

# Pinnacle Genetics

## Individual Fields

### Soil Map



## Legend

- Pinnacle Fields
- Water
- ▲ Well
- Water Buffer
- Well Buffer

830

Feet

**Frank & West**

Environmental Engineers, Inc.

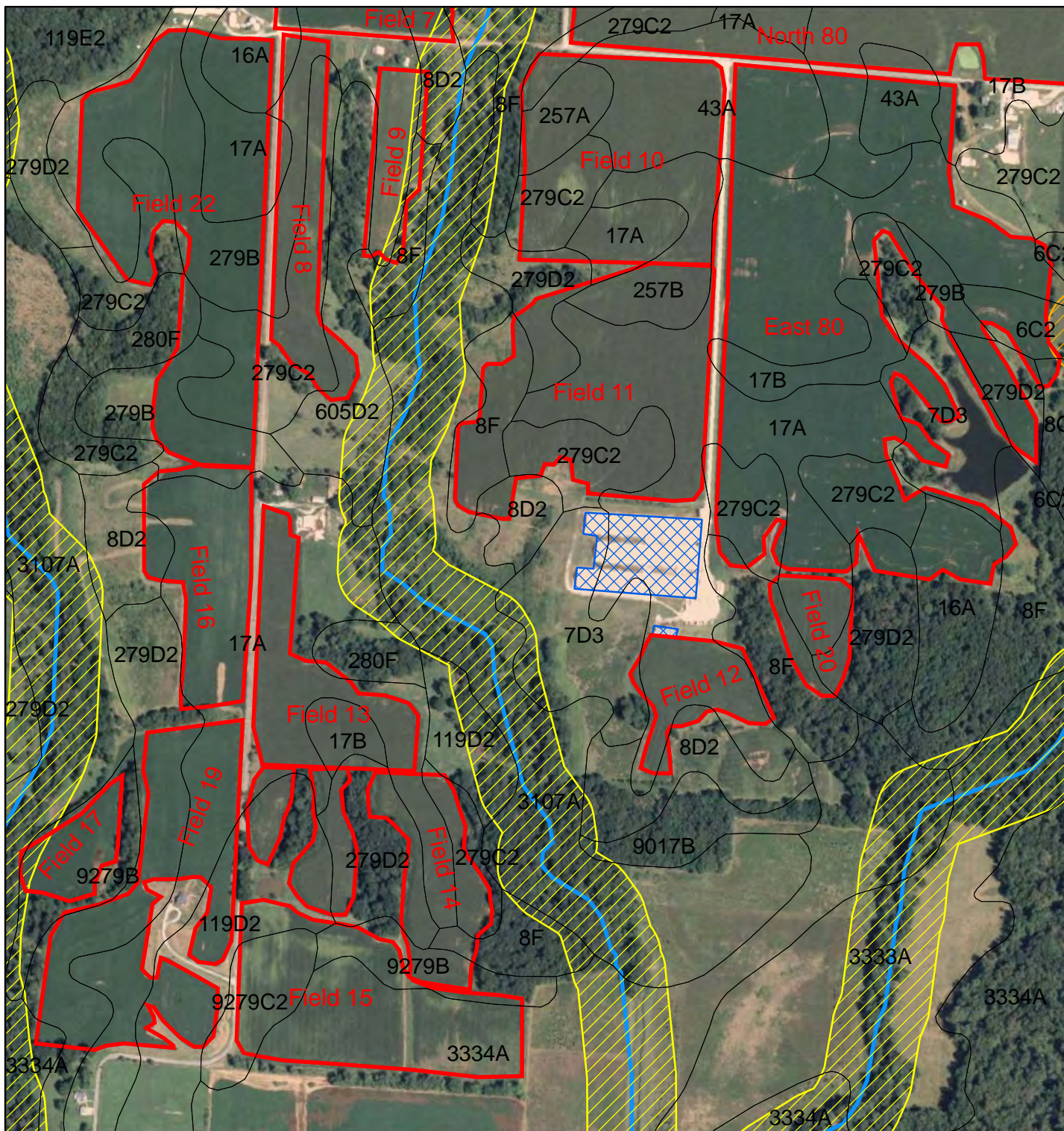
7226 N. State Route 29  
Springfield, IL 62707

