

**Douglas-fir Foliar Nutrient Characteristics after Nitrogen  
or Nitrogen plus Potassium Fertilization**

**Intermountain Forest Tree Nutrition Cooperative**

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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), potassium (K), phosphorus (P), 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. Hereafter, values obtained from these samples will be referred to as coming from the first sampling.

For similar reasons foliage samples have been collected one year after new fertilizer applications: in the fall of 1988 for installations 201 through 245 and in the fall of 1989 for installations 246 through 290. Identical collection and analysis procedures were followed. Whenever possible, those trees sampled in the original collection were resampled. These values will be referred to as coming from the second sampling. Only plots sampled after both fertilizer applications are included in the following discussion to allow for consistent data interpretation.

Information on foliar nutrient levels and needle weights is presented in the form of empirical cumulative distribution functions (cdf's). Data points on the graphs are the proportion (vertical axis) of the sample that had a foliar level less than or equal to the value shown on the horizontal axis. In all the figures that follow, individual data points represent installation averages for particular treatment combinations. Two sets of graphs are given, representing (1) the foliar levels found at each sampling time, and (2) the change in level from the first sampling to the second sampling.

Discussion is centered on foliar nitrogen concentration, needle weight, and foliar potassium concentration, content, and Ingstad ratio; thus, only those cdf's are presented in the text. However, cdf's for all nutrients (N, K, P, Ca, Mg, Mn, Fe, Zn, B, and Cu) and foliage weight are given in the appendices. Figures for foliar levels at each of the two sampling times are found in appendix A, while the cdf's of the change in level from the first to the second sampling are given in appendix B. Appendix C shows how foliar nutrient concentrations changed through the growing season for two installations. Appendix D contains the means by region of both

absolute values and changes through time. Finally, appendix E gives the foliar weights and nutrient levels for each installation.

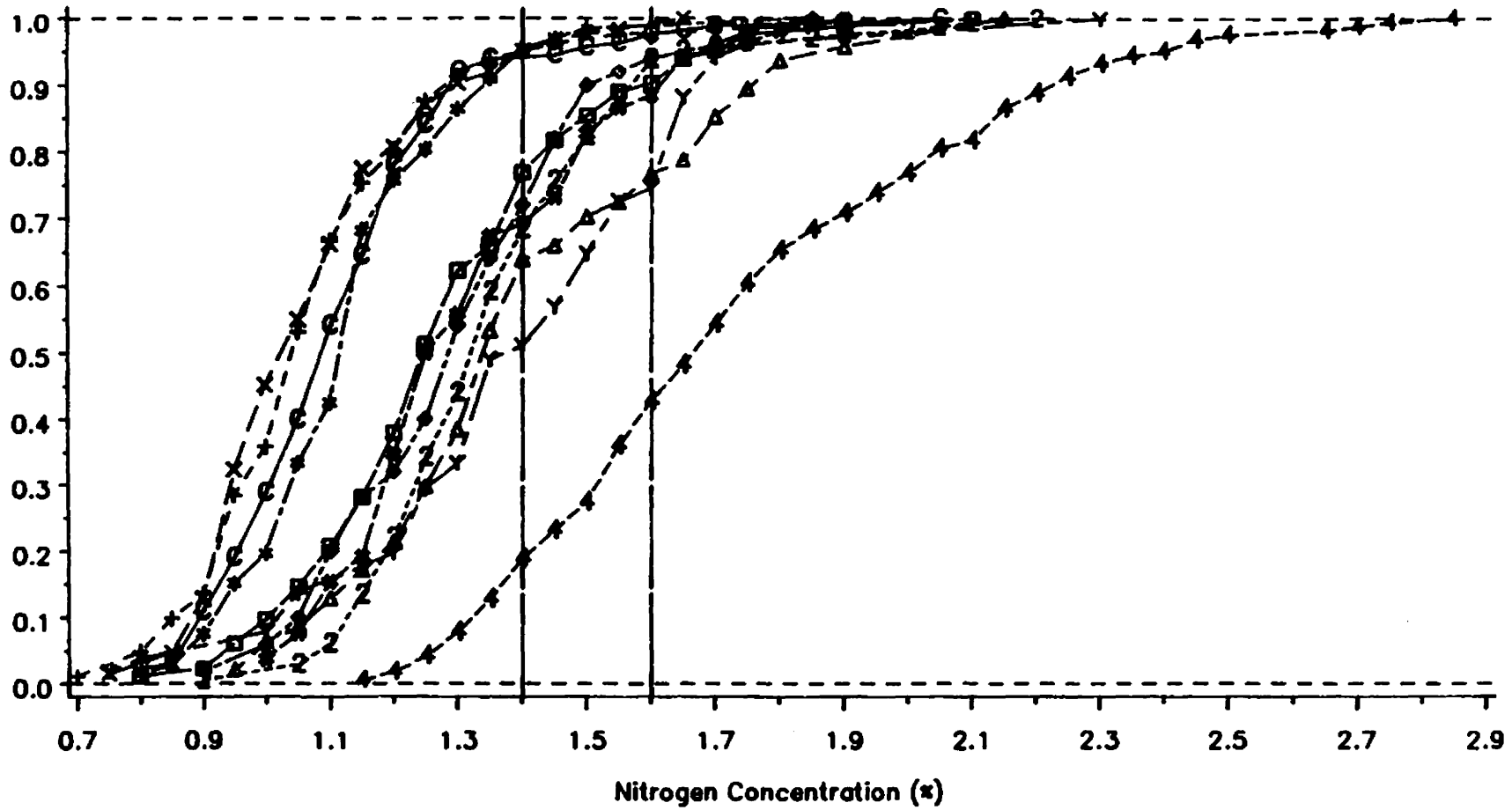
## Results

### Foliar characteristics following initial treatments

In the first set of graphs, values from both sampling times are displayed in each graph; this results in a complex figure, but facilitates comparison of values between the two sampling times. The lines within these graphs represent the distribution of values from different treatments and different sampling times; the key for the treatment combinations represented by each symbol is given in Table 1. Distributions for foliage from the first sampling are indicated by "C", "2", and "4"; the other symbols represent values obtained in the second sampling.

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. For example, we can see that about 30 percent of the control plots ("C") had nitrogen concentrations less than or equal to 1 percent at 1 year after the first treatment. 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

Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	□-□-□ Old--200 N	△-△-△ Old--400 N
	+--+ New--0N+0	*-*-* New--200N+0	◆-◆-◆ New--400N+0
	▣-▣-▣ New--0N+N+K	◇-◇-◇ New--200N+N	▲-▲-▲ New--400N+N
	●-●-● New--200N+N+K	▽-▽-▽ New--400N+N+K	

Figure 1. Cumulative distributions of foliar nitrogen concentrations for different combinations of nitrogen and nitrogen plus potassium fertilization treatments and time frames (1982-83 and 1988-89).

**Table 1. Key to symbols for sampling time and treatment combinations used in cdf's of foliar levels at one sampling time.**

<u>Symbol</u>	<u>First Treatment</u>	<u>Second Treatment</u>
For foliage sampled 1 year after the first treatment:		
C	none	
2	200 lbs N/a	
4	400 lbs N/a	
For foliage sampled 1 year after the second treatment:		
+	none	none
X	200 lbs N/a	none
*	400 lbs N/a	none
(square)	none	200 lbs N + 200 lbs K
(diamond)	200 lbs N/a	200 lbs N/a
(triangle)	400 lbs N/a	200 lbs N/a
#	200 lbs N/a	200 lbs N + 200 lbs K
Y	400 lbs N/a	200 lbs N + 200 lbs K

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 about 95 percent of all untreated plots ("C" and "+") had N concentrations below the critical level; the average concentration on these plots were 1.13 and 1.09 percent after the first and second treatments, respectively. Also we were obviously successful in getting nitrogen into the trees. Approximately 30 and 80 percent of plots treated at the first treatment time with 200 pounds and 400 pounds of N, respectively, had concentrations above critical 1 year later. Mean concentrations were 1.37 and 1.76 percent on the 200 pound and 400 pound treatment plots, respectively; all means were statistically different ( $p < 0.0001$ ).

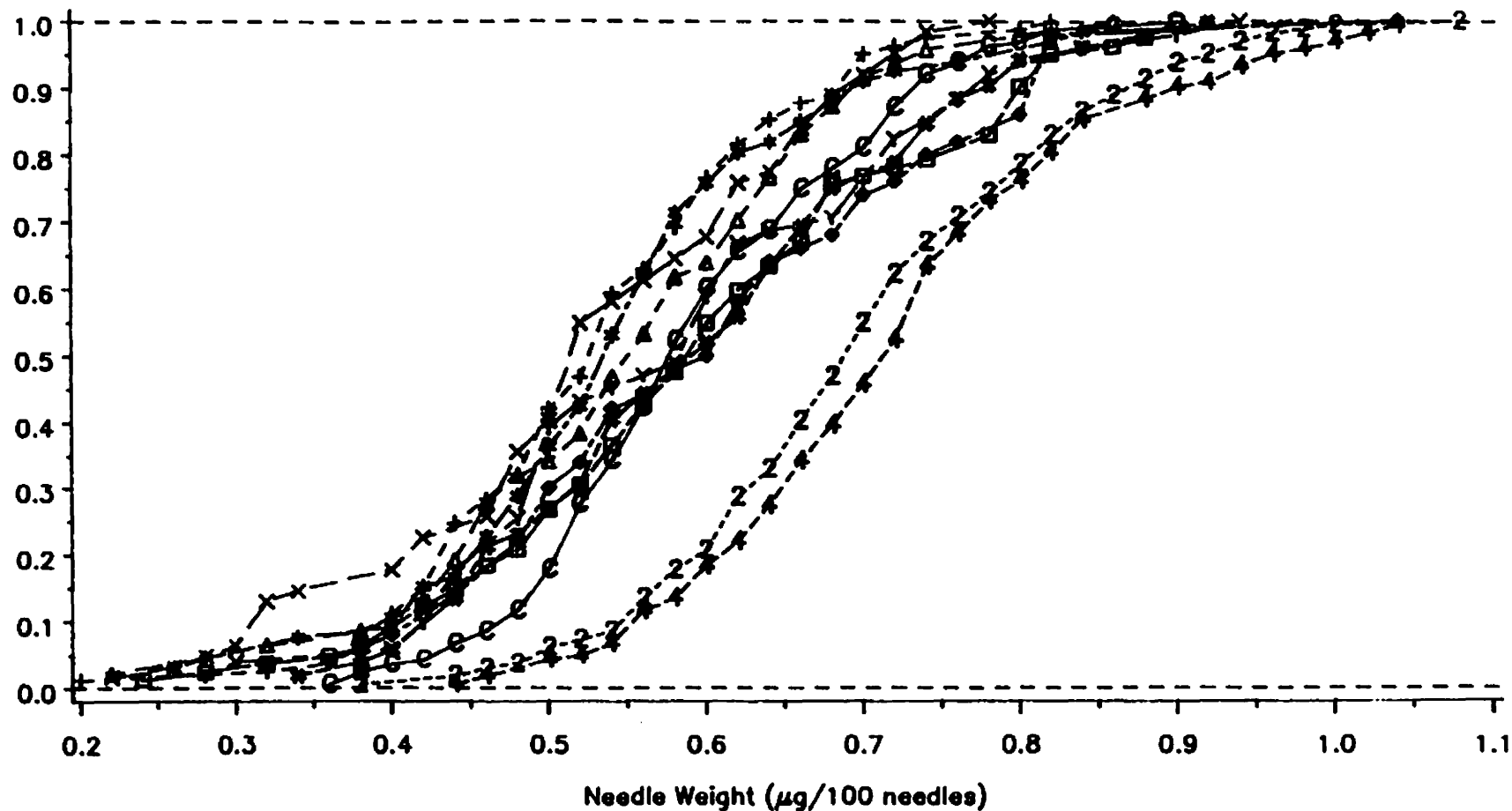
However, even with 400 pounds of additional nitrogen added to the system, almost 50 percent of the plots still had foliar nitrogen levels below the marginal threshold. Thus we might expect that growth rates would be boosted by both the 200 pound and 400 pound treatments, with the latter producing the 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 0.60 grams per 100 needles while the average weights were 0.71 and 0.73 grams on the 200 pound and 400 pound treatment plots, respectively. Both treated plot averages were significantly higher than the control average ( $p < 0.0001$ ), and the increase from 200 pound to 400 pound treatment was also significant ( $p = 0.0428$ ). 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



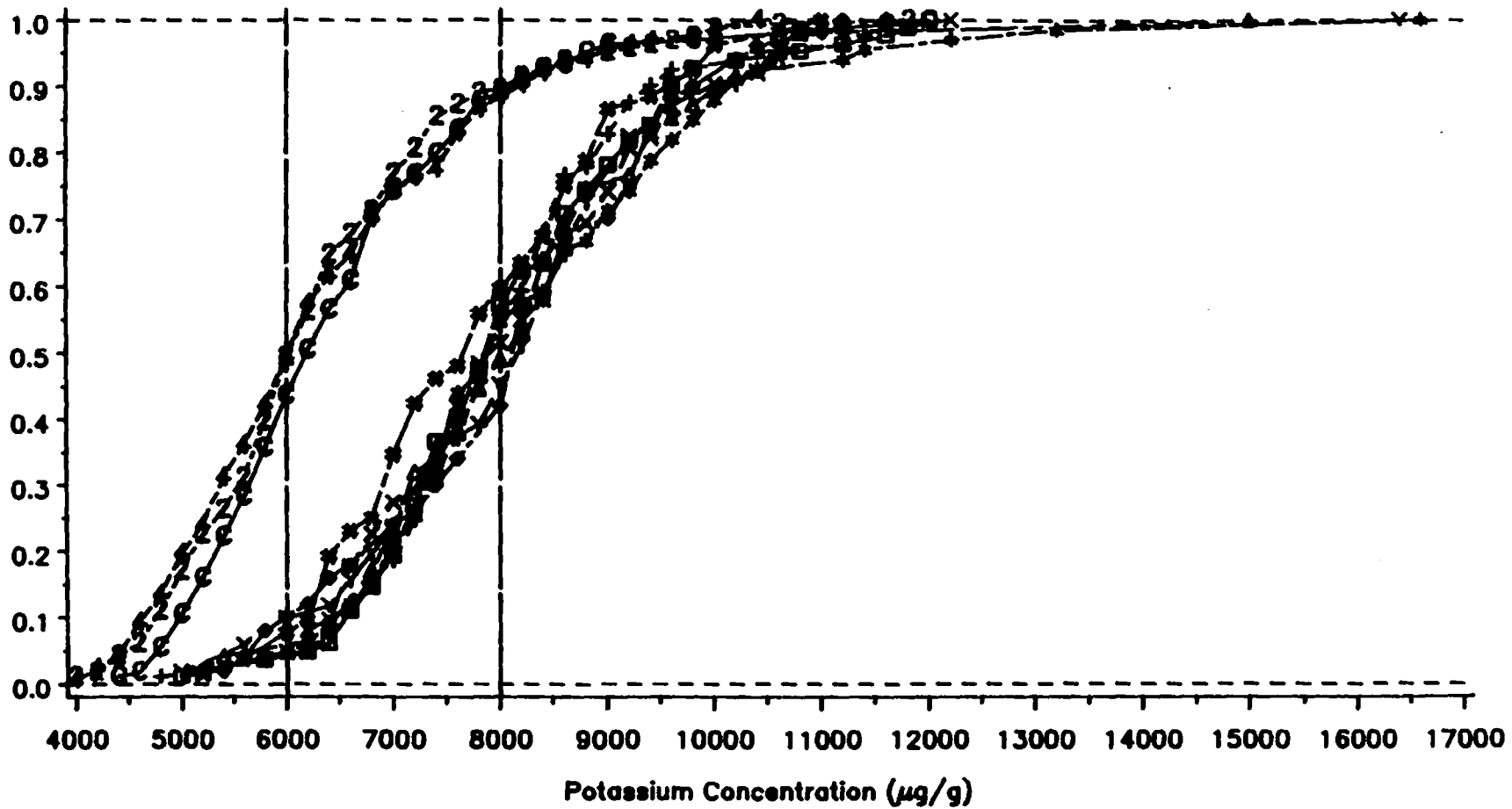
Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+ + + New--0N+0	* * * New--200N+0	◆◆◆ New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	●-●-● New--200N+N+K	×-×-× New--400N+N+K	

Figure 2. Cumulative distributions of foliage needle weights for different combinations of nitrogen and nitrogen plus potassium fertilization treatments and time frames (1982-83 and 1988-89).

Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+--+ New--0N+0	*-*-* New--200N+0	◆◆◆ New--400N+0
	⊖-⊖-⊖ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	●-●-● New--200N+N+K	∨-∨-∨ New--400N+N+K	

Figure 3. Cumulative distributions of foliar potassium concentrations for different combinations of nitrogen and nitrogen plus potassium fertilization treatments and time frames (1982-83 and 1988-89). ∞

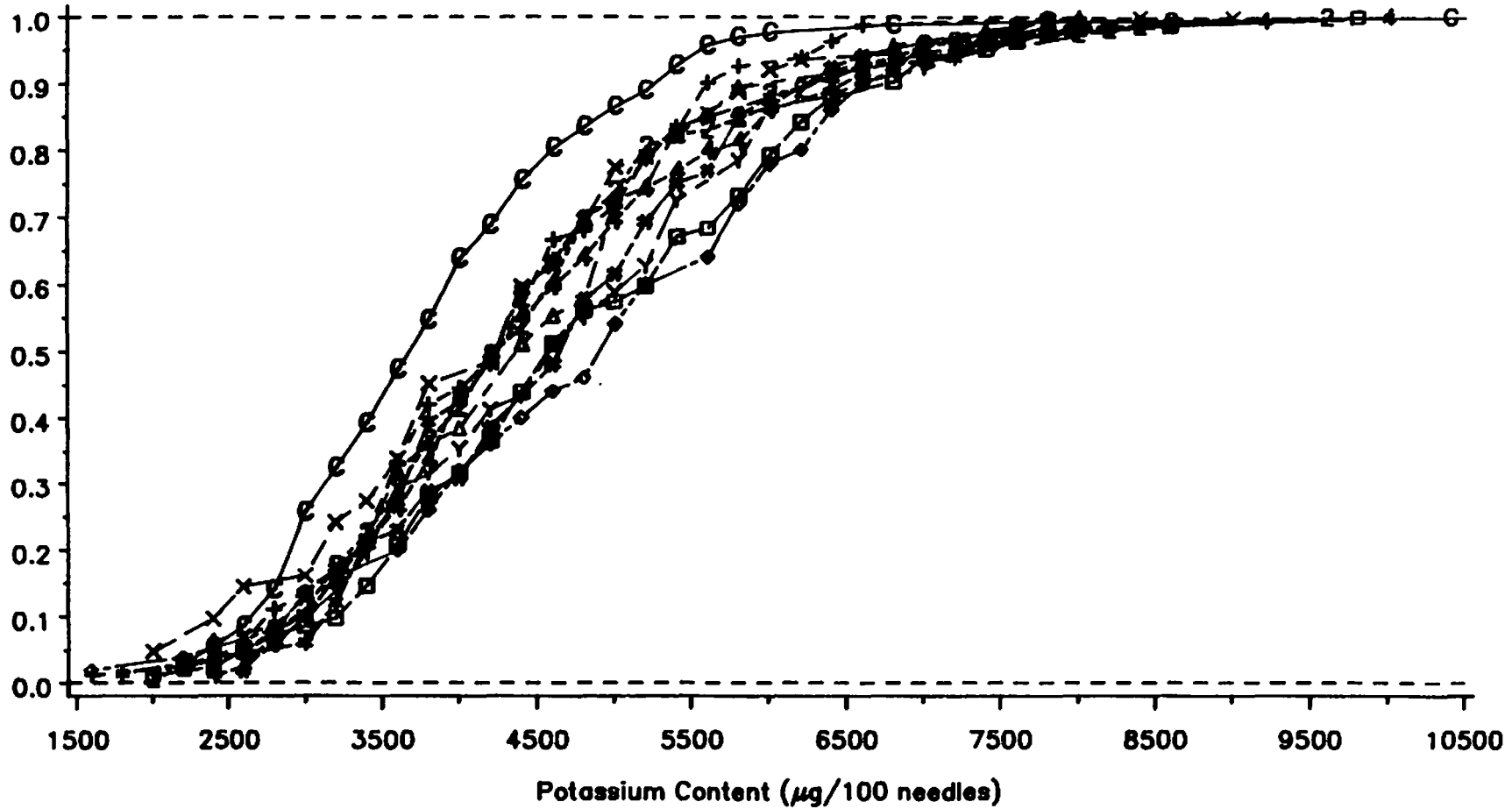
indicates that 40 to 50 percent of the plots were below the critical threshold. Also there was a tendency for treated plots to have a lower K concentration, although mean values were not different ( $p=0.1516$ ).

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 25 percent of control plots had a potassium:nitrogen ratio below critical, 65 and 85 percent of the 200 pound and 400 pound treatment plots, respectively, had insufficient K to balance their N. Average ratios were 59 percent for the control plots, 48 percent for the 200 pound treatments, and 38 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 characteristics 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

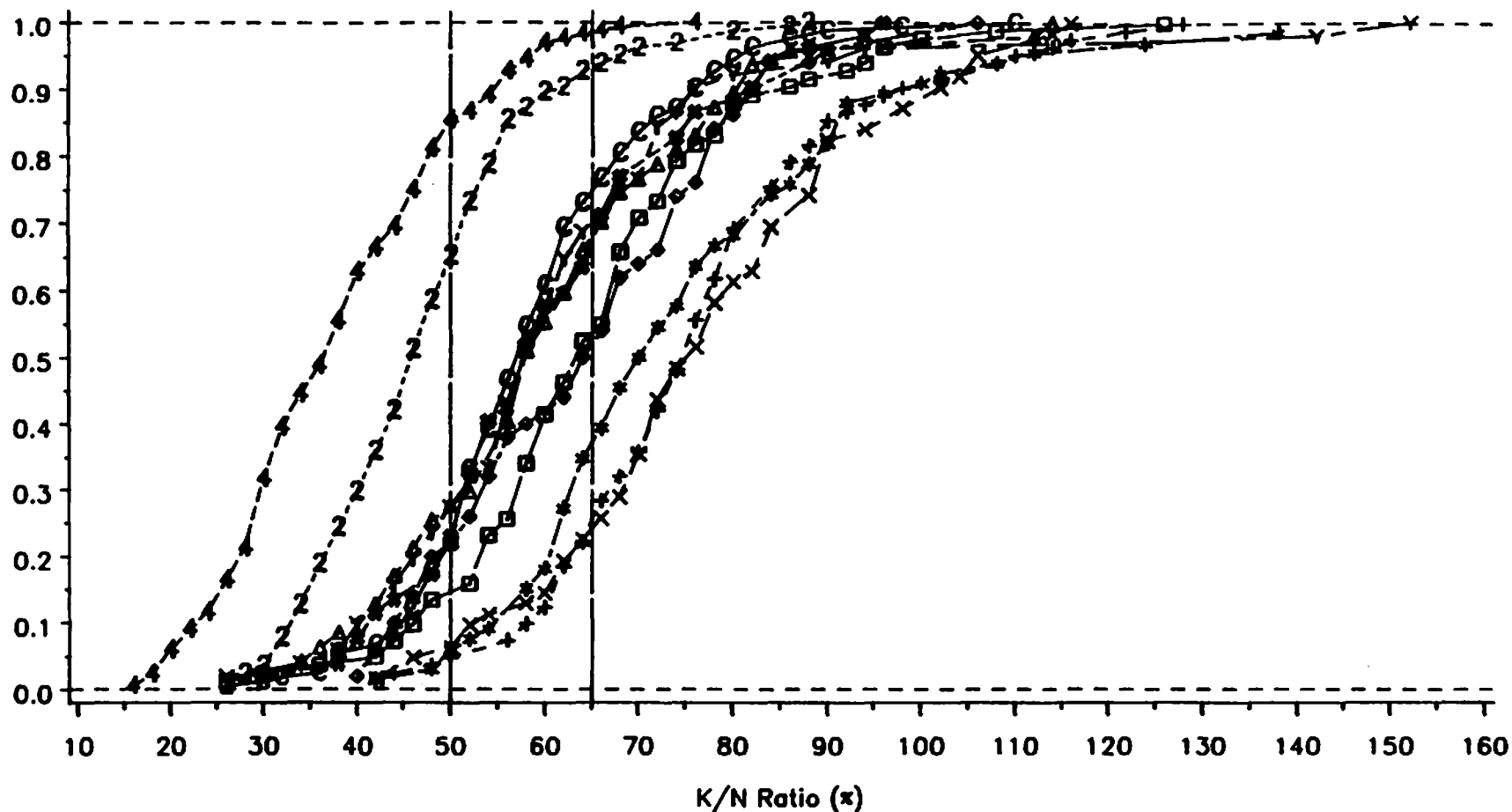
Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	◊-◊-◊ Old--200 N	◄-◄-◄ Old--400 N
	+ + + New--0N+0	* * * New--200N+0	◆◆◆ New--400N+0
	◻-◻-◻ New--0N+N+K	◇-◇-◇ New--200N+N	▲-▲-▲ New--400N+N
	●-●-● New--200N+N+K	▽-▽-▽ New--400N+N+K	

Figure 4. Cumulative distributions of foliar potassium content for different combinations of nitrogen and nitrogen plus potassium fertilization treatments and time frames (1982-83 and 1988-89).

Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+--+ New--0N+0	x-x-x New--200N+0	◆-◆-◆ New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	●-●-● New--200N+N+K	∨-∨-∨ New--400N+N+K	

Figure 5. Cumulative distributions of foliar potassium: nitrogen (K/N) concentration ratios for different combinations of nitrogen and nitrogen plus potassium fertilization treatments and time frames (1982-83 and 1988-89).

control. When superimposed over the previous treatment schedule, eight treatment combinations were produced. The average foliar value associated with each of these combinations for nitrogen concentration, needle weight, potassium concentration, potassium content, and K:N ratio, are shown in Table 2.

**Table 2. Average foliar characteristics by treatment combination one year after the second fertilizer application.**

Treatment Combinations		Nitrogen Concen (%)	Needle Weight (g/100)	Potassium Concen (ppm)	Potassium Content (ug/100)	K/N Ratio (%)
Old	New					
None	None	1.09	0.537	8100	4347	77.1
200 N	None	1.08	0.531	8163	4329	77.6
400 N	None	1.15	0.550	8420	4576	77.6
None	N + K	1.30	0.606	8138	4929	65.7
200 N	N + K	1.33	0.605	7805	4718	60.9
400 N	N + K	1.42	0.592	8264	4851	62.1
200 N	200 N	1.31	0.609	8188	4938	65.0
400 N	200 N	1.42	0.557	8275	4564	61.5

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.

The distributions of nitrogen concentrations by treatment combination are shown in figure 1. 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. Comparisons among plots with no new nitrogen and among plots with N and K added both indicated significantly higher N concentrations on old 400 pound N plots than on old controls ( $p=0.0173$  and  $p=0.0002$ , respectively). Plots previously treated with 200 pounds of N show no differences in N levels from old controls.

Needle weight distributions shown in figure 2 are similar to results from the first sampling: 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; presumably this reflects the droughty conditions of 1987 through 1989.

Potassium concentration distributions, displayed in figure 3, indicate that all treatment combinations have similar K concentrations. Comparison of means agree, showing no significant differences between means ( $p=0.3565$ ). 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, likely due to decreased needle growth. Potassium content (figure 4) is identical to previous levels, 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 ( $p=0.0001$ ). But

plots treated with potassium and nitrogen did not exhibit any increase in content ( $p=0.9165$ ) over those treated with N alone.

Ratios of K:N (figure 5) follow nitrogen concentration trends. Ratios are significantly lower for plots treated with N ( $p=0.0001$ ), but levels are generally much higher than before. The carryover effect of nitrogen on old 400 pound treatment plots was not sufficient to produce significant differences among plots receiving no new treatment ( $p=0.9674$ ), but did tend to produce lower ratios in plots receiving N plus K treatments ( $p=0.1190$ ).

#### Changes in foliar characteristics through time

In the second set of graphs, the values represent the change in foliage attributes from the first to the second sampling. Values were calculated by taking the difference in plot averages. Again, lines represent the distribution of values from different treatment combinations; the symbol key is given in Table 3.

#### Foliar nutrient trends through the growing season

Because early results of dormant season sampling failed to show higher K levels on plots treated with N and K, we were concerned that K foliar increases during the growing season may have been missed. Therefore, we decided to try sampling during the period of active growth.



**Table 3. Key to symbols for treatment combinations used in cdf's of foliar level changes through time.**

<u>Symbol</u>	<u>First Treatment</u>	<u>Second Treatment</u>
C	none	none
2	200 lbs N/a	none
4	400 lbs N/a	none
+	none	200 lbs N + 200 lbs K
X	200 lbs N/a	200 lbs N/a
*	400 lbs N/a	200 lbs N/a
(square)	200 lbs N/a	200 lbs N + 200 lbs K
(diamond)	400 lbs N/a	200 lbs N + 200 lbs K

Two installations were sampled, #283 in central Washington, and #287 in northern Idaho. Nitrogen concentrations during the growing season for the two stands are shown in Figure 6. The two stands show very similar patterns and values over time. Nitrogen concentrations begin high in early June and sharply decline during the month, likely the time of most rapid needle growth, and then begin a slow steady increase during the rest of the growing season. Differences in foliar N concentrations by treatment are "well-behaved" since N treated plots from both installations have higher N concentrations than controls. Nitrogen concentrations during the growing season seem predictable as is response to N fertilization.

Potassium concentration changes during the growing season and response to N + K fertilization is different than nitrogen patterns (Figure 7). Both installations show sharp declines during the period of rapid June growth, although the date of apparent minimum concentration is somewhat later for stand #283. Fertilization effects on K concentrations seem different for the two installations. At the first sampling period in stand #287, K concentration was highest for the N + K treatment, control was intermediate and N fertilization alone produced the lowest K concentration. However, for stand #283, the control plots K concentration was higher than any

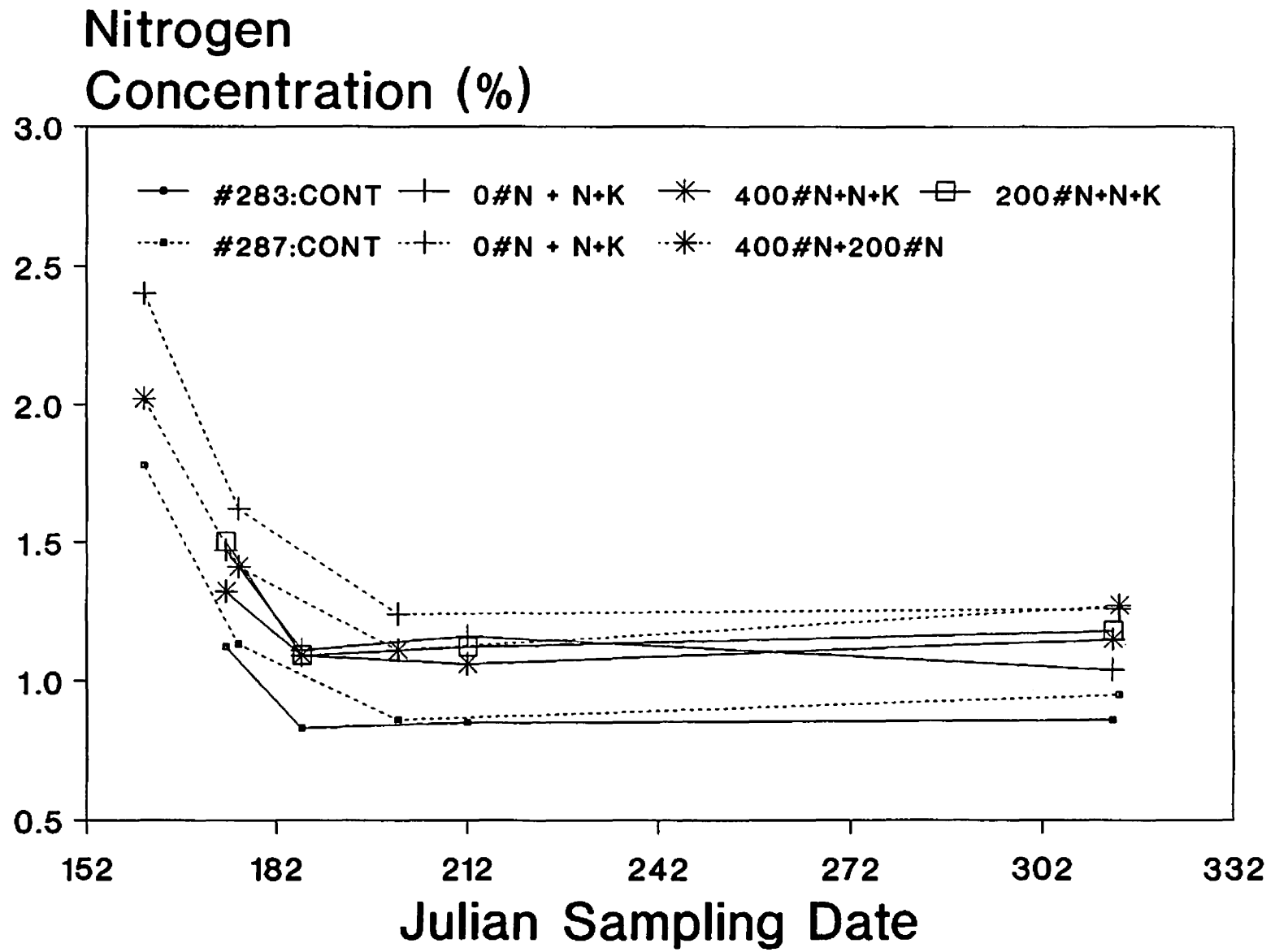


Figure 6. Foliar nitrogen concentrations during the growing season by fertilization treatment for installations 283 and 287.

# Potassium Concentration (ug/g)

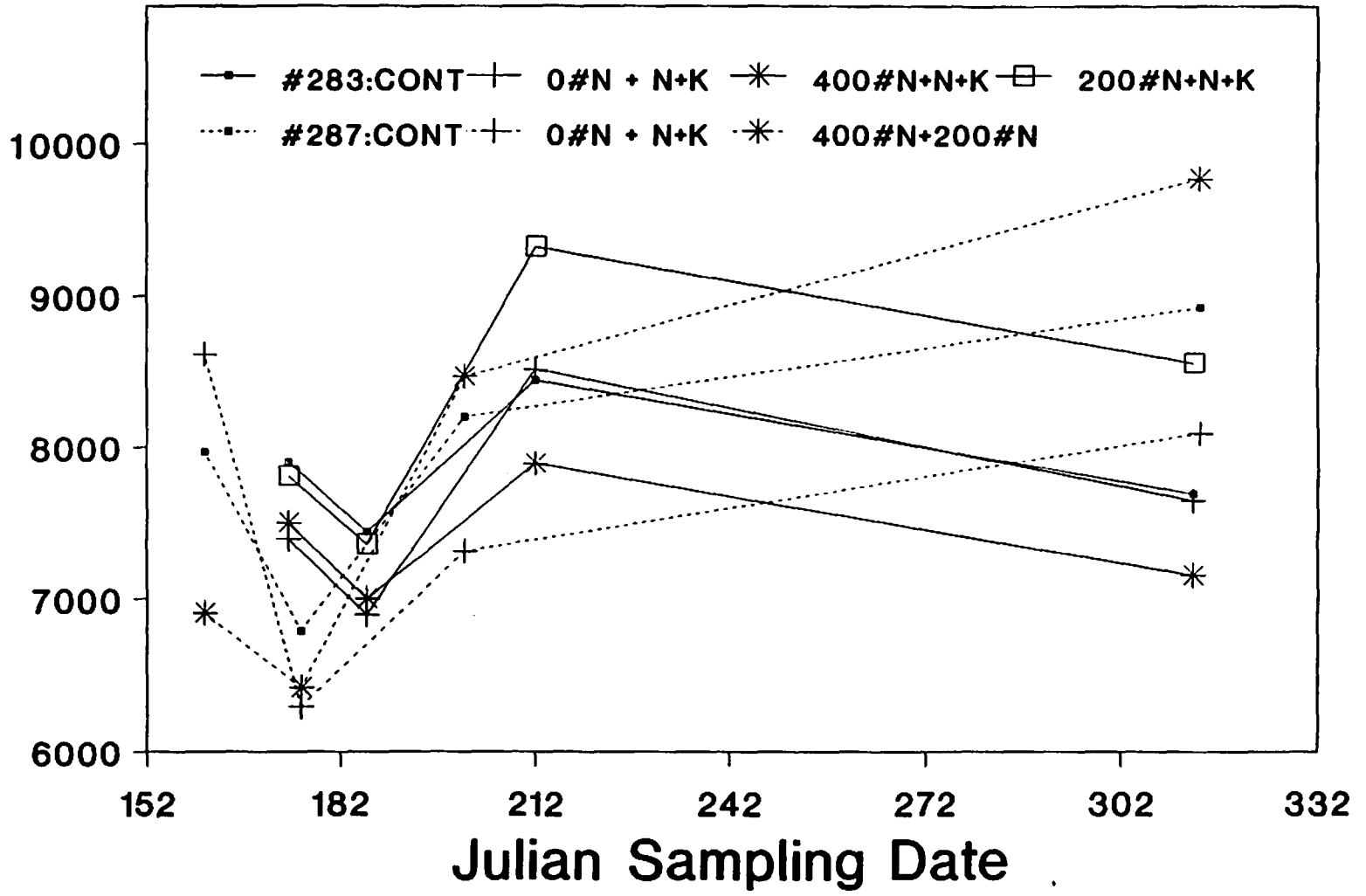


Figure 7. Foliar potassium concentrations during the growing season by fertilization treatment for installations 283 and 287.

of the N + K treatments, although differences were small between all treatments. Later in the growing season, stand #287's K concentrations tended to increase for all three treatments but not at the same rate such that by the November sampling treatment rankings of K concentrations switched positions. Potassium concentration was highest for the N only fertilization and lowest for the N + K treatment. Foliar K concentrations tended to decrease slightly during the latter part of the growing season for stand #283. The N + K treatment on the previous 200 lb. N treated plot produced the highest K concentrations at the November foliage sampling.

Soil samples from these two sites were analyzed by Jim Green, soil scientist with Unocal Science and Technology Division. Results indicate that soil potassium supply rates were about the same for non-fertilized plots from the two sites. However, soluble soil potassium was much higher (10 to 15 times as much) on N + K treated plots in stand #283 versus #287. Higher soil K levels after N + K fertilization did not result in higher foliar K concentrations for stand #283. We are unable to draw firm conclusions from these results except that K is more variable than N, and K foliage concentrations after K fertilization is more difficult to predict than N concentrations after N fertilization.

Foliar K/N concentration ratios during the growing season for both installations are provided in Figure 8. Foliar K/N ratios are low early in the growing season then increase and become stable during the latter part of the growing season. Control plots from both stands had the highest ratios. Potassium fertilization had no effect on the K/N ratio, while N fertilization lowered the ratio.

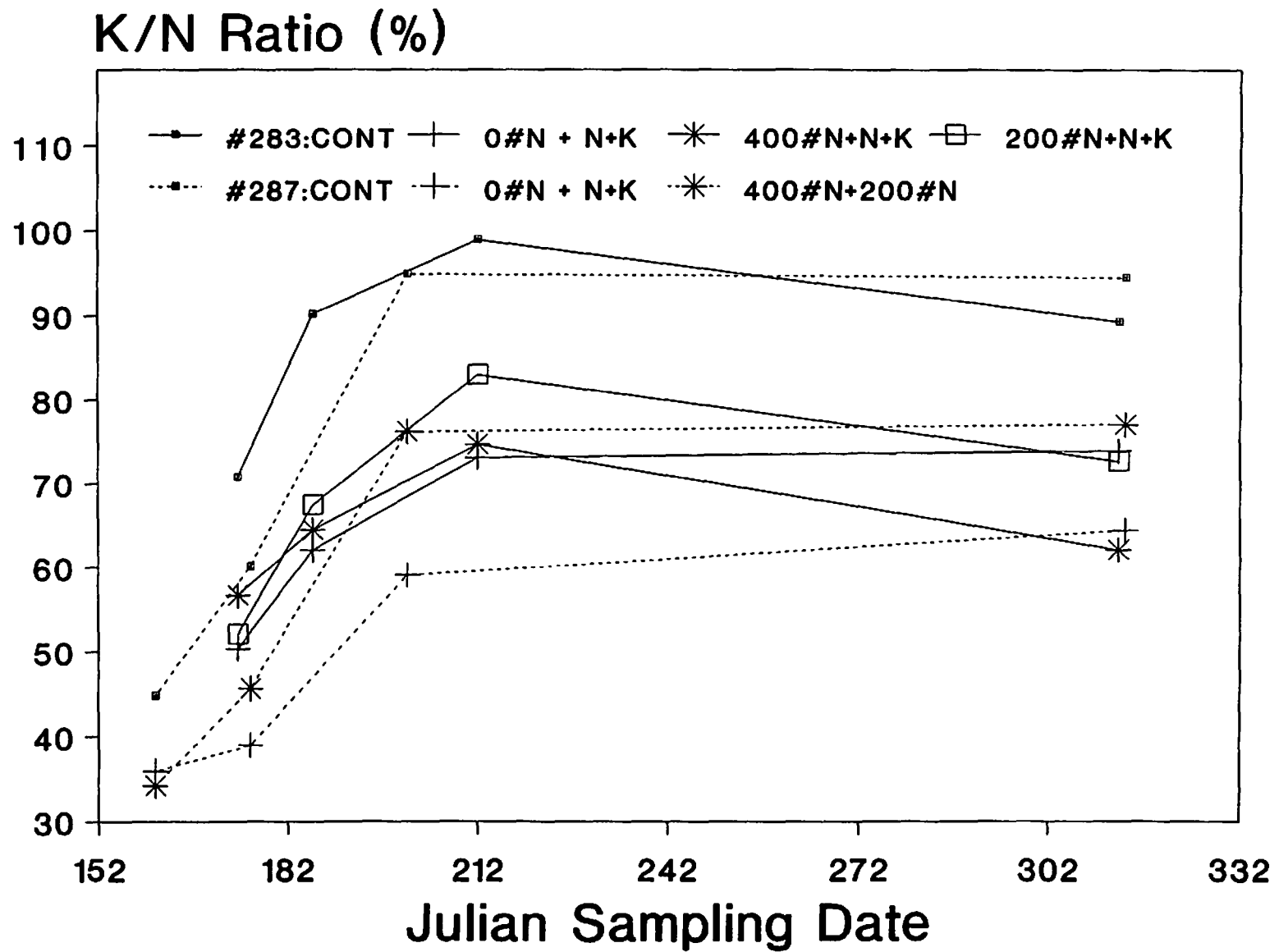


Figure 8. Foliar potassium:nitrogen (K/N) concentration ratios during the growing season by fertilization treatment for installations 283 and 287.

### 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 200 pound N treatments six years previously.

Based on this demonstrated nitrogen response and on parallel results for average needle weight following treatment, we can expect 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 possibilities 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 roots, or 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 (1981-1983) sufficient moisture was available to allow

needles to expand to the point where potassium concentrations may have become growth limiting on a few sites. 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 (1987-1989) 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.



Appendices

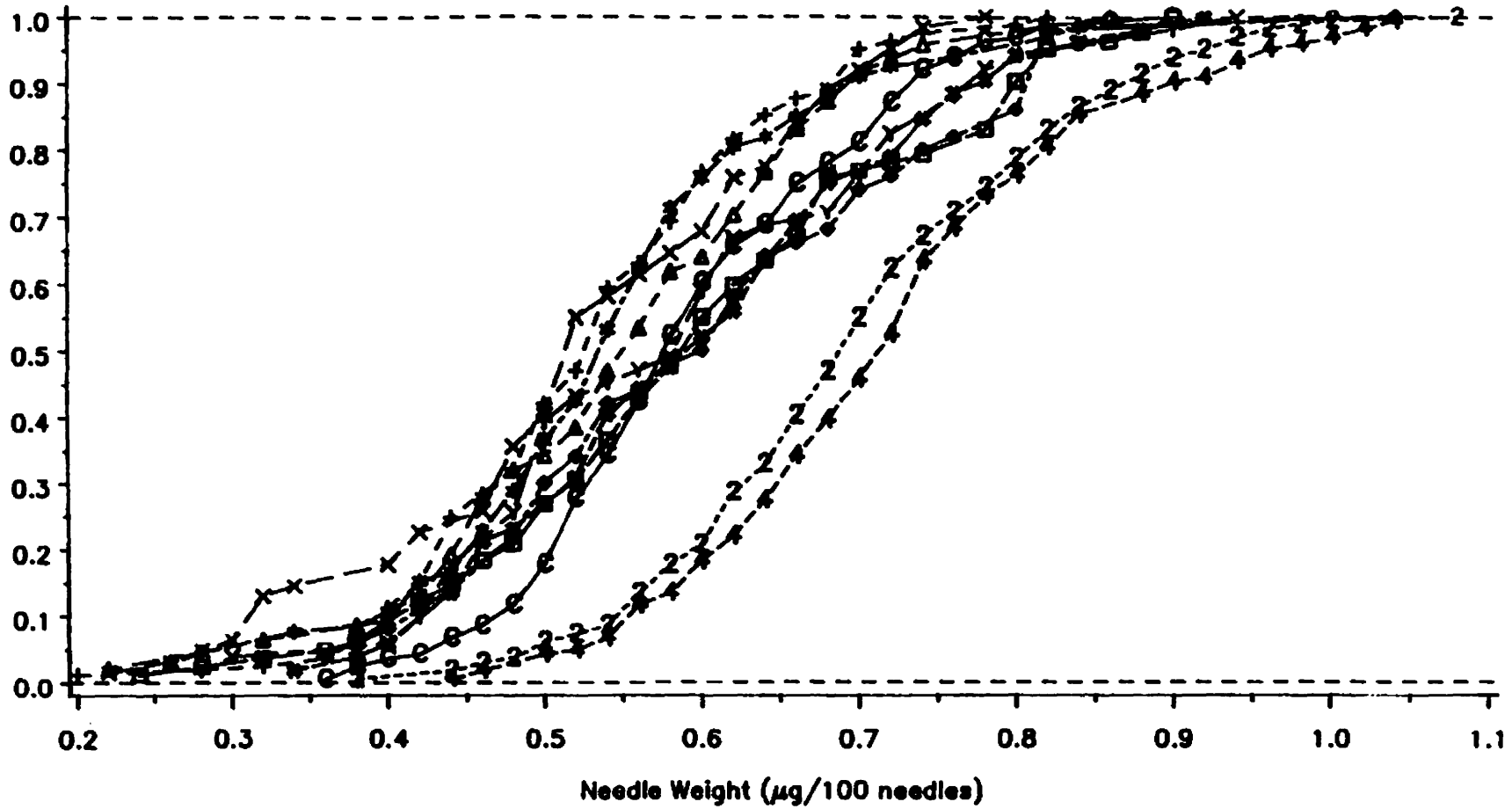
Appendix A: CDF's for foliar characteristics at each sampling time

The following pages contain cumulative distribution function graphs for foliar needle weight and nutrient levels one year after both the first and second fertilizer application. Values on the vertical axis represent the proportion of the sample that had foliar levels less than or equal to the value on the horizontal axis. The various lines represent different combinations of fertilizer treatment and sampling time; a key is provided in the table below.

**Table 4. Key to the symbols used for sampling time and treatment combinations in the cdf's of foliar levels at each sampling time.**

<u>Symbol</u>	<u>First Treatment</u>	<u>Second Treatment</u>
For foliage sampled 1 year after the first treatment:		
C	none	
2	200 lbs N/a	
4	400 lbs N/a	
For foliage sampled 1 year after the second treatment:		
+	none	none
X	200 lbs N/a	none
*	400 lbs N/a	none
(square)	none	200 lbs N + 200 lbs K
(diamond)	200 lbs N/a	200 lbs N/a
(triangle)	400 lbs N/a	200 lbs N/a
#	200 lbs N/a	200 lbs N + 200 lbs K
Y	400 lbs N/a	200 lbs N + 200 lbs K

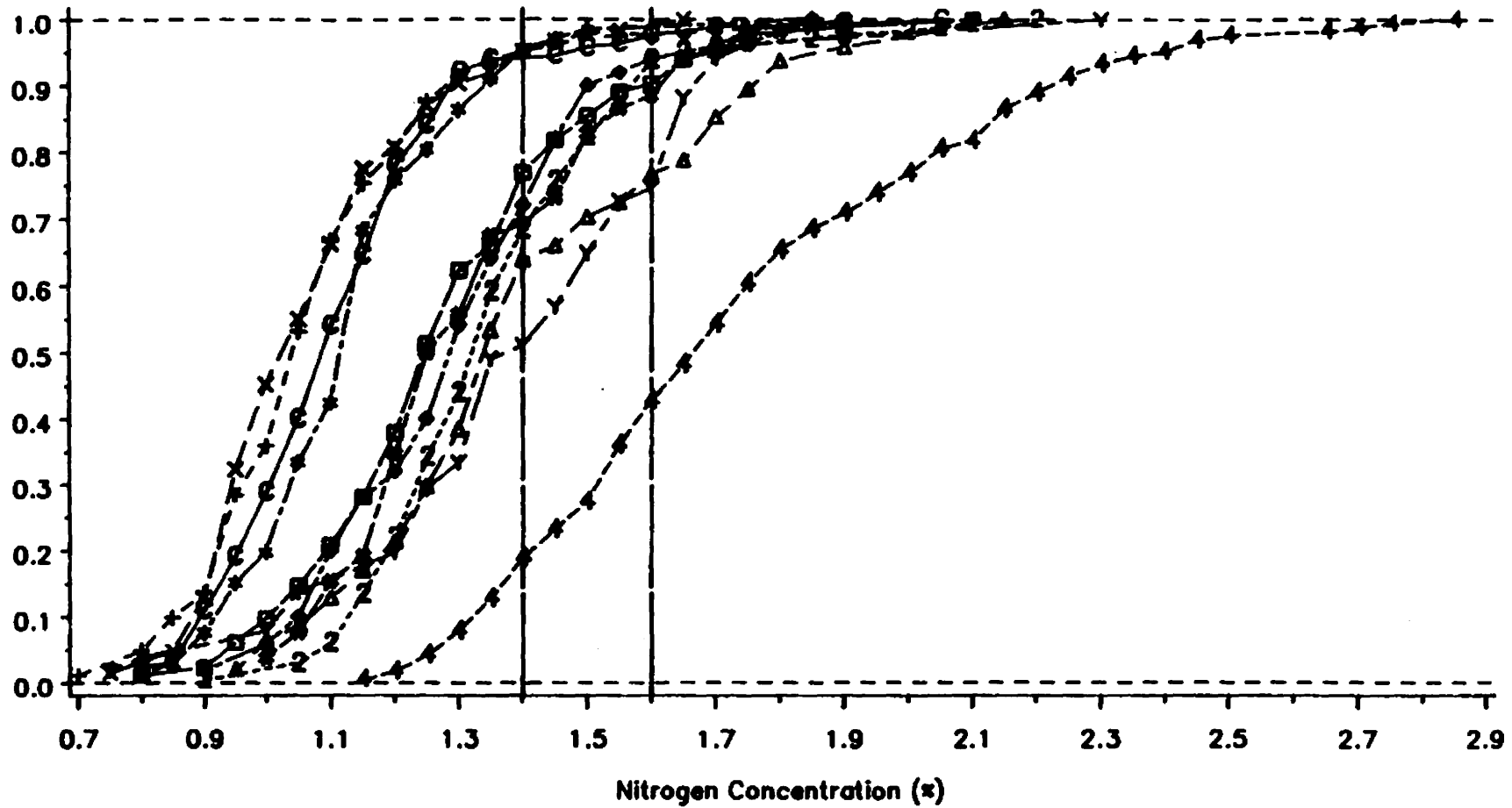
Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+ + + New--0N+0	x x x New--200N+0	◆◆◆ New--400N+0
	□□□ New--0N+N+K	◇◇◇ New--200N+N	△△△ New--400N+N
	*-*-* New--200N+N+K	∨∨∨ New--400N+N+K	

Figure 2. Cumulative distributions of foliage needle weights for different combinations of nitrogen and nitrogen plus potassium fertilization treatments and time frames (1982-83 and 1988-89).

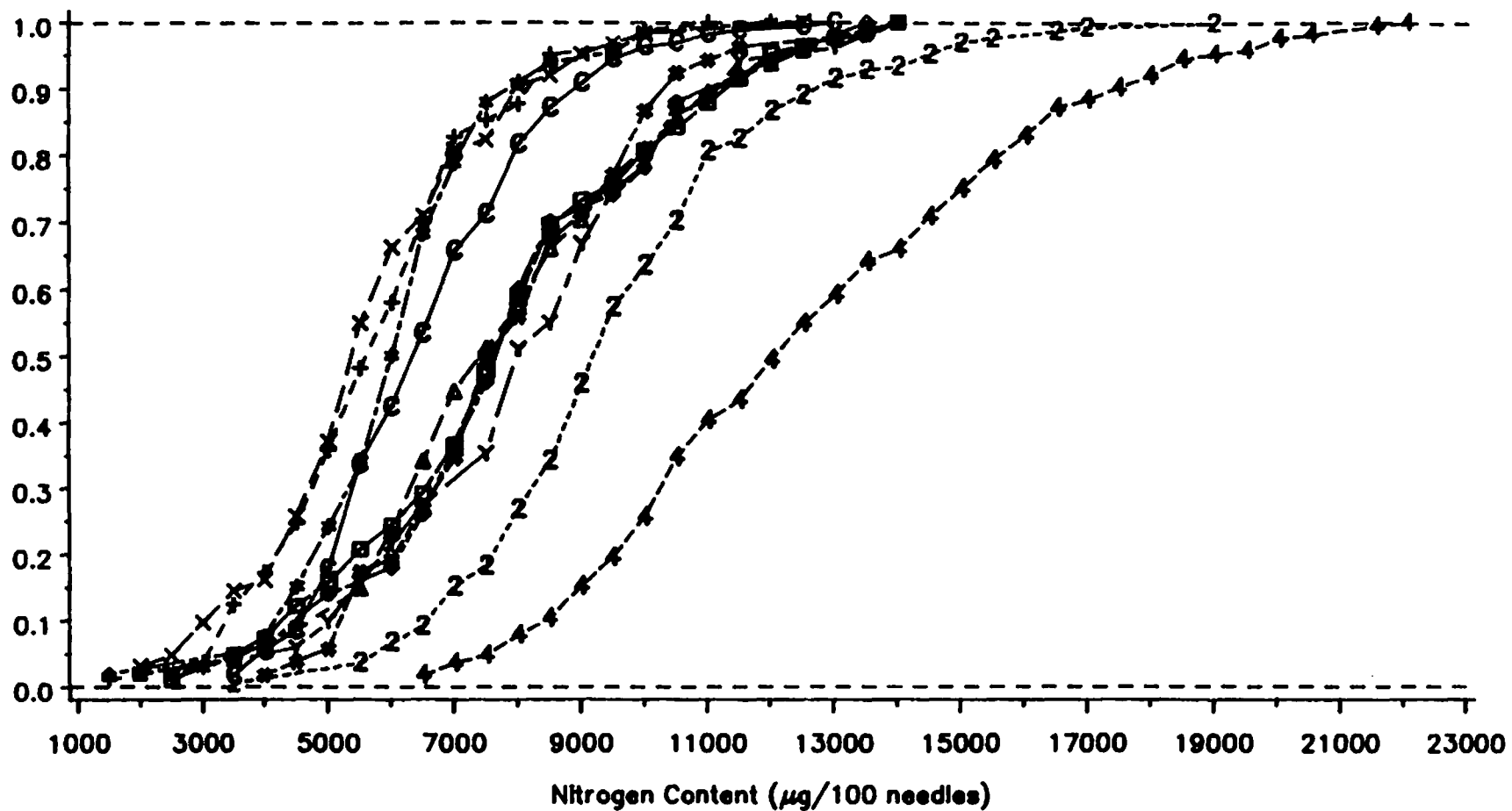
Relative  
Cumulative Frequency



Treatment	⊖-⊖-⊖ Old--0 N	⊘-⊘-⊘ Old--200 N	⊚-⊚-⊚ Old--400 N
	+--+ New--0N+0	×-×-× New--200N+0	⊙-⊙-⊙ New--400N+0
	⊠-⊠-⊠ New--0N+N+K	⊖-⊖-⊖ New--200N+N	⊚-⊚-⊚ New--400N+N
	⊙-⊙-⊙ New--200N+N+K	⊘-⊘-⊘ New--400N+N+K	

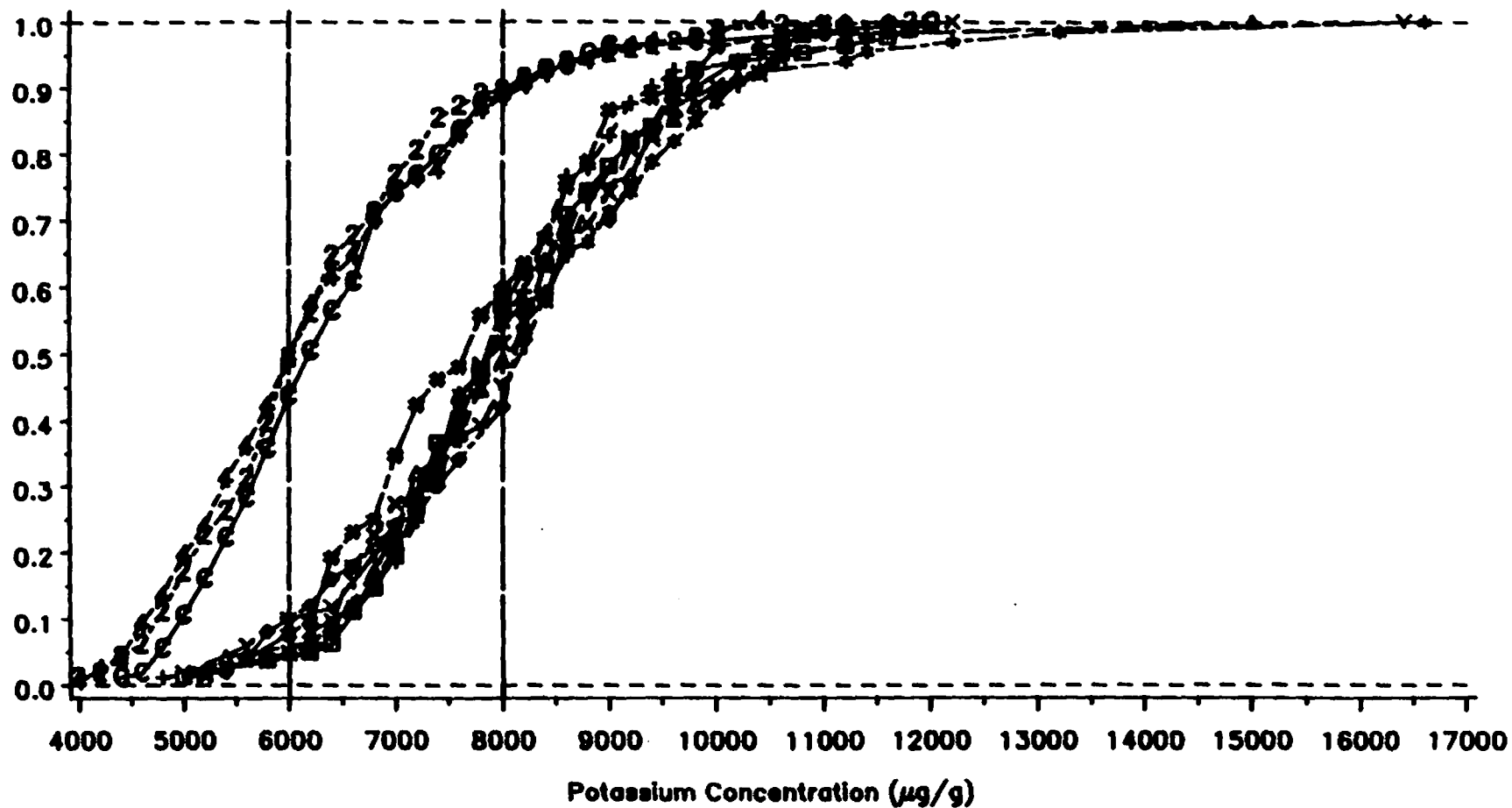
Figure 1. Cumulative distributions of foliar nitrogen concentrations for different combinations of nitrogen and nitrogen plus potassium fertilization treatments and time frames (1982-83 and 1988-89).

