

Addendum to the  
NINTH ANNUAL REPORT

Intermountain Forest Tree  
Nutrition Cooperative

July 1989

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and Range Sciences  
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### Introduction

When the Douglas-fir fertilization experiment was initiated, we decided that foliar sampling for nutrient analysis would be included in the sampling procedures. Reasons included:

- 1) we could determine if any nutrients added to the system were taken up by the trees,
- 2) based on early changes in average needle weight, we could assess the likelihood of stem growth response,
- 3) we could assess whether other nutrients appeared to be deficient, and
- 4) we could evaluate whether additions of nitrogen alone induced other nutrient deficiencies through growth dilution effects.

Foliage samples were collected one year after initial nitrogen fertilization treatments (in 1982 for those installations fertilized in 1981, and in 1983 for those treated in 1982). Two dominant or codominant Douglas-fir trees from each plot were sampled during the dormant season in early fall. Trees were climbed and foliage was collected from the upper crown, usually from the third whorl. Following standard laboratory procedures, samples were analyzed for nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), manganese (Mn), iron (Fe), zinc (Zn), boron (B), and copper (Cu) concentrations. In addition, dry weights were determined on 100 needle samples.

For similar reasons foliage samples have been or will be collected one year after new fertilizer applications. To date we have collected and analyzed foliage from installations 201 through 245; the foliage from installations 246 through 290 will be collected this fall.

### Foliar Nutrients Following Initial Treatments

Information on foliar nutrient levels and weights is presented in the form of empirical distribution functions. Data points on the graphs are the proportion (vertical axis) of the sample that had a nutrient value less than or equal to the value shown on the horizontal axis. In all the figures that follow, individual data points represent plot averages (two trees per plot); data comes only from installations established in 1981 to maintain consistency with new data.

The distribution of nitrogen concentrations is shown in figure 1. The horizontal axis represents nitrogen concentration in percent while the vertical axis shows the proportion of plots with N concentrations less than or equal to a particular value on the horizontal axis. The lines within the graph represent different treatments; "C" shows the distribution of nitrogen concentrations for control plots, "2" represents plots treated with 200 pounds per acre of nitrogen, and "4" shows the plots treated with 400 pounds per acre of N. Thus we can see that about 30 percent of the control plots had nitrogen concentrations less than or equal to 1 percent.

The two dashed vertical lines in the graph are threshold concentration values obtained from the literature for westside Douglas-fir. The line on the left represents a critical level for nitrogen; trees with N concentrations below this would be expected to show decreased growth due to N deficiency. The line on the right represents a marginal threshold; trees with N concentrations between the critical and marginal levels may show signs of N deficiency. Growth of trees with concentrations above the marginal level should not be N limited.

Two things are evident when examining figure 1. First, we can see that nitrogen is generally deficient in forests of this area. The graph indicates that over 95 percent of all untreated plots had N concentrations below the critical level; the average concentration on these plots was 1.1 percent. Also we were obviously successful in getting nitrogen into the trees. Approximately 25 and 75 percent of plots treated with 200 pounds and 400 pounds of N, respectively, had concentrations above critical. Mean concentrations were 1.32 and 1.65 percent on the 200 pound and 400 pound treatment plots, respectively; all means were statistically different ( $p < 0.0001$ ).

However, even with 400 pounds of additional nitrogen added to the system, over 50 percent of the plots still had foliar nitrogen levels below the marginal threshold. Thus we might expect that growth rates would be boosted by both the 200 pound and 400 pound treatments, with the latter producing the greatest response.

Figure 2 shows the distribution of needle weights one year after initial treatments. This measure has been used by others as a diagnostic of future response; when treatment produces an increase in average needle weight, stem growth is also likely to increase. Here we can see that the increase in nitrogen shown in figure 1 has been transformed into an increase in needle weight. The average needle weight on control plots was 0.59 grams per 100 needles while the average weights were 0.67 and 0.70 grams on the 200 pound and 400 pound treatment plots, respectively. Both treated plot averages were significantly higher than the control average ( $p < 0.0001$ ), but the increase from 200 pound to 400 pound treatment may not be significant ( $p = 0.0679$ ). From this we would expect an increase over control in stem growth for both nitrogen treatments with some additional growth likely on the 400 pound treatment plots.

As you may recall, we have not obtained a stem growth response on all installations, although average growth is certainly greater on plots treated with nitrogen than on control plots. Additionally, 400 pound treatment plots have frequently failed to respond more than 200 pound plots. Attempting to explain these results, we examined other nutrient levels to see if something else might be limiting growth. Based on foliar concentration distributions, potassium appeared to be a possible candidate for a limiting growth factor. The distribution shown in figure 3 indicates that 30 to 40 percent of the plots were below the critical threshold. Also there was a tendency for treated plots to have a lower K concentration, although mean values were not different ( $p = 0.1142$ ).

\* foliage

Relative  
Cumulative Frequency

1 Year After Original Treatments

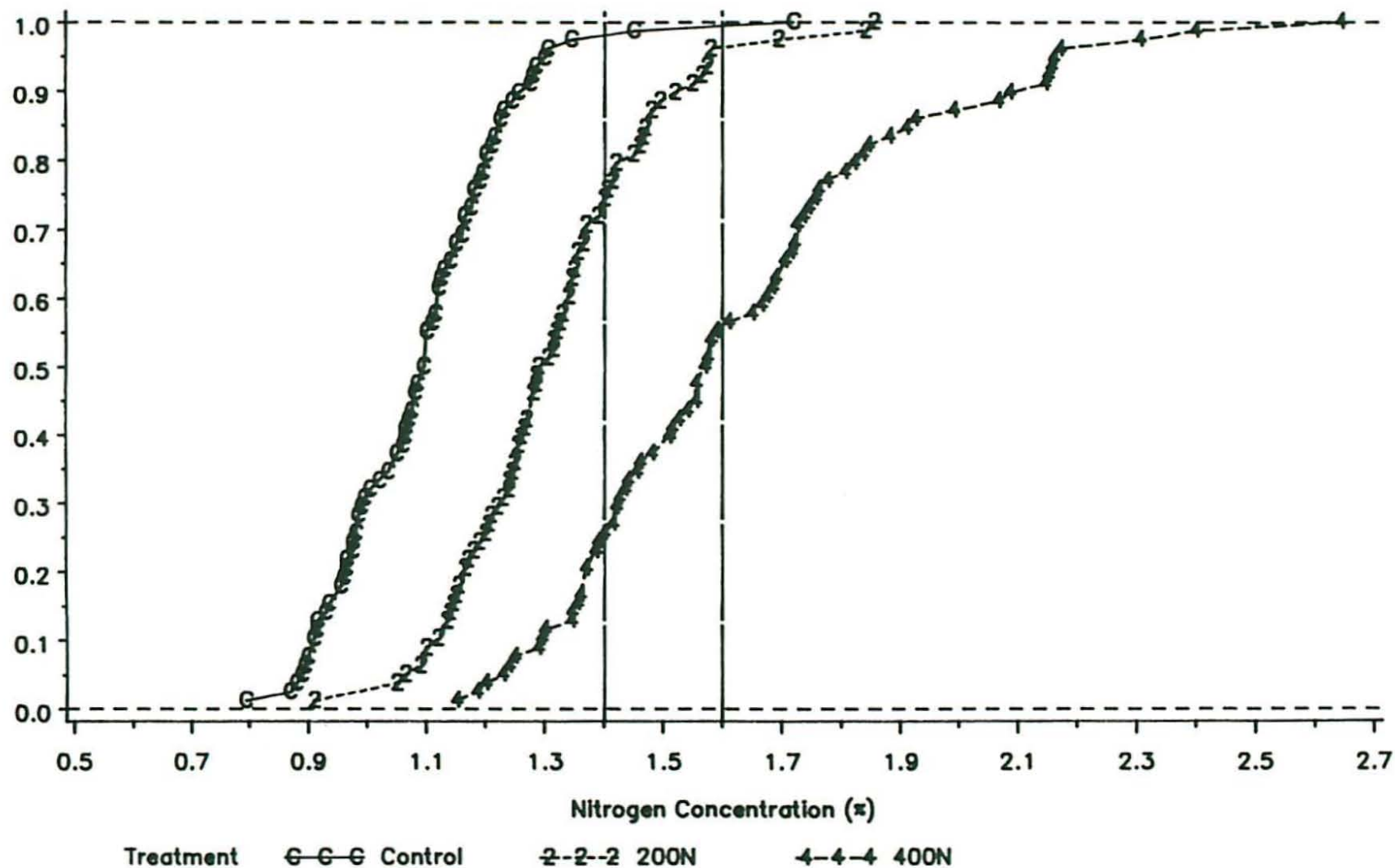


Figure 1. The distribution of foliar nitrogen concentration (percent) on installations 201 through 245 in 1982, one year following initial treatments. The three lines represent the different initial treatments: no amendment, 200 pounds of N per acre, and 400 pounds of N per acre.

Relative  
Cumulative Frequency

1 Year After Original Treatments

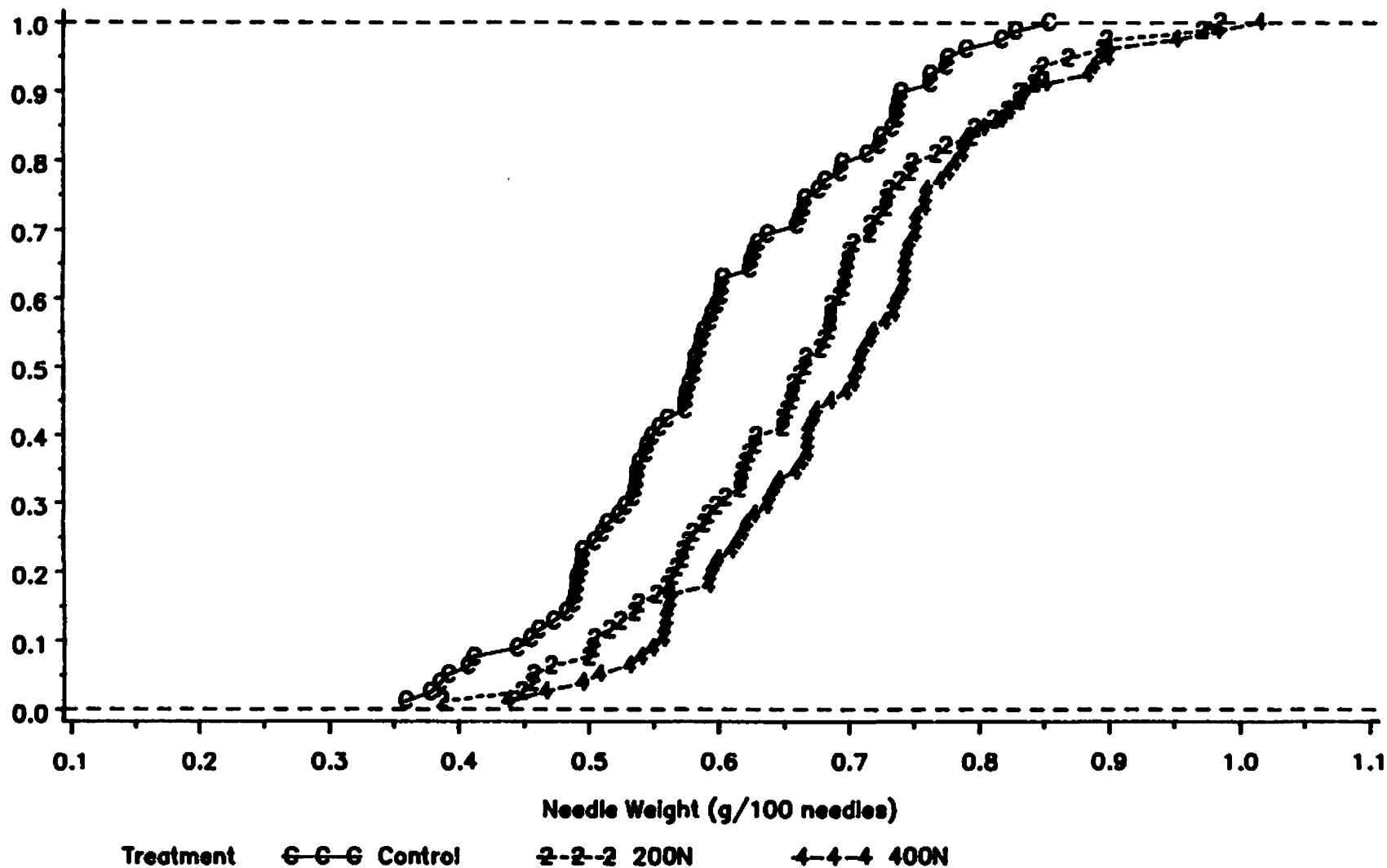
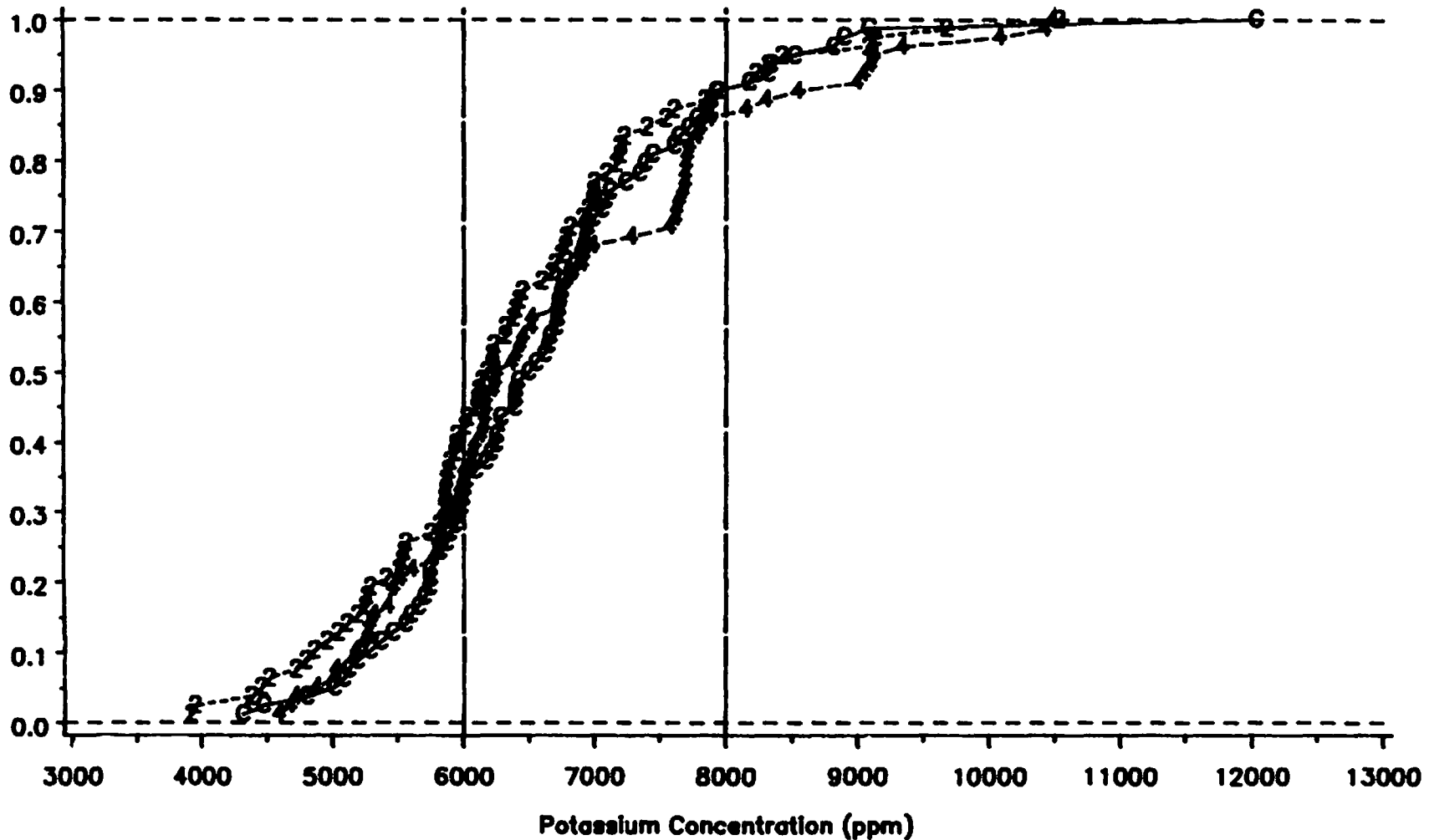


Figure 2. The distribution of needle weight (grams per 100 needles) on installations 201 through 245 in 1982, one year following initial treatments. The three lines represent the different initial treatments: no amendment, 200 pounds of N per acre, and 400 pounds of N per acre.

Relative  
Cumulative Frequency

1 Year After Original Treatments



Treatment G-G-G Control 2-2-2 200N 4-4-4 400N

Figure 3. The distribution of foliar potassium concentration (micrograms per gram) on installations 201 through 245 in 1982, one year following initial treatments. The three lines represent the different initial treatments: no amendment, 200 pounds of N per acre, and 400 pounds of N per acre.

Figure 4 shows that potassium content (in micrograms per 100 needles) did increase with nitrogen treatment. Individual needles did increase their K uptake, but perhaps not sufficiently to offset increased needle growth; that is, some growth dilution of potassium may have occurred. And, as shown in figure 5, the balance of potassium to nitrogen was greatly affected by the nitrogen treatments. While 15 percent of control plots had a potassium:nitrogen ratio below critical, 60 and 80 percent of the 200 pound and 400 pound treatment plots, respectively, had insufficient K to balance their N. Average ratios were 61 percent for the control plots, 49 percent for the 200 pound treatments, and 42 percent for the 400 pound treatments, with all means significantly different ( $p < 0.0001$ ). We feel that this imbalance produced by the treatments may have prevented many of the trees from converting the additional nitrogen made available to them into increased stem growth. Subsequent analysis showed that installations with poor potassium concentrations and K:N ratios did not respond in basal area or volume growth as well as installations with adequate potassium concentrations and balanced nutrients.

#### Foliar Nutrients After New Treatments

Based on the previous foliar analysis, we felt any new treatments should include a potassium amendment in addition to any nitrogen amendment. Thus the new treatment schedule included a 200 pounds N + 200 pounds K treatment along with a 200 pounds N only treatment and a new control. When superimposed over the previous treatment schedule, eight treatment combinations were produced. These combinations, along with average foliar value associated with each combination for nitrogen concentration, needle weight, potassium concentration, potassium content, and K:N ratio, are shown in the table below.

Table 1. Average foliar characteristics by treatment combination one year following new fertilizer applications

<u>Treatment Combinations</u>		<u>Nitrogen Concn (%)</u>	<u>Needle Weight (g/100)</u>	<u>Potassium Concn (ppm)</u>	<u>Potassium Content (ug/100)</u>	<u>K/N Ratio (%)</u>
<u>Old</u>	<u>New</u>					
None	None	1.04	0.520	8287	4320	80.9
200 N	None	1.03	0.488	8287	4070	80.2
400 N	None	1.13	0.511	8539	4338	77.4
None	N + K	1.25	0.585	8218	4817	67.7
200 N	N + K	1.31	0.569	8085	4589	63.3
400 N	N + K	1.38	0.576	7969	4550	68.7
200 N	200 N	1.25	0.583	8314	4879	68.7
400 N	200 N	1.32	0.545	8286	4480	65.1

Treatment combinations were allocated using a randomized incomplete block design. Each installation includes one plot with no fertilizer treatments and one with 200 pounds of nitrogen and potassium applied to the old control. Other treatment combinations vary among installations; some installations do not have any new treatments involving only nitrogen.

Relative  
Cumulative Frequency

1 Year After Original Treatments

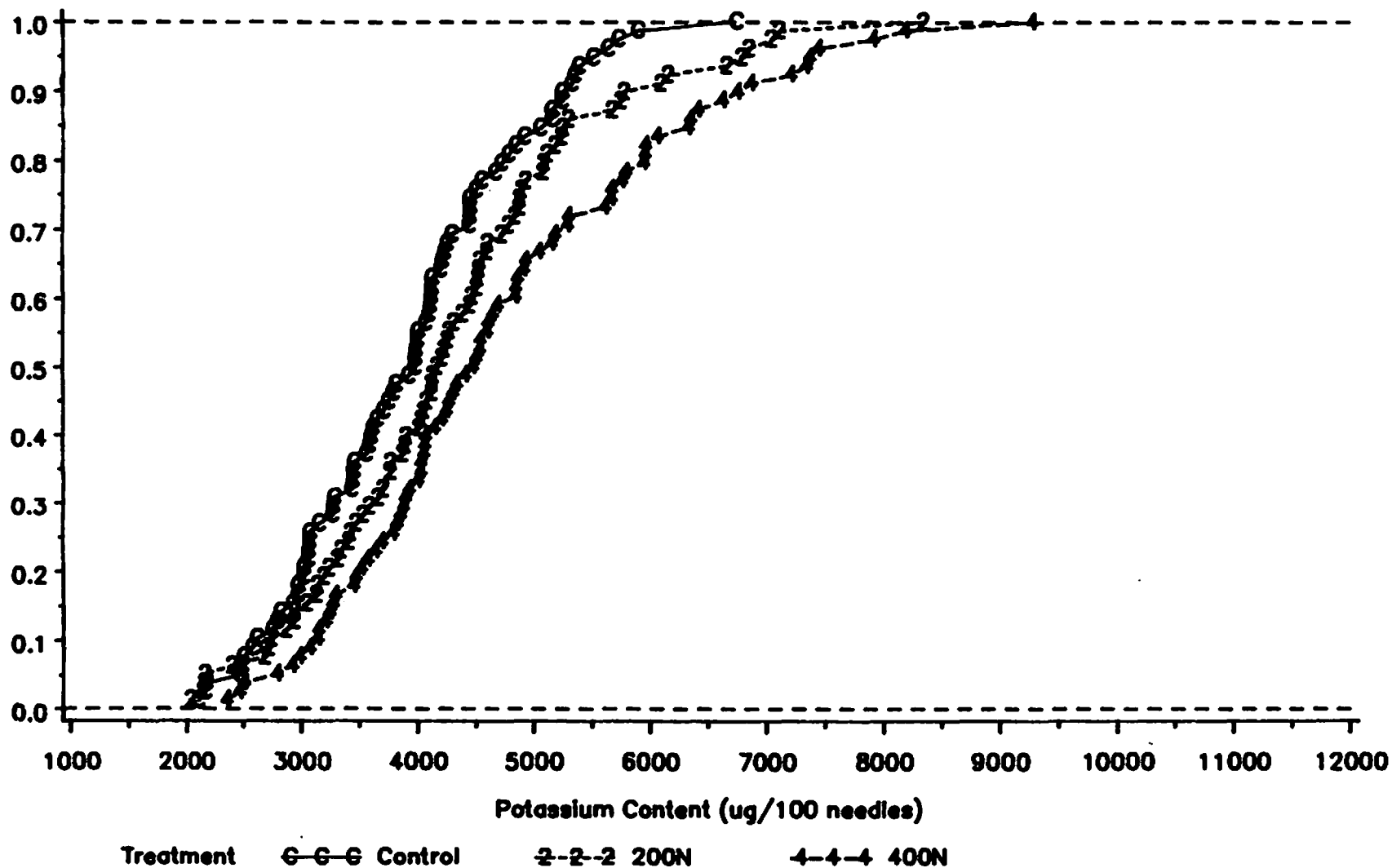


Figure 4. The distribution of foliar potassium content (micrograms per 100 needles) on installations 201 through 245 in 1982, one year following initial treatments. The three lines represent the different initial treatments: no amendment, 200 pounds of N per acre, and 400 pounds of N per acre.