Phone: 217/487-7686  
Fax: 217/487-7687














# Pinnacle Genetics


## Individual Fields

### Soil Map

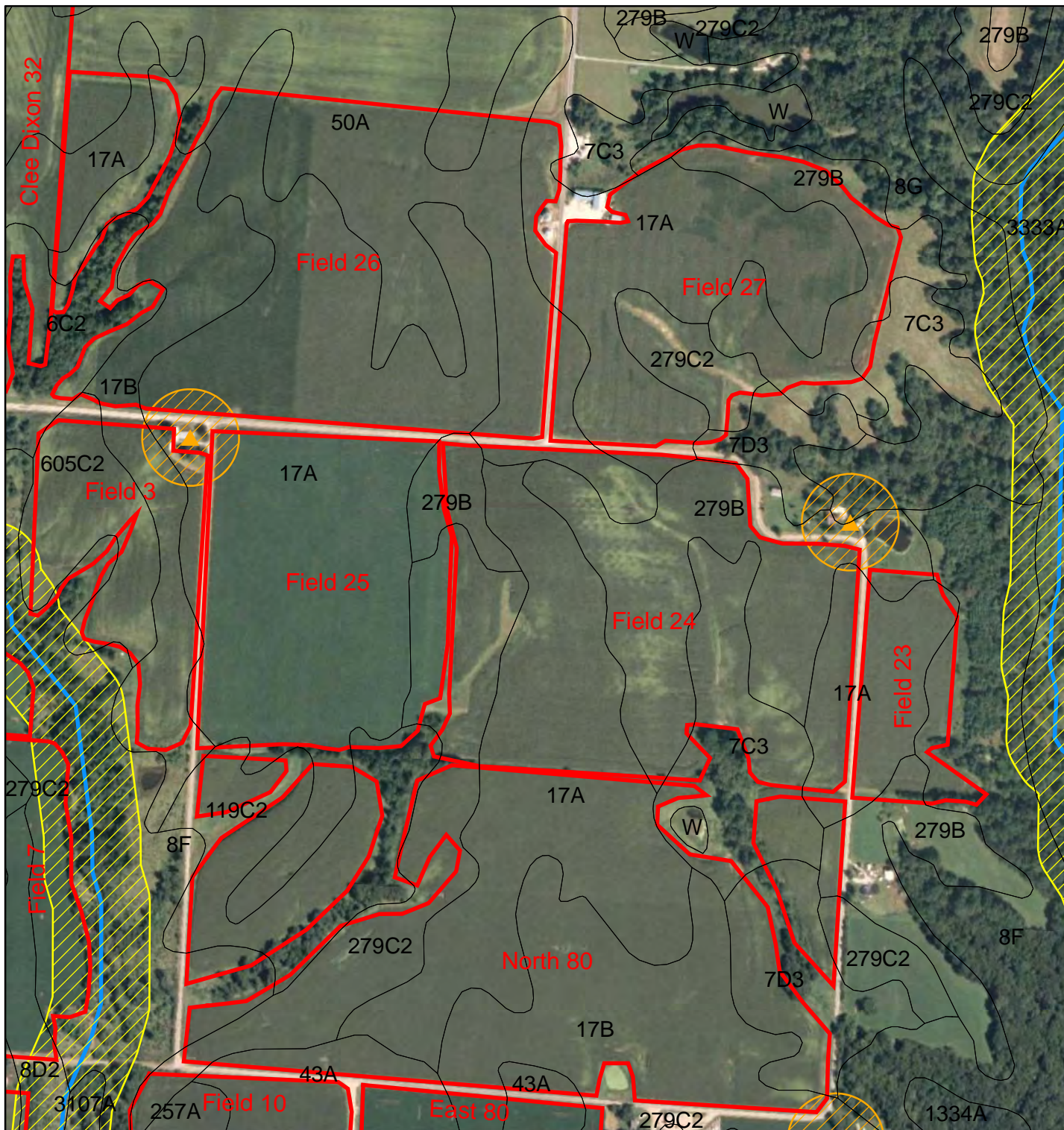


## Legend

-  Pinnacle Fields
-  Water
-  Well
-  Water Buffer
-  Well Buffer

1,250  
 Feet





# Pinnacle Genetics

## Individual Fields

### Soil Map



## Legend

 Pinnacle Fields


 Water

 Well

 Water Buffer

 Well Buffer

1,200

 Feet

**Individual Field Information****Pinnacle Genetics**

|                      |                |                               |                                       |
|----------------------|----------------|-------------------------------|---------------------------------------|
| <b>Field Name:</b>   | <u>Field 1</u> | <b>Total Acres</b>            | 6.3                                   |
|                      |                | <b>Non-Spreadable Acres</b>   | 0.0                                   |
| <b>Township</b>      | Tennessee      | <b>Total Spreadable Acres</b> | 6.3                                   |
| <b>Section</b>       | 33             |                               |                                       |
| <b>FSA Farm #</b>    | 154            | <b>Predominant Soil Type:</b> | 279C2 Rozetta silt loam, 5-10% slopes |
| <b>FSA Tract #</b>   | 2139           | <b>P test</b>                 | 0                                     |
| <b>FSA Field #'s</b> | 1              | <b>K test</b>                 | 0                                     |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Yield                             | (bu/acre OR ton/acre) |             | 170         | 50          | 170         | 50          | 170         |
| N needed (lbs/ac)                 | lbs/ac                |             | 204         | 0           | 204         | 0           | 204         |
| - Legume N credits                | (lb/acre)             |             | 40          | 0           | 40          | 0           | 40          |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 0.0         | 5.5         | 4.4         | 7.6         | 5.5         |
| Total N Credits                   | (lb/acre)             |             | 40          | 5.5         | 44.4        | 7.6         | 45.5        |
| Crop N Need Minus Credits         | (lb/acre)             |             | 164         | -6          | 160         | -8          | 159         |
| Maintenance P needed *            | (lb/acre)             |             | 73.1        | 42.5        | 73.1        | 42.5        | 73.1        |
| Maintenance K needed *            | (lb/acre)             |             | 47.6        | 65          | 47.6        | 65          | 47.6        |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 1</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Storage   |                    |             | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    |             | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 7.7         | -0.3        | 7.5         | -0.4        | 7.4         |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 4.00        | 2.33        | 4.00        | 2.33        | 4.00        |
| Apply at Prate or Nrate?  |                    |             | Nrate       | Prate       | Nrate       | Prate       | Nrate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>0.0</b>  | <b>7.7</b>  | <b>2.3</b>  | <b>7.5</b>  | <b>2.3</b>  | <b>7.4</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 48,255      | 14,679      | 46,947      | 14,679      | 46,642      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 164         | 50          | 160         | 50          | 159         |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 164         | 43          | 136         | 43          | 135         |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 140         | 31          | 99          | 31          | 98          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>0</b>    | <b>-55</b>  | <b>0</b>    | <b>-57</b>  | <b>0</b>    |
| Acres Covered   | (acres)            |             | 6.3         | 6.3         | 6.3         | 6.3         | 6.3         |

**Individual Field Information****Pinnacle Genetics**

|                      |                                  |                               |                                       |
|----------------------|----------------------------------|-------------------------------|---------------------------------------|
| <b>Field Name:</b>   | <u>Field 2 - Big N of Rich's</u> | <b>Total Acres</b>            | 32.5                                  |
|                      |                                  | <b>Non-Spreadable Acres</b>   | 1.4                                   |
| <b>Township</b>      | Tennessee                        | <b>Total Spreadable Acres</b> | 31.1                                  |
| <b>Section</b>       | 33                               |                               |                                       |
| <b>FSA Farm #</b>    | 154                              | <b>Predominant Soil Type:</b> | 279C2 Rozetta silt loam, 5-10% slopes |
| <b>FSA Tract #</b>   | 2139                             | <b>P test</b>                 | 0                                     |
| <b>FSA Field #'s</b> | 2                                | <b>K test</b>                 | 0                                     |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Yield                             | (bu/acre OR ton/acre) |             | 50          | 170         | 50          | 170         | 50          |
| N needed (lbs/ac)                 | lbs/ac                |             | 0           | 204         | 0           | 204         | 0           |
| - Legume N credits                | (lb/acre)             |             | 0           | 40          | 0           | 40          | 0           |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 0.0         | 1.7         | 6.3         | 4.8         | 7.8         |
| Total N Credits                   | (lb/acre)             |             | 0           | 41.7        | 6.3         | 44.8        | 7.8         |
| Crop N Need Minus Credits         | (lb/acre)             |             | 0           | 162         | -6          | 159         | -8          |
| Maintenance P needed *            | (lb/acre)             |             | 42.5        | 73.1        | 42.5        | 73.1        | 42.5        |
| Maintenance K needed *            | (lb/acre)             |             | 65          | 47.6        | 65          | 47.6        | 65          |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 2 - Big N of Rich's</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    |             | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    |             | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 0.0         | 7.6         | -0.3        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>0.0</b>  | <b>2.3</b>  | <b>7.6</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 72,349      | 235,849     | 72,349      | 231,263     | 72,349      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 162         | 50          | 159         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 139         | 43          | 136         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 101         | 31          | 99          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-50</b>  | <b>0</b>    | <b>-56</b>  | <b>0</b>    | <b>-58</b>  |
| Acres Covered   | (acres)            |             | 31.1        | 31.1        | 31.1        | 31.1        | 31.1        |



**Individual Field Information****Pinnacle Genetics**

|                      |                |                               |                       |
|----------------------|----------------|-------------------------------|-----------------------|
| <b>Field Name:</b>   | <u>Field 3</u> | <b>Total Acres</b>            | 14.8                  |
|                      |                | <b>Non-Spreadable Acres</b>   | 0.7                   |
| <b>Township</b>      | Tennessee      | <b>Total Spreadable Acres</b> | 14.1                  |
| <b>Section</b>       | 33             |                               |                       |
| <b>FSA Farm #</b>    | 154            | <b>Predominant Soil Type:</b> | 605C2 Ursa silty clay |
| <b>FSA Tract #</b>   | 2139           | <b>P test</b>                 | laom, 5-10% slopes    |
| <b>FSA Field #'s</b> | 3              | <b>K test</b>                 | 0                     |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Wheat       | Corn        | Wheat       | Corn        | Wheat       | Corn        |
| Yield                             | (bu/acre OR ton/acre) |             | 170         | 70          | 170         | 70          | 170         |
| N needed (lbs/ac)                 | lbs/ac                |             | 204         | 70          | 204         | 70          | 204         |
| - Legume N credits                | (lb/acre)             |             | 0           | 0           | 0           | 0           | 0           |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 7.2         | 10.2        | 7.1         | 10.2        | 6.7         |
| Total N Credits                   | (lb/acre)             |             | 7.2         | 10.2        | 7.1         | 10.2        | 6.7         |
| Crop N Need Minus Credits         | (lb/acre)             |             | 197         | 60          | 197         | 60          | 197         |
| Maintenance P needed *            | (lb/acre)             |             | 73.1        | 63          | 73.1        | 63          | 73.1        |
| Maintenance K needed *            | (lb/acre)             |             | 47.6        | 21          | 47.6        | 21          | 47.6        |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 3</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Wheat       | Corn        | Wheat       | Corn        | Wheat       | Corn        |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 9.2         | 2.8         | 9.2         | 2.8         | 9.2         |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 4.00        | 3.45        | 4.00        | 3.45        | 4.00        |
| Apply at Prate or Nrate?  |                    |             | Nrate       | Nrate       | Nrate       | Nrate       | Nrate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>10.0</b> | <b>9.2</b>  | <b>2.8</b>  | <b>9.2</b>  | <b>2.8</b>  | <b>9.2</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 129,311     | 39,268      | 129,365     | 39,293      | 129,673     |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 197         | 60          | 197         | 60          | 197         |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 197         | 51          | 168         | 51          | 168         |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 168         | 37          | 122         | 37          | 122         |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    |
| Acres Covered   | (acres)            |             | 14.1        | 14.1        | 14.1        | 14.1        | 14.1        |