Relative  
Cumulative Frequency



Treatment	⊖-⊖-⊖ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+ + + New--0N+0	* * * New--200N+0	◆◆◆ New--400N+0
	⊖-⊖-⊖ New--0N+N+K	◇◇◇ New--200N+N	△△△ New--400N+N
	⊖-⊖-⊖ New--200N+N+K	∨ ∨ ∨ New--400N+N+K	

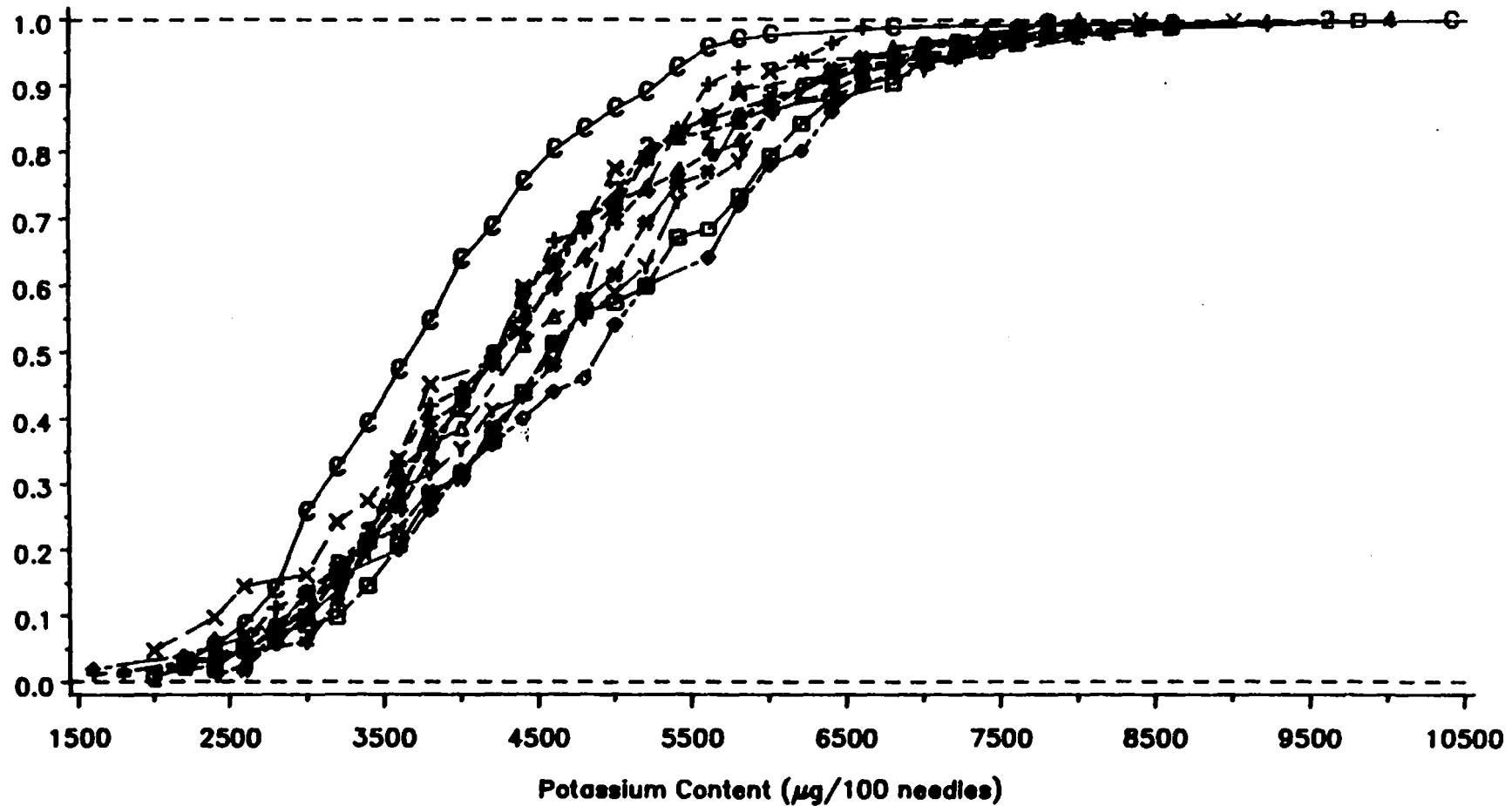
Relative  
Cumulative Frequency



Treatment	⊖-⊖-⊖ Old--0 N	⊖-2-2 Old--200 N	⊖-4-4 Old--400 N
	+ + + New--0N+0	* * * New--200N+0	⊖-⊖-⊖ New--400N+0
	⊖-⊖-⊖ New--0N+N+K	⊖-⊖-⊖ New--200N+N	⊖-⊖-⊖ New--400N+N
	⊖-⊖-⊖ New--200N+N+K	⊖-⊖-⊖ New--400N+N+K	

Figure 3. Cumulative distributions of foliar potassium concentrations for different combinations of nitrogen and nitrogen plus potassium fertilization treatments and time frames (1982-83 and 1988-89).

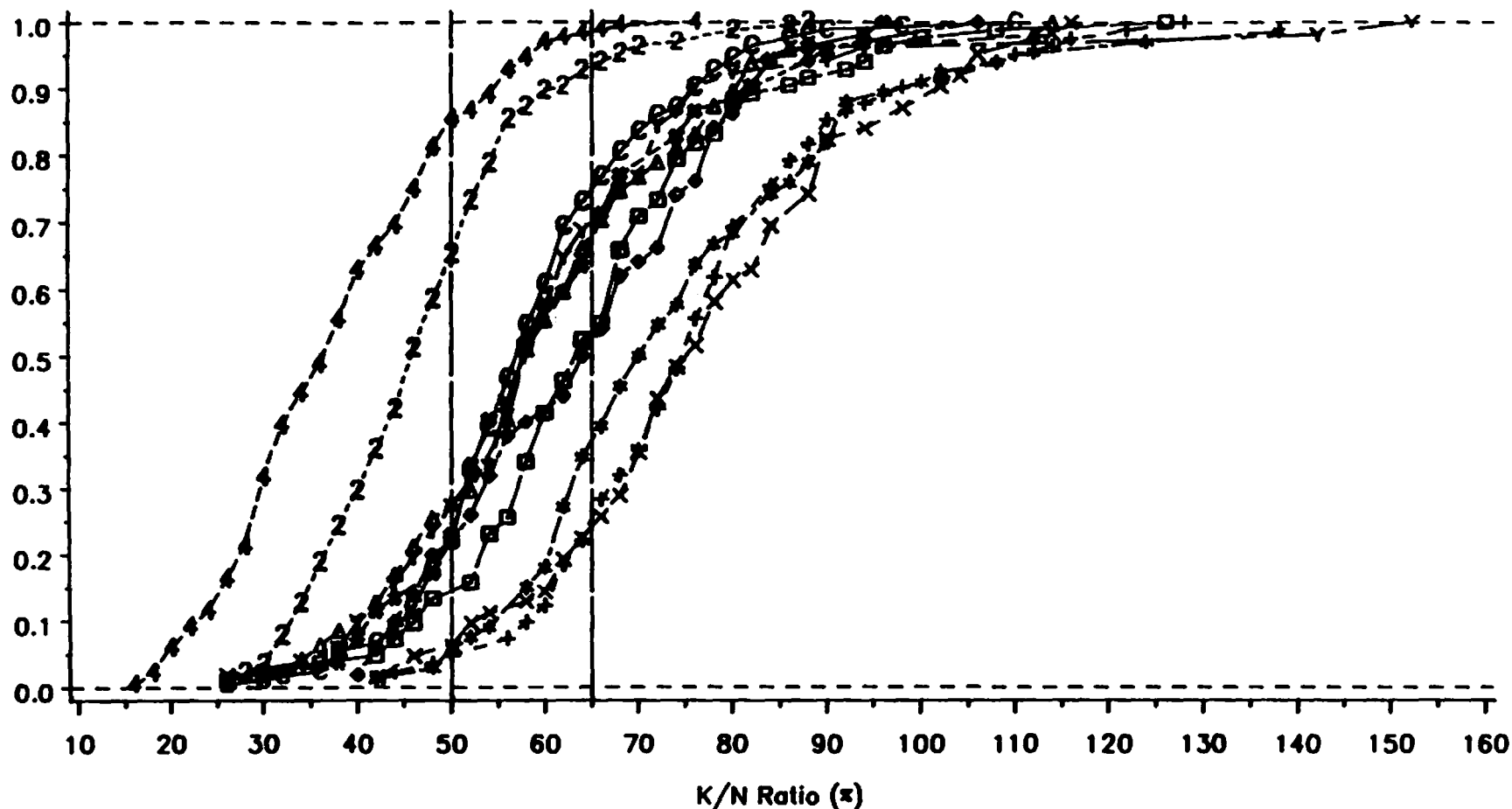
Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	⊖-⊖-⊖ Old--200 N	⊣-⊣-⊣ Old--400 N
	+ + + New--0N+0	× × × New--200N+0	⊕-⊕-⊕ New--400N+0
	⊠-⊠-⊠ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	⊙-⊙-⊙ New--200N+N+K	∨-∨-∨ New--400N+N+K	

Figure 4. Cumulative distributions of foliar potassium content for different combinations of nitrogen and nitrogen plus potassium fertilization treatments and time frames (1982-83 and 1988-89).

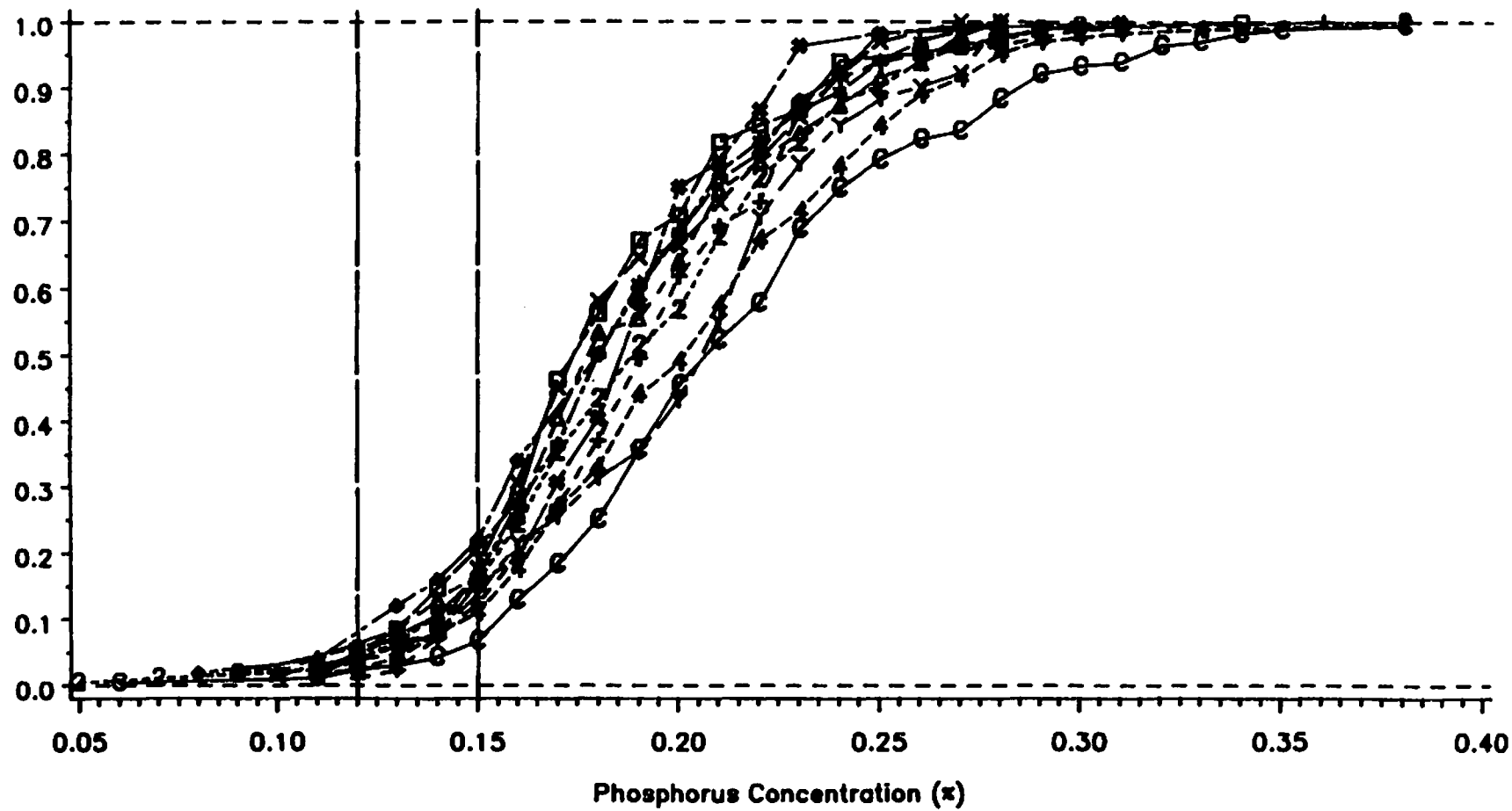
Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+--+ New--0N+0	x-x-x New--200N+0	◆-◆-◆ New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	●-●-● New--200N+N+K	∨-∨-∨ New--400N+N+K	

Figure 5. Cumulative distributions of foliar potassium: nitrogen (K/N) concentration ratios for different combinations of nitrogen and nitrogen plus potassium fertilization treatments and time frames (1982-83 and 1988-89).

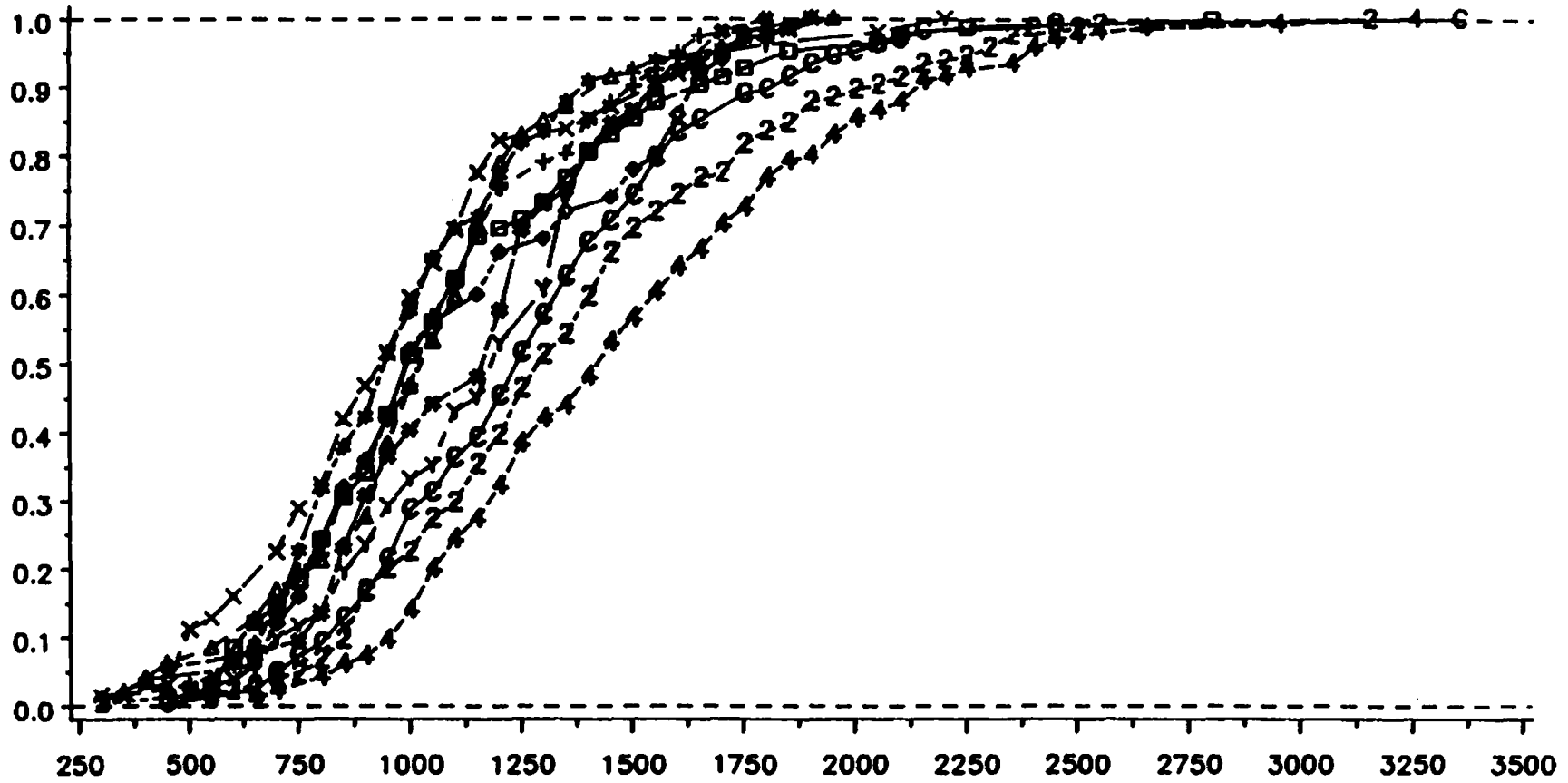
Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	□-□-□ Old--200 N	△-△-△ Old--400 N
	+--+ New--0N+0	*-*-* New--200N+0	◆-◆-◆ New--400N+0
	⊞-⊞-⊞ New--0N+N+K	◇-◇-◇ New--200N+N	▲-▲-▲ New--400N+N
	⊠-⊠-⊠ New--200N+N+K	▽-▽-▽ New--400N+N+K	



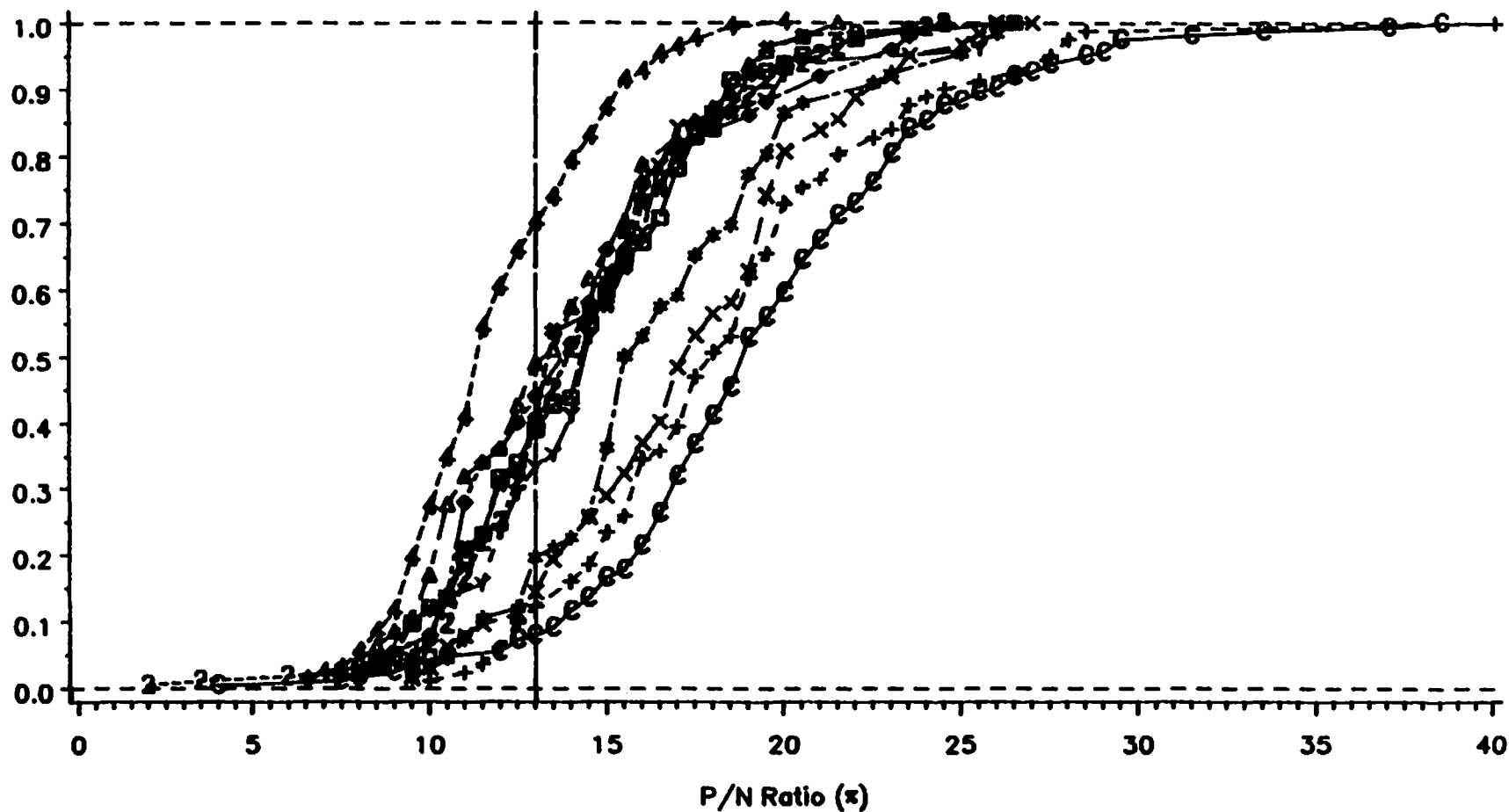
Relative  
Cumulative Frequency



Phosphorus Content ( $\mu\text{g}/100$  needles)

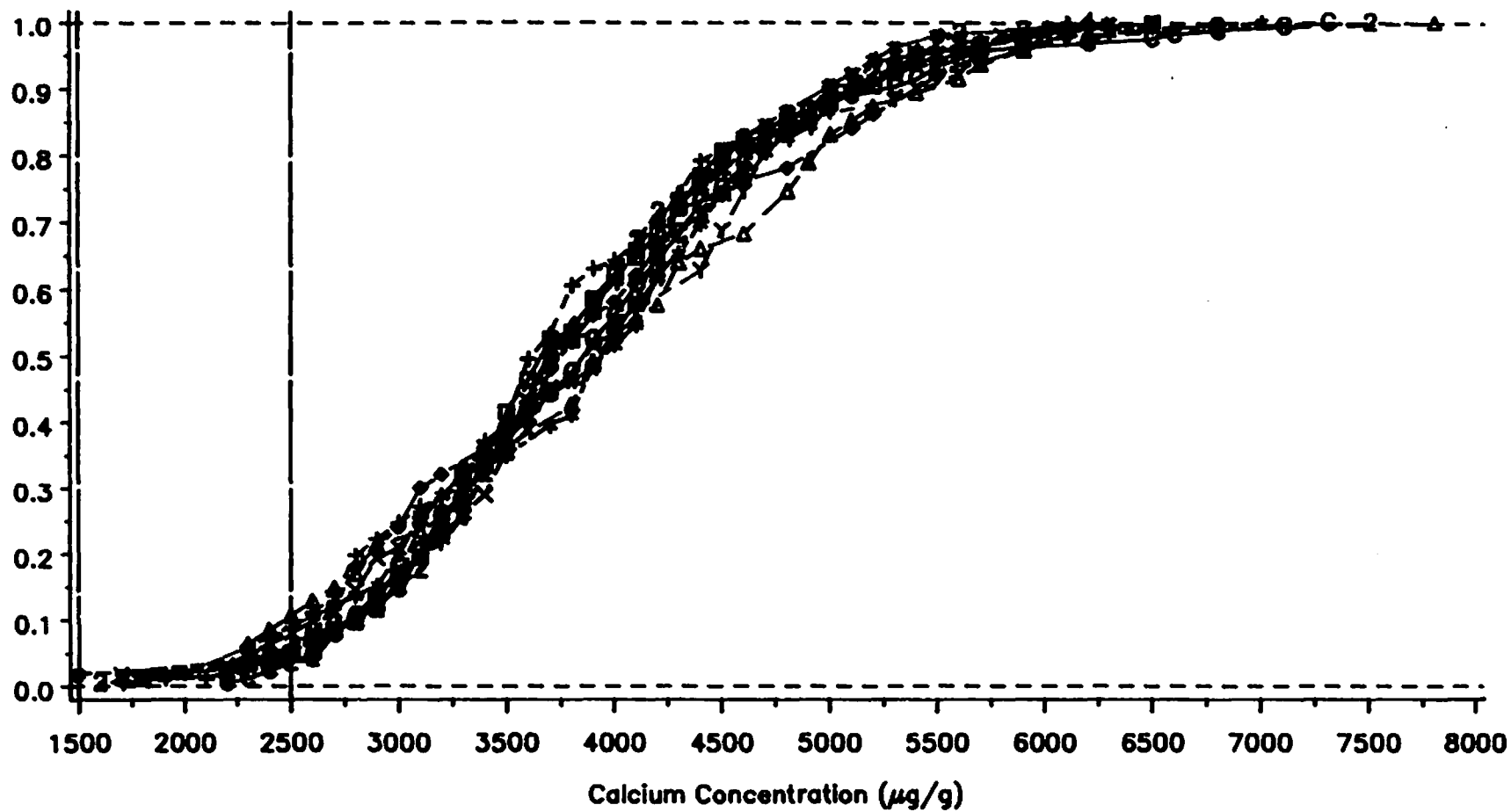
Treatment	○-○-○ Old--0 N	⊖-⊖-⊖ Old--200 N	⊣-⊣-⊣ Old--400 N
	+ + + New--0N+0	* * * New--200N+0	⊕-⊕-⊕ New--400N+0
	⊞-⊞-⊞ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	⊛-⊛-⊛ New--200N+N+K	∨-∨-∨ New--400N+N+K	

Relative  
Cumulative Frequency



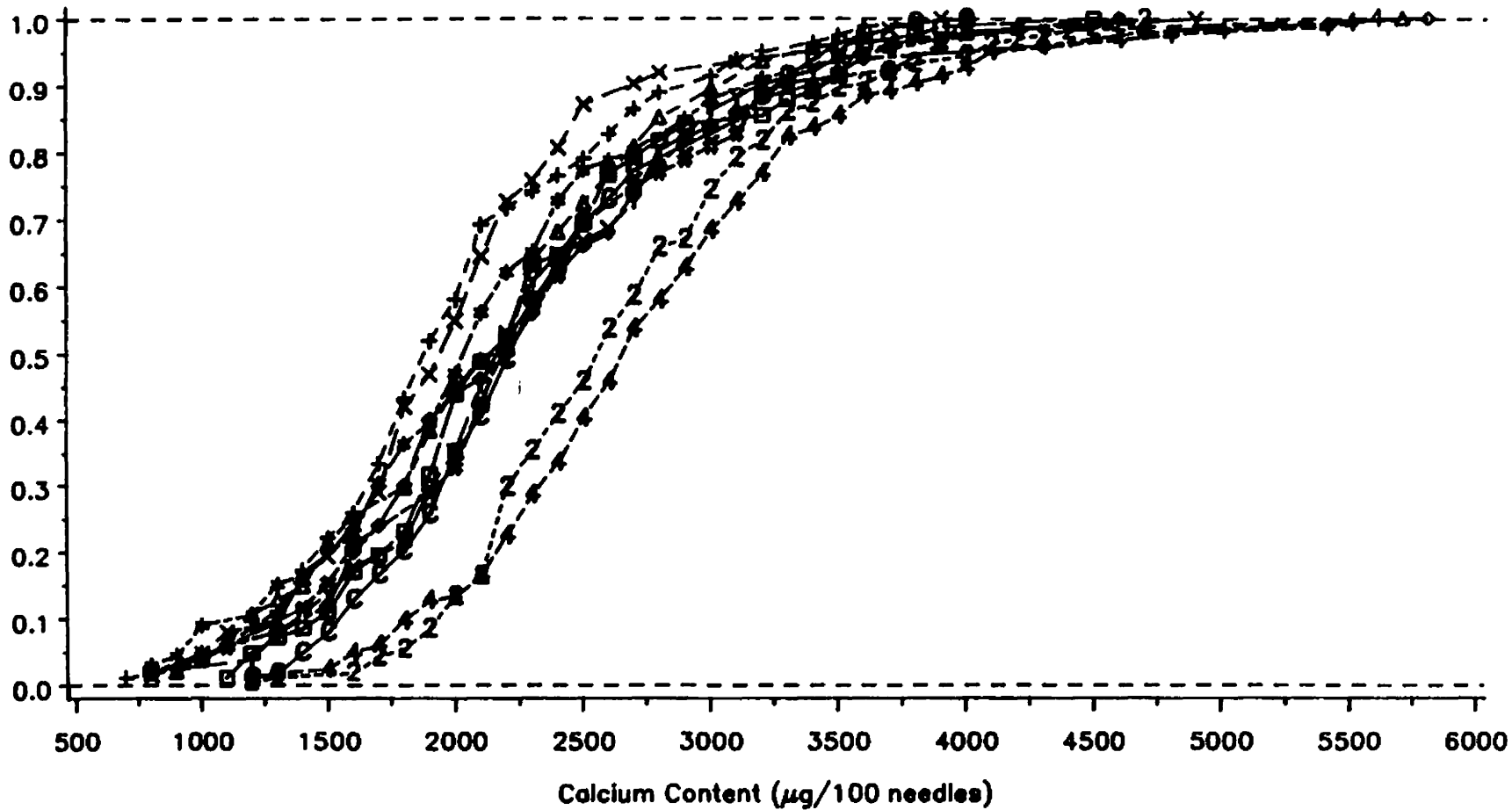
Treatment	○-○-○ Old--0 N	●-●-● Old--200 N	▲-▲-▲ Old--400 N
	+--+ New--0N+0	×-×-× New--200N+0	◆-◆-◆ New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	⊛-⊛-⊛ New--200N+N+K	∨-∨-∨ New--400N+N+K	

Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+--+ New--0N+0	*-*-* New--200N+0	*-*-* New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	●-●-● New--200N+N+K	Y-Y-Y New--400N+N+K	

Relative  
Cumulative Frequency



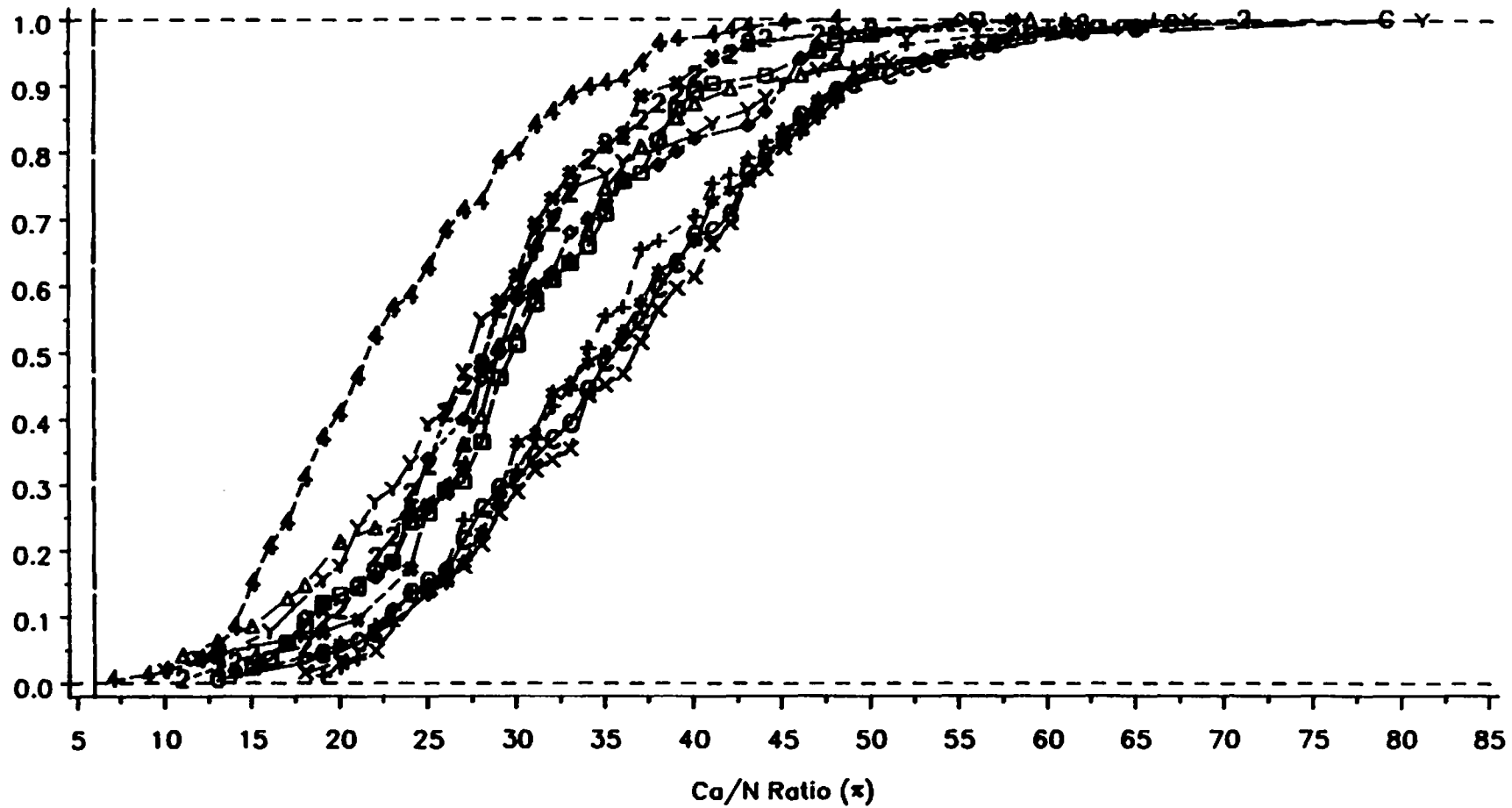
Treatment

○-○-○ Old--0 N  
 +--+ New--0N+0  
 □-□-□ New--0N+N+K  
 ●-●-● New--200N+N+K

⊖-⊖-⊖ Old--200 N  
 ×-×-× New--200N+0  
 ◇-◇-◇ New--200N+N  
 √-√-√ New--400N+N+K

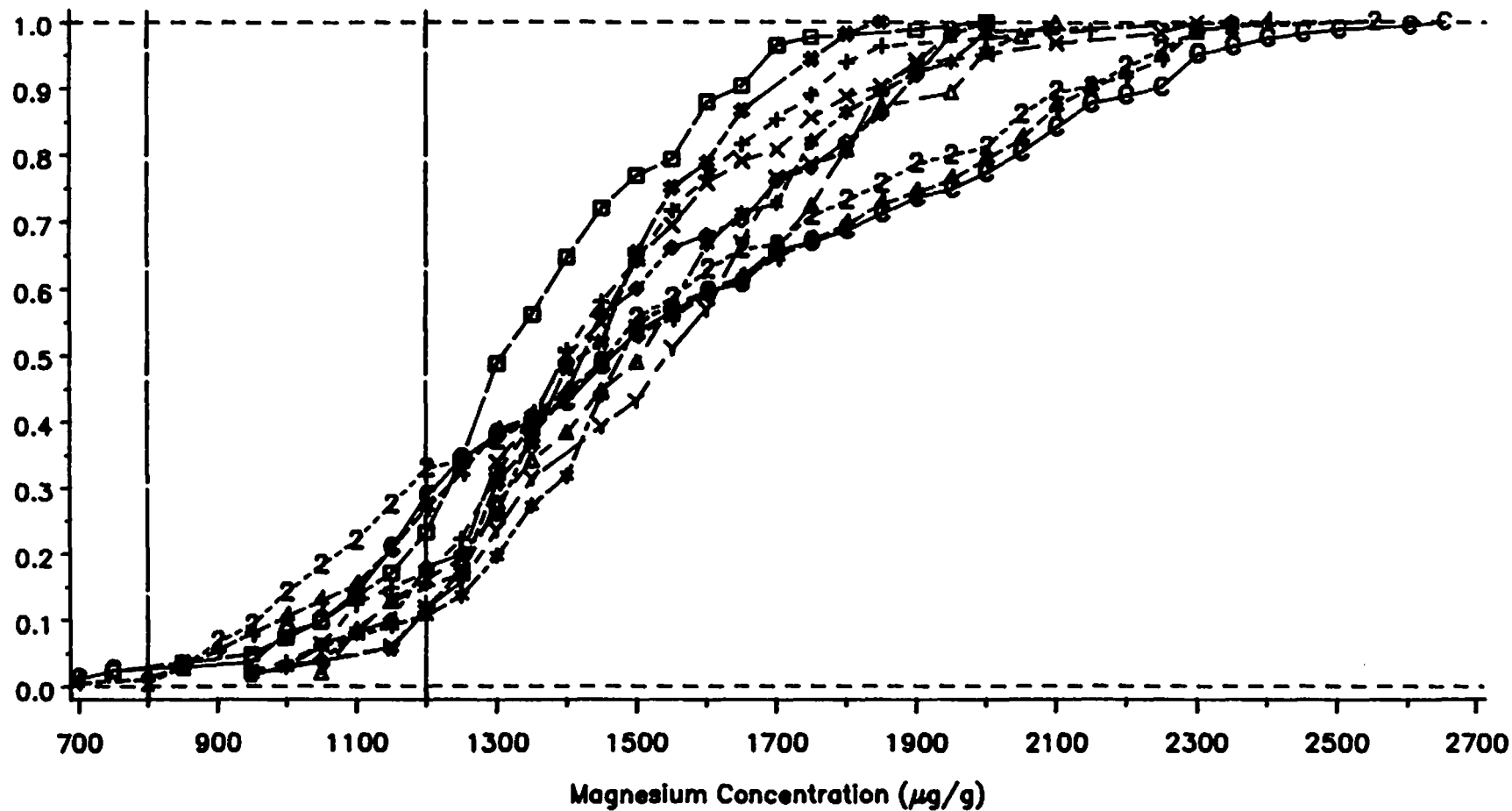
⊔-⊔-⊔ Old--400 N  
 ◆-◆-◆ New--400N+0  
 △-△-△ New--400N+N

Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+ + + New--0N+0	* * * New--200N+0	◆◆◆ New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	⊗-⊗-⊗ New--200N+N+K	∨-∨-∨ New--400N+N+K	

Relative  
Cumulative Frequency



Treatment

○-○-○ Old--0 N

+ + + New--0N+0

□-□-□ New--0N+N+K

\*-\*-\* New--200N+N+K

②-②-② Old--200 N

\*-\*- New--200N+0

◇-◇-◇ New--200N+N

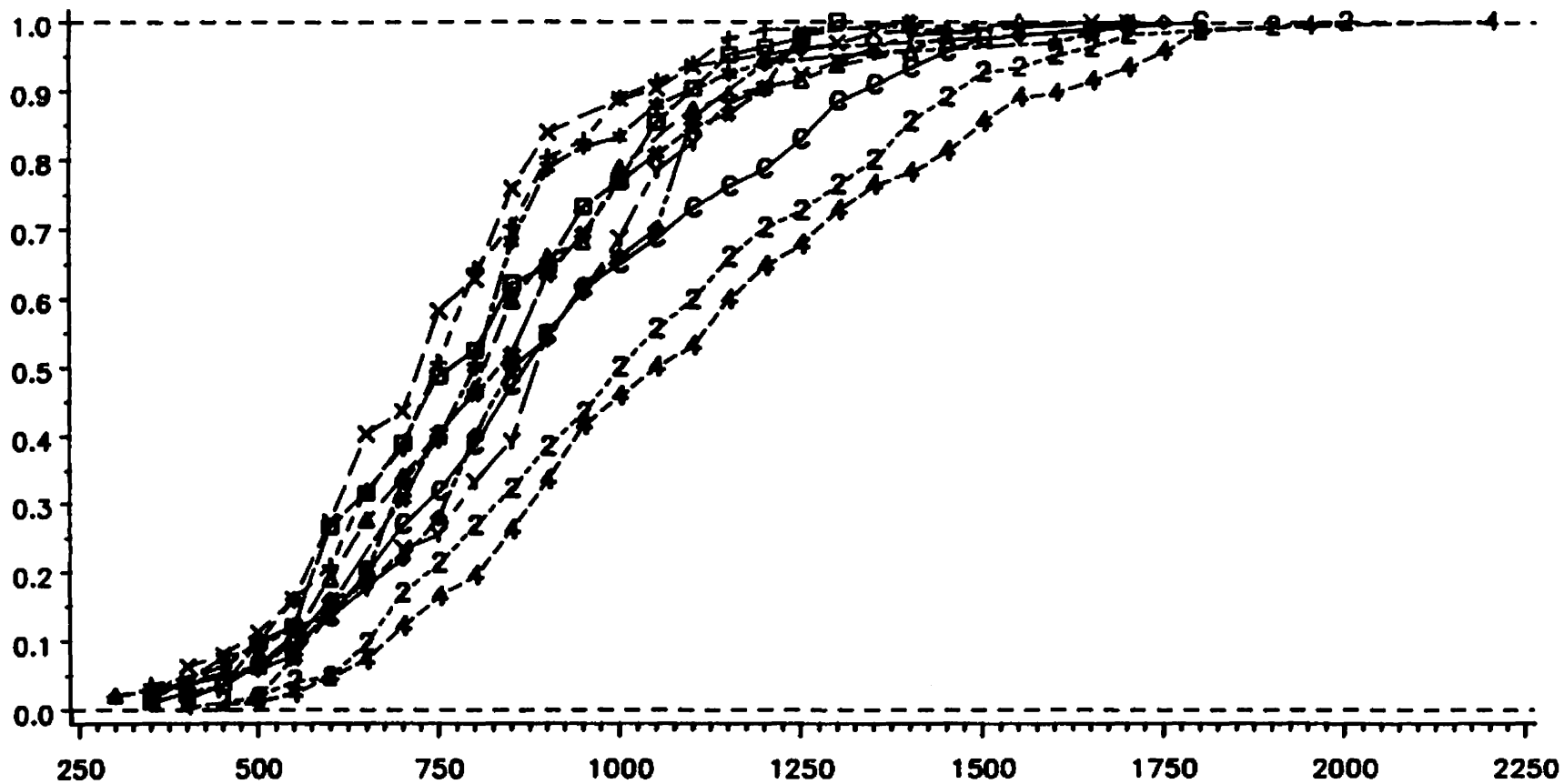
∨-∨-∨ New--400N+N+K

④-④-④ Old--400 N

◆-◆-◆ New--400N+0

△-△-△ New--400N+N

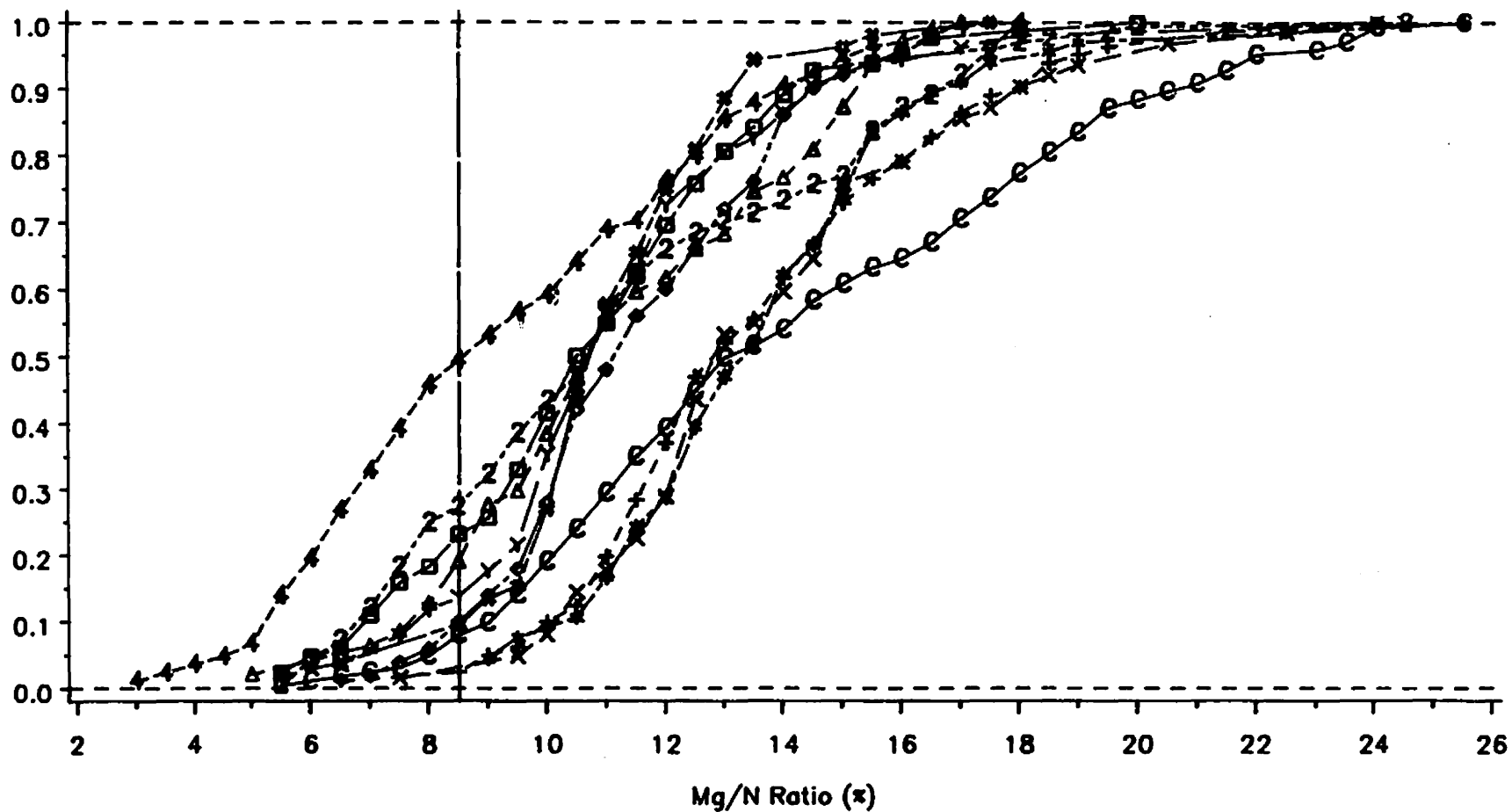
Relative  
Cumulative Frequency



Magnesium Content ( $\mu\text{g}/100$  needles)

Treatment	G-G-G Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+ + + New--0N+0	x x x New--200N+0	* * * New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	*-*-*- New--200N+N+K	∨-∨-∨ New--400N+N+K	

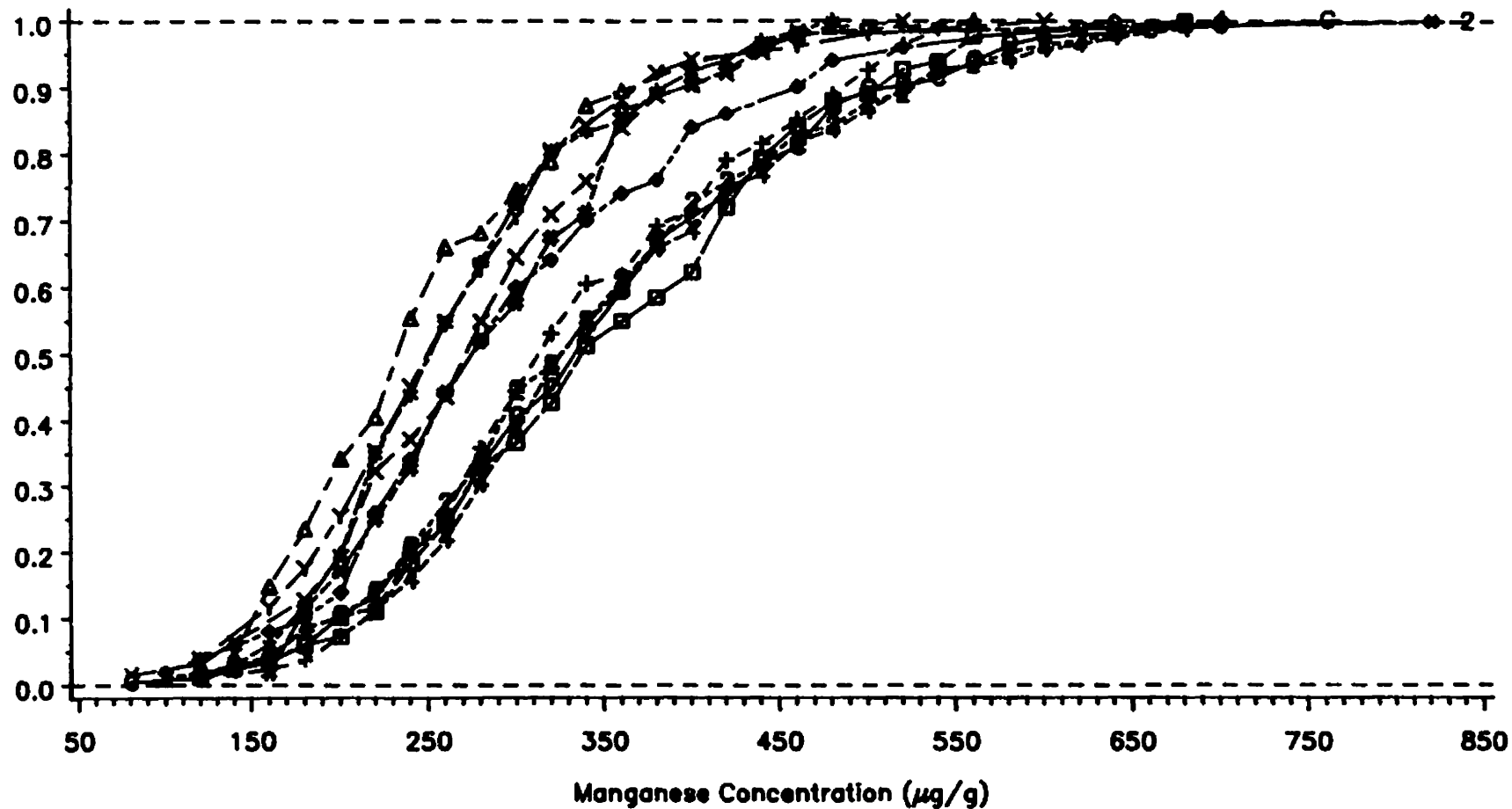
Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+ + + New--0N+0	* * * New--200N+0	* * * New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	*-*-*- New--200N+N+K	γ-γ-γ New--400N+N+K	

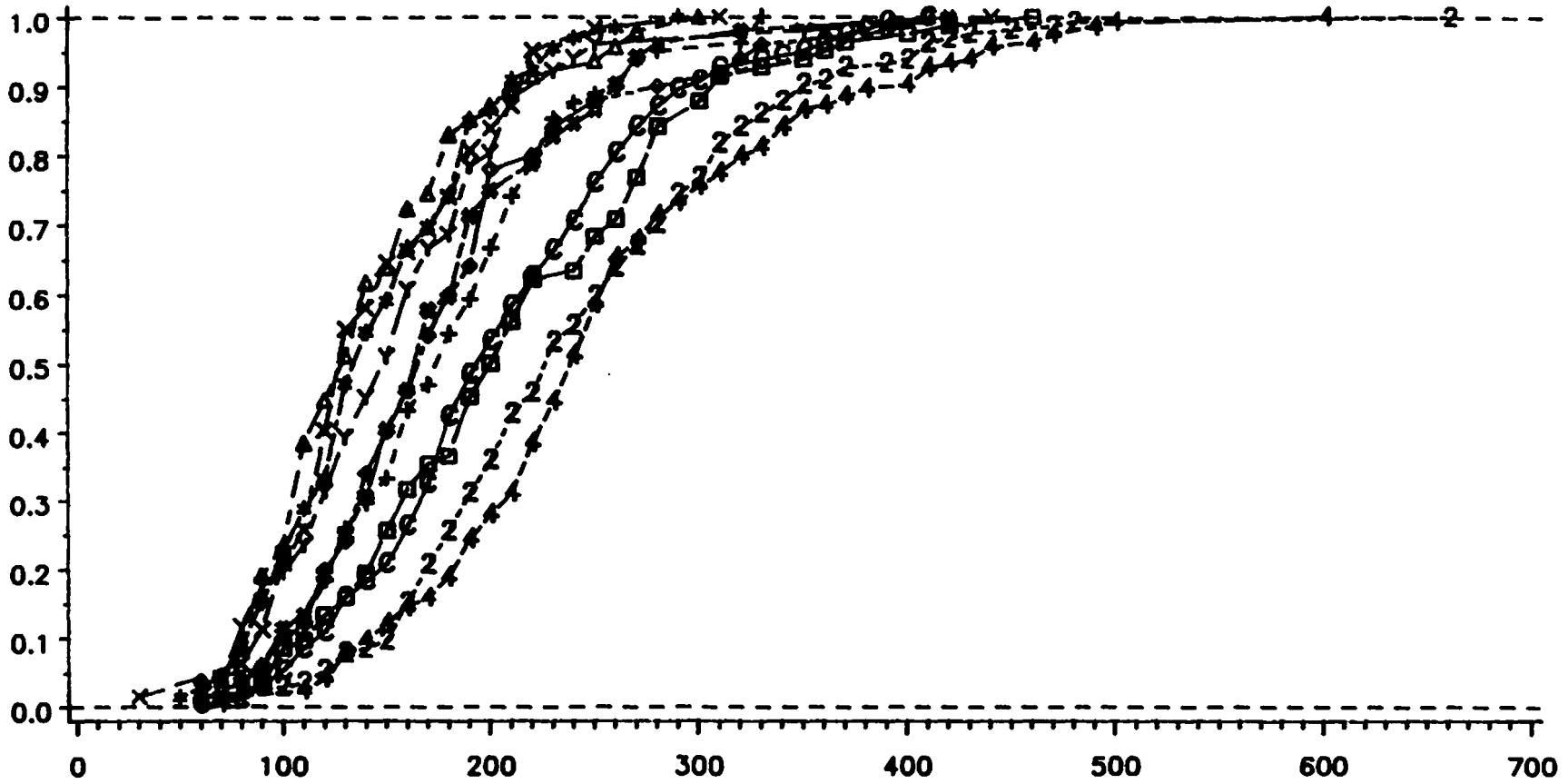


Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+--+ New--0N+0	*-*-* New--200N+0	◆◆◆ New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	⊛-⊛-⊛ New--200N+N+K	∨-∨-∨ New--400N+N+K	

Relative  
Cumulative Frequency



Manganese Content ( $\mu\text{g}/100$  needles)

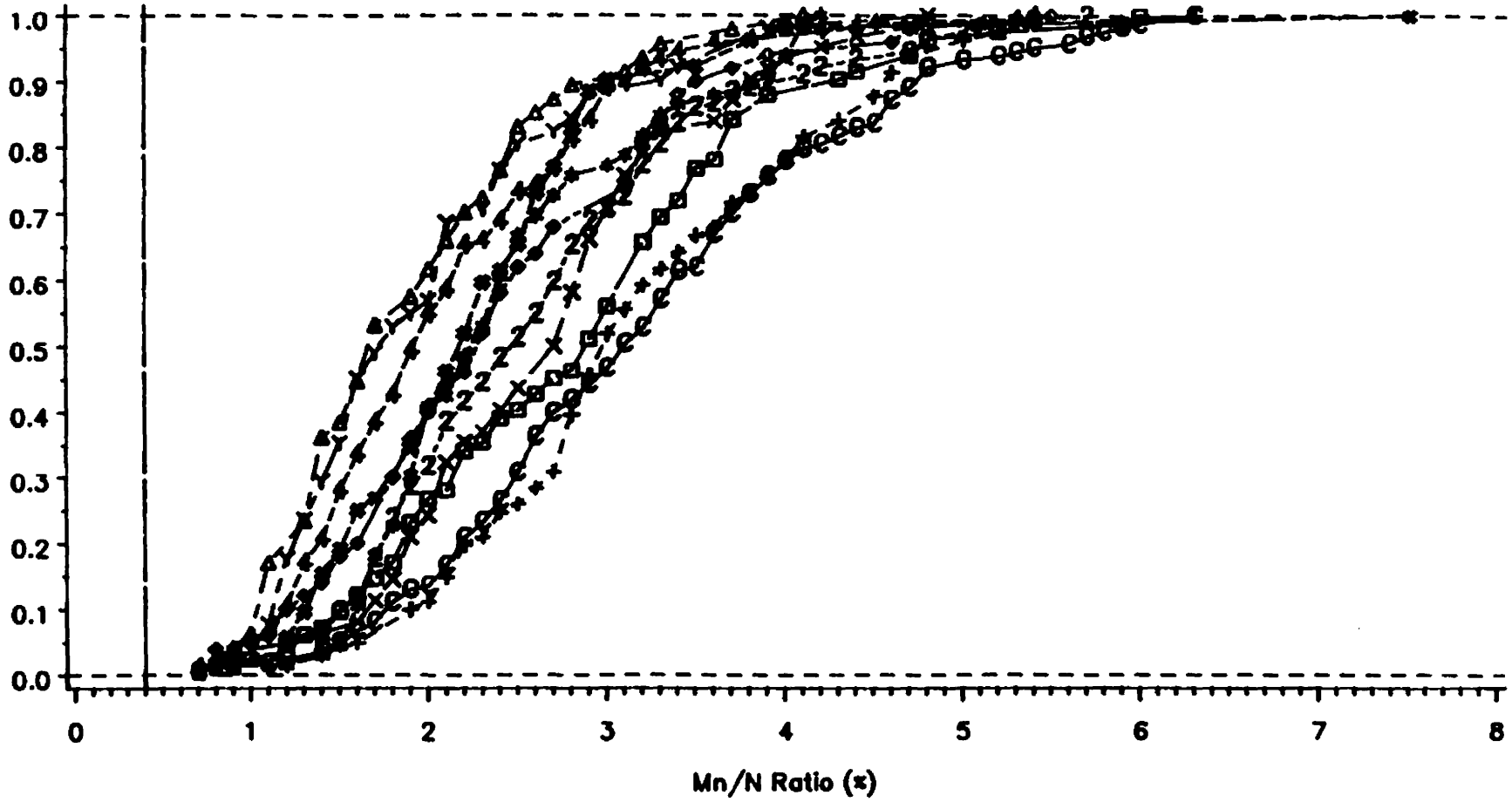
Treatment

○-○-○ Old--0 N  
 +--+ New--0N+0  
 □-□-□ New--0N+N+K  
 \*-\*-\* New--200N+N+K

2-2-2 Old--200 N  
 \*-\*-\* New--200N+0  
 ◇-◇-◇ New--200N+N  
 Y-Y-Y New--400N+N+K