\*#2 foliage

Relative  
Cumulative Frequency

1 Year After Original Treatments

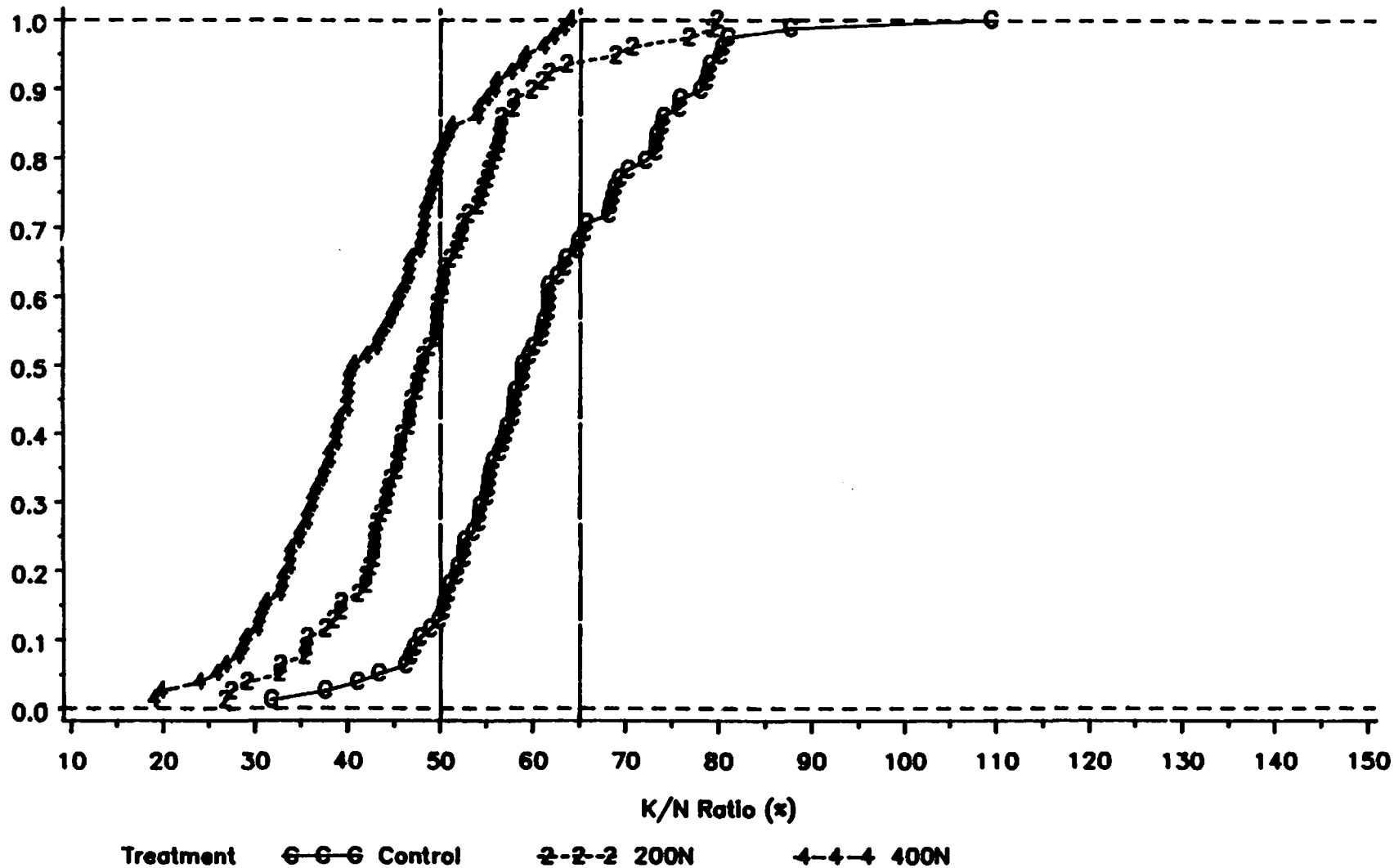


Figure 5. The distribution of foliar K/N ratio (percent) on installations 201 through 245 in 1982, one year following initial treatments. The three lines represent the different initial treatments: no amendment, 200 pounds of N per acre, and 400 pounds of N per acre.

The distributions of nitrogen concentrations by treatment combination are shown in figure 6. The most obvious trend is that plots treated with nitrogen have greater N concentrations in the foliage; comparison of means also show significant differences between plots with and without new nitrogen amendments ( $p=0.0001$ ). However there is also evidence that the previous nitrogen treatment has carried over, at least on plots treated with 400 pounds of N. Both comparisons among plots with no new nitrogen and among plots with N and K added indicated significantly higher N concentrations on old 400 pound N plots than on old controls ( $p=0.0194$  and  $p=0.0021$ , respectively). Plots previously treated with 200 pounds of N show no differences in N levels from old controls.

Needle weight distributions shown in figure 7 are similar to previous results: plots with N amendments have greater needle weights than those without N. However, unlike N concentrations, there is no evidence of any carryover effect from previous fertilizer applications; that is, plots previously treated with 400 pounds of N, while showing greater N concentration levels, do not have greater average needle weights. In general, needle weights are much lower than 6 years previous (figure 7 versus figure 2); presumably this reflects the droughty conditions of 1987 and 1988.

Potassium concentration distributions, displayed in figure 8, indicate that all treatment combinations have similar K concentrations. Comparison of means agree, showing no significant differences between means ( $p=0.7378$ ). In fact, plots receiving 200 pounds of K tend to have lower potassium concentrations, contrary to expectations. Potassium levels in general are much higher than 6 years before (figure 8 versus figure 3), likely due to decreased needle growth. Potassium content (figure 9) is identical to previous levels (figure 4), indicating that needles were able to take up the same amount of K; since the needles grew less, the resulting concentrations were greater. As previously, plots receiving extra nitrogen were able to take up more potassium ( $p=0.0016$ ). But plots treated with potassium and nitrogen did not exhibit any increase in content ( $p=0.8820$ ) over those treated with N alone.

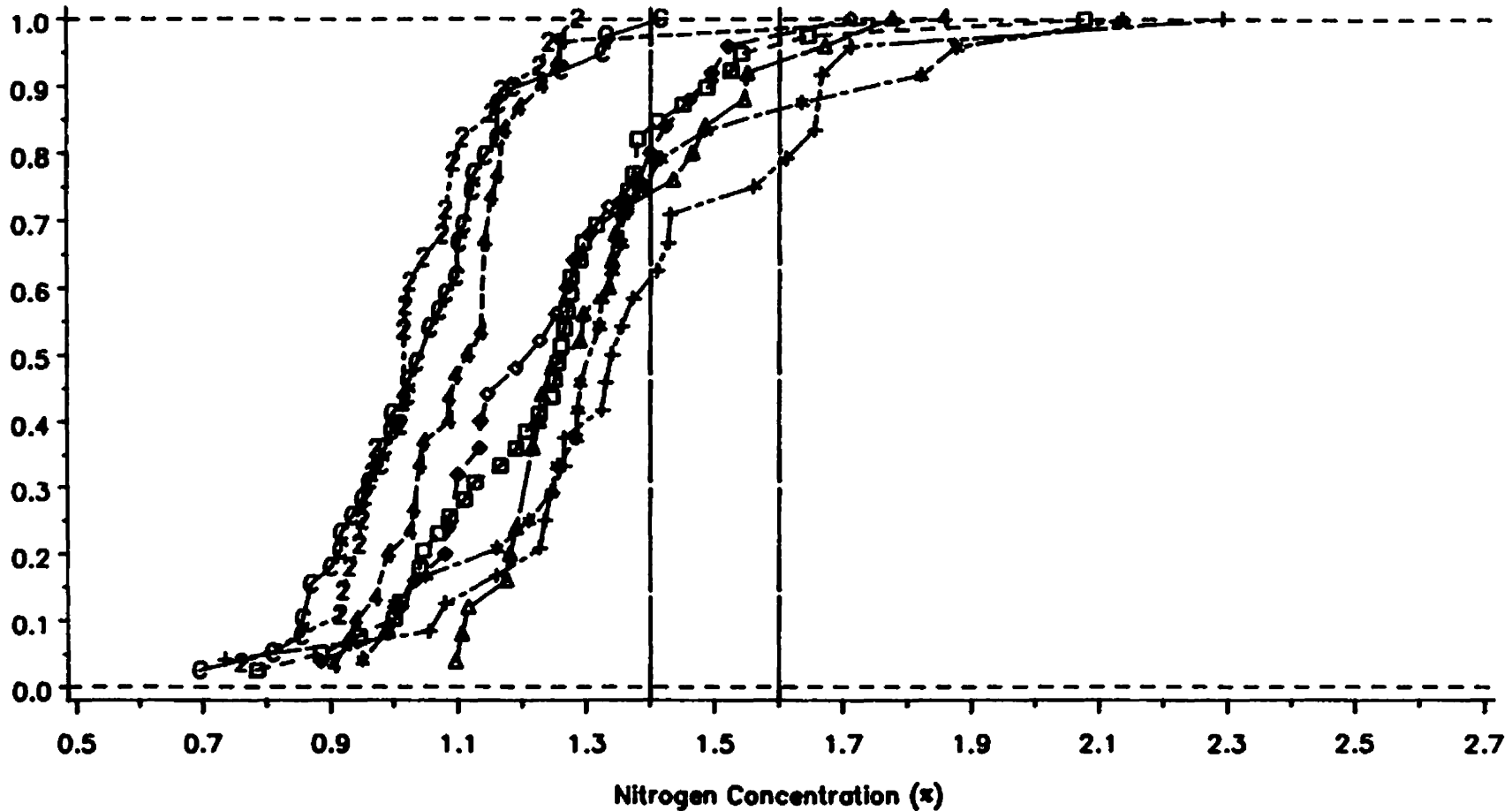
Ratios of K:N (figure 10) follow nitrogen concentration trends. Ratios are significantly lower for plots treated with N ( $p=0.001$ ), but levels are generally much higher than before (figure 10 versus figure 5). The carryover effect of nitrogen on old 400 pound treatment plots was not sufficient to produce significant differences among plots receiving no new treatment ( $p=0.4789$ ), but did produce significantly lower ratios in plots receiving N plus K treatments ( $p=0.0546$ ).

#### Implications

The similarity of differences produced in current foliar nitrogen levels following N amendment to previous differences following initial treatments indicates that the amount of nitrogen uptake following fertilization is remarkably consistent. Nitrogen concentrations on plots newly treated with 200 pounds per acre of N are almost identical to concentrations found one year after previous 200 pound N treatments.

Relative  
Cumulative Frequency

1 Year After New Treatments

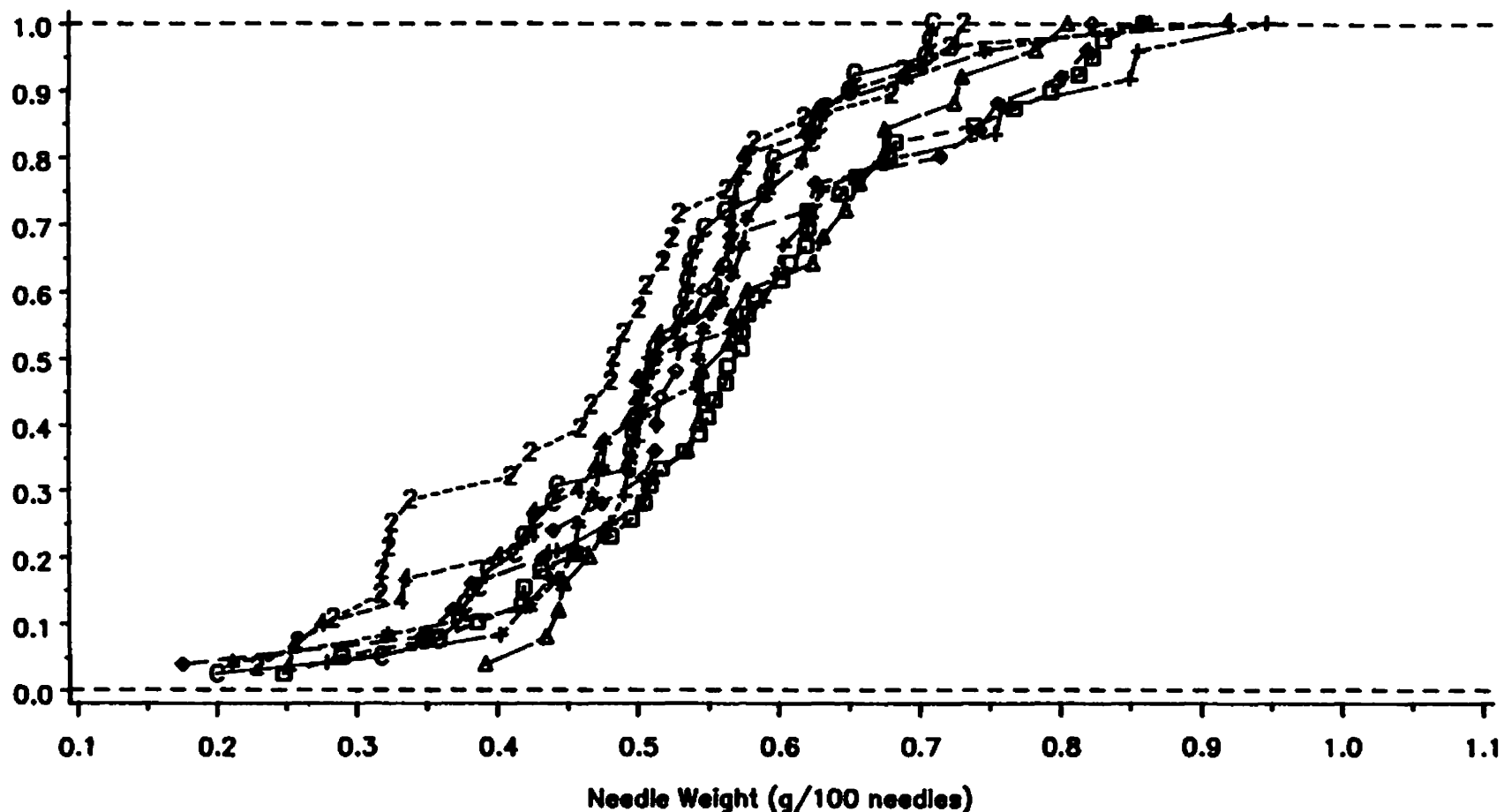


Treatment	○-○-○ Old=none, New=none	2-2-2 Old=200N, New=none
	4-4-4 Old=400N, New=none	□-□-□ Old=none, New=200N+200K
	◆-◆-◆ Old=200N, New=200N	▲-▲-▲ Old=400N, New=200N
	△-△-△ Old=200N, New=200N+200K	+--+ Old=400N, New=200N+200K

Figure 6. The distribution of foliar nitrogen concentration (percent) on installations 201 through 245 in 1988, one year following new treatments. The eight lines represent the different combinations of initial treatments (no amendment, 200 pounds of N per acre, and 400 pounds of N per acre) and new treatments (no amendment, 200 pounds of N per acre, and 200 pounds of N plus 200 pounds of K per acre).

Relative  
Cumulative Frequency

1 Year After New Treatments

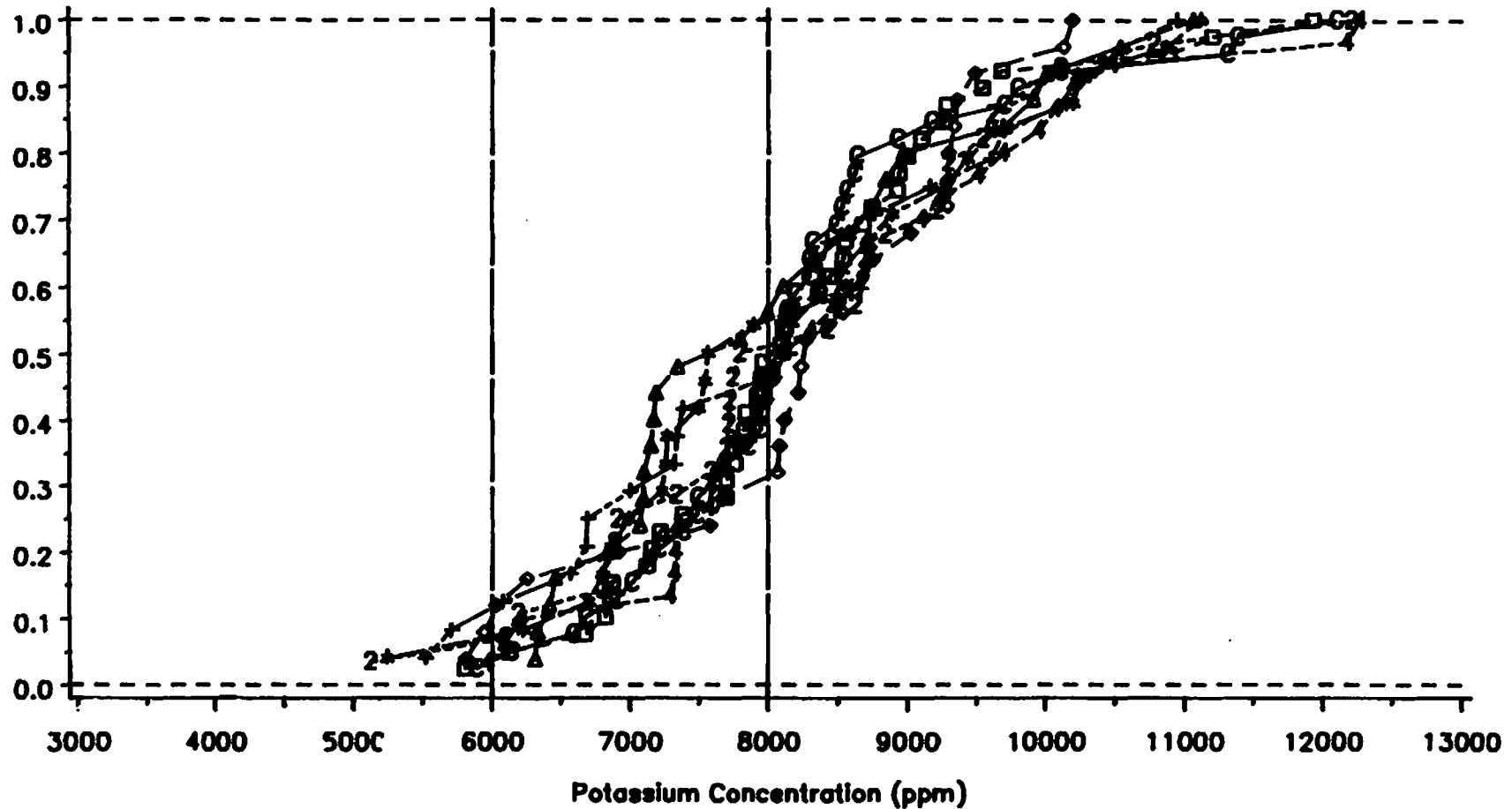


Treatment	○-○-○	Old=none, New=none	2-2-2	Old=200N, New=none
	4-4-4	Old=400N, New=none	□-□-□	Old=none, New=200N+200K
	◆-◆-◆	Old=200N, New=200N	◆-◆-◆	Old=400N, New=200N
	▲-▲-▲	Old=200N, New=200N+200K	+ - + - +	Old=400N, New=200N+200K

Figure 7. The distribution of needle weight (grams per 100 needles) on installations 201 through 245 in 1988, one year following new treatments. The eight lines represent the different combinations of initial treatments (no amendment, 200 pounds of N per acre, and 400 pounds of N per acre) and new treatments (no amendment, 200 pounds of N per acre, and 200 pounds of N plus 200 pounds of K per acre).

Relative  
Cumulative Frequency

1 Year After New Treatments

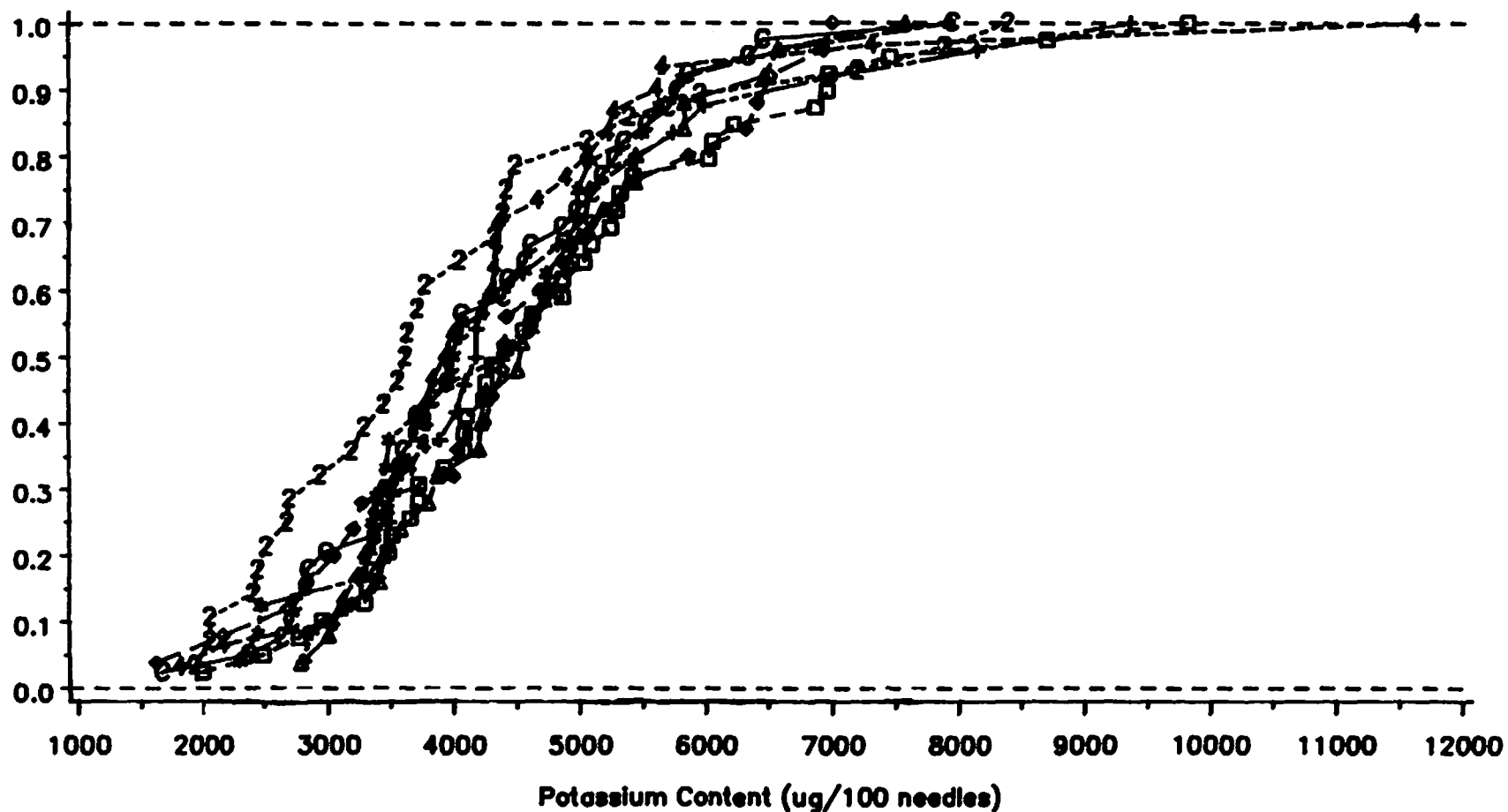


Treatment	○-○-○ Old=none, New=none	⊖-⊖-⊖ Old=200N, New=none
	←-←-← Old=400N, New=none	⊞-□-⊞ Old=none, New=200N+200K
	◆-◆-◆ Old=200N, New=200N	⊠-⊠-⊠ Old=400N, New=200N
	△-△-△ Old=200N, New=200N+200K	+--+ Old=400N, New=200N+200K

Figure 8. The distribution of foliar potassium concentration (micrograms per gram) on installations 201 through 245 in 1988, one year following new treatments. The eight lines represent the different combinations of initial treatments (no amendment, 200 pounds of N per acre, and 400 pounds of N per acre) and new treatments (no amendment, 200 pounds of N per acre, and 200 pounds of N plus 200 pounds of K per acre).

