

## References

### Rancho Cantera LLC

| <u>Manure Sample Analysis</u> | <u>(#/1000 gal or #/ton basis)</u> |     |      |              |      |     |
|-------------------------------|------------------------------------|-----|------|--------------|------|-----|
|                               | N                                  | NH4 | OrgN | 1st Year AvN | P2O5 | K2O |
| Holding Pond                  | 7.5                                | 4.1 | 3.4  | 4.3          | 3.60 | 5.6 |

| <u>Application Method</u> | <u>N retention</u> | <u>% N retention, from MWPS</u> |       |
|---------------------------|--------------------|---------------------------------|-------|
| SURFACE, SOLID            |                    | 0.75                            | 2.992 |
| SURFACE, LIQUID           |                    | 0.8                             | 4.389 |
| AERWAY                    |                    | 0.9                             | 7.381 |
| SURFACE, INCORP           |                    | 0.95                            |       |
| INJECT                    |                    | 0.98                            |       |
| IRRIGATE                  |                    | 0.7                             |       |
| NONE                      |                    | 0                               |       |

| <u>Organic N Mineralization</u> | <u>% of OrgN</u> |
|---------------------------------|------------------|
| Year of Application             | 30.0%            |
| 1 Year after Application        | 15.0%            |
| 2 Years after Application       | 7.5%             |
| 3 Years after Application       | 3.8%             |
| 4 Years after Application       | 1.9%             |

| <u>N, P, &amp; K Requirements</u> | <u>lbs/bu or t, from IL Agronomy Handbook</u> |          |          |
|-----------------------------------|---|----------|----------|
| <u>Crop</u>                       | <u>N</u>                                      | <u>P</u> | <u>K</u> |
| Corn                              | MRTN rate*                                    | 0.43     | 0.28     |
| Soybeans                          | 0   | 0.85     | 1.3      |
| Corn Silage                       | 1.2   | 2.6      | 7        |
| Wheat                             | 1   | 0.9      | 0.3      |
| Grass Hay                         | 150   | 12       | 50       |
| Alfalfa Hay                       | 0   | 12       | 50       |

*\* Corn Nitrogen Rate Based on Maximum Return to Nitrogen Rate. Guidance concerning this rate can be found in section 16 of this CNMP and in Section 9 of the Illinois Agronomy Handbook.*

**Manure Nutrients Value** (Includes both the manure and parlor water, the water collected from the concrete pad and the bedding is not included in the analysis.)

**Test Results per 1000 gallons**

**1st Year Available Nutrients**

| Sample #                       | Date      | Nitrogen     | Nitrogen NH4 | Phos P2O5   | Pot K2O     | Sulfur      |
|--------------------------------|-----------|--------------|--------------|-------------|-------------|-------------|
| 88236                          | 11/7/2007 | 9.96         | 0.00         | 5.51        | 9.39        | 1.33        |
| 88237                          | 11/7/2007 | 9.96         | 5.83         | 6.01        | 9.01        | 1.46        |
| 88238                          | 11/7/2007 | 12.45        | 5.00         | 7.36        | 9.53        | 1.75        |
| 88239                          | 11/7/2007 | 13.28        | 5.00         | 8.94        | 8.99        | 2.13        |
| 90467                          | 5/1/2008  | 11.62        | 6.67         | 4.37        | 7.15        | 1.06        |
| 90468                          | 5/1/2008  | 10.79        | 7.50         | 3.14        | 7.59        | 0.82        |
| 90469                          | 5/1/2008  | 10.79        | 6.67         | 2.65        | 7.94        | 0.72        |
| <b>Averages / 1000 Gallons</b> |           | <b>11.26</b> | <b>6.11</b>  | <b>5.43</b> | <b>8.51</b> | <b>1.32</b> |

Estimated Manure Analysis

|                     | N            | NH4 | OrgN | 1st Year AvN | P2O5 | K2O |
|---------------------|--------------|-----|------|--------------|------|-----|
|                     | lbs/1000 Gal |     |      |              |      |     |
| Concrete Pad Runoff | 0.0          | 0.0 | 0.0  | 0.0          | 0.0  | 0.0 |
| Manure              | 11.3         | 6.1 | 5.2  | 6.4          | 5.4  | 8.5 |
| Bedding             | 0.0          | 0.0 | 0.0  | 0.0          | 0.0  | 0.0 |