**Individual Field Information****Pinnacle Genetics**

|                      |                                       |                               |                                       |
|----------------------|---------------------------------------|-------------------------------|---------------------------------------|
| <b>Field Name:</b>   | <u>Field 4, 5, &amp; 7 - N Rich's</u> | <b>Total Acres</b>            | 44.4                                  |
|                      |                                       | <b>Non-Spreadable Acres</b>   | 5.1                                   |
| <b>Township</b>      | Tennessee                             | <b>Total Spreadable Acres</b> | 39.3                                  |
| <b>Section</b>       | 33                                    |                               |                                       |
| <b>FSA Farm #</b>    | 154                                   | <b>Predominant Soil Type:</b> | 279C2 Rozetta silt loam, 5-10% slopes |
| <b>FSA Tract #</b>   | 2139                                  | <b>P test</b>                 | 0                                     |
| <b>FSA Field #'s</b> | 4,5,7                                 | <b>K test</b>                 | 0                                     |

**Individual Field Application & Nutrients**

| Crop needs                        | Year                  | 2009 | 2010  | 2011 | 2012  | 2013 | 2014  |
|-----------------------------------|-----------------------|------|-------|------|-------|------|-------|
| Crop                              |                       | Corn | Beans | Corn | Beans | Corn | Beans |
| Yield                             | (bu/acre OR ton/acre) |      | 50    | 170  | 50    | 170  | 50    |
| N needed (lbs/ac)                 | lbs/ac                |      | 0     | 204  | 0     | 204  | 0     |
| - Legume N credits                | (lb/acre)             |      | 0     | 40   | 0     | 40   | 0     |
| - Commercial fertilizer N credits | (lb/acre)             |      |       |      |       |      |       |
| - Manure N carryover credit **    | (lb/acre)             |      | 0.0   | 1.7  | 6.3   | 4.8  | 7.8   |
| Total N Credits                   | (lb/acre)             |      | 0     | 41.7 | 6.3   | 44.8 | 7.8   |
| Crop N Need Minus Credits         | (lb/acre)             |      | 0     | 162  | -6    | 159  | -8    |
| Maintenance P needed *            | (lb/acre)             |      | 42.5  | 73.1 | 42.5  | 73.1 | 42.5  |
| Maintenance K needed *            | (lb/acre)             |      | 65    | 47.6 | 65    | 47.6 | 65    |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 4, 5, &amp; 7 - N Rich's</b>   |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    |             | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    |             | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 0.0         | 7.6         | -0.3        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>0.0</b>  | <b>2.3</b>  | <b>7.6</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 91,419      | 298,014     | 91,419      | 292,219     | 91,419      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 162         | 50          | 159         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 139         | 43          | 136         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 101         | 31          | 99          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-50</b>  | <b>0</b>    | <b>-56</b>  | <b>0</b>    | <b>-58</b>  |
| Acres Covered   | (acres)            |             | 39.3        | 39.3        | 39.3        | 39.3        | 39.3        |



**Individual Field Information****Pinnacle Genetics**

|                      |                                   |                               |                                       |
|----------------------|-----------------------------------|-------------------------------|---------------------------------------|
| <b>Field Name:</b>   | <u>Field 8 &amp; 9 - S Rich's</u> | <b>Total Acres</b>            | 11.8                                  |
|                      |                                   | <b>Non-Spreadable Acres</b>   | 1.2                                   |
| <b>Township</b>      | LaMoine                           | <b>Total Spreadable Acres</b> | 10.7                                  |
| <b>Section</b>       | 4                                 |                               |                                       |
| <b>FSA Farm #</b>    | 154                               | <b>Predominant Soil Type:</b> | 279C2 Rozetta silt loam, 5-10% slopes |
| <b>FSA Tract #</b>   | 2139                              | <b>P test</b>                 | 0                                     |
| <b>FSA Field #'s</b> | 12 & 13                           | <b>K test</b>                 | 0                                     |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Yield                             | (bu/acre OR ton/acre) |             | 170         | 65          | 170         | 65          | 170         |
| N needed (lbs/ac)                 | lbs/ac                |             | 204         | 0           | 204         | 0           | 204         |
| - Legume N credits                | (lb/acre)             |             | 40          | 0           | 40          | 0           | 40          |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 7.9         | 9.2         | 6.8         | 8.7         | 6.0         |
| Total N Credits                   | (lb/acre)             |             | 47.9        | 9.2         | 46.8        | 8.7         | 46.0        |
| Crop N Need Minus Credits         | (lb/acre)             |             | 156         | -9          | 157         | -9          | 158         |
| Maintenance P needed *            | (lb/acre)             |             | 73.1        | 55.25       | 73.1        | 55.25       | 73.1        |
| Maintenance K needed *            | (lb/acre)             |             | 47.6        | 84.5        | 47.6        | 84.5        | 47.6        |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 8 &amp; 9 - S Rich's</b>   |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 7.3         | -0.4        | 7.3         | -0.4        | 7.4         |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 4.00        | 3.02        | 4.00        | 3.02        | 4.00        |
| Apply at Prate or Nrate?  |                    |             | Nrate       | Prate       | Nrate       | Prate       | Nrate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>11.0</b> | <b>7.3</b>  | <b>3.0</b>  | <b>7.3</b>  | <b>3.0</b>  | <b>7.4</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 77,624      | 32,198      | 78,192      | 32,198      | 78,572      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 156         | 65          | 157         | 65          | 158         |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 156         | 55          | 134         | 55          | 135         |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 133         | 40          | 97          | 40          | 98          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>0</b>    | <b>-74</b>  | <b>0</b>    | <b>-73</b>  | <b>0</b>    |
| Acres Covered   | (acres)            |             | 10.7        | 10.7        | 10.7        | 10.7        | 10.7        |



**Individual Field Information****Pinnacle Genetics**

|                      |                                    |                               |                                       |
|----------------------|------------------------------------|-------------------------------|---------------------------------------|
| <b>Field Name:</b>   | <u>Field 10 &amp; 11 - N Barns</u> | <b>Total Acres</b>            | 43.9                                  |
|                      |                                    | <b>Non-Spreadable Acres</b>   | 0.3                                   |
| <b>Township</b>      | LaMoine                            | <b>Total Spreadable Acres</b> | 43.6                                  |
| <b>Section</b>       | 3 & 4                              |                               |                                       |
| <b>FSA Farm #</b>    | 154                                | <b>Predominant Soil Type:</b> | 279C2 Rozetta silt loam, 5-10% slopes |
| <b>FSA Tract #</b>   | 2139                               | <b>P test</b>                 | 0                                     |
| <b>FSA Field #'s</b> | 14 & 15                            | <b>K test</b>                 | 0                                     |