Relative  
Cumulative Frequency

1 Year After New Treatments

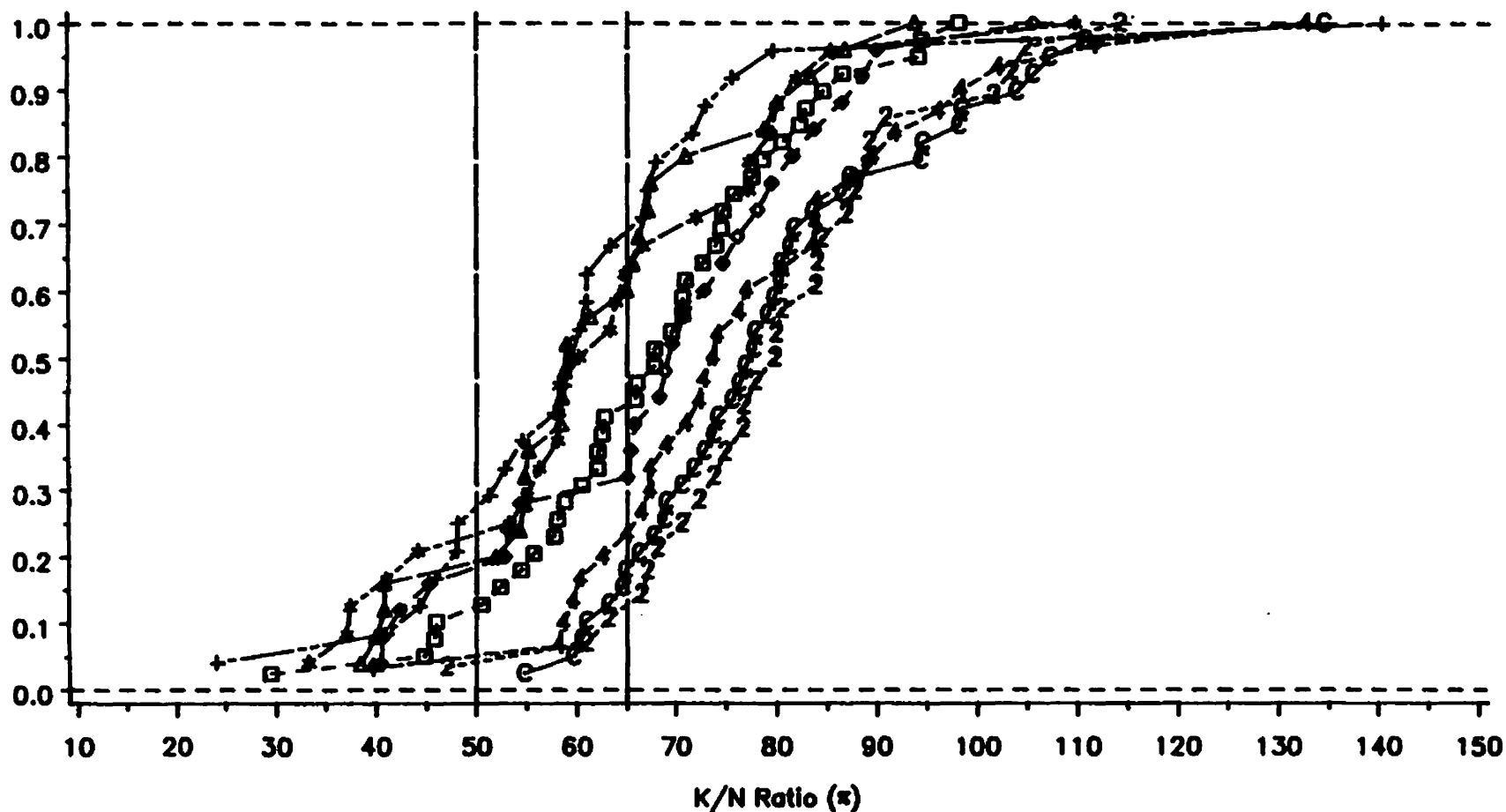


Treatment	○-○-○ Old=none, New=none	2-2-2 Old=200N, New=none
	4-4-4 Old=400N, New=none	□-□-□ Old=none, New=200N+200K
	◆-◆-◆ Old=200N, New=200N	◆-◆-◆ Old=400N, New=200N
	▲-▲-▲ Old=200N, New=200N+200K	+ - + - + Old=400N, New=200N+200K

Figure 9. The distribution of foliar potassium content (micrograms per 100 needles) on installations 201 through 245 in 1988, one year following new treatments. The eight lines represent the different initial treatments (no amendment, 200 pounds of N per acre, and 400 pounds of N per acre) and new treatments (no amendment, 200 pounds of N per acre, and 200 pounds of N plus 200 pounds of K per acre).

Relative  
Cumulative Frequency

1 Year After New Treatments



Treatment	⊖-⊖-⊖ Old=none, New=none	⊖-⊖-⊖ Old=200N, New=none
	⊕-⊕-⊕ Old=400N, New=none	⊖-□-⊖ Old=none, New=200N+200K
	⊖-⊖-⊖ Old=200N, New=200N	⊕-⊕-⊕ Old=400N, New=200N
	⊕-⊕-⊕ Old=200N, New=200N+200K	⊕-⊕-⊕ Old=400N, New=200N+200K

Figure 10. The distribution of foliar K/N ratio (percent) on installations 201 through 245 in 1988, one year following new treatments. The eight lines represent the different combinations of initial treatments (no amendment, 200 pounds of N per acre, and 400 pounds of N per acre) and new treatments (no amendment, 200 pounds of N per acre, and 200 pounds of N plus 200 pounds of K per acre).

Based on this demonstrated nitrogen response and on parallel results for average needle weight following treatment we can expect a stem growth response to accompany any new nitrogen amendment. The similarity of the current increase in foliar nitrogen to previous results for 200 pound applications indicates that the magnitude of the growth response is also likely to be similar.

However, conflicting evidence is found regarding any carryover effects from the earlier treatments. Plots formerly treated with 400 pounds of N have higher nitrogen concentrations, but do not have larger needle weights. Interpreting these results requires some consideration of the crown conditions now existing on the different plots. Although plots that differ in past treatment may not differ in average needle weights, the total foliar biomass is likely to be much greater on plots with previous nitrogen amendments because of past crown expansion.

As long as adequate resources of moisture and nutrients exist to maintain the photosynthetic efficiency of this biomass, growth on treated plots will continue to exceed control plot levels. Thus, given the higher N levels on 400 pound plots, we would expect to see continued growth response for these plots. The situation on old 200 pound plots may be quite different. Here N concentrations are at or below unfertilized plot levels, while foliar biomass is presumably higher due to past crown growth. On these plots we might expect to see growth rates similar to or even less than control plot rates.

By comparing potassium levels on plots newly treated with both nitrogen and potassium to plots treated with nitrogen alone we can see that the K fertilization was not successful in raising potassium content (K uptake by individual needles) or K concentration. A number of possibility exist:

- 1) There was no K uptake as any potassium added to the system at the time of treatment was no longer available to the trees during the growing season due to tie-up in the soil or leaching from the system.
- 2) Increased uptake occurred, but K was allocated to other portions of the tree (ie. other areas of active growth like phloem, fine root flowering).
- 3) Potassium levels increased during active growth, but returned to similar levels in the foliage during the dormant season following redistribution.

The increase in overall K concentrations from levels 6 years before gives rise to some interesting speculation on the nature of limiting growth factors in the Intermountain region. It would appear that under better moisture conditions (1981-1982) sufficient moisture was available to allow needles to expand to the point where potassium concentrations may have become growth limiting. As shown in the 1989 annual report, plots with low K concentration and K/N ratios responded less to N fertilization and showed poorer duration of response than plots with good foliar potassium conditions. Under more droughty conditions (1987-1988) needle growth was much decreased. Thus, with similar K uptake per needle and decreased growth, potassium concentrations do not appear to fall below critical levels. In this situation perhaps moisture is the prime limiting factor to growth.



Appendix

The following pages contain foliar nutrient concentrations and needle weights for installations 201 through 245. Values presented include plot, treatment, and installation averages for current foliage one year after original treatments (1982) and one year after new treatments (1988). Nutrient concentrations are presented in micrograms per gram of foliage (parts per million) and needle weights are in grams of foliage per 100 needles. A missing data value is indicated by "."; no foliage was collected from installations 213, 214, 215, and 224 in 1982 or from installations 231 and 234 in 1988.

Following collection this fall and subsequent chemical analysis, similar tables covering installations 246 through 290 will be made available. If more detailed information on certain installations is desired, contact the IFTNC staff.

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 201 LAPPINWELL CREEK #1  
 REGION: CENTRAL IDAHO OWNERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T16N R4E SECTION 21 MERIDIAN: BOISE

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAF)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	200 #	400 #	NCNE	400 #	NOBE	200 #
NITROGEN	13550	16750	10700	13850	7950	11400
PHOSPHORUS	1400	2450	2050	1650	1900	1500
POTASSIUM	5897	9327	6917	6447	6282	5747
CALCIUM	3681	4201	4041	3396	4956	3681
MAGNESIUM	2045	2170	2300	2215	2015	2025
MANGANESE	347.5	334.5	349.0	346.0	458.0	316.0
ZINC	23.00	35.45	26.70	23.40	20.55	20.65
IRON	81.80	90.80	102.5	70.85	78.10	65.35
BORON	38.45	23.95	23.40	21.05	16.35	21.65
COPPER	5.47	5.28	5.72	4.07	3.05	4.21

NEEDLE WEIGHT (G/100 NEEDLES)

0.654 1.014 0.722 0.710 0.679 0.715

BY ORIGINAL TREATMENT:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	9325	12475	15300	12367
PHOSPHORUS	1975	1450	2050	1825
POTASSIUM	6600	5822	7887	6770
CALCIUM	4519	3681	3799	3999
MAGNESIUM	2158	2035	2193	2128
MANGANESE	403.5	331.8	340.3	358.5
ZINC	23.62	21.82	29.42	24.96
IRON	90.30	73.57	80.82	81.57
BORON	19.87	30.05	22.50	24.14
COPPER	4.39	4.84	4.68	4.64

NEEDLE WEIGHT (G/100 NEEDLES)

0.700 0.684 0.862 0.749

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	N + K	N + K	NOBE	NOBE	200 N
NITROGEN	11150	13550	11650	9050	11200	10333
PHOSPHORUS	900	2200	2150	1900	1950	1833
POTASSIUM	6835	8162	8670	8687	6681	9281
CALCIUM	3143	4826	4254	3916	2255	4557
MAGNESIUM	1329	1581	1239	1820	1091	2011
MANGANESE	286.3	296.5	461.9	317.9	242.8	408.1
ZINC	33.22	45.27	34.00	22.39	19.99	26.04
IRON	56.65	58.30	70.65	70.30	69.75	111.8
BORON	24.70	25.71	22.21	34.89	24.60	24.45
COPPER	3.38	3.43	4.00	4.24	4.65	3.60

NEEDLE WEIGHT (G/100 NEEDLES)

0.446 0.670 0.480 0.275 0.533 0.346

BY NEW TREATMENT:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10125	10333	12117	11156
PHOSPHORUS	1925	1833	1750	1822
POTASSIUM	7684	9281	7889	8053
CALCIUM	3085	4557	4074	3825
MAGNESIUM	1455	2011	1383	1512
MANGANESE	280.4	408.1	348.3	335.6
ZINC	21.19	26.04	37.50	30.15
IRON	70.02	111.8	61.87	72.90
BORON	29.75	24.45	24.21	26.09
COPPER	4.44	3.60	3.60	3.88

NEEDLE WEIGHT (G/100 NEEDLES)

0.404 0.346 0.532 0.459

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 202 HCRSETHIEF RESERVOIR  
 REGION: CENTRAL IDAHO MEMBERSHIP: BCISE CASCADE  
 LEGAL DESCRIPTION: T13M R5E SECTION 18 MERIDIAN: BOISE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

## ORIGINAL TREATMENT

	1	2	3	4	5	6
	400 #	HCNE	200 #	400 #	200 #	NONE
NITROGEN	15900	6700	10500	13450	10960	10050
PHOSPHORUS	2000	1700	1600	1900	1960	1500
POTASSIUM	7572	6417	7222	6082	5407	5192
CALCIUM	4911	5416	3551	3836	3276	3991
MAGNESIUM	2045	2030	2070	2080	1900	1940
MANGANESE	585.5	488.0	491.0	368.0	306.5	272.0
ZINC	38.75	24.20	26.05	27.60	32.75	29.25
IRON	47.46	56.60	47.40	40.90	39.90	46.40
BOBCH	21.85	24.20	24.90	18.00	19.45	17.30
CCPFR	4.36	4.21	4.26	3.22	4.11	3.29
NEEDLE WEIGHT (G/100 NEEDLES)	0.641	0.509	0.571	0.696	0.847	0.628

## BY ORIGINAL TREATMENT:

	HCNE	200 # N	400 # N	OVERBALL
NITROGEN	9375	10700	14675	11583
PHOSPHORUS	1600	1750	1950	1767
POTASSIUM	5805	6315	6827	6315
CALCIUM	4704	3414	4374	4164
MAGNESIUM	1985	1985	2063	2014
MANGANESE	380.0	398.8	476.8	418.5
ZINC	26.72	29.40	33.17	29.77
IRON	51.50	43.65	44.15	46.43
BOBCH	20.75	22.17	19.92	20.95
CCPFR	3.75	4.19	3.79	3.91
NEEDLE WEIGHT (G/100 NEEDLES)	0.569	0.709	0.668	0.649

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	N + K	HCNE	HCNE	HCNE	N + K	N + K
NITROGEN	14100	6100	7600	9250	12150	12650
PHOSPHORUS	1900	1800	1750	1900	2060	1700
POTASSIUM	8148	7943	8672	12252	7165	7944
CALCIUM	2942	3568	2883	3693	2970	3521
MAGNESIUM	1229	955.8	1275	1465	1268	1252
MANGANESE	260.3	321.9	333.8	220.8	275.6	254.1
ZINC	24.01	16.51	32.19	20.58	34.98	39.53
IRON	57.85	65.45	70.85	63.40	60.40	62.15
BOBCH	18.76	25.05	31.04	22.92	25.36	17.95
COPPER	3.37	3.05	2.78	3.10	3.76	3.62
NEEDLE WEIGHT (G/100 NEEDLES)	0.442	0.372	0.283	0.255	0.631	0.563

## BY NEW TREATMENT:

	HCNE	200 # N	N + K	OVERBALL
NITROGEN	8317	.	12967	10642
PHOSPHORUS	1817	.	1867	1842
POTASSIUM	9622	.	7752	8687
CALCIUM	3381	.	3144	3263
MAGNESIUM	1232	.	1249	1241
MANGANESE	292.2	.	263.4	277.8
ZINC	23.09	.	32.84	27.97
IRON	66.57	.	60.13	63.35
BOBCH	26.34	.	20.69	23.52
COPPER	2.98	.	3.58	3.28
NEEDLE WEIGHT (G/100 NEEDLES)	0.303	.	0.545	0.424

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 203 LAPPINWELL CREEK #2  
 REGION: CENTRAL IDAHO COWPERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T16N R4E SECTION 29 MERIDIAN: BOISE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	200 #	400 #	NONE	NONE	400 #	200 #
NITROGEN	12500	14600	10500	10350	14200	13550
PHOSPHORUS	1950	2150	2050	2850	2150	2100
POTASSIUM	6745	7870	5015	5870	5515	6420
CALCIUM	5147	5097	5482	4712	5232	5402
MAGNESIUM	2078	2253	2143	1983	2073	2058
MANGANESE	349.0	375.0	357.0	243.5	265.0	284.5
ZINC	25.55	21.95	23.15	38.40	26.55	37.05
IRON	94.70	89.70	77.65	105.1	130.2	108.2
BORON	21.50	23.55	22.85	29.50	25.50	21.85
COOPER	6.74	7.89	6.10	7.05	9.42	8.09

NEEDLE WEIGHT (G/100 NEEDLES) 0.795 0.666 0.592 0.760 0.741 0.683

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10425	13025	14400	12617
PHOSPHORUS	2450	2025	2150	2208
POTASSIUM	5443	6583	6693	6239
CALCIUM	5097	5275	5165	5179
MAGNESIUM	2063	2068	2163	2098
MANGANESE	380.3	316.8	320.0	312.3
ZINC	30.77	31.30	24.25	28.77
IRON	91.40	101.4	109.9	100.9
BORON	26.17	21.67	24.72	24.19
COOPER	6.58	7.41	8.66	7.55

NEEDLE WEIGHT (G/100 NEEDLES) 0.676 0.739 0.703 0.706

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	200 N	N + K	NCNE	N + K	200 N	NONE
NITROGEN	10100	12267	11075	13733	9500	10150
PHOSPHORUS	750	2233	2150	2833	2000	2200
POTASSIUM	8232	6690	8613	8530	7539	9213
CALCIUM	5534	4348	5651	4130	4258	5594
MAGNESIUM	1309	1390	1580	1441	1355	1842
MANGANESE	315.1	273.7	440.8	266.2	224.8	310.6
ZINC	22.04	23.13	30.65	38.64	32.33	36.06
IRON	67.85	52.37	69.77	74.97	46.55	75.55
BORON	26.93	22.45	24.80	29.08	22.97	24.19
COOPER	3.03	3.53	3.60	3.53	2.95	3.66

NEEDLE WEIGHT (G/100 NEEDLES) 0.504 0.503 0.441 0.582 0.442 0.323

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10612	9800	13000	11137
PHOSPHORUS	2175	1375	2533	2028
POTASSIUM	8913	7885	7610	8136
CALCIUM	5622	4896	4239	4919
MAGNESIUM	1711	1332	1416	1486
MANGANESE	375.7	270.0	270.0	305.2
ZINC	33.35	27.19	30.88	30.48
IRON	72.66	57.35	63.67	64.56
BORON	24.50	24.95	25.76	25.07
COOPER	3.63	2.99	3.53	3.38

NEEDLE WEIGHT (G/100 NEEDLES) 0.382 0.473 0.543 0.466

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 204 JOHNSON'S MILL #1  
 REGION: NORTHERN IDAHO OWNERSHIP: IDL  
 LEGAL DESCRIPTION: T37N R3E SECTION 4 MERIDIAN: POISE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	NONE	200 #	NONE	400 #	200 #
NITROGEN	17150	10500	14800	11200	17050	12600
PHOSPHORUS	2200	1800	1200	1500	1850	1550
POTASSIUM	6426	5701	6376	6496	6911	6226
CALCIUM	4725	3665	2580	3440	3240	3005
MAGNESIUM	1944	1704	1529	1619	2019	1494
MANGANESE	455.5	578.5	352.5	603.5	305.0	429.5
ZINC	23.8	30.15	19.45	19.65	25.55	19.85
IRON	55.5	57.45	69.35	67.15	66.15	59.45
BORON	22.9	27.15	25.60	22.90	23.00	16.20
COPPER	4.07	5.20	4.56	3.95	5.06	3.70
NEEDLE WEIGHT (G/100 NEEDLES)	0.494	0.494	0.745	0.624	0.667	0.684

## BY ORIGINAL TREATMENT:

	NONE	200 # N	400 # N	OVERALL
NITROGEN	10850	13700	17100	13883
PHOSPHORUS	1650	1375	2025	1683
POTASSIUM	6099	6301	6669	6356
CALCIUM	3553	2793	3983	3443
MAGNESIUM	1662	1512	1982	1718
MANGANESE	591.0	391.0	380.3	454.1
ZINC	24.90	19.65	24.90	23.15
IRON	62.30	64.40	60.85	62.52
BORON	25.02	20.90	22.97	22.97
COPPER	4.57	4.13	4.56	4.42
NEEDLE WEIGHT (G/100 NEEDLES)	0.559	0.715	0.580	0.618

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NONE	NONE	NONE	N + K	200 N	200 N
NITROGEN	11150	10200	10750	13150	18200	13050
PHOSPHORUS	1950	1867	1450	1800	2200	1800
POTASSIUM	8048	8289	7328	7957	6758	8532
CALCIUM	3104	3675	3515	4054	3962	3882
MAGNESIUM	1626	1352	1581	1259	1534	1459
MANGANESE	278.4	510.9	454.0	566.5	315.1	511.6
ZINC	25.62	28.55	30.03	26.89	33.11	32.83
IRON	86.55	103.8	106.7	91.15	89.35	76.75
BORON	32.61	35.95	36.82	25.81	30.33	29.92
COPPER	3.02	3.08	3.24	3.53	3.01	2.76
NEEDLE WEIGHT (G/100 NEEDLES)	0.400	0.493	0.482	0.577	0.542	0.754

## BY NEW TREATMENT:

	NONE	200 # N	N + K	OVERALL
NITROGEN	10700	15625	13150	12750
PHOSPHORUS	1756	2000	1800	1844
POTASSIUM	7688	7665	7957	7825
CALCIUM	3431	3932	4054	3702
MAGNESIUM	1519	1497	1259	1468
MANGANESE	414.5	413.4	566.5	439.5
ZINC	28.07	33.17	26.89	29.57
IRON	99.02	83.05	91.15	92.38
BORON	35.13	30.13	25.81	31.91
COPPER	3.11	2.88	3.53	3.11
NEEDLE WEIGHT (G/100 NEEDLES)	0.458	0.648	0.577	0.541

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 205 JOHNSON'S HILL #2  
 REGION: NORTHERN IDAHO OWNERSHIP: IDL  
 LEGAL DESCRIPTION: T37N R3E SECTION 4 MERIDIAN: BOISE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	200 #	NONE	400 #	200 #	NONE
NITROGEN	21600	14000	12750	13700	14700	11200
PHOSPHORUS	1650	1900	1250	1350	1600	1600
POTASSIUM	7695	6170	5890	6740	7355	6390
CALCIUM	2472	3352	2922	3212	3192	4292
MAGNESIUM	2238	2248	1888	1913	2198	2093
MANGANESE	253.0	382.0	340.0	468.0	391.0	439.5
ZINC	18.15	19.90	32.60	28.15	35.00	21.95
IRON	64.55	57.00	94.15	98.20	92.70	92.35
BORON	26.45	21.40	32.20	16.90	23.60	23.15
COPPER	8.66	6.00	9.78	8.43	5.66	5.45

NEEDLE WEIGHT (G/100 NEEDLES) 0.637 0.656 0.773 0.594 0.691 0.601

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11975	14350	17650	14658
PHOSPHORUS	1425	1750	1500	1558
POTASSIUM	6140	6783	7218	6713
CALCIUM	3607	3272	2842	3240
MAGNESIUM	1991	2223	2076	2096
MANGANESE	389.8	386.5	360.5	378.9
ZINC	27.27	27.45	23.15	25.96
IRON	93.25	74.85	81.37	83.16
BORON	27.67	22.50	21.67	23.95
COPPER	7.61	5.83	8.55	7.33

NEEDLE WEIGHT (G/100 NEEDLES) 0.687 0.674 0.616 0.659

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:	1	2	3	4	5	6
NEW TREATMENT	200 N	N + K	NONE	NONE	200 N	N + K
NITROGEN	14850	14350	11600	10950	12700	12900
PHOSPHORUS	1450	1700	1300	1400	1400	1650
POTASSIUM	9620	7789	7856	8099	8268	8741
CALCIUM	2927	3971	2811	3214	2971	4376
MAGNESIUM	1362	1419	1605	1454	1158	1316
MANGANESE	166.6	411.1	325.3	372.7	336.0	433.1
ZINC	28.61	27.58	31.21	31.55	29.15	21.46
IRON	35.15	32.3	196.6	173	215.2	165.3
BORON	35.91	35.40	40.78	18.20	35.56	20.99
COPPER	4.51	3.78	4.54	4.03	3.54	3.96

NEEDLE WEIGHT (G/100 NEEDLES) 0.455 0.534 0.707 0.492 0.512 0.561

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11275	13775	13625	12892
PHOSPHORUS	1350	1425	1675	1483
POTASSIUM	7978	8944	8265	8396
CALCIUM	3013	2949	4173	3378
MAGNESIUM	1529	1260	1367	1385
MANGANESE	349.0	251.3	422.1	340.8
ZINC	31.38	28.88	24.52	28.26
IRON	184.8	183.1	142.8	170.2
BORON	29.49	35.94	28.20	31.21
COPPER	4.28	4.22	3.87	4.13

NEEDLE WEIGHT (G/100 NEEDLES) 0.600 0.483 0.548 0.544

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 206 CARIBEL  
 REGION: NORTHERN IDAHO  
 LEGAL DESCRIPTION: T34N R4E SECTION 36

OWNERSHIP: IDL  
 MERIDIAN: BOISE

**FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

**BY PLOT:**

**ORIGINAL TREATMENT**

	1	2	3	4	5	6
	200 #	NONE	400 #	400 #	200 #	NONE
NITROGEN	14200	12250	26450	16850	14600	12850
PHOSPHORUS	2500	2000	2800	1700	2550	2150
POTASSIUM	5947	6732	5012	4877	6597	5997
CALCIUM	3296	3131	3206	5016	4197	3916
MAGNESIUM	2195	2155	2300	2090	2190	2095
MANGANESE	246.5	335.5	414.0	338.5	345.5	304.0
ZINC	24.40	23.60	30.30	35.70	22.55	37.00
IRON	58.30	48.75	39.05	48.55	43.05	40.70
BOBON	20.20	31.60	21.60	23.85	24.45	31.45
COPPER	4.21	3.92	4.03	3.77	3.61	3.84

