ECON 337: Agricultural Marketing

Spring 2013

Homework 2: Dairy Marketing
Due: 03/12/2013

1. Calculate the butterfat price, nonfat solids price, Class IV skim milk price, and Class IV price.

   Butterfat Price = (Butter price - 0.1715) * 1.211
   = (1.5066 - 0.1715) * 1.211
   = $1.6168/pound

   Nonfat Solids Price = (Nonfat dry milk price - 0.1678) * 0.99
   = (1.5601 – 0.1678) * 0.99
   = $1.3784/pound

   Class IV Skim Milk Price = Nonfat solids price * 9
   = 1.3784 * 9
   = $12.41/cwt

   Class IV Price = (Class IV skim milk price * 0.965) + (Butterfat price * 3.5)
   = (12.41 * 0.965) + (1.6168 * 3.5)
   = $17.63/cwt

2. Calculate the butterfat price, other solids price, protein price, Class III skim milk price, and Class III price.

   Butterfat Price = (Butter price - 0.1715) * 1.211
   = (1.5066 – 0.1715) * 1.211
   = $1.6168/pound

   Other Solids Price = (Dry whey price - 0.1991) * 1.03
   = (0.6503 – 0.1991) * 1.03
   = $0.4647/pound

   Protein Price = ((Cheese price - 0.2003) * 1.383) + (((Cheese price - 0.2003) * 1.572) – Butterfat price x 0.9) x 1.17
   = ((1.7485 - 0.2003) * 1.383) + (((1.7485 - 0.2003) * 1.572) – 1.6168 * 0.9) * 1.17
   = $3.2862/pound
Class III Skim Milk Price = (Protein price * 3.1) + (Other solids price * 5.9)
= (3.2862 * 3.1) + (0.4647 * 5.9)
= $12.93/cwt

Class III Price = (Class III skim milk price * 0.965) + (Butterfat price * 3.5)
= (12.93 * 0.965) + (1.6168 * 3.5)
= $18.14/cwt

3. Calculate the Class II butterfat price, Class II nonfat solids price, Class II skim milk price, and Class II price.

Class II Butterfat Price = Butterfat price + $0.007
= 1.6168 + 0.007
= $1.6238/cwt

Class II Skim Milk Price = Advanced Class IV skim milk pricing factor + $0.70
= 12.26 + 0.70
= $12.96/cwt

Class II Nonfat Solids Price = Class II skim milk price / 9
= 12.96/9
= $1.4400/pound

Class II Price = (Class II skim milk price * 0.965) + (Class II butterfat price * 3.5)
= (12.96 * 0.965) + (1.6238 * 3.5)
= $18.19/cwt

4. Calculate the Class I butterfat price, Class I skim milk price, and Class I price. The applicable Class I differential is $0.23 per cwt.

Class I Butterfat Price = Advanced butterfat pricing factor + (applicable Class I differential / 100)
= 1.7452 + (0.23/100)
= $1.7475/pound

Class I Skim Milk Price = Higher of advanced Class III or IV skim milk pricing factors + applicable Class I differential
= 13.33 + 0.23
= $13.56/cwt

Class I Price = (Class I skim milk price * 0.965) + (Class I butterfat price * 3.5)
= (13.56 * 0.965) + (1.7475 * 3.5)
= $19.20/cwt
5. Calculate Producer A’s and Producer B’s milk values. Use the Class III and IV calculated values for the protein, butterfat, and other solids rate.

<table>
<thead>
<tr>
<th></th>
<th>Producer A</th>
<th>Producer B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location/County</td>
<td>Story</td>
<td>Buena Vista</td>
</tr>
<tr>
<td>Class I Price Differential (map)</td>
<td>$1.80</td>
<td>$1.75</td>
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<tr>
<td>Class I Price Differential (calculated)</td>
<td>$0.23</td>
<td>$0.18</td>
</tr>
<tr>
<td>Butterfat</td>
<td>4.60%</td>
<td>4.40%</td>
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<tr>
<td>Protein</td>
<td>3.80%</td>
<td>2.90%</td>
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<tr>
<td>Other solids</td>
<td>6.10%</td>
<td>5.80%</td>
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<tr>
<td>Somatic cell count</td>
<td>100,000</td>
<td>410,000</td>
</tr>
</tbody>
</table>