**Individual Field Application & Nutrients**

| Crop needs                        | Year                  | 2009  | 2010 | 2011  | 2012 | 2013  | 2014 |
|-----------------------------------|-----------------------|-------|------|-------|------|-------|------|
| Crop                              |                       | Beans | Corn | Beans | Corn | Beans | Corn |
| Yield                             | (bu/acre OR ton/acre) |       | 170  | 65    | 170  | 65    | 170  |
| N needed (lbs/ac)                 | lbs/ac                |       | 204  | 0     | 204  | 0     | 204  |
| - Legume N credits                | (lb/acre)             |       | 40   | 0     | 40   | 0     | 40   |
| - Commercial fertilizer N credits | (lb/acre)             |       |      |       |      |       |      |
| - Manure N carryover credit **    | (lb/acre)             |       | 13.2 | 11.7  | 8.0  | 9.3   | 6.0  |
| Total N Credits                   | (lb/acre)             |       | 53.2 | 11.7  | 48.0 | 9.3   | 46.0 |
| Crop N Need Minus Credits         | (lb/acre)             |       | 151  | -12   | 156  | -9    | 158  |
| Maintenance P needed *            | (lb/acre)             |       | 73.1 | 55.25 | 73.1 | 55.25 | 73.1 |
| Maintenance K needed *            | (lb/acre)             |       | 47.6 | 84.5  | 47.6 | 84.5  | 47.6 |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 10 &amp; 11 - N Barns</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 7.0         | -0.5        | 7.3         | -0.4        | 7.4         |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 4.00        | 3.02        | 4.00        | 3.02        | 4.00        |
| Apply at Prate or Nrate?  |                    |             | Nrate       | Prate       | Nrate       | Prate       | Nrate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>18.3</b> | <b>7.0</b>  | <b>3.0</b>  | <b>7.3</b>  | <b>3.0</b>  | <b>7.4</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 307,055     | 131,814     | 317,610     | 131,814     | 321,752     |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 151         | 65          | 156         | 65          | 158         |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 151         | 55          | 133         | 55          | 135         |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 129         | 40          | 97          | 40          | 98          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>0</b>    | <b>-76</b>  | <b>0</b>    | <b>-74</b>  | <b>0</b>    |
| Acres Covered   | (acres)            |             | 43.6        | 43.6        | 43.6        | 43.6        | 43.6        |

**Individual Field Information****Pinnacle Genetics**

|                      |                 |                               |                                   |
|----------------------|-----------------|-------------------------------|-----------------------------------|
| <b>Field Name:</b>   | <u>Field 12</u> | <b>Total Acres</b>            | 4.8                               |
|                      |                 | <b>Non-Spreadable Acres</b>   | 0.0                               |
| <b>Township</b>      | LaMoine         | <b>Total Spreadable Acres</b> | 4.8                               |
| <b>Section</b>       | 4               |                               |                                   |
| <b>FSA Farm #</b>    | 154             | <b>Predominant Soil Type:</b> | 17A Keomah silt loam, 0-2% slopes |
| <b>FSA Tract #</b>   | 2139            | <b>P test</b>                 | 0                                 |
| <b>FSA Field #'s</b> | 37, 54, 8       | <b>K test</b>                 | 0                                 |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Yield                             | (bu/acre OR ton/acre) |             | 170         | 65          | 170         | 65          | 170         |
| N needed (lbs/ac)                 | lbs/ac                |             | 204         | 0           | 204         | 0           | 204         |
| - Legume N credits                | (lb/acre)             |             | 40          | 0           | 40          | 0           | 40          |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 0.0         | 5.5         | 4.9         | 7.8         | 6.1         |
| Total N Credits                   | (lb/acre)             |             | 40          | 5.5         | 44.9        | 7.8         | 46.1        |
| Crop N Need Minus Credits         | (lb/acre)             |             | 164         | -6          | 159         | -8          | 158         |
| Maintenance P needed *            | (lb/acre)             |             | 73.1        | 55.25       | 73.1        | 55.25       | 73.1        |
| Maintenance K needed *            | (lb/acre)             |             | 47.6        | 84.5        | 47.6        | 84.5        | 47.6        |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor



|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 12</b>   |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 7.7         | -0.3        | 7.4         | -0.4        | 7.4         |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 4.00        | 3.02        | 4.00        | 3.02        | 4.00        |
| Apply at Prate or Nrate?  |                    |             | Nrate       | Prate       | Nrate       | Prate       | Nrate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>0.0</b>  | <b>7.7</b>  | <b>3.0</b>  | <b>7.4</b>  | <b>3.0</b>  | <b>7.4</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 36,459      | 14,391      | 35,360      | 14,391      | 35,103      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 164         | 65          | 159         | 65          | 158         |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 164         | 55          | 136         | 55          | 135         |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 140         | 40          | 99          | 40          | 98          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>0</b>    | <b>-70</b>  | <b>0</b>    | <b>-73</b>  | <b>0</b>    |
| Acres Covered   | (acres)            |             | 4.8         | 4.8         | 4.8         | 4.8         | 4.8         |

**Individual Field Information****Pinnacle Genetics**

|                      |                            |                               |                                   |
|----------------------|----------------------------|-------------------------------|-----------------------------------|
| <b>Field Name:</b>   | <u>Field 13 - L-shaped</u> | <b>Total Acres</b>            | 9.1                               |
|                      |                            | <b>Non-Spreadable Acres</b>   | 0.0                               |
| <b>Township</b>      | LaMoine                    | <b>Total Spreadable Acres</b> | 9.1                               |
| <b>Section</b>       | 4                          |                               |                                   |
| <b>FSA Farm #</b>    | 154                        | <b>Predominant Soil Type:</b> | 17B Keomah silt loam, 2-5% slopes |
| <b>FSA Tract #</b>   | 2139                       | <b>P test</b>                 | 0                                 |
| <b>FSA Field #'s</b> | 17                         | <b>K test</b>                 | 0                                 |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Yield                             | (bu/acre OR ton/acre) |             | 50          | 170         | 50          | 170         | 50          |
| N needed (lbs/ac)                 | lbs/ac                |             | 0           | 204         | 0           | 204         | 0           |
| - Legume N credits                | (lb/acre)             |             | 0           | 40          | 0           | 40          | 0           |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 12.9        | 8.1         | 9.3         | 6.3         | 7.7         |
| Total N Credits                   | (lb/acre)             |             | 12.9        | 48.1        | 9.3         | 46.3        | 7.7         |
| Crop N Need Minus Credits         | (lb/acre)             |             | -13         | 156         | -9          | 158         | -8          |
| Maintenance P needed *            | (lb/acre)             |             | 42.5        | 73.1        | 42.5        | 73.1        | 42.5        |
| Maintenance K needed *            | (lb/acre)             |             | 65          | 47.6        | 65          | 47.6        | 65          |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 13 - L-shaped</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | -0.6        | 7.3         | -0.4        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>17.9</b> | <b>2.3</b>  | <b>7.3</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 21,140      | 66,169      | 21,140      | 66,933      | 21,140      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 156         | 50          | 158         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 133         | 43          | 135         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 97          | 31          | 98          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-63</b>  | <b>0</b>    | <b>-59</b>  | <b>0</b>    | <b>-57</b>  |
| Acres Covered   | (acres)            |             | 9.1         | 9.1         | 9.1         | 9.1         | 9.1         |