| Annual Production   |                  |                   |
|---------------------|------------------|-------------------|
| Source              | Ft^3             | Gallons           |
| Concrete Pad Runoff | 380,816          | 2,848,702         |
| Manure              | 1,456,350        | 10,894,255        |
| Bedding             | 357,700          | 2,675,782         |
| <b>Total</b>        | <b>2,194,866</b> | <b>16,418,739</b> |

| Annual Nutrient Production  |                  |                 |                 |                 |                 |                 |
|-----------------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                             | N                | NH4             | OrgN            | 1st Year AvN    | P2O5            | K2O             |
| Concrete Pad Runoff         | -                | -               | -               | -               | -               | -               |
| Manure                      | 122,716.0        | 66,576.0        | 56,140.0        | 70,159.0        | 59,109.1        | 92,756.8        |
| Bedding                     | -                | -               | -               | -               | -               | -               |
| <b>Total</b>                | <b>122,716.0</b> | <b>66,576.0</b> | <b>56,140.0</b> | <b>70,159.0</b> | <b>59,109.1</b> | <b>92,756.8</b> |
| <b>Average per 1000 gal</b> | <b>7.47</b>      | <b>4.05</b>     | <b>3.42</b>     | <b>4.27</b>     | <b>3.60</b>     | <b>5.65</b>     |

# MANURE NUTRIENT ANALYSIS REPORT



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ACCT: 731

ANALYSIS FOR: RANCHO CANTERA  
DATE PROCESSED: 05/01/2008  
DATE SAMPLED: / /  
SAMPLE NUMBER: 90468  
MATERIAL: Dairy  
SAMPLE TYPE: #2  
STORAGE SYSTEM: LIQUID

**DRY MATTER, % 1.90**

**MOISTURE, % 98.10**

|   | Estimated Available Nutrient Credits |   |   |   |
|---|--------------------------------------|---|---|---|
|   | Total Nutrients<br>lbs/1000 gal      | In 1st Year<br>of Application<br>lbs/1000 gal | If Applied 2<br>Consecutive Yrs<br>lbs/1000 gal | If Applied 3<br>Consecutive Yrs<br>lbs/1000 gal |
| Nitrogen (Injected)                         | 10.79                                | 4.32  | 5.40  | 5.93  |
| Nitrogen(Surface Applied)                   | 10.79                                | 3.24  | 4.32  | 4.86  |
| Phosphorus as P <sub>2</sub> O <sub>5</sub> | 3.14                                 | 1.89  | 2.20  | 2.36  |
| Potassium as K <sub>2</sub> O               | 7.59                                 | 6.07  | 6.83  | 7.21  |
| Sulfur                                      | 0.82                                 | 0.49  | 0.57  | 0.62  |
| Estimated Value of Available Nutrients      |                                      | \$5.53  | \$6.62  | \$7.17  |

**MINOR ELEMENTS \*3**

|            |     |            |     |
|------------|-----|------------|-----|
| Calcium:   | N/R | Zinc:      | N/R |
| Magnesium: | N/R | Manganese: | N/R |
| Copper:    | N/R | Sodium:    | N/R |
| Iron:      | N/R |            |     |

|                     |        |
|---------------------|--------|
| NH <sub>4</sub> -N: | 0.090% |
| NO <sub>3</sub> -N: | 0.004% |

**COMMENTS**

- \*1 Applications of manure on the same field for 2 consecutive years increases availability of N, P, K, and S by 10%, and for 3 or more consecutive years by 15%. Availability of N changes depending on application technique. Injection or incorporation within 3 days of application results in higher N availability.
- \*2 Value based on commercial fertilizer costs as of 02/01/2008.  
N (Urea)\$0.52/lb, P<sub>2</sub>O<sub>5</sub> (Triple Superphosphate)\$0.60/lb, K<sub>2</sub>O (Potash)\$0.42/lb, S (Elemental Sulfur)\$0.33/lb.
- \*3 If minor elements are requested, they are reported on a 'dry matter' basis. If ammonia, nitrate or pH are requested, they are reported on an 'as is' basis.

