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BROOKSIDE LABORATORIES, INC.

55115-1

SOIL AUDIT AND INVENTORY REPORT

Name SARE Producers/Potato Research City Palmer State AKIndependent Consultant Home Office Date 12/10/2010

Sample Location			KOTZEBUE, AK	UAFSARE	UAFSARE	UAFSARE	UAFSARE		
Sample Identification				KOTZ001	KOTZ002	KOTZ003	KOTZ004		
Lab Number				0152-1	0153-1	0154-1	0155-1		
Total Exchange Capacity (ME/100 g)				8.74	17.37	8.90	15.46		
pH	Buffer (SMP/Sikora)		7.3	7.4	NA	7.4			
	H ₂ O (1:1)		6.0	7.0	7.2	6.9			
Organic Matter (humus) %				59.95	23.86	5.22	7.41		
Estimated Nitrogen Release lb/A				> 130	> 130	101	112		
ANIONS	SOLUBLE SULFUR*								
		ppm		58	153	24	24		
	PHOSPHORUS	MEHLICH III lb/A P as P ₂ O ₅		110	2116	60	925		
			ppm of P		24	462	13	202	
		BRAY II lb/A P as P ₂ O ₅							
		ppm of P							
	OLSEN lb/A P as P ₂ O ₅								
		ppm of P							
EXCHANGEABLE CATIONS	CALCIUM*	lb/A		2010	4014	2660	4856		
		ppm		1005	2007	1330	2428		
	MAGNESIUM*	lb/A		296	556	346	400		
		ppm		148	278	173	200		
	POTASSIUM*	lb/A		248	2038	150	244		
		ppm		124	1019	75	122		
	SODIUM*	lb/A		174	754	110	188		
		ppm		87	377	55	94		
BASE SATURATION PERCENT									
Calcium	%		57.49	57.77	74.72	78.53			
Magnesium	%		14.11	13.34	16.20	10.78			
Potassium	%		3.64	15.04	2.16	2.02			
Sodium	%		4.33	9.44	2.69	2.64			
Other Bases	%		5.40	4.40	4.20	4.50			
Hydrogen	%		15.00	0.00	0.00	1.50			
EXTRACTABLE MINORS									
	Boron* (ppm)		< 0.20	1.78	0.50	0.89			
	Iron* (ppm)		115	212	313	378			
	Manganese* (ppm)		4	23	20	15			
	Copper* (ppm)		0.70	2.25	2.85	5.71			
	Zinc* (ppm)		2.44	22.34	3.81	30.14			
	Aluminum* (ppm)		34	4	71	30			
OTHER TESTS	Soluble Salts (mmhos/cm)								
	Chlorides (ppm)								
	NO ₃ -N (ppm)		40.9	82.0	22.9	93.4			
	NH ₄ -N (ppm)		2.9	239.2	3.6	3.7			

* Mehlich III Extractable

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Sample Location			GALENA, AK	UAFSARE	UAFSARE	UAFSARE		
Sample Identification				GALN001	GALN002	GALN003		
Lab Number				0156-1	0157-1	0158-1		
Total Exchange Capacity (ME/100 g)				18.59	13.89	13.63		
pH			Buffer (SMP/Sikora) H ₂ O (1:1)	a NA 7.6	a NA 7.4	a NA 7.6	— — —	— — —
Organic Matter (humus) %				7.67	3.64	5.25		
Estimated Nitrogen Release			lb/A	113	86	101		
ANIONS	SOLUBLE SULFUR*							
		ppm		33	25	16		
	PHOSPHORUS	MEHLICH III lb/A P as P ₂ O ₅ ppm of P		1635 357	302 66	128 28		
		BRAY II lb/A P as P ₂ O ₅ ppm of P						
OLSEN lb/A P as P ₂ O ₅ ppm of P								
EXCHANGEABLE CATIONS	CALCIUM*		lb/A — ppm —	4846 2423	4198 2099	4020 2010	— — —	— — —
	MAGNESIUM*		lb/A — ppm —	936 468	566 283	632 316	— — —	— — —
	POTASSIUM*		lb/A — ppm —	1234 617	218 109	110 55	— — —	— — —
	SODIUM*		lb/A — ppm —	132 66	94 47	132 66	— — —	— — —
	BASE SATURATION PERCENT							
	Calcium %			65.17	75.56	73.73		
	Magnesium %			20.98	16.98	19.32		
	Potassium %			8.51	2.01	1.03		
Sodium %			1.54	1.47	2.11			
Other Bases %			3.80	4.00	3.80			
Hydrogen %			0.00	0.00	0.00			
EXTRACTABLE MINORS								
Boron* (ppm)				2.27	0.63	0.64		
Iron* (ppm)				396	373	376		
Manganese* (ppm)				33	36	32		
Copper* (ppm)				5.88	5.74	5.53		
Zinc* (ppm)				19.37	4.83	5.48		
Aluminum* (ppm)				37	295	344		
OTHER TESTS	Soluble Salts (mmhos/cm)							
	Chlorides (ppm)							
	NO ₃ -N (ppm)			33.9	34.2	14.0		
	NH ₄ -N (ppm)			3.0	2.8	2.0		