NEEDLE WEIGHT (G/100 NEEDLES) 0.648 0.660 0.774 0.644 0.620 0.636

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12550	14400	21650	16200
PHOSPHORUS	2075	2525	2250	2283
POTASSIUM	6365	6272	4945	5860
CALCIUM	3524	3746	4111	3794
MAGNESIUM	2125	2193	2195	2171
MANGANESE	319.8	296.0	376.3	330.7
ZINC	30.30	23.47	33.00	28.92
IRON	44.72	50.67	41.80	45.73
BOBON	31.52	22.22	22.72	25.49
COPPER	3.88	3.91	3.90	3.90

NEEDLE WEIGHT (G/100 NEEDLES) 0.648 0.634 0.709 0.664

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

**BY PLOT:**

**NEW TREATMENT**

	1	2	3	4	5	6
	N + K	NONE	N + K	200 N	NONE	N + K
NITROGEN	16700	11400	22900	18750	10900	20750
PHOSPHORUS	1850	1550	2750	2050	2050	1950
POTASSIUM	6416	8294	5517	6228	7695	6126
CALCIUM	3773	4245	2893	4829	4060	3675
MAGNESIUM	1584	1299	1199	1668	1101	1222
MANGANESE	227.6	375.0	275.6	258.6	234.4	308.3
ZINC	24.64	22.92	31.06	42.48	26.06	32.87
IRON	98.70	74.65	57.45	91.80	81.75	58.15
BOBON	30.38	38.85	26.47	39.51	23.43	52.30
COPPER	4.09	3.60	3.09	3.82	2.74	3.67

NEEDLE WEIGHT (G/100 NEEDLES) 0.434 0.412 0.501 0.576 0.489 0.532

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11150	18750	20117	16900
PHOSPHORUS	1800	2050	2183	2033
POTASSIUM	7995	6228	6019	6712
CALCIUM	4152	4829	3447	3912
MAGNESIUM	1200	1668	1335	1345
MANGANESE	304.7	258.6	270.5	279.9
ZINC	24.49	42.48	29.53	30.01
IRON	78.20	91.80	71.43	77.08
BOBON	31.14	39.51	36.39	35.16
COPPER	3.17	3.82	3.62	3.50

NEEDLE WEIGHT (G/100 NEEDLES) 0.450 0.576 0.489 0.491

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 207 WAHA  
REGION: NORTHEAST OREGON  
LEGAL DESCRIPTION: T33N R4W

OWNERSHIP: FOTLATCH  
SECTION 10 MERIDIAN: POISE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	400 #	200 #	NONE	400 #	NONE	200 #
NITROGEN	16100	13450	11650	17250	11360	14650
PHOSPHORUS	1800	1700	2400	2550	2450	1650
POTASSIUM	5312	6672	5932	6002	7712	4792
CALCIUM	6100	5870	5145	2665	5430	5465
MAGNESIUM	1865	2280	2170	2090	2460	1955
MANGANESE	473.0	340.0	274.5	288.0	478.0	459.5
ZINC	25.70	35.15	27.95	15.10	30.60	19.85
IRON	88.70	67.05	74.40	89.35	59.50	55.15
BORON	16.95	21.90	11.25	16.80	20.00	20.00
COPPER	5.27	4.95	3.46	4.09	5.82	4.01

NEEDLE WEIGHT (G/100 NEEDLES)

0.437	0.515	0.692	0.849	0.489	0.500
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BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11475	14050	16675	14067
PHOSPHORUS	2425	1675	2175	2092
POTASSIUM	6822	5732	5657	6070
CALCIUM	5288	5668	4383	5113
MAGNESIUM	2315	2118	1978	2137
MANGANESE	376.3	399.8	380.5	385.5
ZINC	29.27	27.50	20.40	25.72
IRON	66.95	61.10	89.02	72.36
BORON	15.62	20.95	16.87	17.82
COPPER	4.64	4.48	4.68	4.60

NEEDLE WEIGHT (G/100 NEEDLES)

0.590	0.507	0.643	0.580
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FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	H + K	NCNE	NCNE	NONE	H + K	H + K
NITROGEN	12450	10150	11000	9700	12500	13350
PHOSPHORUS	2400	1900	2250	2500	2050	1500
POTASSIUM	8347	6815	8312	8464	7216	8959
CALCIUM	4044	4427	3514	3020	3511	4014
MAGNESIUM	936.9	1453	1390	1043	1234	1283
MANGANESE	259.2	269.4	212.9	228.2	398.2	250.5
ZINC	22.63	49.38	25.43	23.22	31.79	16.61
IRON	163.1	107.7	104.3	109.3	84.60	136.1
BORON	19.93	23.43	7.39	21.30	24.14	20.98
COPPER	2.64	2.51	2.77	2.73	3.83	3.17

NEEDLE WEIGHT (G/100 NEEDLES)

0.499	0.528	0.595	0.557	0.676	0.565
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BY NEW TREATMENT:

	NCNE	200 # N	H + K	OVERALL
NITROGEN	10283	.	12767	11525
PHOSPHORUS	2217	.	1983	2100
POTASSIUM	7864	.	8174	8019
CALCIUM	3653	.	3856	3755
MAGNESIUM	1295	.	1151	1223
MANGANESE	236.8	.	302.6	269.7
ZINC	32.68	.	23.68	28.18
IRON	107.1	.	127.9	117.5
BORON	17.37	.	21.68	19.53
COPPER	2.67	.	3.21	2.94

NEEDLE WEIGHT (G/100 NEEDLES)

0.560	.	0.580	0.570
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## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 208 LOVELL VALLEY ROAD  
 REGION: NORTHERN IDAHO MEMBERSHIP: PCLATCH  
 LEGAL DESCRIPTION: T46N R5W SECTION 25 MERIDIAN: BOISE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	NCNE	400 #	200 #	400 #	200 #	NONE
NITROGEN	8950	11500	11500	12300	11200	9850
PHOSPHORUS	1600	1300	1500	1350	1200	1600
POTASSIUM	5597	4587	4722	4672	5817	6017
CALCIUM	5296	4191	4826	4071	3891	4541
MAGNESIUM	2057	1920	1920	1735	1920	2340
MANGANESE	562.0	598.5	587.0	395.5	534.5	379.0
ZINC	22.75	20.30	19.20	19.35	19.50	21.10
IRON	128	96.50	111.5	175.5	166	152.5
BORON	18.50	21.30	15.05	12.90	14.10	18.05
COPPER	6.19	5.87	5.53	6.49	6.62	5.99
NEEDLE WEIGHT (G/100 NEEDLES)	0.460	0.548	0.457	0.530	0.470	0.391

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	9400	11350	11900	10883
PHOSPHORUS	1600	1350	1325	1425
POTASSIUM	5607	5270	4630	5235
CALCIUM	4919	4359	4131	4469
MAGNESIUM	2198	1920	1828	1982
MANGANESE	470.5	560.8	497.0	509.4
ZINC	21.92	19.55	19.82	20.43
IRON	140.3	138.8	136	138.3
BORON	18.27	14.57	17.10	16.65
COPPER	6.09	6.08	6.18	6.12
NEEDLE WEIGHT (G/100 NEEDLES)	0.426	0.464	0.539	0.476

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	N + K	NCNE	N + K	200 N	200 N	NONE
NITROGEN	11250	10400	10950	12550	14233	11600
PHOSPHORUS	1700	2133	1900	2025	1467	2100
POTASSIUM	7821	6204	7180	7557	6031	7014
CALCIUM	5273	3576	6324	3863	4825	3429
MAGNESIUM	1162	1159	1406	1294	1931	1209
MANGANESE	524.1	406.7	818.9	467.9	671.7	374.4
ZINC	21.21	23.39	24.74	28.87	29.50	29.25
IRON	111.5	115.3	137.3	196.9	157.7	146.1
BORON	23.84	29.96	22.67	23.86	37.66	41.19
COPPER	3.24	3.43	3.31	3.91	3.67	3.44
NEEDLE WEIGHT (G/100 NEEDLES)	0.516	0.699	0.501	0.629	0.513	0.546

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11000	13392	11100	11831
PHOSPHORUS	2117	1746	1800	1887
POTASSIUM	6609	6794	7500	6968
CALCIUM	3503	4344	5798	4548
MAGNESIUM	1184	1612	1284	1360
MANGANESE	390.6	569.8	671.5	544.0
ZINC	26.32	29.18	22.98	26.16
IRON	130.7	177.3	124.4	144.1
BORON	35.58	30.46	23.25	29.76
COPPER	3.44	3.89	3.27	3.53
NEEDLE WEIGHT (G/100 NEEDLES)	0.622	0.571	0.509	0.567

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 209 ALDEY  
 REGION: NORTHEAST WASHINGTON  
 LEGAL DESCRIPTION: T34N R38E SECTION 27 OWNERSHIP: POISE CASCADE  
 MERIDIAN: WILLAMETTE

**FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

**BY PLOT:**

**ORIGINAL TREATMENT**

	1	2	3	4	5	6
	200 #	NCNE	400 #	NONE	400 #	200 #
NITROGEN	18550	11900	13000	12000	15800	15800
PHOSPHORUS	2200	2800	2050	2300	2050	2250
POTASSIUM	4954	5994	5994	9079	7639	7937
CALCIUM	5465	6595	4630	6845	4960	4850
MAGNESIUM	1789	2299	2289	2079	2374	2309
MANGANESE	331.0	312.0	239.0	474.5	243.5	284.0
ZINC	31.0	33.15	32.00	41.45	28.75	40.95
IRON	44.95	60.95	65.30	61.40	49.50	59.75
BORON	32.05	32.80	22.55	32.80	26.55	33.95
COPPER	4.64	5.08	5.64	4.12	5.22	4.34

NEEDLE WEIGHT (G/100 NEEDLES) 0.893 0.573 0.749 0.472 0.733 0.830

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11950	17175	14400	14508
PHOSPHORUS	2550	2225	2050	2275
POTASSIUM	7537	6445	6817	6933
CALCIUM	6720	5158	4765	5548
MAGNESIUM	2189	2049	2332	2190
MANGANESE	393.3	307.5	241.3	314.0
ZINC	37.30	36.00	30.37	34.56
IRON	61.17	52.35	57.40	56.97
BORON	32.80	33.00	24.75	30.18
COPPER	4.60	4.49	5.43	4.84

NEEDLE WEIGHT (G/100 NEEDLES) 0.522 0.861 0.741 0.708

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

**BY PLOT:**

**NEW TREATMENT**

	1	2	3	4	5	6
	200 N	N + K	NCNE	NONE	N + K	N + K
NITROGEN	13800	13650	10400	11000	14300	13600
PHOSPHORUS	2000	2000	1900	1900	1750	2200
POTASSIUM	6255	7152	6095	7131	6569	7997
CALCIUM	4215	4207	3900	4427	5698	5527
MAGNESIUM	1389	1260	1013	1269	1172	1400
MANGANESE	245.1	230.4	145.1	255.2	174.5	264.3
ZINC	29.44	37.13	30.18	27.78	19.45	50.46
IRON	51.40	42.75	57.95	88.95	44.15	60.35
BORON	31.85	32.97	26.68	28.55	23.89	25.71
COPPER	2.36	3.48	2.28	2.73	3.42	3.19

NEEDLE WEIGHT (G/100 NEEDLES) 0.821 0.858 0.550 0.505 0.621 0.728

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10700	13800	13850	12792
PHOSPHORUS	1900	2000	1983	1958
POTASSIUM	6613	6255	7239	6866
CALCIUM	4163	4215	5144	4662
MAGNESIUM	1141	1389	1277	1250
MANGANESE	200.2	245.1	223.1	219.1
ZINC	28.98	29.44	35.68	32.41
IRON	73.45	51.40	49.08	57.59
BORON	27.62	31.85	27.52	28.28
COPPER	2.51	2.36	3.37	2.91

NEEDLE WEIGHT (G/100 NEEDLES) 0.527 0.821 0.736 0.681

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 210 BUCK CREEK  
 REGION: NORTHEAST WASHINGTON  
 LEGAL DESCRIPTION: T31N R43E SECTION 26

OWNERSHIP: INLAND EMPIRE  
 MERIDIAN: WILLAMETTE

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT	1		2		3		4		5		6	
	NCNE	200 #	400 #	200 #	400 #	200 #	400 #	200 #	400 #	200 #	400 #	
NITROGEN	10600	12800	21500	11150	15650	19250						
PHOSPHORUS	1900	1750	1500	1850	1750	1600						
POTASSIUM	5736	6991	6156	7641	7831	5796						
CALCIUM	3885	4725	3735	3920	3750	4995						
MAGNESIUM	2479	2349	2294	2599	2574	2094						
MANGANESE	301.1	291.0	323.0	229.5	213.5	295.5						
ZINC	21.1	29.80	39.45	29.85	31.60	28.80						
IRON	87.30	78.60	79.30	58.65	54.55	62.35						
BOBON	11.45	19.80	25.70	30.45	24.55	20.95						
CCPPER	4.24	5.03	6.33	5.33	6.12	4.17						
NEEDLE WEIGHT (G/100 NEEDLES)	0.527	0.648	0.673	0.493	0.773	0.667						

BY ORIGINAL TREATMENT:

	NCNE	200 #	400 #	OVERALL
NITROGEN	10875	14225	20375	15158
PHOSPHORUS	1875	1750	1550	1725
POTASSIUM	6689	7411	5976	6692
CALCIUM	3903	4258	4365	4175
MAGNESIUM	2539	2462	2194	2398
MANGANESE	265.5	252.3	309.3	275.7
ZINC	25.50	30.70	34.12	30.11
IRON	72.97	66.77	70.82	70.19
BOBON	20.95	22.32	23.32	22.20
COPPER	4.78	5.57	5.25	5.20
NEEDLE WEIGHT (G/100 NEEDLES)	0.510	0.710	0.670	0.630

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT	1		2		3		4		5		6	
	NCNE	NONE	N + K	NONE	N + K	N + K	N + K	N + K	NONE	N + K	200 N	
NITROGEN	12600	9550	17100	13600	17750	16350						
PHOSPHORUS	1900	1050	1400	1500	1600	1300						
POTASSIUM	6899	6902	7001	6868	7099	6706						
CALCIUM	4653	4738	4700	3992	5033	5992						
MAGNESIUM	1395	1386	1311	1109	1759	1767						
MANGANESE	278.4	195.9	224.8	216.9	266.6	269.4						
ZINC	34.10	18.52	28.46	25.57	33.55	34.05						
IRON	116.1	133.5	110.4	64.30	88.15	80.55						
BOBON	22.26	31.09	23.83	37.84	29.11	28.75						
COPPER	3.54	2.32	3.37	2.86	3.37	2.86						
NEEDLE WEIGHT (G/100 NEEDLES)	0.536	0.466	0.507	0.542	0.541	0.504						

BY NEW TREATMENT:

	NCNE	200 #	N + K	OVERALL
NITROGEN	11075	16350	16150	14492
PHOSPHORUS	1475	1300	1500	1458
POTASSIUM	6900	6706	6987	6911
CALCIUM	4695	5992	4575	4851
MAGNESIUM	1390	1767	1393	1454
MANGANESE	237.2	269.4	236.1	242.0
ZINC	26.31	34.05	29.30	29.09
IRON	124.8	80.55	87.82	98.94
BOBON	26.68	28.75	30.40	28.88
CCPPER	2.93	2.86	3.20	3.05
NEEDLE WEIGHT (G/100 NEEDLES)	0.501	0.504	0.530	0.516

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 211 HEEL CREEK

REGION: NORTHEAST WASHINGTON

LEGAL DESCRIPTION: T31N R43E SECTION 20

COWLESHIP: INLAND EMPIRE

MERIDIAN: WILLAMETTE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	NCNE	200 #	400 #	400 #	200 #	NONE
NITROGEN	12300	12800	18050	18800	14150	11950
PHOSPHORUS	2250	2100	1550	1550	1600	2300
POTASSIUM	6170	5850	9090	6355	5540	6620
CALCIUM	5552	3577	5167	4327	3287	4557
MAGNESIUM	1843	1833	1873	1478	1603	1523
MANGANESE	442.5	208.5	270.0	269.5	306.0	232.5
ZINC	40.25	26.70	31.80	22.50	24.70	25.40
IRON	59.50	57.85	50.45	44.95	45.80	54.35
BORON	34.35	24.45	20.95	25.00	24.80	20.15
COPPER	9.14	4.40	5.22	5.19	4.12	4.30

## NEEDLE WEIGHT (G/100 NEEDLES)

0.576 0.983 0.896 0.815 0.829 0.737

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12125	13475	18425	14675
PHOSPHORUS	2275	1850	1550	1892
POTASSIUM	6395	5705	7723	6608
CALCIUM	5055	3432	4747	4411
MAGNESIUM	1683	1718	1676	1692
MANGANESE	337.5	257.3	269.8	288.2
ZINC	32.82	25.70	27.15	28.56
IRON	56.92	51.82	47.70	52.15
BORON	27.25	24.42	22.97	24.88
COPPER	6.72	4.26	5.21	5.40

## NEEDLE WEIGHT (G/100 NEEDLES)

0.657 0.906 0.856 0.806

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	200 N	200 N	NONE	N + K	N + K
NITROGEN	11850	14950	13900	11700	15450	16450
PHOSPHORUS	2250	2000	1400	1500	1500	1900
POTASSIUM	7425	8119	8883	8299	6311	9667
CALCIUM	5953	3810	5361	6996	4277	4808
MAGNESIUM	1680	1358	1559	1882	1286	1335
MANGANESE	484.6	179.0	193.1	256.4	225.3	209.5
ZINC	41.35	22.73	26.11	37.87	40.18	31.70
IRON	95.10	74.55	81.75	76.65	59.85	77.45
BORON	37.08	28.70	29.46	34.29	40.33	27.29
COPPER	4.62	3.29	2.58	3.64	3.69	3.39

## NEEDLE WEIGHT (G/100 NEEDLES)

0.528 0.800 0.744 0.617 0.673 0.737

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11775	14425	15950	14050
PHOSPHORUS	1875	1700	1700	1758
POTASSIUM	7892	8501	7989	8127
CALCIUM	6475	4585	4542	5201
MAGNESIUM	1781	1459	1310	1517
MANGANESE	370.5	186.1	217.4	258.0
ZINC	39.61	24.42	35.94	33.32
IRON	85.87	78.15	68.65	77.56
BORON	35.68	29.08	33.81	32.86
COPPER	4.13	2.93	3.54	3.53

## NEEDLE WEIGHT (G/100 NEEDLES)

0.572 0.772 0.705 0.683

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 212 SWAMP CREEK

REGION: NORTHEAST OREGON

LEGAL DESCRIPTION: T1N R45E SECTION 5

CWNERSHIP: BOISE CASCADE

MERIDIAN: WILLAFETTE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	200 #	NONE	400 #	200 #	NONE
NITROGEN	14150	11450	10650	14200	13150	10800
PHOSPHORUS	2200	2050	2250	2100	2460	2900
POTASSIUM	8139	9079	6549	5274	6314	8514
CALCIUM	3235	3930	3155	5370	4430	3775
MAGNESIUM	2379	2284	2169	1769	2284	2184
MANGANESE	192.5	247.0	242.0	422.5	421.0	372.5
ZINC	25.75	26.60	29.10	33.60	35.10	30.10
IRON	54.00	58.55	69.15	55.55	54.65	56.50
BORON	21.40	22.80	22.15	27.75	29.10	31.15
COPPER	3.48	4.04	4.47	5.34	4.05	4.82
NEEDLE WEIGHT (G/100 NEEDLES)	0.733	0.747	0.664	0.613	0.661	0.522

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10725	12300	14175	12400
PHOSPHORUS	2575	2225	2150	2317
POTASSIUM	7532	7697	6707	7312
CALCIUM	3465	4180	4303	3983
MAGNESIUM	2177	2284	2074	2178
MANGANESE	307.3	334.0	307.5	316.3
ZINC	29.60	30.85	29.67	30.04
IRON	62.82	56.30	54.77	57.97
BORON	26.65	25.95	24.57	25.72
COPPER	4.65	4.05	4.41	4.37
NEEDLE WEIGHT (G/100 NEEDLES)	0.593	0.704	0.673	0.657

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	200 N	200 N	NONE	NONE	NONE	N + K
NITROGEN	13567	14000	11233	11400	10860	15250
PHOSPHORUS	2933	1950	2200	2150	2360	2350
POTASSIUM	11104	10188	9788	7572	8652	9535
CALCIUM	2512	3008	2270	3030	2718	2945
MAGNESIUM	1444	1384	1114	1356	1026	1152
MANGANESE	155.9	220.8	294.5	176.8	207.8	337.7
ZINC	31.33	25.77	22.90	24.35	21.07	25.28
IRON	70.50	90.20	105.9	51.30	110.4	103
BORON	28.27	25.21	22.58	32.76	28.35	27.28
COPPER	3.51	3.84	4.83	4.38	4.37	4.41
NEEDLE WEIGHT (G/100 NEEDLES)	0.423	0.621	0.589	0.569	0.560	0.548

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11144	13783	15250	12708
PHOSPHORUS	2217	2442	2350	2314
POTASSIUM	8684	10646	9535	9480
CALCIUM	2673	2760	2945	2747
MAGNESIUM	1165	1414	1152	1246
MANGANESE	226.4	188.3	337.7	232.2
ZINC	22.77	28.55	25.28	25.12
IRON	89.22	80.35	103	88.57
BORON	27.90	26.74	27.28	27.41
COPPER	4.53	3.68	4.41	4.23
NEEDLE WEIGHT (G/100 NEEDLES)	0.553	0.522	0.548	0.542

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 213 KAMELA  
 REGION: NORTHEAST OREGON  
 LEGAL DESCRIPTION: T2S R35E SECTION 3

OWNERSHIP: BOISE CASCADE  
 MERIDIAN: WILLAMETTE

**FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

**BY PLOT:**

**ORIGINAL TREATMENT**

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	1	2	3	4	5	6
NITROGEN	.	.	.	.	.	.
PHOSPHORUS	.	.	.	.	.	.
POTASSIUM	.	.	.	.	.	.
CALCIUM	.	.	.	.	.	.
MAGNESIUM	.	.	.	.	.	.
MANGANESE	.	.	.	.	.	.
ZINC	.	.	.	.	.	.
IRON	.	.	.	.	.	.
BORON	.	.	.	.	.	.
COPPER	.	.	.	.	.	.

**NEEDLE WEIGHT (G/100 NEEDLES)**

**BY ORIGINAL TREATMENT:**

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	.	.	.	.
PHOSPHORUS	.	.	.	.
POTASSIUM	.	.	.	.
CALCIUM	.	.	.	.
MAGNESIUM	.	.	.	.
MANGANESE	.	.	.	.
ZINC	.	.	.	.
IRON	.	.	.	.
BORON	.	.	.	.
COPPER	.	.	.	.

