

MINNESOTA VALLEY TESTING LABORATORIES, INC.



1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
 2616 E. Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
 1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885

**MEMBER
ACIL**

SUBMITTED BY: 001141 THE PINNACLE GROUP LLC 620 EAST COUNTRY CLUB RD IOWA FALLS IA 50126			DATE RECEIVED: May 2 2021					SUBMITTED FOR: KENDALL UPCHURCH 85852112P4600						
			DATE REPORTED:											
			WORK ORDER NO: 202191-00195											
		SAMPLE ID 1 PREV CROP LAB NUMBER 21-M14522							SAMPLE ID 2 PREV CROP LAB NUMBER 21-M14523					
		V-LOW	LOW	OPT	HIGH	V-HIGH			V-LOW	LOW	OPT	HIGH	V-HIGH	
ORGANIC MATTER	3.1						2.6							
NITROGEN														
NO3-N ppm														
PHOSPHORUS														
P Meh 3 ppm	14						14							
POTASSIUM (K) Meh 3 ppm	138.						98.							
ZINC (ppm)														
SULFUR ppm SO4-S														
ACIDITY pH	5.6	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm	5.8	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm		
BUFFER INDEX	6.5						6.7							
CCE %		SALTS mmhos/cm			Cl lbs/A			SALTS mmhos/cm			Cl lbs/A			
CALCIUM ppm		CEC	% BASE SATURATION						CEC	% BASE SATURATION				
MAGNESIUM ppm		Ca	Mg	K	Na	H		Ca	Mg	K	Na	H		
		SAND %	SILT %	CLAY %			SAND %	SILT %	CLAY %					
ALL GUIDELINES ARE ON A BROADCAST BASIS	CROP FERTILIZER GUIDELINES					CROP FERTILIZER GUIDELINES								
CROP AND YIELD GOAL	CORN/BEANS 180/55 BU						CORN/BEANS 180/55 BU							
NITROGEN (lbs/A)	190						190							
P2O5 (lbs/A) ISU/ISU	106						106							
K2O (lbs/A) ISU/ISU	160						202							
ZINC (lbs/A)														
SULFUR (lbs/A)														
LIME NEEDS AS	to pH 6.5	2799 lbs of lime for 6" plow depth.					to pH 6.5	1347 lbs of lime for 6" plow depth.						
100% ENP (lbs/A)	to pH 6.9	5200 lbs of lime for 6" plow depth.					to pH 6.9	3548 lbs of lime for 6" plow depth.						

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 To determine Maximum Return to Nitrogen Rate considering (N price/ lb.)/(corn price): <http://cnrc.agron.iastate.edu/>

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			DATE REPORTED:											
			WORK ORDER NO: 202191-00195											
	SAMPLE ID PREV CROP LAB NUMBER		3 21-M14524				SAMPLE ID PREV CROP LAB NUMBER		4 21-M14525					
		V-LOW	LOW	OPT	HIGH	V-HIGH		V-LOW	LOW	OPT	HIGH	V-HIGH		
ORGANIC MATTER	3.7						2.8							
NITROGEN														
NO3-N ppm														
PHOSPHORUS														
P Meh 3 ppm	13						8							
POTASSIUM (K) Meh 3 ppm	156.						103.							
ZINC (ppm)														
SULFUR ppm SO4-S														
ACIDITY pH	5.7	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm	5.4	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm		
BUFFER INDEX	6.4						6.4							
CCE %		SALTS mmhos/cm			Cl lbs/A			SALTS mmhos/cm			Cl lbs/A			
CALCIUM ppm		CEC	% BASE SATURATION						CEC	% BASE SATURATION				
MAGNESIUM ppm			Ca	Mg	K	Na	H			Ca	Mg	K	Na	H
		SAND %	SILT %		CLAY %				SAND %	SILT %		CLAY %		
ALL GUIDELINES ARE ON A BROADCAST BASIS	CROP FERTILIZER GUIDELINES						CROP FERTILIZER GUIDELINES							
CROP AND YIELD GOAL	CORN/BEANS 180/55 BU						CORN/BEANS 180/55 BU							
NITROGEN (lbs/A)	190						190							
P2O5 (lbs/A) ISU/ISU	111						137							
K2O (lbs/A) ISU/ISU	123						198							
ZINC (lbs/A)														
SULFUR (lbs/A)														
LIME NEEDS AS	to pH 6.5		3525 lbs of lime for 6" plow depth.				to pH 6.5		3525 lbs of lime for 6" plow depth.					
100% ENP (lbs/A)	to pH 6.9		6026 lbs of lime for 6" plow depth.				to pH 6.9		6026 lbs of lime for 6" plow depth.					