**Individual Field Information****Pinnacle Genetics**

|                      |  |                               |                                       |
|----------------------|--|-------------------------------|---------------------------------------|
| <b>Field Name:</b>   | <u>Field 14 &amp; 15 - 3 piece &amp; S</u> | <b>Total Acres</b>            | 27.3                                  |
|                      |  | <b>Non-Spreadable Acres</b>   | 1.3                                   |
| <b>Township</b>      | LaMoine                                    | <b>Total Spreadable Acres</b> | 26.0                                  |
| <b>Section</b>       | 4  |                               |                                       |
| <b>FSA Farm #</b>    | 154  | <b>Predominant Soil Type:</b> | 279C2 Rozetta silt loam, 5-10% slopes |
| <b>FSA Tract #</b>   | 2139                                       | <b>P test</b>                 | 0                                     |
| <b>FSA Field #'s</b> | 18,19,47,48                                | <b>K test</b>                 | 0                                     |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Yield                             | (bu/acre OR ton/acre) |             | 50          | 170         | 50          | 170         | 50          |
| N needed (lbs/ac)                 | lbs/ac                |             | 0           | 204         | 0           | 204         | 0           |
| - Legume N credits                | (lb/acre)             |             | 0           | 40          | 0           | 40          | 0           |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 12.8        | 8.1         | 9.3         | 6.3         | 7.7         |
| Total N Credits                   | (lb/acre)             |             | 12.8        | 48.1        | 9.3         | 46.3        | 7.7         |
| Crop N Need Minus Credits         | (lb/acre)             |             | -13         | 156         | -9          | 158         | -8          |
| Maintenance P needed *            | (lb/acre)             |             | 42.5        | 73.1        | 42.5        | 73.1        | 42.5        |
| Maintenance K needed *            | (lb/acre)             |             | 65          | 47.6        | 65          | 47.6        | 65          |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor



|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 14 &amp; 15 - 3 piece &amp; S</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | -0.6        | 7.3         | -0.4        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>17.8</b> | <b>2.3</b>  | <b>7.3</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 60,465      | 189,307     | 60,465      | 191,458     | 60,465      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 156         | 50          | 158         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 133         | 43          | 135         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 97          | 31          | 98          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-63</b>  | <b>0</b>    | <b>-59</b>  | <b>0</b>    | <b>-57</b>  |
| Acres Covered   | (acres)            |             | 26.0        | 26.0        | 26.0        | 26.0        | 26.0        |

**Individual Field Information****Pinnacle Genetics**

|                      |                 |                               |                                   |
|----------------------|-----------------|-------------------------------|-----------------------------------|
| <b>Field Name:</b>   | <u>Field 16</u> | <b>Total Acres</b>            | 9.2                               |
|                      |                 | <b>Non-Spreadable Acres</b>   | 0.0                               |
| <b>Township</b>      | LaMoine         | <b>Total Spreadable Acres</b> | 9.2                               |
| <b>Section</b>       | 4               |                               |                                   |
| <b>FSA Farm #</b>    | 0               | <b>Predominant Soil Type:</b> | 17A Keomah silt loam, 0-2% slopes |
| <b>FSA Tract #</b>   | 0               | <b>P test</b>                 | 0                                 |
| <b>FSA Field #'s</b> | 0               | <b>K test</b>                 | 0                                 |

**Individual Field Application & Nutrients**

| Crop needs                        | Year                  | 2009 | 2010  | 2011 | 2012  | 2013 | 2014  |
|-----------------------------------|-----------------------|------|-------|------|-------|------|-------|
| Crop                              |                       | Corn | Beans | Corn | Beans | Corn | Beans |
| Yield                             | (bu/acre OR ton/acre) |      | 50    | 170  | 50    | 170  | 50    |
| N needed (lbs/ac)                 | lbs/ac                |      | 0     | 204  | 0     | 204  | 0     |
| - Legume N credits                | (lb/acre)             |      | 0     | 40   | 0     | 40   | 0     |
| - Commercial fertilizer N credits | (lb/acre)             |      |       |      |       |      |       |
| - Manure N carryover credit **    | (lb/acre)             |      | 0.0   | 1.7  | 6.3   | 4.8  | 7.8   |
| Total N Credits                   | (lb/acre)             |      | 0     | 41.7 | 6.3   | 44.8 | 7.8   |
| Crop N Need Minus Credits         | (lb/acre)             |      | 0     | 162  | -6    | 159  | -8    |
| Maintenance P needed *            | (lb/acre)             |      | 42.5  | 73.1 | 42.5  | 73.1 | 42.5  |
| Maintenance K needed *            | (lb/acre)             |      | 65    | 47.6 | 65    | 47.6 | 65    |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 16</b>   |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 0.0         | 7.6         | -0.3        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>0.0</b>  | <b>2.3</b>  | <b>7.6</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 21,442      | 69,898      | 21,442      | 68,539      | 21,442      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 162         | 50          | 159         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 139         | 43          | 136         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 101         | 31          | 99          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-50</b>  | <b>0</b>    | <b>-56</b>  | <b>0</b>    | <b>-58</b>  |
| Acres Covered   | (acres)            |             | 9.2         | 9.2         | 9.2         | 9.2         | 9.2         |

**Individual Field Information****Pinnacle Genetics**

|                      |                          |                               |                                   |
|----------------------|--------------------------|-------------------------------|-----------------------------------|
| <b>Field Name:</b>   | <u>Field 17 &amp; 19</u> | <b>Total Acres</b>            | 20.0                              |
|                      |                          | <b>Non-Spreadable Acres</b>   | 0.3                               |
| <b>Township</b>      | LaMoine                  | <b>Total Spreadable Acres</b> | 19.7                              |
| <b>Section</b>       | 4                        |                               |                                   |
| <b>FSA Farm #</b>    | 0                        | <b>Predominant Soil Type:</b> | 17A Keomah silt loam, 0-2% slopes |
| <b>FSA Tract #</b>   | 0                        | <b>P test</b>                 | 0                                 |
| <b>FSA Field #'s</b> | 0                        | <b>K test</b>                 | 0                                 |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Yield                             | (bu/acre OR ton/acre) |             | 50          | 170         | 50          | 170         | 50          |
| N needed (lbs/ac)                 | lbs/ac                |             | 0           | 204         | 0           | 204         | 0           |
| - Legume N credits                | (lb/acre)             |             | 0           | 40          | 0           | 40          | 0           |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 0.0         | 1.7         | 6.3         | 4.8         | 7.8         |
| Total N Credits                   | (lb/acre)             |             | 0           | 41.7        | 6.3         | 44.8        | 7.8         |
| Crop N Need Minus Credits         | (lb/acre)             |             | 0           | 162         | -6          | 159         | -8          |
| Maintenance P needed *            | (lb/acre)             |             | 42.5        | 73.1        | 42.5        | 73.1        | 42.5        |
| Maintenance K needed *            | (lb/acre)             |             | 65          | 47.6        | 65          | 47.6        | 65          |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 17 &amp; 19</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 0.0         | 7.6         | -0.3        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>0.0</b>  | <b>2.3</b>  | <b>7.6</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 45,744      | 149,121     | 45,744      | 146,221     | 45,744      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 162         | 50          | 159         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 139         | 43          | 136         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 101         | 31          | 99          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-50</b>  | <b>0</b>    | <b>-56</b>  | <b>0</b>    | <b>-58</b>  |
| Acres Covered   | (acres)            |             | 19.7        | 19.7        | 19.7        | 19.7        | 19.7        |