**NEEDLE WEIGHT (G/100 NEEDLES)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

**BY PLOT:**

**NEW TREATMENT**

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	1	2	3	4	5	6
	NCNE	N + K	N + K	N + K	NOBE	NOBE
NITROGEN	7350	11550	10867	10150	9600	9950
PHOSPHORUS	1700	1250	1500	1250	1700	1900
POTASSIUM	7977	7135	7225	6544	7954	7847
CALCIUM	2822	3541	3740	2918	2003	1425
MAGNESIUM	851.3	945.4	1083	1060	957.3	881.5
MANGANESE	241.7	206.1	182.2	242.8	172.2	96.7
ZINC	18.03	16.51	19.92	23.47	17.54	19.69
IRON	149.4	115.9	104.2	108.7	103.9	143.9
BORON	22.36	38.55	23.47	30.08	23.73	20.99
COPPER	3.80	3.05	3.38	3.30	3.63	2.38

**NEEDLE WEIGHT (G/100 NEEDLES)**

**BY NEW TREATMENT:**

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	NCNE	200 # N	N + K	OVERALL
NITROGEN	8967	.	10856	9911
PHOSPHORUS	1767	.	1333	1550
POTASSIUM	7793	.	6968	7380
CALCIUM	2083	.	3400	2741
MAGNESIUM	896.7	.	1030	963.1
MANGANESE	170.2	.	210.4	190.3
ZINC	18.42	.	19.97	19.19
IRON	132.4	.	109.6	121
BORON	22.36	.	30.70	26.53
COPPER	3.27	.	3.24	3.26

**NEEDLE WEIGHT (G/100 NEEDLES)**

0.408 . 0.471 0.439

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 214 FIFTEENMILE CREEK #1  
 REGION: NORTHEAST WASHINGTON COUNTEYSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T39N R37E SECTION 25 MERIDIAN: WILLAMETTE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

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NEEDLE WEIGHT (G/100 NEEDLES)

BY ORIGINAL TREATMENT:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	NCNE	200 # N	400 # N	OVERALL
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NEEDLE WEIGHT (G/100 NEEDLES)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	1 200 #	2 NOBE	3 NCNE	4 N + K	5 NOBE	6 200 N
	11850	10800	11650	12350	10250	13350
	1800	1800	2100	1700	1900	2300
	7271	8090	9952	6848	7322	7493
	2817	4568	6183	2655	3611	4874
	1161	1486	1789	1126	1396	1464
	221.9	358.6	340.5	321.9	215.1	256.4
	25.52	42.43	47.91	27.09	26.70	29.54
	55.35	71.40	61.60	61.95	53.90	58.00
	24.14	23.48	34.19	28.30	23.38	30.23
	3.80	3.20	3.95	2.83	2.52	3.33

NEEDLE WEIGHT (G/100 NEEDLES)

BY NEW TREATMENT:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	NCNE	200 # N	N + K	OVERALL
	10500	12600	12350	11708
	1933	2050	1700	1933
	8454	7382	6848	7829
	4787	3845	2655	4118
	1557	1313	1126	1404
	304.8	239.2	321.9	285.8
	39.02	27.53	27.09	33.20
	62.30	56.67	61.95	60.37
	27.02	27.18	28.30	27.29
	3.22	3.56	2.83	3.27

NEEDLE WEIGHT (G/100 NEEDLES)

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 215 FIFTEENMILE CREEK #2  
 REGION: NORTHEAST WASHINGTON OWNERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T39N R37E SECTION 25 MERIDIAN: WILLAMETTE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

## ORIGINAL TREATMENT

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	1	2	3	4	5	6
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## NEEDLE WEIGHT (G/100 NEEDLES)

## BY ORIGINAL TREATMENT:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	NCNE	200 # N	400 # N	OVERALL
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## NEEDLE WEIGHT (G/100 NEEDLES)

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	1	2	3	4	5	6
	N + K	200 N	N + K	NONE	200 N	NONE
	12500	14100	11850	11550	12650	11100
	2050	2050	1650	1850	2150	2000
	6777	12048	5408	8498	7331	7070
	3404	4988	3395	4323	4577	3554
	1187	1267	1022	1264	13E3	1202
	341.7	346.2	300.4	284.1	250.2	304.4
	28.12	46.05	28.86	36.50	47.67	27.92
	47.25	51.85	67.45	57.90	49.05	54.20
	23.1E	18.66	32.76	25.86	18.96	22.36
	2.99	3.42	3.04	2.88	2.95	3.06

## NEEDLE WEIGHT (G/100 NEEDLES)

## BY NEW TREATMENT:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	NCNE	200 # N	N + K	OVERALL
	11325	13375	12175	12292
	1925	2100	1850	1958
	7784	9687	6090	7854
	3938	4747	3400	4028
	1233	1325	1104	1221
	294.2	298.2	321.1	304.5
	32.21	46.86	28.49	33.86
	56.05	50.45	57.35	54.62
	24.11	18.81	27.97	23.63
	2.97	3.18	3.01	3.06

## NEEDLE WEIGHT (G/100 NEEDLES)

0.815 0.834 0.782 0.810



**FCLIAH NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 216 SCHMIDT MEADOWS  
 REGION: NORTHEAST WASHINGTON OWNERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T32N R38E SECTION 28 MERIDIAN: WILLAMETTE

**FCLIAH NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

**BY PLOT:**

ORIGINAL TREATMENT	1	2	3	4	5	6
	NCNE	200 #	400 #	400 #	200 #	NCNE
NITROGEN	13050	12000	13450	14350	12800	9350
PHOSPHORUS	1850	1550	1850	1600	2050	1800
POTASSIUM	6760	5850	5820	5755	6775	7345
CALCIUM	4327	3981	5867	3722	3922	3747
MAGNESIUM	1713	1533	1683	1488	2008	1698
MANGANESE	197.0	186.0	336.0	278.0	216.0	215.0
ZINC	37.05	27.40	39.10	32.95	33.20	30.05
IRON	43.40	44.75	44.75	55.85	67.10	56.15
BORON	25.70	16.70	20.20	26.05	32.80	27.60
COPPER	4.75	4.22	3.53	5.11	5.29	4.24

NEEDLE WEIGHT (G/100 NEEDLES) 0.815 0.896 0.768 0.785 0.721 0.731

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11200	12400	13900	12500
PHOSPHORUS	1825	1800	1725	1783
POTASSIUM	7053	6313	5788	6384
CALCIUM	4037	3952	4795	4261
MAGNESIUM	1706	1771	1586	1687
MANGANESE	206.0	201.0	307.0	238.0
ZINC	33.55	30.30	36.02	33.29
IRON	49.77	55.92	50.30	52.00
BORON	26.65	24.75	23.12	24.84
COPPER	4.50	4.76	4.32	4.52

NEEDLE WEIGHT (G/100 NEEDLES) 0.773 0.808 0.777 0.786

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

**BY PLOT:**

NEW TREATMENT	1	2	3	4	5	6
	N + K	NONE	N + K	NONE	N + K	NONE
NITROGEN	14867	9200	10550	9900	12900	9967
PHOSPHORUS	1700	1850	2100	1550	1950	1667
POTASSIUM	6818	6888	6682	5966	7066	7937
CALCIUM	4348	5547	6507	3188	3520	4717
MAGNESIUM	1201	1276	1707	1054	1356	1406
MANGANESE	197.3	219.7	301.0	169.4	167.7	254.9
ZINC	42.56	34.68	35.76	31.74	32.48	34.26
IRON	92.63	79.45	57.15	104.4	76.80	73.07
BORON	27.35	20.54	21.30	25.56	32.11	33.58
COPPER	2.91	6.45	2.89	2.16	3.03	2.73

NEEDLE WEIGHT (G/100 NEEDLES) 0.766 0.678 0.757 0.626 0.673 0.652

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	9689	.	12772	11231
PHOSPHORUS	1689	.	1917	1803
POTASSIUM	6930	.	6855	6893
CALCIUM	4484	.	4792	4638
MAGNESIUM	1246	.	1421	1333
MANGANESE	214.7	.	222.0	218.4
ZINC	33.56	.	36.93	35.25
IRON	85.64	.	75.53	80.58
BORON	26.56	.	26.92	26.74
COPPER	3.78	.	2.95	3.36

NEEDLE WEIGHT (G/100 NEEDLES) 0.652 . 0.732 0.692

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 217 EMANUEL CREEK  
 REGION: NORTHEAST WASHINGTON OWNERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T39N R33E SECTION 29 MERIDIAN: WILLAMETTE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	200 #	NONE	400 #	400 #	NONE	200 #
NITROGEN	14000	10850	17050	14800	10650	18400
PHOSPHORUS	1700	1750	1400	2300	1750	2000
POTASSIUM	6217	5982	6237	5922	6067	5042
CALCIUM	4460	4005	3670	4075	3940	3620
MAGNESIUM	2050	2050	2010	2075	1960	2095
MANGANESE	295.0	204.0	327.0	354.5	270.0	267.0
ZINC	29.95	21.55	14.65	33.50	21.10	25.20
IRON	41.40	33.85	29.80	41.55	34.55	32.35
BORON	25.10	19.95	29.55	26.90	23.55	32.45
COPPER	3.42	2.65	3.67	4.18	4.93	4.29
NEEDLE WEIGHT (G/100 NEEDLES)	0.697	0.573	0.701	0.636	0.738	0.695

## BY ORIGINAL TREATMENT:

	NONE	200 # N	400 # N	OVERALL
NITROGEN	10750	16200	15925	14292
PHOSPHORUS	1750	1850	1850	1817
POTASSIUM	6035	5630	6080	5915
CALCIUM	3973	4040	3873	3962
MAGNESIUM	1975	2073	2043	2030
MANGANESE	237.0	281.0	340.8	286.3
ZINC	21.32	27.57	24.07	24.32
IRON	34.20	36.87	35.67	35.58
BORON	21.75	28.77	28.22	26.25
COPPER	3.79	3.86	3.93	3.86
NEEDLE WEIGHT (G/100 NEEDLES)	0.656	0.696	0.669	0.673

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NONE	NONE	N + R	NONE	N + R	N + R
NITROGEN	10233	8567	12650	11700	12600	13400
PHOSPHORUS	1700	1933	1600	2400	1767	1800
POTASSIUM	6607	8090	8418	7316	6861	7337
CALCIUM	4407	4292	5712	4713	5020	4337
MAGNESIUM	1272	1231	1902	1725	1410	1460
MANGANESE	244.4	205.2	373.8	229.8	271.5	265.4
ZINC	24.86	33.35	35.52	27.68	32.64	42.52
IRON	45.23	38.77	49.90	48.35	51.17	60.70
BORON	25.23	19.84	20.79	17.70	19.98	45.96
COPPER	2.28	2.07	2.72	2.39	2.92	2.69
NEEDLE WEIGHT (G/100 NEEDLES)	0.505	0.498	0.492	0.512	0.620	0.577

## BY NEW TREATMENT:

	NONE	200 # N	N + R	OVERALL
NITROGEN	10167	.	12883	11525
PHOSPHORUS	2011	.	1722	1867
POTASSIUM	7405	.	7538	7471
CALCIUM	4470	.	5023	4747
MAGNESIUM	1409	.	1591	1500
MANGANESE	226.5	.	303.6	265.0
ZINC	28.63	.	36.70	32.66
IRON	44.12	.	53.92	49.02
BORON	20.92	.	28.91	24.92
COPPER	2.25	.	2.78	2.51
NEEDLE WEIGHT (G/100 NEEDLES)	0.505	.	0.563	0.534

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 218 SECOND CREEK  
 REGION: NORTHEAST WASHINGTON OWNERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T39N R34E SECTION 13 MERIDIAN: WILLAMETTE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	200 #	NONE	200 #	400 #	NONE
NITROGEN	12400	11550	9100	11350	15100	9750
PHOSPHORUS	16000	22500	24000	17000	16500	22500
POTASSIUM	6145	5505	6895	5940	5840	6395
CALCIUM	3704	4404	3814	3234	3849	3664
MAGNESIUM	1630	1990	2010	1920	1635	1870
MANGANESE	293.5	281.0	285.0	262.5	312.0	382.5
ZINC	22.80	24.30	27.60	18.20	26.40	26.35
IRON	24.60	31.00	46.90	33.95	29.15	39.15
BORON	24.75	32.80	24.20	25.60	28.60	32.25
COPPER	4.12	4.20	3.61	2.94	3.67	3.53

NEEDLE WEIGHT (G/100 NEEDLES) 0.592 0.567 0.597 0.698 0.742 0.559

## BY ORIGINAL TREATMENT:

	NONE	200 # N	400 # N	OVERALL
NITROGEN	9425	11450	13750	11542
PHOSPHORUS	2325	1975	1625	1975
POTASSIUM	6645	5723	5993	6120
CALCIUM	3739	3819	3777	3778
MAGNESIUM	1940	1955	1633	1843
MANGANESE	333.8	271.8	302.8	302.8
ZINC	26.97	21.25	24.60	24.27
IRON	43.02	32.47	26.87	34.12
BORON	28.22	29.20	26.77	28.07
COPPER	3.57	3.57	3.89	3.68

NEEDLE WEIGHT (G/100 NEEDLES) 0.578 0.632 0.667 0.626

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NONE	200 N	NONE	NONE	200 N	N + K
NITROGEN	18550	11000	9167	9300	10500	10400
PHOSPHORUS	2750	2250	2300	2300	1700	1900
POTASSIUM	7321	5809	7479	9603	6953	8164
CALCIUM	6268	5175	4562	4723	4956	5180
MAGNESIUM	2008	1951	1691	2244	1740	1620
MANGANESE	393.1	380.6	415.3	349.6	337.8	624.0
ZINC	32.83	45.32	26.46	26.36	44.48	30.33
IRON	45.55	42.40	57.77	44.75	53.70	64.60
BORON	25.05	26.72	33.51	20.64	19.21	34.95
COPPER	2.26	2.71	1.85	2.22	2.85	2.37

NEEDLE WEIGHT (G/100 NEEDLES) 0.250 0.368 0.386 0.228 0.322 0.248

## BY NEW TREATMENT:

	NONE	200 # N	N + K	OVERALL
NITROGEN	12339	10750	10400	11486
PHOSPHORUS	2450	1975	1900	2200
POTASSIUM	8134	6401	8164	7561
CALCIUM	5184	5085	5180	5150
MAGNESIUM	1981	1845	1620	1875
MANGANESE	386.0	359.2	624.0	416.7
ZINC	28.55	44.90	30.33	34.30
IRON	49.36	48.05	64.60	51.46
BORON	26.40	22.97	34.95	26.68
COPPER	2.11	2.78	2.37	2.38

NEEDLE WEIGHT (G/100 NEEDLES) 0.288 0.345 0.248 0.300

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 219    LITTLE SALMON  
 REGION: CENTRAL IDAHO    OWNERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T18N R1E SECTION 13    MERIDIAN: BOISE

**FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
<b>ORIGINAL TREATMENT</b>	400 #	200 #	NONE	400 #	NONE	200 #
NITROGEN	15100	11700	11000	14550	9850	14200
PHOSPHORUS	1950	1550	2150	1700	1700	1400
POTASSIUM	7281	5286	8891	6241	6391	6006
CALCIUM	5920	4480	6225	4965	4700	3920
MAGNESIUM	1844	1479	1694	1724	1494	1619
MANGANESE	384.0	335.0	335.5	360.5	355.5	210.5
ZINC	40.10	34.90	34.30	39.60	28.55	30.45
IRON	111.2	97.80	118.7	105.7	94.55	95.80
BORON	26.35	26.05	27.95	26.95	22.20	29.50
COPPER	6.79	5.14	7.39	7.42	5.43	6.50

**NEEDLE WEIGHT (G/100 NEEDLES)**    0.898    0.604    0.535    0.562    0.513    0.616

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10425	12950	14825	12733
PHOSPHORUS	1925	1475	1825	1742
POTASSIUM	7641	5646	6761	6683
CALCIUM	5463	4200	5443	5035
MAGNESIUM	1594	1549	1784	1642
MANGANESE	345.5	272.8	372.3	330.2
ZINC	31.62	32.67	39.85	34.72
IRON	106.8	96.80	108.4	104
BORON	25.07	27.77	26.65	26.50
COPPER	6.41	5.82	7.11	6.45

**NEEDLE WEIGHT (G/100 NEEDLES)**    0.524    0.610    0.730    0.621

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
<b>NEW TREATMENT</b>	NONE	200 N	N + K	200 N	NONE	N + K
NITROGEN	10450	12800	12700	12900	9500	12150
PHOSPHORUS	2050	1967	1800	1700	1500	2050
POTASSIUM	7587	8743	7382	7491	6136	7095
CALCIUM	5002	3201	4481	5119	2826	3112
MAGNESIUM	1645	1491	1210	1794	1041	1309
MANGANESE	225.9	231.5	289.7	305.5	247.4	176.2
ZINC	30.08	28.51	39.15	36.35	19.94	34.00
IRON	100	84.63	70.40	89.80	59.05	75.90
BORON	24.49	19.47	21.45	20.33	24.49	28.40
COPPER	3.29	3.84	3.78	4.27	2.57	3.57

**NEEDLE WEIGHT (G/100 NEEDLES)**    0.573    0.516    0.554    0.457    0.494    0.443

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	9975	12850	12425	11750
PHOSPHORUS	1775	1833	1925	1844
POTASSIUM	6862	8117	7238	7406
CALCIUM	3914	4160	3796	3957
MAGNESIUM	1343	1642	1259	1415
MANGANESE	236.6	268.5	233.0	246.1
ZINC	25.01	32.43	36.57	31.34
IRON	79.55	87.22	73.15	79.97
BORON	24.49	19.90	24.93	23.11
COPPER	2.93	4.05	3.67	3.55

**NEEDLE WEIGHT (G/100 NEEDLES)**    0.534    0.486    0.498    0.506

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 220 GHOUSE CREEK  
 REGION: CENTRAL IDAHO OWNERSHIP: IDL  
 LEGAL DESCRIPTION: T16N R4E SECTION 36 MERIDIAN: BOISE

**FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
<b>ORIGINAL TREATMENT</b>	400 #	NCNE	400 #	200 #	NONE	200 #
NITROGEN	15400	9150	13850	12550	8860	11650
PHOSPHORUS	1550	1900	1450	1650	1850	1450
POTASSIUM	6164	4804	6059	4454	4469	5189
CALCIUM	4510	3760	2905	3195	4560	4025
MAGNESIUM	1314	1149	1147	890.5	1074	1329
MANGANESE	543.0	278.5	236.0	201.5	385.5	256.0
ZINC	27.25	19.90	28.90	17.95	24.05	15.30
IRON	69.65	78.70	67.10	51.85	65.60	57.75
BORON	26.60	25.05	17.75	20.80	22.45	22.00
COPPER	4.96	6.48	5.63	5.18	4.47	4.69

NEEDLE WEIGHT (G/100 NEEDLES) 0.703 0.626 0.981 0.651 0.658 0.563

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	8975	12100	14625	11900
PHOSPHORUS	1675	1550	1500	1642
POTASSIUM	4637	4822	6112	5190
CALCIUM	4160	3610	3708	3826
MAGNESIUM	1112	1110	1231	1151
MANGANESE	332.0	228.8	389.5	316.8
ZINC	21.97	16.62	28.07	22.22
IRON	72.15	54.80	68.37	65.11
BORON	23.75	21.40	22.17	22.44
COPPER	5.48	4.93	5.29	5.24

NEEDLE WEIGHT (G/100 NEEDLES) 0.642 0.607 0.842 0.697

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
<b>NEW TREATMENT</b>	NCNE	NONE	200 N	200 N	N + K	NONE
NITROGEN	11400	10225	12100	11450	10700	9450
PHOSPHORUS	2150	2200	1650	1750	1800	1700
POTASSIUM	10192	7210	8705	10123	8165	8427
CALCIUM	3332	3120	3792	3771	4864	4498
MAGNESIUM	1592	1287	1069	1205	1305	1917
MANGANESE	251.2	233.7	231.5	262.9	414.8	269.0
ZINC	20.88	30.58	43.80	17.15	45.82	18.88
IRON	60.60	60.57	54.85	46.65	62.80	49.75
BORON	23.69	29.91	20.84	19.50	22.22	20.91
COPPER	2.59	6.51	3.17	4.34	3.42	3.11

NEEDLE WEIGHT (G/100 NEEDLES) 0.334 0.376 0.574 0.439 0.418 0.316

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10358	11775	10700	10887
PHOSPHORUS	2017	1700	1800	1875
POTASSIUM	8609	9414	8105	8794
CALCIUM	3650	3781	4804	3886
MAGNESIUM	1599	1137	1305	1396
MANGANESE	251.3	247.2	414.8	277.2
ZINC	23.45	30.48	45.82	29.52
IRON	56.97	50.75	62.80	55.87
BORON	24.84	20.17	22.22	22.85
COPPER	4.07	3.76	3.42	3.86

NEEDLE WEIGHT (G/100 NEEDLES) 0.342 0.507 0.418 0.410

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 221 LITTLE HUD CREEK #1  
 REGION: CENTRAL IDAHO COWLESHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T20N R1E SECTION 33 MERIDIAN: BOISE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	NCNE	200 #	400 #	200 #	NONE	400 #
NITROGEN	9900	13400	17600	16950	9550	20650
PHOSPHORUS	1700	1700	1750	1800	1800	2500
POTASSIUM	5820	6105	8990	5535	6990	5805
CALCIUM	4187	3337	3442	4797	4442	4477
MAGNESIUM	2158	2113	2248	1833	2063	1923
MANGANESE	197.5	262.0	277.5	341.0	237.0	314.5
ZINC	23.65	21.30	27.25	36.70	23.60	31.85
IRON	109.7	63.90	63.80	61.55	48.10	60.30
BORON	21.10	18.45	22.80	29.30	22.25	24.70
COPPER	6.55	6.10	5.61	7.93	5.39	8.07
NEEDLE WEIGHT (G/100 NEEDLES)	0.410	0.665	0.670	0.579	0.358	0.507

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	9725	15175	19125	14675
PHOSPHORUS	1750	1750	2125	1875
POTASSIUM	6405	5820	7398	6541
CALCIUM	4315	4067	3960	4114
MAGNESIUM	2111	1973	2086	2056
MANGANESE	217.3	301.5	296.0	271.6
ZINC	23.62	29.00	29.55	27.39
IRON	78.90	62.72	71.85	71.16
BORON	21.67	23.87	23.75	23.10
COPPER	5.97	7.01	6.84	6.61
NEEDLE WEIGHT (G/100 NEEDLES)	0.384	0.622	0.589	0.532

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	NCNE	NONE	200 N	N + K	200 N
NITROGEN	8550	10150	12533	17100	10450	14150
PHOSPHORUS	1550	1700	1833	1800	1650	2500
POTASSIUM	5888	7789	8639	6917	7796	5241
CALCIUM	3642	3701	2854	5098	3869	3938
MAGNESIUM	1571	1602	1326	1715	1308	1434
MANGANESE	187.4	271.5	208.4	304.1	267.3	242.2
ZINC	30.11	20.89	18.57	36.59	27.60	23.64
IRON	115.8	68.05	93.10	69.90	60.30	92.20
BORON	26.48	24.95	25.67	29.90	32.48	25.94
COPPER	3.19	3.02	2.39	4.53	3.91	3.63
NEEDLE WEIGHT (G/100 NEEDLES)	0.392	0.408	0.650	0.474	0.385	0.476

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10411	15625	10450	12156
PHOSPHORUS	1694	2150	1650	1839
POTASSIUM	7439	6079	7796	7045
CALCIUM	3399	4518	3869	3850
MAGNESIUM	1499	1574	1308	1492
MANGANESE	222.4	273.1	267.3	246.8
ZINC	23.19	30.11	27.80	26.27
IRON	92.33	81.05	60.30	83.23
BORON	25.70	27.92	32.48	27.57
COPPER	2.86	4.08	3.91	3.44
NEEDLE WEIGHT (G/100 NEEDLES)	0.484	0.475	0.385	0.464

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 222 WEST HILL CREEK #1  
 REGION: CENTRAL IDAHO OWNERSHIP: ICL  
 LEGAL DESCRIPTION: T18N R3W SECTION 36 MERIDIAN: BOISE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

## ORIGINAL TREATMENT

	1	2	3	4	5	6
	400 #	NCNE	200 #	400 #	NONE	200 #
NITROGEN	13550	10950	12300	13600	9950	12050
PHOSPHORUS	1900	2200	2100	2500	2000	1950
POTASSIUM	6055	6745	6445	6510	6845	6815
CALCIUM	5019	4404	5057	4504	5459	7474
MAGNESIUM	1950	1960	1430	1990	1860	1620
MANGANESE	292.85	307.00	261.00	278.00	327.00	390.55
ZINC	35.85	33.75	30.20	37.05	34.50	33.55
IRON	60.30	53.95	69.05	67.15	76.55	111.55
BORON	29.85	26.55	24.20	28.40	22.20	29.05
COPPER	4.60	4.55	4.72	4.82	4.92	6.16
NEEDLE WEIGHT (G/100 NEEDLES)	0.756	0.852	0.665	0.741	0.444	0.448

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10450	12175	13575	12067
PHOSPHORUS	2100	2025	2200	2108
POTASSIUM	6795	6630	6283	6569
CALCIUM	4932	6266	4762	5320
MAGNESIUM	1920	1525	1970	1805
MANGANESE	317.00	325.88	285.33	309.33
ZINC	34.12	31.87	36.45	34.15
IRON	65.25	90.27	63.72	73.08
BORON	24.37	26.62	29.12	26.71
COPPER	4.74	5.44	4.71	4.97
NEEDLE WEIGHT (G/100 NEEDLES)	0.648	0.556	0.748	0.651

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	200 N	NONE	N + K	N + K	N + K	NONE
NITROGEN	12450	10700	14650	12650	10000	10167
PHOSPHORUS	1575	2050	2150	2150	1850	1800
POTASSIUM	7255	7379	8567	6081	7753	8832
CALCIUM	4251	3307	4593	3629	3190	4157
MAGNESIUM	1831	1349	1664	1862	1619	1626
MANGANESE	196.1	217.4	179.0	193.3	245.0	265.5
ZINC	32.80	26.83	26.73	37.44	33.21	35.87
IRON	116.7	96.30	128.1	113	112.3	143.9
BORON	27.47	25.10	17.57	21.17	17.66	22.03
COPPER	3.86	3.44	4.19	4.32	3.90	3.23
NEEDLE WEIGHT (G/100 NEEDLES)	0.541	0.594	0.465	0.598	0.358	0.458