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			DATE REPORTED:																				
			WORK ORDER NO: 202191-00195																				
		SAMPLE ID PREV CROP LAB NUMBER			5					SAMPLE ID PREV CROP LAB NUMBER			6										
		21-M14526								21-M14527													
		V-LOW			LOW	OPT	HIGH	V-HIGH					V-LOW			LOW	OPT	HIGH	V-HIGH				
ORGANIC MATTER		3.1	██████████								3.0	██████████											
NITROGEN																							
NO3-N ppm																							
PHOSPHORUS																							
P Meh 3 ppm		14	██████████								20	██████████											
POTASSIUM (K) Meh 3 ppm		110.	██████████								142.	██████████											
ZINC (ppm)																							
SULFUR ppm SO4-S																							
ACIDITY pH		5.2	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm			5.1	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm								
BUFFER INDEX		6.2								6.2													
CCE %			SALTS mmhos/cm			Cl lbs/A						SALTS mmhos/cm			Cl lbs/A								
CALCIUM ppm			CEC	% BASE SATURATION						CEC	% BASE SATURATION												
MAGNESIUM ppm			Ca	Mg	K	Na	H				Ca	Mg	K	Na	H								
			SAND %			SILT %		CLAY %				SAND %			SILT %		CLAY %						
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES											CROP FERTILIZER GUIDELINES									
CROP AND YIELD GOAL		CORN/BEANS 180/55 BU									CORN/BEANS 180/55 BU												
NITROGEN (lbs/A)		190									190												
P2O5 (lbs/A) ISU/ISU		106									98												
K2O (lbs/A) ISU/ISU		193									154												
ZINC (lbs/A)																							
SULFUR (lbs/A)																							
LIME NEEDS AS		to pH 6.5	4977 lbs of lime for 6" plow depth.							to pH 6.5	4977 lbs of lime for 6" plow depth.												
100% ENP (lbs/A)		to pH 6.9	7679 lbs of lime for 6" plow depth.							to pH 6.9	7679 lbs of lime for 6" plow depth.												

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SAMPLE ID PREV CROP LAB NUMBER			7 21-M14528					SAMPLE ID PREV CROP LAB NUMBER			8 21-M14529					
			V-LOW	LOW	OPT	HIGH	V-HIGH				V-LOW	LOW	OPT	HIGH	V-HIGH	
ORGANIC MATTER			3.4					3.3								
NITROGEN																
NO3-N ppm																
PHOSPHORUS																
P Meh 3 ppm			9					11								
POTASSIUM (K) Meh 3 ppm			119.					125.								
ZINC (ppm)																
SULFUR ppm SO4-S																
ACIDITY pH			5.5					6.0			B ppm		Fe ppm		Mn ppm	
BUFFER INDEX			6.4					6.7			Cu ppm		Na ppm			
CCE %			SALTS mmhos/cm					SALTS mmhos/cm			Cl lbs/A		Cl lbs/A			
CALCIUM ppm			CEC					CEC			% BASE SATURATION		% BASE SATURATION			
MAGNESIUM ppm			Ca Mg K Na H					Ca Mg K Na H			Ca Mg K Na H		Ca Mg K Na H			
			SAND % SILT % CLAY %					SAND % SILT % CLAY %			SAND % SILT % CLAY %		SAND % SILT % CLAY %			
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES					CROP FERTILIZER GUIDELINES								
CROP AND YIELD GOAL			CORN/BEANS 180/55 BU					CORN/BEANS 180/55 BU								
NITROGEN (lbs/A)			190					190								
P2O5 (lbs/A) ISU/ISU			132					121								
K2O (lbs/A) ISU/ISU			184					178								
ZINC (lbs/A)																
SULFUR (lbs/A)																
LIME NEEDS AS			to pH 6.5 3525 lbs of lime for 6" plow depth.					to pH 6.5 1347 lbs of lime for 6" plow depth.								
100% ENP (lbs/A)			to pH 6.9 6026 lbs of lime for 6" plow depth.					to pH 6.9 3548 lbs of lime for 6" plow depth.								