**Individual Field Information****Pinnacle Genetics**

|                      |                             |                               |                                   |
|----------------------|-----------------------------|-------------------------------|-----------------------------------|
| <b>Field Name:</b>   | <u>Field 20 - E Pasture</u> | <b>Total Acres</b>            | 3.4                               |
|                      |                             | <b>Non-Spreadable Acres</b>   | 0.0                               |
| <b>Township</b>      | LaMoine                     | <b>Total Spreadable Acres</b> | 3.4                               |
| <b>Section</b>       | 3                           |                               |                                   |
| <b>FSA Farm #</b>    | 154                         | <b>Predominant Soil Type:</b> | 17A Keomah silt loam, 0-2% slopes |
| <b>FSA Tract #</b>   | 2139                        | <b>P test</b>                 | 0                                 |
| <b>FSA Field #'s</b> | 9 & 10                      | <b>K test</b>                 | 0                                 |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Yield                             | (bu/acre OR ton/acre) |             | 50          | 170         | 50          | 170         | 50          |
| N needed (lbs/ac)                 | lbs/ac                |             | 0           | 204         | 0           | 204         | 0           |
| - Legume N credits                | (lb/acre)             |             | 0           | 40          | 0           | 40          | 0           |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 11.0        | 7.2         | 8.9         | 6.1         | 7.7         |
| Total N Credits                   | (lb/acre)             |             | 11.0        | 47.2        | 8.9         | 46.1        | 7.7         |
| Crop N Need Minus Credits         | (lb/acre)             |             | -11         | 157         | -9          | 158         | -8          |
| Maintenance P needed *            | (lb/acre)             |             | 42.5        | 73.1        | 42.5        | 73.1        | 42.5        |
| Maintenance K needed *            | (lb/acre)             |             | 65          | 47.6        | 65          | 47.6        | 65          |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 20 - E Pasture</b>   |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | -0.5        | 7.3         | -0.4        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>15.2</b> | <b>2.3</b>  | <b>7.3</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 7,907       | 24,905      | 7,907       | 25,072      | 7,907       |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 157         | 50          | 158         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 134         | 43          | 135         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 97          | 31          | 98          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-61</b>  | <b>0</b>    | <b>-59</b>  | <b>0</b>    | <b>-57</b>  |
| Acres Covered   | (acres)            |             | 3.4         | 3.4         | 3.4         | 3.4         | 3.4         |

**Individual Field Information****Pinnacle Genetics**

|                      |                            |                               |                                       |
|----------------------|----------------------------|-------------------------------|---------------------------------------|
| <b>Field Name:</b>   | <u>Field 22 - S Rich's</u> | <b>Total Acres</b>            | 25.7                                  |
|                      |                            | <b>Non-Spreadable Acres</b>   | 0.0                                   |
| <b>Township</b>      | LaMoine                    | <b>Total Spreadable Acres</b> | 25.7                                  |
| <b>Section</b>       | 4                          |                               |                                       |
| <b>FSA Farm #</b>    | 3647                       | <b>Predominant Soil Type:</b> | 279C2 Rozetta silt loam, 5-10% slopes |
| <b>FSA Tract #</b>   | 2380                       | <b>P test</b>                 | 0                                     |
| <b>FSA Field #'s</b> | 2                          | <b>K test</b>                 | 0                                     |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Yield                             | (bu/acre OR ton/acre) |             | 50          | 170         | 50          | 170         | 50          |
| N needed (lbs/ac)                 | lbs/ac                |             | 0           | 204         | 0           | 204         | 0           |
| - Legume N credits                | (lb/acre)             |             | 0           | 40          | 0           | 40          | 0           |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 0.0         | 1.7         | 6.3         | 4.8         | 7.8         |
| Total N Credits                   | (lb/acre)             |             | 0           | 41.7        | 6.3         | 44.8        | 7.8         |
| Crop N Need Minus Credits         | (lb/acre)             |             | 0           | 162         | -6          | 159         | -8          |
| Maintenance P needed *            | (lb/acre)             |             | 42.5        | 73.1        | 42.5        | 73.1        | 42.5        |
| Maintenance K needed *            | (lb/acre)             |             | 65          | 47.6        | 65          | 47.6        | 65          |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 22 - S Rich's</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 0.0         | 7.6         | -0.3        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>0.0</b>  | <b>2.3</b>  | <b>7.6</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 59,814      | 194,986     | 59,814      | 191,195     | 59,814      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 162         | 50          | 159         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 139         | 43          | 136         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 101         | 31          | 99          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-50</b>  | <b>0</b>    | <b>-56</b>  | <b>0</b>    | <b>-58</b>  |
| Acres Covered   | (acres)            |             | 25.7        | 25.7        | 25.7        | 25.7        | 25.7        |

**Individual Field Information****Pinnacle Genetics**

|                      |                          |                               |                                   |
|----------------------|--------------------------|-------------------------------|-----------------------------------|
| <b>Field Name:</b>   | <u>Field 23 &amp; 24</u> | <b>Total Acres</b>            | 54.8                              |
|                      |                          | <b>Non-Spreadable Acres</b>   | 0.4                               |
| <b>Township</b>      | Tennessee                | <b>Total Spreadable Acres</b> | 54.4                              |
| <b>Section</b>       | 34                       |                               |                                   |
| <b>FSA Farm #</b>    | 3647 & 3429              | <b>Predominant Soil Type:</b> | 17A Keomah silt loam, 0-2% slopes |
| <b>FSA Tract #</b>   | 7813 & 7812              | <b>P test</b>                 | 0                                 |
| <b>FSA Field #'s</b> | 1 & 1-2                  | <b>K test</b>                 | 0                                 |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Yield                             | (bu/acre OR ton/acre) |             | 50          | 170         | 50          | 170         | 50          |
| N needed (lbs/ac)                 | lbs/ac                |             | 0           | 204         | 0           | 204         | 0           |
| - Legume N credits                | (lb/acre)             |             | 0           | 40          | 0           | 40          | 0           |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 5.4         | 4.4         | 7.6         | 5.5         | 7.7         |
| Total N Credits                   | (lb/acre)             |             | 5.4         | 44.4        | 7.6         | 45.5        | 7.7         |
| Crop N Need Minus Credits         | (lb/acre)             |             | -5          | 160         | -8          | 159         | -8          |
| Maintenance P needed *            | (lb/acre)             |             | 42.5        | 73.1        | 42.5        | 73.1        | 42.5        |
| Maintenance K needed *            | (lb/acre)             |             | 65          | 47.6        | 65          | 47.6        | 65          |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor



|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 23 &amp; 24</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | -0.3        | 7.5         | -0.4        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>7.5</b>  | <b>2.3</b>  | <b>7.5</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 126,535     | 405,644     | 126,535     | 402,873     | 126,535     |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 160         | 50          | 159         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 136         | 43          | 135         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 99          | 31          | 98          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-55</b>  | <b>0</b>    | <b>-57</b>  | <b>0</b>    | <b>-58</b>  |
| Acres Covered   | (acres)            |             | 54.4        | 54.4        | 54.4        | 54.4        | 54.4        |

**Individual Field Information****Pinnacle Genetics**

|                      |                 |                               |                                   |
|----------------------|-----------------|-------------------------------|-----------------------------------|
| <b>Field Name:</b>   | <u>Field 25</u> | <b>Total Acres</b>            | 28.8                              |
|                      |                 | <b>Non-Spreadable Acres</b>   | 0.4                               |
| <b>Township</b>      | Tennessee       | <b>Total Spreadable Acres</b> | 28.4                              |
| <b>Section</b>       | 34              |                               |                                   |
| <b>FSA Farm #</b>    | 3429            | <b>Predominant Soil Type:</b> | 17A Keomah silt loam, 0-2% slopes |
| <b>FSA Tract #</b>   | 7812            | <b>P test</b>                 | 0                                 |
| <b>FSA Field #'s</b> | 1               | <b>K test</b>                 | 0                                 |