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a - alkaline soil

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Sample Location		<u>MINTO, AK</u>	<u>UAFSARE</u>				
Sample Identification			<u>MINT01</u>				
Lab Number			<u>0159-1</u>				
Total Exchange Capacity (ME/100 g)			<u>16.31</u>				
pH	Buffer (SMP/Sikora)		<u>7.2</u>				
	H ₂ O (1:1)		<u>6.8</u>				
Organic Matter (humus) %			<u>53.41</u>				
Estimated Nitrogen Release lb/A			<u>> 130</u>				
ANIONS	SOLUBLE SULFUR*						
		ppm		<u>9</u>			
	MEHLICH III	lb/A P as P ₂ O ₅ ppm of P		<u>14</u>			
	BRAY II	lb/A P as P ₂ O ₅ ppm of P		<u>3</u>			
	OLSEN	lb/A P as P ₂ O ₅ ppm of P					
EXCHANGEABLE CATIONS	CALCIUM*	lb/A		<u>4168</u>			
		ppm		<u>2084</u>			
	MAGNESIUM*	lb/A		<u>1064</u>			
		ppm		<u>532</u>			
	POTASSIUM*	lb/A		<u>48</u>			
		ppm		<u>24</u>			
	SODIUM*	lb/A		<u>72</u>			
		ppm		<u>36</u>			
BASE SATURATION PERCENT							
Calcium	%		<u>63.89</u>				
Magnesium	%		<u>27.18</u>				
Potassium	%		<u>0.38</u>				
Sodium	%		<u>0.96</u>				
Other Bases	%		<u>4.60</u>				
Hydrogen	%		<u>3.00</u>				
EXTRACTABLE MINORS							
	Boron* (ppm)		<u>0.21</u>				
	Iron* (ppm)		<u>178</u>				
	Manganese* (ppm)		<u>33</u>				
	Copper* (ppm)		<u>0.79</u>				
	Zinc* (ppm)		<u>4.84</u>				
	Aluminum* (ppm)		<u>34</u>				
OTHER TESTS	Soluble Salts (mmhos/cm)						
	Chlorides (ppm)						
	NO ₃ -N (ppm)		<u>2.5</u>				
	NH ₄ -N (ppm)		<u>2.3</u>				

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Sample Location		<u>NAKNEK, AK</u>		<u>UAFSARE</u>					
Sample Identification				<u>NKNK001</u>					
Lab Number				<u>0160-1</u>					
Total Exchange Capacity (ME/100 g)				<u>4.23</u>					
pH	Buffer (SMP/Sikora)			<u>6.2</u>					
	H ₂ O (1:1)			<u>6.3</u>					
Organic Matter (humus) %				<u>11.61</u>					
Estimated Nitrogen Release lb/A				<u>126</u>					
ANIONS	SOLUBLE SULFUR*			ppm	<u>19</u>				
	PHOSPHORUS	MEHLICH III	lb/A	P as P ₂ O ₅ ppm of P	<u>9</u>				
		BRAY II	lb/A	P as P ₂ O ₅ ppm of P	<u>2</u>				
		OLSEN	lb/A	P as P ₂ O ₅ ppm of P					
EXCHANGEABLE CATIONS	CALCIUM*	lb/A		<u>970</u>					
		ppm		<u>485</u>					
	MAGNESIUM*	lb/A		<u>134</u>					
		ppm		<u>67</u>					
	POTASSIUM*	lb/A		<u>142</u>					
		ppm		<u>71</u>					
	SODIUM*	lb/A		<u>186</u>					
		ppm		<u>93</u>					
BASE SATURATION PERCENT									
	Calcium	%		<u>57.33</u>					
	Magnesium	%		<u>13.20</u>					
	Potassium	%		<u>4.30</u>					
	Sodium	%		<u>9.56</u>					
	Other Bases	%		<u>5.10</u>					
	Hydrogen	%		<u>10.50</u>					
EXTRACTABLE MINORS									
	Boron* (ppm)			<u>0.43</u>					
	Iron* (ppm)			<u>390</u>					
	Manganese* (ppm)			<u>38</u>					
	Copper* (ppm)			<u>4.99</u>					
	Zinc* (ppm)			<u>30.08</u>					
	Aluminum* (ppm)			<u>1643</u>					
OTHER TESTS	Soluble Salts (mmhos/cm)								
	Chlorides (ppm)								
	NO ₃ -N (ppm)			<u>1.9</u>					
	NH ₄ -N (ppm)			<u>26.5</u>					

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SOIL AUDIT AND INVENTORY REPORT

Name SARE Producers/Potato Research City Palmer State AKIndependent Consultant Home Office Date 12/10/2010