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			DATE REPORTED:												
			WORK ORDER NO: 202191-00195												
SAMPLE ID PREV CROP LAB NUMBER			9 21-M14530					SAMPLE ID PREV CROP LAB NUMBER			10 21-M14531				
			V-LOW	LOW	OPT	HIGH	V-HIGH				V-LOW	LOW	OPT	HIGH	V-HIGH
ORGANIC MATTER	3.9						4.7								
NITROGEN															
NO3-N ppm															
PHOSPHORUS															
P Meh 3 ppm	20						19								
POTASSIUM (K) Meh 3 ppm	137.						151.								
ZINC (ppm)															
SULFUR ppm SO4-S															
ACIDITY pH	6.2	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm	7.1	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm			
BUFFER INDEX	6.8						7.2								
CCE %		SALTS mmhos/cm			Cl lbs/A			SALTS mmhos/cm			Cl lbs/A				
CALCIUM ppm		CEC	% BASE SATURATION						CEC	% BASE SATURATION					
MAGNESIUM ppm		Ca	Mg	K	Na	H		Ca	Mg	K	Na	H			
		SAND %	SILT %	CLAY %			SAND %	SILT %	CLAY %						
ALL GUIDELINES ARE ON A BROADCAST BASIS	CROP FERTILIZER GUIDELINES						CROP FERTILIZER GUIDELINES								
CROP AND YIELD GOAL	CORN/BEANS 180/55 BU						CORN/BEANS 180/55 BU								
NITROGEN (lbs/A)	190						190								
P2O5 (lbs/A) ISU/ISU	98						98								
K2O (lbs/A) ISU/ISU	162						136								
ZINC (lbs/A)															
SULFUR (lbs/A)															
LIME NEEDS AS	to pH 6.5	621 lbs of lime for 6" plow depth.					to pH 6.5	No lime required.							
100% ENP (lbs/A)	to pH 6.9	2722 lbs of lime for 6" plow depth.					to pH 6.9	No lime required.							

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			DATE REPORTED:												
			WORK ORDER NO: 202191-00195												
SAMPLE ID PREV CROP LAB NUMBER			11 21-M14532					SAMPLE ID PREV CROP LAB NUMBER			12 21-M14533				
			V-LOW	LOW	OPT	HIGH	V-HIGH				V-LOW	LOW	OPT	HIGH	V-HIGH
ORGANIC MATTER			5.3					3.9							
NITROGEN															
NO3-N ppm															
PHOSPHORUS															
P Meh 3 ppm			24					11							
POTASSIUM (K) Meh 3 ppm			187.					132.							
ZINC (ppm)															
SULFUR ppm SO4-S															
ACIDITY pH			5.8					5.4			B ppm Fe ppm Mn ppm Cu ppm Na ppm				
BUFFER INDEX			6.4					6.4							
CCE %			SALTS mmhos/cm					SALTS mmhos/cm			Cl lbs/A				
CALCIUM ppm			CEC					CEC			% BASE SATURATION				
MAGNESIUM ppm			Ca Mg K Na H					Ca Mg K Na H							
			SAND % SILT % CLAY %					SAND % SILT % CLAY %			TEXTURE				
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES								CROP FERTILIZER GUIDELINES				
CROP AND YIELD GOAL			CORN/BEANS 180/55 BU					CORN/BEANS 180/55 BU							
NITROGEN (lbs/A)			190					190							
P2O5 (lbs/A) ISU/ISU			50					121							
K2O (lbs/A) ISU/ISU			106					169							
ZINC (lbs/A)															
SULFUR (lbs/A)															
LIME NEEDS AS			to pH 6.5 3525 lbs of lime for 6" plow depth.					to pH 6.5 3525 lbs of lime for 6" plow depth.							
100% ENP (lbs/A)			to pH 6.9 6026 lbs of lime for 6" plow depth.					to pH 6.9 6026 lbs of lime for 6" plow depth.							

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SAMPLE ID PREV CROP LAB NUMBER			13 21-M14534					SAMPLE ID PREV CROP LAB NUMBER			14 21-M14535				
			V-LOW	LOW	OPT	HIGH	V-HIGH				V-LOW	LOW	OPT	HIGH	V-HIGH
ORGANIC MATTER			2.8					5.3							
NITROGEN															
NO3-N ppm															
PHOSPHORUS															
P Meh 3 ppm			12					18							
POTASSIUM (K) Meh 3 ppm			128.					143.							
ZINC (ppm)															
SULFUR ppm SO4-S															
ACIDITY pH			5.5					5.6							
BUFFER INDEX			6.4					6.3							
CCE %			SALTS mmhos/cm					SALTS mmhos/cm			Cl lbs/A				
CALCIUM ppm			CEC					CEC			% BASE SATURATION				
MAGNESIUM ppm			Ca Mg K Na H					Ca Mg K Na H							
			SAND % SILT % CLAY %					SAND % SILT % CLAY %			TEXTURE				
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES					CROP FERTILIZER GUIDELINES							
CROP AND YIELD GOAL			CORN/BEANS 180/55 BU					CORN/BEANS 180/55 BU							
NITROGEN (lbs/A)			190					190							
P2O5 (lbs/A) ISU/ISU			116					98							
K2O (lbs/A) ISU/ISU			174					152							
ZINC (lbs/A)															
SULFUR (lbs/A)															
LIME NEEDS AS			to pH 6.5 3525 lbs of lime for 6" plow depth.					to pH 6.5 4251 lbs of lime for 6" plow depth.							
100% ENP (lbs/A)			to pH 6.9 6026 lbs of lime for 6" plow depth.					to pH 6.9 6852 lbs of lime for 6" plow depth.							