4-4-4 Old--400 N  
 ◆-◆-◆ New--400N+0  
 △-△-△ New--400N+N

Relative  
Cumulative Frequency



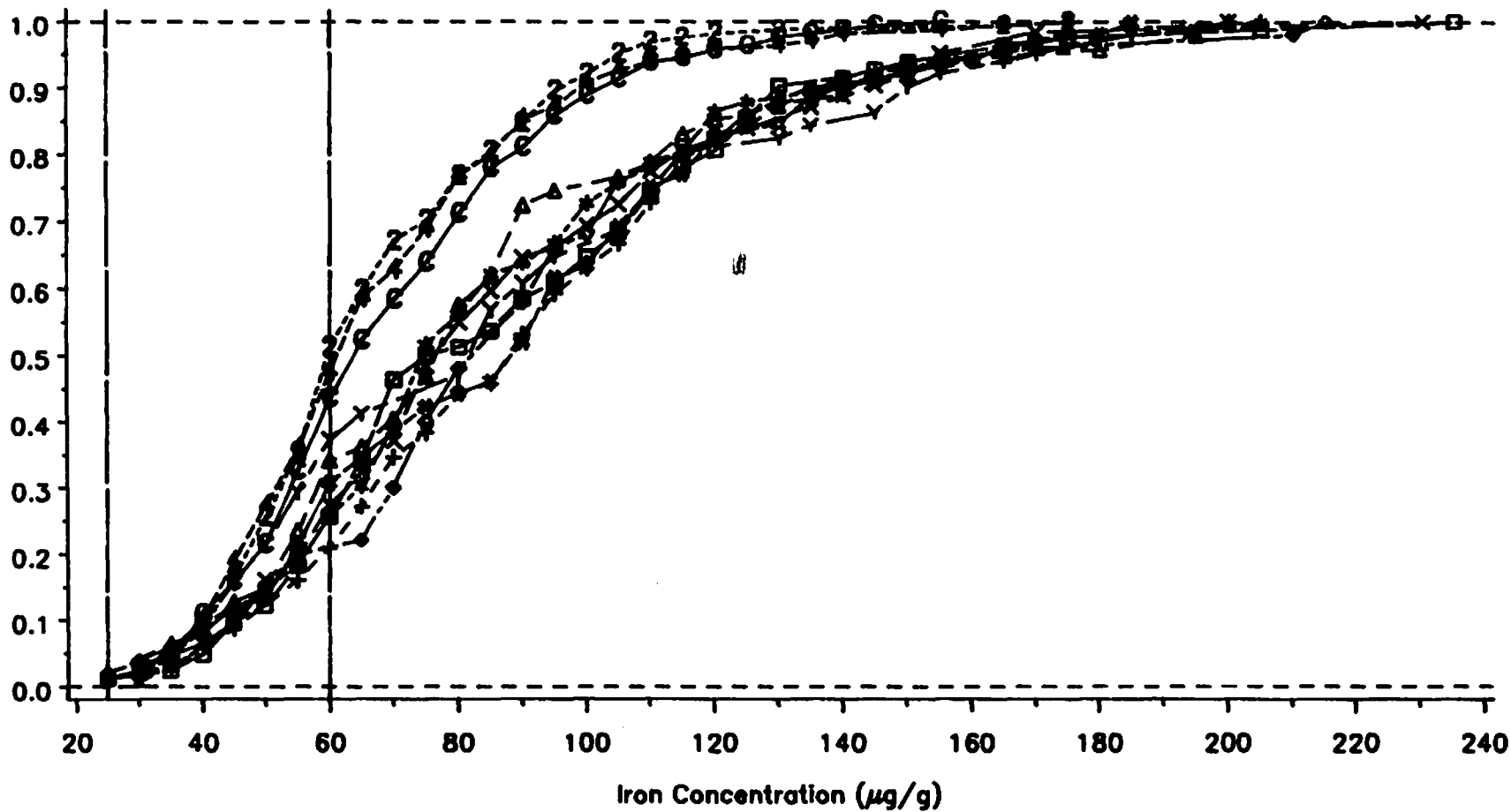
Treatment

- Old--0 N
- +--+ New--0N+0
- New--0N+N+K
- New--200N+N+K

- ◊-◊-◊ Old--200 N
- ×-×-× New--200N+0
- ◇-◇-◇ New--200N+N
- ▽-▽-▽ New--400N+N+K

- ←-←-← Old--400 N
- ◆-◆-◆ New--400N+0
- △-△-△ New--400N+N

Relative  
Cumulative Frequency



Treatment

○-○-○ Old--0 N

+ + + New--0N+0

□-□-□ New--0N+N+K

\*-\*-\* New--200N+N+K

⊖-⊖-⊖ Old--200 N

\*-\*- New--200N+0

◇-◇-◇ New--200N+N

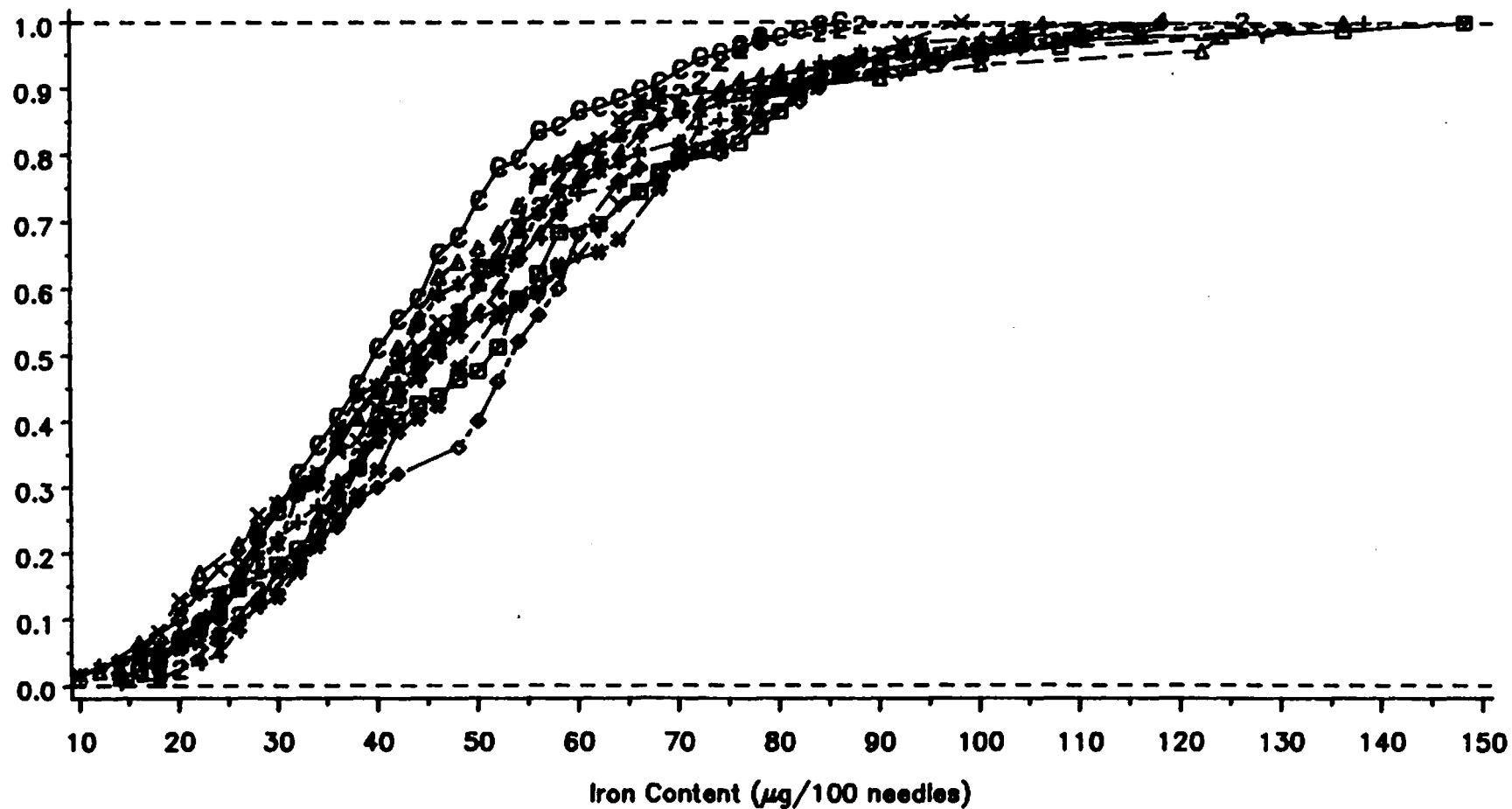
∨-∨-∨ New--400N+N+K

←-←-← Old--400 N

◆-◆-◆ New--400N+0

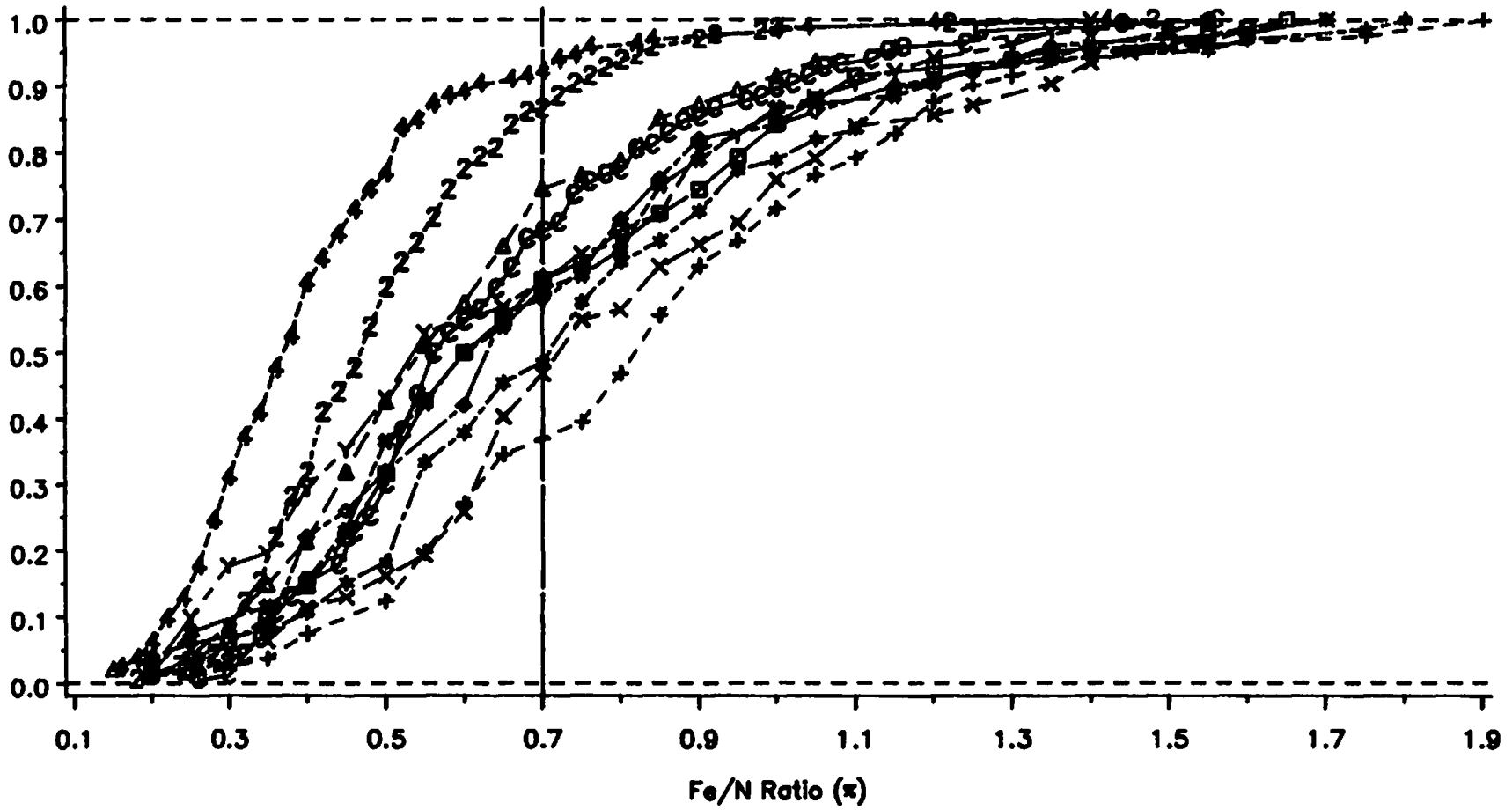
△-△-△ New--400N+N

**Relative  
Cumulative Frequency**



<b>Treatment</b>	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+ + + New--0N+0	x x x New--200N+0	◆◆◆ New--400N+0
	□□□ New--0N+N+K	◇◇◇ New--200N+N	△△△ New--400N+N
	◆◆◆ New--200N+N+K	▽▽▽ New--400N+N+K	

Relative  
Cumulative Frequency



Treatment

○-○-○ Old--0 N

+ + + New--0N+0

□-□-□ New--0N+N+K

◆-◆-◆ New--200N+N+K

⊖-⊖-⊖ Old--200 N

× × × New--200N+0

◇-◇-◇ New--200N+N

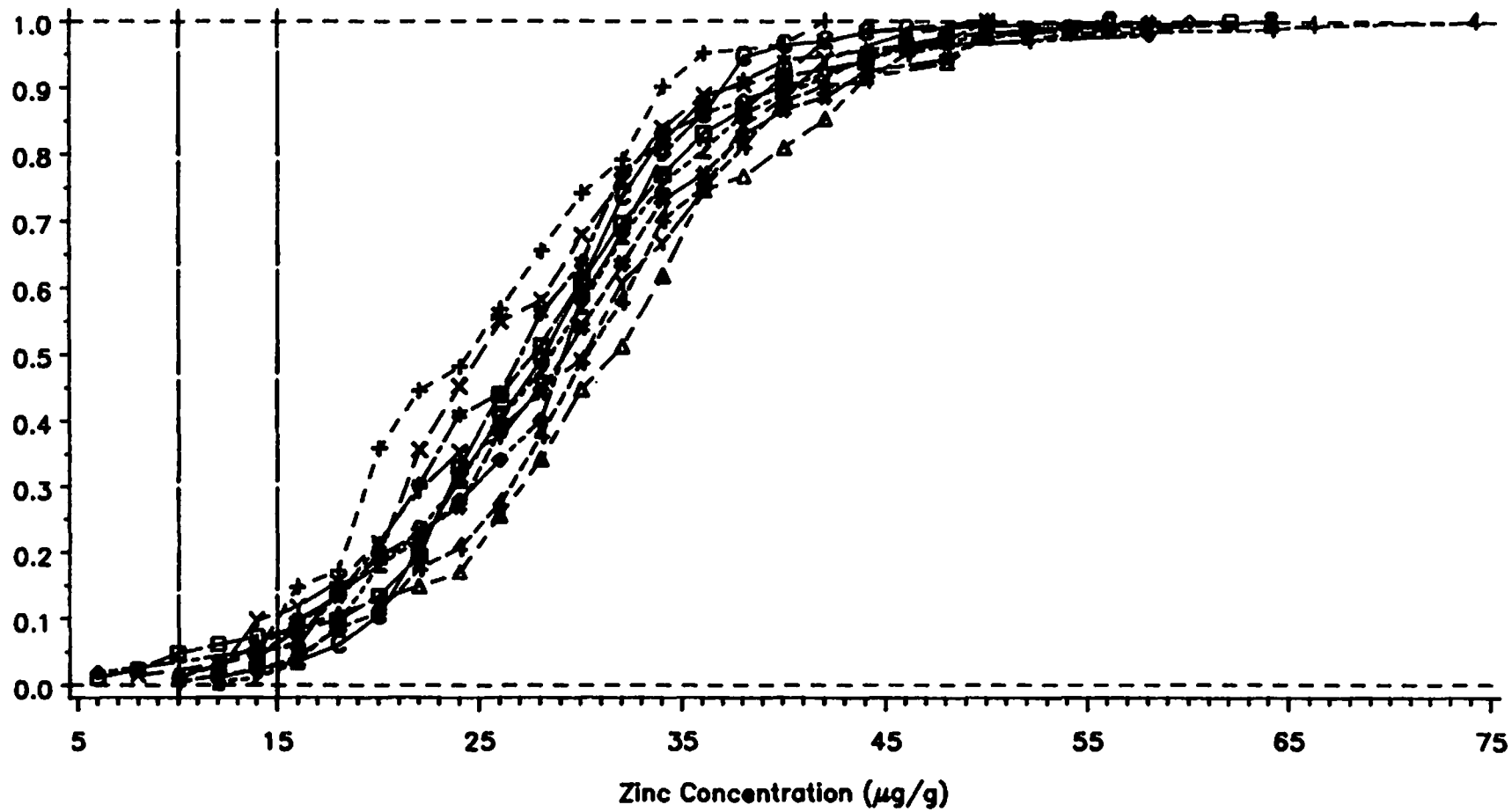
▽-▽-▽ New--400N+N+K

⊕-⊕-⊕ Old--400 N

⊛-⊛-⊛ New--400N+0

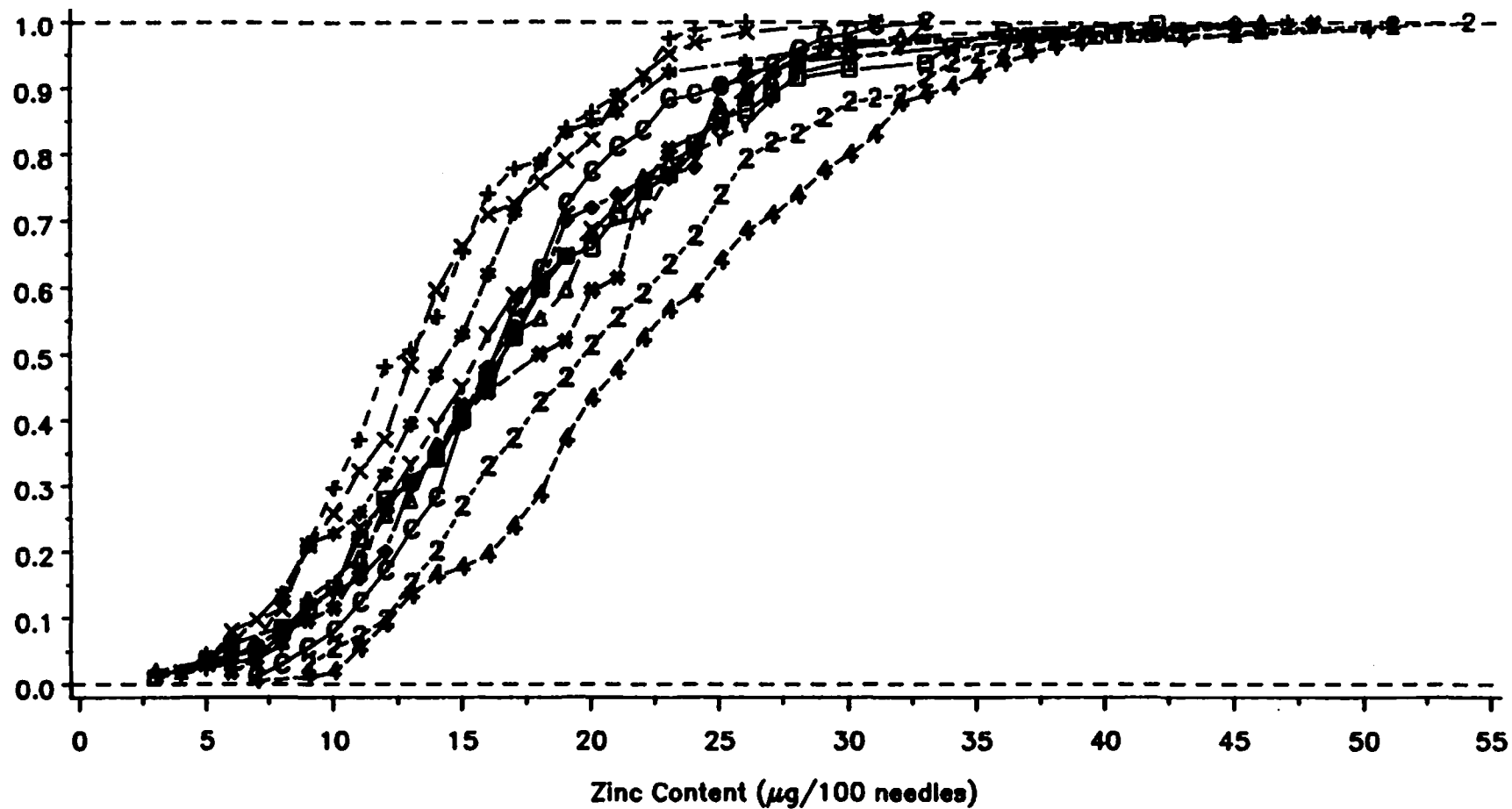
△-△-△ New--400N+N

Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	⊖-⊖-⊖ Old--200 N	◄-◄-◄ Old--400 N
	+--+ New--0N+0	*-*-* New--200N+0	♣-♣-♣ New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	⊙-⊙-⊙ New--200N+N+K	×-×-× New--400N+N+K	

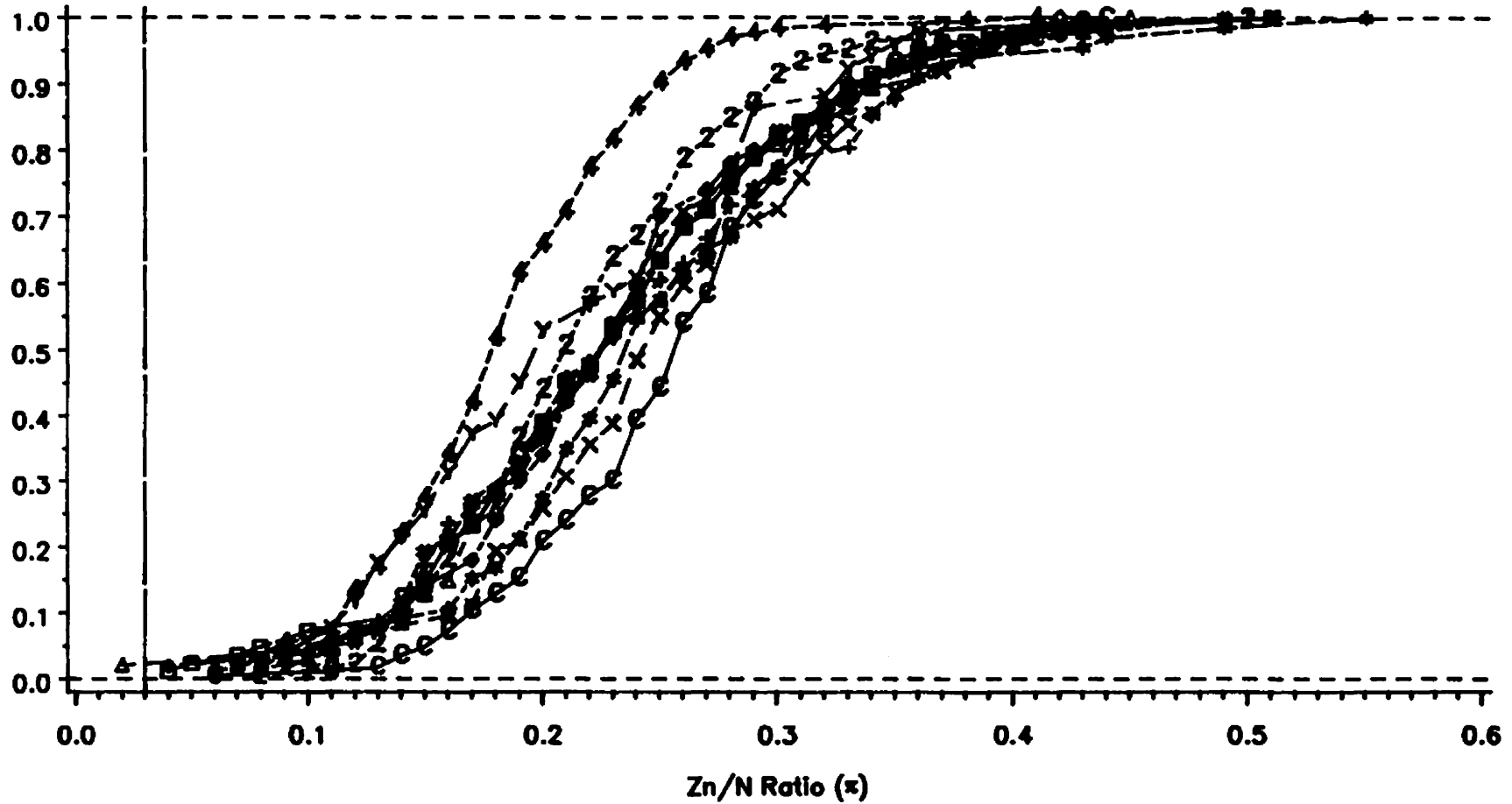
Relative  
Cumulative Frequency



Treatment	⊖-⊖-⊖ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+ + + New--0N+0	* * * New--200N+0	⊕-⊕-⊕ New--400N+0
	⊞-⊞-⊞ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	⊛-⊛-⊛ New--200N+N+K	∨-∨-∨ New--400N+N+K	



Relative  
Cumulative Frequency



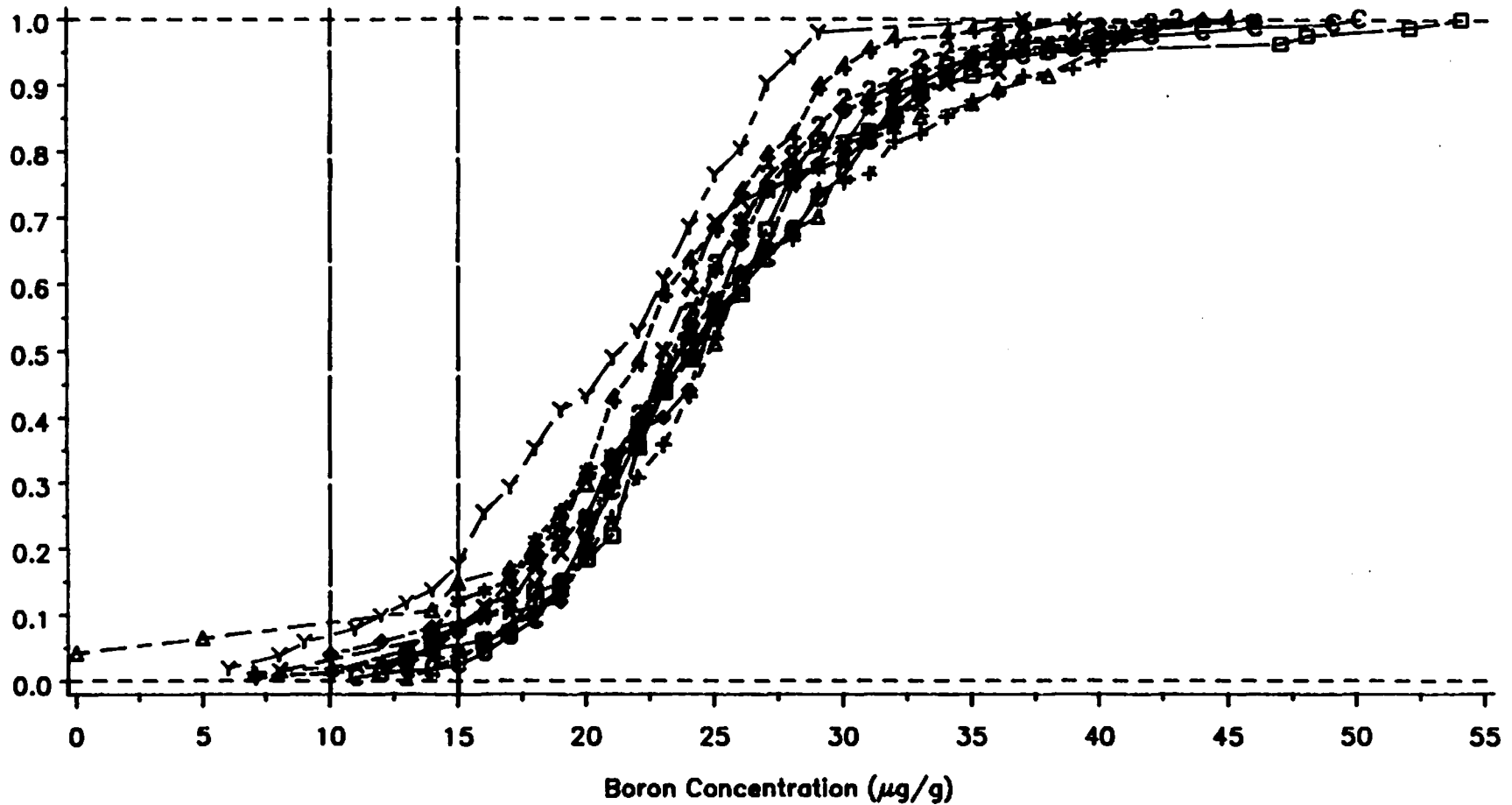
Treatment

○-○-○ Old--0 N  
 + + + New--0N+0  
 □-□-□ New--0N+N+K  
 \*-\*-\* New--200N+N+K

2-2-2 Old--200 N  
 ×-×-× New--200N+0  
 ◇-◇-◇ New--200N+N  
 √-√-√ New--400N+N+K

4-4-4 Old--400 N  
 ◆-◆-◆ New--400N+0  
 △-△-△ New--400N+N

Relative  
Cumulative Frequency



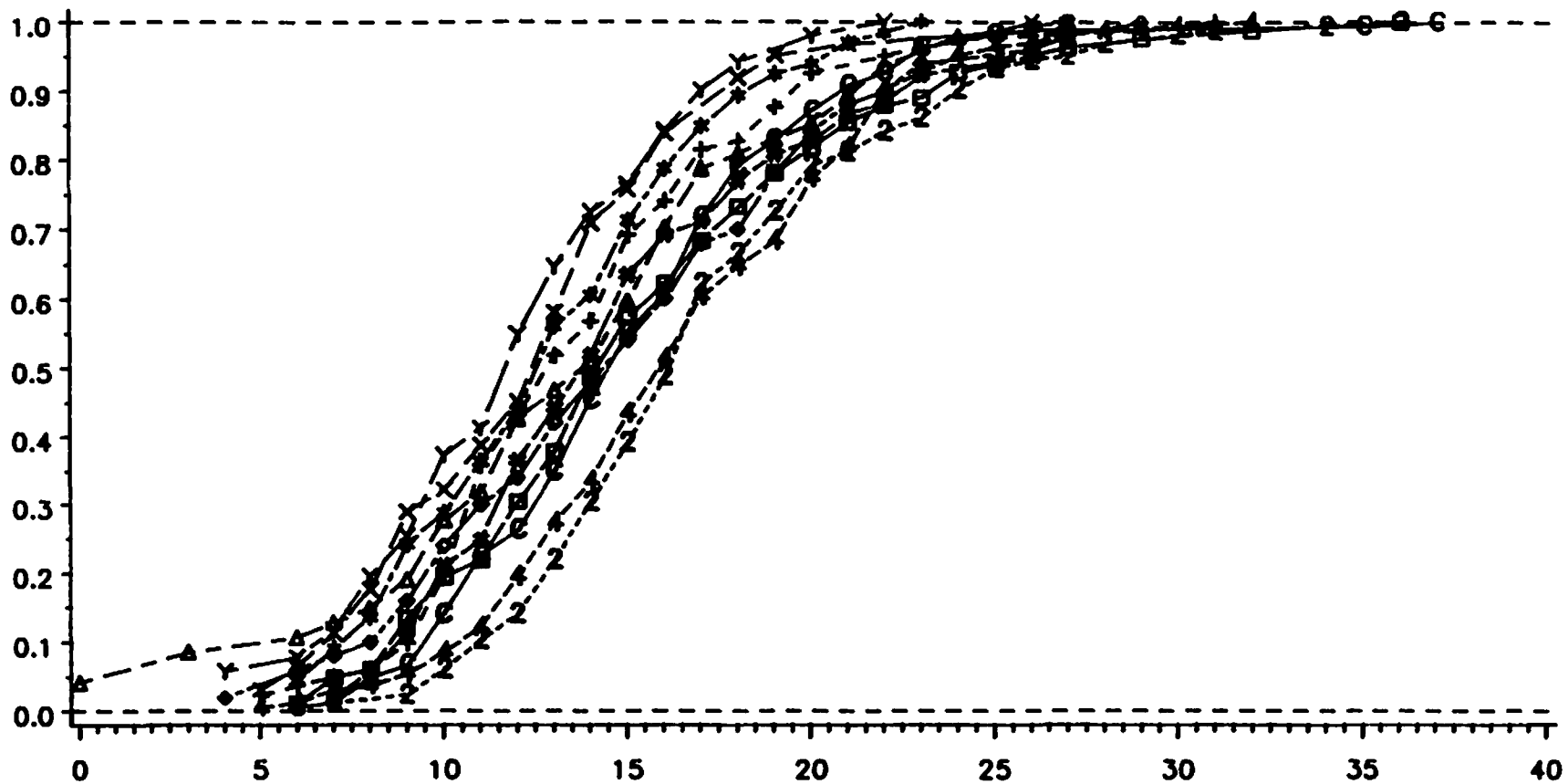
Treatment

○-○-○ Old--0 N  
 +--+ New--0N+0  
 □-□-□ New--0N+N+K  
 ●-●-● New--200N+N+K

⊖-⊖-⊖ Old--200 N  
 ×-×-× New--200N+0  
 ◇-◇-◇ New--200N+N  
 γ-γ-γ New--400N+N+K

⊕-⊕-⊕ Old--400 N  
 \*-\*-\* New--400N+0  
 △-△-△ New--400N+N

Relative  
Cumulative Frequency



Boron Content ( $\mu\text{g}/100$  needles)

Treatment

○-○-○ Old--0 N

+ + + New--0N+0

□-□-□ New--0N+N+K

●-●-● New--200N+N+K

2-2-2 Old--200 N

\* \* \* New--200N+0

◇-◇-◇ New--200N+N

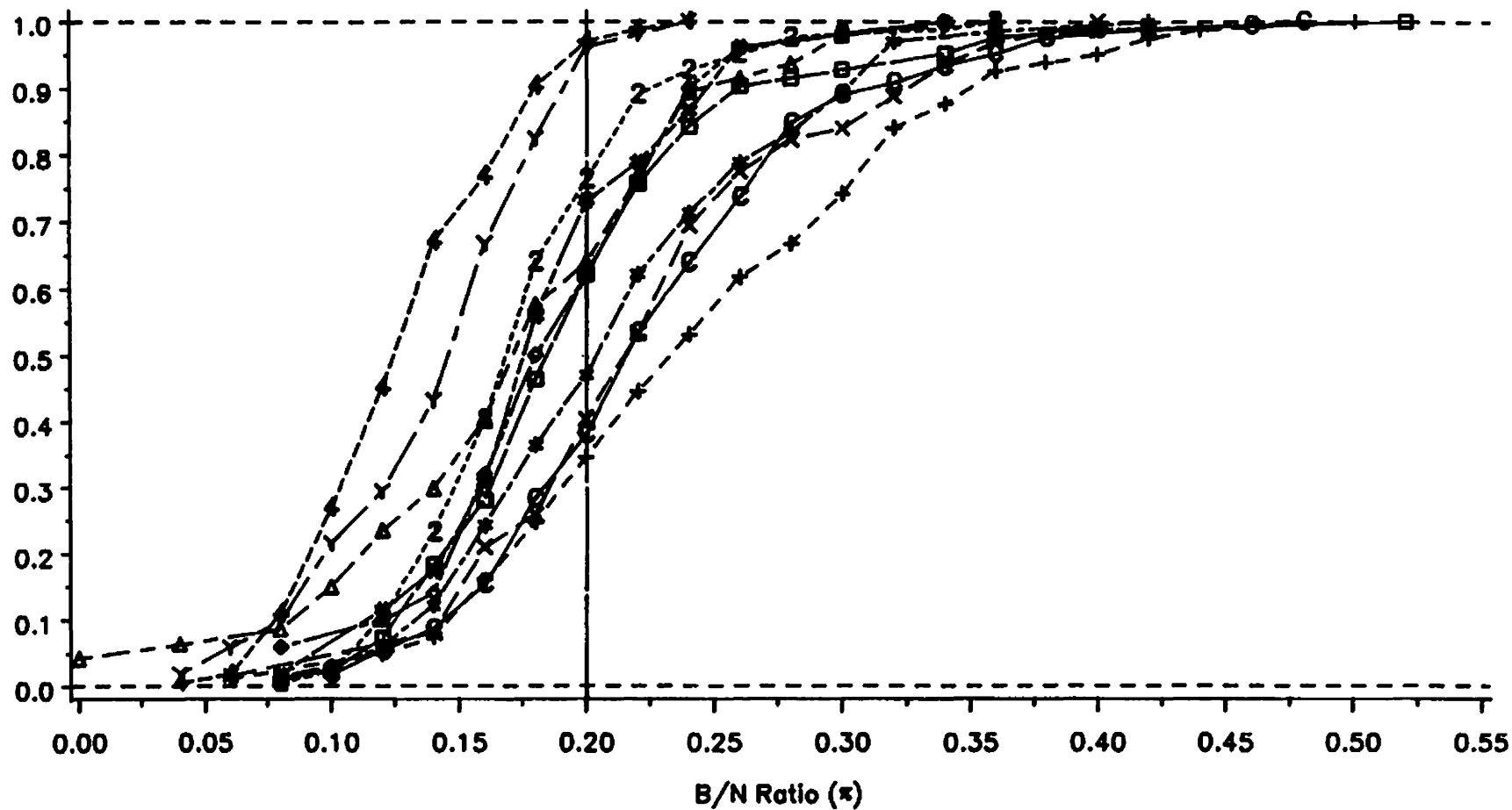
×-×-× New--400N+N+K

4-4-4 Old--400 N

◆-◆-◆ New--400N+0

△-△-△ New--400N+N

Relative  
Cumulative Frequency



Treatment

○-○-○ Old--0 N

+--+ New--0N+0

□-□-□ New--0N+N+K

\*-\*-\* New--200N+N+K

⊖-⊖-⊖ Old--200 N

\*-\*-\* New--200N+0

◇-◇-◇ New--200N+N

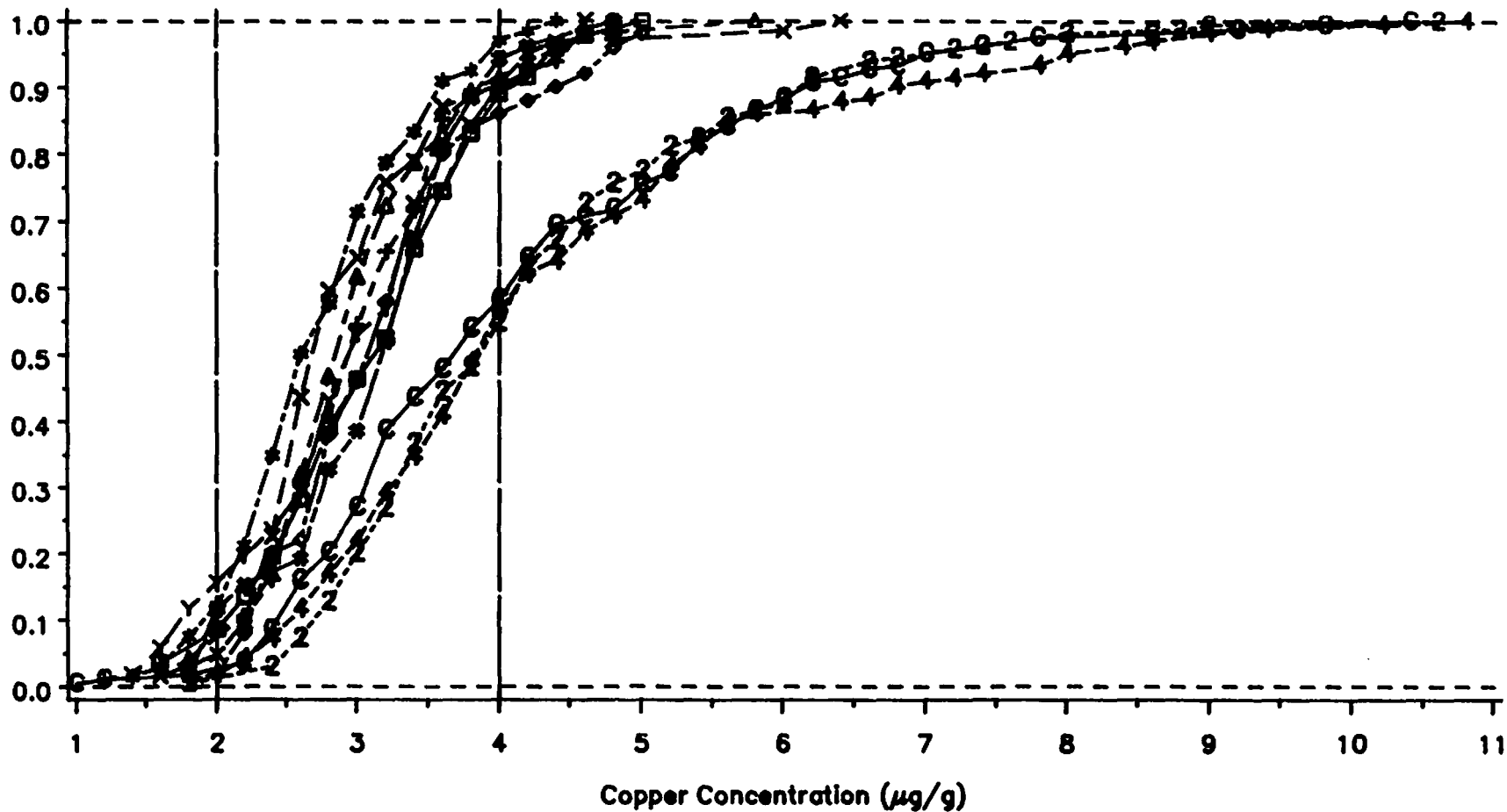
∧-∧-∧ New--400N+N+K

⊕-⊕-⊕ Old--400 N

\*-\*-\* New--400N+0

△-△-△ New--400N+N

Relative  
Cumulative Frequency



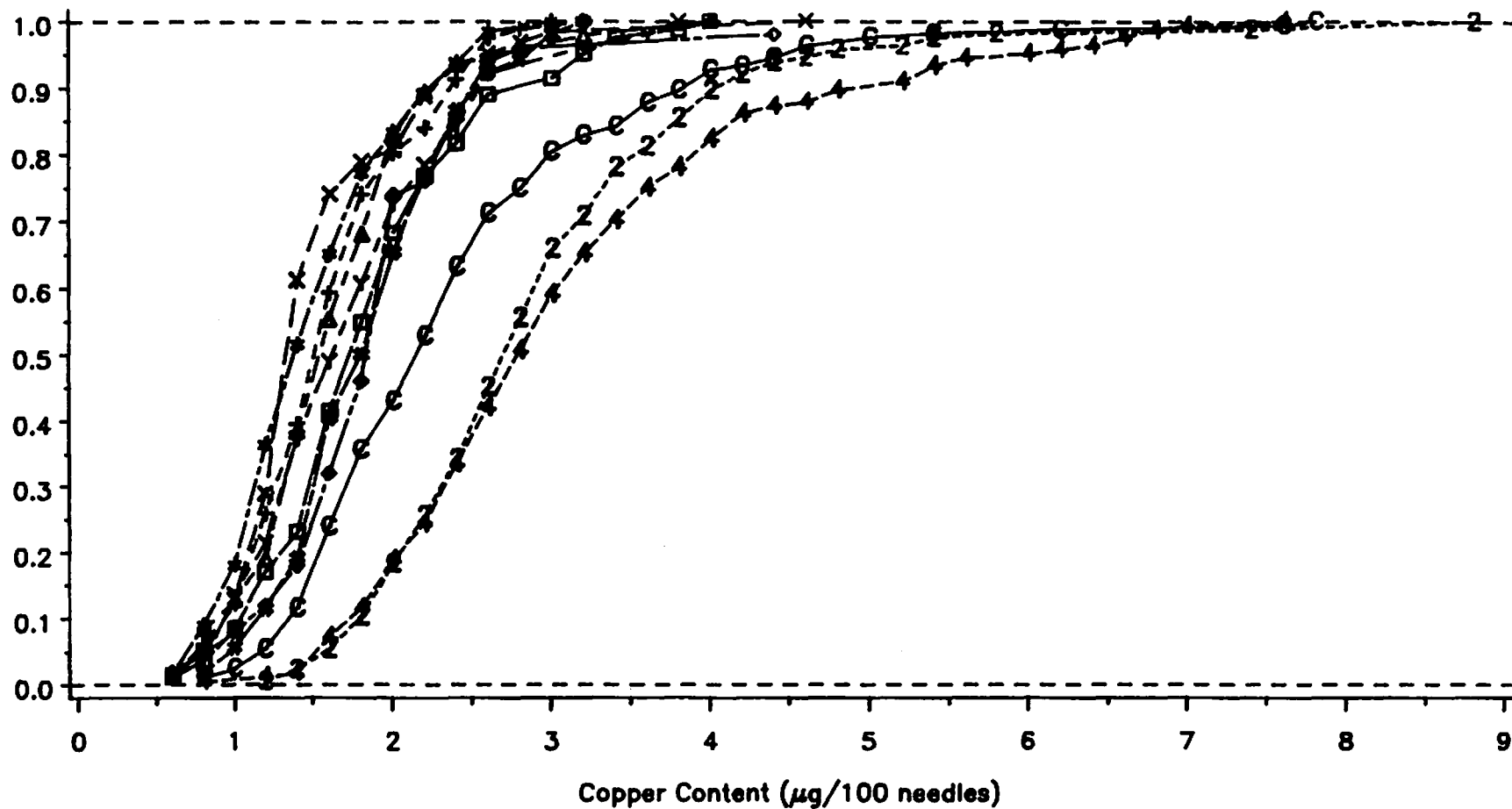
Treatment

○-○-○ Old--0 N  
 +--+ New--0N+0  
 □-□-□ New--0N+N+K  
 \*-\*-\* New--200N+N+K

2-2-2 Old--200 N  
 x-x-x New--200N+0  
 ◇-◇-◇ New--200N+N  
 y-y-y New--400N+N+K

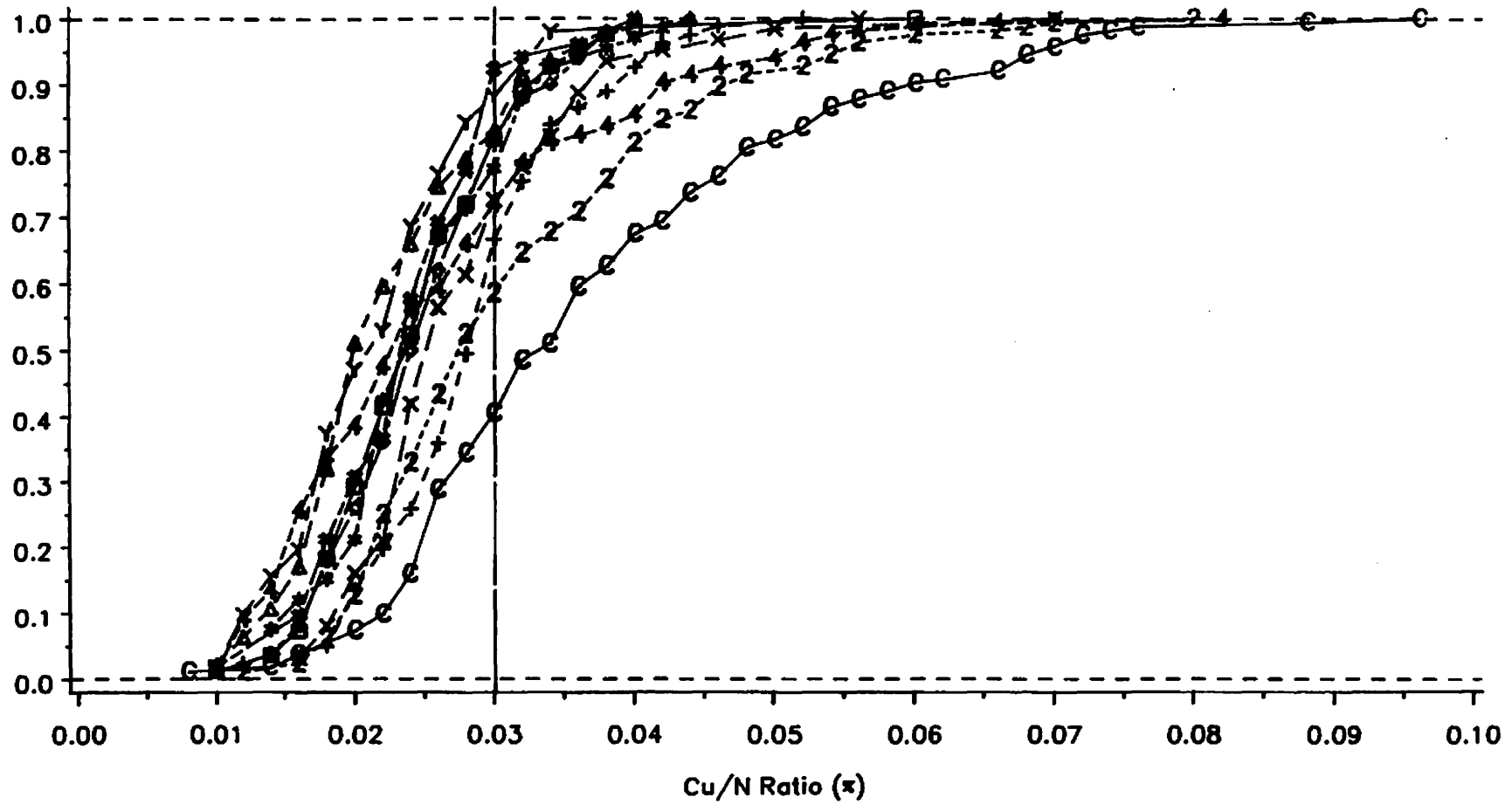
4-4-4 Old--400 N  
 \*-\*-\* New--400N+0  
 △-△-△ New--400N+N

Relative  
Cumulative Frequency



Treatment	○-○-○ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+--+ New--0N+0	*-*-* New--200N+0	◆-◆-◆ New--400N+0
	□-□-□ New--0N+N+K	◇-◇-◇ New--200N+N	△-△-△ New--400N+N
	●-●-● New--200N+N+K	×-×-× New--400N+N+K	

Relative  
Cumulative Frequency



Treatment	⊖-⊖-⊖ Old--0 N	2-2-2 Old--200 N	4-4-4 Old--400 N
	+ + + New--0N+0	* * * New--200N+0	◆◆◆ New--400N+0
	⊞⊞⊞ New--0N+N+K	◇◇◇ New--200N+N	△△△ New--400N+N
	⊛-⊛-⊛ New--200N+N+K	×-×-× New--400N+N+K	

Appendix B: CDF's of changes in foliar characteristics through time

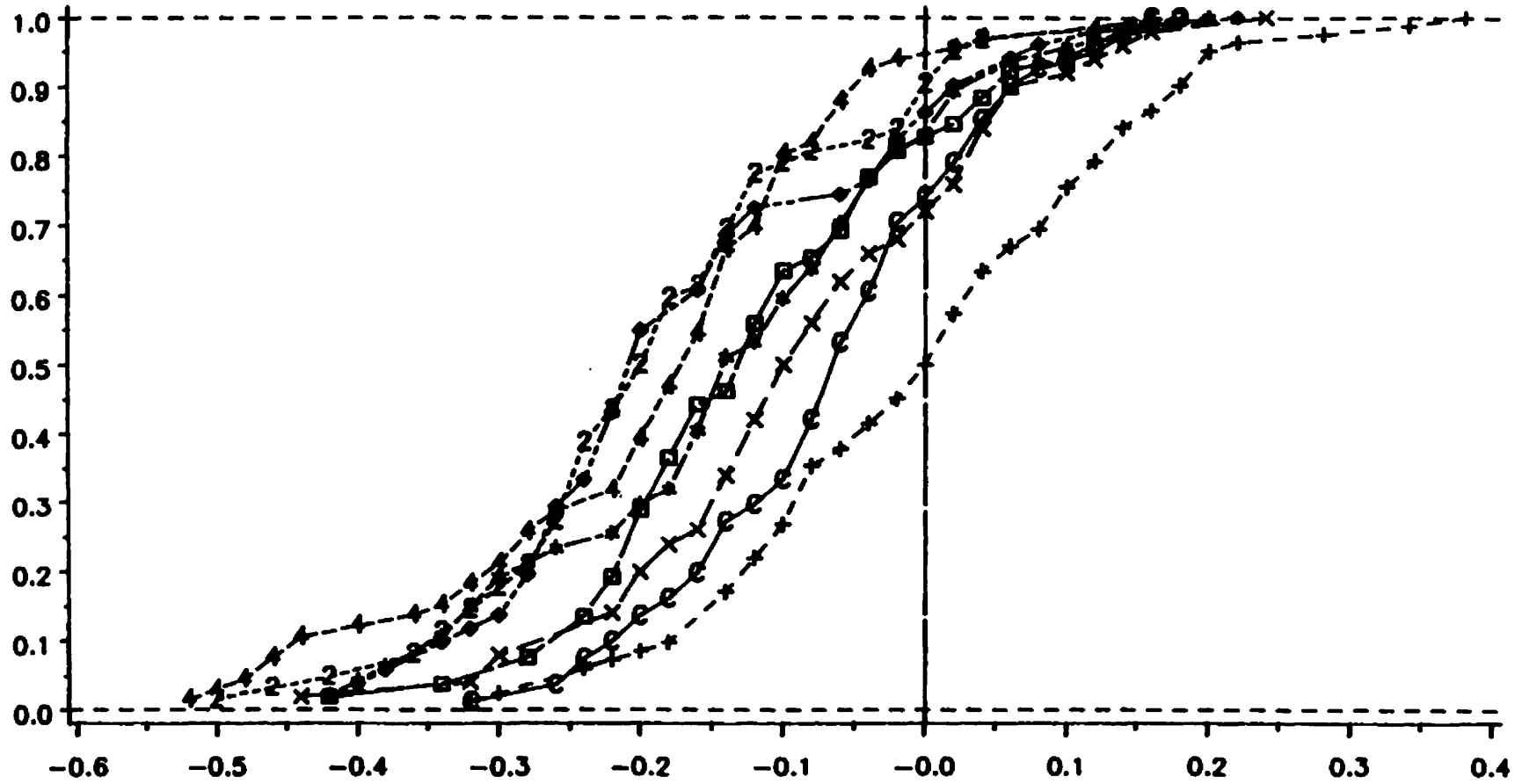
The following pages contain cumulative distribution function graphs for changes in foliar needle weight and nutrient levels from the first to the second sampling time (6 years). Values on the vertical axis represent the proportion of the sample that had changes in foliar levels less than or equal to the value on the horizontal axis. The various lines represent different combinations of fertilizer treatments; a key is provided in the table below.