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10433	12450	12433	11769
PHOSPHORUS	1925	1575	2050	1929
POTASSIUM	8105	7255	7467	7644
CALCIUM	3732	4251	3804	3854
MAGNESIUM	1487	1831	1715	1658
MANGANESE	241.5	196.1	205.8	216.1
ZINC	31.35	32.80	32.46	32.15
IRON	120.1	116.7	117.8	118.4
BORON	23.56	27.47	18.80	21.83
COPPER	3.34	3.86	4.13	3.82
NEEDLE WEIGHT (G/100 NEEDLES)	0.526	0.541	0.473	0.502

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 223 WEST HILL CREEK #2  
 REGION: CENTRAL IDAHO COUNTRYSHIP: ICL  
 LEGAL DESCRIPTION: T18N R3W SECTION 36 MERIDIAN: BOISE

**FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
ORIGINAL TREATMENT	NONE	200 #	400 #	200 #	NONE	400 #
NITROGEN	11000	14500	15550	13900	9100	17200
PHOSPHORUS	2150	2250	2550	2600	1900	2150
POTASSIUM	8808	6213	9113	8313	5123	8293
CALCIUM	4115	5525	4950	4000	4865	5310
MAGNESIUM	2044	1754	1709	1574	1569	2029
MANGANESE	192.0	285.0	157.5	233.0	236.0	275.5
ZINC	21.05	32.90	28.75	24.10	23.40	34.10
IRON	88.45	66.85	91.35	87.95	69.85	60.30
BORON	18.55	23.95	30.00	26.40	21.10	27.45
COPPER	5.66	3.91	6.91	6.52	4.28	7.17

NEEDLE WEIGHT (G/100 NEEDLES) 0.826 0.820 0.786 0.694 0.533 0.949

**BY ORIGINAL TREATMENT:**

	NONE	200 # N	400 # N	OVERALL
NITROGEN	10050	14200	16375	13542
PHOSPHORUS	2025	2425	2350	2267
POTASSIUM	6966	7263	8703	7644
CALCIUM	4460	4763	5130	4784
MAGNESIUM	1807	1664	1869	1780
MANGANESE	214.0	259.0	216.5	229.8
ZINC	22.22	28.50	31.42	27.38
IRON	79.15	77.40	75.82	77.46
BORON	19.82	25.17	28.72	24.57
COPPER	4.97	5.22	7.04	5.74

NEEDLE WEIGHT (G/100 NEEDLES) 0.680 0.757 0.868 0.768

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
NEW TREATMENT	NONE	NONE	NONE	N + K	N + K	N + K
NITROGEN	13250	12400	9400	11800	8850	13733
PHOSPHORUS	2550	2150	2100	3100	1800	2167
POTASSIUM	10102	9903	10474	11050	7124	8364
CALCIUM	3578	4867	4204	4260	3458	5405
MAGNESIUM	1564	1731	1438	1311	1471	1595
MANGANESE	203.9	220.3	116.0	192.0	253.8	234.7
ZINC	19.34	36.83	20.79	30.50	23.40	43.31
IRON	178.3	168	166.5	162.8	115.6	121.5
BORON	15.73	27.48	18.75	21.38	14.24	32.09
COPPER	4.34	5.90	2.99	4.78	3.45	4.28

NEEDLE WEIGHT (G/100 NEEDLES) 0.632 0.517 0.498 0.475 0.508 0.602

**BY NEW TREATMENT:**

	NONE	200 # N	N + K	OVERALL
NITROGEN	11683	.	11461	11572
PHOSPHORUS	2267	.	2356	2311
POTASSIUM	10160	.	8846	9503
CALCIUM	4216	.	4374	4295
MAGNESIUM	1577	.	1459	1518
MANGANESE	180.1	.	226.8	203.4
ZINC	25.65	.	32.40	29.03
IRON	170.9	.	133.3	152.1
BORON	20.65	.	22.57	21.61
COPPER	4.41	.	4.17	4.29

NEEDLE WEIGHT (G/100 NEEDLES) 0.549 . 0.528 0.539



## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 224 KAISER BUTTE #1  
 REGION: CENTRAL WASHINGTON OWNERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T6N R15E SECTION 20 MERIDIAN: WILLAMETTE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

## ORIGINAL TREATMENT

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	1	2	3	4	5	6
NITROGEN	.	.	.	.	.	.
PHOSPHORUS	.	.	.	.	.	.
POTASSIUM	.	.	.	.	.	.
CALCIUM	.	.	.	.	.	.
MAGNESIUM	.	.	.	.	.	.
MANGANESE	.	.	.	.	.	.
ZINC	.	.	.	.	.	.
IRON	.	.	.	.	.	.
BORON	.	.	.	.	.	.
COPPER	.	.	.	.	.	.

## NEEDLE WEIGHT (G/100 NEEDLES)

## BY ORIGINAL TREATMENT:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	.	.	.	.
PHOSPHORUS	.	.	.	.
POTASSIUM	.	.	.	.
CALCIUM	.	.	.	.
MAGNESIUM	.	.	.	.
MANGANESE	.	.	.	.
ZINC	.	.	.	.
IRON	.	.	.	.
BORON	.	.	.	.
COPPER	.	.	.	.

## NEEDLE WEIGHT (G/100 NEEDLES)

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	1	2	3	4	5	6
	NCNE	200 N	200 N	N + K	NOBE	NONE
NITROGEN	11750	12900	13100	12333	10033	10967
PHOSPHORUS	3200	2600	3033	2400	3133	2567
POTASSIUM	11692	9691	10238	11492	9472	11150
CALCIUM	2539	2428	2623	2094	2460	1519
MAGNESIUM	168.5	1715	1533	1530	1623	1234
MANGANESE	166.7	281.4	178.8	263.0	222.8	155.9
ZINC	17.65	29.77	35.00	32.78	29.52	20.60
IRON	74.55	82.45	99.80	90.37	87.67	92.00
BORON	22.52	19.97	15.04	35.39	26.00	10.37
COPPER	3.28	3.81	3.18	3.47	2.81	2.84

## NEEDLE WEIGHT (G/100 NEEDLES)

## BY NEW TREATMENT:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10917	13000	12333	11847
PHOSPHORUS	2567	2817	2400	2822
POTASSIUM	10771	9965	11492	10622
CALCIUM	2179	2525	2094	2280
MAGNESIUM	1514	1624	1530	1553
MANGANESE	181.8	230.1	263.0	211.5
ZINC	22.59	32.39	32.78	27.55
IRON	84.74	91.12	90.37	87.81
BORON	19.63	17.51	35.39	21.55
COPPER	2.98	3.50	3.47	3.23

## NEEDLE WEIGHT (G/100 NEEDLES)

0.471 0.593 0.395 0.499

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 225 BOWMAN CREEK  
 REGION: CENTRAL WASHINGTON OWNERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T5N R15E SECTION 18 MERIDIAN: WILLABETTE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

## ORIGINAL TREATMENT

	1	2	3	4	5	6
	400 #	NCNE	200 #	400 #	200 #	NONE
NITROGEN	19100	11600	11800	17750	12650	11250
PHOSPHORUS	1900	2500	1550	1900	1750	2300
POTASSIUM	7611	6721	5851	5831	5861	8316
CALCIUM	3390	4990	2875	3270	4235	3290
MAGNESIUM	2264	2269	2274	2299	2199	2379
MANGANESE	424.0	374.0	426.0	526.5	633.5	475.0
ZINC	31.50	34.25	22.10	33.15	24.30	26.60
IRON	90.70	100.2	66.00	81.45	94.65	80.80
BORON	28.90	30.25	23.40	29.10	31.00	24.20
COPPER	5.68	6.92	4.62	5.43	5.16	5.63

NEEDLE WEIGHT (G/100 NEEDLES) 0.757 0.547 0.617 0.559 0.456 0.581

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11425	12225	18425	14025
PHOSPHORUS	2400	1650	1900	1983
POTASSIUM	7519	5866	6721	6702
CALCIUM	4140	3555	3330	3675
MAGNESIUM	2324	2237	2282	2281
MANGANESE	424.5	529.8	475.3	476.5
ZINC	30.42	23.20	32.32	28.65
IRON	90.50	80.32	86.07	85.63
BORON	27.22	27.20	29.00	27.81
COPPER	6.28	4.89	5.56	5.58

NEEDLE WEIGHT (G/100 NEEDLES) 0.564 0.537 0.658 0.586

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	N + K	NCNE	N + K	NONE	200 N	N + K
NITROGEN	16650	8700	12300	12600	12267	11900
PHOSPHORUS	2800	2250	2300	2250	1967	2050
POTASSIUM	10146	9168	9683	7325	8066	11190
CALCIUM	1664	2308	1474	1700	2234	1789
MAGNESIUM	1683	1836	1777	1859	1898	1709
MANGANESE	166.1	244.4	200.5	196.4	302.9	238.3
ZINC	34.17	32.82	17.36	27.12	35.26	30.50
IRON	145.3	145.3	94.70	153.5	102	130.2
BORON	27.72	37.38	23.61	37.19	41.44	27.92
COPPER	2.83	3.70	2.91	3.06	3.14	4.34

NEEDLE WEIGHT (G/100 NEEDLES) 0.480 0.502 0.510 0.468 0.526 0.620

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10650	12267	13617	12403
PHOSPHORUS	2250	1967	2383	2269
POTASSIUM	8247	8066	10340	9263
CALCIUM	2004	2234	1642	1861
MAGNESIUM	1848	1898	1723	1794
MANGANESE	220.4	302.9	201.6	224.8
ZINC	29.97	35.26	27.38	29.54
IRON	149.4	102	123.4	128.5
BORON	37.29	41.44	26.42	32.55
COPPER	3.38	3.14	3.36	3.33

NEEDLE WEIGHT (G/100 NEEDLES) 0.485 0.526 0.536 0.518

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 226 CLEMAN MTN  
 REGION: CENTRAL WASHINGTON OWNERSHIP: BCISE CASCADE  
 LEGAL DESCRIPTION: T16N R15E SECTION 16 MERIDIAN: WILLAMETTE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	NCNE	200 #	400 #	400 #	200 #	NONE
NITROGEN	9750	12450	12900	14250	13200	12250
PHOSPHORUS	3200	1900	2550	2050	2850	3150
POTASSIUM	7601	7196	7616	7701	10531	8336
CALCIUM	3530	4060	3340	3490	3455	4765
MAGNESIUM	1679	1379	2014	1789	1644	1744
MANGANESE	449.0	355.5	493.0	355.5	362.5	471.0
ZINC	27.55	20.05	29.55	39.25	26.25	29.90
IRON	100.2	112.7	135.2	141.7	97.60	104.2
BORON	27.50	27.40	30.10	25.20	23.60	30.30
COPPER	4.40	4.05	4.15	4.04	4.03	5.98
NEEDLE WEIGHT (G/100 NEEDLES)	0.553	0.591	0.757	0.832	0.660	0.490

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11000	12825	13575	12467
PHOSPHORUS	3175	2375	2300	2617
POTASSIUM	7969	8864	7659	8164
CALCIUM	4148	3758	3415	3773
MAGNESIUM	1712	1512	1902	1708
MANGANESE	460.0	359.0	424.3	414.4
ZINC	28.72	23.15	34.40	28.76
IRON	102.2	105.2	138.4	115.3
BORON	28.90	25.60	27.65	27.38
COPPER	5.19	4.04	4.10	4.44
NEEDLE WEIGHT (G/100 NEEDLES)	0.522	0.635	0.794	0.651

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	N + K	NONE	N + K	NONE	N + K
NITROGEN	9000	12150	10850	13400	11650	14100
PHOSPHORUS	3867	1900	2800	2150	2450	3350
POTASSIUM	12082	10527	9941	9591	12153	11913
CALCIUM	3826	3379	2977	3455	2377	3112
MAGNESIUM	1841	1232	1510	1937	1462	1287
MANGANESE	424.7	230.3	207.9	276.6	232.1	336.2
ZINC	33.58	26.88	28.09	39.01	28.18	30.79
IRON	171.4	160.7	168	175.2	144.1	130.2
BORON	26.27	21.13	23.46	12.95	36.64	23.01
COPPER	2.62	3.11	3.23	4.53	4.16	4.56
NEEDLE WEIGHT (G/100 NEEDLES)	0.534	0.723	0.564	0.848	0.665	0.829

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10500	.	13217	11858
PHOSPHORUS	3039	.	2467	2753
POTASSIUM	11405	.	10677	11041
CALCIUM	3060	.	3315	3187
MAGNESIUM	1611	.	1485	1548
MANGANESE	288.2	.	281.0	284.6
ZINC	29.95	.	32.23	31.09
IRON	161.2	.	155.4	158.3
BORON	28.79	.	19.03	23.91
COPPER	3.33	.	4.07	3.70
NEEDLE WEIGHT (G/100 NEEDLES)	0.595	.	0.800	0.697

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 227 JOHNSON CANYON  
 REGION: CENTRAL WASHINGTON OWNERSHIP: BCISE CASCADE  
 LEGAL DESCRIPTION: T16N R15E SECTION 20 MERIDIAN: WILLAMETTE

**FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
<b>ORIGINAL TREATMENT</b>	200 #	400 #	NONE	200 #	NONE	400 #
NITROGEN	13650	14400	13000	13500	11800	12950
PHOSPHORUS	3000	2350	1850	2600	2600	1800
POTASSIUM	7537	6697	7237	7602	6937	6217
CALCIUM	2930	3250	2900	3215	2275	2575
MAGNESIUM	1519	1734	1834	2099	1714	1264
MANGANESE	392.5	399.0	407.5	307.5	283.5	289.5
ZINC	27.60	37.10	31.80	34.30	31.80	16.95
IRON	89.25	88.10	94.55	121.3	90.75	107.7
BOBON	26.20	22.60	24.30	24.75	21.55	18.00
CCPPER	3.55	4.12	4.99	5.60	5.36	3.89
<b>NEEDLE WEIGHT (G/100 NEEDLES)</b>	0.765	0.829	0.712	0.628	0.760	0.706

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12400	13575	13675	13217
PHOSPHORUS	2225	2800	2075	2367
POTASSIUM	7087	7570	6457	7038
CALCIUM	2568	3073	2913	2858
MAGNESIUM	1774	1809	1499	1694
MANGANESE	345.5	350.0	344.3	346.6
ZINC	31.80	30.95	27.02	29.92
IRON	92.65	105.3	97.92	98.62
BOBON	23.12	25.47	20.30	22.97
CCPPER	5.18	4.58	4.01	4.59
<b>NEEDLE WEIGHT (G/100 NEEDLES)</b>	0.736	0.696	0.768	0.733

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
<b>NEW TREATMENT</b>	NONE	200 N	N + K	N + K	NONE	N + K
NITROGEN	11500	11600	13800	12250	14150	16100
PHOSPHORUS	2650	2100	2050	2150	2400	2600
POTASSIUM	10096	5266	9087	8102	11370	10933
CALCIUM	3884	3249	3311	2877	2440	3026
MAGNESIUM	1813	1814	1460	1569	1471	1711
MANGANESE	355.4	233.0	488.0	246.1	247.2	243.2
ZINC	30.74	36.73	36.35	58.73	20.50	35.00
IRON	126.5	103.8	164.9	186.1	109.1	160.1
BOBON	19.55	14.84	32.58	28.37	17.16	10.81
COPPER	3.14	3.33	4.20	3.55	3.04	3.73
<b>NEEDLE WEIGHT (G/100 NEEDLES)</b>	0.720	0.858	0.821	0.804	0.702	0.853

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	12825	11600	14050	13233
PHOSPHORUS	2525	2100	2267	2325
POTASSIUM	10733	5266	9374	9809
CALCIUM	3162	3249	3071	3131
MAGNESIUM	1642	1814	1580	1639
MANGANESE	301.3	233.0	325.8	302.2
ZINC	25.62	36.73	43.36	36.34
IRON	117.8	103.8	170.4	141.8
BOBON	18.36	14.84	23.92	20.55
CCPPER	3.09	3.33	3.83	3.50
<b>NEEDLE WEIGHT (G/100 NEEDLES)</b>	0.711	0.858	0.826	0.793

## FOLIAIR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 228 LCCKCUT Mtn WEST  
 REGION: CENTRAL WASHINGTON OWNERSHIP: WASHINGTON D&B  
 LEGAL DESCRIPTION: T20N R16E SECTION 36 MERIDIAN: WILLAPETTE

 FOLIAIR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAIR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	200 #	NONE	200 #	NONE	400 #
NITROGEN	16650	15750	12100	13050	12450	21450
PHOSPHORUS	2800	2400	2300	2400	2800	2350
POTASSIUM	7773	6948	7923	6098	6663	6983
CALCIUM	3720	3600	5470	3245	4135	3485
MAGNESIUM	2029	1824	2084	1804	2214	1954
MANGANESE	501.5	376.0	768.0	441.0	471.0	531.5
ZINC	35.40	28.40	38.70	29.30	23.65	29.20
IRON	73.05	93.35	79.45	67.00	67.05	81.60
BORON	18.95	23.05	19.10	20.65	22.25	21.10
COPPER	3.89	4.22	5.75	4.21	4.02	3.94
NEEDLE WEIGHT (G/100 NEEDLES)	0.886	0.685	0.536	0.810	0.594	0.750

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12275	14400	19050	15242
PHOSPHORUS	2550	2400	2575	2508
POTASSIUM	7293	6523	7378	7065
CALCIUM	4803	3423	3603	3943
MAGNESIUM	2149	1814	1992	1985
MANGANESE	619.5	408.5	516.5	514.8
ZINC	31.32	28.85	32.30	30.82
IRON	73.25	80.17	77.32	76.92
BORON	20.67	21.85	20.02	20.85
COPPER	4.89	4.22	3.91	4.34
NEEDLE WEIGHT (G/100 NEEDLES)	0.565	0.747	0.618	0.710

 FOLIAIR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:	1	2	3	4	5	6
NEW TREATMENT	NCNE	N + K	N + K	200 N	NONE	N + K
NITROGEN	11500	11900	12550	11333	10350	15600
PHOSPHORUS	2200	2250	2300	2400	2750	2167
POTASSIUM	9235	9902	9276	9476	8166	9156
CALCIUM	2826	3000	4178	4153	3776	4656
MAGNESIUM	1327	1247	1764	1729	1854	1685
MANGANESE	308.4	245.8	414.8	389.6	490.2	326.0
ZINC	24.22	32.72	34.99	33.13	42.05	27.23
IRON	156.6	177.8	119.3	86.03	95.25	106.8
BORON	25.19	14.25	21.93	22.40	31.58	18.60
COPPER	3.05	4.76	3.07	2.44	2.57	2.02
NEEDLE WEIGHT (G/100 NEEDLES)	0.567	0.563	0.681	0.565	0.540	0.588

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10925	11333	13350	12206
PHOSPHORUS	2475	2400	2239	2344
POTASSIUM	8710	9476	9445	9205
CALCIUM	3301	4153	3945	3765
MAGNESIUM	1591	1729	1565	1601
MANGANESE	399.3	389.6	328.9	362.5
ZINC	33.14	33.13	31.65	32.39
IRON	125.9	86.03	134.6	123.6
BORON	28.59	22.40	18.26	22.40
COPPER	2.81	2.44	3.28	2.99
NEEDLE WEIGHT (G/100 NEEDLES)	0.553	0.565	0.611	0.584

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 229 ICCKCUT MTN EAST  
 REGION: CENTRAL WASHINGTON OWNERSHIP: RCISE CASCADE  
 LEGAL DESCRIPTION: T20N R17E SECTION 31 MERIDIAN: WILLAMETTE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

## ORIGINAL TREATMENT

	1	2	3	4	5	6
	400 #	NCNE	200 #	NONE	400 #	200 #
NITROGEN	21550	11000	14800	12150	16900	13250
PHOSPHORUS	2450	3200	2500	2750	2100	2900
POTASSIUM	7805	12020	9125	6715	10475	8420
CALCIUM	3479	4674	4424	3409	3479	3154
MAGNESIUM	2110	2630	2245	2130	2135	2030
MANGANESE	349.5	419.5	380.5	437.5	441.0	377.0
ZINC	32.05	35.05	29.00	31.15	39.20	30.95
IRON	75.10	100.5	89.00	66.60	114.5	104.5
BORON	22.55	37.85	25.25	30.30	20.40	28.20
COPPER	9.02	6.51	7.66	8.52	6.77	10.66

## NEEDLE WEIGHT (G/100 NEEDLES)

0.736 0.490 0.572 0.586 0.626 0.841

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11575	14025	19225	14942
PHOSPHORUS	2975	2700	2275	2650
POTASSIUM	9366	8773	9140	9093
CALCIUM	4042	3789	3479	3770
MAGNESIUM	2360	2138	2123	2213
MANGANESE	428.5	378.8	395.3	400.8
ZINC	33.10	29.97	35.62	32.90
IRON	93.55	96.75	94.80	95.03
BORON	34.07	26.72	21.47	27.42
COPPER	7.52	9.16	7.89	8.19

## NEEDLE WEIGHT (G/100 NEEDLES)

0.538 0.707 0.681 0.642

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	NCNE	NCNE	N + K	N + K	200 N	200 N
NITROGEN	11933	10550	13450	12050	13250	10800
PHOSPHORUS	2333	3000	2450	2350	2000	2500
POTASSIUM	12152	11296	8738	8542	10212	8214
CALCIUM	4279	3551	3956	2886	3911	3186
MAGNESIUM	1922	1754	1819	1448	1958	1430
MANGANESE	252.3	312.7	296.5	321.1	293.2	242.8
ZINC	36.51	34.08	30.06	43.74	47.80	25.36
IRON	101.4	147.2	121.9	118.6	137.5	143.5
BORON	12.00	31.89	19.00	28.22	13.65	19.75
COPPER	2.84	2.98	3.49	2.78	2.64	3.21

## NEEDLE WEIGHT (G/100 NEEDLES)

0.916 0.530 0.623 0.618 0.558 0.713

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11242	12025	12750	12006
PHOSPHORUS	2667	2250	2400	2439
POTASSIUM	11724	9218	8640	9861
CALCIUM	3915	3549	3421	3628
MAGNESIUM	1638	1694	1633	1722
MANGANESE	282.5	268.0	308.8	286.4
ZINC	35.29	36.58	36.90	36.26
IRON	124.3	140.5	120.3	128.4
BORON	21.94	16.70	23.61	20.75
COPPER	2.91	2.93	3.14	2.99

## NEEDLE WEIGHT (G/100 NEEDLES)

0.723 0.636 0.621 0.660

**FCLIAH NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 230 M.F. TEANAWAY RIVER  
 REGION: CENTRAL WASHINGTON OWNERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T21N R15E SECTION 20 MERIDIAN: WILLIAMETTE

**FCLIAH NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAH NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	200 #	NONE	NONE	200 #	400 #
NITROGEN	23050	13150	10950	13450	12850	13700
PHOSPHORUS	2700	1850	2200	2450	2250	2000
POTASSIUM	6167	6317	5747	8177	7132	6822
CALCIUM	3475	3195	3535	3000	4175	4050
MAGNESIUM	2133	2145	2310	2360	2085	2280
MANGANESE	417.5	500.0	486.5	574.0	531.5	390.5
ZINC	32.85	25.05	34.15	32.55	37.05	33.45
IRON	62.85	54.85	33.35	47.95	57.65	72.60
BORON	26.30	24.00	22.60	28.70	23.80	23.15
COPPER	4.76	4.51	2.92	5.80	4.51	5.62

NEEDLE WEIGHT (G/100 NEEDLES) 0.609 0.699 0.601 0.585 0.559 0.714

**BY ORIGINAL TREATMENT:**

	NONE	200 # N	400 # N	OVERALL
NITROGEN	12200	13000	18375	14525
PHOSPHORUS	2125	2050	2350	2242
POTASSIUM	6962	6755	6495	6737
CALCIUM	3268	3685	3763	3572
MAGNESIUM	2345	2115	2208	2223
MANGANESE	530.3	515.8	404.0	483.3
ZINC	33.35	31.27	33.15	32.59
IRON	40.65	56.25	67.72	54.87
BORON	25.65	23.90	24.72	24.76
COPPER	4.36	4.71	5.20	4.76

NEEDLE WEIGHT (G/100 NEEDLES) 0.593 0.629 0.661 0.628

**FOLIAH NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
NEW TREATMENT	200 N	200 N	NONE	N + K	NONE	N + K
NITROGEN	21350	12533	10550	15400	12850	14275
PHOSPHORUS	2200	1900	2950	2650	2500	2400
POTASSIUM	9424	9350	8480	10875	10765	7315
CALCIUM	2341	3495	3839	2493	5040	3211
MAGNESIUM	1096	1241	1311	1108	2292	1305
MANGANESE	194.5	412.9	546.5	403.9	424.9	230.1
ZINC	36.83	36.48	35.96	29.39	41.47	35.58
IRON	73.05	75.37	59.40	71.85	51.55	53.52
BORON	22.90	30.50	29.31	21.67	20.58	22.73
COPPER	3.26	2.77	2.92	4.79	3.26	3.42

NEEDLE WEIGHT (G/100 NEEDLES) 0.566 0.741 0.628 0.792 0.730 0.944

**BY NEW TREATMENT:**

	NONE	200 # N	N + K	OVERALL
NITROGEN	11700	16942	14837	14493
PHOSPHORUS	2725	2050	2525	2433
POTASSIUM	9622	9387	9095	9368
CALCIUM	4439	2918	2852	3403
MAGNESIUM	1801	1169	1206	1392
MANGANESE	485.7	303.7	317.0	368.8
ZINC	38.72	36.66	32.48	35.95
IRON	55.47	74.21	62.69	64.12
BORON	24.95	26.70	22.20	24.62
COPPER	3.09	3.03	4.11	3.41

NEEDLE WEIGHT (G/100 NEEDLES) 0.679 0.653 0.868 0.733

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 231 ELMO

REGION: MONTANA

LEGAL DESCRIPTION: T24N R21W SECTION 30

OWNERSHIP: PLATHEAD (BIA)

MERIDIAN: PRINCIPAL

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	NCNE	200 #	400 #	200 #	NONE	400 #
NITROGEN	11150	12750	15800	14550	11300	16800
PHOSPHORUS	2250	2550	2150	2600	2600	2750
POTASSIUM	5887	6172	4472	5197	8297	9052
CALCIUM	5495	3670	4505	5095	6890	4105
MAGNESIUM	1995	2040	1965	2095	2105	2600
MANGANESE	474.5	346.5	350.5	419.0	940.5	448.0
ZINC	32.35	31.20	21.15	39.55	47.50	36.75
IRON	62.50	52.80	44.60	55.65	48.10	49.75
BORON	18.65	23.45	21.25	19.05	25.45	28.30
COPPER	5.13	6.29	4.51	5.03	5.32	8.20
NEEDLE WEIGHT (G/100 NEEDLES)	0.472	0.801	0.557	0.596	0.413	0.908

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11225	13650	16300	13725
PHOSPHORUS	2425	2575	2450	2483
POTASSIUM	7092	5685	6762	6513
CALCIUM	6193	4383	4305	4960
MAGNESIUM	2050	2068	2283	2133
MANGANESE	707.5	382.8	399.3	496.5
ZINC	40.12	35.37	28.95	34.82
IRON	55.40	54.22	47.17	52.27
BORON	22.05	21.25	24.77	22.69
COPPER	5.22	5.66	6.36	5.75
NEEDLE WEIGHT (G/100 NEEDLES)	0.443	0.699	0.733	0.625

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	NCNE	NONE	NONE	NONE	NONE
NITROGEN	.	.	.	.	.	.
PHOSPHORUS	.	.	.	.	.	.
POTASSIUM	.	.	.	.	.	.
CALCIUM	.	.	.	.	.	.
MAGNESIUM	.	.	.	.	.	.
MANGANESE	.	.	.	.	.	.
ZINC	.	.	.	.	.	.
IRON	.	.	.	.	.	.
BORON	.	.	.	.	.	.
COPPER	.	.	.	.	.	.
NEEDLE WEIGHT (G/100 NEEDLES)	.	.	.	.	.	.

