O	\$21.85	\$19.91	\$14.80	\$12.86
Cow 12	81	3.6	3.5	7.4	1,250,000	\$6.05	\$0.18	\$0.00	\$0.00	P	\$15.16	\$16.81	\$15.31	\$10.76	\$9.26
Cow 13	63	3.8	3.6	6.4	175,000	\$6.60	\$0.54	\$0.52	\$0.24	\$12.96	\$11.79	Q	\$12.61	\$5.79	\$6.01
Cow 14	56	4.0	4.2	6.5	760,000	\$6.25	\$0.90	\$3.64	\$0.00	R	S	T	U	V	W
Cow 15	43	4.6	4.2	6.6	181,000	\$6.15	\$1.98	\$3.64	\$0.24	X	\$8.05	\$11.36	\$10.57	Y	\$4.42



# Problem Solving Part 1

o

Chapter: \_\_\_\_\_

Chapter Number: \_\_\_\_\_

Team Members: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Neatly write answers on the corresponding lines below.

A. \_\_\_\_\_ \$10.67

J. \_\_\_\_\_ \$1.88

S. \_\_\_\_\_ \$10.48

B. \_\_\_\_\_ \$11.27

K. \_\_\_\_\_ \$13.48

T. \_\_\_\_\_ \$14.06

C. \_\_\_\_\_ \$5.62

L. \_\_\_\_\_ \$12.53

U. \_\_\_\_\_ \$13.03

D. \_\_\_\_\_ \$12.96

M. \_\_\_\_\_ \$5.10

V. \_\_\_\_\_ \$7.81

E. \_\_\_\_\_ \$14.18

N. \_\_\_\_\_ \$12.97

W. \_\_\_\_\_ \$6.78

F. \_\_\_\_\_ \$8.33

O. \_\_\_\_\_ \$19.66

X. \_\_\_\_\_ \$8.85

G. \_\_\_\_\_ \$11.32

P. \_\_\_\_\_ \$16.66

Y. \_\_\_\_\_ \$5.21

H. \_\_\_\_\_ \$10.42

Q. \_\_\_\_\_ \$13.78

I. \_\_\_\_\_ \$8.63

R. \_\_\_\_\_ \$11.52

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

Table 1							Part 1								
Cow Production					Feed	Premiums			Income Comparisons - Class I @ \$20.57/cwt vs. Class II @ \$18.72/cwt						
	Lbs. Milk per Day per Cow	Butterfat %	Protein %	Milk pH	Somatic Cell Count (cells/ml)	Feed Cost per Day	Butterfat premium per cwt \$0.18 per 0.1 above 3.5%	Protein premium per cwt \$0.52 per 0.1 above 3.5%	SCC premium per cwt \$0.24 per cwt if less than 200,000 cells/ml	BEFORE PREMIUMS Base Per Day \$ Value of Daily Milk if sold as Class I milk @ \$20.57/cwt	BEFORE PREMIUMS Base Per Day \$ Value of Daily Milk if sold as Class II milk @ \$18.72/cwt	WITH PREMIUMS Class I: Total Per Day \$ Value of Milk if sold as Class I milk @ \$20.57/cwt	WITH PREMIUMS Class II: Total Per Day \$ Value of Milk if sold as Class II milk @ \$18.72/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	\$0.18	\$0.52	\$0.24	\$5.14	\$4.68	\$5.38	\$4.92	-\$1.37	-\$1.84
Cow 1	57	3.8	3.6	6.4	290,000	\$ 5.65	\$0.54	\$0.52	\$0.00	\$11.72	\$10.67	\$12.33	\$11.27	\$6.68	\$5.62
Cow 2	63	4	3.7	6.6	398,000	\$ 5.85	\$0.90	\$1.04	\$0.00	\$12.96	\$11.79	\$14.18	\$13.02	\$8.33	\$7.17
Cow 3	56	4.2	3.5	6.5	161,000	\$ 5.95	\$1.26	\$0.00	\$0.24	\$11.52	\$10.48	\$12.36	\$11.32	\$6.41	\$4.56
Cow 4	47	4.1	3.6	6.5	1,750,000	\$ 5.25	\$1.08	\$0.52	\$0.00	\$9.67	\$8.80	\$10.42	\$9.55	\$8.17	\$4.30
Cow 5	41	4.5	3.6	6.5	211,000	\$ 6.75	\$1.80	\$0.52	\$0.00	\$8.43	\$7.68	\$9.38	\$8.63	\$2.63	\$1.88
Cow 6	92	4.2	3.5	6.6	160,000	\$ 6.60	\$1.26	\$0.00	\$0.24	\$18.92	\$17.22	\$20.30	\$18.60	\$13.70	\$12.00
Cow 7	72	4.6	4.1	6.3	250,000	\$ 5.95	\$1.98	\$3.12	\$0.00	\$14.81	\$13.48	\$18.48	\$17.15	\$12.53	\$11.20
Cow 8	49	4.8	3.7	6.4	80,000	\$ 5.85	\$2.34	\$1.04	\$0.24	\$10.08	\$9.17	\$11.85	\$10.95	\$6.00	\$5.10
Cow 9	46	5	4.4	6.6	110,000	\$ 5.55	\$2.70	\$4.68	\$0.24	\$9.46	\$8.61	\$12.97	\$12.12	\$10.28	\$6.57
Cow 10	29	3.6	3.5	6.5	160,000	\$ 5.75	\$0.18	\$0.00	\$0.24	\$5.97	\$5.43	\$6.09	\$5.55	\$0.34	-\$0.20
Cow 11	105	3.5	3.5	6.7	195,000	\$ 7.05	\$0.00	\$0.00	\$0.24	\$21.60	\$19.66	\$21.85	\$19.91	\$14.80	\$12.86
Cow 12	81	3.6	3.5	7.4	1,250,000	\$ 6.05	\$0.18	\$0.00	\$0.00	\$16.66	\$15.16	\$16.81	\$15.31	\$10.76	\$9.26
Cow 13	63	3.8	3.6	6.4	175,000	\$ 6.60	\$0.54	\$0.52	\$0.24	\$12.96	\$11.79	\$13.78	\$12.61	\$5.79	\$6.01
Cow 14	56	4	4.2	6.5	760,000	\$ 6.25	\$0.90	\$3.64	\$0.00	\$11.52	\$10.48	\$14.06	\$13.03	\$7.81	\$6.78
Cow 15	43	4.6	4.2	6.6	181,000	\$ 6.15	\$1.98	\$3.64	\$0.24	\$8.85	\$8.05	\$11.36	\$10.57	\$5.21	\$4.42