**Table 5. Key to the symbols used for different fertilizer combinations in the cdf's of changes in foliar levels through time.**

<u>Symbol</u>	<u>First Treatment</u>	<u>Second Treatment</u>
C	none	none
2	200 lbs N/a	none
4	400 lbs N/a	none
+	none	200 lbs N + 200 lbs K
X	200 lbs N/a	200 lbs N/a
*	400 lbs N/a	200 lbs N/a
(square)	200 lbs N/a	200 lbs N + 200 lbs K
(diamond)	400 lbs N/a	200 lbs N + 200 lbs K



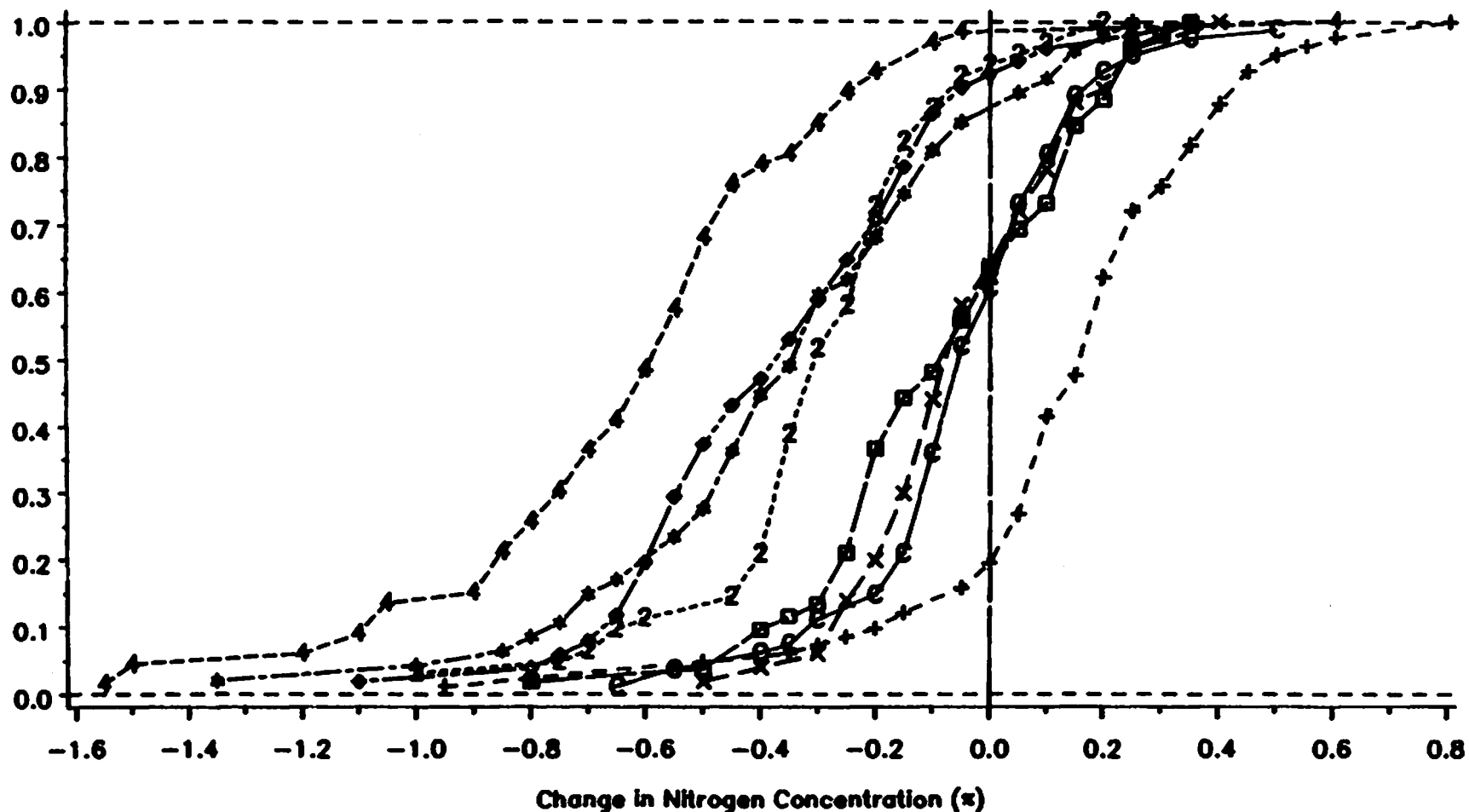
Relative  
Cumulative Frequency



Change in Needle Weight ( $\mu\text{g}/100$  needles)

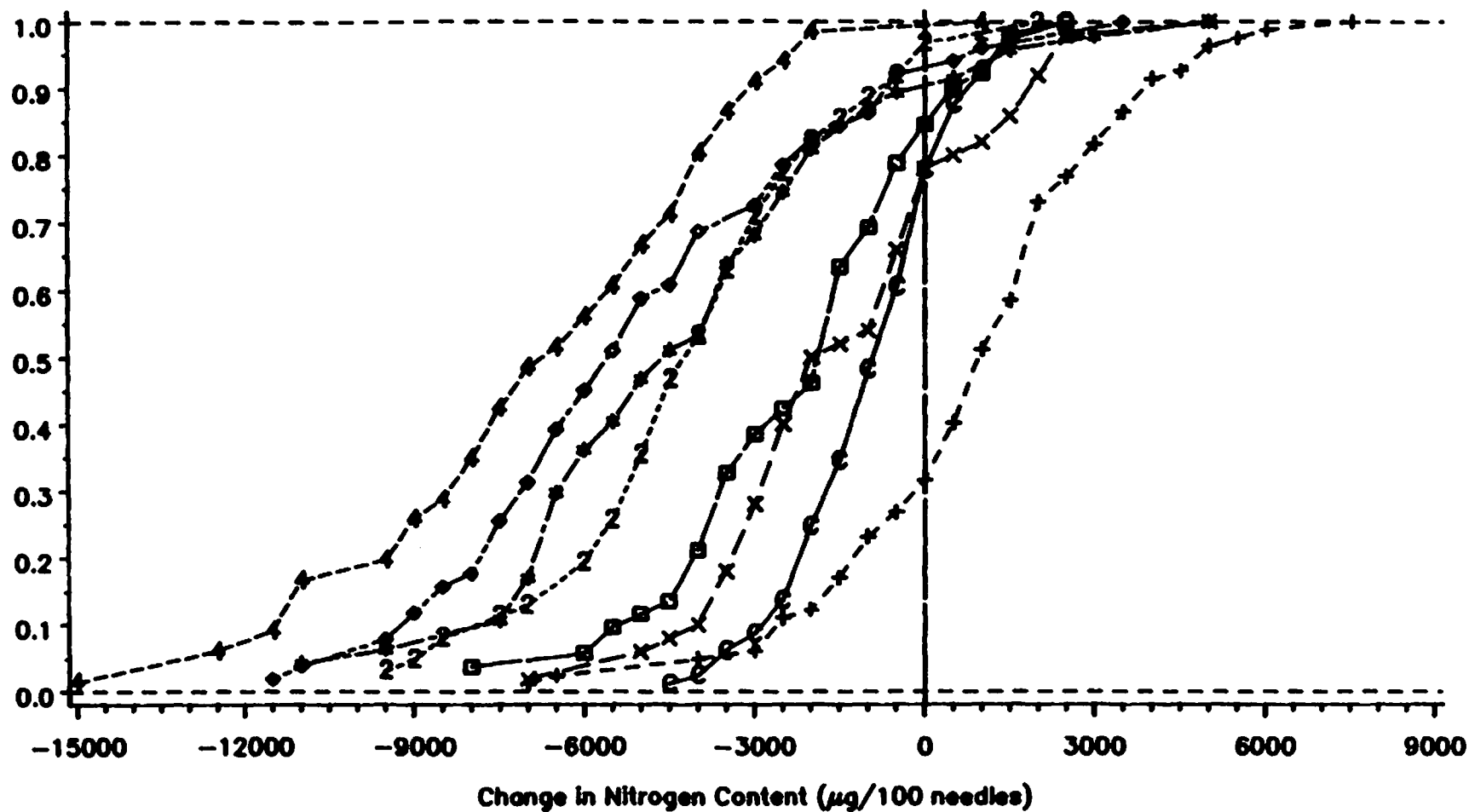
Treatment	G-G-G ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+ + + ON + N+K	* * * 200N + 200N	◆◆◆ 400N + 200N
	□□□ 200N + N+K	◇◇◇ 400N + N+K	

**Relative  
Cumulative Frequency**



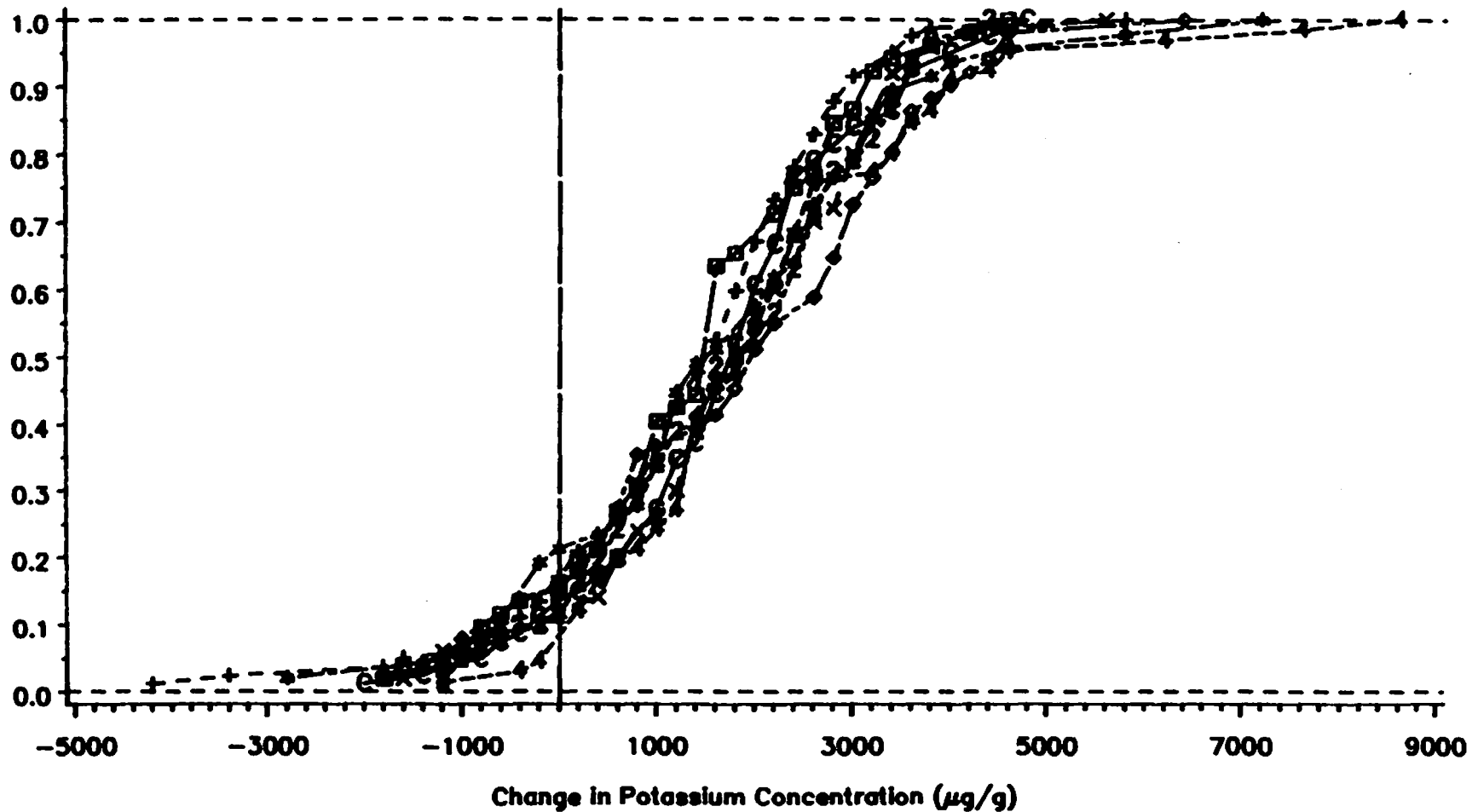
**Treatment**    ○-○-○ ON + ON                      ⊖-⊖-⊖ 200N + 0N                      - - - 400N + 0N  
                   + - + ON + N+K                      \*-\*-\* 200N + 200N                      ◆-◆-◆ 400N + 200N  
                   □-□-□ 200N + N+K                      ◇-◇-◇ 400N + N+K

**Relative  
Cumulative Frequency**



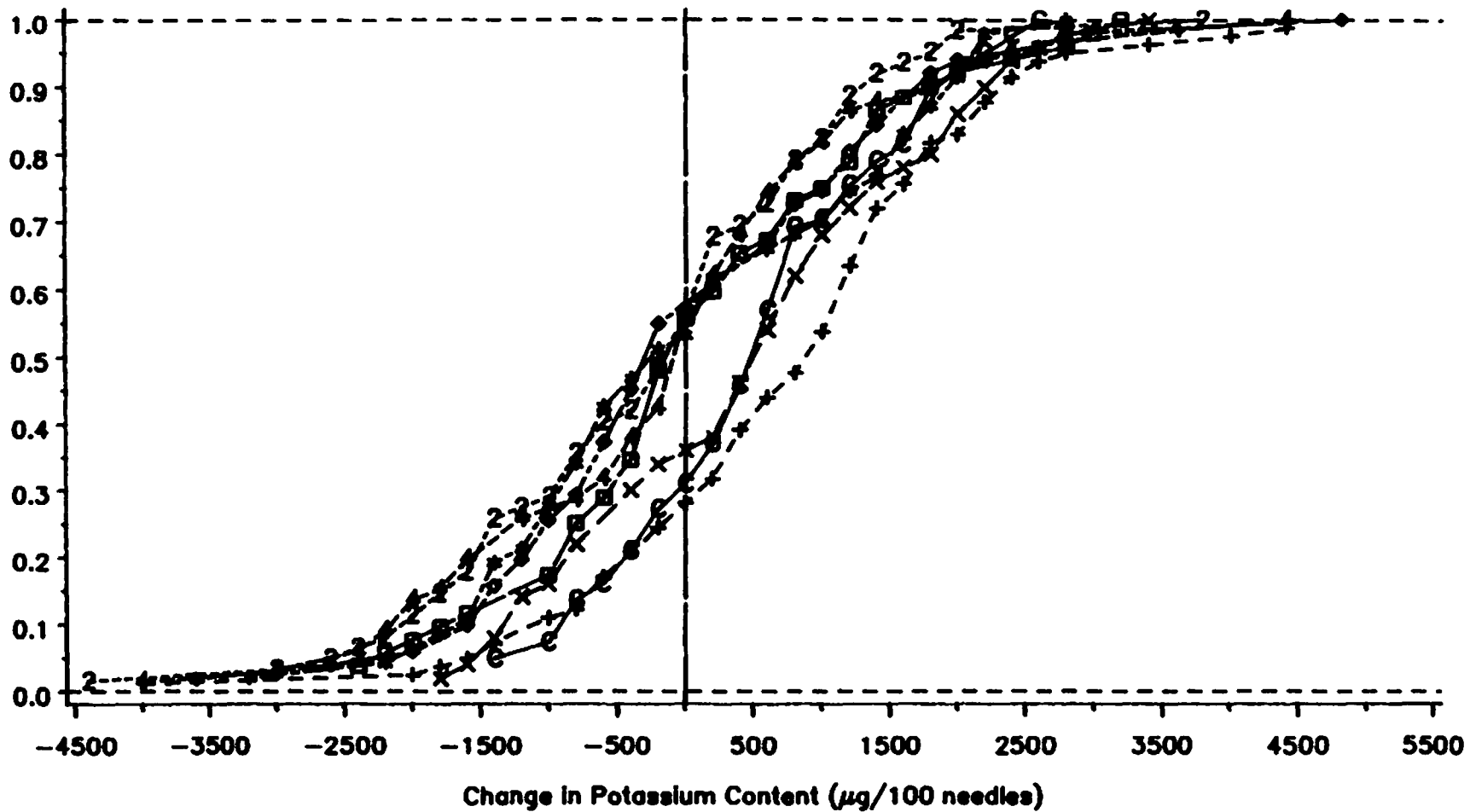
Treatment	○-○-○	ON + ON	2-2-2	200N + ON	4-4-4	400N + ON
	+ - +	ON + N+K	* - * - *	200N + 200N	◆ - ◆ - ◆	400N + 200N
	■ - ■ - ■	200N + N+K	◇ - ◇ - ◇	400N + N+K		

Relative  
Cumulative Frequency



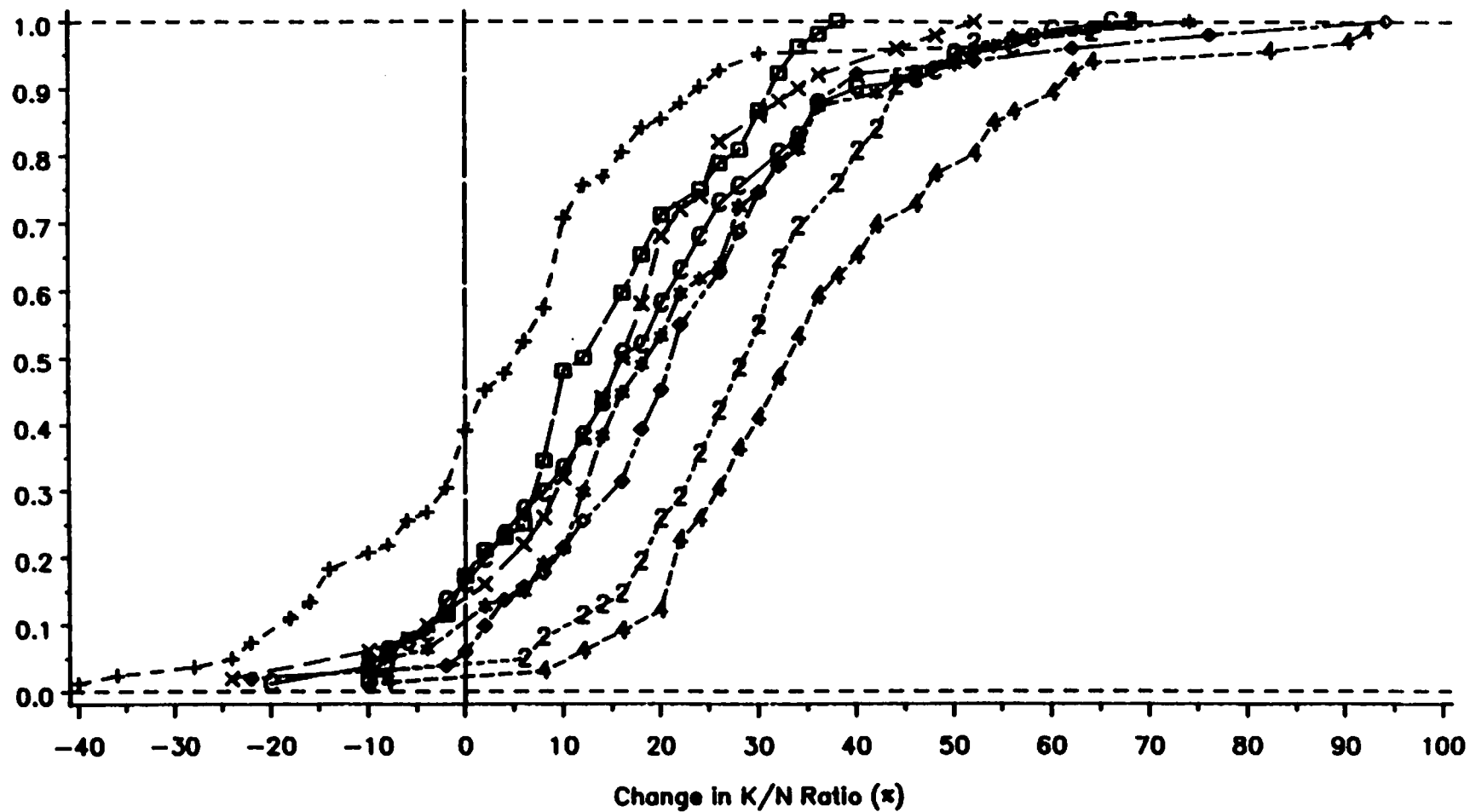
Treatment	○-○-○ ON + ON	⊖-⊖-⊖ 200N + 0N	⊣-⊣-⊣ 400N + 0N
	+--+ ON + N+K	*-*-* 200N + 200N	◀-◀-◀ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

**Relative  
Cumulative Frequency**



Treatment	○-○-○	ON + ON	2-2-2	200N + ON	4-4-4	400N + ON
	+--+	ON + N+K	*-*-*	200N + 200N	◆-◆-◆	400N + 200N
	□-□-□	200N + N+K	◇-◇-◇	400N + N+K		

Relative  
Cumulative Frequency



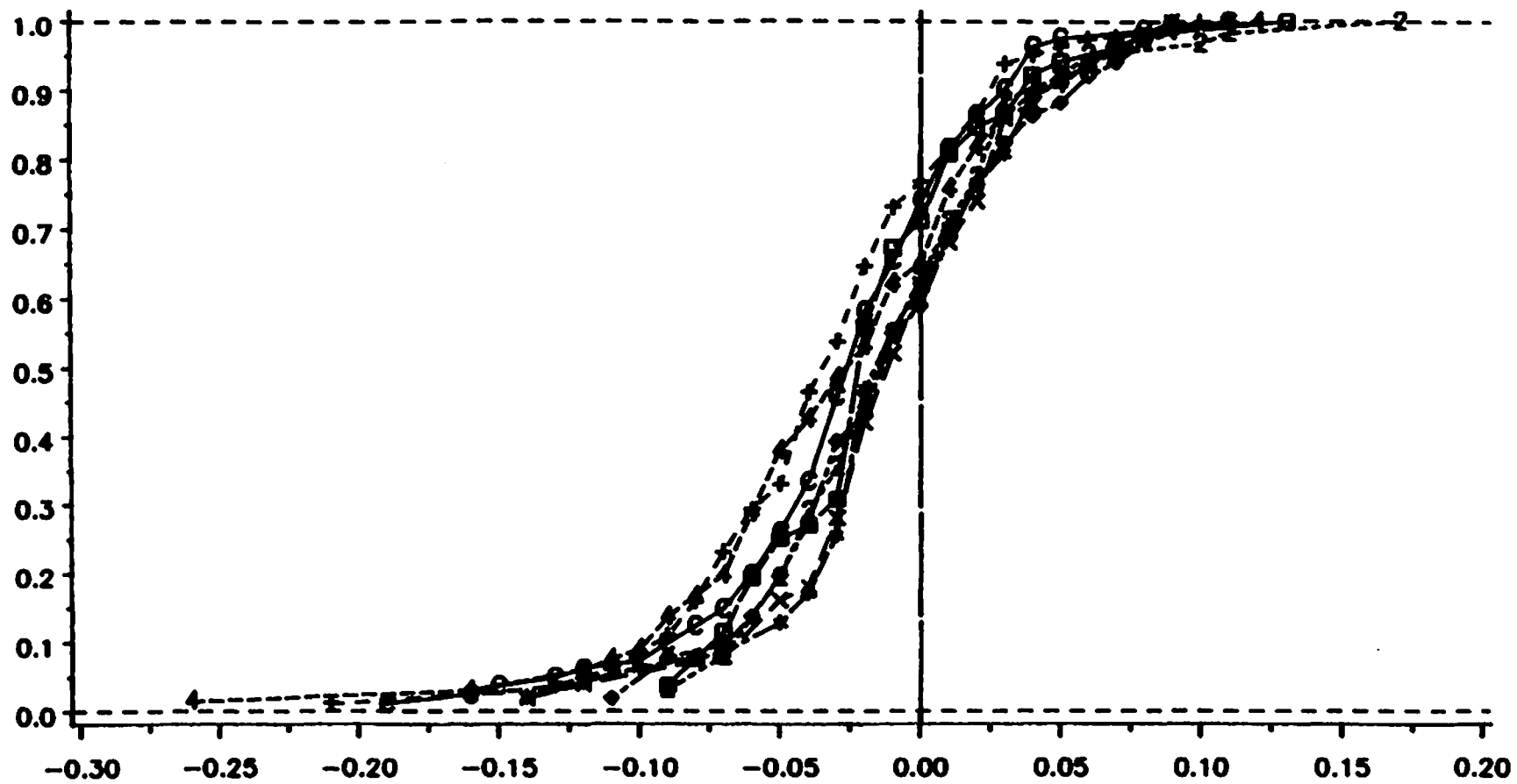
Treatment

○-○-○ ON + ON  
 +--+ 0N + N+K  
 □-□-□ 200N + N+K

2-2-2 200N + 0N  
 ×-×-× 200N + 200N  
 ◇-◇-◇ 400N + N+K

4-4-4 400N + 0N  
 ◆-◆-◆ 400N + 200N

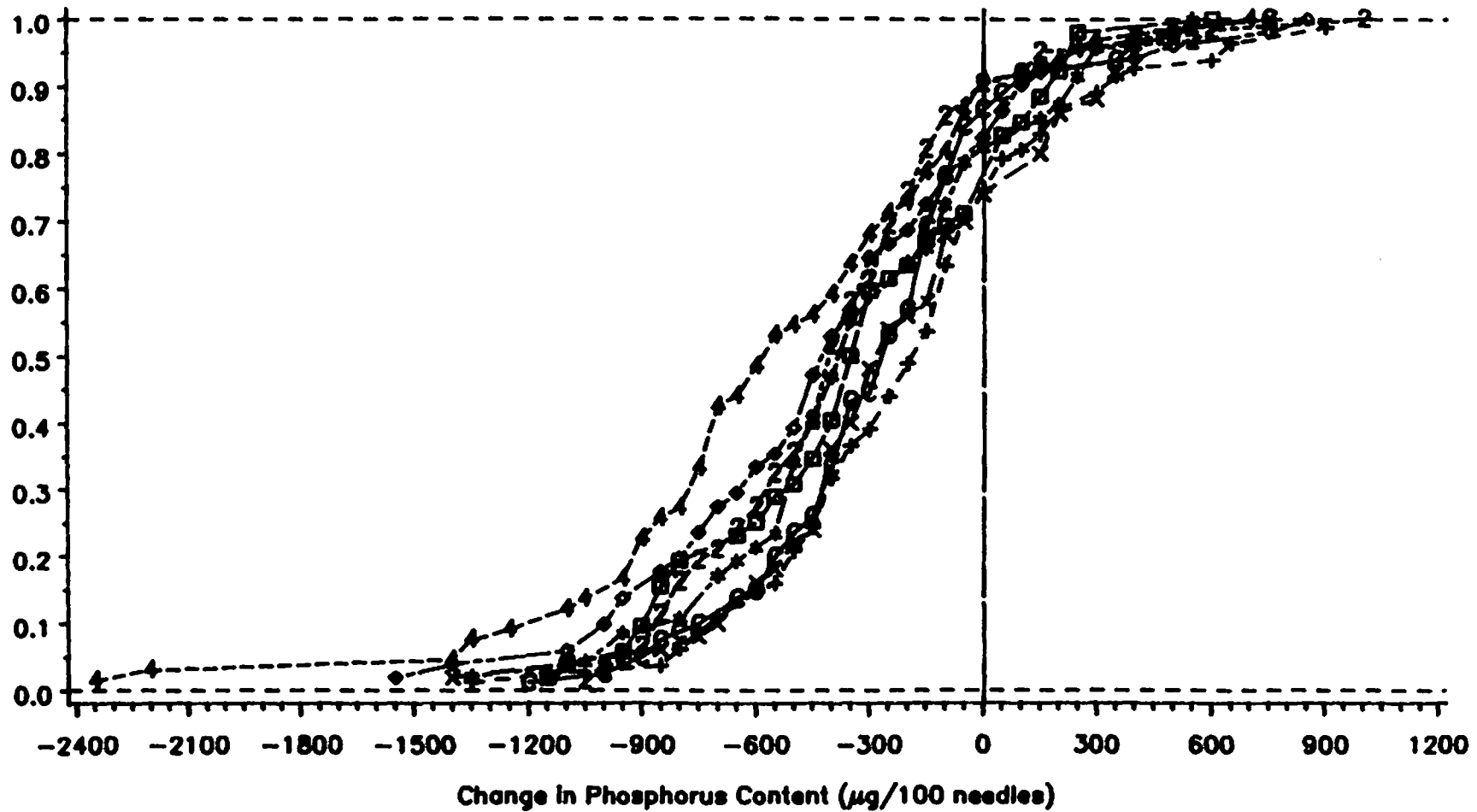
**Relative  
Cumulative Frequency**



**Change in Phosphorus Concentration ( $\pi$ )**

<b>Treatment</b>	—○—○—○	0N + 0N	—□—□—□	200N + 0N	—△—△—△	400N + 0N
	+—+—+—+	0N + N+K	*—*—*—*	200N + 200N	◆—◆—◆—◆	400N + 200N
	■—■—■—■	200N + N+K				
			◇—◇—◇—◇	400N + N+K		

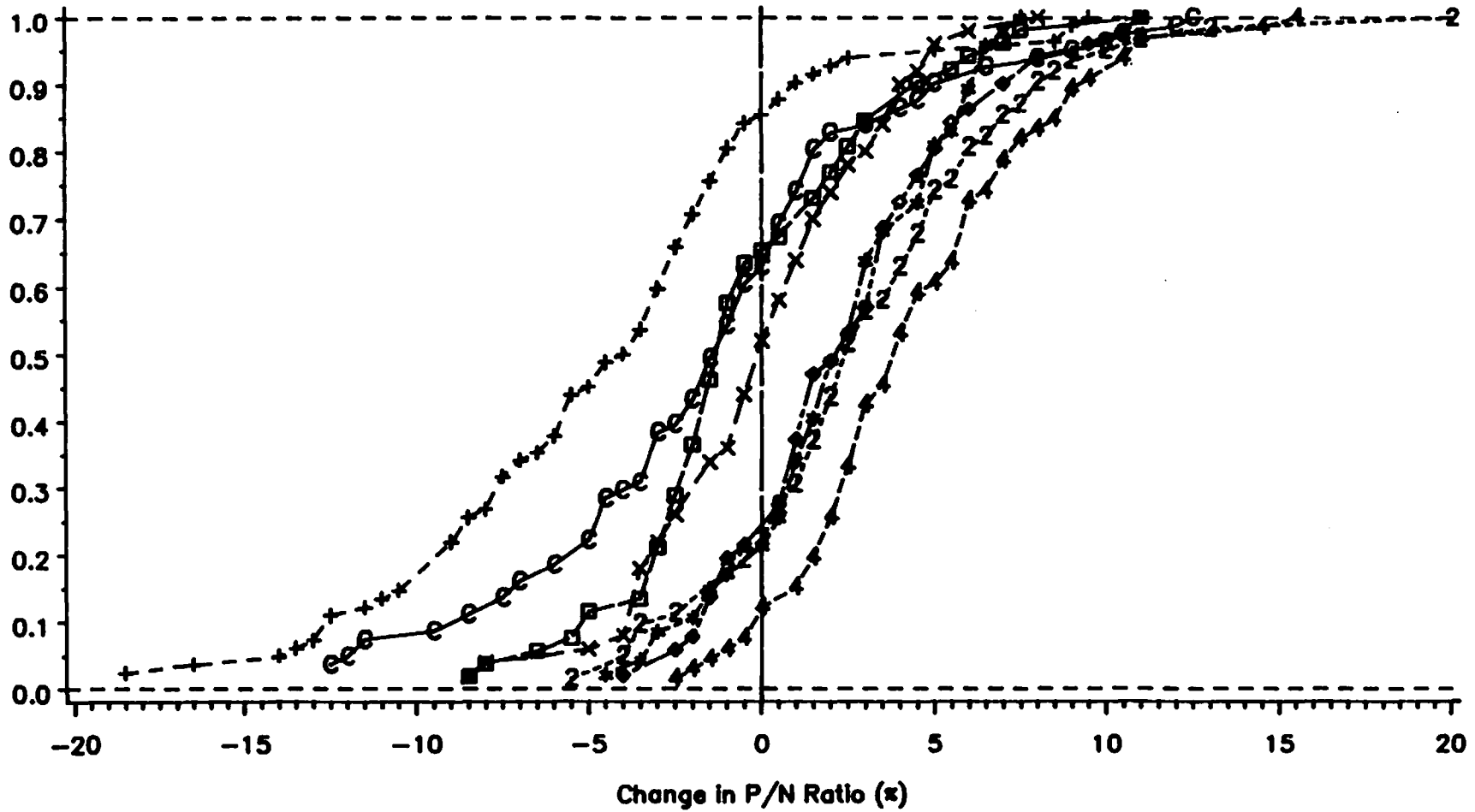
**Relative  
Cumulative Frequency**



<b>Treatment</b>	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+ - + ON + N+K	* - * - * 200N + 200N	◆ - ◆ - ◆ 400N + 200N
	□ - □ - □ 200N + N+K	◇ - ◇ - ◇ 400N + N+K	

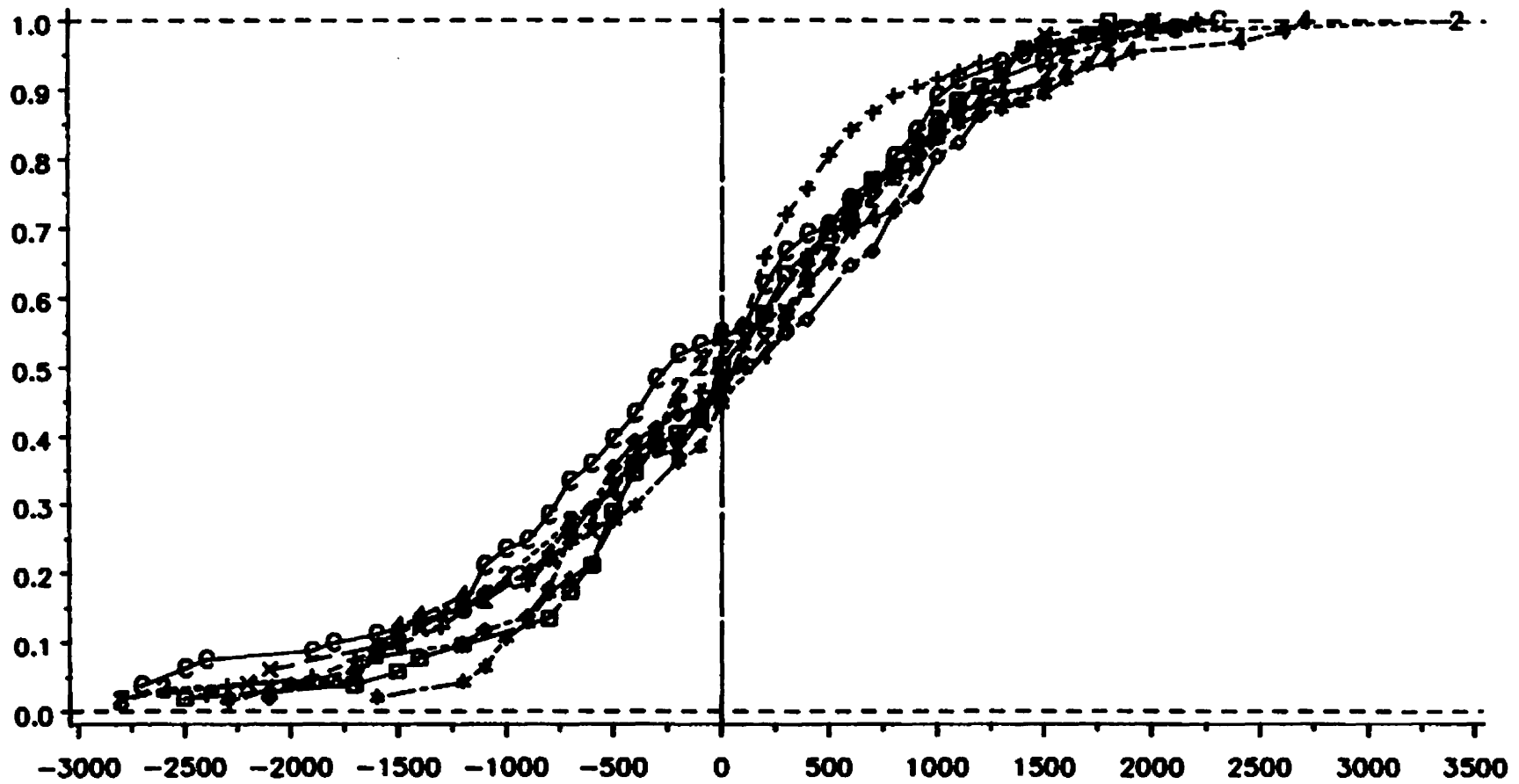


Relative  
Cumulative Frequency



Treatment	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+ - + ON + N+K	* * * 200N + 200N	◆◆◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

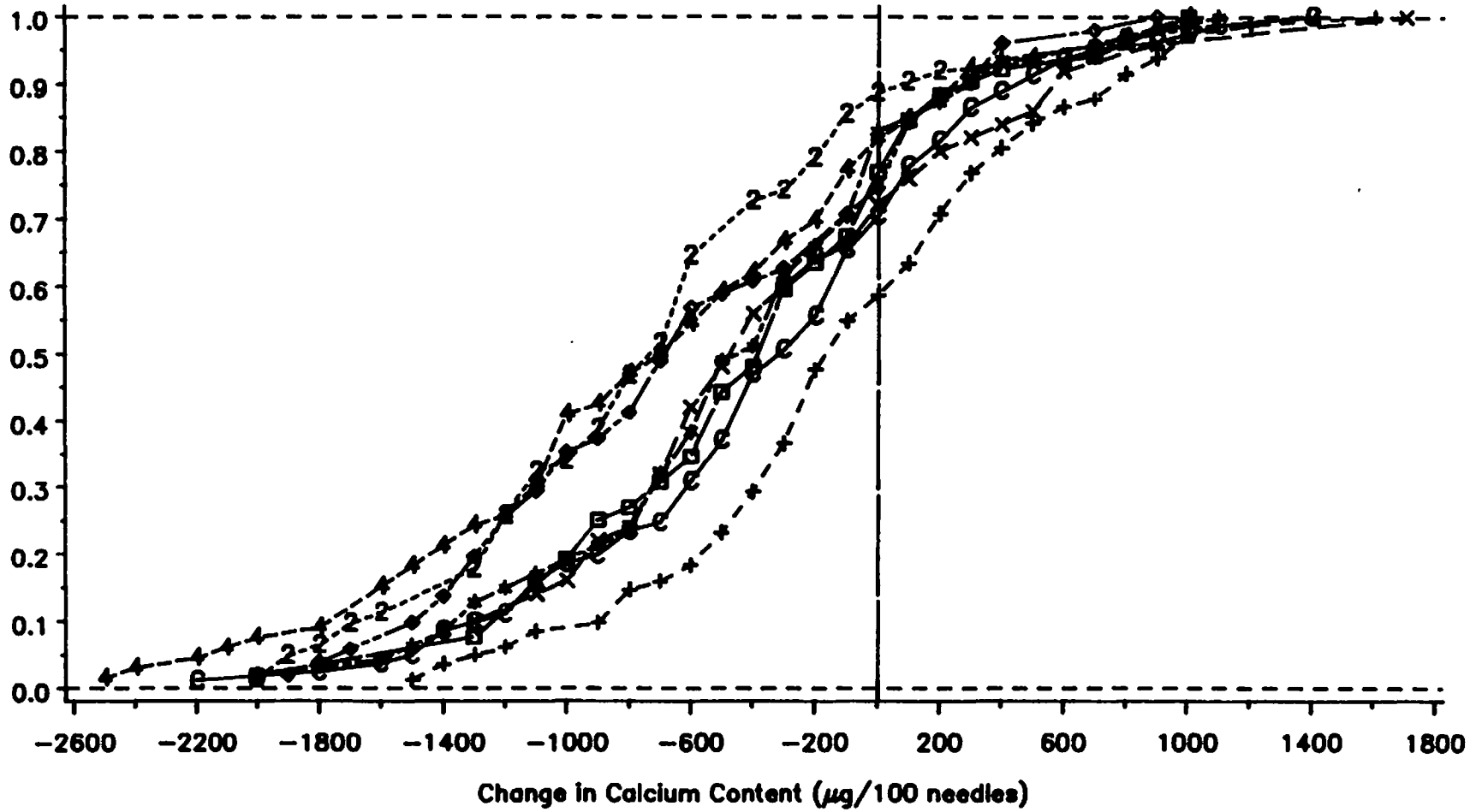
Relative  
Cumulative Frequency



Change in Calcium Concentration ( $\mu\text{g/g}$ )

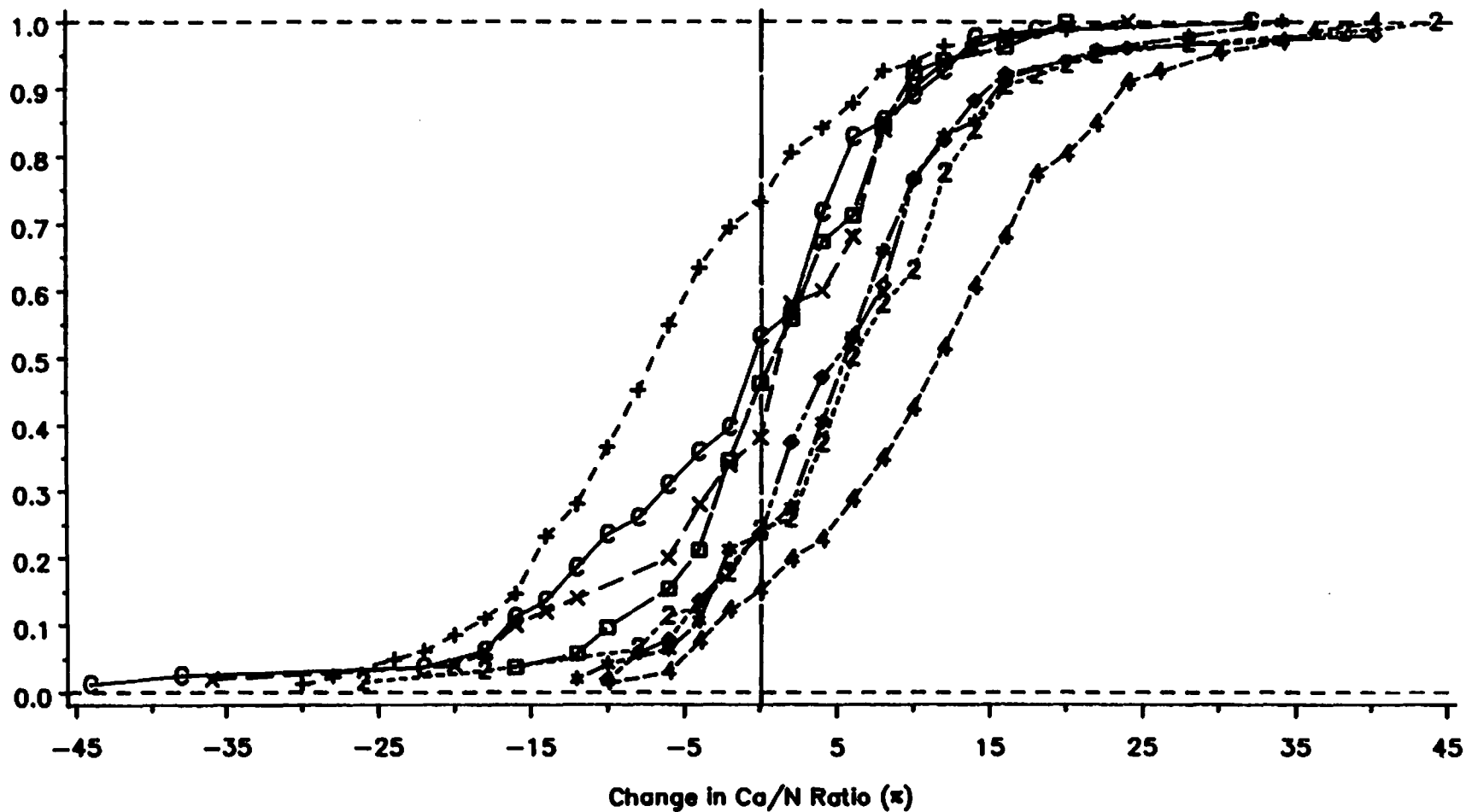
Treatment	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+--+ 0N + N+K	*-*-* 200N + 200N	◆-◆-◆ 400N + 200N
	■-■-■ 200N + N+K	◇-◇-◇ 400N + N+K	

Relative  
Cumulative Frequency



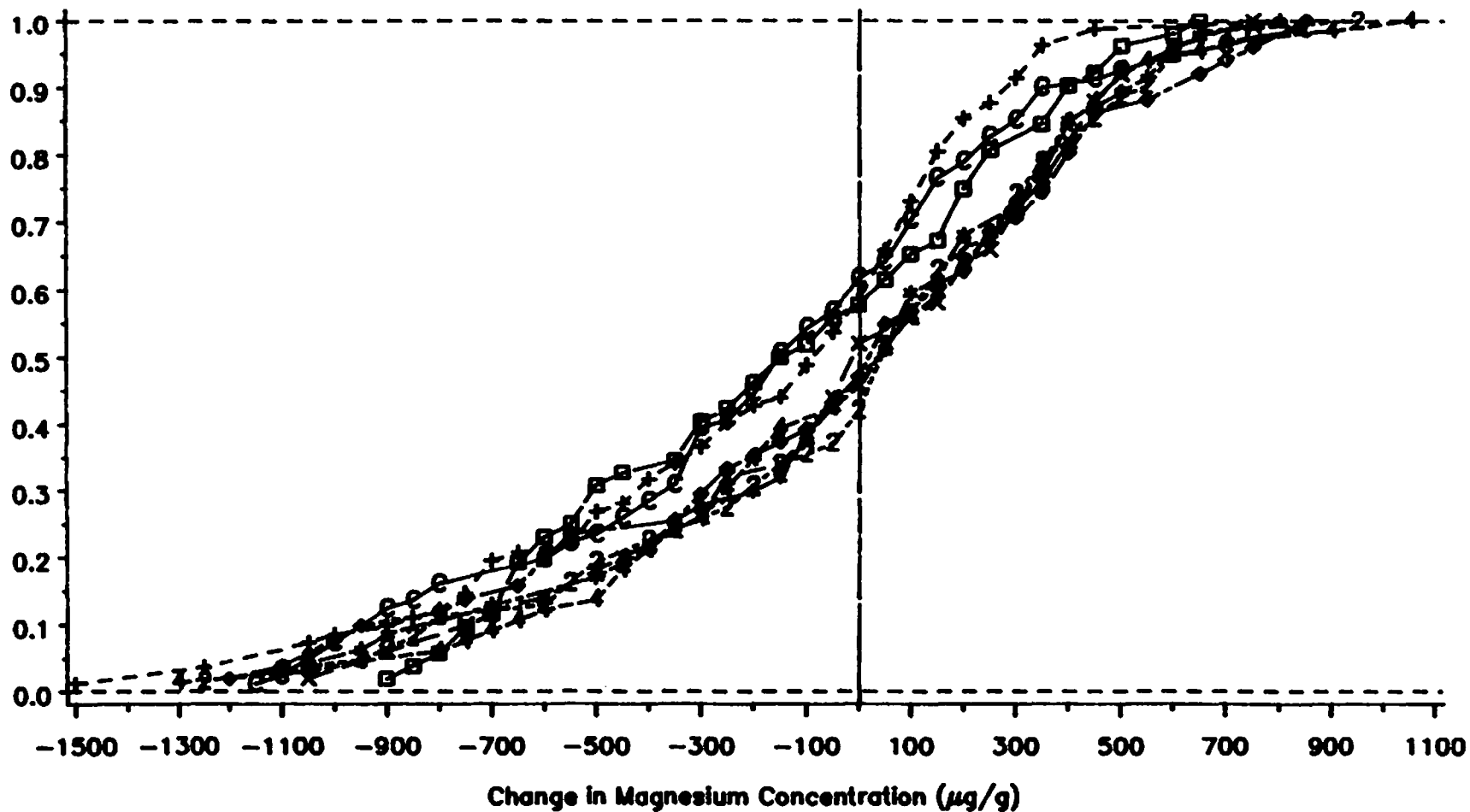
Treatment	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+ + + ON + N+K	* * * 200N + 200N	◆◆◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

**Relative  
Cumulative Frequency**



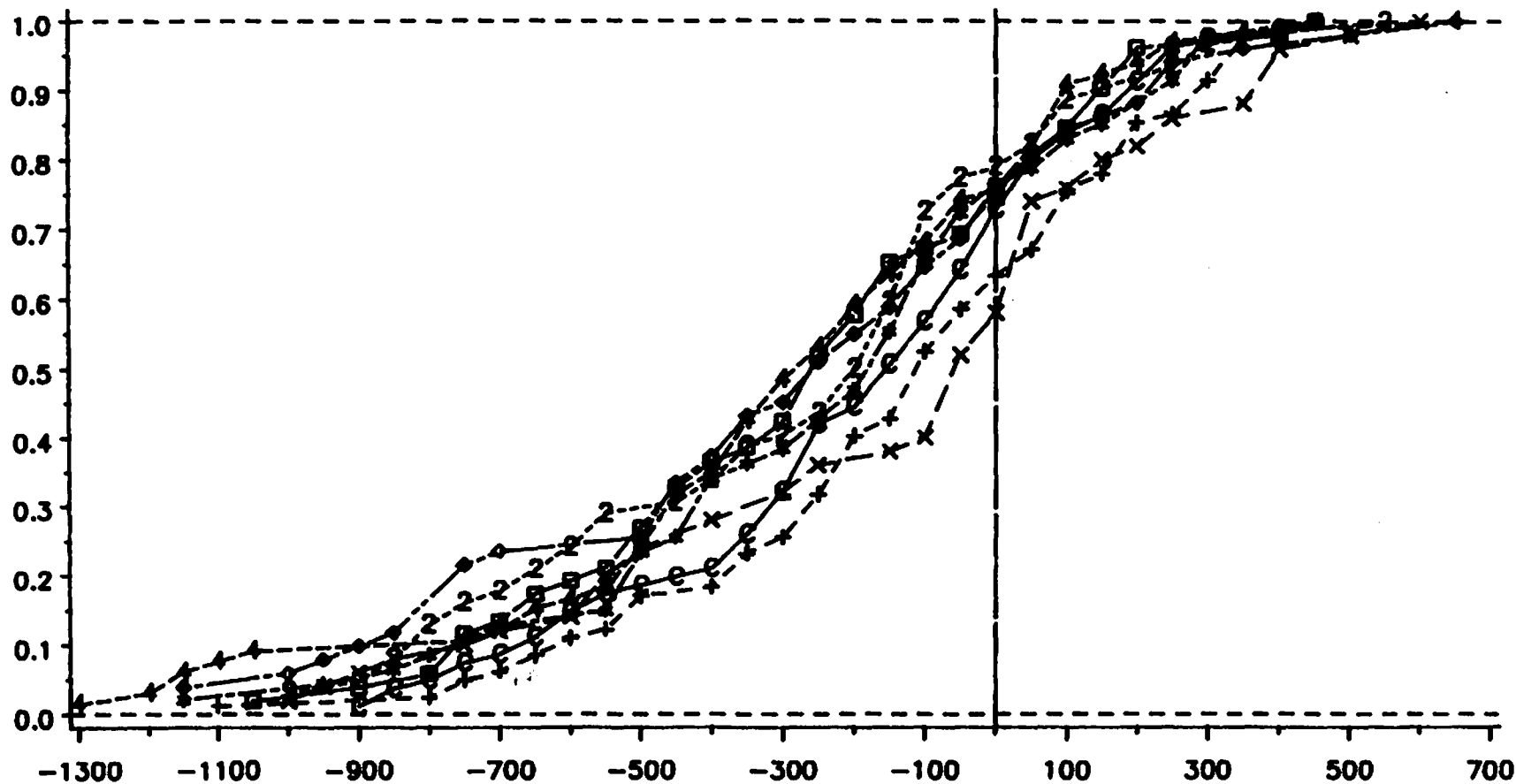
Treatment	○-○-○ 0N + 0N	2-2-2 200N + 0N	4-4-4 400N + 0N
	+ - + 0N + N+K	* * * 200N + 200N	◆-◆-◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

**Relative  
Cumulative Frequency**



Treatment	○-○-○ ON + ON	②-②-② 200N + ON	④-④-④ 400N + ON
	+ - + ON + N+K	× - × - × 200N + 200N	◆ - ◆ - ◆ 400N + 200N
	■ - ■ - ■ 200N + N+K	◇ - ◇ - ◇ 400N + N+K	

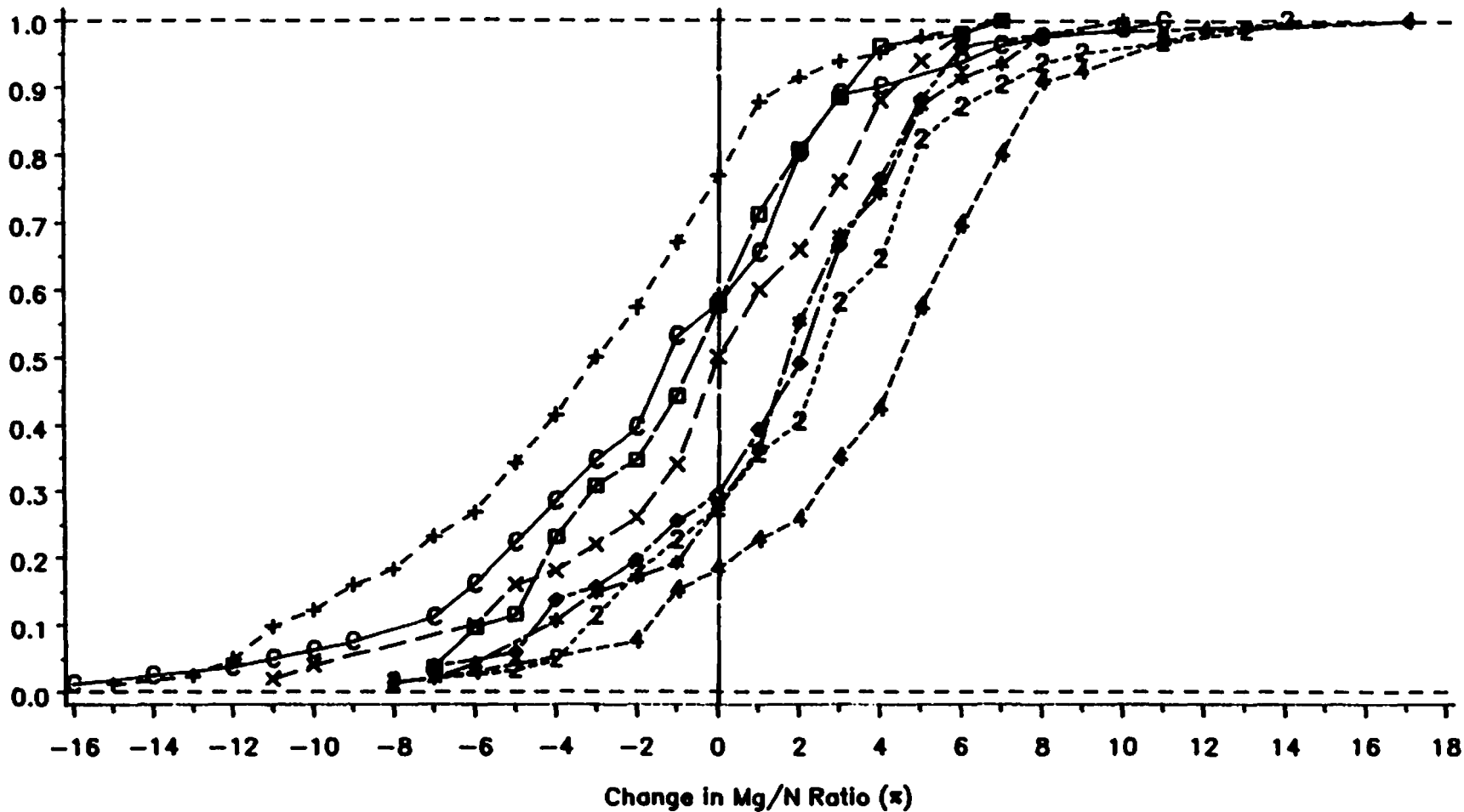
**Relative  
Cumulative Frequency**



**Change in Magnesium Content ( $\mu\text{g}/100$  needles)**

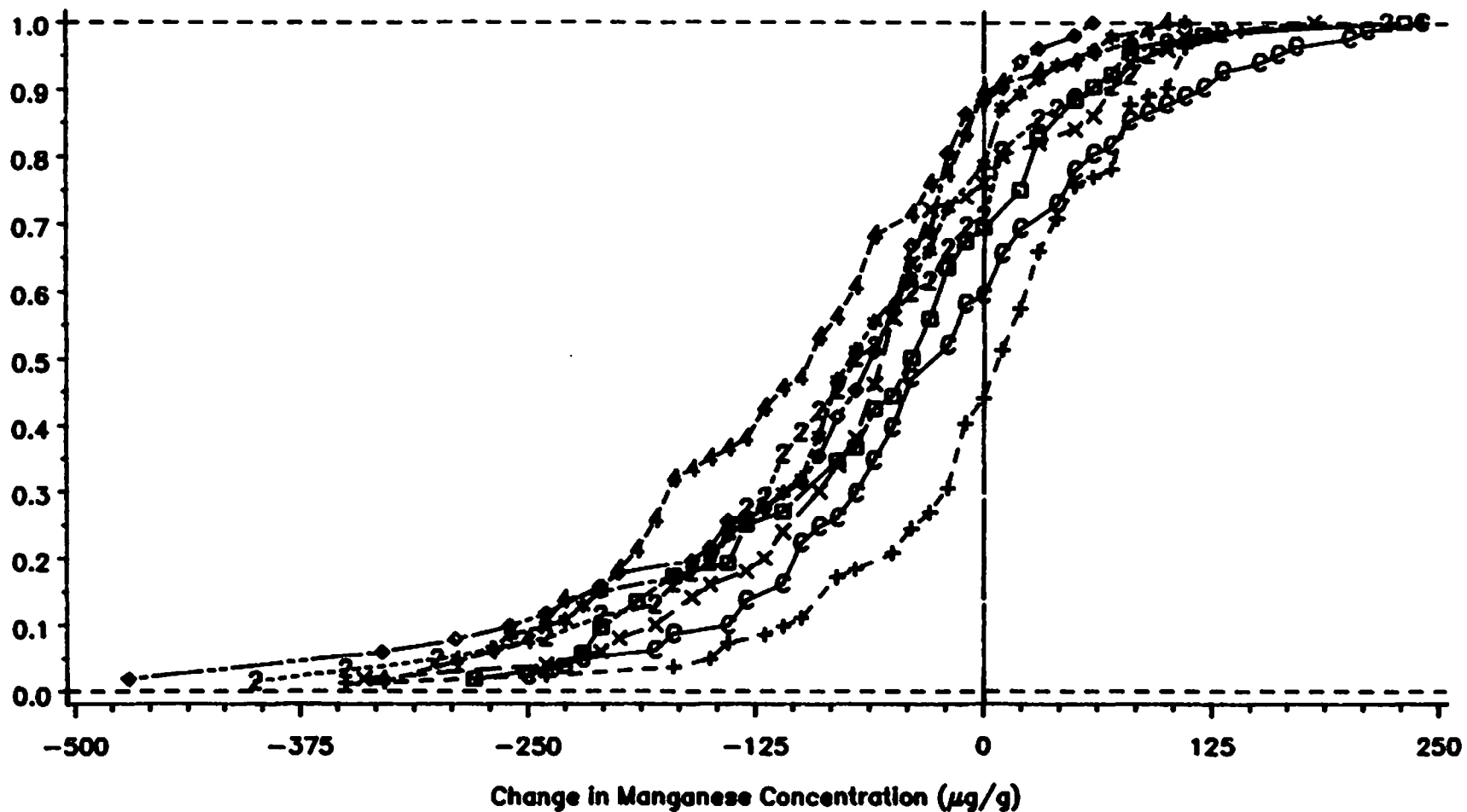
<b>Treatment</b>	○-○-○ 0N + 0N	2-2-2 200N + 0N	4-4-4 400N + 0N
	+--+ 0N + N+K	*-*-* 200N + 200N	◆-◆-◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

**Relative  
Cumulative Frequency**



Treatment    ○-○-○ 0N + 0N                      2-2-2 200N + 0N                      4-4-4 400N + 0N  
                   +-+-+ 0N + N+K                      ✕-✕-✕ 200N + 200N                      ◆-◆-◆ 400N + 200N  
                   ◻-◻-◻ 200N + N+K                      ◇-◇-◇ 400N + N+K

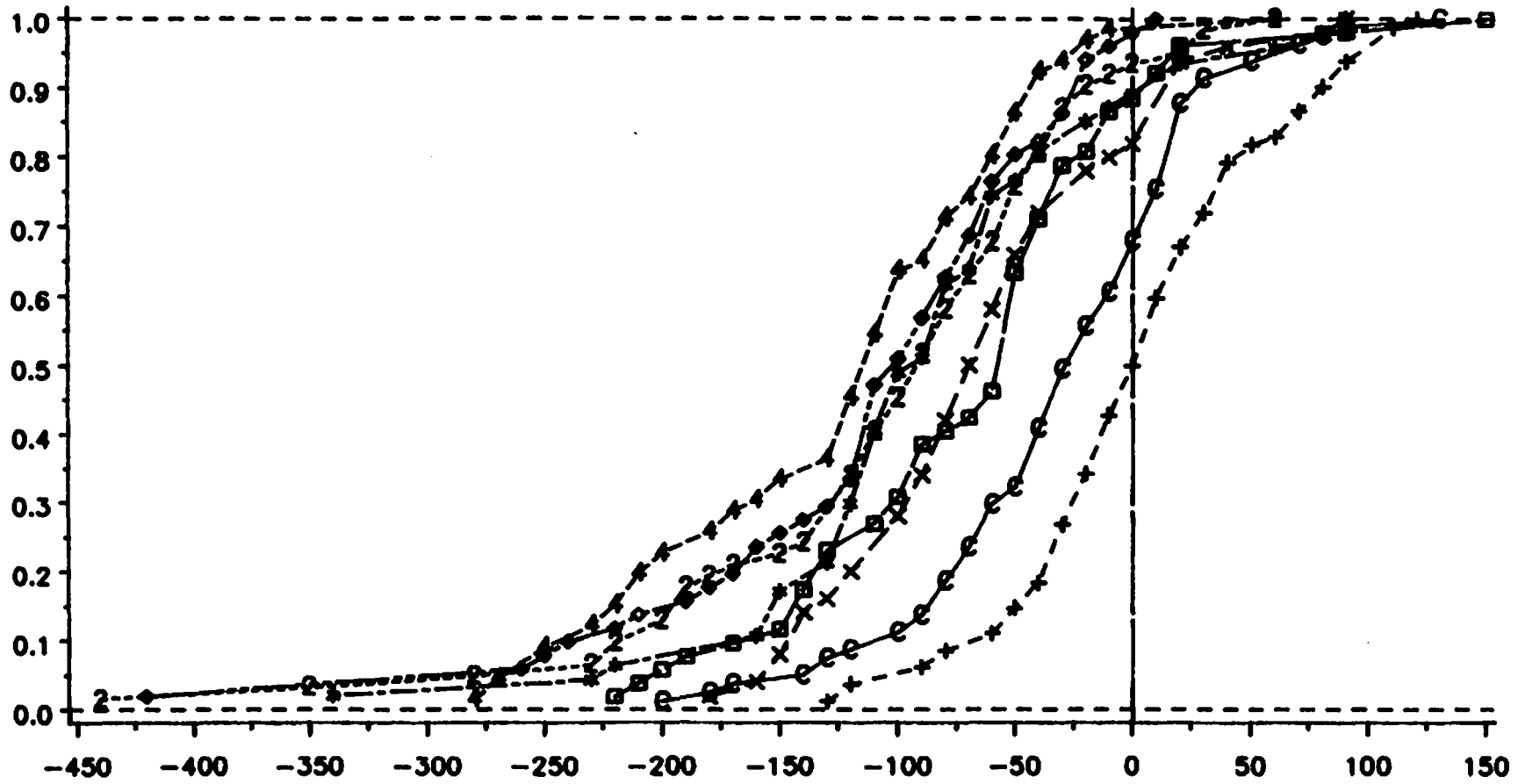
Relative  
Cumulative Frequency



Treatment	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+--+ 0N + N+K	*-*-* 200N + 200N	◆-◆-◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	



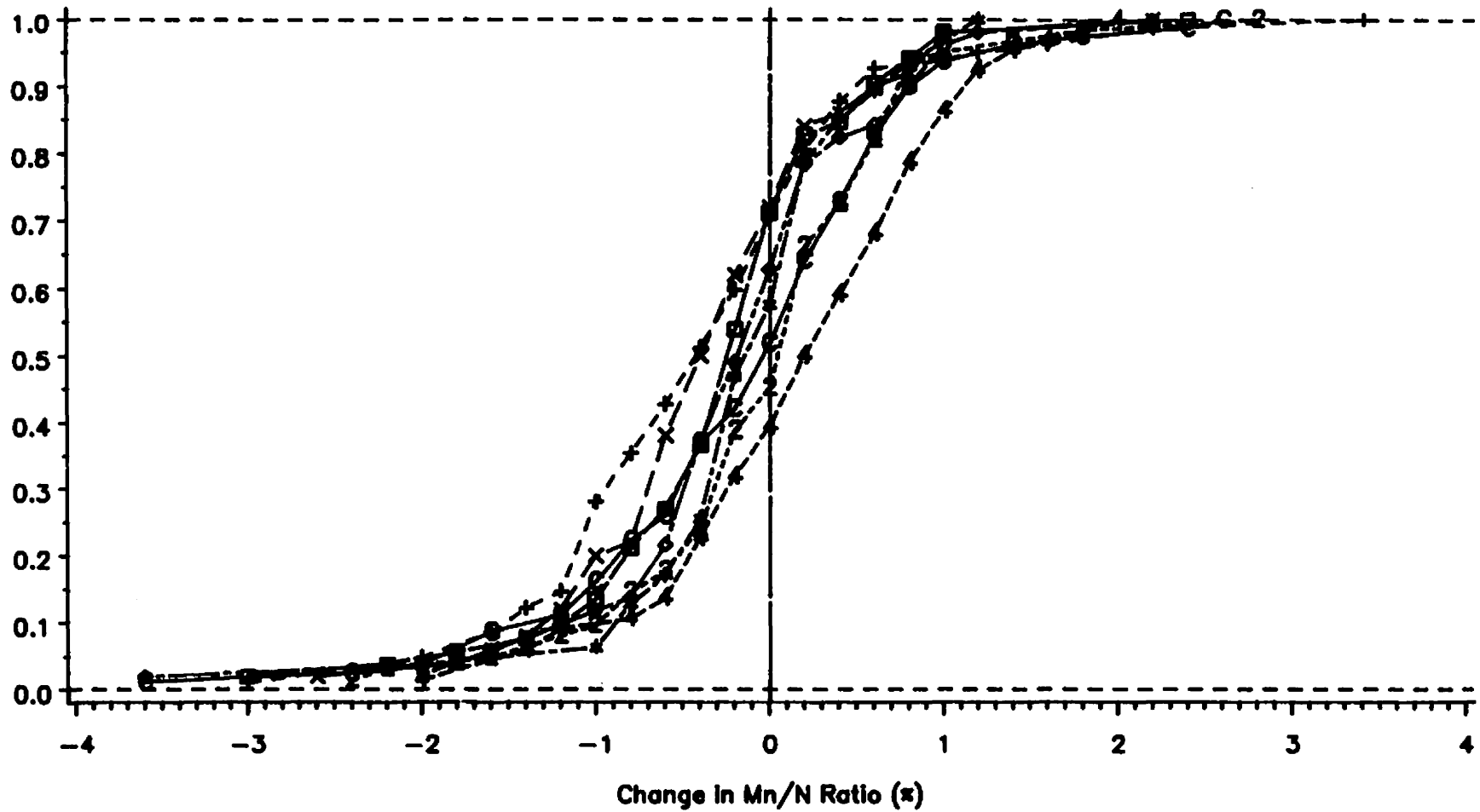
Relative  
Cumulative Frequency



Change in Manganese Content ( $\mu\text{g}/100$  needles)