**Individual Field Application & Nutrients**

| Crop needs                        | Year                  | 2009  | 2010 | 2011  | 2012 | 2013  | 2014 |
|-----------------------------------|-----------------------|-------|------|-------|------|-------|------|
| Crop                              |                       | Beans | Corn | Beans | Corn | Beans | Corn |
| Yield                             | (bu/acre OR ton/acre) |       | 170  | 50    | 170  | 50    | 170  |
| N needed (lbs/ac)                 | lbs/ac                |       | 204  | 0     | 204  | 0     | 204  |
| - Legume N credits                | (lb/acre)             |       | 40   | 0     | 40   | 0     | 40   |
| - Commercial fertilizer N credits | (lb/acre)             |       |      |       |      |       |      |
| - Manure N carryover credit **    | (lb/acre)             |       | 13.4 | 11.8  | 7.6  | 9.1   | 5.4  |
| Total N Credits                   | (lb/acre)             |       | 53.4 | 11.8  | 47.6 | 9.1   | 45.4 |
| Crop N Need Minus Credits         | (lb/acre)             |       | 151  | -12   | 156  | -9    | 159  |
| Maintenance P needed *            | (lb/acre)             |       | 73.1 | 42.5  | 73.1 | 42.5  | 73.1 |
| Maintenance K needed *            | (lb/acre)             |       | 47.6 | 65    | 47.6 | 65    | 47.6 |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 25</b>   |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 7.0         | -0.5        | 7.3         | -0.4        | 7.4         |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 4.00        | 2.33        | 4.00        | 2.33        | 4.00        |
| Apply at Prate or Nrate?  |                    |             | Nrate       | Prate       | Nrate       | Prate       | Nrate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>18.5</b> | <b>7.0</b>  | <b>2.3</b>  | <b>7.3</b>  | <b>2.3</b>  | <b>7.4</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 199,934     | 66,093      | 207,647     | 66,093      | 210,555     |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 151         | 50          | 156         | 50          | 159         |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 151         | 43          | 134         | 43          | 135         |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 129         | 31          | 97          | 31          | 98          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>0</b>    | <b>-62</b>  | <b>0</b>    | <b>-59</b>  | <b>0</b>    |
| Acres Covered   | (acres)            |             | 28.4        | 28.4        | 28.4        | 28.4        | 28.4        |

**Individual Field Information****Pinnacle Genetics**

|                      |                            |                               |                                   |
|----------------------|----------------------------|-------------------------------|-----------------------------------|
| <b>Field Name:</b>   | <u>Field 26 - North 60</u> | <b>Total Acres</b>            | 58.3                              |
|                      |                            | <b>Non-Spreadable Acres</b>   | 0.5                               |
| <b>Township</b>      | Tennessee                  | <b>Total Spreadable Acres</b> | 57.8                              |
| <b>Section</b>       | 33 & 34                    |                               |                                   |
| <b>FSA Farm #</b>    | 3647                       | <b>Predominant Soil Type:</b> | 17B Keomah silt loam, 2-5% slopes |
| <b>FSA Tract #</b>   | 2147                       | <b>P test</b>                 | 0                                 |
| <b>FSA Field #'s</b> | 1,9,10                     | <b>K test</b>                 | 0                                 |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Yield                             | (bu/acre OR ton/acre) |             | 170         | 50          | 170         | 50          | 170         |
| N needed (lbs/ac)                 | lbs/ac                |             | 204         | 0           | 204         | 0           | 204         |
| - Legume N credits                | (lb/acre)             |             | 40          | 0           | 40          | 0           | 40          |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 9.2         | 9.8         | 6.6         | 8.6         | 5.4         |
| Total N Credits                   | (lb/acre)             |             | 49.2        | 9.8         | 46.6        | 8.6         | 45.4        |
| Crop N Need Minus Credits         | (lb/acre)             |             | 155         | -10         | 157         | -9          | 159         |
| Maintenance P needed *            | (lb/acre)             |             | 73.1        | 42.5        | 73.1        | 42.5        | 73.1        |
| Maintenance K needed *            | (lb/acre)             |             | 47.6        | 65          | 47.6        | 65          | 47.6        |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 26 - North 60</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 7.2         | -0.5        | 7.4         | -0.4        | 7.4         |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 4.00        | 2.33        | 4.00        | 2.33        | 4.00        |
| Apply at Prate or Nrate?  |                    |             | Nrate       | Prate       | Nrate       | Prate       | Nrate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>12.8</b> | <b>7.2</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  | <b>7.4</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 417,673     | 134,372     | 424,773     | 134,372     | 427,984     |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 155         | 50          | 157         | 50          | 159         |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 155         | 43          | 134         | 43          | 135         |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 132         | 31          | 98          | 31          | 98          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>0</b>    | <b>-60</b>  | <b>0</b>    | <b>-58</b>  | <b>0</b>    |
| Acres Covered   | (acres)            |             | 57.8        | 57.8        | 57.8        | 57.8        | 57.8        |

**Individual Field Information****Pinnacle Genetics**

|                      |                         |                               |                                       |
|----------------------|-------------------------|-------------------------------|---------------------------------------|
| <b>Field Name:</b>   | <u>Field 27 - NE 30</u> | <b>Total Acres</b>            | 30.5                                  |
|                      |                         | <b>Non-Spreadable Acres</b>   | 0.0                                   |
| <b>Township</b>      | Tennessee               | <b>Total Spreadable Acres</b> | 30.5                                  |
| <b>Section</b>       | 34                      |                               |                                       |
| <b>FSA Farm #</b>    | 3647                    | <b>Predominant Soil Type:</b> | 279C2 Rozetta silt loam, 5-10% slopes |
| <b>FSA Tract #</b>   | 2147                    | <b>P test</b>                 | 0                                     |
| <b>FSA Field #'s</b> | 2,3                     | <b>K test</b>                 | 0                                     |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Yield                             | (bu/acre OR ton/acre) |             | 50          | 170         | 50          | 170         | 50          |
| N needed (lbs/ac)                 | lbs/ac                |             | 0           | 204         | 0           | 204         | 0           |
| - Legume N credits                | (lb/acre)             |             | 0           | 40          | 0           | 40          | 0           |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 8.6         | 6.0         | 8.3         | 5.8         | 7.7         |
| Total N Credits                   | (lb/acre)             |             | 8.6         | 46.0        | 8.3         | 45.8        | 7.7         |
| Crop N Need Minus Credits         | (lb/acre)             |             | -9          | 158         | -8          | 158         | -8          |
| Maintenance P needed *            | (lb/acre)             |             | 42.5        | 73.1        | 42.5        | 73.1        | 42.5        |
| Maintenance K needed *            | (lb/acre)             |             | 65          | 47.6        | 65          | 47.6        | 65          |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>Field 27 - NE 30</b>   |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | -0.4        | 7.4         | -0.4        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>11.9</b> | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 70,930      | 225,122     | 70,930      | 225,306     | 70,930      |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 158         | 50          | 158         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 135         | 43          | 135         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 98          | 31          | 98          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-58</b>  | <b>0</b>    | <b>-58</b>  | <b>0</b>    | <b>-58</b>  |
| Acres Covered   | (acres)            |             | 30.5        | 30.5        | 30.5        | 30.5        | 30.5        |