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SAMPLE ID PREV CROP LAB NUMBER			15 21-M14536					SAMPLE ID PREV CROP LAB NUMBER			16 21-M14537							
			V-LOW	LOW	OPT	HIGH	V-HIGH				V-LOW	LOW	OPT	HIGH	V-HIGH			
ORGANIC MATTER			5.9								4.3							
NITROGEN																		
NO3-N ppm																		
PHOSPHORUS																		
P Meh 3 ppm			23								20							
POTASSIUM (K) Meh 3 ppm			157.								161.							
ZINC (ppm)																		
SULFUR ppm SO4-S																		
ACIDITY pH			7.5		B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm	5.7			B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm	
BUFFER INDEX			7.3							6.4								
CCE %			SALTS mmhos/cm				Cl lbs/A				SALTS mmhos/cm				Cl lbs/A			
CALCIUM ppm			CEC		% BASE SATURATION					CEC		% BASE SATURATION						
MAGNESIUM ppm			Ca	Mg	K	Na	H				Ca	Mg	K	Na	H			
			SAND %		SILT %		CLAY %			SAND %		SILT %		CLAY %				
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES								CROP FERTILIZER GUIDELINES							
CROP AND YIELD GOAL			CORN/BEANS 180/55 BU								CORN/BEANS 180/55 BU							
NITROGEN (lbs/A)			190								190							
P2O5 (lbs/A) ISU/ISU			50								98							
K2O (lbs/A) ISU/ISU			121								106							
ZINC (lbs/A)																		
SULFUR (lbs/A)																		
LIME NEEDS AS			to pH 6.5 No lime required.								to pH 6.5 3525 lbs of lime for 6" plow depth.							
100% ENP (lbs/A)			to pH 6.9 No lime required.								to pH 6.9 6026 lbs of lime for 6" plow depth.							

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SUBMITTED BY: 001141 THE PINNACLE GROUP LLC 620 EAST COUNTRY CLUB RD IOWA FALLS IA 50126			DATE RECEIVED: May 2 2021 DATE REPORTED: WORK ORDER NO: 202191-00195					SUBMITTED FOR: KENDALL UPCHURCH 85852112P4600								
SAMPLE ID PREV CROP LAB NUMBER			17 21-M14538					SAMPLE ID PREV CROP LAB NUMBER			18 21-M14539					
			V-LOW	LOW	OPT	HIGH	V-HIGH				V-LOW	LOW	OPT	HIGH	V-HIGH	
ORGANIC MATTER			3.6								4.1					
NITROGEN																
NO3-N ppm																
PHOSPHORUS																
P Meh 3 ppm			7								20					
POTASSIUM (K) Meh 3 ppm			129.								133.					
ZINC (ppm)																
SULFUR ppm SO4-S																
ACIDITY pH			5.5								5.4					
BUFFER INDEX			6.4								6.2					
CCE %			SALTS mmhos/cm								SALTS mmhos/cm					
			CEC								CEC					
CALCIUM ppm			% BASE SATURATION								% BASE SATURATION					
MAGNESIUM ppm			Ca Mg K Na H								Ca Mg K Na H					
			SAND % SILT % CLAY %								SAND % SILT % CLAY %					
			TEXTURE								TEXTURE					
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES							CROP FERTILIZER GUIDELINES						
CROP AND YIELD GOAL			CORN/BEANS 180/55 BU								CORN/BEANS 180/55 BU					
NITROGEN (lbs/A)			190								190					
P2O5 (lbs/A) ISU/ISU			143								98					
K2O (lbs/A) ISU/ISU			173								168					
ZINC (lbs/A)																
SULFUR (lbs/A)																
LIME NEEDS AS			to pH 6.5 3525 lbs of lime for 6" plow depth.								to pH 6.5 4977 lbs of lime for 6" plow depth.					
100% ENP (lbs/A)			to pH 6.9 6026 lbs of lime for 6" plow depth.								to pH 6.9 7679 lbs of lime for 6" plow depth.					