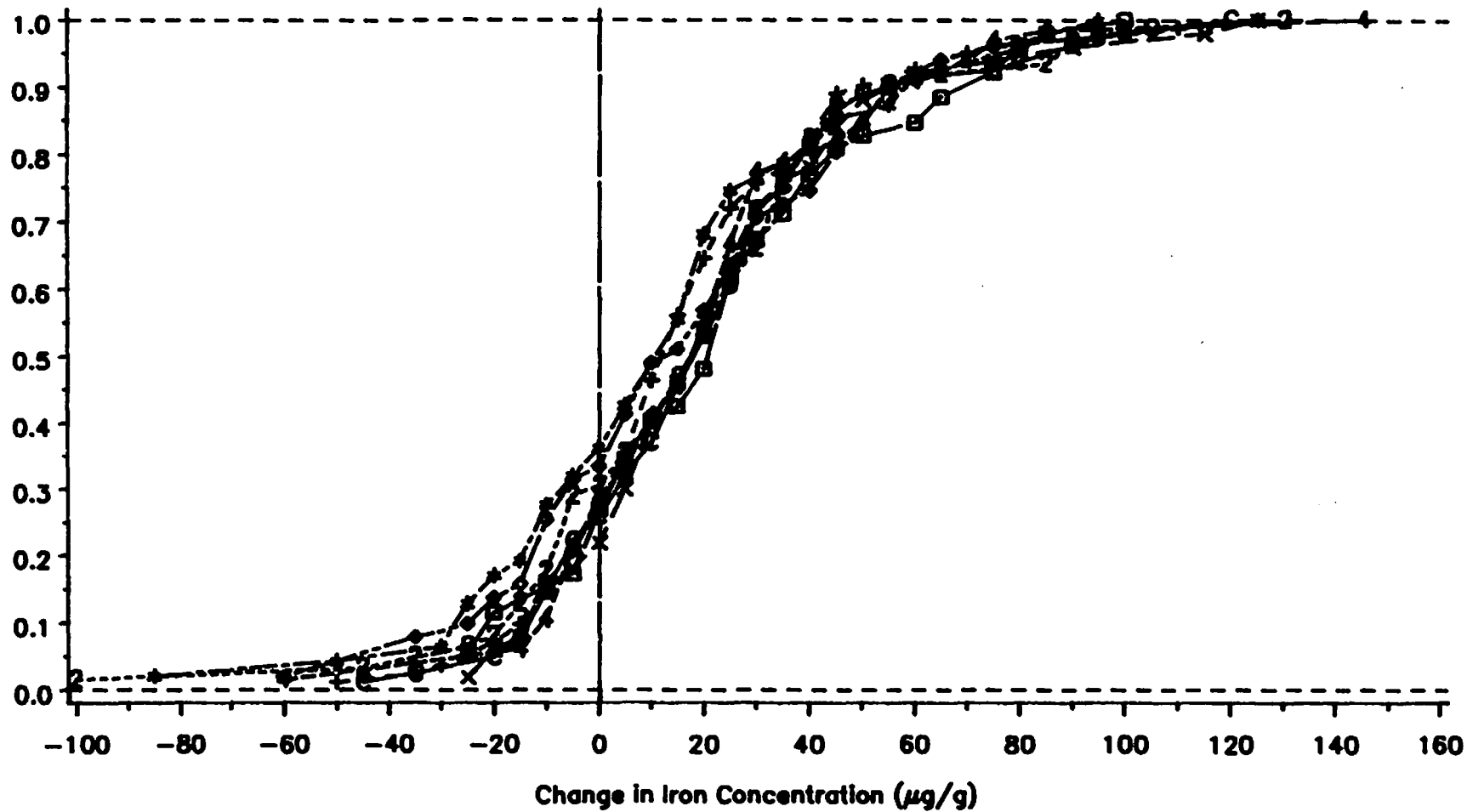
Treatment	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+--+ ON + N+K	*-*-* 200N + 200N	◆-◆-◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

Relative  
Cumulative Frequency



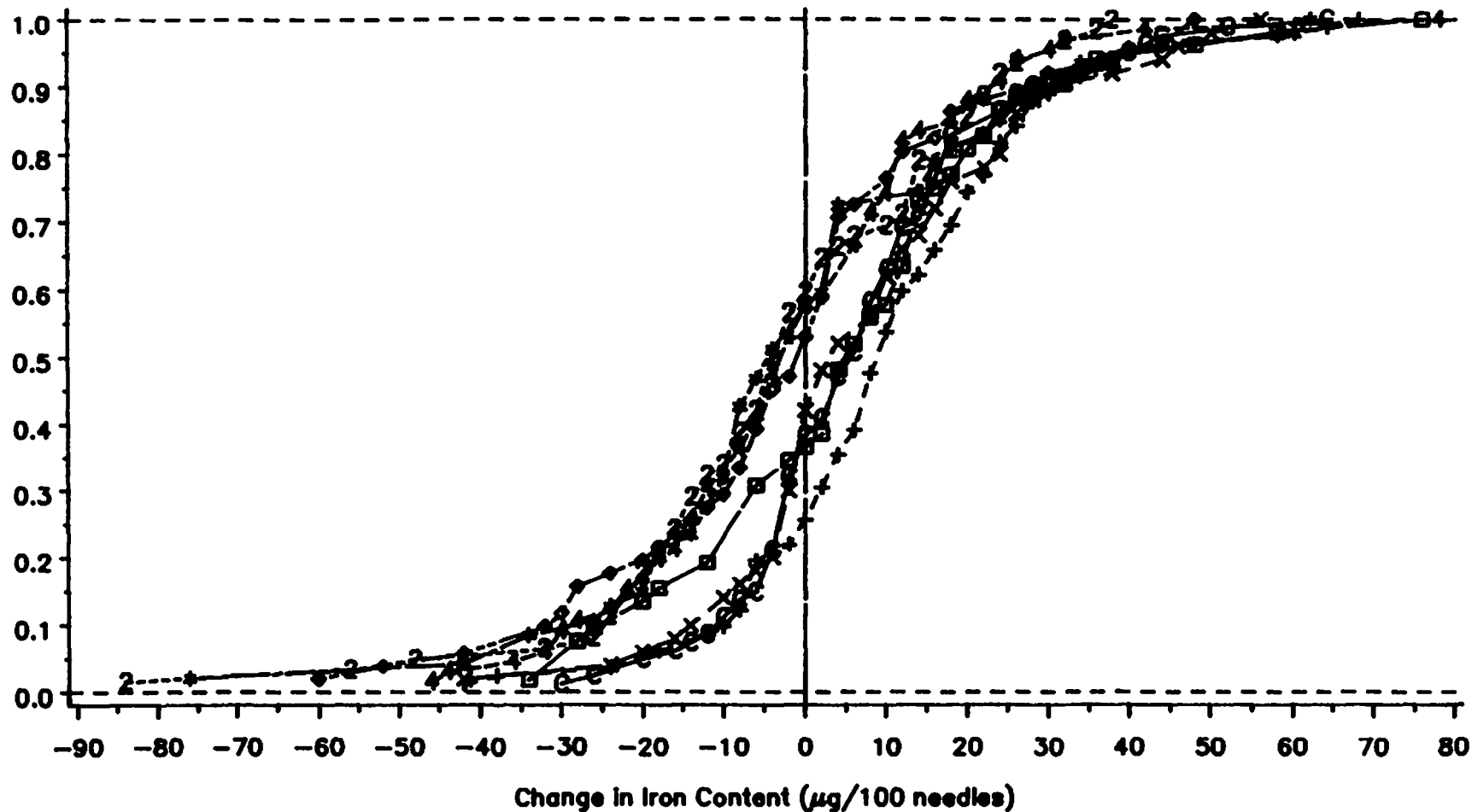
Treatment	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+ + + ON + N+K	* * * 200N + 200N	◆◆◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

Relative  
Cumulative Frequency



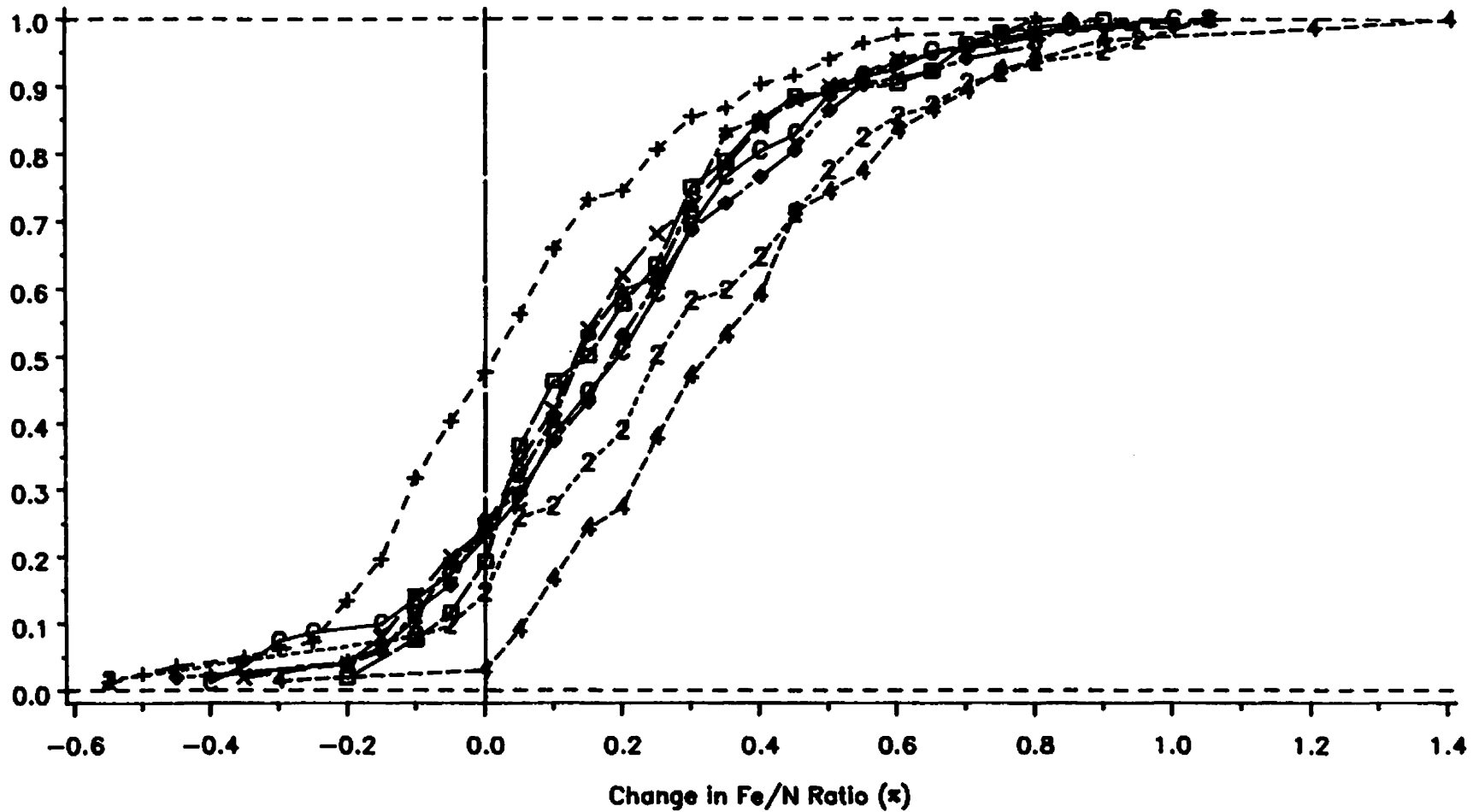
Treatment	○-○-○ ON + ON	◐-◐-◐ 200N + ON	◑-◑-◑ 400N + ON
	+--+ ON + N+K	*-*-* 200N + 200N	◒-◒-◒ 400N + 200N
	◓-◓-◓ 200N + N+K	◔-◔-◔ 400N + N+K	

Relative  
Cumulative Frequency



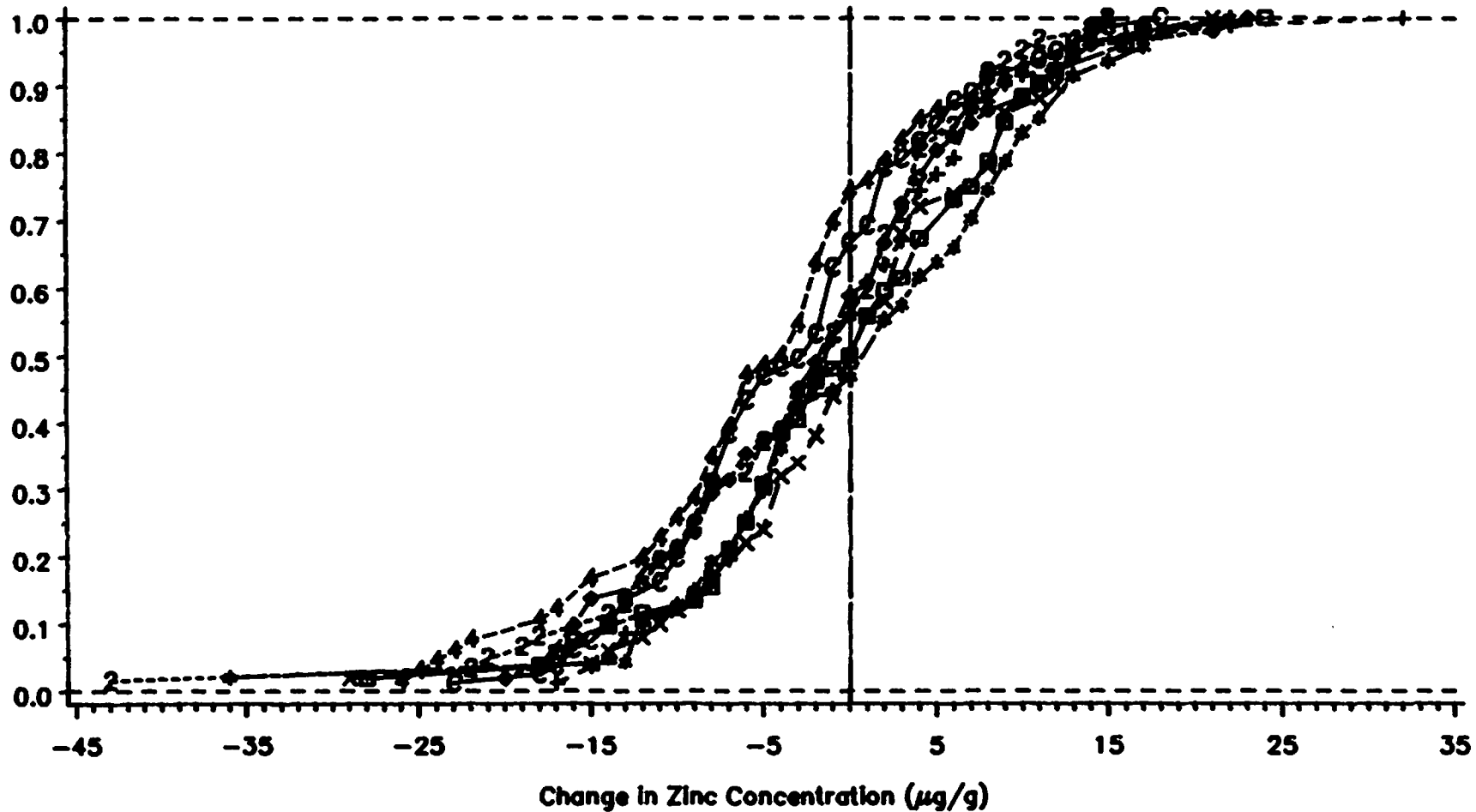
Treatment	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+ + + ON + N+K	* * * 200N + 200N	◆◆◆ 400N + 200N
	□-□-□ 200N + N+K	◇◆◇ 400N + N+K	

**Relative  
Cumulative Frequency**



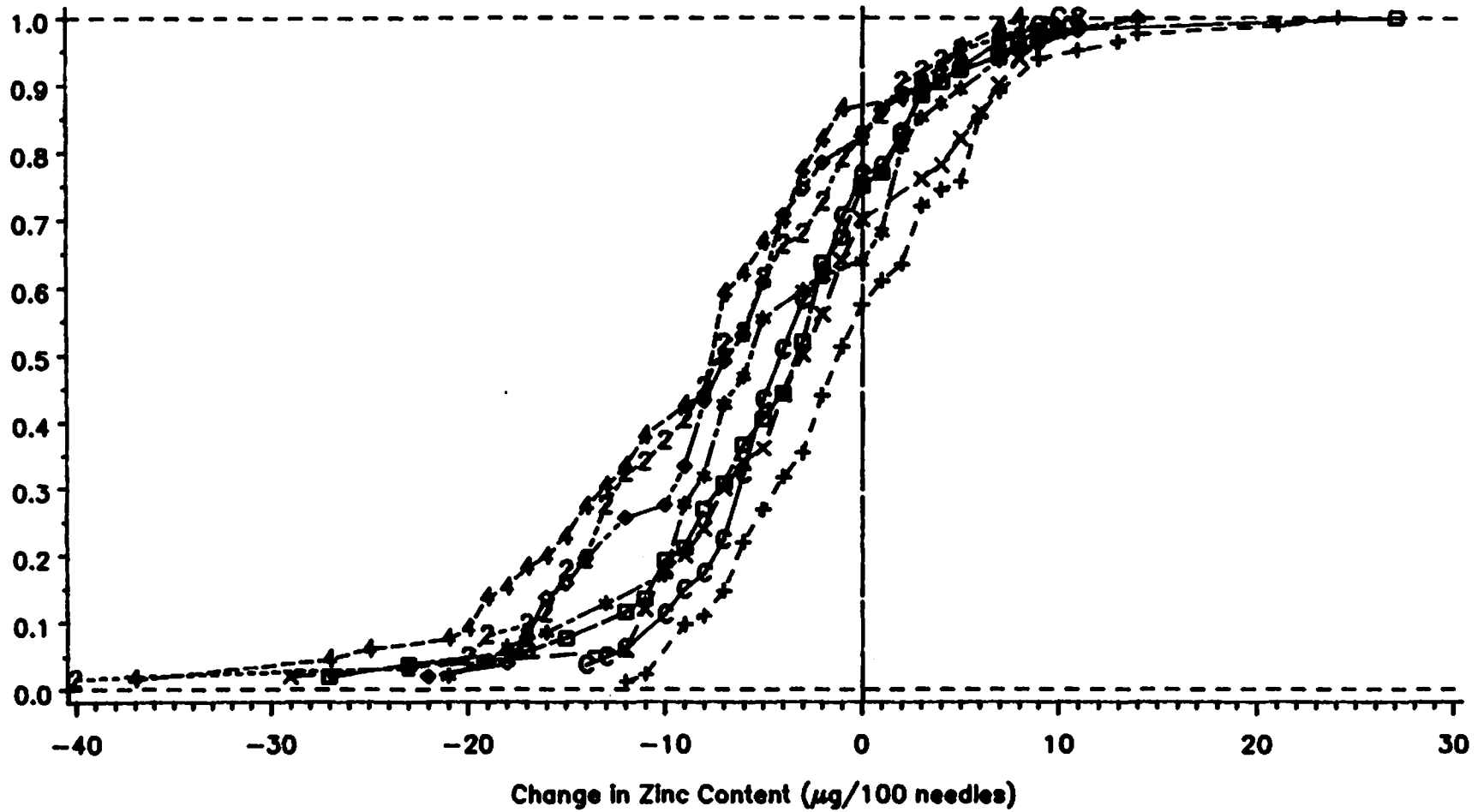
Treatment	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+--+ ON + N+K	*-*-* 200N + 200N	◆-◆-◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

Relative  
Cumulative Frequency



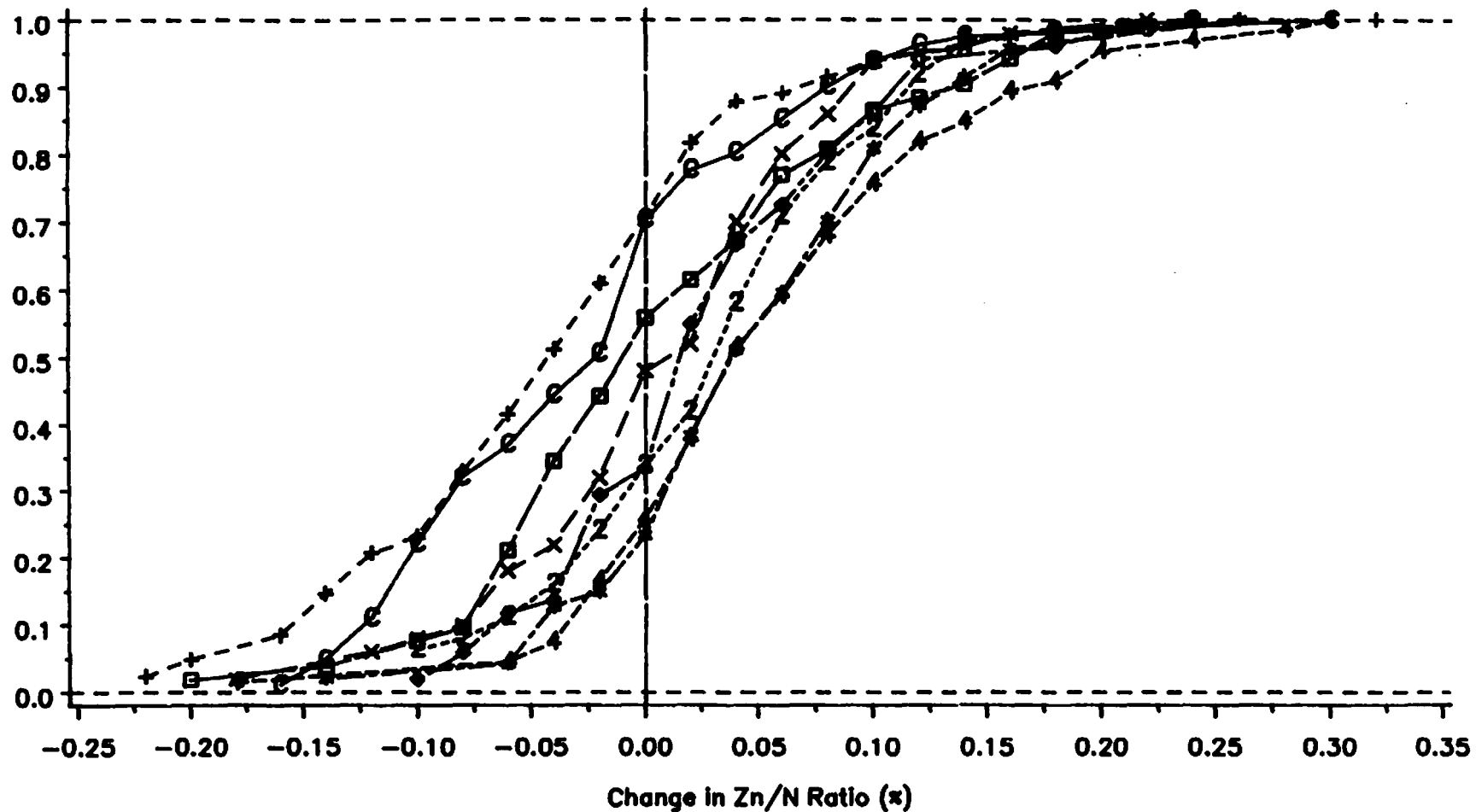
Treatment	○-○-○ 0N + 0N	2-2-2 200N + 0N	4-4-4 400N + 0N
	+ -+ -+ 0N + N+K	* * * 200N + 200N	◆ ◆ ◆ 400N + 200N
	□ -□ -□ 200N + N+K	◇ -◇ -◇ 400N + N+K	

**Relative  
Cumulative Frequency**



<b>Treatment</b>	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+ - + ON + N+K	* * * 200N + 200N	◆◆◆ 400N + 200N
	■-■-■ 200N + N+K	◇-◇-◇ 400N + N+K	

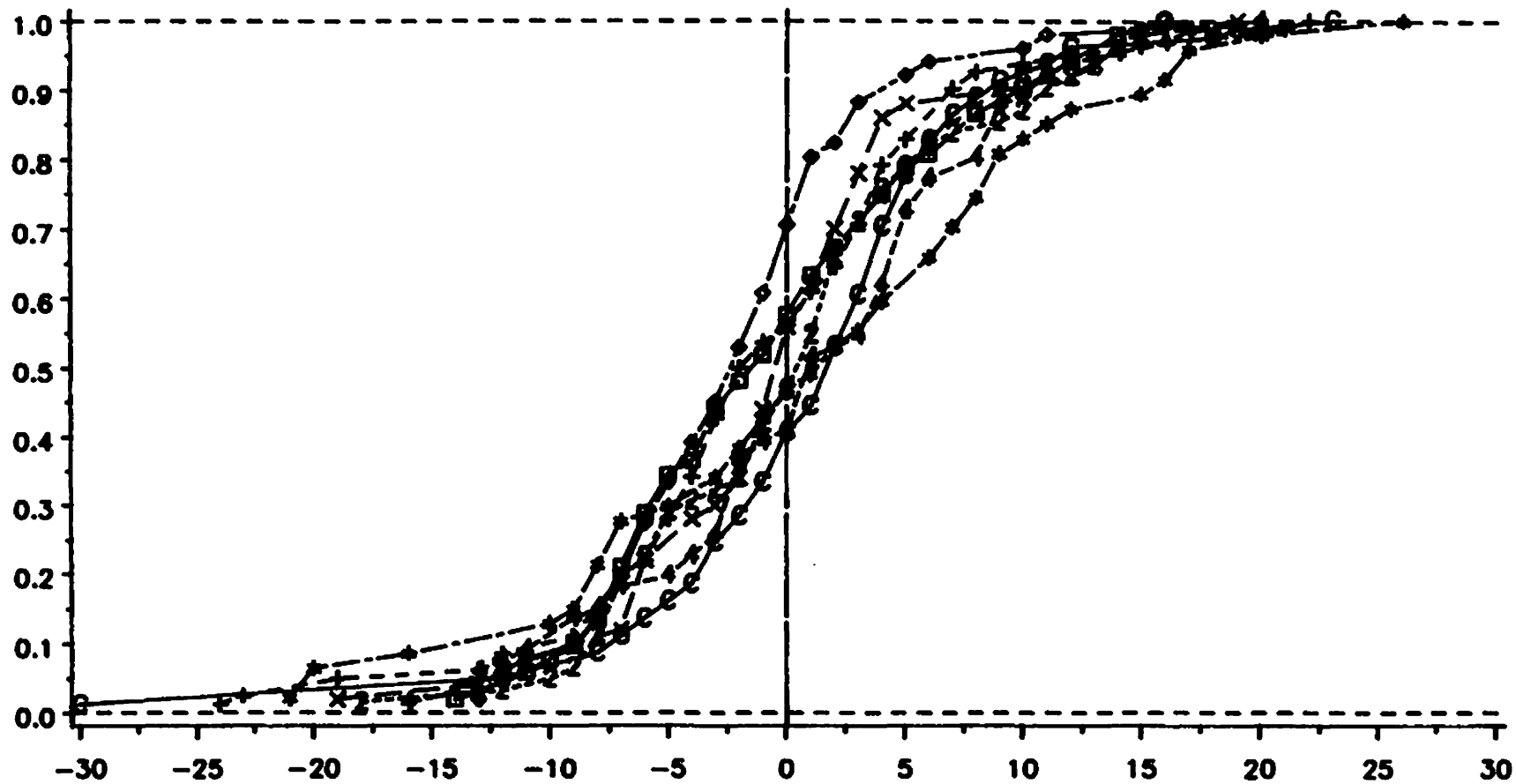
Relative  
Cumulative Frequency



Treatment	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+ + + ON + N+K	* * * 200N + 200N	◆◆◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	



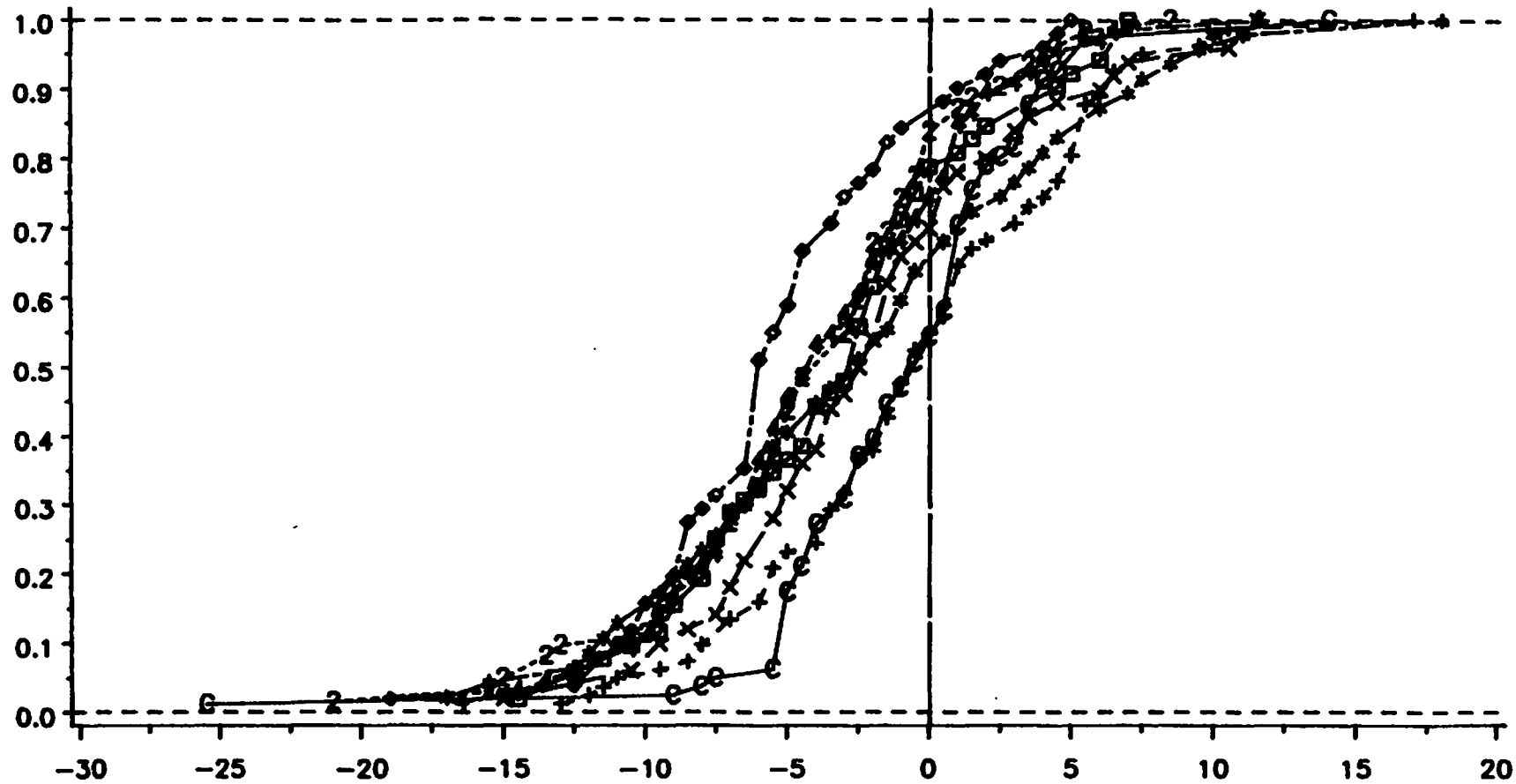
**Relative  
Cumulative Frequency**



**Change in Boron Concentration ( $\mu\text{g/g}$ )**

<b>Treatment</b>	○-○-○ 0N + 0N	2-2-2 200N + 0N	4-4-4 400N + 0N
	+ - + 0N + N+K	* * * 200N + 200N	◆-◆-◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

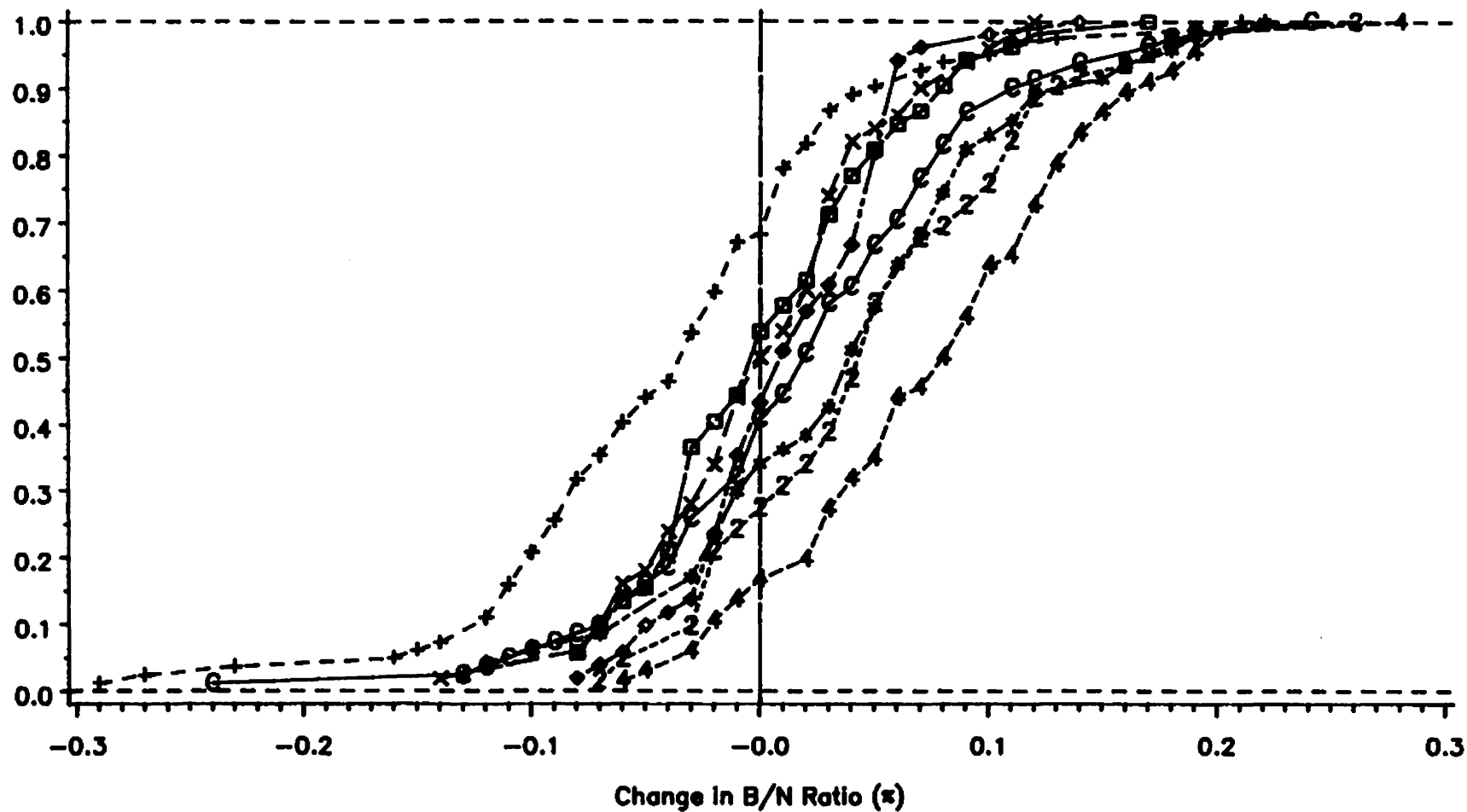
**Relative  
Cumulative Frequency**



**Change in Boron Content ( $\mu\text{g}/100$  needles)**

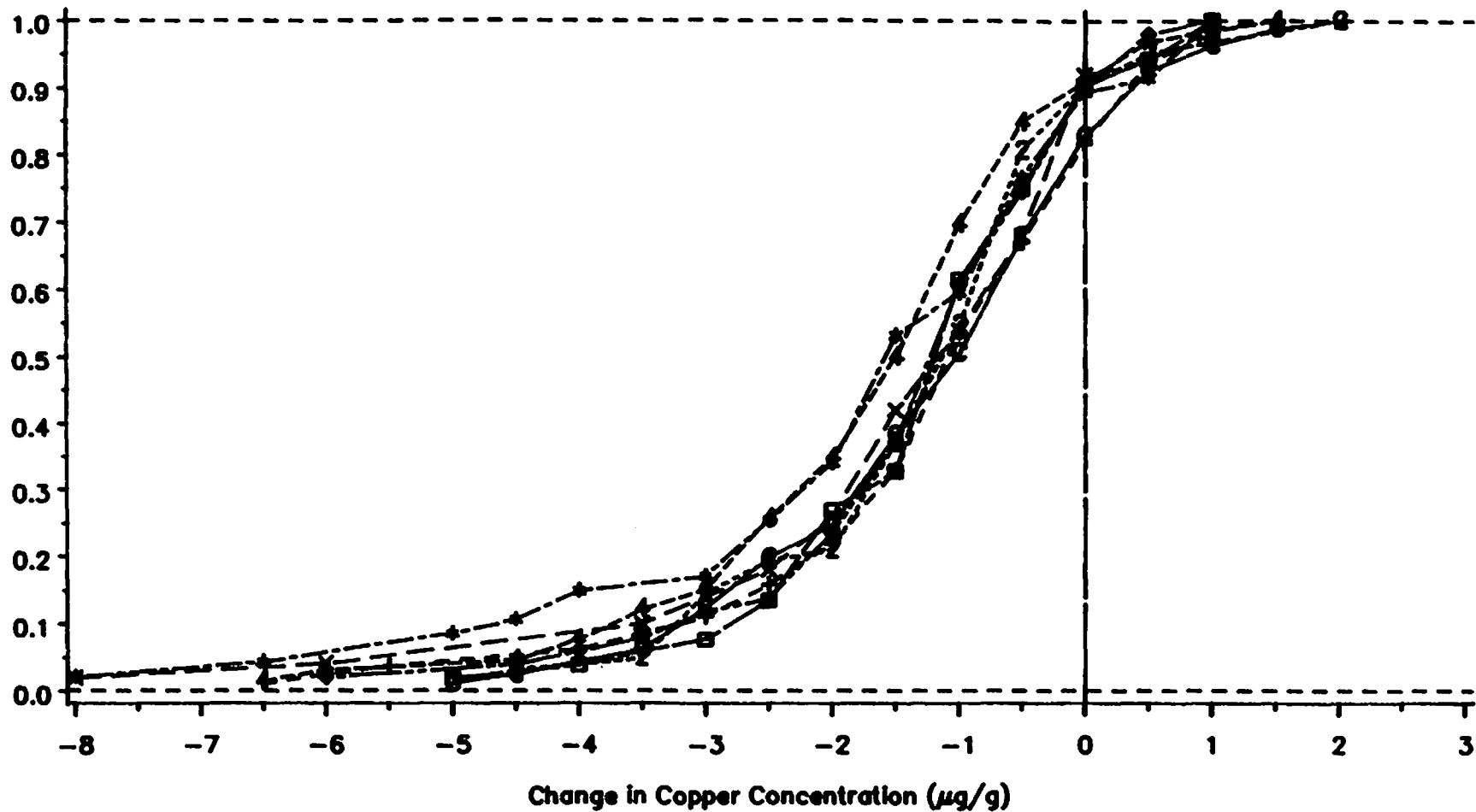
<b>Treatment</b>	○-○-○ ON + ON	2-2-2 200N + ON	4-4-4 400N + ON
	+--+ 0N + N+K	*-*-* 200N + 200N	◆-◆-◆ 400N + 200N
	■-■-■ 200N + N+K	◇-◇-◇ 400N + N+K	

Relative  
Cumulative Frequency



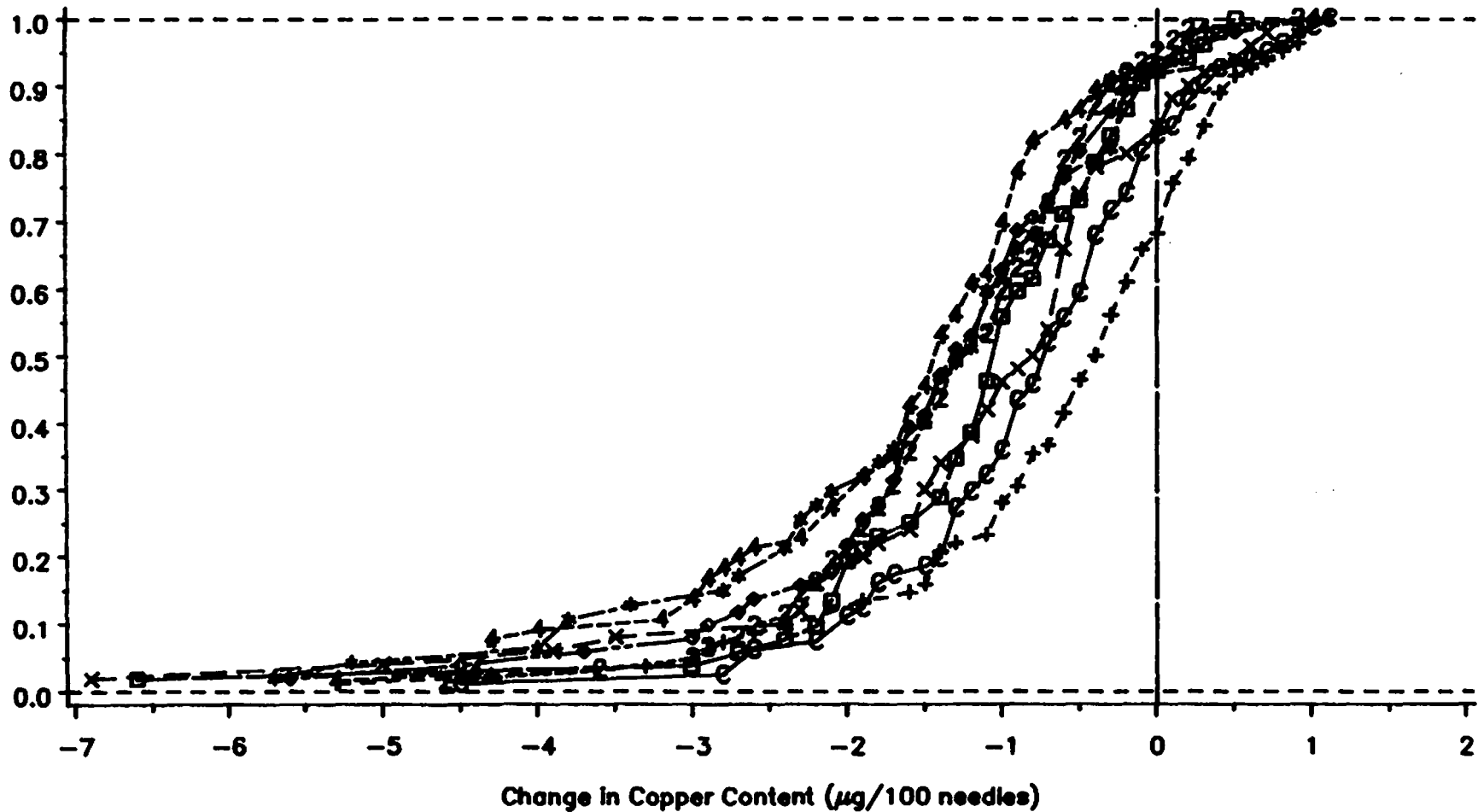
Treatment	○-○-○ 0N + 0N	2-2-2 200N + 0N	4-4-4 400N + 0N
	+ - + 0N + N+K	* * * 200N + 200N	◆◆◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

Relative  
Cumulative Frequency



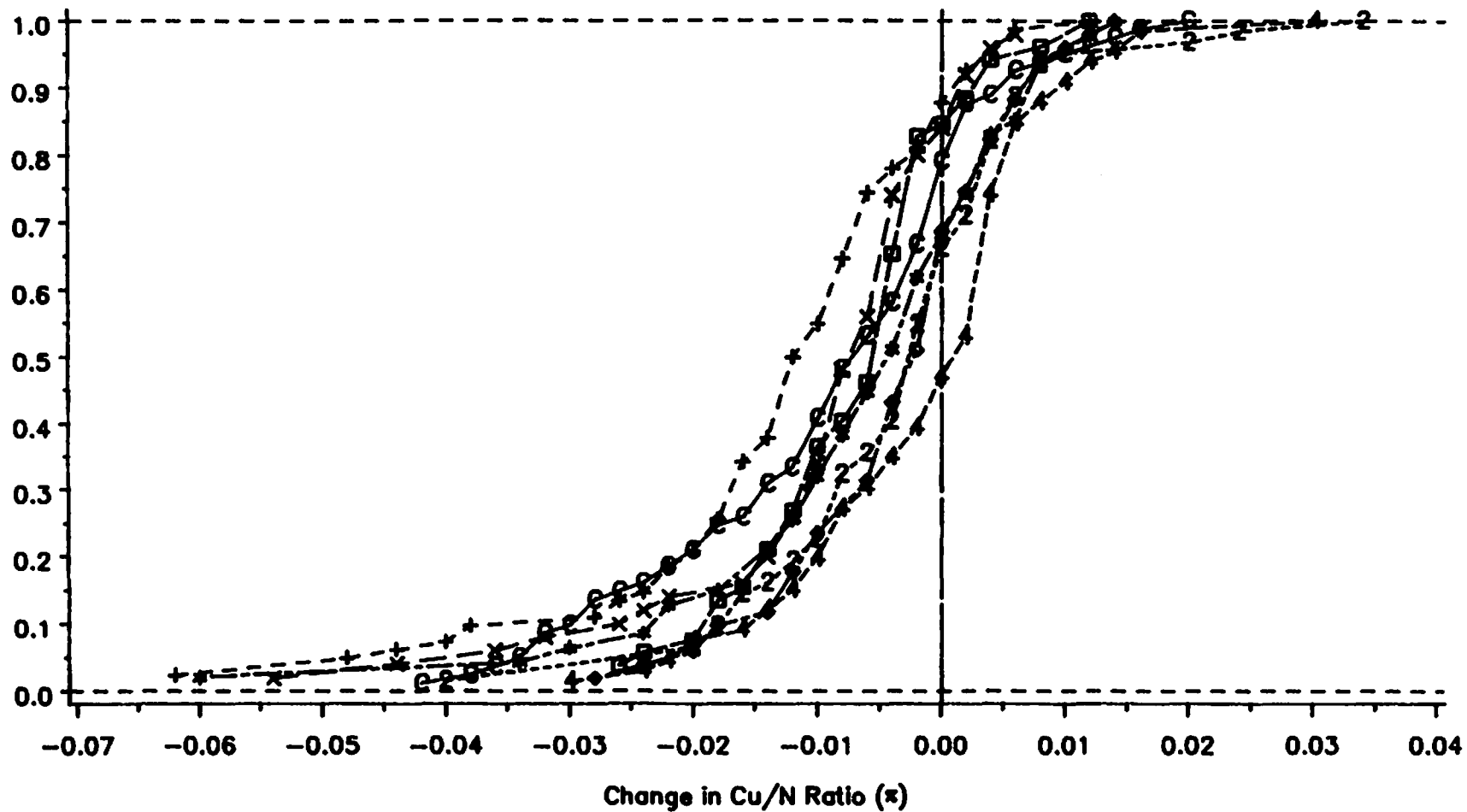
Treatment	○-○-○ 0N + 0N	②-②-② 200N + 0N	④-④-④ 400N + 0N
	+--+ 0N + N+K	*-*-* 200N + 200N	◆-◆-◆ 400N + 200N
	□-□-□ 200N + N+K	◇-◇-◇ 400N + N+K	

Relative  
Cumulative Frequency



Treatment	○-○-○	0N + 0N	2-2-2	200N + 0N	4-4-4	400N + 0N
	+ - +	0N + N+K	* - * - *	200N + 200N	◆ - ◆ - ◆	400N + 200N
	□ - □ - □	200N + N+K	◇ - ◇ - ◇	400N + N+K		

Relative  
Cumulative Frequency



Treatment	○-○-○ 0N + 0N	2-2-2 200N + 0N	4-4-4 400N + 0N
	+ - + 0N + N+K	* - * - * 200N + 200N	◆ - ◆ - ◆ 400N + 200N
	□ - □ - □ 200N + N+K	◇ - ◇ - ◇ 400N + N+K	

Appendix C: Growing season changes in nutrient concentrations

The following pages contain graphs showing the changes in foliar nutrient concentrations from the start of the growing season to the dormant season in 1989. Values on the vertical axis represent the foliar nutrient concentration found on the day indicated by the horizontal axis value. Julian date 152 is June 1, Julian date 212 is July 31, and Julian date 332 is November 28. Two installations were sampled, both having been treated the previous fall with a second fertilizer application: installation 283 (Summit Creek), located in central Washington between Okanogan and Twisp, and installation 287 (Jim Ford Creek), located in northern Idaho near Weippe. Nutrient values for installation 283 are shown by solid lines, while those for installation 287 are shown by dashed lines. Different fertilizer treatment combinations are by symbols; their meaning is given on each graph and provided in the table below.

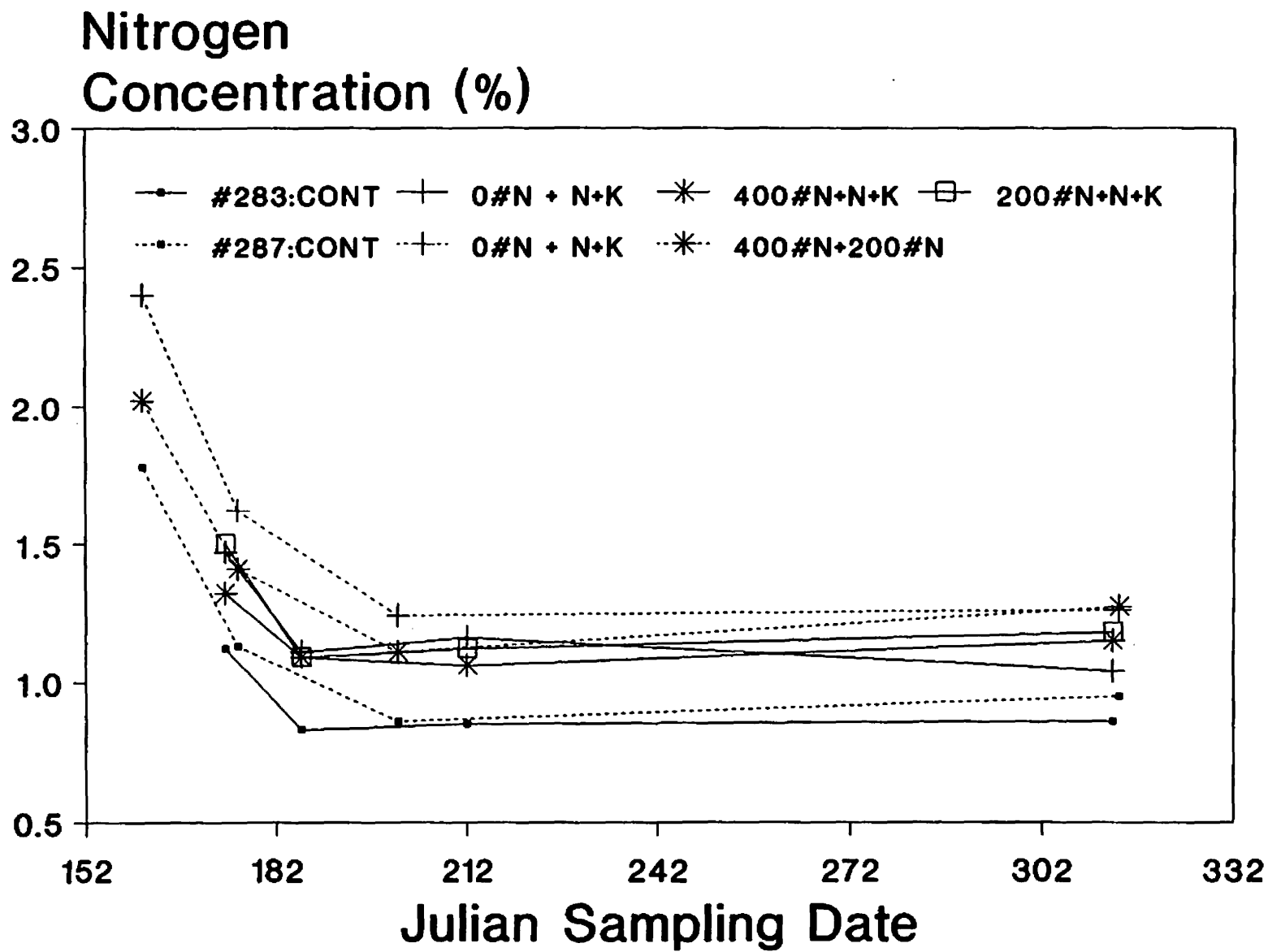


Figure 6. Foliar nitrogen concentrations during the growing season by fertilization treatment for installations 283 and 287.



# Potassium Concentration (ug/g)

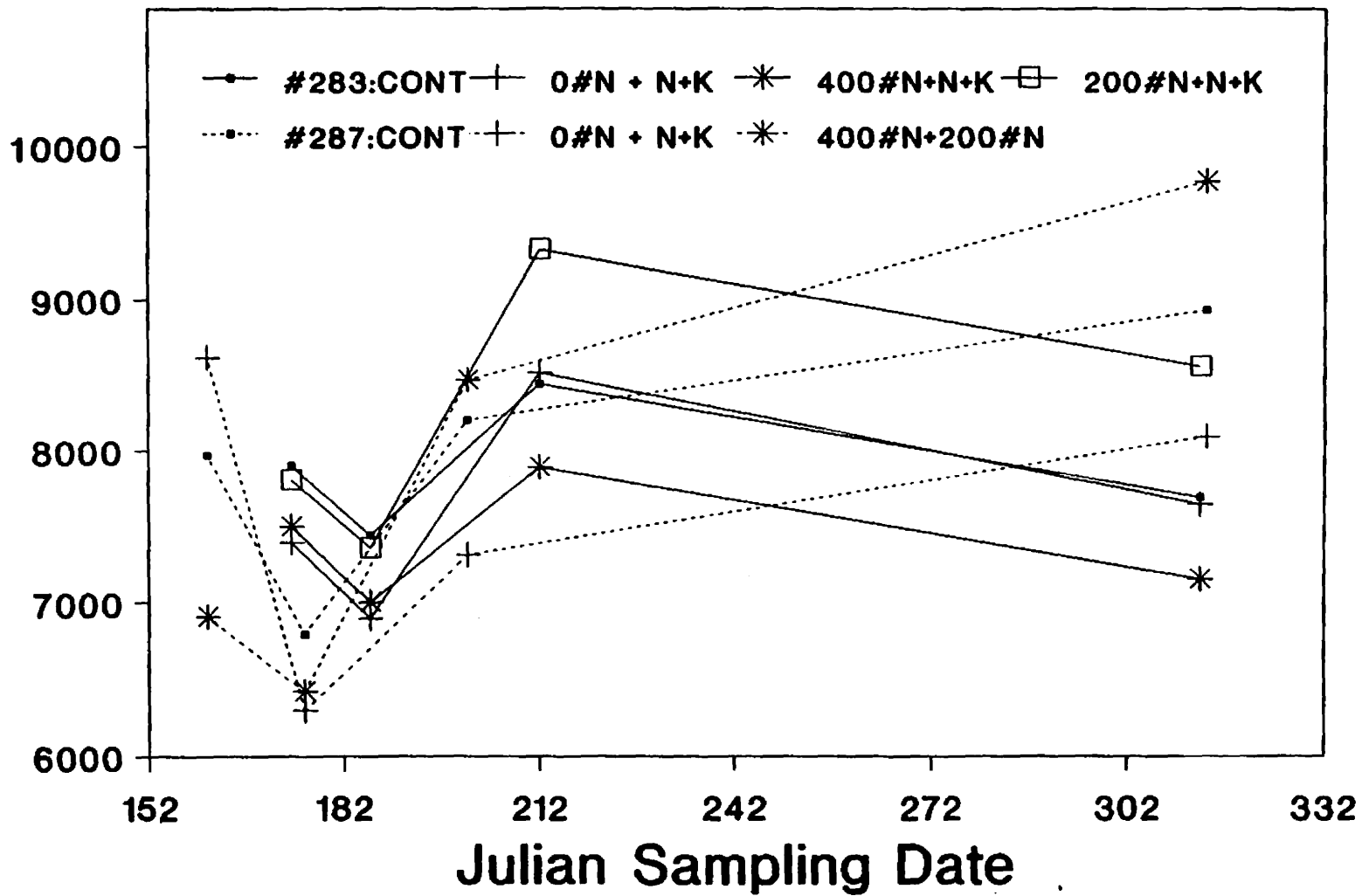


Figure 7. Foliar potassium concentrations during the growing season by fertilization treatment for installations 283 and 287.