**Individual Field Information****Pinnacle Genetics**

|                      |                 |                               |                                       |
|----------------------|-----------------|-------------------------------|---------------------------------------|
| <b>Field Name:</b>   | <u>North 80</u> | <b>Total Acres</b>            | 68.7                                  |
|                      |                 | <b>Non-Spreadable Acres</b>   | 0.1                                   |
| <b>Township</b>      | Tennessee       | <b>Total Spreadable Acres</b> | 68.6                                  |
| <b>Section</b>       | 34              |                               |                                       |
| <b>FSA Farm #</b>    | 0               | <b>Predominant Soil Type:</b> | 279C2 Rozetta silt loam, 5-10% slopes |
| <b>FSA Tract #</b>   | 0               | <b>P test</b>                 | 0                                     |
| <b>FSA Field #'s</b> | 0               | <b>K test</b>                 | 0                                     |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Yield                             | (bu/acre OR ton/acre) |             | 170         | 50          | 170         | 50          | 170         |
| N needed (lbs/ac)                 | lbs/ac                |             | 204         | 0           | 204         | 0           | 204         |
| - Legume N credits                | (lb/acre)             |             | 40          | 0           | 40          | 0           | 40          |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 11.8        | 11.0        | 7.2         | 8.9         | 5.4         |
| Total N Credits                   | (lb/acre)             |             | 51.8        | 11.0        | 47.2        | 8.9         | 45.4        |
| Crop N Need Minus Credits         | (lb/acre)             |             | 152         | -11         | 157         | -9          | 159         |
| Maintenance P needed *            | (lb/acre)             |             | 73.1        | 42.5        | 73.1        | 42.5        | 73.1        |
| Maintenance K needed *            | (lb/acre)             |             | 47.6        | 65          | 47.6        | 65          | 47.6        |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor



|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>North 80</b>   |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Beans       | Corn        | Beans       | Corn        | Beans       | Corn        |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 7.1         | -0.5        | 7.3         | -0.4        | 7.4         |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 4.00        | 2.33        | 4.00        | 2.33        | 4.00        |
| Apply at Prate or Nrate?  |                    |             | Nrate       | Prate       | Nrate       | Prate       | Nrate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>16.3</b> | <b>7.1</b>  | <b>2.3</b>  | <b>7.3</b>  | <b>2.3</b>  | <b>7.4</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 487,444     | 159,442     | 502,121     | 159,442     | 507,899     |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 152         | 50          | 157         | 50          | 159         |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 152         | 43          | 134         | 43          | 135         |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 130         | 31          | 97          | 31          | 98          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>0</b>    | <b>-61</b>  | <b>0</b>    | <b>-59</b>  | <b>0</b>    |
| Acres Covered   | (acres)            |             | 68.6        | 68.6        | 68.6        | 68.6        | 68.6        |

**Individual Field Information****Pinnacle Genetics**

|                      |                |                               |                                       |
|----------------------|----------------|-------------------------------|---------------------------------------|
| <b>Field Name:</b>   | <u>East 80</u> | <b>Total Acres</b>            | 56.3                                  |
|                      |                | <b>Non-Spreadable Acres</b>   | 0.0                                   |
| <b>Township</b>      | LaMoine        | <b>Total Spreadable Acres</b> | 56.2                                  |
| <b>Section</b>       | 3              |                               |                                       |
| <b>FSA Farm #</b>    | 0              | <b>Predominant Soil Type:</b> | 279C2 Rozetta silt loam, 5-10% slopes |
| <b>FSA Tract #</b>   | 0              | <b>P test</b>                 | 0                                     |
| <b>FSA Field #'s</b> | 0              | <b>K test</b>                 | 0                                     |

**Individual Field Application & Nutrients**

| <b>Crop needs</b>                 | <b>Year</b>           | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|-----------------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Crop                              |                       | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Yield                             | (bu/acre OR ton/acre) |             | 50          | 170         | 50          | 170         | 50          |
| N needed (lbs/ac)                 | lbs/ac                |             | 0           | 204         | 0           | 204         | 0           |
| - Legume N credits                | (lb/acre)             |             | 0           | 40          | 0           | 40          | 0           |
| - Commercial fertilizer N credits | (lb/acre)             |             |             |             |             |             |             |
| - Manure N carryover credit **    | (lb/acre)             |             | 0.0         | 1.7         | 6.3         | 4.8         | 7.8         |
| Total N Credits                   | (lb/acre)             |             | 0           | 41.7        | 6.3         | 44.8        | 7.8         |
| Crop N Need Minus Credits         | (lb/acre)             |             | 0           | 162         | -6          | 159         | -8          |
| Maintenance P needed *            | (lb/acre)             |             | 42.5        | 73.1        | 42.5        | 73.1        | 42.5        |
| Maintenance K needed *            | (lb/acre)             |             | 65          | 47.6        | 65          | 47.6        | 65          |

\* Maintenance P & K needed are listed for calculation & uptake purposes only

\*\* Manure N carryover credit = Previous years' apps \* Org N \* Mineralization factor

|   |                    |             |             |             |             |             |             |
|---|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Pinnacle Genetics</b>  |                    |             |             |             |             |             |             |
| <b>East 80</b>  |                    | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
| <b>Manure Application</b>   |                    | Corn        | Beans       | Corn        | Beans       | Corn        | Beans       |
| Storage   |                    | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     | B/G Pit     |
| Application Method  |                    | Inject      | Inject      | Inject      | Inject      | Inject      | Inject      |
| Storage/Application Method  |                    |             | LINE1       | LINE1       | LINE1       | LINE1       | LINE1       |
| 1st Year Available N ( $Am-N * N$<br><i>retention due to app method</i> ) + ( $OrgN$<br>$* .35$ ) | (lb/1000 gal)      |             | 21.41       | 21.41       | 21.41       | 21.41       | 21.41       |
| N App Rate<br>( $Crop\ N\ Need / 1st\ Yr\ Av\ N$ )  | (1000<br>gal/acre) |             | 0.0         | 7.6         | -0.3        | 7.4         | -0.4        |
| P App Rate<br>( $Maintenance\ P / P\ in\ analysis$ )  | (1000<br>gal/acre) |             | 2.33        | 4.00        | 2.33        | 4.00        | 2.33        |
| Apply at Prate or Nrate?  |                    |             | Prate       | Nrate       | Prate       | Nrate       | Prate       |
| <b>Application Rate to Use</b>  | <b>(1000 gal)</b>  | <b>0.0</b>  | <b>2.3</b>  | <b>7.6</b>  | <b>2.3</b>  | <b>7.4</b>  | <b>2.3</b>  |
| Total application<br>( $App\ Rate * Spreadable\ Acres$ )  | (gallons)          |             | 130,767     | 426,286     | 130,767     | 417,998     | 130,767     |
| N applied ( $1st\ Year\ AvN * App\ rate$ )  | (lb/acre)          |             | 50          | 162         | 50          | 159         | 50          |
| P applied ( $P\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 50          | 139         | 43          | 136         | 43          |
| K applied ( $K\ in\ manure * App\ rate$ )   | (lb/acre)          |             | 43          | 101         | 31          | 99          | 31          |
| <b>Additional N Needed</b>  | <b>(lb/acre)</b>   |             | <b>-50</b>  | <b>0</b>    | <b>-56</b>  | <b>0</b>    | <b>-58</b>  |
| Acres Covered   | (acres)            |             | 56.2        | 56.2        | 56.2        | 56.2        | 56.2        |