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	.	.	.	.
PHOSPHORUS	.	.	.	.
POTASSIUM	.	.	.	.
CALCIUM	.	.	.	.
MAGNESIUM	.	.	.	.
MANGANESE	.	.	.	.
ZINC	.	.	.	.
IRON	.	.	.	.
BORON	.	.	.	.
COPPER	.	.	.	.
NEEDLE WEIGHT (G/100 NEEDLES)	.	.	.	.



## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 232 SUNNY SLOPE

REGION: MONTANA

COWPENSHP: FLATHEAD (BIA)

LEGAL DESCRIPTION: T23N R21W SECTION 12

MERIDIAN: PRINCIPAL

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	NONE	400 #	200 #	400 #	200 #	NONE
NITROGEN	10800	15150	15800	21700	12850	10750
PHOSPHORUS	1850	1750	2200	2150	1900	2050
POTASSIUM	7773	7688	6783	5173	6983	7438
CALCIUM	3355	4250	3445	3800	5140	3605
MAGNESIUM	2019	1424	1709	1604	1909	1809
MANGANESE	316.0	309.5	498.0	312.0	530.0	282.5
ZINC	37.25	27.65	30.60	19.55	38.75	27.60
IRON	61.95	55.10	66.85	47.85	49.40	55.25
BORON	24.80	20.85	24.45	19.95	20.60	28.80
COPPER	10.46	7.85	6.52	5.75	7.16	5.62
NEEDLE WEIGHT (G/100 NEEDLES)	0.735	0.666	0.588	0.557	0.729	0.536

## BY ORIGINAL TREATMENT:

	NONE	200 # N	400 # N	OVERALL
NITROGEN	10775	14325	18425	14508
PHOSPHORUS	1950	2050	1950	1983
POTASSIUM	7606	6883	6431	6973
CALCIUM	3480	4293	4025	3933
MAGNESIUM	1914	1809	1514	1746
MANGANESE	259.3	514.0	310.8	374.7
ZINC	32.42	34.67	23.60	30.23
IRON	58.60	58.12	51.47	56.07
BORON	26.80	22.52	20.40	23.24
COPPER	8.04	6.84	6.80	7.23
NEEDLE WEIGHT (G/100 NEEDLES)	0.636	0.659	0.611	0.635

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	N + K	200 N	200 N	NONE	NONE	NONE
NITROGEN	10867	10000	15200	11350	11050	9850
PHOSPHORUS	1667	1800	1850	2300	2200	1850
POTASSIUM	8927	8523	8080	9504	9280	8520
CALCIUM	3878	3363	2848	3862	4051	2642
MAGNESIUM	1549	1287	1373	1480	1376	1429
MANGANESE	366.0	220.8	286.9	224.2	320.2	273.3
ZINC	39.98	44.24	30.96	32.14	40.52	20.48
IRON	66.57	71.25	88.70	103.3	73.55	81.25
BORON	21.74	23.12	27.38	24.09	22.11	34.90
COPPER	3.91	2.79	4.95	3.65	4.11	2.99
NEEDLE WEIGHT (G/100 NEEDLES)	0.572	0.592	0.546	0.514	0.616	0.561

## BY NEW TREATMENT:

	NONE	200 # N	N + K	OVERALL
NITROGEN	10750	12600	10867	11386
PHOSPHORUS	2117	1825	1667	1944
POTASSIUM	9101	8301	8927	8806
CALCIUM	3518	3105	3878	3440
MAGNESIUM	1428	1330	1549	1415
MANGANESE	272.6	253.9	366.0	281.9
ZINC	31.05	37.60	39.98	34.72
IRON	85.97	79.97	66.57	80.74
BORON	27.03	25.25	21.74	25.56
COPPER	3.58	3.87	3.91	3.73
NEEDLE WEIGHT (G/100 NEEDLES)	0.564	0.569	0.572	0.567

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 233 HELLROARING CREEK  
 REGION: MONTANA OWNERSHIP: FLATEHEAD (BIA)  
 LEGAL DESCRIPTION: T23N R19W SECTION 33 MERIDIAN: PRINCIPAL

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	200 #	NCNE	NONE	200 #	400 #
NITROGEN	15600	14050	11650	11500	12100	24000
PHOSPHORUS	2150	1950	1950	2150	2150	2400
POTASSIUM	7716	7166	7381	7081	6956	4716
CALCIUM	4275	3855	7080	4260	5265	5670
MAGNESIUM	1844	1464	1769	1524	1954	1524
MANGANESE	516.5	373.0	531.5	481.0	412.0	580.5
ZINC	39.55	46.80	38.40	34.20	41.10	44.80
IRON	80.10	52.60	54.05	67.85	44.20	62.80
BOBON	24.70	25.25	26.80	22.85	22.60	29.10
COPPER	8.33	5.26	4.59	6.11	5.61	5.06
NEEDLE WEIGHT (G/100 NEEDLES)	0.465	0.702	0.482	0.601	0.576	0.662

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11575	13075	19900	14850
PHOSPHORUS	2050	2050	2275	2125
POTASSIUM	7231	7081	6216	6843
CALCIUM	5670	4560	4973	5068
MAGNESIUM	1647	1709	1684	1680
MANGANESE	506.3	392.5	548.5	482.4
ZINC	36.30	43.95	42.17	40.81
IRON	60.95	48.40	71.45	60.27
BOBON	24.82	26.02	26.90	25.92
COPPER	5.35	5.44	6.69	5.83
NEEDLE WEIGHT (G/100 NEEDLES)	0.542	0.639	0.564	0.581

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	N + K	N + K	N + K	NONE	NONE	NONE
NITROGEN	12350	14850	10400	10967	9150	10300
PHOSPHORUS	2300	2300	1250	1833	2000	1900
POTASSIUM	7333	9999	8990	8132	7719	7922
CALCIUM	3684	3858	5923	3289	3756	4280
MAGNESIUM	1564	1509	1701	1268	1377	1355
MANGANESE	366.5	354.8	452.7	355.5	271.7	284.6
ZINC	33.30	44.90	35.72	37.61	22.62	26.04
IRON	87.15	63.45	58.10	83.47	89.45	72.50
BOBON	25.35	25.69	22.46	15.40	15.56	24.32
COPPER	4.21	3.66	3.40	3.10	2.48	3.13
NEEDLE WEIGHT (G/100 NEEDLES)	0.436	0.656	0.607	0.623	0.480	0.498

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10139	.	12533	11336
PHOSPHORUS	1911	.	1950	1931
POTASSIUM	7924	.	8774	8349
CALCIUM	3788	.	4488	4136
MAGNESIUM	1333	.	1591	1462
MANGANESE	303.9	.	391.3	347.6
ZINC	28.76	.	37.98	33.37
IRON	81.81	.	69.57	75.69
BOBON	18.43	.	24.50	21.46
COPPER	2.90	.	3.76	3.33
NEEDLE WEIGHT (G/100 NEEDLES)	0.534	.	0.566	0.550

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 234 BCNAM

REGION: MONTANA

LEGAL DESCRIPTION: T20N R19W SECTION 5

CWNEERSHIP: PLATEHEAD (BIA)

MERIDIAN: PRINCIPAL

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	NONE	200 #	400 #	400 #	NONE	200 #
NITROGEN	13350	16750	28150	26650	12400	15450
PHOSPHORUS	2350	2700	2250	2200	2250	1950
POTASSIUM	6549	7079	5154	5089	5879	5254
CALCIUM	2975	4225	3420	5420	4595	3805
MAGNESIUM	1729	1594	1224	1571	1614	1118
MANGANESE	348.5	375.5	424.0	437.5	377.0	277.0
ZINC	30.70	32.55	37.55	38.00	39.45	33.85
IRON	33.90	35.40	28.35	52.00	39.45	34.40
BORON	32.90	33.60	26.60	35.20	37.40	29.55
COPPER	7.61	4.32	4.03	4.71	4.77	4.52

NEEDLE WEIGHT (G/100 NEEDLES) 0.631 0.747 0.688 0.501 0.601 0.689

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12875	16100	27400	18792
PHOSPHORUS	2300	2325	2225	2283
POTASSIUM	6214	6167	5122	5834
CALCIUM	3785	4015	4420	4073
MAGNESIUM	1672	1356	1398	1475
MANGANESE	362.8	326.3	430.8	373.3
ZINC	35.07	33.20	37.77	35.35
IRON	36.67	34.90	40.17	37.25
BORON	35.15	31.57	30.90	32.54
COPPER	6.19	4.42	4.37	5.00

NEEDLE WEIGHT (G/100 NEEDLES) 0.616 0.718 0.594 0.643

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	NCNE	NCNE	NCNE	NCNE	NOBE	NCNE
NITROGEN	.	.	.	.	.	.
PHOSPHORUS	.	.	.	.	.	.
POTASSIUM	.	.	.	.	.	.
CALCIUM	.	.	.	.	.	.
MAGNESIUM	.	.	.	.	.	.
MANGANESE	.	.	.	.	.	.
ZINC	.	.	.	.	.	.
IRON	.	.	.	.	.	.
BORON	.	.	.	.	.	.
COPPER	.	.	.	.	.	.

NEEDLE WEIGHT (G/100 NEEDLES) . . . . .

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	.	.	.	.
PHOSPHORUS	.	.	.	.
POTASSIUM	.	.	.	.
CALCIUM	.	.	.	.
MAGNESIUM	.	.	.	.
MANGANESE	.	.	.	.
ZINC	.	.	.	.
IRON	.	.	.	.
BORON	.	.	.	.
COPPER	.	.	.	.

NEEDLE WEIGHT (G/100 NEEDLES) . . . . .

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 235 FISH CREEK

REGION: MONTANA

LEGAL DESCRIPTION: T14N R24W SECTION 5

OWNERSHIP: CHAMPION

MERIDIAN: PRINCIPAL

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT	1		2		3		4		5		6	
	NCNE	200 #	400 #	NCNE	200 #	400 #	NCNE	200 #	400 #	NCNE	200 #	400 #
NITROGEN	9300	13300	19900	9600	11350	17550						
PHOSPHORUS	1650	1450	1600	1550	1450	1450						
POTASSIUM	6818	5108	5143	5558	4658	5458						
CALCIUM	4055	4070	3980	4550	3570	3750						
MAGNESIUM	1704	1474	1559	1614	1334	1469						
MANGANESE	499.0	462.5	593.5	394.0	367.0	387.5						
ZINC	26.40	18.20	33.70	31.00	21.75	22.35						
IRON	67.85	48.60	52.10	52.75	53.40	50.20						
BORON	23.95	20.40	14.25	21.30	17.45	19.75						
COPPER	6.22	4.41	6.20	5.30	4.53	4.71						

NEEDLE WEIGHT (G/100 NEEDLES) 0.586 0.727 0.780 0.503 0.615 0.740

BY ORIGINAL TREATMENT:

	NCNE	200 #	400 #	OVERALL
NITROGEN	9450	12325	18725	13500
PHOSPHORUS	1600	1450	1525	1525
POTASSIUM	6188	4983	5301	5491
CALCIUM	4303	3820	3865	3996
MAGNESIUM	1659	1404	1514	1526
MANGANESE	446.5	414.8	490.5	450.6
ZINC	28.70	19.97	28.02	25.57
IRON	60.30	51.00	51.15	54.15
BORON	22.62	18.92	17.00	19.52
COPPER	5.76	4.47	5.46	5.23

NEEDLE WEIGHT (G/100 NEEDLES) 0.546 0.671 0.760 0.659

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT	1		2		3		4		5		6	
	NCNE	200 N	NCNE	200 N	NCNE	200 N	N + K	NOSE	200 N	NCNE	200 N	
NITROGEN	8700	11000	11500	12250	9700	13400						
PHOSPHORUS	1650	1550	2100	1200	1800	1750						
POTASSIUM	8556	7573	7741	8085	8624	8481						
CALCIUM	4923	3125	4437	4036	4390	5014						
MAGNESIUM	1525	1222	1520	1382	1442	1809						
MANGANESE	550.9	226.3	485.8	412.0	373.2	321.9						
ZINC	26.03	18.24	34.34	34.89	22.20	35.03						
IRON	88.00	73.75	81.70	65.40	74.15	92.30						
BORON	42.29	20.25	30.26	25.16	18.95	39.66						
COPPER	3.48	3.10	3.94	3.57	3.19	3.38						

NEEDLE WEIGHT (G/100 NEEDLES) 0.439 0.625 0.565 0.504 0.422 0.545

BY NEW TREATMENT:

	NCNE	200 #	N + K	OVERALL
NITROGEN	9967	12200	12250	11092
PHOSPHORUS	1650	1650	1200	1675
POTASSIUM	8307	8027	8085	8177
CALCIUM	4583	4069	4036	4321
MAGNESIUM	1496	1515	1382	1483
MANGANESE	470.0	274.1	412.0	395.0
ZINC	27.52	26.64	34.89	28.46
IRON	81.28	83.02	65.40	79.22
BORON	30.50	29.96	25.16	29.43
COPPER	3.53	3.24	3.57	3.44

NEEDLE WEIGHT (G/100 NEEDLES) 0.475 0.585 0.504 0.517

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 236 DEER CREEK

REGION: MONTANA

OWNERSHIP: CHAMPION

LEGAL DESCRIPTION: T13N R18W SECTION 20

MERIDIAN: PRINCIPAL

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	400 #	200 #	NCNE	400 #	NONE	200 #
NITROGEN	17450	13450	12800	18200	12500	13400
PHOSPHORUS	1800	2100	2000	1650	1800	1600
POTASSIUM	6742	6137	6942	9037	6222	5247
CALCIUM	4510	5095	3735	5160	3540	4505
MAGNESIUM	2190	2050	2355	2165	2275	2075
MANGANESE	467.0	612.0	273.5	536.5	346.0	500.0
ZINC	21.70	27.95	22.20	36.05	27.25	25.15
IRON	54.30	71.45	72.60	73.75	65.25	96.25
BORON	21.40	24.80	19.55	24.15	23.70	19.80
COPPER	5.45	5.69	6.83	6.79	5.52	7.14
NEEDLE WEIGHT (G/100 NEEDLES)	0.620	0.597	0.579	0.801	0.574	0.676

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12675	13425	17825	14642
PHOSPHORUS	1925	1850	1725	1833
POTASSIUM	6597	5692	7890	6726
CALCIUM	3638	4800	4835	4424
MAGNESIUM	2315	2063	2178	2185
MANGANESE	309.8	556.0	501.8	455.8
ZINC	25.02	26.55	28.87	26.82
IRON	68.92	83.85	64.02	72.27
BORON	21.62	22.30	22.77	22.23
COPPER	6.17	6.42	6.12	6.24
NEEDLE WEIGHT (G/100 NEEDLES)	0.577	0.637	0.710	0.641

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	N + K	N + K	NONE	NONE	NCNE
NITROGEN	11600	11050	7850	11600	9800	9650
PHOSPHORUS	1700	1200	1350	1750	1500	1450
POTASSIUM	8756	6832	7693	9682	7613	6097
CALCIUM	3681	5317	2862	5321	2640	2950
MAGNESIUM	1630	1321	1359	1431	1279	1177
MANGANESE	454.1	442.8	284.1	478.6	270.1	360.4
ZINC	18.06	37.14	23.76	29.25	20.94	15.46
IRON	93.55	94.80	115.4	121.4	116.5	136
BORON	21.51	17.70	26.89	21.91	25.48	24.54
COPPER	3.90	3.62	4.38	3.48	3.57	3.64
NEEDLE WEIGHT (G/100 NEEDLES)	0.401	0.390	0.454	0.331	0.357	0.338

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10350	.	10167	10258
PHOSPHORUS	1583	.	1417	1500
POTASSIUM	7797	.	8427	8112
CALCIUM	3637	.	3953	3795
MAGNESIUM	1295	.	1437	1366
MANGANESE	369.7	.	393.7	381.7
ZINC	21.89	.	26.33	24.11
IRON	124.7	.	101.2	113
BORON	23.98	.	22.03	23.01
COPPER	3.57	.	3.96	3.76
NEEDLE WEIGHT (G/100 NEEDLES)	0.342	.	0.415	0.379

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 237    MCLEET PARK    OWNERSHIP: CHAMPION  
 REGION: MONTANA    LEGAL DESCRIPTION: T15N R12W SECTION 9    MERIDIAN: PRINCIPAL

**FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
<b>ORIGINAL TREATMENT</b>	400 #	200 #	NCNE	NONE	400 #	200 #
NITROGEN	13700	12900	11000	12000	12500	11900
PHOSPHORUS	1900	2150	1650	1850	1850	1900
POTASSIUM	7666	6391	5371	5656	6126	6696
CALCIUM	3445	3665	3555	4630	4375	3470
MAGNESIUM	1359	1509	1564	1439	1169	1384
MANGANESE	406.0	300.0	298.0	301.0	327.5	402.5
ZINC	30.80	38.75	31.30	28.10	35.05	26.05
IRON	38.00	41.35	40.65	43.85	42.70	34.65
BORON	20.35	21.25	24.95	26.75	18.05	20.85
COPPER	5.47	5.14	4.14	4.95	4.55	5.75
<b>NEEDLE WEIGHT (G/100 NEEDLES)</b>	0.559	0.626	0.385	0.377	0.539	0.504

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11500	12400	13100	12333
PHOSPHORUS	1750	2025	1875	1883
POTASSIUM	5514	6544	6896	6318
CALCIUM	4093	3568	3910	3857
MAGNESIUM	1502	1447	1264	1404
MANGANESE	299.5	351.3	366.8	339.2
ZINC	29.70	32.40	32.92	31.67
IRON	42.25	38.00	40.35	40.20
BORON	25.85	21.05	19.20	22.03
COPPER	4.55	5.45	5.23	5.08
<b>NEEDLE WEIGHT (G/100 NEEDLES)</b>	0.381	0.565	0.549	0.498

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

**BY PLOT:**

	1	2	3	4	5	6
<b>NEW TREATMENT</b>	200 N	NONE	NCNE	N + K	N + K	200 N
NITROGEN	9900	9150	6950	12450	7350	8850
PHOSPHORUS	1700	1800	1400	2100	1750	2100
POTASSIUM	10852	9284	7683	8436	10302	9327
CALCIUM	5666	4227	4395	5202	5867	4619
MAGNESIUM	1499	1563	1629	1596	1207	1571
MANGANESE	403.2	291.0	380.2	380.2	236.5	483.2
ZINC	26.64	33.45	22.91	30.89	38.28	33.88
IRON	66.00	80.10	66.00	65.85	65.45	80.45
BORON	13.65	22.67	24.24	28.46	13.45	21.33
COPPER	3.66	4.20	3.63	4.36	3.75	3.42
<b>NEEDLE WEIGHT (G/100 NEEDLES)</b>	0.211	0.257	0.200	0.289	0.279	0.175

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	8050	9375	9900	9108
PHOSPHORUS	1600	1900	1925	1808
POTASSIUM	8484	10090	9369	9314
CALCIUM	4311	5142	5504	4986
MAGNESIUM	1596	1535	1401	1511
MANGANESE	335.6	443.2	308.4	362.4
ZINC	28.18	30.26	34.59	31.01
IRON	73.05	70.22	65.55	69.61
BORON	23.45	17.49	20.96	20.63
COPPER	3.91	3.54	4.08	3.84
<b>NEEDLE WEIGHT (G/100 NEEDLES)</b>	0.229	0.193	0.284	0.235

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 238 BULLALO HILL CREEK  
 REGION: MONTANA OWNERSHIP: CHAMPION  
 LEGAL DESCRIPTION: T22N R26W SECTION 34 MERIDIAN: PRINCIPAL

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	NCNE	200 #	400 #	400 #	200 #	NONE
NITROGEN	10200	15200	20850	18350	13700	11400
PHOSPHORUS	2300	2200	1900	2400	2150	2000
POTASSIUM	6282	7087	6397	7687	5862	6702
CALCIUM	3075	3460	3685	3725	3705	4075
MAGNESIUM	1079	1195	1424	1284	1479	1579
MANGANESE	264.0	256.0	336.0	236.5	226.5	290.0
ZINC	26.40	38.65	42.50	30.95	34.75	30.40
IRON	119.8	84.50	138.8	105.3	71.60	64.75
BORON	25.95	25.25	24.20	23.10	26.50	26.60
COPPER	7.02	8.92	10.28	7.81	6.15	7.76
NEEDLE WEIGHT (G/100 NEEDLES)	0.663	0.969	0.744	0.881	0.867	0.788

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10800	14450	19600	14950
PHOSPHORUS	2150	2175	2150	2158
POTASSIUM	6492	6475	7042	6670
CALCIUM	3575	3583	3705	3621
MAGNESIUM	1329	1337	1354	1340
MANGANESE	277.0	241.3	286.3	268.2
ZINC	28.40	36.70	36.72	33.94
IRON	92.27	78.05	122	57.46
BORON	26.27	26.07	23.65	25.33
COPPER	7.39	7.54	9.04	7.99
NEEDLE WEIGHT (G/100 NEEDLES)	0.725	0.918	0.813	0.819