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SUBMITTED BY: 001141			DATE RECEIVED: May 2 2021					SUBMITTED FOR: KENDALL UPCHURCH 85852112P4600								
THE PINNACLE GROUP LLC 620 EAST COUNTRY CLUB RD IOWA FALLS IA 50126			DATE REPORTED:													
			WORK ORDER NO: 202191-00195													
			SAMPLE ID PREV CROP LAB NUMBER			19 21-M14540		SAMPLE ID PREV CROP LAB NUMBER			20 21-M14541					
			V-LOW	LOW	OPT	HIGH	V-HIGH	V-LOW	LOW	OPT	HIGH	V-HIGH				
ORGANIC MATTER			3.7					3.8								
NITROGEN																
NO3-N ppm																
PHOSPHORUS																
P Meh 3 ppm			6					12								
POTASSIUM (K) Meh 3 ppm			115.					141.								
ZINC (ppm)																
SULFUR ppm SO4-S																
ACIDITY pH			5.0		B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm	5.5						
BUFFER INDEX			6.0							6.4						
CCE %			SALTS mmhos/cm				Cl lbs/A				SALTS mmhos/cm					
			CEC		% BASE SATURATION					CEC		% BASE SATURATION				
CALCIUM ppm			Ca	Mg	K	Na	H	Ca	Mg	K	Na	H				
MAGNESIUM ppm																
			SAND %		SILT %		CLAY %			SAND %		SILT %		CLAY %		
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES					CROP FERTILIZER GUIDELINES								
CROP AND YIELD GOAL			CORN/BEANS 180/55 BU					CORN/BEANS 180/55 BU								
NITROGEN (lbs/A)			190					190								
P2O5 (lbs/A) ISU/ISU			149					116								
K2O (lbs/A) ISU/ISU			188					155								
ZINC (lbs/A)																
SULFUR (lbs/A)																
LIME NEEDS AS			to pH 6.5		6429 lbs of lime for 6" plow depth.			to pH 6.5		3525 lbs of lime for 6" plow depth.						
100% ENP (lbs/A)			to pH 6.9		9331 lbs of lime for 6" plow depth.			to pH 6.9		6026 lbs of lime for 6" plow depth.						

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SUBMITTED BY: 001141 THE PINNACLE GROUP LLC 620 EAST COUNTRY CLUB RD IOWA FALLS IA 50126			DATE RECEIVED: May 2 2021 DATE REPORTED: WORK ORDER NO: 202191-00195					SUBMITTED FOR: KENDALL UPCHURCH 85852112P4600																
SAMPLE ID PREV CROP LAB NUMBER			21 21-M14542					SAMPLE ID PREV CROP LAB NUMBER			22 21-M14543													
			V-LOW	LOW	OPT	HIGH	V-HIGH				V-LOW	LOW	OPT	HIGH	V-HIGH									
ORGANIC MATTER			2.9					6.4																
NITROGEN																								
NO3-N ppm																								
PHOSPHORUS																								
P Meh 3 ppm			6					109																
POTASSIUM (K) Meh 3 ppm			105.					335.																
ZINC (ppm)																								
SULFUR ppm SO4-S																								
ACIDITY pH			5.5					5.8			B ppm		Fe ppm		Mn ppm		Cu ppm		Na ppm					
BUFFER INDEX			6.5					6.3																
CCE %			SALTS mmhos/cm					SALTS mmhos/cm			Cl lbs/A		Cl lbs/A											
CALCIUM ppm			CEC					CEC			% BASE SATURATION		% BASE SATURATION		Ca		Mg		K		Na		H	
MAGNESIUM ppm			Ca					Ca			Mg		Mg		K		K		Na		Na		H	
			SAND %					SAND %			SILT %		SILT %		CLAY %		CLAY %							
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES					CROP FERTILIZER GUIDELINES																
CROP AND YIELD GOAL			CORN/BEANS 180/55 BU					CORN/BEANS 180/55 BU																
NITROGEN (lbs/A)			190					190																
P2O5 (lbs/A) ISU/ISU			149					0																
K2O (lbs/A) ISU/ISU			197					0																
ZINC (lbs/A)																								
SULFUR (lbs/A)																								
LIME NEEDS AS			to pH 6.5 2799 lbs of lime for 6" plow depth.					to pH 6.5 4251 lbs of lime for 6" plow depth.																
100% ENP (lbs/A)			to pH 6.9 5200 lbs of lime for 6" plow depth.					to pH 6.9 6852 lbs of lime for 6" plow depth.																