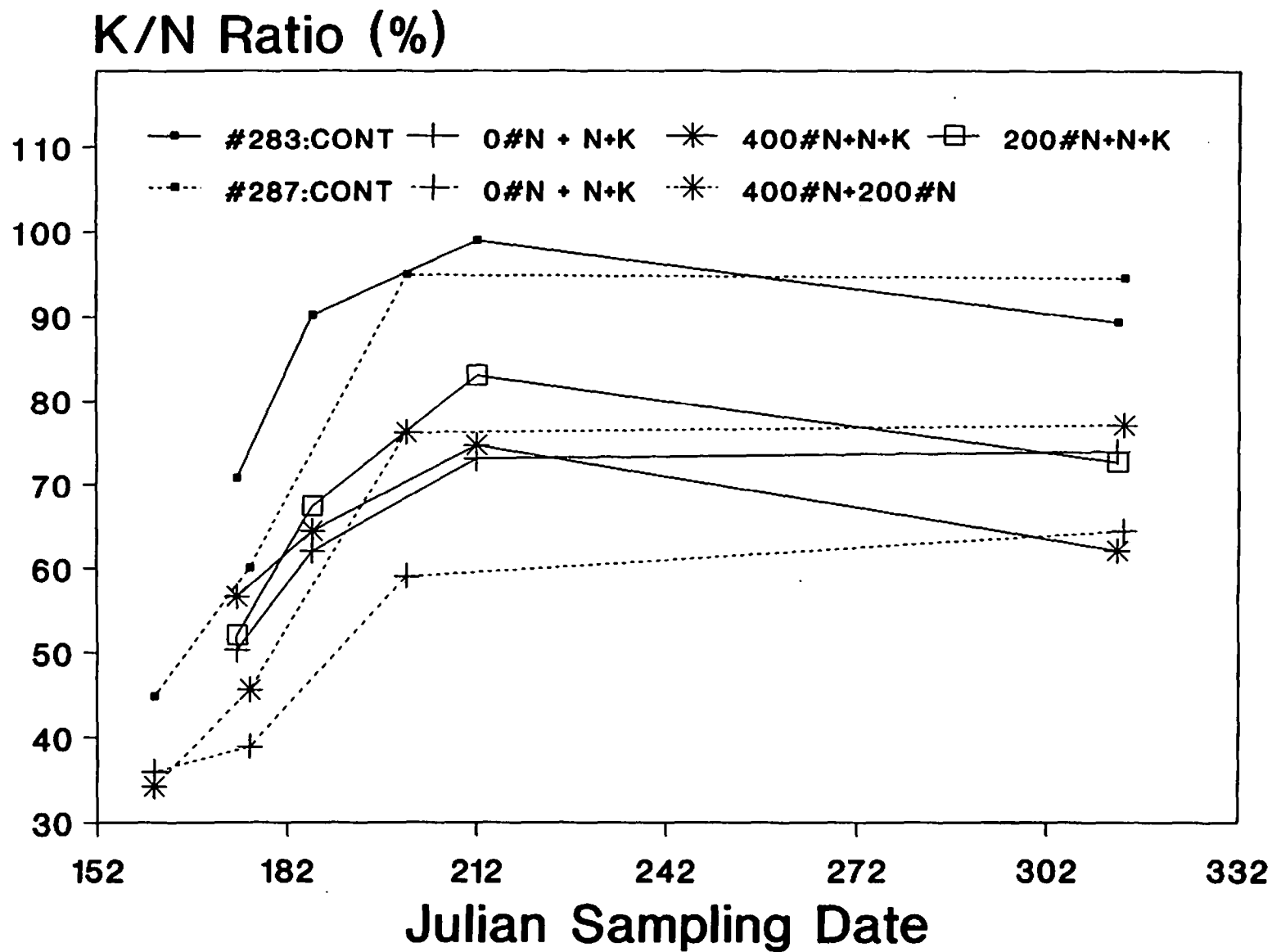
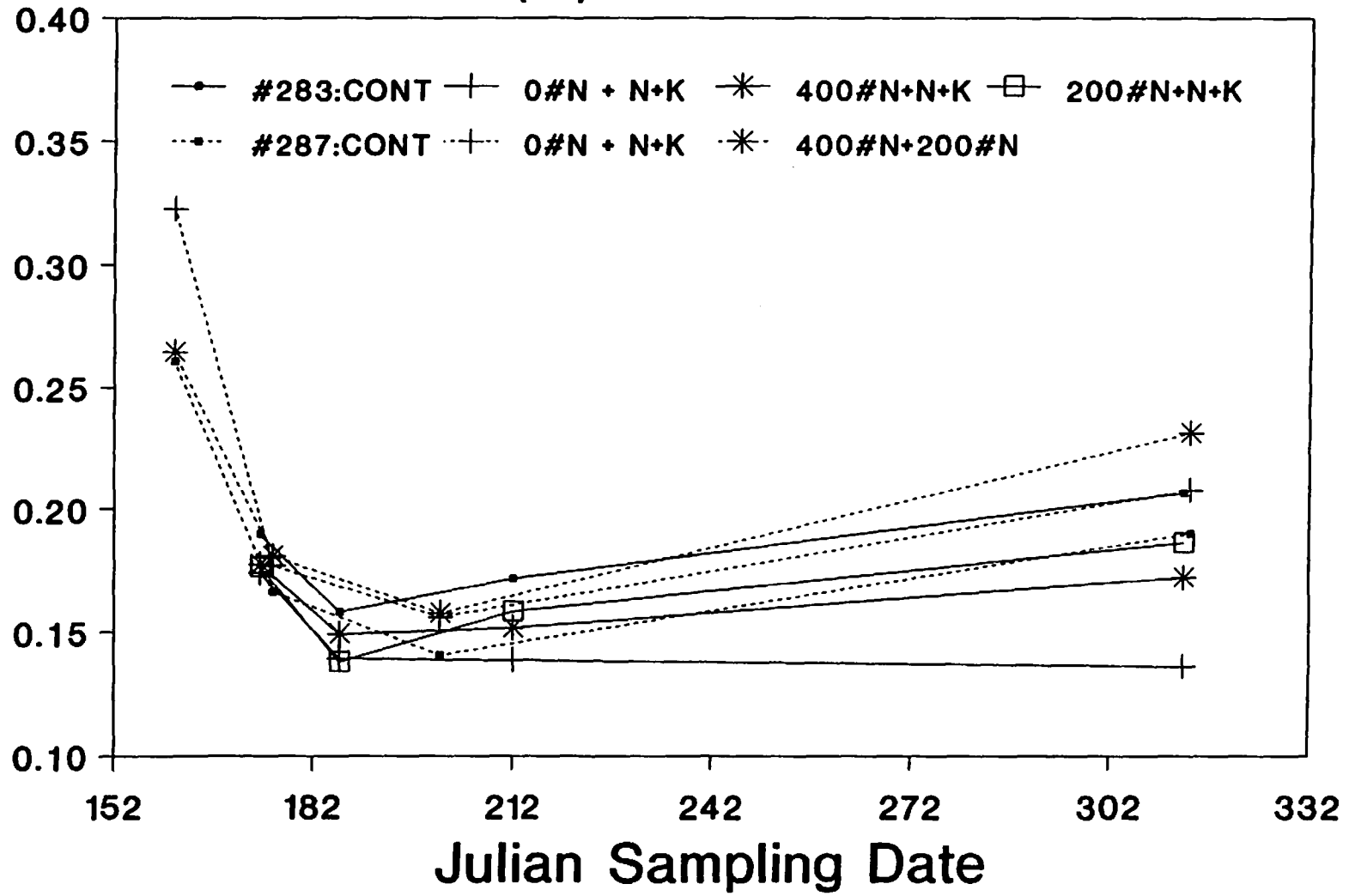
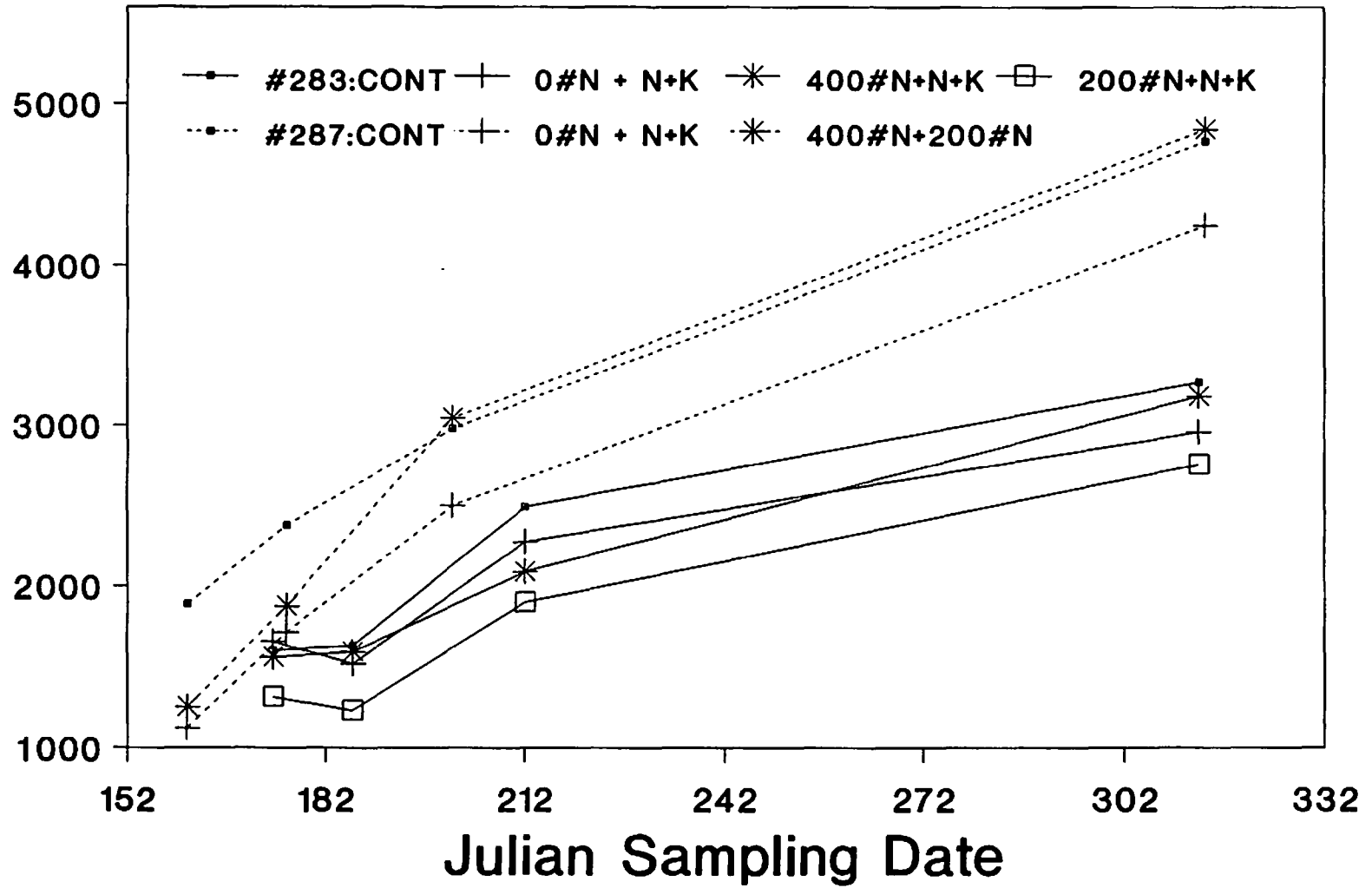


Figure 8. Foliar potassium:nitrogen (K/N) concentration ratios during the growing season by fertilization treatment for installations 283 and 287.

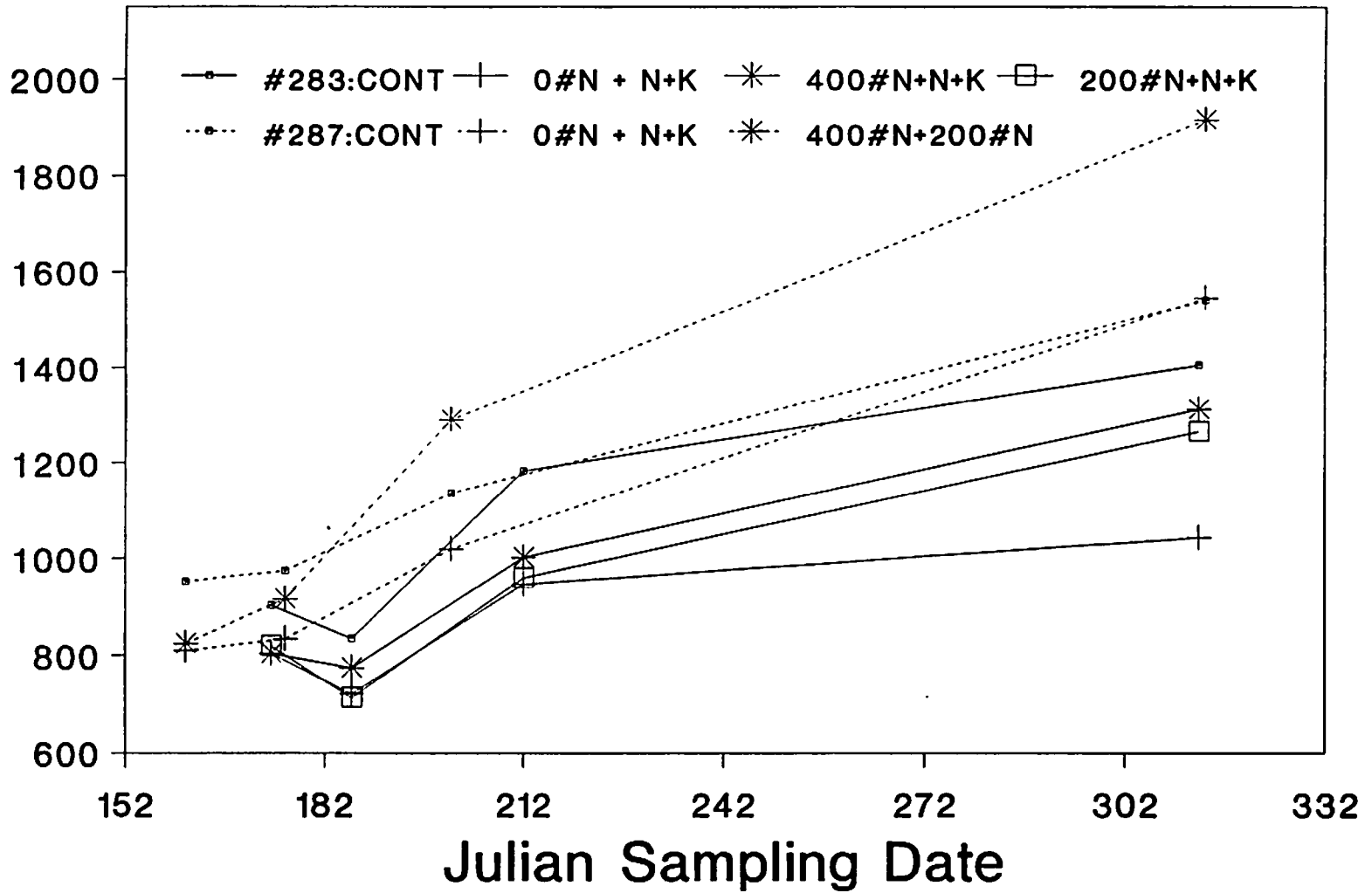
# Phosphorus Concentration (%)



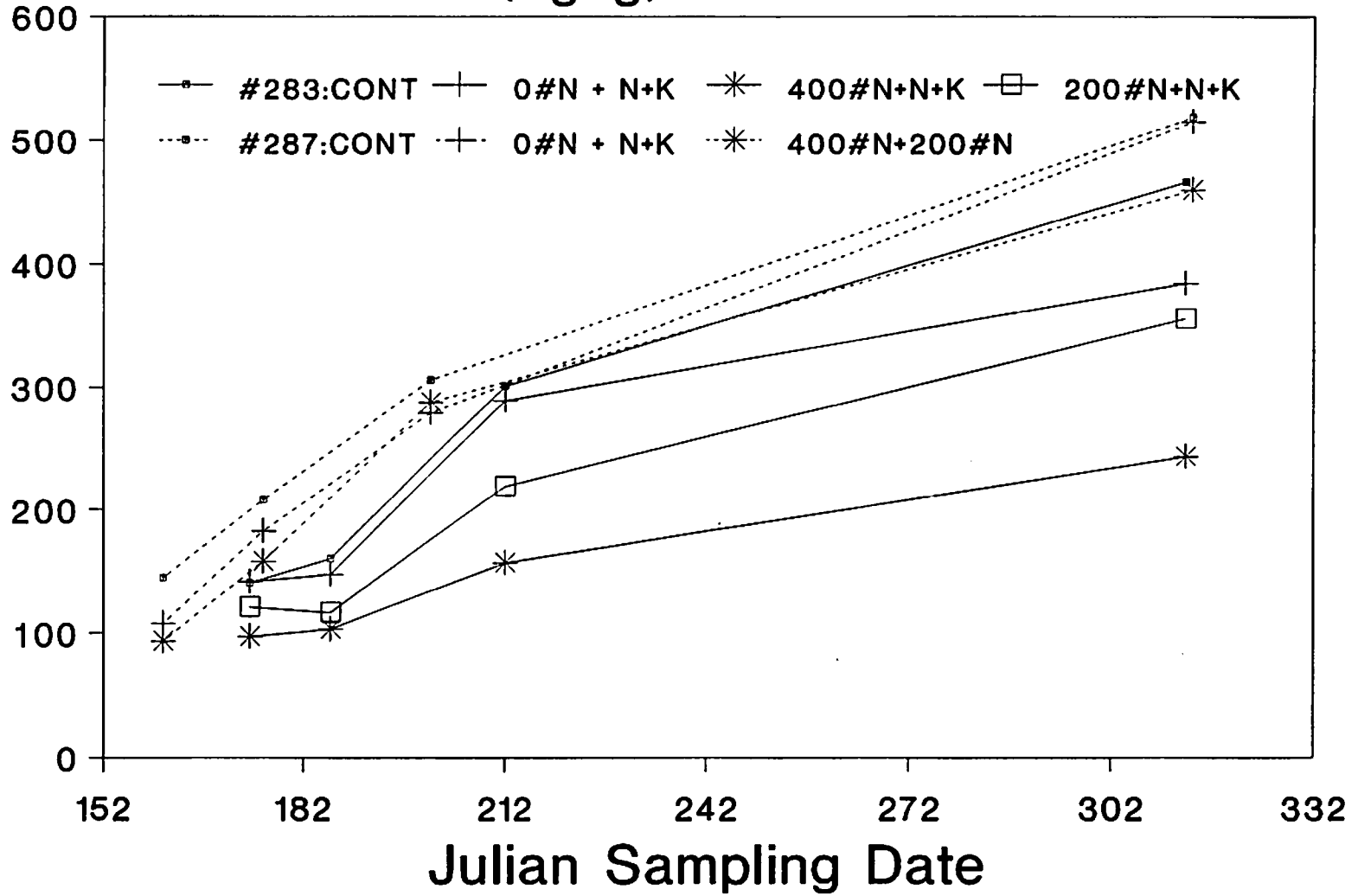
# Calcium Concentration (ug/g)



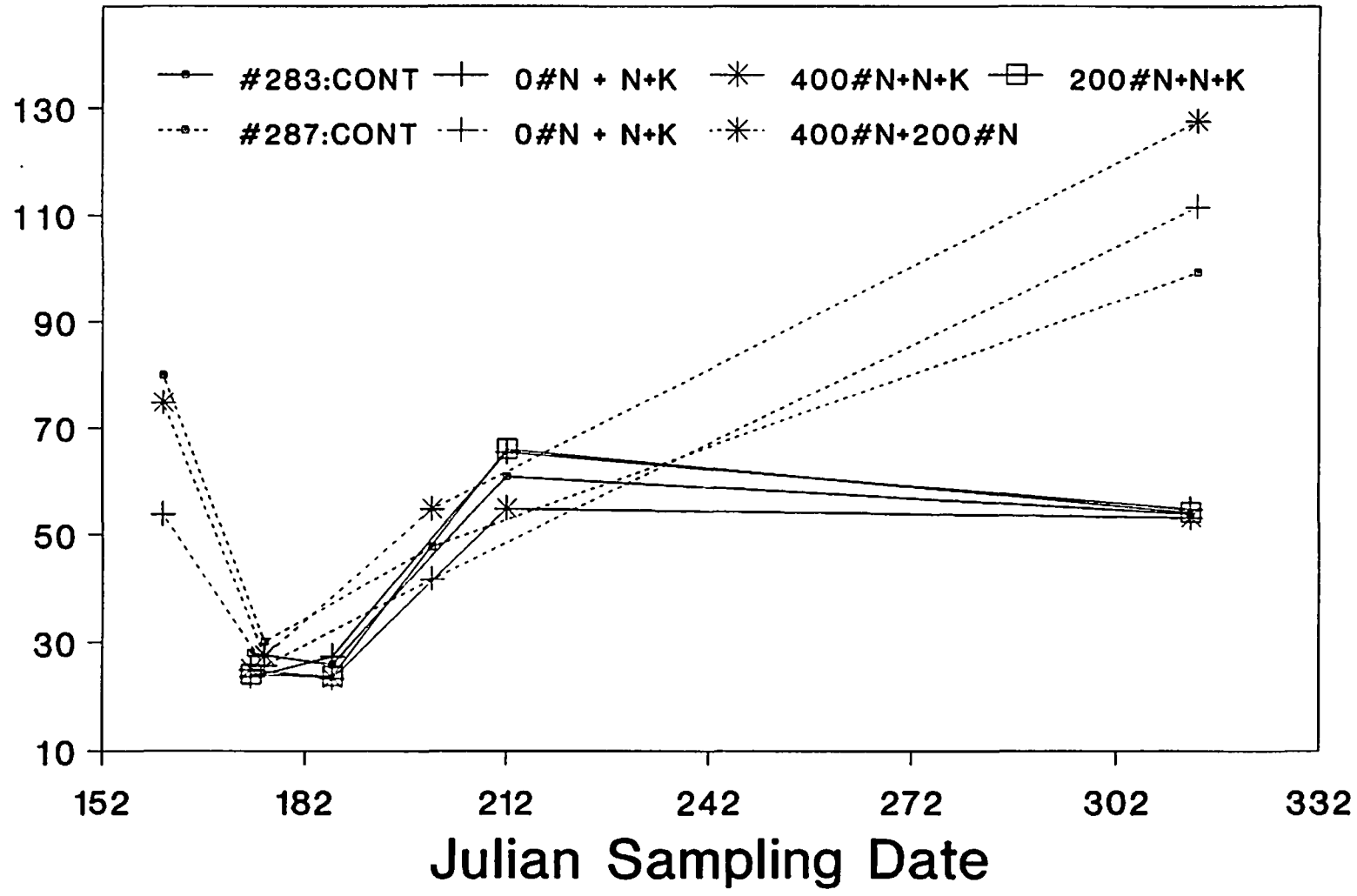
# Magnesium Concentration (ug/g)



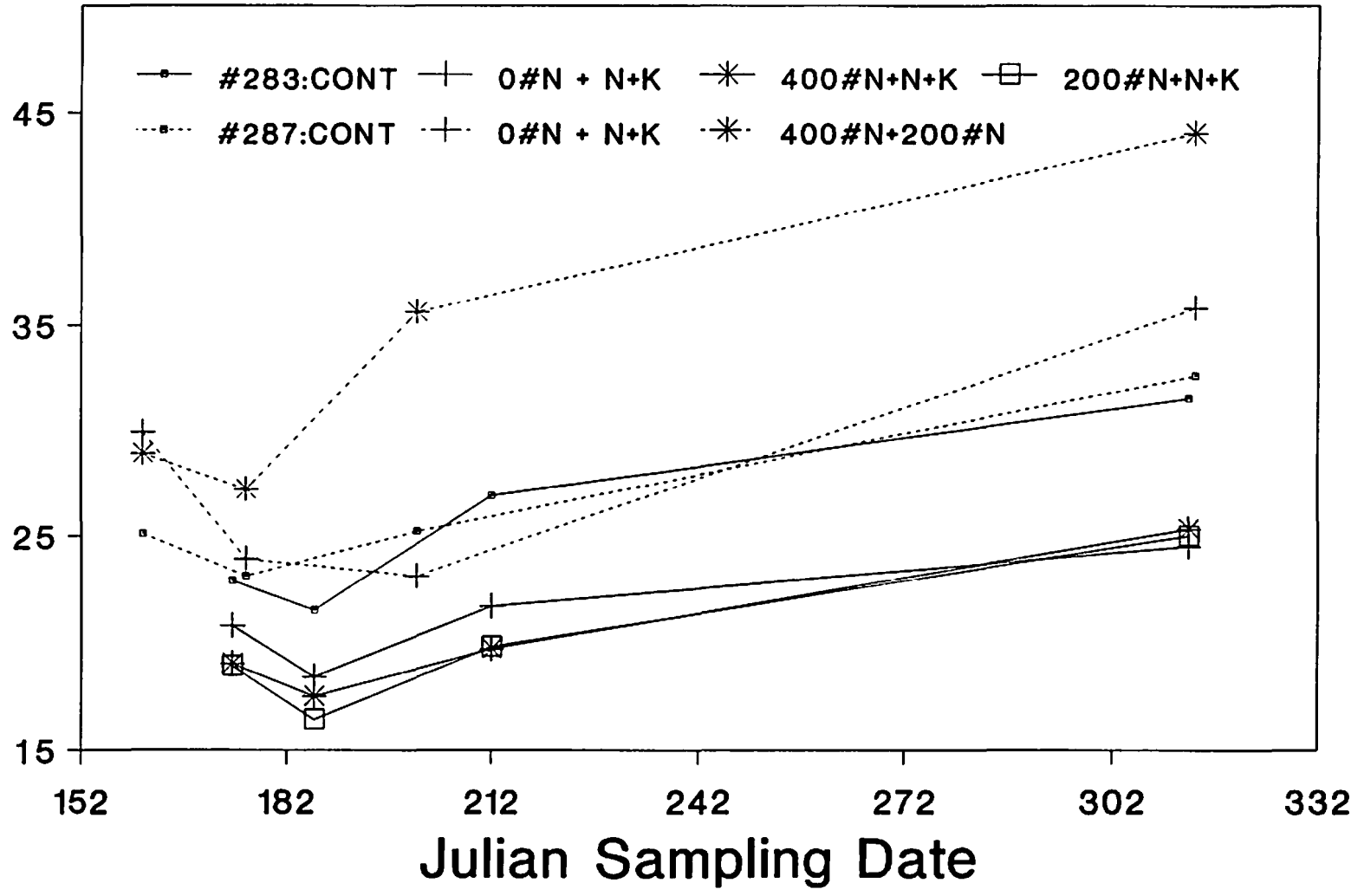
# Manganese Concentration (ug/g)



# Iron Concentration (ug/g)

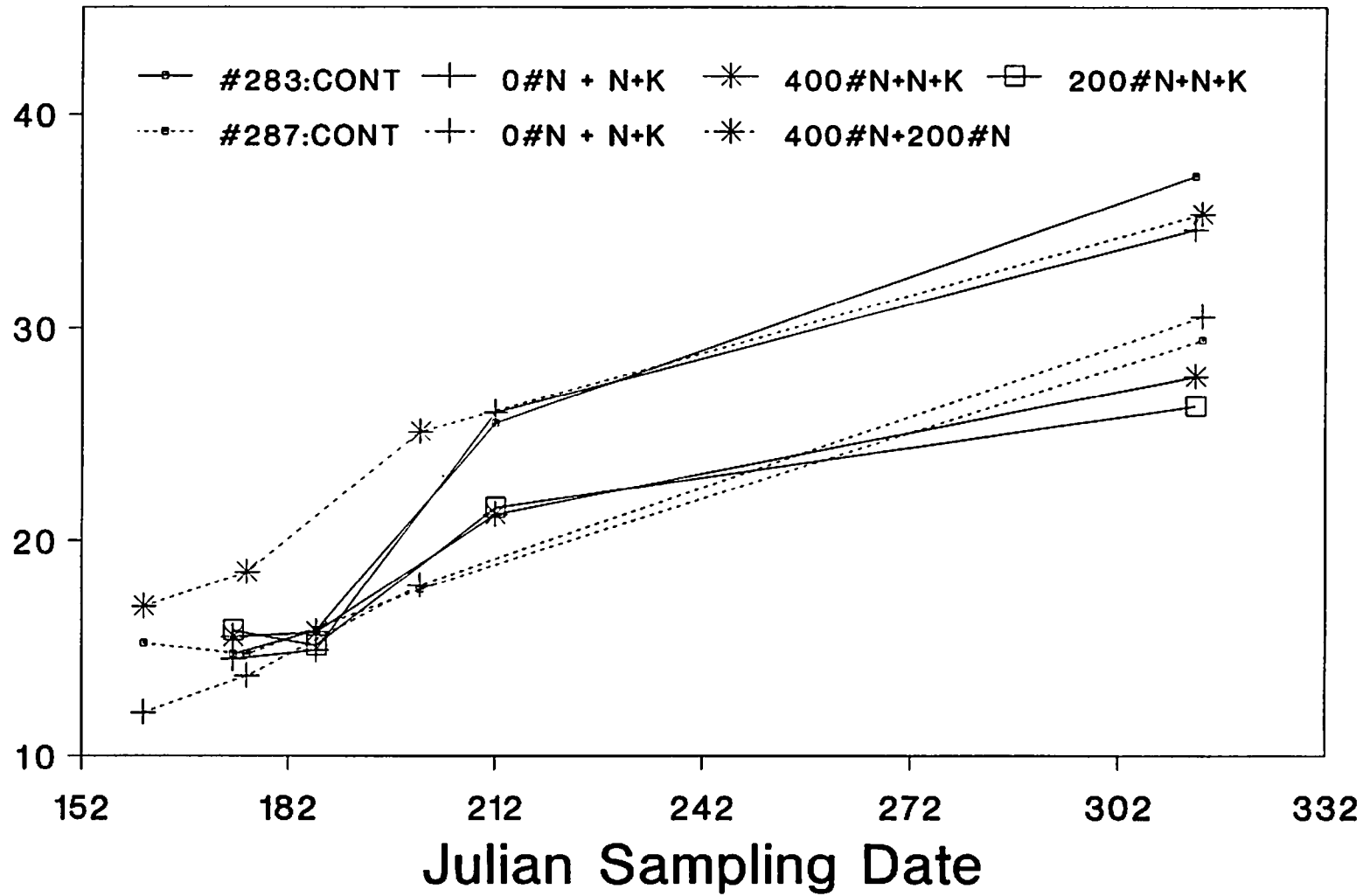


# Zinc Concentration (ug/g)

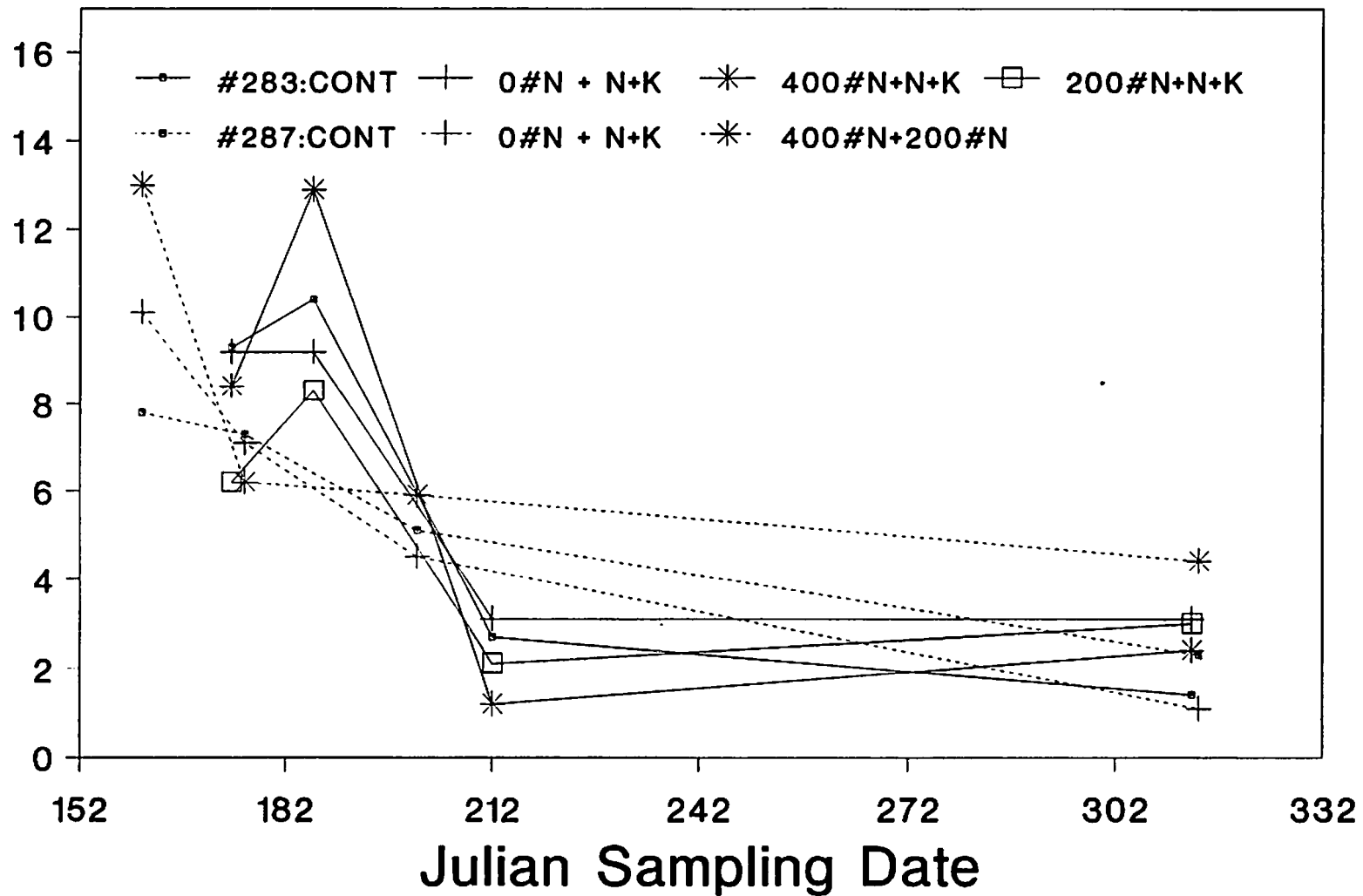




# Boron Concentration (ug/g)



# Copper Concentration (ug/g)



**Table 6.** Key to symbols used for treatment combinations for graphs of nutrient concentration changes through the growing season.

<u>Description</u>	<u>Symbol</u>	<u>First Treatment</u>	<u>Second Treatment</u>
CONT	.	none	none
0#N + N+K K	+	none	200 lbs N + 200 lbs
400#N+N+K	*	400 lbs N/a	200 lbs N/a
400#N+200#N K	*	400 lbs N/a	200 lbs N + 200 lbs
200#N+N+K K	(square)	200 lbs N/a	200 lbs N + 200 lbs

Appendix D: Average nutrient levels by region and treatment

The following pages contain regional and grand averages for foliar needle weight and nutrients (N, K, P, Ca, Mg, Mn, Fe, Zn, B, and Cu). Regions include north Idaho, Montana, central Idaho, northeast Oregon, central Washington, and northeast Washington. Tables are given for (1) needle weight, (2) nutrient concentration, (3) nutrient content, and (4) Ingestad ratio. Each table gives the mean value obtained 1 year after the initial treatment (the first sampling), that obtained 1 year after the second treatment (the second sampling), and the change in value through time (the difference between the first and second sampling).

## AVERAGES FOR NEEDLE WEIGHT (G/100 NEEDLES)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
------	-----	------	-------	------	-------	-----

One year after first treatment:

## FIRST TREATMENT

None	0.6037	0.5538	0.6271	0.5973	0.5931	0.6168	0.5991
200#N/A	0.7146	0.6504	0.6909	0.6179	0.7169	0.7838	0.7059
400#N/A	0.7267	0.6679	0.7413	0.6695	0.7401	0.7798	0.7274

One year after second treatment:

## SECOND TREATMENT

None	0.5381	0.5203	0.4661	0.5249	0.6016	0.5599	0.5392
200#N/A	0.5957	0.5623	0.5244	0.5788	0.5992	0.6310	0.5836
200#N+200#K/A	0.5782	0.5498	0.5248	0.5356	0.6883	0.6671	0.6017

## COMBINED TREATMENTS

1st	2nd							
None	None	0.5381	0.5083	0.4874	0.5462	0.5926	0.5413	0.5371
200#N	None	0.5343	0.5106	0.4335	0.4884	0.6321	0.5333	0.5309
400#N	None	0.5415	0.5454	0.4706	0.5385	0.5823	0.6003	0.5497
200#N	200#N	0.6362	0.5482	0.5440	0.5626	0.6292	0.6914	0.6089
400#N	200#N	0.5516	0.5748	0.5020	0.5951	0.5659	0.5620	0.5567
None	N+K	0.5946	0.5848	0.5004	0.5644	0.6961	0.6473	0.6059
200#N	N+K	0.5608	0.5670	0.5355	0.5509	0.6586	0.7016	0.6051
400#N	N+K	0.5698	0.4651	0.5537	0.4808	0.7046	0.6585	0.5915

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-0.0652	-0.0438	-0.1566	-0.0600	0.0076	-0.0556	-0.0600
200#N	None	-0.1903	-0.1557	-0.2358	-0.1693	-0.1242	-0.2031	-0.1786
400#N	None	-0.1755	-0.1747	-0.2635	-0.1686	-0.1328	-0.2087	-0.1877
200#N	200#N	-0.0690	-0.0618	-0.1552	-0.0156	-0.0484	-0.1041	-0.0789
400#N	200#N	-0.1209	-0.0690	-0.2070	-0.0666	-0.1359	-0.1619	-0.1282
None	N+K	-0.0094	0.0295	-0.1099	-0.0241	0.0953	0.0106	0.0049
200#N	N+K	-0.1516	-0.1039	-0.1740	-0.0537	-0.0475	-0.1204	-0.1140
400#N	N+K	-0.2189	-0.1593	-0.2261	-0.1588	-0.0914	-0.1229	-0.1621

## AVERAGES FOR NITROGEN CONCENTRATION (%)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	1.10	1.10	1.02	1.24	1.23	1.13	1.13
200#N/A	1.35	1.36	1.32	1.26	1.44	1.42	1.37
400#N/A	1.87	1.79	1.67	1.48	1.81	1.70	1.76

One year after second treatment:

## SECOND TREATMENT

None	1.26	1.05	1.06	1.06	1.10	1.04	1.11
200#N/A	1.43	1.32	1.35	1.37	1.37	1.31	1.36
200#N+200#K/A	1.48	1.31	1.25	1.44	1.28	1.30	1.34

## COMBINED TREATMENTS

1st	2nd							
None	None	1.29	1.02	1.02	1.07	1.06	1.02	1.09
200#N	None	1.27	1.01	1.03	1.04	1.10	0.95	1.08
400#N	None	1.22	1.12	1.13	1.06	1.14	1.12	1.15
200#N	200#N	1.33	1.29	1.33	1.33	1.30	1.30	1.31
400#N	200#N	1.55	1.36	1.36	1.40	1.45	1.33	1.42
None	N+K	1.44	1.26	1.18	1.41	1.23	1.30	1.30
200#N	N+K	1.42	1.40	1.24	1.52	1.18	1.30	1.33
400#N	N+K	1.61	1.30	1.39	1.42	1.44	1.24	1.42

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	0.16	-0.07	0.01	-0.04	-0.14	-0.08	-0.02
200#N	None	-0.12	-0.33	-0.29	-0.19	-0.37	-0.40	-0.28
400#N	None	-0.54	-0.76	-0.56	-0.42	-0.78	-0.48	-0.60
200#N	200#N	-0.01	-0.06	-0.01	0.25	-0.12	-0.09	-0.03
400#N	200#N	-0.35	-0.34	-0.22	-0.06	-0.36	-0.60	-0.34
None	N+K	0.36	0.16	0.15	0.04	-0.02	0.14	0.16
200#N	N+K	0.11	0.01	-0.07	-0.01	-0.26	-0.14	-0.07
400#N	N+K	-0.37	-0.48	-0.33	-0.08	-0.27	-0.44	-0.34

## AVERAGES FOR POTASSIUM CONCENTRATION (ug/g)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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## One year after first treatment:

## FIRST TREATMENT

None	6316	6187	6092	6323	7204	6880	6537
200#N/A	6049	6076	5928	6120	7317	6297	6345
400#N/A	5625	6102	6645	6571	7248	6132	6355

## One year after second treatment:

## SECOND TREATMENT

None	7953	8295	8671	8073	9135	7113	8221
200#N/A	8147	8676	7882	8210	9146	7051	8230
200#N+200#K/A	7906	8127	8038	7832	9083	7152	8079

## COMBINED TREATMENTS

1st	2nd							
None	None	8274	8203	7902	8334	8715	7148	8100
200#N	None	7716	7828	8772	8020	9309	7124	8168
400#N	None	7769	8880	9488	7748	9477	7066	8420
200#N	200#N	8440	8548	8162	8608	8566	6792	8188
400#N	200#N	7828	8790	7563	7813	9789	7347	8275
None	N+K	8111	7675	8021	7495	9076	7849	8138
200#N	N+K	7544	8535	8072	7267	8564	6647	7805
400#N	N+K	7942	8500	8032	8763	9571	6566	8264

## Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	2288	2125	1808	2001	1720	660	1770
200#N	None	1845	2199	2730	1642	1433	984	1803
400#N	None	2154	2707	2648	2255	2431	1054	2164
200#N	200#N	2032	2048	2620	2240	1704	596	1850
400#N	200#N	2099	2741	1710	-16	1743	897	1737
None	N+K	1466	1378	1931	1182	1675	577	1397
200#N	N+K	1646	2323	1899	1910	1496	113	1478
400#N	N+K	2399	2430	963	2372	2702	517	1952

## AVERAGES FOR PHOSPHORUS CONCENTRATION (%)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	0.22	0.19	0.21	0.22	0.24	0.23	0.22
200#N/A	0.20	0.19	0.19	0.18	0.21	0.20	0.20
400#N/A	0.21	0.20	0.21	0.21	0.23	0.19	0.21

One year after second treatment:

## SECOND TREATMENT

None	0.18	0.18	0.19	0.20	0.23	0.18	0.19
200#N/A	0.17	0.19	0.19	0.21	0.22	0.17	0.19
200#N+200#K/A	0.18	0.18	0.20	0.21	0.22	0.17	0.19

## COMBINED TREATMENTS

1st	2nd							
None	None	0.18	0.18	0.19	0.21	0.24	0.19	0.20
200#N	None	0.18	0.17	0.18	0.18	0.23	0.17	0.19
400#N	None	0.17	0.19	0.19	0.20	0.22	0.17	0.19
200#N	200#N	0.16	0.18	0.18	0.22	0.21	0.18	0.19
400#N	200#N	0.17	0.19	0.19	0.21	0.23	0.16	0.19
None	N+K	0.17	0.16	0.19	0.21	0.22	0.18	0.19
200#N	N+K	0.18	0.19	0.20	0.18	0.20	0.18	0.19
400#N	N+K	0.19	0.20	0.22	0.24	0.23	0.16	0.21

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-0.04	-0.03	-0.01	0.00	-0.02	-0.03	-0.02
200#N	None	-0.02	-0.01	-0.00	0.03	0.01	-0.02	-0.01
400#N	None	-0.02	-0.01	-0.02	-0.02	-0.03	-0.03	-0.02
200#N	200#N	-0.02	0.00	-0.00	0.04	0.01	-0.03	-0.01
400#N	200#N	-0.02	0.00	0.00	0.01	0.01	-0.03	-0.01
None	N+K	-0.05	-0.02	-0.02	-0.01	-0.01	-0.06	-0.03
200#N	N+K	-0.03	-0.01	0.00	-0.03	-0.01	-0.01	-0.01
400#N	N+K	-0.04	0.02	-0.02	0.02	0.02	-0.01	-0.01

## AVERAGES FOR CALCIUM CONCENTRATION (ug/g)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	3571	3943	4367	4396	3687	4394	3983
200#N/A	3538	3895	4026	4456	3822	4083	3891
400#N/A	3433	3981	4135	4479	3574	4355	3894

One year after second treatment:

## SECOND TREATMENT

None	4210	3698	3882	3624	3316	4475	3901
200#N/A	4323	3754	3931	3657	3199	5060	4001
200#N+200#K/A	4149	3800	3889	3844	3327	4529	3922

## COMBINED TREATMENTS

1st	2nd							
None	None	4280	3458	3667	3287	3139	4501	3789
200#N	None	4179	3551	4420	3586	3609	4192	3951
400#N	None	4150	4157	3648	4177	3240	4664	3991
200#N	200#N	4433	3551	3833	3328	3250	4864	3940
400#N	200#N	4202	3934	4043	3987	3143	5285	4067
None	N+K	4196	3586	3837	4159	3192	4459	3877
200#N	N+K	4364	3870	3722	3228	3128	4527	3893
400#N	N+K	3859	4120	4141	3835	3701	4655	4025

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	831	-265	-654	-1331	-645	30	-173
200#N	None	793	-328	35	-810	-507	374	21
400#N	None	596	252	-240	-597	-460	437	93
200#N	200#N	801	-343	-27	-1508	-315	373	9
400#N	200#N	558	118	-150	-236	-156	750	193
None	N+K	503	-576	-576	-14	-403	142	-126
200#N	N+K	743	-45	-21	-823	-581	506	88
400#N	N+K	772	-183	-283	-605	57	248	117



## AVERAGES FOR MAGNESIUM CONCENTRATION (ug/g)

		REGION						
		N ID	MCN	C ID	NE OR	C WA	NE WA	ALL
One year after first treatment:								
FIRST TREATMENT								
None		1437	1391	1626	1929	1662	1657	1579
200#N/A		1338	1388	1549	1845	1617	1608	1520
400#N/A		1406	1373	1683	1823	1657	1578	1557
One year after second treatment:								
SECOND TREATMENT								
None		1517	1329	1539	1428	1539	1502	1486
200#N/A		1519	1360	1491	1527	1641	1602	1524
200#N+200#K/A		1456	1358	1461	1454	1471	1416	1438
COMBINED TREATMENTS								
1st	2nd							
None	None	1580	1300	1422	1451	1454	1474	1457
200#N	None	1450	1326	1631	1350	1577	1428	1474
400#N	None	1501	1367	1594	1494	1607	1590	1534
200#N	200#N	1494	1362	1475	1492	1594	1562	1501
400#N	200#N	1547	1358	1509	1562	1693	1647	1549
None	N+K	1364	1207	1395	1499	1397	1361	1360
200#N	N+K	1501	1384	1426	1405	1442	1496	1453
400#N	N+K	1557	1610	1604	1425	1601	1411	1548
Change after 6 years:								
COMBINED TREATMENTS								
1st	2nd							
None	None	120	-91	-202	-482	-238	-255	-146
200#N	None	234	-107	16	-445	19	-68	-5
400#N	None	129	-2	-72	-375	-87	115	-0
200#N	200#N	180	-38	-2	-561	-50	80	-5
400#N	200#N	-5	119	-76	-263	-58	61	-14
None	N+K	-51	-184	-232	-427	-237	-223	-196
200#N	N+K	-3	62	-112	-247	-220	-326	-132
400#N	N+K	243	61	-190	-352	54	-328	-31

## AVERAGES FOR MANGANESE CONCENTRATION (ug/j)

		REGION						
		N ID	MON	C ID	NE OR	C WA	NE WA	ALL
One year after first treatment:								
FIRST TREATMENT								
None		346	356	315	247	457	332	355
200#N/A		324	393	308	277	463	296	353
400#N/A		340	385	327	248	447	329	359
One year after second treatment:								
SECOND TREATMENT								
None		345	311	283	213	321	273	302
200#N/A		340	277	255	177	309	270	286
200#N+200#K/A		353	340	293	240	345	270	319
COMBINED TREATMENTS								
1st	2nd							
None	None	398	323	312	233	381	305	341
200#N	None	309	299	297	177	305	247	284
400#N	None	312	308	237	227	262	259	273
200#N	200#N	370	292	263	175	360	288	310
400#N	200#N	308	263	247	180	253	250	260
None	N+K	402	338	321	257	425	321	359
200#N	N+K	355	348	273	259	275	259	300
400#N	N+K	274	335	267	200	295	218	272
Change after 6 years:								
COMBINED TREATMENTS								
1st	2nd							
None	None	64	-44	-20	-17	-62	-37	-15
200#N	None	25	-104	-15	-61	-187	-54	-66
400#N	None	-50	-65	-98	-105	-197	-91	-101
200#N	200#N	-4	-85	-38	-36	-125	-20	-52
400#N	200#N	-42	-86	-38	27	-162	-85	-73
None	N+K	44	-5	24	14	-46	1	5
200#N	N+K	35	-48	-38	-171	-132	-23	-48
400#N	N+K	-27	-111	-84	-57	-164	-70	-89

## AVERAGES FOR IRON CONCENTRATION (ug/g)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	82.7	54.9	73.2	80.0	71.5	65.3	71.3
200#N/A	73.1	53.1	74.8	72.6	74.5	58.8	68.0
400#N/A	72.7	56.1	73.8	73.9	80.5	56.8	69.2

One year after second treatment:

## SECOND TREATMENT

None	111.5	68.4	85.4	111.4	87.8	80.5	90.2
200#N/A	121.7	60.2	75.8	125.0	86.3	70.0	89.2
200#N+200#K/A	114.7	62.9	77.9	122.1	89.2	80.3	90.1

## COMBINED TREATMENTS

1st	2nd							
None	None	114.3	69.6	88.4	127.6	90.1	82.6	93.7
200#N	None	110.4	63.3	85.1	119.8	80.2	82.0	88.6
400#N	None	109.0	72.1	82.1	76.5	92.7	77.1	87.5
200#N	200#N	121.2	68.8	73.7	137.1	68.6	71.1	91.9
400#N	200#N	122.2	52.5	78.3	112.9	83.8	68.8	86.2
None	N+K	120.3	60.4	77.3	112.8	84.5	84.4	89.9
200#N	N+K	115.4	57.2	85.9	116.2	101.3	75.6	91.3
400#N	N+K	104.9	73.8	70.9	140.6	84.7	79.0	89.3

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	33.0	11.8	15.9	42.5	18.0	20.6	22.5
200#N	None	39.6	11.2	5.3	49.3	5.8	21.5	20.3
400#N	None	38.2	16.9	13.2	12.9	16.9	20.3	21.5
200#N	200#N	40.9	17.9	2.7	67.6	17.0	12.6	23.9
400#N	200#N	42.2	4.2	-3.8	35.0	-4.0	13.4	14.3
None	N+K	36.3	8.5	3.4	37.9	13.7	15.8	18.6
200#N	N+K	47.0	0.8	13.7	36.1	24.1	18.5	23.8
400#N	N+K	36.6	6.6	-2.6	60.5	4.6	20.9	18.2

## AVERAGES FOR ZINC CONCENTRATION (ug/g)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	25.9	29.1	28.5	24.5	31.2	32.3	28.9
200#N/A	27.0	31.5	29.9	23.8	32.2	32.1	29.9
400#N/A	28.0	31.8	34.2	24.9	34.2	34.6	31.8

One year after second treatment:

## SECOND TREATMENT

None	25.7	27.9	24.5	25.3	27.2	29.7	26.8
200#N/A	31.6	30.5	26.4	29.6	33.0	35.2	31.3
200#N+200#K/A	24.6	33.4	32.2	23.4	31.9	30.5	29.7

## COMBINED TREATMENTS

1st	2nd							
None	None	24.5	27.0	23.0	21.7	27.1	28.1	25.6
200#N	None	26.7	29.5	28.2	29.2	24.7	27.2	27.3
400#N	None	26.3	27.4	22.8	25.6	29.8	33.5	27.9
200#N	200#N	28.9	29.3	22.8	28.6	33.7	35.8	30.0
400#N	200#N	34.5	31.6	30.6	30.5	32.3	34.5	32.6
None	N+K	24.4	30.3	30.9	25.4	31.1	32.0	29.1
200#N	N+K	25.4	35.0	33.1	16.3	31.3	34.3	30.5
400#N	N+K	24.1	37.5	33.5	25.7	33.6	22.8	29.6

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-0.9	-3.2	-3.3	-3.4	-3.7	-3.2	-2.8
200#N	None	2.3	-3.6	-2.4	2.7	-8.5	-3.9	-2.6
400#N	None	-0.9	-3.6	-12.0	-1.1	-5.4	-2.6	-4.4
200#N	200#N	-2.0	1.7	-4.5	6.5	1.8	3.9	0.6
400#N	200#N	3.7	1.6	-0.0	8.4	-3.7	-1.1	1.0
None	N+K	-2.0	2.4	0.4	1.5	-0.6	-1.2	-0.2
200#N	N+K	-0.6	1.5	1.4	-5.2	0.1	1.0	0.2
400#N	N+K	-2.0	2.3	-2.8	0.0	1.8	-8.5	-1.5

## AVERAGES FOR BORON CONCENTRATION (ug/g)

REGION							
N ID	MON	C ID	NE OR	C WA	NE WA	ALL	

One year after first treatment:

## FIRST TREATMENT

None	27.1	24.7	22.3	21.8	25.7	29.4	25.7
200#N/A	24.2	24.0	23.0	23.9	25.1	26.2	24.5
400#N/A	23.0	20.5	23.2	21.3	24.5	23.9	23.0

One year after second treatment:

## SECOND TREATMENT

None	28.4	25.4	25.3	22.6	22.5	24.4	25.1
200#N/A	27.6	22.3	22.6	27.9	21.8	27.0	24.7
200#N+200#K/A	27.2	20.7	23.7	24.5	21.0	27.5	24.2

## COMBINED TREATMENTS

1st	2nd							
None	None	28.9	26.1	26.0	20.3	24.2	28.0	26.3
200#N	None	27.4	25.2	24.7	23.8	21.3	22.9	24.3
400#N	None	28.7	24.6	25.1	24.6	21.6	21.7	24.4
200#N	200#N	27.1	23.1	20.5	23.5	25.8	26.9	24.8
400#N	200#N	28.2	21.5	24.9	32.2	17.4	27.2	24.6
None	N+K	29.0	21.2	23.1	26.5	24.4	30.0	25.8
200#N	N+K	29.1	20.9	23.8	25.0	20.2	29.5	25.0
400#N	N+K	22.5	19.8	24.6	21.3	17.0	20.8	20.8

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	2.2	1.7	4.1	0.3	-0.2	0.6	1.5
200#N	None	3.9	3.9	2.1	-0.5	-4.2	-1.8	0.6
400#N	None	4.2	4.1	3.1	2.0	-3.7	-0.6	1.4
200#N	200#N	3.2	-2.9	-1.2	-0.3	0.3	-0.9	0.0
400#N	200#N	5.2	0.4	1.4	12.1	-8.0	2.6	1.4
None	N+K	1.5	-3.7	0.4	2.9	-2.5	-1.3	-0.7
200#N	N+K	3.8	-4.3	-1.2	1.6	-4.2	3.2	-0.2
400#N	N+K	1.3	0.3	0.0	0.3	-6.0	-5.0	-1.8

## AVERAGES FOR COPPER CONCENTRATION (ug/g)

REGION							ALL
N ID	MON	C ID	NE OR	C WA	N& WA		

One year after first treatment:

## FIRST TREATMENT

None	3.72	4.49	4.50	4.06	4.37	3.84	4.15
200#N/A	3.65	4.50	4.94	4.19	4.55	3.80	4.24
400#N/A	3.89	4.58	5.07	4.10	4.63	4.01	4.38

One year after second treatment:

## SECOND TREATMENT

None	2.95	3.42	3.15	3.35	2.61	2.68	2.97
200#N/A	3.13	3.19	3.42	3.76	2.82	4.09	3.32
200#N+200#K/A	3.16	3.49	3.45	3.30	2.93	2.77	3.15

## COMBINED TREATMENTS

1st	2nd							
None	None	3.11	3.53	3.33	3.56	2.57	2.77	3.08
200#N	None	2.85	3.30	3.24	3.29	2.70	2.86	2.99
400#N	None	2.85	3.38	2.84	3.13	2.57	2.44	2.81
200#N	200#N	3.09	3.54	3.60	3.72	2.81	5.15	3.57
400#N	200#N	3.19	2.88	3.20	3.79	2.83	2.87	3.07
None	N+K	3.22	3.46	3.24	3.47	2.99	2.94	3.18
200#N	N+K	3.37	3.28	3.72	2.99	2.93	2.75	3.18
400#N	N+K	2.86	3.79	3.50	3.27	2.86	2.48	3.06

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-0.66	-0.75	-1.27	-0.43	-1.51	-0.98	-0.98
200#N	None	-0.64	-1.33	-1.65	-0.53	-1.54	-0.73	-1.11
400#N	None	-1.13	-1.19	-1.59	-1.07	-2.05	-1.59	-1.48
200#N	200#N	-0.65	-0.89	-1.53	-0.42	-2.49	1.37	-0.85
400#N	200#N	-1.17	-1.06	-2.86	0.40	-2.80	-1.24	-1.59
None	N+K	-0.45	-1.24	-1.16	-0.67	-1.65	-0.99	-1.04
200#N	N+K	-0.39	-1.12	-1.08	-1.88	-1.30	-1.26	-1.06
400#N	N+K	-0.50	-1.60	-1.56	-1.45	-1.02	-1.40	-1.16

## AVERAGES FOR POTASSIUM CONTENT (ug/100 needles)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	3817	3430	3810	3701	4268	4316	3923
200#N/A	4367	3942	4086	3851	5298	4926	4506
400#N/A	4079	4052	4972	4417	5398	4796	4637

One year after second treatment:

## SECOND TREATMENT

None	4282	4319	3944	4256	5500	3932	4414
200#N/A	4852	4777	4048	4686	5465	4438	4757
200#N+200#K/A	4576	4417	4239	4178	6187	4741	4848

## COMBINED TREATMENTS

1st	2nd							
None	None	4460	4202	3808	4559	5123	3849	4347
200#N	None	4113	3968	3736	3983	5927	3683	4329
400#N	None	4216	4821	4293	4142	5538	4213	4576
200#N	200#N	5390	4583	4303	4899	5437	4646	4938
400#N	200#N	4266	4950	3756	4474	5495	4200	4564
None	N+K	4827	4450	4060	4167	6241	5051	4929
200#N	N+K	4233	4846	4295	4102	5663	4681	4718
400#N	N+K	4523	3865	4476	4253	6591	4273	4851

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	837	866	-128	805	1067	-61	575
200#N	None	-156	201	-320	-237	-61	-865	-226
400#N	None	186	320	-783	322	452	-618	-53
200#N	200#N	817	674	412	1030	669	-236	548
400#N	200#N	430	1154	-389	-742	-260	-615	59
None	N+K	816	927	377	519	1773	330	858
200#N	N+K	-44	653	-23	891	698	-658	159
400#N	N+K	162	126	-1074	39	1125	-447	84

## AVERAGES FOR NITROGEN CONTENT (ug/100 needles)

REGION							
N ID	MON	C ID	NE OR	C WA	NE WA	ALL	

One year after first treatment:

## FIRST TREATMENT

None	6709	6032	6476	7385	7262	7051	6784
200#N/A	9669	8849	9155	7801	10430	11159	9733
400#N/A	13608	12156	12376	9856	13301	13208	12776

One year after second treatment:

## SECOND TREATMENT

None	6772	5512	5078	5606	6613	5792	6009
200#N/A	8473	7738	7177	7915	8060	8476	8017
200#N+200#K/A	8552	7283	6638	7655	8830	8665	8077

## COMBINED TREATMENTS

1st	2nd							
None	None	6897	5280	5122	5883	6318	5616	5942
200#N	None	6836	5179	4630	5084	7025	5073	5827
400#N	None	6554	6145	5435	5843	6565	6535	6261
200#N	200#N	8393	7296	7450	7495	8038	9223	8057
400#N	200#N	8559	8131	6864	8335	8084	7623	7975
None	N+K	8568	7364	6002	7972	8652	8536	7939
200#N	N+K	7997	8046	6591	8203	7711	9525	8033
400#N	N+K	9082	6261	7719	6768	10108	7816	8342

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-13	-688	-1502	-890	-619	-1016	-718
200#N	None	-3270	-3751	-4296	-2950	-4295	-4850	-3957
400#N	None	-6035	-7348	-7099	-4690	-7047	-6581	-6637
200#N	200#N	-1036	-1003	-1923	1053	-1523	-1875	-1237
400#N	200#N	-4275	-3186	-4143	-1325	-4496	-6076	-4106
None	N+K	2061	1266	-328	-22	1086	1069	1032
200#N	N+K	-1399	-1249	-2633	-1017	-2459	-2915	-2059
400#N	N+K	-6510	-5064	-5639	-2603	-3394	-5116	-4917



## AVERAGES FOR PHOSPHORUS CONTENT (ug/100 needles)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	1316	1075	1284	1273	1409	1394	1302
200#N/A	1419	1228	1296	1070	1524	1516	1382
400#N/A	1515	1295	1563	1414	1681	1476	1508

One year after second treatment:

## SECOND TREATMENT

None	950	960	856	1034	1371	962	1029
200#N/A	1013	1032	974	1220	1295	1068	1091
200#N+200#K/A	1007	978	1060	1138	1462	1155	1144

## COMBINED TREATMENTS

1st	2nd							
None	None	969	935	908	1127	1384	1036	1059
200#N	None	944	887	758	904	1462	861	997
400#N	None	933	1065	884	1058	1263	960	1023
200#N	200#N	1055	961	1008	1220	1315	1225	1125
400#N	200#N	966	1094	936	1220	1272	889	1055
None	N+K	967	915	958	1187	1502	1163	1118
200#N	N+K	1023	1116	1086	1007	1269	1222	1137
400#N	N+K	1052	939	1200	1165	1581	1059	1194

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-386	-203	-371	-130	-129	-266	-264
200#N	None	-475	-345	-483	-56	-199	-473	-363
400#N	None	-475	-410	-680	-468	-525	-635	-540
200#N	200#N	-268	-130	-273	188	-99	-475	-210
400#N	200#N	-324	-116	-370	-95	-309	-539	-300
None	N+K	-308	-93	-329	-100	192	-322	-161
200#N	N+K	-492	-243	-293	-300	-191	-326	-316
400#N	N+K	-807	-207	-588	-243	-59	-259	-384

## AVERAGES FOR CALCIUM CONTENT (ug/100 needles)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	2113	2166	2691	2510	2164	2680	2351
200#N/A	2507	2502	2718	2598	2679	3175	2696
400#N/A	2447	2625	3067	2876	2644	3400	2808

One year after second treatment:

## SECOND TREATMENT

None	2274	1876	1761	1913	1987	2465	2078
200#N/A	2527	1996	1965	2172	1920	3199	2303
200#N+200#K/A	2381	2022	2012	2067	2265	2987	2327

## COMBINED TREATMENTS

1st	2nd							
None	None	2333	1726	1762	1828	1871	2407	2028
200#N	None	2209	1751	1852	1769	2226	2172	2040
400#N	None	2259	2197	1676	2222	1891	2751	2175
200#N	200#N	2796	1828	1942	1872	2037	3345	2367
400#N	200#N	2234	2145	1991	2473	1790	3032	2235
None	N+K	2471	2028	1887	2338	2171	2865	2304
200#N	N+K	2451	2171	1955	1797	2091	3158	2354
400#N	N+K	2167	1840	2273	1863	2559	2987	2336

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	287	-318	-956	-777	-338	-239	-303
200#N	None	-223	-836	-980	-894	-761	-614	-674
400#N	None	-208	-600	-1208	-957	-726	-647	-668
200#N	200#N	283	-529	-727	-811	-331	-162	-290
400#N	200#N	-186	-267	-908	-254	-571	-335	-411
None	N+K	293	-260	-776	-75	49	153	-66
200#N	N+K	-137	-371	-669	-581	-505	-139	-359
400#N	N+K	-279	-811	-1194	-859	-326	-444	-578

## AVERAGES FOR MAGNESIUM CONTENT (ug/100 needles)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	857	769	1011	1154	981	1012	941
200#N/A	938	894	1065	1113	1151	1252	1062
400#N/A	999	913	1242	1264	1214	1219	1126

One year after second treatment:

## SECOND TREATMENT

None	814	683	707	752	924	827	796
200#N/A	892	751	764	884	984	995	881
200#N+200#K/A	840	728	767	784	1005	928	859