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	N + K	N + K	NONE	200 #	N + K
NITROGEN	11600	11750	16550	11400	11900	12750
PHOSPHORUS	2050	2200	2800	1850	2300	1850
POTASSIUM	8915	8326	7943	8693	9269	7919
CALCIUM	4085	4950	4454	5613	5138	3903
MAGNESIUM	1415	1423	1949	1608	1818	1263
MANGANESE	258.2	315.1	287.1	210.1	305.9	282.7
ZINC	41.81	49.11	46.79	29.19	45.38	31.13
IRON	141.5	94.25	150.4	133.3	131.7	109.9
BORON	26.04	22.77	24.06	34.86	21.13	17.71
COPPER	3.91	4.06	4.09	3.58	4.18	3.82
NEEDLE WEIGHT (G/100 NEEDLES)	0.510	0.544	0.490	0.424	0.433	0.495

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11500	11900	13683	12658
PHOSPHORUS	1950	2300	2283	2175
POTASSIUM	8804	9289	8063	8514
CALCIUM	4849	5138	4435	4690
MAGNESIUM	1511	1818	1545	1579
MANGANESE	234.2	305.9	295.0	276.5
ZINC	35.50	45.38	42.34	40.57
IRON	137.4	131.7	118.2	126.9
BORON	30.45	21.13	21.51	24.43
COPPER	3.75	4.18	3.99	3.94
NEEDLE WEIGHT (G/100 NEEDLES)	0.467	0.433	0.509	0.483

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 239 WAHA #2  
 REGION: NORTHEAST OREGON  
 LEGAL DESCRIPTION: T33N R4W

OWNERSHIP: POTLATCH  
 SECTION 1C  
 MECHANIC: ECISE

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	200 #	NCNE	400 #	400 #	200 #	NONE
NITROGEN	11000	14500	15550	13900	9100	17200
PHOSPHORUS	2150	2250	2550	2600	1900	2150
POTASSIUM	3914	5944	5239	5024	5544	5459
CALCIUM	4530	4865	6005	4310	5550	4750
MAGNESIUM	1869	2309	2084	1599	2219	2254
MANGANESE	585.0	374.0	452.0	214.5	296.5	245.0
ZINC	22.90	23.20	29.10	23.45	24.70	27.05
IRON	83.85	92.45	64.60	76.15	73.35	85.05
BORON	27.10	22.80	23.15	22.80	25.65	25.95
COOPER	6.00	4.96	4.74	5.68	6.26	5.29

NEEDLE WEIGHT (G/100 NEEDLES)

0.684 0.494 0.617 0.726 0.386 0.455

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	15850	10050	14725	13542
PHOSPHORUS	2200	2025	2575	2267
POTASSIUM	5702	4729	5132	5187
CALCIUM	4608	5040	5158	5002
MAGNESIUM	2282	2044	1842	2056
MANGANESE	309.5	440.8	333.3	361.2
ZINC	25.12	23.80	26.27	25.07
IRON	88.75	78.60	70.37	79.24
BORON	24.37	26.37	22.97	24.57
COOPER	5.13	6.13	5.21	5.49

NEEDLE WEIGHT (G/100 NEEDLES)

0.474 0.535 0.672 0.560

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	NCNE	NONE	N + K	200 #	N + K
NITROGEN	12950	9333	9900	13300	11350	9450
PHOSPHORUS	1950	2600	1950	1950	2800	2100
POTASSIUM	7144	9686	7288	9689	9015	8916
CALCIUM	3330	2504	4418	4578	2761	4574
MAGNESIUM	1736	1539	1813	1364	1464	1920
MANGANESE	300.8	265.6	328.2	202.7	251.7	328.1
ZINC	19.15	15.70	27.21	34.66	37.17	25.86
IRON	110	106.1	74.60	134.8	150.7	91.35
BORON	22.62	29.28	23.96	23.06	24.45	21.66
COOPER	3.88	3.21	2.41	3.98	2.90	2.54

NEEDLE WEIGHT (G/100 NEEDLES)

0.646 0.417 0.472 0.419 0.530 0.417

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	9617	11350	11900	11047
PHOSPHORUS	2275	2800	2000	2225
POTASSIUM	8487	9015	8583	8623
CALCIUM	3461	2761	4160	3694
MAGNESIUM	1676	1464	1673	1639
MANGANESE	296.9	251.7	277.2	279.5
ZINC	21.46	37.17	26.57	26.63
IRON	90.35	150.7	112.1	111.3
BORON	26.62	24.45	22.45	24.17
COOPER	2.81	2.90	3.47	3.15

NEEDLE WEIGHT (G/100 NEEDLES)

0.445 0.530 0.494 0.484



## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 240 QUARTZ CREEK #1  
 REGION: NORTHERN IDAHO OWNERSHIP: FOLIATCH  
 LEGAL DESCRIPTION: T37N R5E SECTION 8 MERIDIAN: BOISE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	NONE	200 #	NONE	200 #	400 #
NITROGEN	15700	9650	12700	11800	12550	17250
PHOSPHORUS	1350	2000	1650	1900	1850	1850
POTASSIUM	5281	7056	5931	6206	5261	5971
CALCIUM	2595	5650	2705	4690	3265	5145
MAGNESIUM	2319	2314	1829	2284	2254	2179
MANGANESE	230.0	303.0	289.5	388.5	408.0	511.5
ZINC	16.95	23.05	16.10	18.25	28.40	21.70
IRON	43.90	54.50	52.95	42.05	40.20	43.40
BORON	9.80	20.35	19.05	20.30	26.45	20.05
COPPER	3.35	4.40	3.58	5.25	4.71	4.13
NEEDLE WEIGHT (G/100 NEEDLES)	0.657	0.544	0.792	0.487	0.714	0.561

## BY ORIGINAL TREATMENT:

	NONE	200 # N	400 # N	OVERALL
NITROGEN	10725	12625	16475	13275
PHOSPHORUS	1950	1750	1600	1767
POTASSIUM	6631	5596	5626	5951
CALCIUM	5170	3000	3870	4013
MAGNESIUM	2299	2042	2249	2197
MANGANESE	345.8	348.8	370.8	355.1
ZINC	20.65	22.25	19.32	20.74
IRON	48.27	46.57	43.65	46.17
BORON	20.32	22.75	14.92	19.33
COPPER	4.83	4.15	3.74	4.24
NEEDLE WEIGHT (G/100 NEEDLES)	0.516	0.753	0.609	0.626

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	N + R	N + K	NONE	NONE	N + R	NONE
NITROGEN	16650	12750	12250	13300	15500	12300
PHOSPHORUS	1600	1450	2100	1950	1900	2050
POTASSIUM	7376	9258	9531	8099	6324	7992
CALCIUM	3263	6074	3635	5612	4349	3676
MAGNESIUM	1657	1620	1319	2150	1767	1516
MANGANESE	220.9	413.3	357.5	507.3	432.3	301.0
ZINC	20.88	26.25	22.29	20.21	44.33	18.95
IRON	93.55	74.35	88.70	65.55	78.50	69.10
BORON	10.67	24.50	33.67	26.73	38.47	39.52
COPPER	2.92	2.52	2.52	3.59	3.68	2.81
NEEDLE WEIGHT (G/100 NEEDLES)	0.629	0.654	0.561	0.426	0.545	0.457

## BY NEW TREATMENT:

	NONE	200 # N	N + R	OVERALL
NITROGEN	12617	.	14967	13792
PHOSPHORUS	2033	.	1650	1842
POTASSIUM	8541	.	7653	8097
CALCIUM	4308	.	4562	4435
MAGNESIUM	1662	.	1681	1671
MANGANESE	388.6	.	355.5	372.0
ZINC	20.48	.	30.49	25.49
IRON	74.45	.	82.27	78.36
BORON	33.31	.	24.55	28.93
COPPER	2.97	.	3.04	3.01
NEEDLE WEIGHT (G/100 NEEDLES)	0.481	.	0.609	0.545

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 241 WCCDY MTN  
 REGION: CENTRAL WASHINGTON  
 LEGAL DESCRIPTION: T33M R24E SECTION 9

OWNERSHIP: WASHINGTON DBB  
 MERIDIAN: WILLAMETTE

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	200 #	400 #	NCNE	NONE	200 #	400 #
NITROGEN	13700	16500	8900	9000	10650	15750
PHOSPHORUS	2100	2800	2250	2350	2350	2600
POTASSIUM	9670	10415	6240	7885	8170	10065
CALCIUM	3779	4234	4619	4254	6819	3494
MAGNESIUM	1745	1810	1455	1785	1635	2080
MANGANESE	401.0	371.5	340.5	419.5	580.5	422.5
ZINC	30.25	27.70	22.85	27.15	19.20	25.65
IRON	61.15	80.90	53.10	73.25	61.45	62.00
BOBON	28.65	32.10	23.90	29.90	36.65	32.25
COPPER	8.77	8.92	5.91	7.88	7.40	8.08

NEEDLE WEIGHT (G/100 NEEDLES)

0.843 0.707 0.735 0.622 0.534 0.741

BY ORIGINAL TREATMENT:

ORIGINAL TREATMENT

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	8950	12175	16125	12417
PHOSPHORUS	2300	2225	2700	2408
POTASSIUM	7063	8920	10240	8741
CALCIUM	4437	5299	3864	4533
MAGNESIUM	1620	1690	1945	1752
MANGANESE	380.0	490.8	397.0	422.6
ZINC	25.00	24.72	26.67	25.47
IRON	63.17	61.30	71.45	65.31
BOBON	26.90	32.75	32.17	30.61
COPPER	6.90	8.09	8.50	7.83

NEEDLE WEIGHT (G/100 NEEDLES)

0.679 0.689 0.724 0.697

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	200 N	NCNE	NCNE	N + K	NCNE	200 N
NITROGEN	9900	10250	9600	10100	9500	13200
PHOSPHORUS	2000	2550	2250	2733	1850	2433
POTASSIUM	8552	10068	8014	8359	7579	10194
CALCIUM	2257	4199	3562	3625	4213	4327
MAGNESIUM	1223	1446	1051	1424	1306	2087
MANGANESE	239.6	264.2	391.7	457.4	340.3	369.6
ZINC	31.23	36.25	33.69	23.63	20.98	40.76
IRON	71.95	77.55	54.65	64.97	57.60	83.07
BOBON	23.10	25.19	24.90	37.96	32.31	23.27
COPPER	2.89	2.66	2.33	2.56	2.80	3.13

NEEDLE WEIGHT (G/100 NEEDLES)

0.818 0.723 0.705 0.812 0.580 0.615

BY NEW TREATMENT:

NEW TREATMENT

	NCNE	200 # N	N + K	OVERALL
NITROGEN	9783	11550	10100	10425
PHOSPHORUS	2217	2217	2733	2303
POTASSIUM	8554	9373	8359	8794
CALCIUM	3491	3292	3625	3697
MAGNESIUM	1268	1655	1424	1423
MANGANESE	338.8	304.6	457.4	347.1
ZINC	30.31	36.00	23.63	31.09
IRON	63.27	77.51	64.97	68.30
BOBON	27.47	23.18	37.96	27.79
COPPER	2.60	3.01	2.56	2.73

NEEDLE WEIGHT (G/100 NEEDLES)

0.670 0.716 0.812 0.709

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 242 N.F. NINEMILE CREEK  
 REGION: CENTRAL WASHINGTON OWNERSHIP: WASHINGTON DNR  
 LEGAL DESCRIPTION: T39N R24E SECTION 13 MERIDIAN: WILLAMETTE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

## ORIGINAL TREATMENT

	1	2	3	4	5	6
	400 #	NONE	200 #	400 #	200 #	NONE
NITROGEN	17350	9550	11650	15250	12400	9150
PHOSPHORUS	1900	1600	1650	1450	1300	1750
POTASSIUM	6780	5820	6025	5420	4300	5290
CALCIUM	3547	3437	3102	5197	5212	3242
MAGNESIUM	1524	1379	852.5	1799	1169	1003
MANGANESE	373.5	449.5	352.0	494.0	470.5	445.0
ZINC	20.90	23.70	19.75	25.30	25.50	18.90
IRON	51.65	55.50	38.40	46.65	45.60	41.95
BORON	21.40	28.20	21.70	21.90	20.55	19.90
COPPER	10.87	7.30	6.27	6.47	5.78	5.14
NEEDLE WEIGHT (G/100 NEEDLES)	0.598	0.538	0.538	0.557	0.503	0.406

## BY ORIGINAL TREATMENT:

	NONE	200 # N	400 # N	OVERALL
NITROGEN	9350	12025	16300	12558
PHOSPHORUS	1675	1475	1675	1608
POTASSIUM	5555	5203	6100	5619
CALCIUM	3340	4157	4372	3956
MAGNESIUM	1191	1011	1662	1288
MANGANESE	447.3	411.3	433.8	430.8
ZINC	21.30	22.82	23.10	22.41
IRON	48.72	42.00	49.15	46.62
BORON	24.05	21.02	21.65	22.24
COPPER	6.22	6.02	8.67	6.97
NEEDLE WEIGHT (G/100 NEEDLES)	0.472	0.520	0.578	0.523

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	200 #	N + K	200 #	NONE	NONE	NONE
NITROGEN	13200	11100	10850	10850	10450	9150
PHOSPHORUS	2300	1850	2050	1800	1900	2150
POTASSIUM	7262	7835	7662	9092	7711	8625
CALCIUM	3361	3863	2982	3141	4244	2122
MAGNESIUM	1487	1261	1085	1924	1326	1119
MANGANESE	144.1	526.8	265.0	250.0	299.8	264.4
ZINC	29.45	22.72	26.15	22.86	33.64	9.77
IRON	57.35	55.60	56.15	59.75	64.40	56.30
BORON	38.15	21.67	24.50	15.50	20.51	17.26
COPPER	2.92	3.26	3.14	3.82	3.05	2.56
NEEDLE WEIGHT (G/100 NEEDLES)	0.467	0.430	0.381	0.423	0.324	0.317

## BY NEW TREATMENT:

	NONE	200 # N	N + K	OVERALL
NITROGEN	10150	12025	11100	10933
PHOSPHORUS	1950	2175	1850	2008
POTASSIUM	8476	7462	7835	8031
CALCIUM	3169	3171	3863	3285
MAGNESIUM	1456	1286	1261	1367
MANGANESE	271.4	204.5	526.8	291.7
ZINC	22.09	27.82	22.72	24.11
IRON	60.15	56.75	55.60	56.26
BORON	18.86	31.34	21.67	23.49
COPPER	3.16	3.03	3.26	3.13
NEEDLE WEIGHT (G/100 NEEDLES)	0.355	0.424	0.430	0.391

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY BEPCBT

INSTALLATION 243 STARVATION LAKE  
 REGION: NORTHEAST WASHINGTON OWNERSHIP: WASHINGTON D&B  
 LEGAL DESCRIPTION: T35N R40E SECTION 13 MERIDIAN: WILLAMETTE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

## ORIGINAL TREATMENT

	1	2	3	4	5	6
	NONE	200 #	400 #	400 #	200 #	NONE
NITROGEN	11750	15500	18450	15700	14950	11200
PHOSPHORUS	1950	1650	1950	1850	1650	2150
POTASSIUM	5085	4515	5605	5960	8220	7115
CALCIUM	4704	2989	3749	4569	4704	4514
MAGNESIUM	1450	1550	1190	1755	2305	2110
MANGANESE	526.5	305.0	318.0	429.5	389.0	280.0
ZINC	40.20	32.05	28.45	34.65	33.65	29.55
IRON	79.90	54.25	68.90	62.85	59.60	63.00
BORON	32.35	25.80	24.50	20.75	17.45	25.70
COPPER	3.10	3.28	2.93	2.56	3.55	2.84

NEEDLE WEIGHT (G/100 NEEDLES) 0.675 0.727 0.684 0.789 0.737 0.581

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11475	15225	17075	14592
PHOSPHORUS	2050	1650	1900	1867
POTASSIUM	6100	6368	5783	6083
CALCIUM	4609	3847	4159	4205
MAGNESIUM	1780	1928	1473	1727
MANGANESE	403.3	347.0	373.8	374.7
ZINC	34.87	32.85	31.55	33.09
IRON	71.45	57.02	65.87	64.78
BORON	29.02	21.62	22.63	24.42
COPPER	2.97	3.62	2.74	3.11

NEEDLE WEIGHT (G/100 NEEDLES) 0.628 0.732 0.736 0.699

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	N + K	NCNE	200 N	N + K	N + K	NONE
NITROGEN	12950	10900	12867	10800	12450	9950
PHOSPHORUS	1550	1600	1833	1433	1700	2350
POTASSIUM	5807	5123	6860	5705	6459	6585
CALCIUM	4364	2753	3813	3026	4145	3779
MAGNESIUM	1614	1144	1194	1267	1563	1516
MANGANESE	445.4	225.9	179.2	191.4	195.3	219.6
ZINC	46.98	32.14	25.43	14.06	29.48	24.36
IRON	71.70	66.50	65.47	74.50	87.35	78.45
BORON	54.13	25.82	25.18	15.36	15.33	31.59
COPPER	3.82	2.66	2.50	2.31	3.13	3.12

NEEDLE WEIGHT (G/100 NEEDLES) 0.601 0.523 0.474 0.752 0.781 0.511

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10425	12867	12067	11653
PHOSPHORUS	1975	1833	1561	1744
POTASSIUM	5854	6860	5990	6090
CALCIUM	3266	3813	3845	3646
MAGNESIUM	1330	1194	1481	1383
MANGANESE	222.8	179.2	277.4	242.8
ZINC	28.25	25.43	30.17	28.74
IRON	72.47	65.47	77.85	73.99
BORON	28.71	25.18	28.27	27.90
COPPER	2.89	2.50	3.09	2.92

NEEDLE WEIGHT (G/100 NEEDLES) 0.517 0.474 0.711 0.607

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 244 BIG LOCKOUT MTN #1  
 REGION: NORTHEAST OREGON OWNERSHIP: BLM (OREGON)  
 LEGAL DESCRIPTION: T11S R45E SECTION 19 MERIDIAN: WILLAMETTE

FOLIAR NUTRIENT CONCENTRATIONS  
(MICROGRAMS PER GRAM)FOLIAR NUTRIENTS ONE YEAR  
AFTER ORIGINAL TREATMENT:

## BY PLOT:

## ORIGINAL TREATMENT

	1	2	3	4	5	6
	200 #	400 #	NONE	400 #	200 #	NONE
NITROGEN	10500	11850	9650	12000	11000	11500
PHOSPHORUS	1300	1100	1900	1250	1400	1100
POTASSIUM	3948	6513	5743	5458	6113	4318
CALCIUM	5155	5695	7285	5055	5140	4285
MAGNESIUM	1654	1664	1674	1529	1739	1204
MANGANESE	122.5	112.5	289.5	166.0	186.0	88.5
ZINC	15.45	14.10	27.90	29.20	17.90	18.45
IRON	50.95	61.65	74.85	44.90	74.90	71.35
BORON	17.25	13.20	17.75	22.85	19.40	21.70
COPPER	2.43	2.05	3.24	2.63	2.52	1.01

NEEDLE WEIGHT (G/100 NEEDLES) 0.523 0.592 0.543 0.749 0.551 0.692

## BY ORIGINAL TREATMENT:

	NONE	200 # N	400 # N	OVERALL
NITROGEN	10575	10750	11925	11083
PHOSPHORUS	1500	1350	1175	1342
POTASSIUM	5031	5031	5986	5349
CALCIUM	5785	5148	5375	5436
MAGNESIUM	1439	1697	1597	1577
MANGANESE	189.0	154.3	139.3	160.8
ZINC	23.17	16.67	21.65	20.50
IRON	73.10	62.92	53.27	63.10
BORON	19.72	18.32	18.02	18.69
COPPER	2.12	2.48	2.34	2.31

NEEDLE WEIGHT (G/100 NEEDLES) 0.618 0.537 0.670 0.609

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	200 N	200 N	NONE	NONE	NONE	N + K
NITROGEN	14600	13550	11200	11400	10100	13800
PHOSPHORUS	1900	1500	2250	1150	1600	1650
POTASSIUM	5940	7890	8036	7668	7739	7691
CALCIUM	4332	5233	4617	6240	4162	6530
MAGNESIUM	1659	1993	1754	1763	1459	1982
MANGANESE	117.1	147.0	160.3	175.9	135.9	122.6
ZINC	27.99	36.45	26.25	27.70	24.60	34.46
IRON	95.45	108.8	121.9	70.80	110.9	88.85
BORON	18.80	29.66	20.19	20.44	14.24	25.00
COPPER	3.44	3.21	3.61	3.01	2.34	1.99

NEEDLE WEIGHT (G/100 NEEDLES) 0.539 0.621 0.648 0.555 0.575 0.573

## BY NEW TREATMENT:

	NONE	200 # N	N + K	OVERALL
NITROGEN	10900	14075	13800	12442
PHOSPHORUS	1667	1700	1650	1675
POTASSIUM	7814	6915	7691	7494
CALCIUM	5006	4783	6530	5186
MAGNESIUM	1672	1826	1982	1775
MANGANESE	157.4	132.1	122.6	143.2
ZINC	26.25	32.22	34.46	29.61
IRON	101.2	102.1	88.85	99.47
BORON	18.29	24.23	25.00	21.39
COPPER	2.99	3.33	1.99	2.94

NEEDLE WEIGHT (G/100 NEEDLES) 0.593 0.580 0.573 0.585

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 245 BIG LOOKOUT MTN #2  
 REGION: NORTHEAST OREGON OWNERSHIP: BLM (CBEGON)  
 LEGAL DESCRIPTION: T12S R44E SECTION 12 MERIDIAN: WILLAMETTE

**FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)**

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:**

BY PLOT:	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	200 #	NCNE	200 #	NONE	400 #
NITROGEN	14000	12200	11100	12400	9800	15550
PHOSPHORUS	1950	1800	1950	900	1200	2200
POTASSIUM	8532	6902	6652	5867	7877	6902
CALCIUM	6036	4706	4086	4911	4646	4406
MAGNESIUM	2320	2055	2305	1735	2055	2160
MANGANESE	184.0	177.0	135.0	104.0	155.0	136.5
ZINC	17.00	21.75	24.95	24.55	13.80	23.25
IRON	101.1	95.00	108.5	72.05	111.8	81.30
BORON	30.60	25.75	21.55	26.65	28.55	26.95
COPPER	4.63	3.84	3.96	3.34	3.58	3.87

NEEDLE WEIGHT (G/100 NEEDLES) 0.717 0.656 0.774 0.622 0.723 0.821

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10450	12300	14775	12508
PHOSPHORUS	1575	1350	2075	1667
POTASSIUM	7265	6385	7717	7122
CALCIUM	4366	4809	5221	4799
MAGNESIUM	2195	1895	2240	2110
MANGANESE	145.0	140.5	160.3	148.6
ZINC	19.37	23.15	20.12	20.88
IRON	110.1	83.52	91.22	94.96
BORON	25.20	28.20	28.77	27.39
COPPER	3.92	3.59	4.25	3.92

NEEDLE WEIGHT (G/100 NEEDLES) 0.748 0.639 0.769 0.719

**FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:**

BY PLOT:	1	2	3	4	5	6
NEW TREATMENT	200 N	200 N	N + K	NONE	NONE	N + K
NITROGEN	12850	13350	14500	10150	10800	13250
PHOSPHORUS	2400	2050	2400	1000	1400	2700
POTASSIUM	7227	9289	6674	6193	7956	10532
CALCIUM	4835	3210	4143	3445	3305	3984
MAGNESIUM	1264	1462	1576	1323	1480	1852
MANGANESE	185.0	107.7	167.3	85.0	117.0	151.1
ZINC	25.09	23.49	24.75	21.42	21.31	23.06
IRON	197.4	211.9	232.7	156	227	183
BORON	29.93	25.69	36.30	18.54	20.74	24.45
COPPER	5.75	4.71	5.07	3.49	4.55	4.51

NEEDLE WEIGHT (G/100 NEEDLES) 0.689 0.561 0.643 0.318 0.455 0.567

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10475	13100	13875	12483
PHOSPHORUS	1200	2225	2550	1992
POTASSIUM	7074	8258	8603	7978
CALCIUM	3375	4022	4063	3820
MAGNESIUM	1402	1363	1714	1493
MANGANESE	101.0	146.4	159.2	135.5
ZINC	21.36	24.29	23.91	23.19
IRON	191.5	204.7	207.9	201.4
BORON	19.64	27.81	30.38	25.94
COPPER	4.02	5.23	4.79	4.68

NEEDLE WEIGHT (G/100 NEEDLES) 0.406 0.625 0.605 0.546