Sample Location			JUNEAU, AK	UAFSARE	UAFSARE	UAFSARE	UAFSARE	UAFSARE
Sample Identification				JUN00001	JUN00002	JUN00003	JUN00004	JUN00005
Lab Number				0161-1	0162-1	0163-1	0164-1	0165-1
Total Exchange Capacity (ME/100 g)				4.22	27.48	22.58	120.74	15.86
pH	Buffer (SMP/Sikora)		5.5	6.7	a	NA	a	NA
	H ₂ O (1:1)		5.5	6.1		7.5		7.9
Organic Matter (humus) %				11.86	7.68	41.88	1.81	102.69
Estimated Nitrogen Release			lb/A	126	113	> 130	56	> 130
ANIONS	SOLUBLE SULFUR*		ppm	15	75	87	114	14
	PHOSPHORUS	MEHLICH III	lb/A P as P ₂ O ₅ ppm of P	18	23	115	< 5	14
				4	5	25	< 1	3
		BRAY II	lb/A P as P ₂ O ₅ ppm of P					
		OLSEN	lb/A P as P ₂ O ₅ ppm of P					
EXCHANGEABLE CATIONS	CALCIUM*	lb/A	836	7728	6382	45076	3934	
		ppm	418	3864	3191	22538	1967	
	MAGNESIUM*	lb/A	68	364	718	446	208	
		ppm	34	182	359	223	104	
	POTASSIUM*	lb/A	78	494	1390	178	48	
	ppm	39	247	695	89	24		
	SODIUM*	lb/A	98	400	448	798	156	
		ppm	49	200	224	399	78	
BASE SATURATION PERCENT								
	Calcium	%	49.53	70.31	70.66	93.33	62.01	
	Magnesium	%	6.71	5.52	13.25	1.54	5.46	
	Potassium	%	2.37	2.30	7.89	0.19	0.39	
	Sodium	%	5.05	3.16	4.31	1.44	2.14	
	Other Bases	%	6.40	5.20	3.90	3.50	6.00	
	Hydrogen	%	30.00	13.50	0.00	0.00	24.00	
EXTRACTABLE MINORS								
	Boron* (ppm)		< 0.20	0.55	3.56	0.77	< 0.20	
	Iron* (ppm)		224	74	156	11	32	
	Manganese* (ppm)		6	13	54	6	2	
	Copper* (ppm)		1.43	0.78	3.84	1.37	0.36	
	Zinc* (ppm)		1.18	1.20	7.53	2.75	0.52	
	Aluminum* (ppm)		1945	79	602	30	16	
OTHER TESTS	Soluble Salts (mmhos/cm)							
	Chlorides (ppm)							
	NO ₃ -N (ppm)		1.8	5.6	29.9	19.9	0.7	
	NH ₄ -N (ppm)		5.2	10.8	5.8	2.8	3.7	

a - alkaline soil

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Sample Location			JUNEAU, AK	UAFSARE	UAFSARE				
Sample Identification				JUN0006	JUN00007				
Lab Number				0166-1	0167-1				
Total Exchange Capacity (ME/100 g)				75.99	8.95				
pH	Buffer (SMP/Sikora)			6.2	5.2	— — —	— — —	— — —	
	H ₂ O (1:1)			5.3	4.1				
Organic Matter (humus) %				45.69	69.62				
Estimated Nitrogen Release			lb/A	> 130	> 130				
ANIONS	SOLUBLE SULFUR*								
	PHOSPHORUS		ppm	1739	17				
		MEHLICH III	lb/A P as P ₂ O ₅	ppm of P	586	14			
					128	3			
	BRAY II	lb/A P as P ₂ O ₅	ppm of P						
	OLSEN	lb/A P as P ₂ O ₅	ppm of P						
EXCHANGEABLE CATIONS	CALCIUM*		lb/A	2496	418				
			ppm	1248	209				
	MAGNESIUM*		lb/A	2410	186				
			ppm	1205	93				
	POTASSIUM*		lb/A		202				
			ppm		101				
	SODIUM*		lb/A	12504	188				
			ppm	6252	94				
BASE SATURATION PERCENT									
	Calcium	%		8.21	11.68				
	Magnesium	%		13.21	8.66				
	Potassium	%		0.00	2.89				
	Sodium	%		35.77	4.57				
	Other Bases	%		6.80	9.20				
	Hydrogen	%		36.00	63.00				
EXTRACTABLE MINORS									
	Boron* (ppm)			21.95	0.34				
	Iron* (ppm)			72	110				
	Manganese* (ppm)			24	9				
	Copper* (ppm)			0.64	0.55				
	Zinc* (ppm)			3.37	1.33				
	Aluminum* (ppm)			10	231				
OTHER TESTS	Soluble Salts (mmhos/cm)								
	Chlorides (ppm)								
	NO ₃ -N (ppm)			10.7	< 0.5				
	NH ₄ -N (ppm)			61.9	5.4				

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