| Milk sold (cwt)          | 1,000      | 1,000      |

### Producer A's Milk Values

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Rate</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>3,800 lbs</td>
<td>$3.2862</td>
<td>$12,488.56</td>
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<tr>
<td>Butterfat</td>
<td>4,600 lbs</td>
<td>$1.6168</td>
<td>$7,437.28</td>
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<tr>
<td>Other solids</td>
<td>6,100 lbs</td>
<td>$0.4647</td>
<td>$2,834.67</td>
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<tr>
<td>Somatic cell count</td>
<td>250</td>
<td>$0.00087</td>
<td>$217.50</td>
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<tr>
<td>Producer Price Differential</td>
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<td>$0.23</td>
<td>$230.00</td>
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<tr>
<td>Total value</td>
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<td></td>
<td>$23,207.01</td>
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</tbody>
</table>

| Value per cwt            | 1,000 cwt| $23.21 |

### Producer B's Milk Values

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Rate</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>2,900 lbs</td>
<td>$3.2862</td>
<td>$9,529.98</td>
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<tr>
<td>Butterfat</td>
<td>4,400 lbs</td>
<td>$1.6168</td>
<td>$7,113.92</td>
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<tr>
<td>Other solids</td>
<td>5,800 lbs</td>
<td>$0.4647</td>
<td>$2,695.26</td>
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<tr>
<td>Somatic cell count</td>
<td>-60</td>
<td>$0.00087</td>
<td>-$52.20</td>
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<tr>
<td>Producer Price Differential</td>
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<td>$0.18</td>
<td>$180.00</td>
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<tr>
<td>Total value</td>
<td></td>
<td></td>
<td>$19,466.96</td>
</tr>
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</table>

| Value per cwt            | 1,000 cwt| $19.47 |
Class I:
Class I Price = (Class I skim milk price * 0.965) + (Class I butterfat price * 3.5)
Class I Skim Milk Price = Higher of advanced Class III or IV skim milk pricing factors + applicable Class I differential
Class I Butterfat Price = Advanced butterfat pricing factor + (applicable Class I differential / 100)

Class II:
Class II Price = (Class II skim milk price * 0.965) + (Class II butterfat price * 3.5)
Class II Skim Milk Price = Advanced Class IV skim milk pricing factor + $0.70
Class II Butterfat Price = Butterfat price + $0.007
Class II Nonfat Solids Price = Class II skim milk price / 9

Class III:
Class III Price = (Class III skim milk price * 0.965) + (Butterfat price * 3.5)
Class III Skim Milk Price = (Protein price * 3.1) + (Other solids price * 5.9)
Protein Price = ((Cheese price - 0.2003) * 1.383) + (((Cheese price - 0.2003) * 1.572) – Butterfat price * 0.9) * 1.17
Other Solids Price = (Dry whey price - 0.1991) * 1.03
Butterfat Price = (Butter price - 0.1715) * 1.211

Class IV:
Class IV Price = (Class IV skim milk price * 0.965) + (Butterfat price * 3.5)
Class IV Skim Milk Price = Nonfat solids price * 9
Nonfat Solids Price = (Nonfat dry milk price - 0.1678) * 0.99
Butterfat Price = (Butter price - 0.1715) * 1.211

Announcement of Class and Component Prices

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
<th>Announcement of Advanced Prices and Pricing Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter</td>
<td>$1.5066 (per pound)</td>
<td>Advanced Class III Skim Milk Pricing Factor: $13.33 (per hundredweight)</td>
</tr>
<tr>
<td>Nonfat Dry Milk</td>
<td>$1.5601 (per pound)</td>
<td>Advanced Class IV Skim Milk Pricing Factor: $12.26 (per hundredweight)</td>
</tr>
<tr>
<td>Cheese</td>
<td>$1.7485 (per pound)</td>
<td>Advanced Butterfat Pricing Factor: $1.7452 (per pound)</td>
</tr>
<tr>
<td>Dry Whey</td>
<td>$0.6503 (per pound)</td>
<td></td>
</tr>
</tbody>
</table>

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