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SUBMITTED BY: 001141			DATE RECEIVED: May 2 2021					SUBMITTED FOR: KENDALL UPCHURCH 85852112P4600																	
THE PINNACLE GROUP LLC 620 EAST COUNTRY CLUB RD IOWA FALLS IA 50126			DATE REPORTED:																						
			WORK ORDER NO: 202191-00195																						
		SAMPLE ID PREV CROP LAB NUMBER		23 21-M14544					SAMPLE ID PREV CROP LAB NUMBER		24 21-M14545														
				V-LOW	LOW	OPT	HIGH	V-HIGH			V-LOW	LOW	OPT	HIGH	V-HIGH										
ORGANIC MATTER		2.6							3.8																
NITROGEN																									
NO3-N ppm																									
PHOSPHORUS																									
P Meh 3 ppm		9							10																
POTASSIUM (K) Meh 3 ppm		111.							128.																
ZINC (ppm)																									
SULFUR ppm SO4-S																									
ACIDITY pH		5.8		B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm	4.9		B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm										
BUFFER INDEX		6.6							5.9																
CCE %		SALTS mmhos/cm					Cl lbs/A					SALTS mmhos/cm					Cl lbs/A								
CALCIUM ppm				CEC					% BASE SATURATION							CEC					% BASE SATURATION				
MAGNESIUM ppm				Ca	Mg	K	Na	H			Ca	Mg	K	Na	H										
				SAND %					SILT %					CLAY %											
				TEXTURE					TEXTURE					TEXTURE											
ALL GUIDELINES ARE ON A BROADCAST BASIS		CROP FERTILIZER GUIDELINES										CROP FERTILIZER GUIDELINES													
CROP AND YIELD GOAL		CORN/BEANS 180/55 BU										CORN/BEANS 180/55 BU													
NITROGEN (lbs/A)		190										190													
P2O5 (lbs/A) ISU/ISU		132										126													
K2O (lbs/A) ISU/ISU		192										174													
ZINC (lbs/A)																									
SULFUR (lbs/A)																									
LIME NEEDS AS		to pH 6.5 2073 lbs of lime for 6" plow depth.										to pH 6.5 7155 lbs of lime for 6" plow depth.													
100% ENP (lbs/A)		to pH 6.9 4374 lbs of lime for 6" plow depth.										to pH 6.9 10160 lbs of lime for 6" plow depth.													

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SUBMITTED BY: 001141 THE PINNACLE GROUP LLC 620 EAST COUNTRY CLUB RD IOWA FALLS IA 50126			DATE RECEIVED: May 2 2021 DATE REPORTED: WORK ORDER NO: 202191-00195					SUBMITTED FOR: KENDALL UPCHURCH 85852112P4600												
SAMPLE ID PREV CROP LAB NUMBER			25 21-M14546					SAMPLE ID PREV CROP LAB NUMBER			26 21-M14547									
			V-LOW	LOW	OPT	HIGH	V-HIGH				V-LOW	LOW	OPT	HIGH	V-HIGH					
ORGANIC MATTER			3.5								3.0									
NITROGEN																				
NO3-N ppm																				
PHOSPHORUS																				
P Meh 3 ppm			9								10									
POTASSIUM (K) Meh 3 ppm			102.								120.									
ZINC (ppm)																				
SULFUR ppm SO4-S																				
ACIDITY pH			4.9		B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm	4.9			B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm			
BUFFER INDEX			6.0							6.1										
CCE %			SALTS mmhos/cm				Cl lbs/A				SALTS mmhos/cm				Cl lbs/A					
CALCIUM ppm			CEC		% BASE SATURATION					CEC		% BASE SATURATION								
MAGNESIUM ppm			Ca	Mg	K	Na	H				Ca	Mg	K	Na	H					
			SAND %		SILT %			CLAY %			SAND %		SILT %			CLAY %				
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES									CROP FERTILIZER GUIDELINES								
CROP AND YIELD GOAL			CORN/BEANS 180/55 BU									CORN/BEANS 180/55 BU								
NITROGEN (lbs/A)			190									190								
P2O5 (lbs/A) ISU/ISU			132									126								
K2O (lbs/A) ISU/ISU			199									183								
ZINC (lbs/A)																				
SULFUR (lbs/A)																				
LIME NEEDS AS			to pH 6.5			6429 lbs of lime for 6" plow depth.						to pH 6.5			5703 lbs of lime for 6" plow depth.					
100% ENP (lbs/A)			to pH 6.9			9331 lbs of lime for 6" plow depth.						to pH 6.9			8505 lbs of lime for 6" plow depth.					

