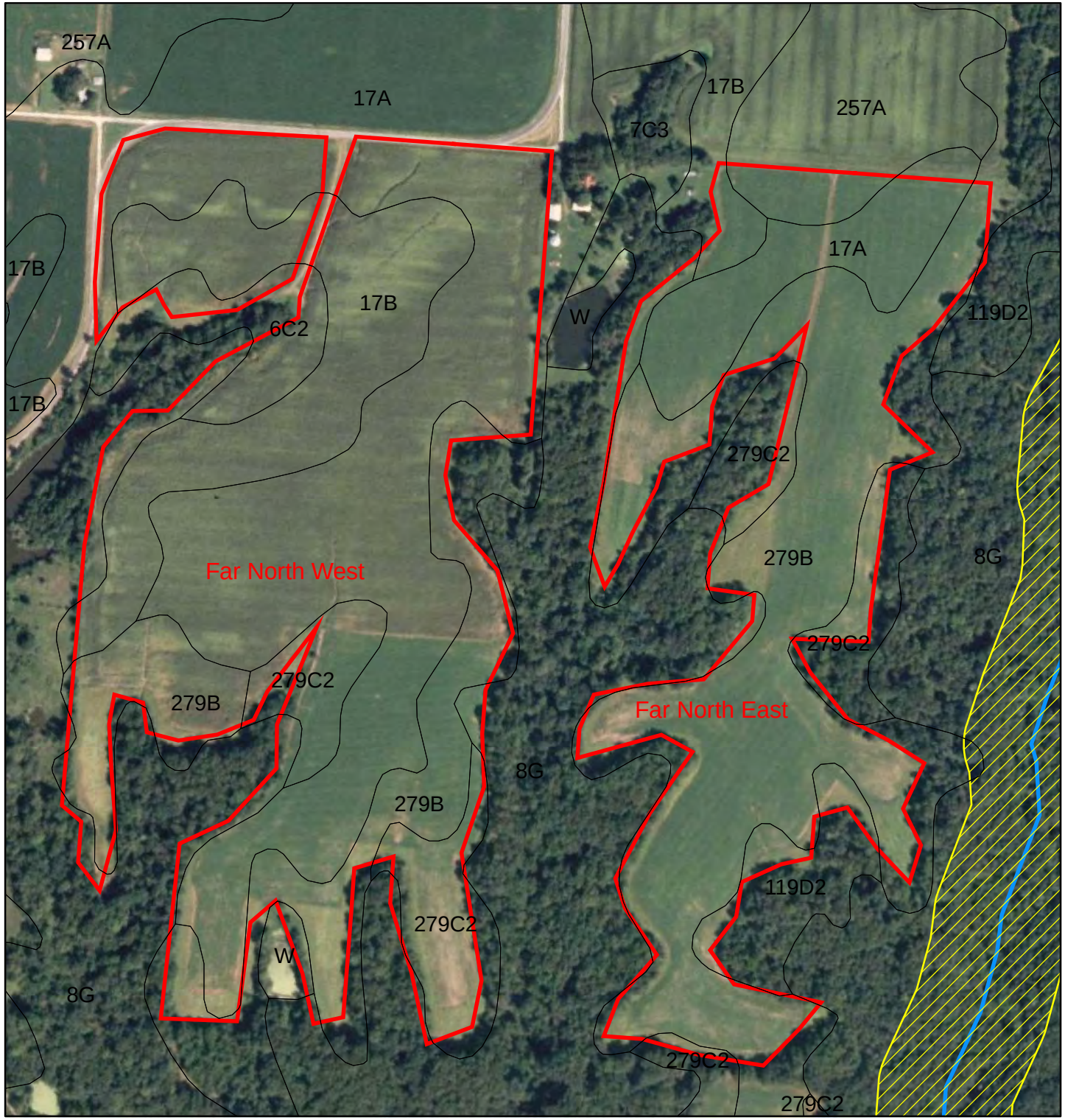


Pinnacle Genetics

Individual Fields Soil Map

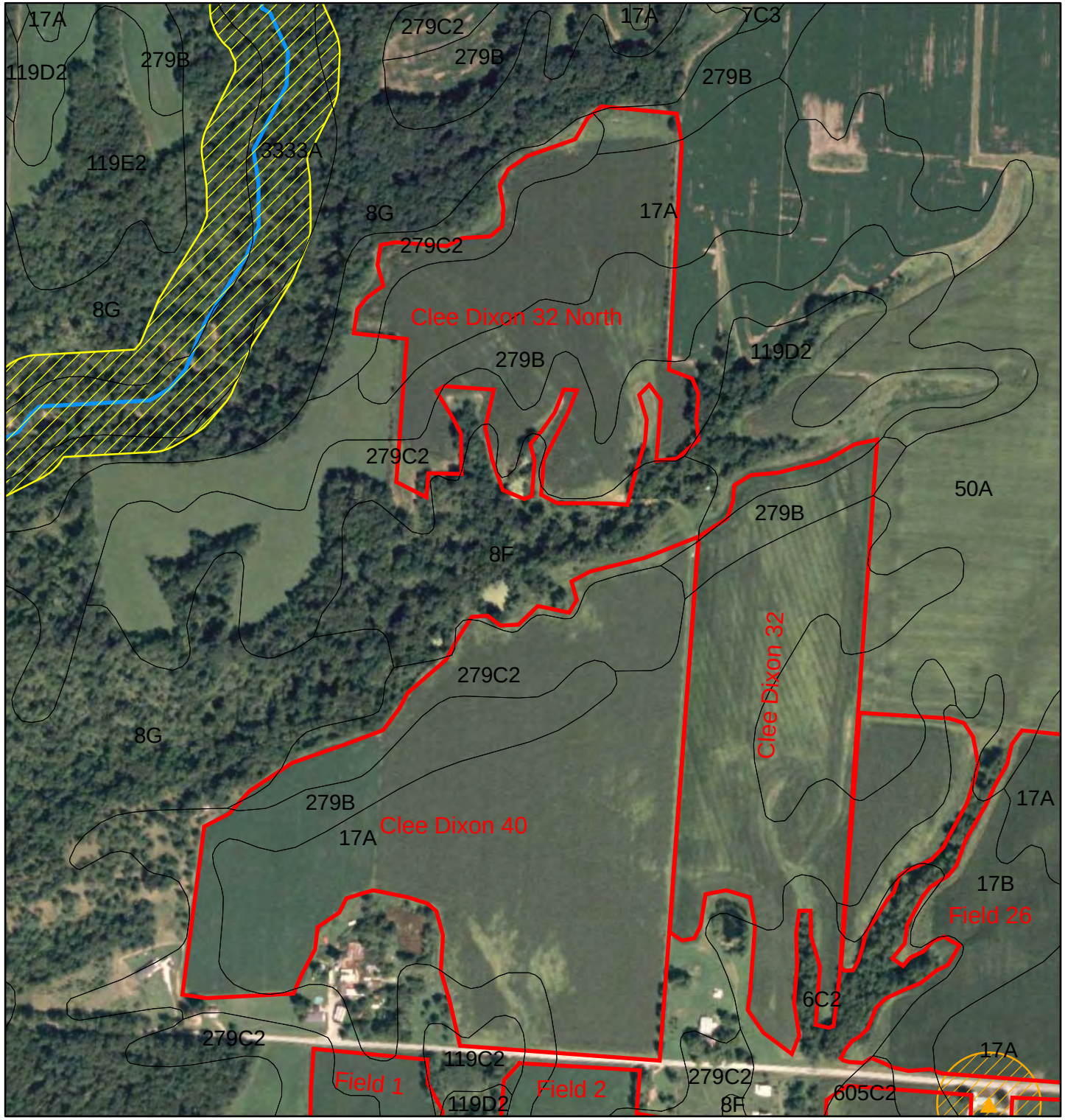
N
W E
S

Legend

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

