

## SOIL AUDIT AND INVENTORY REPORT

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

Sample Location	<u>KOTZEBUE, AK</u>	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 <sub>2</sub> 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*						
	PHOSPHORUS	MEHLICH III	lb/A P as P <sub>2</sub> O <sub>5</sub> ppm of P	58	153	24	24
		BRAY II	lb/A P as P <sub>2</sub> O <sub>5</sub> ppm of P	110	2116	60	925
		OLSEN	lb/A P as P <sub>2</sub> O <sub>5</sub> ppm of P	24	462	13	202
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 <sub>3</sub> -N (ppm)	40.9	82.0	22.9	93.4	
		NH <sub>4</sub> -N (ppm)	2.9	239.2	3.6	3.7	

\* Mehlich III Extractable

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

\* Mehlich III Extractable

a - alkaline soil

1b/A

# BROOKSIDE LABORATORIES, INC.

55115-1

## SOIL AUDIT AND INVENTORY REPORT

Name SARE Producers/Potato Research City Palmer State AK

Independent Consultant Home Office Date 12/10/2010

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 <sub>2</sub> O (1:1)		<u>6.8</u>				
Organic Matter (humus) %			<u>53.41</u>				
Estimated Nitrogen Release lb/A			<u>&gt; 130</u>				
ANIONS	SOLUBLE SULFUR*		ppm	<u>9</u>			
	PHOSPHORUS	MEHLICH III	lb/A P as P <sub>2</sub> O <sub>5</sub> ppm of P	<u>14</u>			
		BRAY II	lb/A P as P <sub>2</sub> O <sub>5</sub> ppm of P	<u>3</u>			
		OLSEN	lb/A P as P <sub>2</sub> O <sub>5</sub> 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 <sub>3</sub> -N (ppm)			<u>2.5</u>			
	NH <sub>4</sub> -N (ppm)			<u>2.3</u>			

\* Mehlich III Extractable

1b/A

# BROOKSIDE LABORATORIES, INC.

55115-1

## SOIL AUDIT AND INVENTORY REPORT

Name SARE Producers/Potato Research City Palmer State AK

Independent Consultant Home Office Date 12/10/2010

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

\* Mehlich III Extractable

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

Sample Location		UAFSARE	UAFSARE	UAFSARE	UAFSARE	UAFSARE	
JUNEAU, AK							
Sample Identification		JUNO0001	JUNO002	JUNO0003	JUNO004	JUNO005	
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	6.3	
	H <sub>2</sub> O (1:1)	5.5	6.1	7.5	7.9	5.7	
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 <sub>2</sub> O <sub>5</sub> ppm of P	18	23	115	< 5	14
		BRAY II lb/A P as P <sub>2</sub> O <sub>5</sub> ppm of P	4	5	25	< 1	3
		OLSEN lb/A P as P <sub>2</sub> O <sub>5</sub> 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 <sub>3</sub> -N (ppm)		1.8	5.6	29.9	19.9	0.7
	NH <sub>4</sub> -N (ppm)		5.2	10.8	5.8	2.8	3.7

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a - alkaline soil

## SOIL AUDIT AND INVENTORY REPORT

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Sample Location	<u>JUNEAU, AK</u>	UAFSARE	UAFSARE				
Sample Identification		JUNO006	JUNO0007				
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 <sub>2</sub> 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	MEHLICH III	lb/A P as P <sub>2</sub> O <sub>5</sub> ppm of P	1739	17		
		BRAY II	lb/A P as P <sub>2</sub> O <sub>5</sub> ppm of P	586	14		
		OLSEN	lb/A P as P <sub>2</sub> O <sub>5</sub> ppm of P	128	3		
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 <sub>3</sub> -N (ppm)		10.7	< 0.5		
		NH <sub>4</sub> -N (ppm)		61.9	5.4		

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