## COMBINED TREATMENTS

1st	2nd							
None	None	852	650	701	793	858	795	782
200#N	None	767	666	684	663	1007	715	771
400#N	None	809	742	736	801	922	949	836
200#N	200#N	940	727	781	839	994	1059	902
400#N	200#N	841	772	744	930	973	923	858
None	N+K	817	676	700	838	965	867	817
200#N	N+K	836	781	751	782	940	1040	872
400#N	N+K	881	764	893	705	1121	897	912

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-19	-112	-334	-399	-126	-234	-171
200#N	None	-104	-285	-392	-469	-161	-374	-265
400#N	None	-140	-253	-478	-537	-284	-218	-281
200#N	200#N	38	-131	-249	-353	-143	-124	-128
400#N	200#N	-190	-14	-357	-321	-246	-265	-214
None	N+K	-26	-100	-288	-277	-11	-127	-112
200#N	N+K	-215	-79	-334	-194	-205	-431	-250
400#N	N+K	-152	-195	-511	-498	-98	-435	-273

## AVERAGES FOR MANGANESE CONTENT (ug/100 needles)

REGION							
N ID	MGN	C ID	NE OR	C WA	NE WA	ALL	

One year after first treatment:

## FIRST TREATMENT

None	206	197	196	138	266	195	208
200#N/A	224	253	211	167	327	229	245
400#N/A	243	252	237	152	329	253	256

One year after second treatment:

## SECOND TREATMENT

None	181	157	128	112	191	147	160
200#N/A	199	146	127	105	186	161	163
200#N+200#K/A	203	185	151	129	236	173	189

## COMBINED TREATMENTS

1st	2nd							
None	None	210	162	149	126	223	163	181
200#N	None	158	146	122	90	191	126	146
400#N	None	167	162	107	118	152	147	147
200#N	200#N	227	146	132	99	225	185	182
400#N	200#N	169	146	121	110	143	135	142
None	N+K	238	196	156	145	292	189	214
200#N	N+K	194	195	148	142	179	178	178
400#N	N+K	156	156	145	94	209	137	159

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	12	-42	-62	-17	-32	-36	-28
200#N	None	-46	-128	-83	-59	-175	-92	-101
400#N	None	-79	-107	-135	-92	-171	-130	-121
200#N	200#N	-26	-77	-76	-20	-93	-53	-59
400#N	200#N	-67	-71	-77	8	-146	-109	-84
None	N+K	25	6	-24	13	15	-2	7
200#N	N+K	-24	-61	-73	-119	-109	-54	-66
400#N	N+K	-88	-117	-121	-47	-155	-84	-109

## AVERAGES FOR IRON CONTENT (ug/100 needles)

## REGION

N ID	MGN	C ID	NE OR	C WA	NE WA	ALL
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## One year after first treatment:

## FIRST TREATMENT

None	49.5	31.0	45.5	48.6	42.2	39.9	42.7
200#N/A	51.3	35.4	51.2	45.3	53.1	45.7	47.7
400#N/A	52.4	38.1	54.9	49.3	58.8	44.4	50.3

## One year after second treatment:

## SECOND TREATMENT

None	59.7	33.3	41.0	57.7	52.5	46.0	48.5
200#N/A	71.8	31.9	39.7	73.0	51.2	44.8	51.7
200#N+200#K/A	64.5	32.9	40.8	67.1	62.2	52.8	53.7

## COMBINED TREATMENTS

1st	2nd							
None	None	61.9	34.4	43.8	68.7	52.7	45.7	50.5
200#N	None	56.7	29.1	39.1	56.5	51.7	44.5	46.4
400#N	None	59.7	36.2	39.4	42.5	53.2	47.4	48.0
200#N	200#N	74.2	35.3	39.3	76.2	55.2	49.8	54.9
400#N	200#N	69.2	28.9	40.1	69.8	46.8	39.1	48.4
None	N+K	69.3	33.7	38.1	65.2	59.8	54.3	53.9
200#N	N+K	63.4	31.1	46.1	66.7	68.0	52.3	54.8
400#N	N+K	58.2	33.4	39.9	70.3	60.2	50.7	52.2

## Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	13.3	1.7	-1.6	16.7	10.5	8.7	8.0
200#N	None	5.7	-5.9	-14.0	9.7	-5.2	0.5	-2.1
400#N	None	9.8	-4.6	-11.9	-3.2	-1.4	1.0	-0.7
200#N	200#N	19.1	3.1	-10.3	35.9	7.2	3.6	8.3
400#N	200#N	16.4	-2.6	-17.8	18.3	-12.1	-0.5	-0.2
None	N+K	18.8	4.5	-7.5	20.2	17.7	11.7	11.0
200#N	N+K	15.7	-8.0	-4.1	17.2	14.7	5.4	6.9
400#N	N+K	3.1	-9.3	-17.3	19.7	-3.0	5.4	-1.6

AVERAGES FOR ZINC CONTENT ( $\mu\text{g}/100$  needles)

		REGION						
		N ID	MON	C ID	NE OR	C WA	NE WA	ALL
One year after first treatment:								
FIRST TREATMENT								
None		15.8	16.1	18.0	13.7	18.5	19.8	17.3
200#N/A		19.3	20.8	20.8	14.9	23.5	25.3	21.4
400#N/A		20.4	21.5	25.5	16.3	25.3	27.6	23.3
One year after second treatment:								
SECOND TREATMENT								
None		13.7	14.7	11.3	13.5	16.3	17.0	14.6
200#N/A		18.2	16.9	13.3	17.1	19.9	22.0	18.1
200#N+200#K/A		14.6	18.4	17.3	12.8	22.2	20.1	18.1
COMBINED TREATMENTS								
1st	2nd							
None	None	13.2	14.2	11.0	12.3	16.1	15.0	13.8
200#N	None	13.9	15.4	12.1	14.8	15.6	14.5	14.4
400#N	None	14.2	14.7	11.0	13.5	17.1	21.2	15.7
200#N	200#N	18.1	15.3	11.7	16.0	21.3	24.6	18.1
400#N	200#N	18.4	18.2	15.1	18.1	18.4	19.0	18.0
None	N+K	15.1	17.6	15.7	14.8	21.8	21.1	18.0
200#N	N+K	14.3	20.1	17.5	9.2	21.2	23.4	18.6
400#N	N+K	14.0	17.9	19.5	12.5	23.9	14.5	17.7
Change after 6 years:								
COMBINED TREATMENTS								
1st	2nd							
None	None	-2.3	-2.4	-5.9	-1.4	-1.8	-3.5	-2.9
200#N	None	-3.7	-6.9	-8.9	-2.5	-10.0	-8.4	-7.1
400#N	None	-5.2	-8.0	-15.1	-4.3	-8.1	-8.4	-8.4
200#N	200#N	-3.8	-1.9	-7.1	2.8	-0.7	-0.3	-2.3
400#N	200#N	-2.6	-1.3	-6.4	3.3	-6.1	-7.7	-3.8
None	N+K	-0.9	2.0	-3.3	1.0	2.9	-0.1	0.2
200#N	N+K	-4.3	-2.4	-5.0	-3.9	-1.3	-4.4	-3.5
400#N	N+K	-6.9	-4.3	-8.5	-3.7	-2.0	-10.5	-5.9

## AVERAGES FOR BORON CONTENT (ug/100 needles)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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## One year after first treatment:

## FIRST TREATMENT

None	16.5	13.5	14.0	12.8	15.1	18.1	15.4
200#N/A	17.5	15.5	15.6	14.8	17.9	20.5	17.3
400#N/A	16.7	13.6	17.2	14.5	18.0	18.5	16.7

## One year after second treatment:

## SECOND TREATMENT

None	15.1	13.2	11.7	12.0	13.2	13.6	13.4
200#N/A	16.0	12.6	11.7	16.3	13.1	17.0	14.4
200#N+200#K/A	15.5	11.2	12.5	13.4	14.7	18.0	14.5

## COMBINED TREATMENTS

## 1st 2nd

None	None	15.5	13.1	12.5	10.9	14.0	15.5	14.0
200#N	None	14.5	13.1	10.6	11.9	13.2	12.0	12.8
400#N	None	15.2	13.4	11.8	13.7	12.1	12.6	13.1
200#N	200#N	16.9	12.7	10.7	13.2	15.9	18.6	15.0
400#N	200#N	15.1	12.5	12.7	19.3	10.0	15.3	13.7
None	N+K	16.8	12.0	11.8	15.4	17.4	19.3	15.7
200#N	N+K	16.0	11.9	12.7	13.2	13.7	20.2	15.0
400#N	N+K	12.9	9.0	13.6	10.7	11.8	13.1	12.1

## Change after 6 years:

## COMBINED TREATMENTS

## 1st 2nd

None	None	-0.8	-0.2	-1.5	-1.1	-0.0	-1.0	-0.7
200#N	None	-2.6	-1.2	-4.2	-3.9	-5.8	-6.5	-4.0
400#N	None	-2.1	-1.5	-4.3	-2.2	-5.9	-5.0	-3.7
200#N	200#N	-0.4	-3.1	-4.0	-0.6	-1.1	-2.7	-1.9
400#N	200#N	-0.3	-0.9	-3.9	5.9	-7.4	-2.6	-2.1
None	N+K	0.1	-1.7	-2.2	1.8	1.2	-0.4	-0.3
200#N	N+K	-2.2	-4.7	-4.7	-1.1	-3.6	-1.6	-3.1
400#N	N+K	-3.9	-3.1	-5.6	-3.3	-6.6	-7.1	-5.2

## AVERAGES FOR COPPER CONTENT (ug/100 needles)

## REGION

N ID	MGN	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	2.25	2.59	2.80	2.33	2.57	2.38	2.48
200#N/A	2.58	3.04	3.37	2.58	3.22	2.98	2.98
400#N/A	2.78	3.07	3.79	2.77	3.36	3.08	3.16

One year after second treatment:

## SECOND TREATMENT

None	1.60	1.78	1.48	1.76	1.57	1.54	1.60
200#N/A	1.87	1.75	1.82	2.20	1.70	2.85	1.99
200#N+200#K/A	1.86	1.89	1.81	1.82	2.05	1.84	1.89

## COMBINED TREATMENTS

1st	2nd							
None	None	1.69	1.79	1.66	1.95	1.53	1.52	1.66
200#N	None	1.52	1.67	1.42	1.57	1.71	1.61	1.59
400#N	None	1.55	1.85	1.32	1.71	1.49	1.50	1.55
200#N	200#N	1.95	1.89	2.02	2.10	1.76	3.93	2.24
400#N	200#N	1.79	1.62	1.59	2.30	1.63	1.61	1.71
None	N+K	1.95	1.95	1.61	1.99	2.10	1.95	1.93
200#N	N+K	1.89	1.85	1.98	1.74	1.95	1.92	1.91
400#N	N+K	1.68	1.83	1.97	1.63	2.08	1.56	1.82

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-0.60	-0.61	-1.25	-0.41	-0.85	-0.69	-0.76
200#N	None	-1.02	-1.40	-1.84	-0.93	-1.35	-1.05	-1.28
400#N	None	-1.20	-1.50	-2.03	-1.22	-1.78	-1.67	-1.59
200#N	200#N	-0.63	-0.92	-1.53	-0.21	-1.98	0.92	-0.81
400#N	200#N	-1.08	-0.95	-2.62	-0.00	-2.19	-1.47	-1.46
None	N+K	-0.25	-0.81	-1.07	-0.30	-0.64	-0.58	-0.61
200#N	N+K	-0.73	-1.35	-1.33	-1.31	-0.98	-1.34	-1.12
400#N	N+K	-1.04	-1.50	-2.04	-1.44	-1.00	-1.39	-1.34



## AVERAGES FOR K/N RATIO (%)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	58.613	57.335	60.525	54.770	60.337	61.543	59.283
200#N/A	45.696	45.514	45.829	50.342	53.107	45.869	47.594
400#N/A	32.183	35.897	41.323	45.497	43.064	37.816	38.413

One year after second treatment:

## SECOND TREATMENT

None	65.296	81.255	84.784	77.077	87.832	71.137	77.395
200#N/A	59.359	70.404	61.960	61.611	70.113	54.894	63.299
200#N+200#K/A	56.548	67.034	65.496	58.186	73.425	56.729	63.333

## COMBINED TREATMENTS

1st	2nd							
None	None	63.170	82.606	79.392	78.637	84.812	72.457	77.092
200#N	None	61.842	78.536	88.010	76.972	87.005	76.356	77.593
400#N	None	64.880	82.216	88.224	74.869	92.375	65.702	77.580
200#N	200#N	64.223	70.991	65.180	66.474	69.785	53.349	65.012
400#N	200#N	54.053	69.881	58.280	56.747	70.477	56.661	61.476
None	N+K	59.032	65.934	69.640	57.188	75.445	62.466	65.662
200#N	N+K	55.202	62.766	66.326	50.857	74.334	49.905	60.855
400#N	N+K	53.962	73.955	57.932	65.180	69.731	55.218	62.116

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	14.125	26.018	17.936	19.295	24.716	12.440	18.829
200#N	None	19.019	35.274	40.511	24.891	29.550	29.882	29.541
400#N	None	30.614	48.503	45.869	36.947	53.411	26.307	39.893
200#N	200#N	15.633	22.235	23.053	7.007	20.024	6.686	16.633
400#N	200#N	21.528	31.756	19.972	2.094	22.500	21.680	21.810
None	N+K	-4.148	7.352	10.047	6.989	14.882	-0.603	5.370
200#N	N+K	9.047	17.680	18.881	15.579	23.324	5.276	14.560
400#N	N+K	24.696	37.802	15.389	21.265	25.911	17.487	23.921

## AVERAGES FOR P/N RATIO (%)

	REGION						ALL
	N ID	MON	C ID	NE OR	C WA	NE WA	

One year after first treatment:

## FIRST TREATMENT

None	20.2	17.8	20.1	17.9	19.8	20.3	19.6
200#N/A	14.7	14.0	14.2	14.3	15.5	13.8	14.5
400#N/A	11.2	11.1	12.8	14.1	13.0	11.1	12.0

One year after second treatment:

## SECOND TREATMENT

None	14.5	17.7	17.9	18.6	21.4	17.4	17.7
200#N/A	11.9	14.7	14.0	16.2	16.5	13.1	14.2
200#N+200#K/A	12.4	14.2	16.2	15.3	16.9	13.5	14.6

## COMBINED TREATMENTS

1st	2nd							
None	None	14.7	18.0	18.7	19.6	23.2	19.2	18.7
200#N	None	14.3	17.4	17.4	17.4	21.2	17.6	17.5
400#N	None	14.3	17.6	17.3	18.7	19.4	15.3	16.8
200#N	200#N	12.5	14.9	13.4	17.0	17.0	13.8	14.5
400#N	200#N	11.4	14.4	14.6	15.3	15.9	12.3	13.8
None	N+K	11.9	13.0	16.5	15.5	17.5	13.9	14.6
200#N	N+K	13.1	13.8	16.2	12.2	17.0	13.1	14.5
400#N	N+K	12.7	16.8	15.6	17.1	16.0	13.5	15.0

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-5.5	-1.0	-1.0	0.9	1.9	-0.7	-1.3
200#N	None	-0.0	3.3	3.3	5.3	5.0	3.9	3.2
400#N	None	3.0	6.5	4.7	4.5	6.1	3.4	4.6
200#N	200#N	-1.3	1.7	-0.1	0.3	2.0	-1.6	0.1
400#N	200#N	1.2	3.2	2.6	2.0	3.2	2.0	2.4
None	N+K	-8.2	-3.6	-3.9	-1.6	-1.0	-6.8	-4.6
200#N	N+K	-3.0	-0.9	1.1	-2.6	1.9	0.4	-0.3
400#N	N+K	0.5	5.8	1.9	2.2	3.3	3.1	2.7

## AVERAGES FOR Ca/N RATIO (%)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	33.466	36.663	43.889	38.392	31.531	39.325	36.616
200#N/A	26.885	29.178	31.126	37.832	28.229	29.452	29.439
400#N/A	19.728	23.054	25.913	31.445	20.974	26.884	23.573

One year after second treatment:

## SECOND TREATMENT

None	34.152	36.386	38.087	34.443	31.179	43.935	36.300
200#N/A	31.350	30.751	31.173	27.074	24.419	39.016	30.693
200#N+200#K/A	29.878	31.506	31.694	28.496	26.909	35.670	30.672

## COMBINED TREATMENTS

1st	2nd							
None	None	34.562	35.434	36.862	30.596	30.420	44.659	35.704
200#N	None	33.253	35.653	43.986	34.601	33.455	44.971	37.412
400#N	None	34.473	38.356	34.171	40.016	29.838	42.359	35.987
200#N	200#N	33.691	29.947	30.844	25.204	25.652	38.404	31.104
400#N	200#N	28.797	31.466	31.548	28.944	23.050	39.714	30.256
None	N+K	30.730	30.437	33.531	31.234	26.886	35.122	31.117
200#N	N+K	31.739	28.813	30.033	22.965	27.004	33.916	29.937
400#N	N+K	26.667	36.569	30.369	28.537	26.855	38.822	30.704

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	3.260	0.752	-7.196	-13.158	-2.675	3.932	-1.093
200#N	None	8.362	5.776	9.586	-0.893	2.299	16.162	7.383
400#N	None	12.789	17.604	10.059	6.481	9.608	14.796	12.450
200#N	200#N	6.135	0.699	1.537	-21.421	-0.388	5.599	0.935
400#N	200#N	7.904	7.894	4.056	-2.304	3.792	15.177	6.756
None	N+K	-4.901	-8.207	-10.188	-1.796	-3.173	-2.802	-5.319
200#N	N+K	3.198	0.576	1.180	-7.039	0.243	6.504	1.904
400#N	N+K	10.452	10.891	3.362	-1.017	3.789	10.986	7.017

## AVERAGES FOR Mg/N RATIO (%)

REGION							ALL
N ID	MCN	C ID	NE OR	C WA	NE WA		

One year after first treatment:

## FIRST TREATMENT

None	13.439	12.747	16.241	16.472	14.074	14.975	14.391
200#N/A	10.116	10.372	11.983	15.597	11.767	11.589	11.448
400#N/A	8.115	7.949	10.598	12.690	9.734	9.673	9.419

One year after second treatment:

## SECOND TREATMENT

None	12.290	13.139	15.041	13.622	14.381	14.774	13.827
200#N/A	10.939	10.841	11.560	11.289	12.424	12.525	11.583
200#N+200#K/A	10.360	10.855	11.912	10.722	11.783	11.155	11.149

## COMBINED TREATMENTS

1st	2nd							
None	None	12.683	13.381	14.246	13.562	14.158	14.744	13.759
200#N	None	11.585	13.308	16.316	13.185	14.516	15.292	13.967
400#N	None	12.451	12.657	14.822	14.258	14.522	14.407	13.780
200#N	200#N	11.342	11.218	11.626	11.341	12.446	12.412	11.760
400#N	200#N	10.499	10.507	11.483	11.236	12.400	12.654	11.395
None	N+K	9.892	10.232	12.277	11.446	11.621	10.782	10.948
200#N	N+K	10.765	9.916	11.543	9.950	12.430	11.271	11.157
400#N	N+K	10.694	13.085	11.688	10.217	11.418	11.662	11.463

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-0.525	0.510	-2.211	-4.027	-0.400	-1.214	-0.984
200#N	None	2.678	2.244	3.708	-1.357	3.136	3.908	2.743
400#N	None	3.912	5.361	4.292	1.409	5.229	4.762	4.470
200#N	200#N	1.380	0.854	0.384	-8.102	0.424	1.364	0.184
400#N	200#N	1.626	2.750	1.169	-1.916	2.219	3.994	1.938
None	N+K	-3.776	-2.391	-3.750	-3.908	-1.996	-3.209	-3.096
200#N	N+K	-0.916	0.400	-0.398	-2.276	0.438	-0.958	-0.434
400#N	N+K	3.804	3.954	0.750	-1.854	1.542	1.056	1.939

## AVERAGES FOR Mn/N RATIO (%)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	3.236	3.300	3.168	2.115	3.840	3.008	3.236
200#N/A	2.458	2.954	2.391	2.272	3.310	2.146	2.636
400#N/A	1.931	2.220	2.032	1.661	2.627	1.976	2.125

One year after second treatment:

## SECOND TREATMENT

None	2.814	3.077	2.806	2.047	3.013	2.694	2.818
200#N/A	2.469	2.268	2.010	1.321	2.342	2.144	2.193
200#N+200#K/A	2.579	2.732	2.392	1.800	2.784	2.205	2.498

## COMBINED TREATMENTS

1st	2nd							
None	None	3.231	3.295	3.162	2.201	3.669	3.057	3.210
200#N	None	2.484	2.999	3.028	1.704	2.837	2.630	2.689
400#N	None	2.595	2.872	2.185	2.245	2.381	2.353	2.458
200#N	200#N	2.798	2.502	2.128	1.361	2.799	2.320	2.452
400#N	200#N	2.110	2.061	1.874	1.281	1.834	1.943	1.917
None	N+K	2.945	2.826	2.765	1.998	3.532	2.601	2.891
200#N	N+K	2.651	2.555	2.237	1.835	2.380	1.971	2.338
400#N	N+K	1.926	2.761	1.942	1.476	2.096	1.803	2.028

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	0.200	-0.128	-0.224	-0.071	-0.120	-0.057	-0.048
200#N	None	0.410	-0.109	0.544	-0.184	-0.670	0.356	0.065
400#N	None	0.398	0.903	0.092	0.028	-0.128	0.147	0.248
200#N	200#N	-0.011	-0.330	-0.157	-0.665	-0.734	0.049	-0.273
400#N	200#N	0.157	-0.124	0.019	0.203	-0.585	0.159	-0.055
None	N+K	-0.496	-0.350	-0.185	0.041	-0.355	-0.301	-0.322
200#N	N+K	0.096	-0.327	-0.143	-1.404	-0.494	0.053	-0.226
400#N	N+K	0.346	0.137	-0.161	-0.210	-0.816	0.033	-0.128

## AVERAGES FOR Fe/N RATIO (%)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	0.7804	0.5066	0.7258	0.6822	0.5964	0.5872	0.6504
200#N/A	0.5603	0.3950	0.5730	0.5986	0.5297	0.4261	0.5097
400#N/A	0.4246	0.3215	0.4571	0.5028	0.4794	0.3399	0.4160

One year after second treatment:

## SECOND TREATMENT

None	0.9125	0.6730	0.8221	1.0661	0.8212	0.7990	0.8326
200#N/A	0.8808	0.4961	0.5874	0.9488	0.6572	0.5474	0.6783
200#N+200#K/A	0.8181	0.5297	0.6435	0.8901	0.7088	0.6479	0.6990

## COMBINED TREATMENTS

1st	2nd							
None	None	0.9309	0.7018	0.8763	1.1969	0.8800	0.8123	0.8745
200#N	None	0.8828	0.6437	0.8223	1.1770	0.7404	0.8726	0.8267
400#N	None	0.9171	0.6650	0.7579	0.7313	0.8297	0.7280	0.7866
200#N	200#N	0.9287	0.5674	0.5815	1.0624	0.7089	0.5640	0.7237
400#N	200#N	0.8284	0.4327	0.5941	0.8351	0.5998	0.5285	0.6299
None	N+K	0.8757	0.5404	0.6868	0.8301	0.6886	0.6793	0.7169
200#N	N+K	0.8483	0.4384	0.6951	0.7990	0.8658	0.5795	0.7108
400#N	N+K	0.6965	0.6141	0.5214	1.0482	0.5934	0.6784	0.6582

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	0.1823	0.1636	0.1443	0.4129	0.2678	0.2412	0.2174
200#N	None	0.3608	0.2483	0.2111	0.5951	0.2242	0.4219	0.3186
400#N	None	0.4739	0.3662	0.3314	0.2969	0.4075	0.3693	0.3894
200#N	200#N	0.3096	0.1806	0.0350	0.4119	0.1868	0.1281	0.2006
400#N	200#N	0.3638	0.1362	0.0599	0.2971	0.0866	0.2362	0.1972
None	N+K	0.0635	0.0653	0.0328	0.2497	0.1070	0.0759	0.0733
200#N	N+K	0.3020	0.0296	0.1433	0.2417	0.3130	0.1859	0.2122
400#N	N+K	0.3317	0.2279	0.0897	0.5121	0.0776	0.3274	0.2332

## AVERAGES FOR Zn/N RATIO (%)

## REGION

H ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	0.2410	0.2684	0.2794	0.2156	0.2609	0.2896	0.2620
200#N/A	0.2028	0.2326	0.2288	0.1958	0.2288	0.2312	0.2214
400#N/A	0.1541	0.1827	0.2075	0.1699	0.1958	0.2104	0.1865

One year after second treatment:

## SECOND TREATMENT

None	0.2083	0.2753	0.2377	0.2437	0.2531	0.2926	0.2501
200#N/A	0.2282	0.2445	0.2076	0.2217	0.2489	0.2728	0.2383
200#N+200#K/A	0.1723	0.2685	0.2620	0.1716	0.2533	0.2370	0.2296

## COMBINED TREATMENTS

1st	2nd							
None	None	0.1966	0.2721	0.2275	0.2020	0.2644	0.2850	0.2427
200#N	None	0.2137	0.2918	0.2798	0.2906	0.2228	0.2899	0.2573
400#N	None	0.2181	0.2630	0.2114	0.2478	0.2693	0.3029	0.2524
200#N	200#N	0.2208	0.2440	0.1766	0.2217	0.2640	0.2834	0.2362
400#N	200#N	0.2362	0.2450	0.2430	0.2216	0.2320	0.2607	0.2405
None	N+K	0.1738	0.2545	0.2669	0.1926	0.2576	0.2515	0.2333
200#N	N+K	0.1798	0.2607	0.2735	0.1166	0.2655	0.2548	0.2356
400#N	N+K	0.1624	0.3035	0.2427	0.1814	0.2360	0.1895	0.2174

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-0.0332	-0.0085	-0.0332	-0.0365	0.0038	-0.0006	-0.0165
200#N	None	0.0370	0.0410	0.0445	0.0771	-0.0137	0.0577	0.0348
400#N	None	0.0592	0.0972	0.0034	0.0590	0.0817	0.0713	0.0625
200#N	200#N	-0.0094	0.0403	-0.0269	0.0163	0.0342	0.0468	0.0155
400#N	200#N	0.0681	0.0620	0.0427	0.0734	0.0277	0.0705	0.0562
None	N+K	-0.0784	-0.0017	-0.0312	-0.0003	-0.0035	-0.0421	-0.0313
200#N	N+K	-0.0261	0.0221	0.0274	-0.0371	0.0466	0.0288	0.0148
400#N	N+K	0.0270	0.0974	0.0295	0.0089	0.0378	-0.0043	0.0333

## AVERAGES FOR B/N RATIO (%)

## REGION

	N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	0.2524	0.2278	0.2205	0.1852	0.2171	0.2652	0.2335
200#N/A	0.1813	0.1785	0.1778	0.1991	0.1809	0.1881	0.1827
400#N/A	0.1288	0.1187	0.1455	0.1479	0.1419	0.1442	0.1366

One year after second treatment:

## SECOND TREATMENT

None	0.2335	0.2526	0.2511	0.2162	0.2121	0.2418	0.2353
200#N/A	0.1985	0.1746	0.1740	0.2057	0.1631	0.2120	0.1863
200#N+200#K/A	0.1889	0.1659	0.1916	0.1780	0.1717	0.2169	0.1862

## COMBINED TREATMENTS

1st	2nd							
None	None	0.2392	0.2708	0.2670	0.1937	0.2383	0.2809	0.2524
200#N	None	0.2198	0.2514	0.2488	0.2308	0.2014	0.2437	0.2305
400#N	None	0.2389	0.2300	0.2343	0.2316	0.1906	0.1981	0.2188
200#N	200#N	0.2049	0.1849	0.1619	0.1799	0.2010	0.2130	0.1933
400#N	200#N	0.1916	0.1655	0.1878	0.2314	0.1211	0.2109	0.1788
None	N+K	0.2020	0.1813	0.1985	0.1965	0.2070	0.2406	0.2054
200#N	N+K	0.2084	0.1521	0.1946	0.1696	0.1737	0.2194	0.1901
400#N	N+K	0.1487	0.1532	0.1773	0.1565	0.1199	0.1724	0.1514

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-0.0024	0.0450	0.0488	0.0070	0.0295	0.0281	0.0257
200#N	None	0.0477	0.0898	0.0720	0.0331	0.0186	0.0578	0.0527
400#N	None	0.0937	0.1210	0.0965	0.0722	0.0516	0.0548	0.0810
200#N	200#N	0.0266	-0.0117	-0.0045	-0.0446	0.0169	0.0073	0.0048
400#N	200#N	0.0658	0.0327	0.0342	0.0893	-0.0233	0.0790	0.0417
None	N+K	-0.0612	-0.0484	-0.0243	0.0128	-0.0179	-0.0370	-0.0348
200#N	N+K	0.0135	-0.0296	0.0042	0.0023	-0.0019	0.0433	0.0073
400#N	N+K	0.0376	0.0387	0.0282	0.0142	-0.0233	0.0161	0.0167



## AVERAGES FOR Cu/N RATIO (%)

## REGION

N ID	MON	C ID	NE OR	C WA	NE WA	ALL
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One year after first treatment:

## FIRST TREATMENT

None	0.0343	0.0414	0.0447	0.0342	0.0380	0.0344	0.0378
200#N/A	0.0276	0.0336	0.0376	0.0349	0.0335	0.0274	0.0319
400#N/A	0.0226	0.0266	0.0318	0.0279	0.0279	0.0244	0.0265

One year after second treatment:

## SECOND TREATMENT

None	0.0242	0.0334	0.0305	0.0319	0.0245	0.0264	0.0277
200#N/A	0.0227	0.0255	0.0265	0.0279	0.0215	0.0303	0.0252
200#N+200#K/A	0.0221	0.0286	0.0283	0.0239	0.0233	0.0214	0.0243

## COMBINED TREATMENTS

1st	2nd							
None	None	0.0252	0.0355	0.0329	0.0333	0.0251	0.0274	0.0290
200#N	None	0.0228	0.0331	0.0321	0.0320	0.0249	0.0305	0.0284
400#N	None	0.0240	0.0311	0.0262	0.0298	0.0233	0.0223	0.0253
200#N	200#N	0.0235	0.0285	0.0279	0.0280	0.0224	0.0376	0.0274
400#N	200#N	0.0219	0.0227	0.0250	0.0278	0.0204	0.0221	0.0228
None	N+K	0.0231	0.0295	0.0286	0.0252	0.0243	0.0227	0.0253
200#N	N+K	0.0241	0.0243	0.0305	0.0213	0.0249	0.0204	0.0244
400#N	N+K	0.0186	0.0319	0.0255	0.0239	0.0205	0.0202	0.0226

Change after 6 years:

## COMBINED TREATMENTS

1st	2nd							
None	None	-0.0083	-0.0047	-0.0130	-0.0032	-0.0111	-0.0069	-0.0084
200#N	None	-0.0023	-0.0027	-0.0056	0.0011	-0.0068	0.0035	-0.0026
400#N	None	-0.0009	0.0067	-0.0016	0.0014	-0.0024	-0.0038	-0.0006
200#N	200#N	-0.0051	-0.0045	-0.0107	-0.0119	-0.0172	0.0095	-0.0065
400#N	200#N	-0.0031	-0.0023	-0.0142	0.0044	-0.0146	-0.0002	-0.0057
None	N+K	-0.0120	-0.0132	-0.0148	-0.0067	-0.0154	-0.0117	-0.0129
200#N	N+K	-0.0053	-0.0072	-0.0062	-0.0139	-0.0053	-0.0068	-0.0065
400#N	N+K	0.0012	0.0001	-0.0053	-0.0081	-0.0044	-0.0032	-0.0027

**Appendix E: Individual installation nutrient summaries**

The following pages contain foliar nutrient concentrations and needle weights for installations 201 through 290. Values presented include plot, treatment, and installation averages for current foliage one year after original treatments (1982 for 201 - 245 and 1983 for 246 - 290) and one year after new treatments (1988 for 201 - 245 and 1989 for 246 - 290). 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, from installation 284 in 1983, from installations 231 and 234 in 1988, or from installation 257 in 1989. If more detailed information on certain installations is desired, contact the IFTNC staff.

FCLIAH NUTRIENT CONCENTRATIONS SUMMARY REPORT

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

FCLIAH NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FCLIAH NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	200 #	400 #	NCNE	400 #	NCNE	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
CCPPER	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:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	9325	12475	15300	12367
PHOSPHORUS	1575	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	19.67	30.05	22.50	24.14
CCPPER	4.39	4.84	4.68	4.64

NEEDLE WEIGHT (G/100 NEEDLES)

0.700 0.684 0.862 0.749

FCLIAH NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	N + K	N + K	N + K	NCNE	NOKE	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
CCPPER	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:

	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
CCPPER	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 BESEEVGIE  
 REGION: CENTRAL IDAHO OWNERSHIP: BCISE CASCADE  
 LEGAL DESCRIPTION: T13N 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 #	NCNE	200 #	400 #	200 #	NCNE
NITROGEN	15900	8700	10500	13450	10900	10050
PHOSPHORUS	2000	1700	1600	1900	1900	1500
POTASSIUM	7572	6417	7222	6082	5407	5192
CALCIUM	4911	5416	3551	3836	3276	3991
MAGNESIUM	2045	2030	2070	2080	1900	1940
MANGANESE	585.75	488.0	491.0	368.0	306.75	272.0
ZINC	38.75	24.20	26.05	27.60	32.75	29.25
IRCN	47.40	56.60	47.40	40.90	39.50	46.40
BORCN	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
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BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	9375	10700	14675	11583
PHOSPHORUS	1600	1750	1950	1767
POTASSIUM	5605	6315	6827	6315
CALCIUM	4704	3414	4374	4164
MAGNESIUM	1965	1985	2063	2011
MANGANESE	380.0	398.8	476.8	418.5
ZINC	26.72	29.40	33.17	29.77
IRCN	51.50	43.65	44.15	46.43
BORCN	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
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	NCNE	NCNE	NCNE	N + K	N + K
NITROGEN	14100	8100	7600	9250	12150	12650
PHOSPHORUS	1900	1800	1750	1900	2000	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
IRCN	57.85	65.45	70.85	63.40	60.40	62.15
BORCN	18.76	25.05	31.04	22.92	25.36	17.95
CCPFR	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
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BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	8317	.	12967	10642
PHOSPHORUS	1817	.	1867	1842
POTASSIUM	9622	.	7752	8687
CALCIUM	3581	.	3144	3263
MAGNESIUM	1232	.	1249	1241
MANGANESE	292.2	.	263.4	277.8
ZINC	23.09	.	32.84	27.97
IRCN	66.57	.	60.13	63.35
BORCN	26.34	.	20.69	23.52
CCPFR	2.98	.	3.58	3.28

NEEDLE WEIGHT (G/100 NEEDLES)

0.303	.	0.545	0.424
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FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 203 LAFFINWELL CREEK #2  
 REGION: CENTRAL IDAHO OWNERSHIP: BCISE CASCADE  
 LEGAL DESCRIPTION: T16N R4E SECTION 29 MERIDIAN: EOISE

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	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	2076	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	36.40	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	25.90	21.85
CCPPER	6.74	7.89	6.10	7.05	9.42	8.09

NEEDLE WEIGHT (G/100 NEEDLES)

0.795	0.660	0.592	0.760	0.741	0.683
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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	360.3	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
CCPPER	6.58	7.41	8.66	7.55

NEEDLE WEIGHT (G/100 NEEDLES)

0.676	0.739	0.703	0.706
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	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	4248	5651	4130	4258	5594
MAGNESIUM	1309	1390	1580	1441	1355	1642
MANGANESE	315.1	273.7	440.8	266.2	224.6	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	22.57	24.19
CCPPER	3.03	3.53	3.60	3.53	2.55	3.66

NEEDLE WEIGHT (G/100 NEEDLES)

0.504	0.503	0.441	0.582	0.442	0.323
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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
CCPPER	3.63	2.99	3.53	3.38

NEEDLE WEIGHT (G/100 NEEDLES)

0.382	0.473	0.543	0.466
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FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 204 JOHNSON'S MILL #1  
 REGION: NORTHERN IDAHO OWNERSHIP: IEL  
 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 #	NCNE	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	33.15	19.45	19.65	25.55	19.85
IRON	55.5	72.45	69.3	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:

	NCNE	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	NCNE	NCNE	NCNE	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	8512
CALCIUM	3104	3675	3515	4054	3982	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	89.55	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:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10700	15625	13150	12750
PHOSPHORUS	1756	2000	1800	1844
POTASSIUM	7888	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 COWBUSHIP: IDL  
 LEGAL DESCRIPTION: T37N R3E SECTION 4 MERIDIAN: PCISE

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	3152	4292
MAGNESIUM	2238	2248	1888	1913	2158	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	96.20	92.70	92.35
BORON	26.45	21.40	32.20	16.90	23.60	23.15
CCPPER	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
CCPPER	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	NCNE	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	26.61	27.58	31.21	31.55	29.15	21.46
IRON	151	120.3	196.6	173	215.2	165.3
BORON	35.91	35.40	40.78	18.20	35.56	20.99
CCPPER	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
CCPPER	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

OWNERSHIP: ICL  
 SECTION 36 MERIDIANS: POISE

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	2500	2150
POTASSIUM	5947	6732	5012	4877	6557	5997
CALCIUM	3296	3131	3206	5016	4197	3916
MAGNESIUM	2195	2155	2300	2090	2195	2095
MANGANESE	246.5	335.5	414.0	338.5	345.5	304.0
ZINC	24.40	23.60	30.30	35.70	22.50	37.00
IRON	58.30	48.75	39.05	44.55	43.05	40.70
BORON	20.20	31.60	21.60	23.85	24.25	31.45
CEPPER	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
BORON	31.52	22.22	22.72	25.45
CEPPER	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	NCNE	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	7655	6126
CALCIUM	3773	4245	2693	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
BORON	30.38	38.85	26.47	39.51	23.43	52.30
CEPPER	4.05	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
BORON	31.14	39.51	36.39	35.16
CEPPER	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

OWNER: 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 #	NCNE	400 #	NONE	200 #
NITROGEN	16100	13450	11650	17250	11300	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	20.70	20.00
CCPPER	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

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
CCPPER	4.64	4.48	4.68	4.60

NEEDLE WEIGHT (G/100 NEEDLES) 0.590 0.507 0.643 0.580

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	NCNE	NCNE	NCNE	N + K	N + 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	15.93	23.43	7.39	21.30	24.14	20.98
CCPPER	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

BY NEW TREATMENT:

	NCNE	200 # N	N + 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
CCPPER	2.67	.	3.21	2.94

NEEDLE WEIGHT (G/100 NEEDLES) 0.560 . 0.580 0.570

FCLIAF NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 208 LOVELL VALLEY BOAC  
 REGION: NORTHERN IDAHO OWNERSHIP: FCLILATCH  
 LEGAL DESCRIPTION: T46N R5W SECTION 25 MERIDIAN: R01SE

FCLIAF NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	NCNE	400 #	200 #	400 #	200 #	NCNE
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	2055	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
CCPPER	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	10833
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
CCPPER	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:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	NCNE	N + K	200 N	200 K	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	37.06	41.19
CCPPER	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	6966
CALCIUM	3503	4344	5798	4548
MAGNESIUM	1184	1612	1284	1360
MANGANESE	390.6	569.8	671.5	544.0
ZINC	25.32	29.18	22.98	26.16
IRON	130.7	177.3	124.4	144.1
BORON	35.58	30.46	23.25	29.76
CCPPER	3.44	3.89	3.27	3.53

NEEDLE WEIGHT (G/100 NEEDLES)

0.622 0.571 0.509 0.567

FCLIAI NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 209 ACDEY  
 REGION: NORTHEAST WASHINGTON  
 LEGAL DESCRIPTION: T34N R38E SECTION 27

CWNEESHIP: PGISE CASCADE  
 MERIDIAN: WILLAMETTE

FCLIAI NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FCLIAI 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	4900	4850
MAGNESIUM	1785	2299	2289	2079	2374	2309
MANGANESE	331.0	312.0	239.0	474.5	243.5	284.0
ZINC	31.05	33.15	32.00	41.45	28.75	40.95
IRON	44.95	60.95	65.30	61.40	49.50	59.75
BOBCN	32.05	32.80	22.55	32.80	26.55	33.95
CCPPER	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
BOBCN	32.80	33.00	24.75	30.18
CCPPER	4.60	4.49	5.43	4.84

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

FCLIAI NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
200 #	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
BOBCN	31.85	32.97	26.68	26.55	23.89	25.71
CCPPER	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
BOBCN	27.62	31.85	27.52	28.28
CCPPER	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

CWERSHIP: INLAND EMPIRE  
 MERIDIAN: WILLABETTE

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAF)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	NCNE	200 #	400 #	NCNE	200 #	400 #
NITROGEN	10600	12800	21500	11150	15650	19250
PHOSPHORUS	1900	1750	1500	1850	1750	1600
POTASSIUM	5736	6991	6156	7641	7811	5796
CALCIUM	3885	4725	3735	3920	3750	4995
MAGNESIUM	2475	2349	2294	2599	2574	2094
MANGANESE	301.5	291.0	323.0	229.5	213.6	295.5
ZINC	21.15	29.80	39.45	29.85	31.60	28.80
IRON	87.30	76.60	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 # N	400 # N	OVERALL
NITROGEN	10675	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
CCPPER	4.78	5.57	5.25	5.20

NEEDLE WEIGHT (G/100 NEEDLES)

0.510 0.710 0.670 0.670 0.630

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	NCNE	NCNE	N + K	N + K	N + K	200 N
NITROGEN	12600	9550	17100	13600	17750	16350
PHOSPHORUS	1900	1050	1400	1500	1600	1300
POTASSIUM	6899	6902	7001	6868	7003	6706
CALCIUM	4653	4738	4700	3992	5033	5992
MAGNESIUM	1395	1386	1311	1109	1719	1767
MANGANESE	278.4	195.9	224.8	216.9	266.6	269.4
ZINC	34.10	18.52	28.46	25.57	33.66	34.05
IRON	116.1	133.5	110.4	64.30	88.75	80.55
BOBON	22.26	31.09	23.83	37.84	29.11	26.75
CCPPER	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	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 0.530

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 211 HEEL CREEK  
 REGION: NORTHEAST WASHINGTON CWNEESHIP: INLAND EMPIRE  
 LEGAL DESCRIPTION: T31N R43E SECTION 2C 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	5650	9090	6355	5560	6620
CALCIUM	5552	3577	5167	4327	3267	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
BOBON	34.30	24.45	20.95	25.00	24.40	20.15
CCPPER	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	268.2
ZINC	32.82	25.70	27.15	28.56
IRON	56.92	51.82	47.70	52.15
BOBON	27.25	24.42	22.97	24.88
CCPPER	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	NCNE	N + K	N + K
NITROGEN	11850	14950	13900	11700	15450	16450
PHOSPHORUS	2250	2000	1400	1500	1500	1900
POTASSIUM	7485	8119	8883	8299	6311	9667
CALCIUM	5953	3810	5361	6996	4277	4808
MAGNESIUM	1680	1358	1559	1882	1266	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
BOBON	37.08	28.70	29.46	34.29	40.33	27.29
CCPPER	4.62	3.29	2.58	3.64	3.65	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
BOBON	35.68	29.08	33.81	32.88
CCPPER	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

OWNERSHIP: ECISE 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
	400 #	200 #	NONE	400 #	200 #	NONE
NITROGEN	14150	11450	10650	14200	13150	10800
PHOSPHORUS	2200	2050	2250	2100	2400	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	54.05	56.50
BORON	21.40	22.80	22.15	27.75	29.10	31.15
CCPPER	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:

	NONE	200 #	400 #	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
CCPPER	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:

NEW TREATMENT

	1	2	3	4	5	6
	200 #	200 N	NONE	NONE	NONE	N + K
NITROGEN	13567	14000	11233	11400	10800	15250
PHOSPHORUS	2933	1950	2200	2150	2300	2350
POTASSIUM	11104	10188	9788	7572	8652	9535
CALCIUM	2512	3008	2270	3030	2718	2945
MAGNESIUM	1444	1384	1114	1356	1026	1152
MANGANESE	155.5	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	105.5	51.30	110.4	103
BORON	28.27	25.21	22.58	32.76	28.35	27.28
CCPPER	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 0.500 0.548

BY NEW TREATMENT:

	NONE	200 #	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
CCPPER	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

CWNEESHIP: 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	NONE	NONE
NITROGEN	7350	11550	10867	10150	9600	9950
PHOSPHORUS	1700	1250	1500	1250	1700	1900
POTASSIUM	7977	7135	7225	6544	7954	7447
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	8567	.	10856	8911
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)

NCNE	C.408	.	0.471	0.439
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FOLIAR NUTRIENT CONCENTRATIONS SUMMARY BEFCRT

INSTALLATION 214 FIFTEENMILE CREEK #1  
 REGION: NORTHEAST WASHINGTON COWBUSHIP: ECISE 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
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

	1 200 N	2 NONE	3 NCNE	4 N + K	5 NONE	6 200 N
NITROGEN	11850	10800	11650	12350	10250	13350
PHOSPHORUS	1800	1800	2100	1700	1900	2300
POTASSIUM	7271	6090	9952	6848	7322	7493
CALCIUM	2817	4568	6183	2655	3611	4874
MAGNESIUM	1161	1486	1789	1126	1396	1464
MANGANESE	221.9	358.6	340.5	321.9	215.1	256.4
ZINC	25.52	42.43	47.91	27.09	26.70	29.54
IRON	55.35	71.40	61.60	61.95	53.50	58.00
BORON	24.14	23.48	34.19	26.30	23.48	30.23
COPPER	3.80	3.20	3.55	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
NITROGEN	10900	12600	12350	11708
PHOSPHORUS	1933	2050	1700	1933
POTASSIUM	8454	7382	6848	7829
CALCIUM	4787	3845	2655	4118
MAGNESIUM	1557	1313	1126	1404
MANGANESE	304.8	239.2	321.9	285.8
ZINC	39.02	27.53	27.09	33.20
IRON	62.30	56.67	61.95	60.37
BORON	27.02	27.18	28.30	27.29
COPPER	3.22	3.56	2.83	3.27

NEEDLE WEIGHT (G/100 NEEDLES)

	0.574	0.774	0.984	0.709
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FCLIAH NUTRIENT CONCENTRATIONS SUMMARY REPORT

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

FCLIAH NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FCLIAH NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

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

NEEDLE WEIGHT (G/100 NEEDLES)

FCLIAH NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

NEEDLE WEIGHT (G/100 NEEDLES)

BY NEW TREATMENT:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 COPPER

NEEDLE WEIGHT (G/100 NEEDLES)

	1	2	3	4	5	6
ORIGINAL TREATMENT	-	-	-	-	-	-
NITROGEN	.	.	.	.	.	.
PHOSPHORUS	.	.	.	.	.	.
POTASSIUM	.	.	.	.	.	.
CALCIUM	.	.	.	.	.	.
MAGNESIUM	.	.	.	.	.	.
MANGANESE	.	.	.	.	.	.
ZINC	.	.	.	.	.	.
IRON	.	.	.	.	.	.
BORON	.	.	.	.	.	.
COPPER	.	.	.	.	.	.
NEEDLE WEIGHT (G/100 NEEDLES)	.	.	.	.	.	.
BY ORIGINAL TREATMENT:	NCNE	200 # N	400 # N	OVERALL		
NITROGEN	.	.	.	.	.	.
PHOSPHORUS	.	.	.	.	.	.
POTASSIUM	.	.	.	.	.	.
CALCIUM	.	.	.	.	.	.
MAGNESIUM	.	.	.	.	.	.
MANGANESE	.	.	.	.	.	.
ZINC	.	.	.	.	.	.
IRON	.	.	.	.	.	.
BORON	.	.	.	.	.	.
COPPER	.	.	.	.	.	.
NEEDLE WEIGHT (G/100 NEEDLES)	.	.	.	.	.	.
BY PLOT:	1	2	3	4	5	6
NEW TREATMENT	N + K	200 N	N + K	NONE	200 N	NONE
NITROGEN	12500	14100	11850	11550	12650	11100
PHOSPHORUS	2050	2050	1650	1850	2150	2000
POTASSIUM	6777	12044	5404	8498	7331	7070
CALCIUM	3404	4988	3395	4323	4507	3554
MAGNESIUM	1187	1267	1022	1264	1383	1202
MANGANESE	341.7	346.2	300.4	284.1	250.2	304.4
ZINC	28.12	46.05	28.86	36.50	47.67	27.92
IRON	47.25	51.85	67.45	57.90	49.05	54.20
BORON	23.18	18.66	32.76	25.86	18.96	22.36
COPPER	2.99	3.42	3.04	2.88	2.55	3.06
NEEDLE WEIGHT (G/100 NEEDLES)	0.847	0.965	0.718	0.811	0.703	0.819
BY NEW TREATMENT:	NCNE	200 # N	N + K	OVERALL		
NITROGEN	11325	13375	12175	12292		
PHOSPHORUS	1925	2100	1850	1958		
POTASSIUM	7784	9687	6090	7854		
CALCIUM	3938	4747	3400	4028		
MAGNESIUM	1233	1325	1104	1221		
MANGANESE	294.2	298.2	321.1	304.5		
ZINC	32.21	46.86	28.49	35.86		
IRON	56.05	50.45	57.35	54.62		
BORON	24.11	18.81	27.97	23.63		
COPPER	2.97	3.18	3.01	3.06		
NEEDLE WEIGHT (G/100 NEEDLES)	0.815	0.834	0.782	0.810		

**FOLLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

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

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

**FOLLIAR 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	1650	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	32.60	27.60
CCPPER	4.75	4.22	3.53	5.11	5.25	4.24

NEEDLE WEIGHT (G/100 NEEDLES) 0.815 0.696 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
CCPPER	4.50	4.76	4.32	4.52

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

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

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + R	NCNE	N + R	NONE	N + R	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
CCPPER	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 + R	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
CCPPER	3.78	.	2.95	3.36

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

## FOLIAIR NUTRIENT CONCENTRATIONS SUMMARY REPORT

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

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

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	200 #	NCNE	400 #	400 #	NONE	200 #
NITROGEN	14000	10850	17050	14800	10650	18400
PHOSPHORUS	1700	1750	1400	2300	1750	2000
POTASSIUM	6217	5982	6237	5922	6087	5042
CALCIUM	4460	4005	3670	4075	3940	3620
MAGNESIUM	2050	2050	2010	2075	1900	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:

	NCNE	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

FOLIAIR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	NCNE	N + K	NONE	N + K	N + K
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	32.04	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:

	NCNE	200 # N	N + K	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: BCISE CASCADE  
 LEGAL DESCRIPTION: T39N R34E SECTION 13 MERIDIAN: WILLAMETTE

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAIN)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	400 #	200 #	NCNE	200 #	400 #	NONE
NITROGEN	12400	11550	9100	11350	15100	9750
PHOSPHORUS	1600	2250	2400	1700	1650	2250
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
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BY ORIGINAL TREATMENT:

	NCNE	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
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	NCNE	200 N	NCNE	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	2000	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	2.65	2.37

NEEDLE WEIGHT (G/100 NEEDLES)

0.250	0.368	0.386	0.228	0.322	0.248
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BY NEW TREATMENT:

	NCNE	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
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FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

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

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	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
CCPPER	6.79	5.14	7.39	7.42	5.43	6.50

NEEDLE WEIGHT (G/100 NEEDLES)

0.698 0.604 0.535 0.562 0.513 0.616

BY ORIGINAL TREATMENT:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 CCPPER

	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
CCPPER	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:

NEW TREATMENT

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 CCPPER

	1	2	3	4	5	6
	NCNE	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	6156	7095
CALCIUM	5002	3201	4481	5119	2826	3112
MAGNESIUM	1645	1491	1210	1794	1041	1309
MANGANESE	225.5	231.5	289.7	305.5	247.4	176.2
ZINC	30.08	28.51	39.15	36.35	19.54	34.00
IRON	100	84.63	70.40	89.80	59.05	75.90
BORON	24.49	19.47	21.45	20.33	24.45	28.40
CCPPER	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:

NITROGEN  
 PHOSPHORUS  
 POTASSIUM  
 CALCIUM  
 MAGNESIUM  
 MANGANESE  
 ZINC  
 IRON  
 BORON  
 CCPPER

	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
CCPPER	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 GROUSE CREEK  
 REGION: CENTRAL IDAHO COWLESHIP: IDL  
 LEGAL DESCRIPTION: T16N R4E 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	400 #	200 #	NCNE	200 #
NITROGEN	15400	9150	13850	12550	8800	11650
PHOSPHORUS	1550	1900	1450	1650	1800	1450
POTASSIUM	6164	4804	6059	4454	4400	5189
CALCIUM	4510	3760	2905	3195	4500	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
CCPPER	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
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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
CCPPER	5.48	4.93	5.29	5.24

NEEDLE WEIGHT (G/100 NEEDLES)

0.642	0.607	0.842	0.697
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	NCNE	NCNE	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	8105	8427
CALCIUM	3332	3120	3792	3771	4804	4498
MAGNESIUM	1592	1287	1069	1205	1305	1917
MANGANESE	251.2	233.7	231.5	262.9	414.8	269.0
ZINC	20.86	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
CCPPER	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
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BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10358	11775	10700	10897
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
CCPPER	4.07	3.76	3.42	3.66

NEEDLE WEIGHT (G/100 NEEDLES)

0.342	0.507	0.418	0.410
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## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 221 LITTLE MUD CREEK #1  
 REGION: CENTRAL IDAHO OWNERSHIP: BCISE 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	6950	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	63.40	61.55	48.10	60.30
BORON	21.10	16.45	22.80	29.30	22.25	24.70
CCPPER	6.55	6.10	5.61	7.93	5.35	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
CCPPER	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	5880	7789	8639	6917	7756	5241
CALCIUM	3642	3701	2854	5096	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
CCPPER	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 0.355 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
CCPPER	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: IEL  
 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 #	NCNE	200 #
NITROGEN	13550	10950	12300	13600	9950	12050
PHOSPHORUS	19000	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	292.5	307.0	261.0	278.0	327.0	390.5
ZINC	35.8	33.75	30.20	37.05	34.50	33.55
IRCN	60.30	53.95	69.05	67.15	76.55	111.5
BOBON	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	317.0	325.8	285.3	309.3
ZINC	34.12	31.87	36.45	34.15
IRCN	65.25	90.27	63.72	73.08
BOBON	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 #	NCNE	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	3150	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
IRCN	116.7	96.30	128.1	113	112.3	143.9
BOBON	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	3604	3854
MAGNESIUM	1487	1831	1715	1658
MANGANESE	241.5	196.1	205.8	216.1
ZINC	31.35	32.80	32.46	32.15
IRCN	120.1	116.7	117.8	118.4
BOBON	23.56	27.47	18.80	21.83
COPPER	3.34	3.86	4.13	3.92

NEEDLE WEIGHT (G/100 NEEDLES)

0.526 0.541 0.473 0.502



**FOLIAIR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

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

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

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

**BY PLOT:**

**ORIGINAL TREATMENT**

	1	2	3	4	5	6
	NCNE	200 #	400 #	200 #	NONE	400 #
NITROGEN	11000	14500	15550	13900	9100	17200
PHOSPHORUS	2150	2250	2550	2600	1900	2150
POTASSIUM	8800	6213	9113	8313	5123	8293
CALCIUM	4115	5525	4950	4000	4805	5310
MAGNESIUM	2044	1754	1709	1574	1569	2029
MANGANESE	192.0	285.0	157.5	233.0	236.0	275.5
ZINC	21.0	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
CCPPER	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:**

	NCNE	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
CCPPER	4.97	5.22	7.04	5.74

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

0.680 0.757 0.868 0.768

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

**BY PLOT:**

**NEW TREATMENT**

	1	2	3	4	5	6
	NCNE	NCNE	NCNE	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
CCPPER	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:**

	NCNE	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
CCPPER	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

	1	2	3	4	5	6
NITROGEN	.	.	.	.	.	.
PHOSPHORUS	.	.	.	.	.	.
POTASSIUM	.	.	.	.	.	.
CALCIUM	.	.	.	.	.	.
MAGNESIUM	.	.	.	.	.	.
MANGANESE	.	.	.	.	.	.
ZINC	.	.	.	.	.	.
IRON	.	.	.	.	.	.
BOBON	.	.	.	.	.	.
CCPPER	.	.	.	.	.	.

NEEDLE WEIGHT (G/100 NEEDLES)

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	.	.	.	.
PHOSPHORUS	.	.	.	.
POTASSIUM	.	.	.	.
CALCIUM	.	.	.	.
MAGNESIUM	.	.	.	.
MANGANESE	.	.	.	.
ZINC	.	.	.	.
IRON	.	.	.	.
BOBON	.	.	.	.
CCPPER	.	.	.	.

NEEDLE WEIGHT (G/100 NEEDLES)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	NCNE	200 N	200 N	N + K	NONE	NONE
NITROGEN	11750	12900	13100	12333	10033	10967
PHOSPHORUS	3200	2600	3033	2400	3133	2567
POTASSIUM	11692	9691	10238	11492	9472	11150
CALCIUM	2533	2428	2623	2094	2466	1519
MAGNESIUM	1685	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
BOBON	22.52	19.97	15.04	35.39	26.00	10.37
CCPPER	3.28	3.81	3.18	3.47	2.81	2.84

NEEDLE WEIGHT (G/100 NEEDLES) 0.599 0.635 0.550 0.395 0.438 0.377

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10917	13000	12333	11847
PHOSPHORUS	2567	2817	2400	2822
POTASSIUM	10771	9965	11492	10622
CALCIUM	2175	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
BOBON	19.63	17.51	35.39	21.55
CCPPER	2.98	3.50	3.47	3.23

NEEDLE WEIGHT (G/100 NEEDLES) 0.471 0.593 0.395 0.499

FOLIAIR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 225 BOWMAN CREEK  
 REGION: CENTRAL WASHINGTON OWNERSHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T5N R15E SECTION 16 MERIDIAN: WILLAMETTE

FOLIAIR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FOLIAIR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	400 #	NCNE	200 #	400 #	200 #	NCNE
NITROGEN	19100	11600	11800	17750	12650	11250
PHOSPHORUS	1900	2500	1550	1900	1750	2300
POTASSIUM	7611	6721	5851	5831	5851	8316
CALCIUM	3390	4990	2875	3270	4235	3290
MAGNESIUM	2264	2269	2274	2299	2155	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	60.80
BORON	28.90	30.25	23.40	29.10	31.00	24.20
COPPER	5.66	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

FOLIAIR 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	1858	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	27.34	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  
 LEGAL DESCRIPTION: T16N R15E SECTION 16

OWNERSHIP: BCISE 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
	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	453.0	355.5	362.5	471.0
ZINC	27.55	26.05	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
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BY ORIGINAL TREATMENT:

	NCNE	200 #	400 #	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
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	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	12193	11913
CALCIUM	3826	3379	2977	3455	2377	3112
MAGNESIUM	1841	1232	1510	1937	1482	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
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BY NEW TREATMENT:

	NCNE	200 #	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
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FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

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

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAF)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:	1	2	3	4	5	6
ORIGINAL TREATMENT	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
BORON	26.20	22.60	24.30	24.75	21.55	18.00
COPPER	3.55	4.12	4.99	5.60	5.56	3.89

NEEDLE WEIGHT (G/100 NEEDLES) 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
BORON	23.12	25.47	20.30	22.97
COPPER	5.18	4.58	4.01	4.59

NEEDLE WEIGHT (G/100 NEEDLES) 0.736 0.696 0.768 0.733

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT	1	2	3	4	5	6
	NCNE	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	9266	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
BORON	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

NEEDLE WEIGHT (G/100 NEEDLES) 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	9266	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
BORON	18.36	14.84	23.92	20.55
COPPER	3.09	3.33	3.83	3.50

NEEDLE WEIGHT (G/100 NEEDLES) 0.711 0.858 0.826 0.793

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 228 LCCKUT MTN WEST  
 REGION: CENTRAL WASHINGTON OWNERSHIP: WASHINGTON DNR  
 LEGAL DESCRIPTION: T20N R16E SECTION 36 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 #	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	23.55	29.20
IRON	73.05	93.35	79.45	67.00	67.05	81.60
BORON	18.9	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

FOLIAR 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	31.68	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	1391	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	22.46
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 LOCKOUT MIN EAST  
 REGION: CENTRAL WASHINGTON OWNERSHIP: ECISE CASCADE  
 LEGAL DESCRIPTION: T20N R17E SECTION 31 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 #	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	32.0	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	14225	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:	1	2	3	4	5	6
NEW TREATMENT	NCNE	ECNE	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	10222	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	47.60	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	1838	1694	1633	1722
MANGANESE	282.5	268.0	308.8	266.4
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	2.95

NEEDLE WEIGHT (G/100 NEEDLES) 0.723 0.636 0.621 0.660

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 230 H.P. TEANAWAY RIVER  
 REGION: CENTRAL WASHINGTON COUNTEESHIP: BOISE CASCADE  
 LEGAL DESCRIPTION: T21N R15E SECTION 20 MERIDIAR: WILIAMETTE

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	NONE	200 #	400 #
NITROGEN	23050	13150	10950	13450	12850	13780
PHOSPHORUS	2700	1850	2200	2450	2250	2000
POTASSIUM	6167	6317	5747	8177	7152	6822
CALCIUM	3475	3195	3535	3000	4175	4050
MAGNESIUM	2135	2145	2310	2380	2085	2280
MANGANESE	417.5	500.0	486.5	574.0	531.5	390.5
ZINC	32.8	25.05	34.15	32.55	37.50	33.45
IRON	62.8	54.85	33.35	47.95	57.55	72.60
BORON	26.30	24.00	22.60	28.70	23.50	23.15
CCPPER	4.78	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:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12200	13000	18375	14525
PHOSPHORUS	2325	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
CCPPER	4.36	4.71	5.20	4.76

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

FOLIAR 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	2252	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
CCPPER	3.28	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:

	NCNE	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
CCPPER	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: FLATHEAD (BIA)

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>	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
CCPPER	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	456.5
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
CCPPER	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
<b>NEW TREATMENT</b>	NCNE	NCNE	NONE	NONE	NONE	NONE
NITROGEN	.	.	.	.	.	.
PHOSPHORUS	.	.	.	.	.	.
POTASSIUM	.	.	.	.	.	.
CALCIUM	.	.	.	.	.	.
MAGNESIUM	.	.	.	.	.	.
MANGANESE	.	.	.	.	.	.
ZINC	.	.	.	.	.	.
IRON	.	.	.	.	.	.
BORON	.	.	.	.	.	.
CCPPER	.	.	.	.	.	.