820 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

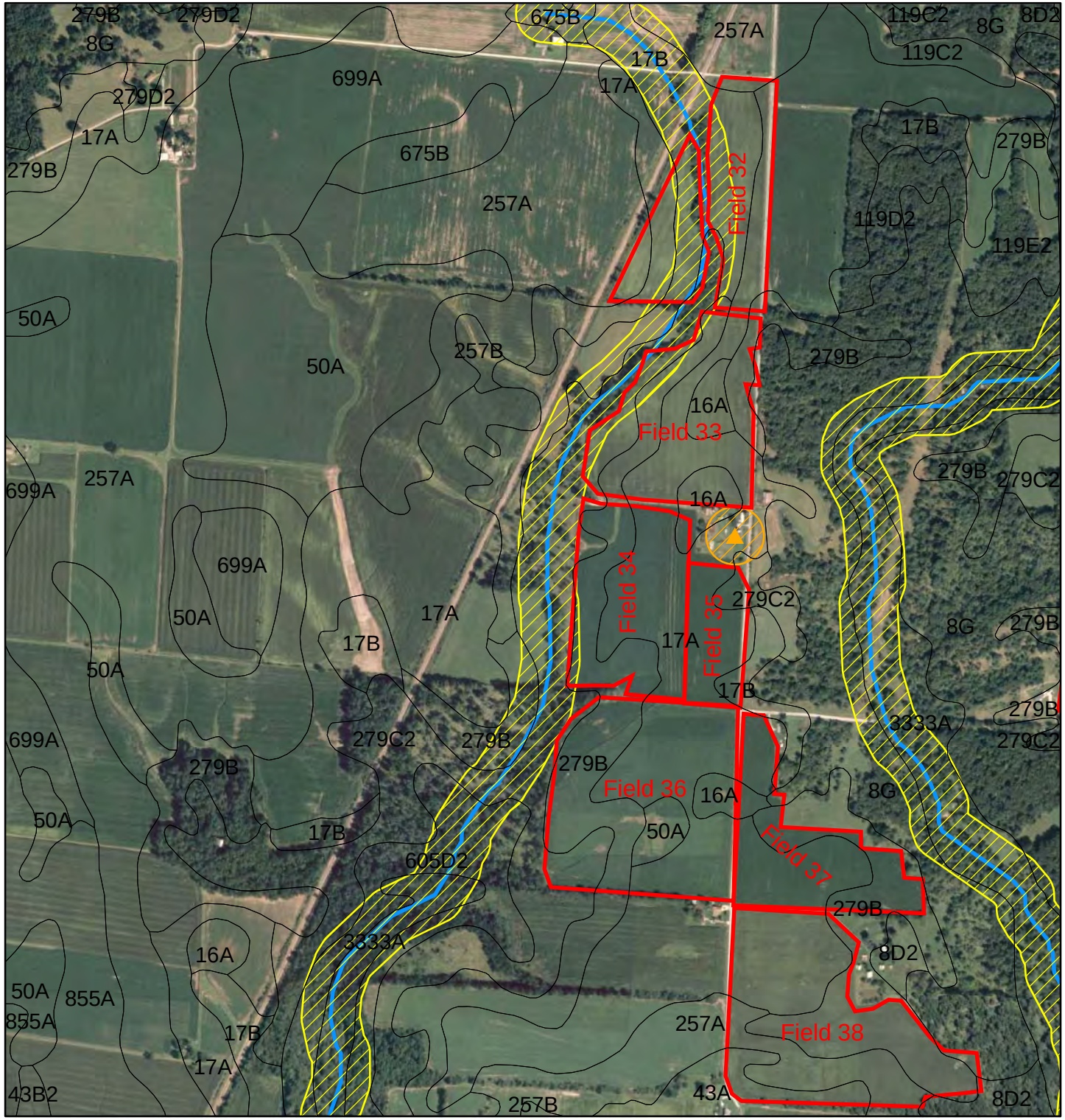
N
W E
S

Legend

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

1,100 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

N
W E
S

Legend

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

1,900 Feet

Frank & West
Environmental Engineers, Inc.
7226 N. State Route 29
Springfield, IL 62707
Phone: 217/487-7686
Fax: 217/487-7687