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ACCT: 731

ANALYSIS FOR: RANCHON CANTERA  
DATE PROCESSED: 05/01/2008  
DATE SAMPLED: 04/28/2008  
SAMPLE NUMBER: 90467  
MATERIAL: Dairy  
SAMPLE TYPE: 04/28/08 #1  
STORAGE SYSTEM: LIQUID

**DRY MATTER, % 2.50**

**MOISTURE, % 97.50**

|   | Estimated Available Nutrient Credits |   |   |   |
|---|--------------------------------------|---|---|---|
|   | Total Nutrients<br>lbs/1000 gal      | In 1st Year<br>of Application<br>lbs/1000 gal | If Applied 2<br>Consecutive Yrs<br>lbs/1000 gal | If Applied 3<br>Consecutive Yrs<br>lbs/1000 gal |
| Nitrogen (Injected)                         | 11.62                                | 4.65  | 5.81  | 6.39  |
| Nitrogen (Surface Applied)                  | 11.62                                | 3.49  | 4.65  | 5.23  |
| Phosphorus as P <sub>2</sub> O <sub>5</sub> | 4.37                                 | 2.62  | 3.06  | 3.28  |
| Potassium as K <sub>2</sub> O               | 7.15                                 | 5.72  | 6.43  | 6.79  |
| Sulfur                                      | 1.06                                 | 0.63  | 0.74  | 0.79  |
| Estimated Value of Available Nutrients      |                                      | \$6.00  | \$7.20  | \$7.80  |

**MINOR ELEMENTS \*3**

|            |     |            |     |
|------------|-----|------------|-----|
| Calcium:   | N/R | Zinc:      | N/R |
| Magnesium: | N/R | Manganese: | N/R |
| Copper:    | N/R | Sodium:    | N/R |
| Iron:      | N/R |            |     |

|                     |        |
|---------------------|--------|
| NH <sub>4</sub> -N: | 0.080% |
| NO <sub>3</sub> -N: | 0.006% |

**COMMENTS**

- \*1 Applications of manure on the same field for 2 consecutive years increases availability of N, P, K, and S by 10%, and for 3 or more consecutive years by 15%. Availability of N changes depending on application technique. Injection or incorporation within 3 days of application results in higher N availability.
- \*2 Value based on commercial fertilizer costs as of 02/01/2008.  
N (Urea) \$0.52/lb, P<sub>2</sub>O<sub>5</sub> (Triple Superphosphate) \$0.60/lb, K<sub>2</sub>O (Potash) \$0.42/lb, S (Elemental Sulfur) \$0.33/lb.
- \*3 If minor elements are requested, they are reported on a 'dry matter' basis. If ammonia, nitrate or pH are requested, they are reported on an 'as is' basis.

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ACCT: 731

ANALYSIS FOR: RANCHO CANTERA  
DATE PROCESSED: 05/01/2008  
DATE SAMPLED: / /  
SAMPLE NUMBER: 90469  
MATERIAL: Dairy  
SAMPLE TYPE: FRANK #3  
STORAGE SYSTEM: LIQUID

**DRY MATTER, % 1.60**

**MOISTURE, % 98.40**

|   | Estimated Available Nutrient Credits |   |   |   |
|---|--------------------------------------|---|---|---|
|   | Total Nutrients<br>lbs/1000 gal      | In 1st Year<br>of Application<br>lbs/1000 gal | If Applied 2<br>Consecutive Yrs<br>lbs/1000 gal | If Applied 3<br>Consecutive Yrs<br>lbs/1000 gal |
| Nitrogen (Injected)                         | 10.79                                | 4.32  | 5.40  | 5.93  |
| Nitrogen (Surface Applied)                  | 10.79                                | 3.24  | 4.32  | 4.86  |
| Phosphorus as P <sub>2</sub> O <sub>5</sub> | 2.65                                 | 1.59  | 1.85  | 1.98  |
| Potassium as K <sub>2</sub> O               | 7.94                                 | 6.35  | 7.14  | 7.54  |
| Sulfur                                      | 0.72                                 | 0.43  | 0.50  | 0.54  |
| Estimated Value of Available Nutrients      |                                      | \$5.44  | \$6.52  | \$7.06  |

**MINOR ELEMENTS \*3**

|            |     |            |     |
|------------|-----|------------|-----|
| Calcium:   | N/R | Zinc:      | N/R |
| Magnesium: | N/R | Manganese: | N/R |
| Copper:    | N/R | Sodium:    | N/R |
| Iron:      | N/R |            |     |

|                     |        |
|---------------------|--------|
| NH <sub>4</sub> -N: | 0.080% |
| NO <sub>3</sub> -N: | 0.002% |