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SUBMITTED BY: 001141 THE PINNACLE GROUP LLC 620 EAST COUNTRY CLUB RD IOWA FALLS IA 50126			DATE RECEIVED: May 2 2021 DATE REPORTED: WORK ORDER NO: 202191-00195					SUBMITTED FOR: KENDALL UPCHURCH 85852112P4600											
		SAMPLE ID PREV CROP LAB NUMBER			27 21-M14548					SAMPLE ID PREV CROP LAB NUMBER			28 21-M14549						
		V-LOW			LOW	OPT	HIGH	V-HIGH				V-LOW			LOW	OPT	HIGH	V-HIGH	
ORGANIC MATTER		3.4						4.4											
NITROGEN																			
NO3-N ppm																			
PHOSPHORUS																			
P Meh 3 ppm		12						24											
POTASSIUM (K) Meh 3 ppm		129.						132.											
ZINC (ppm)																			
SULFUR ppm SO4-S																			
ACIDITY pH		5.5	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm		5.3	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm					
BUFFER INDEX		6.3						6.2											
CCE %		SALTS mmhos/cm			Cl lbs/A					SALTS mmhos/cm			Cl lbs/A						
CALCIUM ppm			CEC	% BASE SATURATION						CEC	% BASE SATURATION								
MAGNESIUM ppm			Ca	Mg	K	Na	H			Ca	Mg	K	Na	H					
			SAND %	SILT %		CLAY %				SAND %	SILT %		CLAY %						
ALL GUIDELINES ARE ON A BROADCAST BASIS		CROP FERTILIZER GUIDELINES						CROP FERTILIZER GUIDELINES											
CROP AND YIELD GOAL		CORN/BEANS 180/55 BU									CORN/BEANS 180/55 BU								
NITROGEN (lbs/A)		190									190								
P2O5 (lbs/A) ISU/ISU		116									50								
K2O (lbs/A) ISU/ISU		173									169								
ZINC (lbs/A)																			
SULFUR (lbs/A)																			
LIME NEEDS AS		to pH 6.5			4251 lbs of lime for 6" plow depth.						to pH 6.5			4977 lbs of lime for 6" plow depth.					
100% ENP (lbs/A)		to pH 6.9			6852 lbs of lime for 6" plow depth.						to pH 6.9			7679 lbs of lime for 6" plow depth.					

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SUBMITTED BY: 001141 THE PINNACLE GROUP LLC 620 EAST COUNTRY CLUB RD IOWA FALLS IA 50126			DATE RECEIVED: May 2 2021					SUBMITTED FOR: KENDALL UPCHURCH 85852112P4600											
			DATE REPORTED:																
			WORK ORDER NO: 202191-00195																
		SAMPLE ID PREV CROP LAB NUMBER			29					SAMPLE ID PREV CROP LAB NUMBER			30						
		21-M14550								21-M14551									
		V-LOW			LOW	OPT	HIGH	V-HIGH					V-LOW	LOW	OPT	HIGH	V-HIGH		
ORGANIC MATTER		3.2						4.4											
NITROGEN																			
NO3-N ppm																			
PHOSPHORUS																			
P Meh 3 ppm		12						12											
POTASSIUM (K) Meh 3 ppm		112.						126.											
ZINC (ppm)																			
SULFUR ppm SO4-S																			
ACIDITY pH		5.3	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm			5.4	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm				
BUFFER INDEX		6.3								6.2									
CCE %			SALTS mmhos/cm			Cl lbs/A				SALTS mmhos/cm			Cl lbs/A						
CALCIUM ppm			CEC	% BASE SATURATION						CEC	% BASE SATURATION								
MAGNESIUM ppm			Ca	Mg	K	Na	H				Ca	Mg	K	Na	H				
			SAND %	SILT %		CLAY %				SAND %	SILT %		CLAY %						
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES						CROP FERTILIZER GUIDELINES										
CROP AND YIELD GOAL		CORN/BEANS 180/55 BU							CORN/BEANS 180/55 BU										
NITROGEN (lbs/A)		190							190										
P2O5 (lbs/A) ISU/ISU		116							116										
K2O (lbs/A) ISU/ISU		191							177										
ZINC (lbs/A)																			
SULFUR (lbs/A)																			
LIME NEEDS AS		to pH 6.5	4251 lbs of lime for 6" plow depth.					to pH 6.5	4977 lbs of lime for 6" plow depth.										
100% ENP (lbs/A)		to pH 6.9	6852 lbs of lime for 6" plow depth.					to pH 6.9	7679 lbs of lime for 6" plow depth.										