Individual Field Information

Pinnacle Genetics

Field Name:	Far North West & East	**Total Acres**	96.1
		Non-Spreadable Acres	6.5
Township	LaMoine	**Total Spreadable Acres**	89.6
Section	4		
			279C2 Rozetta silt loam, 5-
FSA Farm #	107	**Predominant Soil Type:**	10% slopes
FSA Tract #	2145	**P test**	0
FSA Field #'s	1-5	**K test**	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*

Pinnacle Genetics							
Far North West & East		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		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 retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		21.41	21.41	21.41	21.41	21.41
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		0.0	7.6	-0.3	7.4	-0.4
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		2.33	4.00	2.33	4.00	2.33
Apply at Prate or Nrate?			Prate	Nrate	Prate	Nrate	Prate
Application Rate to Use	**(1000 gal)**	**0.0**	**2.3**	**7.6**	**2.3**	**7.4**	**2.3**
Total application *(App Rate * Spreadable Acres)*	(gallons)		208,279	678,965	208,279	665,764	208,279
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
Additional N Needed	**(lb/acre)**		**-50**	**0**	**-56**	**0**	**-58**
Acres Covered	(acres)		89.6	89.6	89.6	89.6	89.6

Individual Field Information

Pinnacle Genetics

Field Name:	Fields 32,33,38 - N of Rent	**Total Acres**	86.5
		Non-Spreadable Acres	11.9
Township	Tennessee	**Total Spreadable Acres**	74.6
Section	29		
			279B Rozetta silt loam, 2-
FSA Farm #	112 182	**Predominant Soil Type:**	5% slopes
FSA Tract #	2128 2131	**P test**	0
FSA Field #'s	1,2 3,5	**K test**	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*

Pinnacle Genetics							
Fields 32,33,38 - N of Rent		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		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 retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		21.41	21.41	21.41	21.41	21.41
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		0.0	7.6	-0.3	7.4	-0.4
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		2.33	4.00	2.33	4.00	2.33
Apply at Prate or Nrate?			Prate	Nrate	Prate	Nrate	Prate
Application Rate to Use	**(1000 gal)**	**0.0**	**2.3**	**7.6**	**2.3**	**7.4**	**2.3**
Total application *(App Rate * Spreadable Acres)*	(gallons)		173,488	565,551	173,488	554,555	173,488
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
Additional N Needed	**(lb/acre)**		**-50**	**0**	**-56**	**0**	**-58**
Acres Covered	(acres)		74.6	74.6	74.6	74.6	74.6

Individual Field Information

Pinnacle Genetics

Field Name:	Field 34-37	**Total Acres**	89.2
		Non-Spreadable Acres	0.9
Township	Tennessee	**Total Spreadable Acres**	88.4
Section	32		
FSA Farm #	112	**Predominant Soil Type:**	279B Rozetta silt loam, 2-5% slopes
FSA Tract #	2128	**P test**	0
FSA Field #'s	1,2,5,6	**K test**	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)		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*

Pinnacle Genetics							
Field 34-37		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		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 retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		21.41	21.41	21.41	21.41	21.41
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		7.7	-0.3	7.5	-0.4	7.4
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		4.00	2.33	4.00	2.33	4.00
Apply at Prate or Nrate?			Nrate	Prate	Nrate	Prate	Nrate
Application Rate to Use	**(1000 gal)**	**0.0**	**7.7**	**2.3**	**7.5**	**2.3**	**7.4**
Total application *(App Rate * Spreadable Acres)*	(gallons)		676,719	205,465	658,384	205,465	654,109
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
Additional N Needed	**(lb/acre)**		**0**	**-55**	**0**	**-57**	**0**
Acres Covered	(acres)		88.4	88.4	88.4	88.4	88.4