**COMMENTS**

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- \*2 Value based on commercial fertilizer costs as of 02/01/2008.  
N (Urea) \$0.52/lb, P<sub>2</sub>O<sub>5</sub> (Triple Superphosphate) \$0.60/lb, K<sub>2</sub>O (Potash) \$0.42/lb, S (Elemental Sulfur) \$0.33/lb.
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ANALYSIS FOR: RANCHO CARTEUR  
DATE PROCESSED: 11/07/2007  
DATE SAMPLED: / /  
SAMPLE NUMBER: 88236  
MATERIAL: Dairy  
SAMPLE TYPE: 1  
STORAGE SYSTEM: LIQUID

**DRY MATTER, % 2.50**

**MOISTURE, % 97.50**

|   | Estimated Available Nutrient Credits |   |   |   |
|---|--------------------------------------|---|---|---|
|   | Total Nutrients<br>lbs/1000 gal      | In 1st Year<br>of Application<br>lbs/1000 gal | If Applied 2<br>Consecutive Yrs<br>lbs/1000 gal | If Applied 3<br>Consecutive Yrs<br>lbs/1000 gal |
| Nitrogen (Injected)                         | 9.96                                 | 3.98  | 4.98  | 5.48  |
| Nitrogen (Surface Applied)                  | 9.96                                 | 2.99  | 3.98  | 4.48  |
| Phosphorus as P <sub>2</sub> O <sub>5</sub> | 5.51                                 | 3.31  | 3.86  | 4.13  |
| Potassium as K <sub>2</sub> O               | 9.39                                 | 7.51  | 8.45  | 8.92  |
| Sulfur                                      | 1.33                                 | 0.80  | 0.93  | 1.00  |
| Estimated Value of Available Nutrients      |                                      | \$5.16  | \$6.20  | \$6.72  |

**MINOR ELEMENTS \*3**

|            |     |            |     |
|------------|-----|------------|-----|
| Calcium:   | N/R | Zinc:      | N/R |
| Magnesium: | N/R | Manganese: | N/R |
| Copper:    | N/R | Sodium:    | N/R |
| Iron:      | N/R |            |     |

**COMMENTS**

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N (Urea) \$0.52/lb, P<sub>2</sub>O<sub>5</sub> (Triple Superphosphate) \$0.48/lb, K<sub>2</sub>O (Potash) \$0.23/lb, S (Elemental Sulfur) \$0.36/lb.
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ANALYSIS FOR: RANCHO CARTERA  
DATE PROCESSED: 11/07/2007  
DATE SAMPLED: / /  
SAMPLE NUMBER: 88237  
MATERIAL: Dairy  
SAMPLE TYPE: 2  
STORAGE SYSTEM: LIQUID

**DRY MATTER, % 2.80**

**MOISTURE, % 97.20**

|   | Estimated Available Nutrient Credits |   |   |   |
|---|--------------------------------------|---|---|---|
|   | Total Nutrients<br>lbs/1000 gal      | In 1st Year<br>of Application<br>lbs/1000 gal | If Applied 2<br>Consecutive Yrs<br>lbs/1000 gal | If Applied 3<br>Consecutive Yrs<br>lbs/1000 gal |
| Nitrogen (Injected)                         | 9.96                                 | 3.98  | 4.98  | 5.48  |
| Nitrogen (Surface Applied)                  | 9.96                                 | 2.99  | 3.98  | 4.48  |
| Phosphorus as P <sub>2</sub> O <sub>5</sub> | 6.01                                 | 3.61  | 4.21  | 4.51  |
| Potassium as K <sub>2</sub> O               | 9.01                                 | 7.21  | 8.11  | 8.56  |
| Sulfur                                      | 1.46                                 | 0.88  | 1.02  | 1.10  |
| Estimated Value of Available Nutrients      |                                      | \$5.26  | \$6.33  | \$6.86  |

**MINOR ELEMENTS \*3**

|            |     |            |     |                     |        |
|------------|-----|------------|-----|---------------------|--------|
| Calcium:   | N/R | Zinc:      | N/R | NH <sub>4</sub> -N: | 0.070% |
| Magnesium: | N/R | Manganese: | N/R | NO <sub>3</sub> -N: | 0.005% |
| Copper:    | N/R | Sodium:    | N/R |                     |        |
| Iron:      | N/R |            |     |                     |        |

**COMMENTS**

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ANALYSIS FOR: RANCHO CANTERA  
DATE PROCESSED: 11/07/2007  
DATE SAMPLED: / /  
SAMPLE NUMBER: 88238  
MATERIAL: Dairy  
SAMPLE TYPE: 4  
STORAGE SYSTEM: LIQUID