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MINNESOTA VALLEY TESTING LABORATORIES, INC.



1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890

2616 E. Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724

1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885

**MEMBER
ACIL**

SUBMITTED BY: 001141 THE PINNACLE GROUP LLC 620 EAST COUNTRY CLUB RD IOWA FALLS IA 50126			DATE RECEIVED: May 2 2021 DATE REPORTED: WORK ORDER NO: 202191-00195					SUBMITTED FOR: KENDALL UPCHURCH 85852112P4600											
		SAMPLE ID PREV CROP LAB NUMBER			31 21-M14552					SAMPLE ID PREV CROP LAB NUMBER			32 21-M14553						
		V-LOW			LOW	OPT	HIGH	V-HIGH				V-LOW			LOW	OPT	HIGH	V-HIGH	
ORGANIC MATTER		3.3						2.8											
NITROGEN																			
NO3-N ppm																			
PHOSPHORUS																			
P Meh 3 ppm		13						38											
POTASSIUM (K) Meh 3 ppm		104.						123.											
ZINC (ppm)																			
SULFUR ppm SO4-S																			
ACIDITY pH		5.1	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm		5.9	B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm					
BUFFER INDEX		6.2							6.7										
CCE %			SALTS mmhos/cm			Cl lbs/A				SALTS mmhos/cm			Cl lbs/A						
CALCIUM ppm			CEC	% BASE SATURATION						CEC	% BASE SATURATION								
MAGNESIUM ppm			Ca	Mg	K	Na	H			Ca	Mg	K	Na	H					
			SAND %	SILT %		CLAY %				SAND %	SILT %		CLAY %						
ALL GUIDELINES ARE ON A BROADCAST BASIS			CROP FERTILIZER GUIDELINES							CROP FERTILIZER GUIDELINES									
CROP AND YIELD GOAL		CORN/BEANS 180/55 BU							CORN/BEANS 180/55 BU										
NITROGEN (lbs/A)		190							190										
P2O5 (lbs/A) ISU/ISU		111							0										
K2O (lbs/A) ISU/ISU		197							180										
ZINC (lbs/A)																			
SULFUR (lbs/A)																			
LIME NEEDS AS		to pH 6.5	4977 lbs of lime for 6" plow depth.					to pH 6.5	1347 lbs of lime for 6" plow depth.										
100% ENP (lbs/A)		to pH 6.9	7679 lbs of lime for 6" plow depth.					to pH 6.9	3548 lbs of lime for 6" plow depth.										

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THE PINNACLE GROUP LLC 620 EAST COUNTRY CLUB RD IOWA FALLS IA 50126		DATE REPORTED:			KENDALL UPCHURCH 85852112P4600						
		WORK ORDER NO: 202191-00195									
SAMPLE ID PREV CROP LAB NUMBER		33 21-M14554									
		V-LOW	LOW	OPT	HIGH	V-HIGH					
ORGANIC MATTER	2.5										
NITROGEN											
NO3-N ppm											
PHOSPHORUS											
P Meh 3 ppm	91										
POTASSIUM (K) Meh 3 ppm	234.										
ZINC (ppm)											
SULFUR ppm SO4-S											
ACIDITY pH	7.4						B ppm	Fe ppm	Mn ppm	Cu ppm	Na ppm
BUFFER INDEX	7.3										
CCE %							SALTS mmhos/cm			Cl lbs/A	
CALCIUM ppm							CEC	% BASE SATURATION			
MAGNESIUM ppm							Ca	Mg	K	Na	H
							SAND %		SILT %	CLAY %	
							TEXTURE				
ALL GUIDELINES ARE ON A BROADCAST BASIS											
CROP FERTILIZER GUIDELINES											
CROP AND YIELD GOAL	CORN/BEANS 180/55 BU										
NITROGEN (lbs/A)	190										
P2O5 (lbs/A) ISU	0										
K2O (lbs/A) ISU	0										
ZINC (lbs/A)											
SULFUR (lbs/A)											
LIME NEEDS AS	to pH 6.5 No lime required.										
100% ENP (lbs/A)	to pH 6.9 No lime required.										

Additional Notes:

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