Individual Field Information

Pinnacle Genetics

Field Name:	Clee Dixon 40	**Total Acres**	53.4
		Non-Spreadable Acres	0.0
Township	Tennessee	**Total Spreadable Acres**	53.4
Section	33		
FSA Farm #	3646	**Predominant Soil Type:**	279B Rozetta silt loam, 2-5% slopes
	7882		
FSA Tract #	7893	**P test**	0
	1		
FSA Field #'s	1	**K test**	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)		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*

Pinnacle Genetics							
Clee Dixon 40		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		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 retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		21.41	21.41	21.41	21.41	21.41
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		7.7	-0.3	7.5	-0.4	7.4
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		4.00	2.33	4.00	2.33	4.00
Apply at Prate or Nrate?			Nrate	Prate	Nrate	Prate	Nrate
Application Rate to Use	**(1000 gal)**	**0.0**	**7.7**	**2.3**	**7.5**	**2.3**	**7.4**
Total application *(App Rate * Spreadable Acres)*	(gallons)		408,636	124,070	397,564	124,070	394,983
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
Additional N Needed	**(lb/acre)**		**0**	**-55**	**0**	**-57**	**0**
Acres Covered	(acres)		53.4	53.4	53.4	53.4	53.4

Individual Field Information

Pinnacle Genetics

Field Name:	Clee Dixon 32	**Total Acres**	28.7
		Non-Spreadable Acres	0.0
Township	Tennessee	**Total Spreadable Acres**	28.7
Section	33		
			279B Rozetta silt loam, 2-
FSA Farm #	3645	**Predominant Soil Type:**	5% slopes
FSA Tract #	7894	**P test**	0
FSA Field #'s	6, 9	**K test**	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)		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*

Pinnacle Genetics							
Clee Dixon 32		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		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 retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		21.41	21.41	21.41	21.41	21.41
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		7.7	-0.3	7.5	-0.4	7.4
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		4.00	2.33	4.00	2.33	4.00
Apply at Prate or Nrate?			Nrate	Prate	Nrate	Prate	Nrate
Application Rate to Use	**(1000 gal)**	**0.0**	**7.7**	**2.3**	**7.5**	**2.3**	**7.4**
Total application *(App Rate * Spreadable Acres)*	(gallons)		219,752	66,721	213,798	66,721	212,410
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
Additional N Needed	**(lb/acre)**		**0**	**-55**	**0**	**-57**	**0**
Acres Covered	(acres)		28.7	28.7	28.7	28.7	28.7

Individual Field Information

Pinnacle Genetics

Field Name:	Clee Dixon 32 North	**Total Acres**	29.3
		Non-Spreadable Acres	0.0
Township	Tennessee	**Total Spreadable Acres**	29.3
Section	33		
			279B Rozetta silt loam, 2-
FSA Farm #	3645	**Predominant Soil Type:**	5% slopes
FSA Tract #	7894	**P test**	0
FSA Field #'s	1-5	**K test**	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)		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*

Pinnacle Genetics							
Clee Dixon 32 North		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		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 retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		21.41	21.41	21.41	21.41	21.41
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		7.7	-0.3	7.5	-0.4	7.4
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		4.00	2.33	4.00	2.33	4.00
Apply at Prate or Nrate?			Nrate	Prate	Nrate	Prate	Nrate
Application Rate to Use	**(1000 gal)**	**0.0**	**7.7**	**2.3**	**7.5**	**2.3**	**7.4**
Total application *(App Rate * Spreadable Acres)*	(gallons)		224,577	68,186	218,493	68,186	217,074
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
Additional N Needed	**(lb/acre)**		**0**	**-55**	**0**	**-57**	**0**
Acres Covered	(acres)		29.3	29.3	29.3	29.3	29.3