**DRY MATTER, % 3.20**

**MOISTURE, % 96.80**

| Estimated Available Nutrient Credits        |                                    |   |   |   |
|---|------------------------------------|---|---|---|
|   | Total<br>Nutrients<br>lbs/1000 gal | In 1st Year<br>of Application<br>lbs/1000 gal | If Applied 2<br>Consecutive Yrs<br>lbs/1000 gal | If Applied 3<br>Consecutive Yrs<br>lbs/1000 gal |
| Nitrogen (Injected)                         | 12.45                              | 4.98  | 6.23  | 6.85  |
| Nitrogen(Surface Applied)                   | 12.45                              | 3.74  | 4.98  | 5.60  |
| Phosphorus as P <sub>2</sub> O <sub>5</sub> | 7.36                               | 4.42  | 5.15  | 5.52  |
| Potassium as K <sub>2</sub> O               | 9.53                               | 7.62  | 8.58  | 9.05  |
| Sulfur                                      | 1.75                               | 1.05  | 1.23  | 1.31  |
| Estimated Value of<br>Available Nutrients   |                                    | \$6.19  | \$7.48  | \$8.12  |

**MINOR ELEMENTS \*3**

|            |     |            |     |                     |        |
|------------|-----|------------|-----|---------------------|--------|
| Calcium:   | N/R | Zinc:      | N/R | NH <sub>4</sub> -N: | 0.060% |
| Magnesium: | N/R | Manganese: | N/R | NO <sub>3</sub> -N: | 0.004% |
| Copper:    | N/R | Sodium:    | N/R |                     |        |
| Iron:      | N/R |            |     |                     |        |

**COMMENTS**

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ACCT: 731

ANALYSIS FOR: RANCHO CARTERA  
DATE PROCESSED: 11/07/2007  
DATE SAMPLED: / /  
SAMPLE NUMBER: 88239  
MATERIAL: Dairy  
SAMPLE TYPE: 5  
STORAGE SYSTEM: LIQUID

**DRY MATTER, % 4.20**

**MOISTURE, % 95.80**

|   | Estimated Available Nutrient Credits |   |   |   |
|---|--------------------------------------|---|---|---|
|   | Total Nutrients<br>lbs/1000 gal      | In 1st Year<br>of Application<br>lbs/1000 gal | If Applied 2<br>Consecutive Yrs<br>lbs/1000 gal | If Applied 3<br>Consecutive Yrs<br>lbs/1000 gal |
| Nitrogen (Injected)                         | 13.28                                | 5.31  | 6.64  | 7.30  |
| Nitrogen (Surface Applied)                  | 13.28                                | 3.98  | 5.31  | 5.98  |
| Phosphorus as P <sub>2</sub> O <sub>5</sub> | 8.94                                 | 5.36  | 6.26  | 6.71  |
| Potassium as K <sub>2</sub> O               | 8.99                                 | 7.20  | 8.09  | 8.54  |
| Sulfur                                      | 2.13                                 | 1.28  | 1.49  | 1.59  |
| Estimated Value of Available Nutrients      |                                      | \$6.76  | \$8.16  | \$8.87  |

**MINOR ELEMENTS \*3**

|            |     |            |     |
|------------|-----|------------|-----|
| Calcium:   | N/R | Zinc:      | N/R |
| Magnesium: | N/R | Manganese: | N/R |
| Copper:    | N/R | Sodium:    | N/R |
| Iron:      | N/R |            |     |

|                     |        |
|---------------------|--------|
| NH <sub>4</sub> -N: | 0.060% |
| NO <sub>3</sub> -N: | 0.005% |

**COMMENTS**

- \*1 Applications of manure on the same field for 2 consecutive years increases availability of N, P, K, and S by 10%, and for 3 or more consecutive years by 15%. Availability of N changes depending on application technique. Injection or incorporation within 3 days of application results in higher N availability.
- \*2 Value based on commercial fertilizer costs as of 05/04/2007.  
N (Urea) \$0.52/lb, P<sub>2</sub>O<sub>5</sub> (Triple Superphosphate) \$0.48/lb, K<sub>2</sub>O (Potash) \$0.23/lb, S (Elemental Sulfur) \$0.36/lb.
- \*3 If minor elements are requested, they are reported on a 'dry matter' basis. If ammonia, nitrate or pH are requested, they are reported on an 'as is' basis.