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

**BY NEW TREATMENT:**

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

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

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 232 SUNNY SLOPE

REGION: MONTANA

OWNERSHIP: FLATHEAD (BIA)

LEGAL DESCRIPTION: T23N R21W SECTION 12

MERIDIAN: PRINCIPAL

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

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	NCNE	400 #	200 #	400 #	200 #	NCNE
NITROGEN	10800	15150	15800	21700	12850	10750
PHOSPHORUS	1850	1750	2200	2150	1900	2050
POTASSIUM	7773	7688	6783	5173	6963	7436
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:

	NCNE	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:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	200 N	200 N	NONE	NCNE	NCNE
NITROGEN	10867	10000	15200	11350	11050	9850
PHOSPHORUS	1667	1800	1850	2300	2200	1850
POTASSIUM	8927	8523	8080	9504	9280	8520
CALCIUM	3878	3363	2846	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	73.35	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:

	NCNE	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 BELLBOARING CREEK  
 REGION: MONTANA OWNERSHIP: FLATHEAD (BIA)  
 LEGAL DESCRIPTION: T23N R19W SECTION 33 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	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	39.5	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	29.25	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
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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
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	N + K	N + K	NONE	NCNE	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
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BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10139	.	12533	11336
PHOSPHORUS	1911	.	1950	1931
POTASSIUM	7924	.	8774	8349
CALCIUM	3788	.	4488	4138
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
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## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 234 RCNAN

REGION: MONTANA

LEGAL DESCRIPTION: T20N R19W SECTION 5

OWNERSHIP: PLATHEAD (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	6545	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	NONE	NCNE
NITROGEN	.	.	.	.	.	.
PHOSPHORUS	.	.	.	.	.	.
POTASSIUM	.	.	.	.	.	.
CALCIUM	.	.	.	.	.	.
MAGNESIUM	.	.	.	.	.	.
MANGANESE	.	.	.	.	.	.
ZINC	.	.	.	.	.	.
IRON	.	.	.	.	.	.
BORON	.	.	.	.	.	.
COPPER	.	.	.	.	.	.

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

## BY NEW TREATMENT:

	NCNE	200 # N	N + R	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

OWNERSHIP: CHAMPION

LEGAL DESCRIPTION: T14N R24W SECTION 5

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 #	NONE	200 #	400 #
NITROGEN	9300	13300	19900	9600	11350	17550
PHOSPHORUS	1650	1450	1600	1550	1450	1450
POTASSIUM	6818	5108	5143	5558	4655	5458
CALCIUM	4055	4070	3980	4550	3550	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
BOBON	23.95	20.40	14.25	21.30	17.45	19.75
CCPPER	6.22	4.41	6.20	5.30	4.53	4.71
NEEDLE WEIGHT (G/100 NEEDLES)	0.588	0.727	0.780	0.503	0.615	0.740

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	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
BOBON	22.62	18.92	17.00	19.52
CCPPER	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:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	200 N	NCNE	B + K	NONE	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
BOBON	42.25	20.25	30.26	25.16	18.55	39.66
CCPPER	3.48	3.10	3.94	3.57	3.10	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	N + K	OVERALL
NITROGEN	9567	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	355.0
ZINC	27.52	26.64	34.89	28.46
IRON	81.28	83.02	65.40	79.22
BOBON	30.50	29.96	25.16	29.43
CCPPER	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

MERCIDIAN: 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 #	NONE	400 #	NONE	200 #
NITROGEN	17450	13450	12800	18200	12550	13400
PHOSPHORUS	1800	2100	2000	1650	1850	1600
POTASSIUM	6742	6137	6942	9037	6252	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	27.55	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:

	NONE	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	NONE
NITROGEN	11600	11050	7850	11600	9800	9650
PHOSPHORUS	1700	1200	1350	1750	1550	1450
POTASSIUM	8756	8832	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	4.36	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:

	NONE	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 MCILET PARK OWNERSHIP: CHAMPION  
 REGION: MONTANA MERIDIAN: PRINCIPAL  
 LEGAL DESCRIPTION: T15N R12W SECTION 9

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	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	35.75	26.05
IRON	38.00	41.35	40.65	43.85	42.70	34.65
BORON	20.35	21.25	24.95	26.75	18.75	20.85
COPPER	5.47	5.14	4.14	4.95	4.55	5.75

NEEDLE WEIGHT (G/100 NEEDLES)

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

NEEDLE WEIGHT (G/100 NEEDLES)

0.381 0.565 0.549 0.498

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	200 #	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	5807	4619
MAGNESIUM	1499	1563	1629	1596	1207	1571
MANGANESE	403.2	291.0	380.2	380.2	336.2	483.2
ZINC	26.64	33.45	22.91	30.89	38.28	33.88
IRON	60.00	80.10	66.00	65.85	65.25	60.45
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

NEEDLE WEIGHT (G/100 NEEDLES)

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

NEEDLE WEIGHT (G/100 NEEDLES)

0.229 0.193 0.284 0.235

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 238 BULLALC 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	2100	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	230.0
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
CCPPER	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	1129	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
CCPPER	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	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	305.5	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
CCPPER	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	4649	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	126.5
BORON	30.45	21.13	21.51	24.43
CCPPER	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  
 MERIDIAN: ECISE

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

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

BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	200 #	NCNE	400 #	400 #	200 #	NONE
NITROGEN	11000	14500	15550	13900	9100	17200
PHOSPHORUS	2150	2250	2550	2600	1900	2150
POTASSIUM	3914	5544	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
BOBON	27.10	22.80	23.15	22.80	25.65	25.95
CCPPER	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	4808	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
BOBON	24.37	26.37	22.97	24.57
CCPPER	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:

	1	2	3	4	5	6
NEW TREATMENT	N + K	NCNE	NCNE	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
BOBON	22.62	29.28	23.96	23.06	24.45	21.66
CCPPER	3.88	3.21	2.41	3.98	2.50	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	2900	2000	2225
POTASSIUM	8487	9015	8583	8623
CALCIUM	3461	2761	4160	3694
MAGNESIUM	1876	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
BOBON	26.62	24.45	22.45	24.17
CCPPER	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 QUARIZ CREEK #1  
 REGION: NORTHERN IDAHO OWNERSHIP: PCTIATCH  
 LEGAL DESCRIPTION: T37N R5E SECTION 8 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 #	NCNE	200 #	400 #
NITROGEN	15700	9650	12700	11800	12500	17250
PHOSPHORUS	1350	2000	1650	1900	1800	1850
POTASSIUM	5281	7056	5931	6206	5261	5971
CALCIUM	2595	5650	2705	4690	3295	5145
MAGNESIUM	2319	2314	1829	2284	2254	2179
MANGANESE	230.0	303.0	289.5	388.5	406.0	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:

	NCNE	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:

NEW TREATMENT

	1	2	3	4	5	6
	N + R	N + K	NCNE	NONE	N + K	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	44.31	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:

	NCNE	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	386.6	.	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 WOODY MTN  
 REGION: CENTRAL WASHINGTON  
 LEGAL DESCRIPTION: T33N R24E SECTION 9

OWNERSHIP: WASHINGTON DBB  
 MERICIAN: 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
BORON	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
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BY 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
BORON	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
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	200 #	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	20.58	40.76
IRON	71.95	77.55	54.65	64.97	57.60	83.07
BORON	23.10	25.19	24.90	37.96	32.31	23.27
COPPER	2.85	2.66	2.33	2.56	2.60	3.13

NEEDLE WEIGHT (G/100 NEEDLES)

0.818	0.723	0.705	0.812	0.580	0.615
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BY 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	336.8	304.6	457.4	347.1
ZINC	30.31	36.00	23.63	31.09
IRON	63.27	77.51	64.97	68.30
BORON	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
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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
CCPPER	10.87	7.30	6.27	6.47	5.78	5.14

NEEDLE WEIGHT (G/100 NEEDLES)

0.596	0.538	0.538	0.557	0.503	0.406
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BY ORIGINAL TREATMENT:

	NCNE	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
CCPPER	6.22	6.02	8.67	6.97

NEEDLE WEIGHT (G/100 NEEDLES)

0.472	0.520	0.578	0.523
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FOLiar NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	200 #	N + K	200 #	NONE	NONE	NCNE
NITROGEN	13200	11100	13850	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	259.8	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	38.16	21.67	24.50	18.50	20.81	17.26
CCPPER	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
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BY NEW TREATMENT:

	NCNE	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	58.26
BORON	18.86	31.34	21.67	23.49
CCPPER	3.16	3.03	3.26	3.13

NEEDLE WEIGHT (G/100 NEEDLES)

0.355	0.424	0.430	0.391
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FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 243 STARVATION LAKE  
 REGION: NORTHEAST WASHINGTON OWNERSHIP: WASHINGTON DNR  
 LEGAL DESCRIPTION: T35N R4CE SECTION 13 MERIDIAN: WILLAPETTE

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	59.80	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
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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
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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	6499	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	46.96	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
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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
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FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 244 BIG LICKOUT 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	3946	6513	5743	5458	6113	4318
CALCIUM	5155	5695	7285	5055	5150	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:

	NCNE	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	NCNE	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	24.90	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:

	NCNE	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 (OREGON)  
 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	108.55	72.05	111.8	81.30
BORON	30.60	25.75	21.55	26.65	28.55	26.95
CCPPER	4.63	3.84	3.96	3.34	3.55	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
CCPPER	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
CCPPER	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
CCPPER	4.02	5.23	4.79	4.68

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

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 246 KETTLE FALLS

REGION: NORTHEAST WASHINGTON

LEGAL DESCRIPTION: T36N R37E SECTION 36

OWNERSHIP: WASHINGTON D&amp;M

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 #	200 #	400 #	NONE					
NITROGEN	13600	12100	12400	14500	13600	14800					
PHOSPHORUS	1400	1400	1100	1300	1300	1400					
POTASSIUM	5154	6394	6964	6814	7319	11559					
CALCIUM	3539	4434	5084	4214	5164	3249					
MAGNESIUM	1266	1243	1293	1473	1183	1218					
MANGANESE	243.5	207.5	266.5	203.5	136.5	125.0					
ZINC	22.70	30.40	39.35	39.70	31.95	34.60					
IRON	70.10	64.70	60.10	50.20	51.90	83.10					
BORON	21.40	21.75	16.55	12.50	21.10	37.10					
CCPPER	2.16	3.04	2.35	2.89	2.87	4.29					
NEEDLE WEIGHT (G/100 NEEDLES)	0.739	0.929	1.132	0.888	0.931	0.899					

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	14200	13300	13000	13500
PHOSPHORUS	1400	1350	1200	1317
POTASSIUM	8357	6604	7142	7367
CALCIUM	3394	4324	5124	4281
MAGNESIUM	1243	1358	1238	1280
MANGANESE	184.3	205.5	201.5	197.1
ZINC	28.65	35.05	35.65	33.12
IRON	76.60	57.45	56.00	63.35
BORON	29.25	17.13	18.82	21.73
CCPPER	3.22	2.96	2.61	2.93
NEEDLE WEIGHT (G/100 NEEDLES)	0.819	0.908	1.032	0.920

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

NEW TREATMENT	1		2		3		4		5		6
	NONE	200 N	NCNE	N + K	N + K	N + K	N + K	N + K	N + K	N + K	
NITROGEN	12400	12700	11700	12500	9800	9700					
PHOSPHORUS	1800	1600	1900	1700	1500	1700					
POTASSIUM	5401	5495	7359	5906	7307	9710					
CALCIUM	3906	5723	4627	4692	4498	3767					
MAGNESIUM	1457	1724	1737	1280	1142	1257					
MANGANESE	254.3	137.1	186.5	175.1	118.7	144.3					
ZINC	15.16	39.08	44.45	26.23	16.07	38.60					
IRON	129.2	79.70	115.7	94.80	107.7	147.8					
BORON	24.37	25.84	18.24	20.59	14.97	34.54					
CCPPER	2.50	2.29	2.67	1.95	1.47	1.68					
NEEDLE WEIGHT (G/100 NEEDLES)	0.807	1.031	1.034	0.839	0.853	0.677					

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	12050	12700	10667	11467
PHOSPHORUS	1850	1600	1633	1700
POTASSIUM	6380	5495	7641	6863
CALCIUM	4267	5723	4319	4536
MAGNESIUM	1597	1724	1226	1433
MANGANESE	220.4	137.1	146.0	169.3
ZINC	29.80	39.08	26.97	29.93
IRON	122.4	79.70	116.8	112.5
BORON	21.30	25.84	23.37	23.09
CCPPER	2.58	2.29	1.70	2.09
NEEDLE WEIGHT (G/100 NEEDLES)	0.920	1.031	0.803	0.880



## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 247 PARK RAPIDS  
 REGION: NORTHEAST WASHINGTON OWNERSHIP: WASHINGTON DNR  
 LEGAL DESCRIPTION: T35N R40E SECTION 24 MERIDIAN: WILLANETTE

 FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	200 #	NCNE	400 #	200 #	400 #	NONE
NITROGEN	16400	11200	20100	12100	16200	12800
PHOSPHORUS	1900	2600	1900	1800	4100	1600
POTASSIUM	5104	7538	4644	7241	6404	10809
CALCIUM	3454	4661	3156	3725	3879	3369
MAGNESIUM	991.0	1832	1474	1030	1283	1023
MANGANESE	335.5	414.5	252.0	399.0	428.0	320.5
ZINC	23.50	31.30	33.05	30.50	40.95	14.40
IRON	51.80	90.10	62.30	65.60	73.10	73.20
BORON	31.65	50.40	34.55	40.25	26.05	49.10
CCPPER	2.83	3.26	3.13	3.54	2.99	3.73
NEEDLE WEIGHT (G/100 NEEDLES)	0.940	0.729	0.936	0.889	0.849	0.511

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12000	14250	18150	14800
PHOSPHORUS	2100	1850	3000	2317
POTASSIUM	9174	6173	5524	6957
CALCIUM	4015	3590	3518	3707
MAGNESIUM	1428	1011	1379	1272
MANGANESE	367.5	367.3	340.0	358.3
ZINC	22.85	27.00	37.00	28.95
IRON	81.65	58.70	67.70	69.35
BORON	49.75	35.95	30.30	38.67
CCPPER	3.49	3.18	3.06	3.25
NEEDLE WEIGHT (G/100 NEEDLES)	0.620	0.914	0.893	0.809

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	N + K	NONE	N + K	NONE	NONE	N + K
NITROGEN	12500	9500	13300	8600	9000	10900
PHOSPHORUS	1700	1900	1900	1700	1500	1500
POTASSIUM	5990	8488	4988	7556	7783	7487
CALCIUM	5135	4964	3434	3520	4778	3563
MAGNESIUM	1483	1666	1617	1035	1338	1025
MANGANESE	353.2	321.4	208.2	285.8	290.8	314.6
ZINC	31.24	15.33	14.64	22.27	23.45	8.02
IRON	71.60	81.00	51.70	82.80	76.10	87.70
BORON	33.28	20.17	22.33	22.74	13.21	26.55
CCPPER	1.96	1.99	1.64	2.38	1.32	2.29
NEEDLE WEIGHT (G/100 NEEDLES)	0.749	0.546	0.726	0.661	0.659	0.685

## BY NEW TREATMENT:

	NONE	200 # N	N + K	OVERALL
NITROGEN	9033	.	12233	10633
PHOSPHORUS	1700	.	1700	1700
POTASSIUM	7942	.	6155	7049
CALCIUM	4421	.	4044	4232
MAGNESIUM	1346	.	1375	1361
MANGANESE	299.3	.	292.0	295.7
ZINC	20.35	.	17.97	15.16
IRON	79.97	.	70.33	75.15
BORON	18.71	.	27.39	23.05
CCPPER	1.90	.	1.96	1.93
NEEDLE WEIGHT (G/100 NEEDLES)	0.622	.	0.720	0.671

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 248 QUINEY FLAT

REGION: CENTRAL WASHINGTON

LEGAL DESCRIPTION: T5N R14E SECTION 1

OWNERSHIP: BCISE 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
	400 #	NONE	200 #	400 #	NONE	200 #
NITROGEN	19000	16000	18900	22900	15200	22200
PHOSPHORUS	1600	3800	1400	1400	1200	1400
POTASSIUM	6079	6869	5954	5984	5904	6064
CALCIUM	2809	3919	3169	3194	2674	2679
MAGNESIUM	1423	1483	1483	1998	1318	1458
MANGANESE	363.5	402.0	518.0	485.5	377.0	364.5
ZINC	33.95	33.10	43.45	64.05	30.15	30.15
IRON	99.20	136.1	129.9	165.9	103	90.70
BORON	32.05	25.60	27.10	44.60	31.15	30.40
CCPPER	2.10	3.40	2.60	3.56	1.17	2.48

## NEEDLE WEIGHT (G/100 NEEDLES)

0.686 0.556 0.584 0.496 0.597 0.847

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	15600	20550	20950	19033
PHOSPHORUS	2500	1400	1500	1800
POTASSIUM	6387	6009	6032	6142
CALCIUM	3297	2924	3002	3074
MAGNESIUM	1401	1471	1711	1527
MANGANESE	389.5	441.3	424.5	418.4
ZINC	31.62	36.80	49.00	39.14
IRON	119.5	110.3	132.5	120.8
BORON	28.37	28.75	38.32	31.82
CCPPER	2.28	2.54	2.83	2.55

## NEEDLE WEIGHT (G/100 NEEDLES)

0.577 0.715 0.591 0.628

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	NONE	NONE	200 N	200 N	N + K	NONE
NITROGEN	14000	10700	17600	17200	12300	12400
PHOSPHORUS	2500	1900	2200	2500	2100	2300
POTASSIUM	7503	8876	7008	8534	11651	8511
CALCIUM	2636	2888	3909	2219	2960	2222
MAGNESIUM	1764	1295	1881	1318	1678	1512
MANGANESE	246.1	352.4	398.4	216.2	456.7	227.8
ZINC	32.65	15.65	33.90	26.46	61.59	29.66
IRON	91.80	129.1	122	115.8	113.4	121.6
BORON	32.83	21.05	21.21	24.33	27.05	22.55
CCPPER	2.42	2.55	2.38	1.88	2.49	1.92

## NEEDLE WEIGHT (G/100 NEEDLES)

0.547 0.629 0.436 0.396 0.674 0.736

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	12367	17400	12300	14033
PHOSPHORUS	2233	2350	2100	2250
POTASSIUM	8297	7771	11651	8681
CALCIUM	2582	3064	2960	2806
MAGNESIUM	1524	1600	1678	1575
MANGANESE	275.4	307.3	456.7	316.3
ZINC	26.00	31.18	61.99	33.72
IRON	114.2	118.9	113.4	115.6
BORON	25.48	22.77	27.05	24.84
CCPPER	2.30	2.13	2.49	2.27

## NEEDLE WEIGHT (G/100 NEEDLES)

0.637 0.416 0.674 0.570

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 249 KAISER BUTTE #2  
 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:

	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	NCNE	200 #	200 #	NONE	400 #
NITROGEN	13100	15500	21100	20500	16300	28400
PHOSPHORUS	1200	600	500	700	1500	2800
POTASSIUM	7289	5514	5544	7409	9049	6274
CALCIUM	3614	3084	2669	2704	3034	4609
MAGNESIUM	1418	1558	1588	1500	1878	1813
MANGANESE	691.0	363.5	590.5	595.5	546.0	468.5
ZINC	34.30	39.10	42.35	32.40	37.55	45.70
IRON	99.70	72.70	81.70	88.00	92.60	71.20
BORON	26.15	23.80	25.80	20.40	19.50	21.25
CCPPER	4.03	2.24	3.41	3.38	3.17	3.84
NEEDLE WEIGHT (G/100 NEEDLES)	0.911	0.729	0.693	0.798	0.581	0.650

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	15900	20800	20750	19150
PHOSPHORUS	1050	600	2000	1217
POTASSIUM	7282	6477	6782	6847
CALCIUM	3059	2687	4112	3286
MAGNESIUM	1718	1544	1616	1626
MANGANESE	454.8	593.0	579.8	542.5
ZINC	38.32	37.37	40.00	38.57
IRON	82.65	84.85	85.45	84.32
BORON	21.65	23.10	23.70	22.82
CCPPER	2.70	3.39	3.93	3.34
NEEDLE WEIGHT (G/100 NEEDLES)	0.655	0.745	0.781	0.727

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	12900	12200	12900	10300	12500	13400
PHOSPHORUS	2100	1600	1700	2400	2500	2100
POTASSIUM	9245	7925	6240	8934	8440	9431
CALCIUM	2979	3284	2628	2228	2817	5046
MAGNESIUM	1366	1507	1408	1317	1591	1925
MANGANESE	217.5	413.8	367.8	293.0	526.3	234.7
ZINC	32.21	39.41	48.07	11.16	24.14	38.91
IRON	38.60	74.50	58.90	102	92.30	72.70
BORON	19.12	24.54	19.15	20.45	17.52	20.04
CCPPER	2.60	2.10	3.62	2.49	2.33	2.02
NEEDLE WEIGHT (G/100 NEEDLES)	0.768	0.872	0.526	0.659	0.623	0.437

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	12067	.	12667	12367
PHOSPHORUS	2333	.	1800	2067
POTASSIUM	8935	.	7803	8369
CALCIUM	3364	.	2964	3164
MAGNESIUM	1611	.	1427	1519
MANGANESE	351.3	.	333.0	342.2
ZINC	24.74	.	39.90	32.32
IRON	89.00	.	57.33	73.17
BORON	19.34	.	20.94	20.14
CCPPER	2.28	.	2.77	2.53
NEEDLE WEIGHT (G/100 NEEDLES)	0.573	.	0.722	0.647

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 250 QUARTZ CREEK #2  
 REGION: NORTHERN IDAHO OWNERSHIP: POTLATCH  
 LEGAL DESCRIPTION: T37N R5E SECTION 5 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 #	400 #	200 #	NONE	NONE
NITROGEN	13100	15200	16700	15100	11700	11800
PHOSPHORUS	2100	1800	2200	2100	2500	2200
POTASSIUM	6434	5709	6339	5634	6789	6329
CALCIUM	3094	2824	2199	2704	3234	3149
MAGNESIUM	789.0	831.0	717.0	901.0	1168	1009
MANGANESE	281.5	205.5	184.0	233.0	354.5	386.5
ZINC	17.20	14.25	9.95	12.55	25.35	22.80
IRON	64.90	24.90	36.00	42.70	79.80	71.70
BORON	13.60	15.35	7.05	33.30	35.05	32.75
CCPPER	2.40	2.22	1.82	1.87	2.94	2.46
NEEDLE WEIGHT (G/100 NEEDLES)	0.702	1.043	0.773	0.731	0.575	0.716

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11750	14100	15950	13933
PHOSPHORUS	2350	2100	2000	2150
POTASSIUM	6559	6034	6024	6206
CALCIUM	3192	2899	2512	2867
MAGNESIUM	1089	845.0	774.0	902.5
MANGANESE	370.5	257.3	194.8	274.2
ZINC	24.07	14.87	12.10	17.02
IRON	75.75	53.80	30.45	53.33
BORON	33.90	23.45	11.20	22.85
CCPPER	2.70	2.13	2.02	2.28
NEEDLE WEIGHT (G/100 NEEDLES)	0.645	0.717	0.908	0.757

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	200 N	NCNE	N + K	N + K	NCNE	N + K
NITROGEN	14300	13500	15400	16700	12700	12800
PHOSPHORUS	1800	2100	2200	1900	1600	1900
POTASSIUM	9706	8252	9122	8506	11609	8048
CALCIUM	5098	5248	3475	4544	5293	4355
MAGNESIUM	1220	1500	1543	1497	1958	1292
MANGANESE	461.0	295.9	168.4	356.3	503.2	491.9
ZINC	33.85	27.84	14.46	15.16	26.56	10.50
IRON	126.7	85.00	83.60	116.5	99.40	129.3
BORON	22.06	32.23	18.13	26.67	44.00	27.70
CCPPER	2.18	1.74	1.69	2.79	4.77	2.79
NEEDLE WEIGHT (G/100 NEEDLES)	0.480	0.520	0.524	0.451	0.536	0.534

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	13100	14300	14967	14233
PHOSPHORUS	1850	1800	2000	1917
POTASSIUM	9931	9706	8559	9207
CALCIUM	5271	5098	4125	4669
MAGNESIUM	1749	1220	1444	1508
MANGANESE	399.5	461.0	338.9	379.4
ZINC	27.40	33.85	13.37	21.46
IRON	92.20	126.7	109.8	106.7
BORON	38.11	22.06	24.17	28.46
CCPPER	3.25	2.18	2.42	2.66
NEEDLE WEIGHT (G/100 NEEDLES)	0.528	0.480	0.503	0.507

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 251 GAME CREEK

REGION: MONTANA

OWNERSHIP: CHAMPION

LEGAL DESCRIPTION: T13N R16W SECTION 30

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	200 #	NCNE	400 #	200 #	NOAE	400 #
NITROGEN	11800	10900	17700	13500	11000	13900
PHOSPHORUS	1500	1800	1900	2300	2100	2000
POTASSIUM	7404	6694	4924	6284	6564	5984
CALCIUM	4184	3704	2369	3684	2669	3439
MAGNESIUM	1178	1143	997.0	829.0	1058	881.0
MANGANESE	402.5	362.0	383.0	385.0	368.5	434.5
ZINC	28.05	27.95	30.85	28.65	31.70	28.10
IRCN	59.40	52.90	38.50	56.80	49.90	64.20
BOBON	42.85	45.70	20.05	24.95	31.80	20.20
CCPPER	3.55	3.81	2.23	2.80	2.67	1.75

NEEDLE WEIGHT (G/100 NEEDLES) 0.579 0.516 0.738 0.626 0.466 0.453

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10950	12650	15800	13133
PHOSPHORUS	1950	1900	1950	1933
POTASSIUM	6629	6844	5454	6309
CALCIUM	3187	3934	2904	3342
MAGNESIUM	1101	1004	939.0	1014
MANGANESE	365.3	393.8	408.8	389.3
ZINC	29.82	28.35	29.47	29.22
IRCN	51.40	58.10	51.35	53.62
BOBON	38.75	33.90	20.12	30.92
CCPPER	3.24	3.17	1.99	2.80

NEEDLE WEIGHT (G/100 NEEDLES) 0.491 0.602 0.596 0.563

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	200 N	N + K	NCNE	N + K	NOAE	200 N
NITROGEN	10600	14700	9600	13600	10700	14400
PHOSPHORUS	1900	2100	2500	2300	2300	2100
POTASSIUM	11132	6620	8671	7736	9133	8449
CALCIUM	3130	2619	2920	3296	2464	4075
MAGNESIUM	1084	987.0	1264	929.0	959.0	1104
MANGANESE	323.2	334.1	312.4	341.0	303.5	399.8
ZINC	30.66	39.95	30.79	22.12	14.34	30.65
IRCN	45.40	57.90	44.40	31.40	42.00	35.50
BCBCN	23.54	21.91	29.10	20.42	30.52	26.21
CCPPER	3.34	3.24	3.95	2.97	3.73	2.95

NEEDLE WEIGHT (G/100 NEEDLES) 0.643 0.898 0.678 0.738 0.609 0.648

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10150	12500	14150	12267
PHOSPHORUS	2400	2000	2200	2200
POTASSIUM	8902	9791	7178	8624
CALCIUM	2692	3603	2958	3084
MAGNESIUM	1112	1094	958.0	1055
MANGANESE	307.9	361.5	337.5	335.7
ZINC	22.56	30.65	31.03	28.08
IRCN	43.20	40.45	44.65	42.77
BCBCN	29.81	24.87	21.16	25.28
CCPPER	3.84	3.14	3.10	3.36

NEEDLE WEIGHT (G/100 NEEDLES) 0.644 0.646 0.818 0.702

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 252 BLACK CANYON RANCH  
 REGION: MONTANA OWNERSHIP: CHAMPION  
 LEGAL DESCRIPTION: T15N R13W SECTION 6 MERIDIAN: PRINCIPAL

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

	1		2		3		4		5		6	
	NCNE	200 #	400 #	NONE	200 #	400 #	NONE	200 #	400 #	NONE	200 #	400 #
ORIGINAL TREATMENT												
NITROGEN	12100	15600	17300	11700	14700	15600	11700	14700	15600	11700	14700	15600
PHOSPHORUS	1800	2100	2200	2100	1800	2100	2100	1800	2100	2100	1800	2100
POTASSIUM	5554	6504	8429	7529	10034	8824	7529	10034	8824	7529	10034	8824
CALCIUM	5279	5424	4314	5049	4764	4289	5049	4764	4289	5049	4764	4289
MAGNESIUM	1518	1823	1178	1803	1753	1603	1803	1753	1603	1803	1753	1603
MANGANESE	405.5	547.0	319.5	473.0	473.5	517.0	473.0	473.5	517.0	473.0	473.5	517.0
ZINC	31.66	40.75	23.90	38.90	31.60	34.10	38.90	31.60	34.10	38.90	31.60	34.10
IRON	60.60	58.50	37.40	53.90	47.20	51.30	53.90	47.20	51.30	53.90	47.20	51.30
BORON	30.85	35.90	28.60	41.50	32.80	31.15	41.50	32.80	31.15	41.50	32.80	31.15
CCPPER	2.63	3.20	3.52	4.13	3.24	4.55	4.13	3.24	4.55	4.13	3.24	4.55

NEEDLE WEIGHT (G/100 NEEDLES) 0.434 0.444 0.596 0.503 0.503 0.508

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11900	15250	16450	14533
PHOSPHORUS	1950	1950	2150	2017
POTASSIUM	6542	8269	8627	7812
CALCIUM	5164	5094	4302	4853
MAGNESIUM	1661	1788	1391	1613
MANGANESE	439.3	510.3	418.3	455.9
ZINC	35.25	35.88	29.00	33.37
IRON	57.25	52.85	44.35	51.48
BORON	36.17	34.35	29.87	33.47
CCPPER	3.38	3.22	4.03	3.54

NEEDLE WEIGHT (G/100 NEEDLES) 0.469 0.474 0.552 0.498

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1		2		3		4		5		6	
	NCNE	N + K	NONE	N + K	200 N	200 N	N + K	200 N	200 N	N + K	200 N	200 N
NEW TREATMENT												
NITROGEN	12800	15100	11700	17500	18500	17900	17500	18500	17900	17500	18500	17900
PHOSPHORUS	1700	1700	1800	1700	1800	1900	1700	1800	1900	1700	1800	1900
POTASSIUM	7824	7553	7194	6440	8403	8257	6440	8403	8257	6440	8403	8257
CALCIUM	2805	2912	2595	2647	2671	2730	2647	2671	2730	2647	2671	2730
MAGNESIUM	1222	1485	1019	1301	1308	1238	1301	1308	1238	1301	1308	1238
MANGANESE	275.7	333.6	230.5	338.5	277.2	242.9	338.5	277.2	242.9	338.5	277.2	242.9
ZINC	21.29	22.50	9.11	24.32	18.67	29.25	24.32	18.67	29.25	24.32	18.67	29.25
IRON	44.40	38.60	24.10	42.20	74.30	23.90	42.20	74.30	23.90	42.20	74.30	23.90
BORON	23.32	25.06	14.87	22.16	30.44	15.19	22.16	30.44	15.19	22.16	30.44	15.19
CCPPER	3.62	2.86	2.60	3.51	3.46	2.89	3.51	3.46	2.89	3.51	3.46	2.89

NEEDLE WEIGHT (G/100 NEEDLES) 0.489 0.381 0.413 0.433 0.664 0.707

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	12250	18200	16300	15583
PHOSPHORUS	1750	1850	1700	1767
POTASSIUM	7509	8330	6997	7612
CALCIUM	2700	2701	2780	2727
MAGNESIUM	1121	1273	1393	1262
MANGANESE	253.1	260.0	336.0	283.1
ZINC	15.20	23.96	23.41	20.86
IRON	34.25	49.10	40.40	41.25
BORON	19.09	22.81	23.61	21.84
CCPPER	3.11	3.17	3.18	3.16

NEEDLE WEIGHT (G/100 NEEDLES) 0.451 0.685 0.407 0.514

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 253 ELK CREEK RESERVOIR  
 REGION: NORTHERN IDAHO COWNEESHIP: IDL  
 LEGAL DESCRIPTION: T40N R2E SECTION 36 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	NCNE	200 #	400 #	200 #	400 #	NONE
NITROGEN	12200	13400	21400	13800	17200	10100
PHOSPHORUS	2800	1900	2400	1500	1700	1800
POTASSIUM	5374	5399	5409	6114	7964	7704
CALCIUM	2379	3099	3589	5004	4904	3084
MAGNESIUM	1236	1323	1268	1488	1438	1205
MANGANESE	217.55	301.0	243.0	362.5	353.0	219.0
ZINC	32.45	32.30	28.05	23.85	29.50	24.60
IRON	48.80	58.00	72.50	80.50	60.60	95.80
BORON	21.20	27.55	20.60	29.60	27.05	39.25
CCPPER	1.89	3.35	4.24	4.14	4.55	4.29
NEEDLE WEIGHT (G/100 NEEDLES)	0.658	0.702	0.704	0.651	0.640	0.572

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11150	13600	19300	14683
PHOSPHORUS	2300	1700	2050	2017
POTASSIUM	6539	5757	6687	6327
CALCIUM	2732	4052	4247	3677
MAGNESIUM	1222	1406	1353	1327
MANGANESE	218.3	331.8	298.0	282.7
ZINC	28.52	28.07	28.97	28.52
IRON	72.30	69.25	66.55	69.37
BORON	30.22	28.57	23.82	27.54
CCPPER	3.09	3.74	4.41	3.75
NEEDLE WEIGHT (G/100 NEEDLES)	0.615	0.676	0.672	0.654

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	N + K
NITROGEN	21400	13600	16600	11800	14200	13800
PHOSPHORUS	2400	1600	2200	1600	1300	1700
POTASSIUM	8969	7019	9325	6232	8471	8166
CALCIUM	4181	4193	4141	5469	4821	4914
MAGNESIUM	1241	1527	1336	1525	1538	1417
MANGANESE	380.2	350.2	210.9	332.6	241.1	328.7
ZINC	34.85	25.40	12.58	20.73	39.67	14.40
IRON	169.1	159.2	199.7	101.6	121.7	205.2
BORON	24.18	28.04	26.35	24.43	22.30	46.62
CCPPER	2.75	3.24	3.06	2.51	2.40	3.43
NEEDLE WEIGHT (G/100 NEEDLES)	0.414	0.463	0.310	0.391	0.326	0.328

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	16600	14200	14667	15233
PHOSPHORUS	2000	1300	1833	1800
POTASSIUM	7601	8471	8170	8030
CALCIUM	4825	4821	4416	4620
MAGNESIUM	1383	1538	1427	1431
MANGANESE	356.4	241.1	296.6	307.3
ZINC	27.79	39.67	17.46	24.60
IRON	135.3	121.7	188	159.4
BORON	24.30	22.30	33.67	26.65
CCPPER	2.65	2.40	3.24	2.90
NEEDLE WEIGHT (G/100 NEEDLES)	0.403	0.326	0.367	0.372

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 254 CRANBERRY CREEK  
 REGION: NORTHERN IDAHO OWNERSHIP: IDL  
 LEGAL DESCRIPTION: T38N R2E SECTION 12 MERIDIAN: EOISE

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	13800	24300	13200	12000	15500	24400
PHOSPHORUS	2100	2800	2800	2800	2400	2800
POTASSIUM	7754	7474	6899	9799	8584	5559
CALCIUM	3054	2284	2384	2694	2984	1749
MAGNESIUM	1058	779.0	755.0	760.0	905.0	1001
MANGANESE	385.5	293.5	347.5	263.5	258.0	187.0
ZINC	20.35	15.30	18.70	15.50	14.75	15.85
IRON	78.60	90.10	72.40	81.90	102.6	117.9
BORON	24.45	19.30	16.80	34.75	19.25	20.75
COPPER	3.90	3.84	2.67	2.63	3.21	3.66

NEEDLE WEIGHT (G/100 NEEDLES)

0.666 0.817 0.636 0.567 0.704 0.688

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12600	14650	24350	17200
PHOSPHORUS	2800	2250	2800	2617
POTASSIUM	8349	8159	6517	7675
CALCIUM	2539	3019	2017	2525
MAGNESIUM	757.5	981.5	890.0	876.3
MANGANESE	305.5	321.8	240.3	289.2
ZINC	17.10	17.55	15.57	16.74
IRON	77.15	90.60	104	90.58
BORON	25.77	21.85	20.02	22.55
COPPER	2.65	3.55	3.75	3.32

NEEDLE WEIGHT (G/100 NEEDLES)

0.602 0.685 0.752 0.680

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	200 N	N + K	NONE	N + K	NONE	200 N
NITROGEN	12800	22800	15400	16000	13700	21400
PHOSPHORUS	1800	2300	1900	1700	2400	2100
POTASSIUM	8599	7773	8503	9568	8746	7779
CALCIUM	3734	3648	3338	2767	3853	2294
MAGNESIUM	1439	1469	1335	862.0	1406	1463
MANGANESE	336.8	272.0	417.2	275.4	259.8	167.3
ZINC	22.96	27.77	20.72	6.70	29.55	4.10
IRON	170.2	155.5	163.7	174.5	230.3	177.9
BORON	23.58	29.26	21.66	32.28	31.88	26.36
COPPER	2.98	3.80	1.76	1.63	2.84	2.22

NEEDLE WEIGHT (G/100 NEEDLES)

0.582 0.602 0.514 0.428 0.427 0.667

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	14550	17100	19400	17017
PHOSPHORUS	2150	1950	2000	2033
POTASSIUM	8625	8189	8671	8495
CALCIUM	3596	3014	3208	3272
MAGNESIUM	1371	1451	1166	1329
MANGANESE	338.5	252.0	273.7	288.1
ZINC	25.13	13.53	17.23	18.63
IRON	197	174	165	178.7
BORON	26.67	24.97	30.77	27.47
COPPER	2.30	2.60	2.71	2.54

NEEDLE WEIGHT (G/100 NEEDLES)

0.470 0.624 0.515 0.537



FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 255 BIRCH CREEK  
 REGION: NORTHERN IDAHO OWNERSHIP: INLAND EMPIRE  
 LEGAL DESCRIPTION: T53N R5W SECTION 2 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	NCNE	200 #	400 #	NONE	200 #	400 #
NITROGEN	12200	14200	20700	12300	12900	13000
PHOSPHORUS	1700	1800	2100	2300	2000	1700
POTASSIUM	8449	7264	5789	7409	6951	7735
CALCIUM	2809	3329	3544	4738	4028	3922
MAGNESIUM	1108	905.0	1233	1395	1208	1260
MANGANESE	175.5	93.0	183.5	271.5	227.0	289.5
ZINC	21.50	16.60	29.45	23.65	64.55	25.25
IRCN	110.7	70.40	99.20	127.5	83.00	155.8
BORON	16.35	20.45	21.80	33.95	30.05	30.75
COFFER	3.84	3.45	3.90	3.57	3.35	4.50

NEEDLE WEIGHT (G/100 NEEDLES) 0.711 0.783 0.725 0.675 0.865 0.665

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12250	13550	16850	14217
PHOSPHORUS	2000	1900	1900	1933
POTASSIUM	7929	7099	6762	7263
CALCIUM	3774	3679	3733	3728
MAGNESIUM	1252	1057	1247	1185
MANGANESE	223.5	160.0	236.5	206.7
ZINC	22.57	40.42	27.35	30.12
IRCN	119.1	77.10	127.5	107.9
BORON	25.15	25.25	26.27	25.56
COFFER	3.70	3.40	4.20	3.77

NEEDLE WEIGHT (G/100 NEEDLES) 0.693 0.824 0.695 0.737

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	N + K	NCNE	200 N	NONE	200 N	NONE
NITROGEN	13000	16400	15300	12300	11500	10500
PHOSPHORUS	1400	1500	1600	1900	1900	1600
POTASSIUM	9669	6511	6929	9319	8631	7907
CALCIUM	4512	4699	3983	4970	4455	4911
MAGNESIUM	1559	1236	1283	1119	1466	1440
MANGANESE	243.3	126.7	194.8	235.5	235.6	214.1
ZINC	19.06	17.21	25.06	13.80	35.39	18.86
IRCN	102.6	64.00	80.90	81.50	89.10	93.70
BORON	22.87	26.45	25.83	21.59	25.59	17.97
COFFER	4.07	2.75	2.56	2.17	3.50	2.77

NEEDLE WEIGHT (G/100 NEEDLES) 0.801 0.781 0.645 0.697 0.724 0.601

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	13067	13400	13000	13167
PHOSPHORUS	1667	1750	1400	1650
POTASSIUM	7912	7780	9669	8161
CALCIUM	4660	4219	4512	4588
MAGNESIUM	1265	1385	1559	1354
MANGANESE	192.1	215.2	243.3	208.3
ZINC	16.62	30.22	19.06	21.56
IRCN	79.73	85.00	102.6	85.30
BORON	22.00	25.91	22.87	23.45
COFFER	2.56	3.03	4.07	2.97

NEEDLE WEIGHT (G/100 NEEDLES) 0.693 0.685 0.801 0.708

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 256 SLY MEADOWS  
 REGION: NORTHERN IDAHO OWNERSHIP: INLAND EMPIRE  
 LEGAL DESCRIPTION: T46N R1E SECTION 31 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	
	NCNE	200 #	400 #	NCNE	400 #	200 #	NCNE	400 #	200 #	NCNE	400 #	200 #
NITROGEN	12300	13400	17300	11700	17400	12600						
PHOSPHORUS	2400	2900	2100	3500	2200	2300						
POTASSIUM	7553	9358	6722	6799	5047	6425						
CALCIUM	4042	3918	3169	3937	2986	3193						
MAGNESIUM	1073	936.0	1089	1299	1371	899.0						
MANGANESE	225.0	198.0	286.0	173.5	259.0	194.0						
ZINC	29.85	31.25	20.95	22.40	26.20	18.05						
IRON	86.70	60.70	62.00	142.4	42.20	68.70						
BORON	29.60	35.45	28.70	44.10	30.50	27.05						
CCPPER	4.00	3.63	2.87	4.36	3.03	2.92						

NEEDLE WEIGHT (G/100 NEEDLES) 0.573 0.859 0.842 0.563 0.730 0.820

## BY ORIGINAL TREATMENT:

	NCNE	200 #	400 #	OVERALL
NITROGEN	12000	13000	17350	14117
PHOSPHORUS	2550	2600	2150	2567
POTASSIUM	7176	7892	5885	6984
CALCIUM	3990	3556	3078	3541
MAGNESIUM	1186	917.5	1230	1111
MANGANESE	195.3	196.0	272.5	222.6
ZINC	26.12	25.65	23.57	25.12
IRON	114.5	64.70	52.10	77.12
BORON	36.85	31.25	29.60	32.57
CCPPER	4.18	3.27	2.95	3.47

NEEDLE WEIGHT (G/100 NEEDLES) 0.568 0.840 0.786 0.731

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

NEW TREATMENT	1		2		3		4		5		6	
	N + K	N + K	N + K	NCNE	NOBE	200 N	NCNE	NOBE	200 N	NCNE	NOBE	200 N
NITROGEN	16500	15800	16500	13100	11300	12800						
PHOSPHORUS	1700	2100	1500	2300	1800	1900						
POTASSIUM	7135	9472	7470	8042	6454	9436						
CALCIUM	4897	4619	4416	5218	3984	4281						
MAGNESIUM	1416	1321	1558	1531	1458	1340						
MANGANESE	305.2	188.7	268.2	151.5	197.0	222.3						
ZINC	24.20	31.26	22.43	25.65	35.60	16.20						
IRON	101.7	68.10	89.90	124.8	73.00	100.4						
BORON	22.31	29.92	27.20	32.38	21.71	25.94						
CCPPER	3.06	2.87	2.40	2.98	2.66	2.43						

NEEDLE WEIGHT (G/100 NEEDLES) 0.684 0.666 0.589 0.619 0.581 0.823

## BY NEW TREATMENT:

	NCNE	200 #	N + K	OVERALL
NITROGEN	12200	12800	16267	14333
PHOSPHORUS	2050	1900	1767	1883
POTASSIUM	7268	9436	8026	8008
CALCIUM	4601	4281	4644	4569
MAGNESIUM	1495	1340	1432	1437
MANGANESE	194.3	222.3	254.0	228.8
ZINC	30.62	16.20	25.96	25.89
IRON	98.90	100.4	93.23	96.32
BORON	27.04	25.94	26.48	26.58
CCPPER	2.82	2.43	2.78	2.73

NEEDLE WEIGHT (G/100 NEEDLES) 0.600 0.823 0.647 0.660

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 257 LITTLE CATHERINE CR  
 REGION: NORTHEAST OREGON OWNERSHIP: BCISE CASCADE  
 LEGAL DESCRIPTION: T4S R41E SECTION 28 MERIDIAN: WILLAPETTE

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 #	200 #	400 #	NONE
NITROGEN	11600	9400	15100	11100	13200	10400
PHOSPHORUS	2200	1800	2500	2200	1800	3400
POTASSIUM	11959	7687	10519	10121	5839	9257
CALCIUM	2396	4350	3140	3039	2319	2833
MAGNESIUM	914.0	1587	1136	869.0	795.0	1261
MANGANESE	173.5	355.0	233.0	263.0	165.0	154.5
ZINC	24.90	29.75	47.30	25.35	25.25	32.75
IRON	146.2	98.20	108.8	86.10	68.10	83.80
BORON	19.30	21.35	23.60	18.90	15.45	20.70
CCPPER	4.16	3.23	3.89	2.67	3.56	3.61

NEEDLE WEIGHT (G/100 NEEDLES)

0.772 0.538 0.908 0.850 0.878 0.958

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	9900	11350	14150	11800
PHOSPHORUS	2600	2200	2150	2317
POTASSIUM	8472	11040	8179	9230
CALCIUM	3592	2718	2730	3013
MAGNESIUM	1424	891.5	965.5	1094
MANGANESE	254.8	218.3	199.0	224.0
ZINC	31.25	25.12	36.27	30.88
IRON	91.00	116.1	88.45	98.53
BORON	21.02	19.10	19.52	19.88
CCPPER	3.42	3.41	3.72	3.52

NEEDLE WEIGHT (G/100 NEEDLES)

0.748 0.811 0.893 0.817

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	NCNE	NCNE	NCNE	NONE	NCNE	NONE
NITROGEN	.	.	.	.	.	.
PHOSPHORUS	.	.	.	.	.	.
POTASSIUM	.	.	.	.	.	.
CALCIUM	.	.	.	.	.	.
MAGNESIUM	.	.	.	.	.	.
MANGANESE	.	.	.	.	.	.
ZINC	.	.	.	.	.	.
IRON	.	.	.	.	.	.
BORON	.	.	.	.	.	.
CCPPER	.	.	.	.	.	.

NEEDLE WEIGHT (G/100 NEEDLES)

. . . . .

BY NEW TREATMENT:

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

NEEDLE WEIGHT (G/100 NEEDLES)

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**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 258 BONDONA  
 REGION: NORTHEAST OREGON  
 LEGAL DESCRIPTION: T3N R40E SECTION 23

OWNERSHIP: ECISE CASCADE  
 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 #	NCNE	200 #	400 #	NONE	200 #
NITROGEN	18500	10300	11600	14400	20700	20000
PHOSPHORUS	2700	2400	1100	2300	3000	2600
POTASSIUM	8129	5954	6929	8326	5225	7366
CALCIUM	1925	2612	1628	2943	2713	2156
MAGNESIUM	935.0	1184	933.0	1481	1146	1131
MANGANESE	123.5	162.0	138.0	204.0	141.5	244.5
ZINC	31.60	26.70	20.05	30.35	12.55	21.75
IRON	94.90	88.20	84.10	74.20	68.10	101.6
BORON	15.20	17.00	24.20	17.20	20.55	23.05
COPPER	3.37	3.89	4.22	4.05	3.55	4.59

NEEDLE WEIGHT (G/100 NEEDLES) 0.605 0.522 0.938 0.574 0.598 0.630

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	15500	15800	16450	15917
PHOSPHORUS	2700	1850	2500	2350
POTASSIUM	5590	7148	8228	6988
CALCIUM	2663	1892	2434	2330
MAGNESIUM	1165	1032	1208	1135
MANGANESE	151.8	191.3	163.8	168.9
ZINC	20.62	20.90	30.97	24.17
IRON	78.15	92.85	84.55	85.18
BORON	18.97	23.62	16.20	19.60
COPPER	3.92	4.40	3.71	4.01

NEEDLE WEIGHT (G/100 NEEDLES) 0.560 0.784 0.590 0.645

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

**BY PLOT:**

	1	2	3	4	5	6
NEW TREATMENT	200 N	NCNE	NONE	N + K	N + K	N + K
NITROGEN	16000	10900	10900	17600	19200	19100
PHOSPHORUS	1700	1700	2200	2500	2100	2000
POTASSIUM	5363	7223	10663	6482	4959	5698
CALCIUM	3418	3426	3178	2733	3253	2339
MAGNESIUM	1554	1519	1448	1545	1127	1195
MANGANESE	234.5	331.7	186.8	186.5	189.3	225.9
ZINC	30.90	20.16	29.53	22.61	10.31	13.19
IRON	71.90	129.8	113.6	81.40	75.80	102.5
BORON	41.23	18.25	34.26	17.60	24.43	31.37
COPPER	2.71	2.98	3.72	1.95	2.59	1.93

NEEDLE WEIGHT (G/100 NEEDLES) 0.658 0.540 0.521 0.437 0.529 0.441

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10900	16000	18633	15617
PHOSPHORUS	1950	1700	2200	2033
POTASSIUM	8943	5363	5706	6728
CALCIUM	3302	3418	2775	3056
MAGNESIUM	1484	1554	1289	1398
MANGANESE	259.2	234.5	200.6	225.8
ZINC	24.84	30.90	15.37	21.12
IRON	121.7	71.90	86.57	95.83
BORON	26.25	41.23	24.47	27.86
COPPER	3.35	2.71	2.29	2.71

NEEDLE WEIGHT (G/100 NEEDLES) 0.531 0.658 0.469 0.521

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 259 RAILROAD CANYON  
 REGION: CENTRAL WASHINGTON OWNERSHIP: LONGVIEW FIBER  
 LEGAL DESCRIPTION: T25N R18E SECTION 2 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 #	200 #	NCNE	200 #	400 #	NONE
NITROGEN	13200	14600	19000	11900	15600	16100
PHOSPHORUS	2100	1700	2600	2700	2400	2100
POTASSIUM	10039	6473	11143	9991	9751	4846
CALCIUM	4613	4479	4493	5017	3894	3313
MAGNESIUM	1851	1524	1323	1611	1556	1529
MANGANESE	326.0	421.5	453.0	460.5	274.0	364.5
ZINC	32.80	28.80	28.95	29.85	28.70	26.85
IRON	55.00	51.30	63.70	45.30	74.30	61.00
BORON	21.70	25.45	22.40	21.55	19.25	19.80
CCPPER	3.93	2.86	3.70	3.83	3.55	2.55

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

0.890 0.738 0.608 0.794 1.019 0.657

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	17550	13250	14400	15067
PHOSPHORUS	2350	2200	2250	2267
POTASSIUM	7995	8232	9895	8707
CALCIUM	3903	4748	4254	4302
MAGNESIUM	1426	1568	1724	1572
MANGANESE	408.8	441.0	300.0	383.3
ZINC	27.90	29.32	30.75	29.32
IRON	62.35	48.30	64.65	58.43
BORON	21.10	23.50	20.47	21.69
CCPPER	3.12	3.34	3.96	3.48

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

0.633 0.766 0.955 0.784

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

**BY PLOT:**

**NEW TREATMENT**

	1	2	3	4	5	6
	N + K	N + K	N + K	NONE	200 N	NCNE
NITROGEN	10700	11400	9400	9200	13900	9600
PHOSPHORUS	2800	1900	1700	1800	2300	2100
POTASSIUM	16380	8903	11794	8989	10677	7255
CALCIUM	5578	4283	5270	4367	4259	3022
MAGNESIUM	1851	1452	1353	1749	2009	1655
MANGANESE	269.5	285.6	556.9	279.2	284.7	295.3
ZINC	37.31	37.93	31.48	22.09	21.20	27.28
IRON	66.80	49.70	45.00	58.20	52.80	55.00
BORON	16.47	15.57	13.16	14.76	19.39	19.48
CCPPER	2.71	1.93	2.51	2.37	2.76	2.83

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

0.499 0.647 0.494 0.617 0.638 0.693

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	9400	13900	10500	10700
PHOSPHORUS	1950	2300	2133	2100
POTASSIUM	8122	10677	12359	10666
CALCIUM	3695	4299	5048	4470
MAGNESIUM	1702	2009	1552	1678
MANGANESE	287.2	284.7	370.7	328.5
ZINC	24.68	21.20	35.57	29.55
IRON	56.60	52.80	53.83	54.56
BORON	17.12	19.39	15.07	16.47
CCPPER	2.60	2.76	2.38	2.52

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

0.655 0.638 0.546 0.598

**FCLIAI NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 260 TUMWATER MTN  
 REGION: CENTRAL WASHINGTON OWNERSHIP: LONGVIEW FIBER  
 LEGAL DESCRIPTION: T24N R17E SECTION 3 MERIDIAN: WILLAMETTE

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

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

BY PLOT:

**ORIGINAL TREATMENT**

	1	2	3	4	5	6
	200 #	NONE	400 #	NONE	200 #	400 #
NITROGEN	12300	10900	14000	12200	14100	16100
PHOSPHORUS	2200	2500	2200	2100	2800	3000
POTASSIUM	9746	7423	7087	6760	9055	8311
CALCIUM	3966	2818	4062	3476	4753	3164
MAGNESIUM	1587	1069	1241	1414	1458	925.0
MANGANESE	530.0	525.5	612.0	566.0	367.0	519.5
ZINC	51.70	16.80	30.35	34.35	45.40	30.90
IRON	68.00	74.80	57.00	42.10	61.80	47.30
BORON	25.25	21.70	20.05	28.80	24.35	16.05
CCPPER	4.82	3.37	3.65	3.31	4.74	3.83

NEEDLE WEIGHT (G/100 NEEDLES) 0.873 0.645 0.753 0.699 0.842 0.798

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11550	13200	15050	13267
PHOSPHORUS	2300	2500	2600	2467
POTASSIUM	7092	9401	7699	8064
CALCIUM	3147	4360	3613	3707
MAGNESIUM	1242	1523	1083	1282
MANGANESE	545.8	448.5	565.8	520.0
ZINC	25.57	48.55	30.62	34.92
IRON	58.45	64.90	52.15	56.50
BORON	25.25	24.80	18.05	22.70
CCPPER	3.34	4.78	3.76	3.96

NEEDLE WEIGHT (G/100 NEEDLES) 0.672 0.857 0.775 0.768

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

BY PLOT:

**NEW TREATMENT**

	1	2	3	4	5	6
	NONE	NCNE	N + K	N + K	N + K	NONE
NITROGEN	9300	.	12000	14300	10200	10700
PHOSPHORUS	2500	.	2000	2400	2000	2400
POTASSIUM	9571	.	7964	8181	8449	8903
CALCIUM	2414	.	3687	2971	3077	3461
MAGNESIUM	1054	.	1305	1020	1161	1365
MANGANESE	182.7	.	320.7	533.1	236.7	275.9
ZINC	8.57	.	24.38	23.21	17.62	31.11
IRON	71.80	.	47.70	62.60	53.80	56.30
BORON	13.52	.	16.22	17.06	13.17	14.33
CCPPER	1.98	.	3.34	2.97	2.12	2.43

NEEDLE WEIGHT (G/100 NEEDLES) 0.629 . 0.767 0.789 0.601 0.610

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10000	.	12167	11300
PHOSPHORUS	2450	.	2133	2260
POTASSIUM	9237	.	8198	8614
CALCIUM	2938	.	3245	3122
MAGNESIUM	1210	.	1162	1181
MANGANESE	229.3	.	363.5	309.8
ZINC	19.84	.	21.74	20.90
IRON	65.05	.	54.63	58.80
BORON	13.92	.	15.48	14.86
CCPPER	2.20	.	2.81	2.57

NEEDLE WEIGHT (G/100 NEEDLES) 0.619 . 0.719 0.679

**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 261 SECOND CREEK  
 REGION: CENTRAL WASHINGTON OWNERSHIP: LONGVIEW PAPER  
 LEGAL DESCRIPTION: T26N R18E SECTION 22 MERIDIAN: WILLAMETTE

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

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

BY PLOT:	1		2		3		4		5		6	
	200 #	NCNE	400 #	NCNE	400 #	NCNE	400 #	NCNE	400 #	200 #	NCNE	
ORIGINAL TREATMENT												
NITROGEN	15400	12000	19700	12000	12000	16300	12600	12600	12600	12600	12600	12600
PHOSPHORUS	2400	2800	2100	2900	2300	2300	2500	2500	2500	2500	2500	2500
POTASSIUM	7519	7822	7927	10759	6943	8182	8182	8182	8182	8182	8182	8182
CALCIUM	3226	3217	4215	2766	3656	3413	3413	3413	3413	3413	3413	3413
MAGNESIUM	1155	1364	1702	1203	1158	1438	1438	1438	1438	1438	1438	1438
MANGANESE	467.0	583.0	452.0	507.0	482.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5
ZINC	35.10	34.15	51.15	37.70	44.95	37.75	37.75	37.75	37.75	37.75	37.75	37.75
IRON	73.40	46.80	64.40	66.80	57.40	59.00	59.00	59.00	59.00	59.00	59.00	59.00
BCON	26.60	34.00	22.35	30.70	23.15	20.80	20.80	20.80	20.80	20.80	20.80	20.80
CCPFR	3.58	3.11	3.26	3.92	3.92	3.37	3.37	3.37	3.37	3.37	3.37	3.37

NEEDLE WEIGHT (G/100 NEEDLES) 0.954 0.508 0.748 0.720 0.969 0.774

**BY ORIGINAL TREATMENT:**

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12000	14000	18000	14667
PHOSPHORUS	2850	2450	2200	2500
POTASSIUM	9291	7851	7435	8192
CALCIUM	2992	3320	3937	3416
MAGNESIUM	1284	1297	1450	1343
MANGANESE	545.0	498.8	467.3	503.7
ZINC	35.92	36.42	48.05	40.13
IRON	56.80	66.20	60.90	61.30
BCON	32.35	23.70	22.75	26.27
CCPFR	3.51	3.47	3.59	3.53

NEEDLE WEIGHT (G/100 NEEDLES) 0.614 0.864 0.859 0.779

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

BY PLOT:	1		2		3		4		5		6	
	NCNE	NONE	NCNE	NONE	N + K	N + K	N + K	N + K	N + K	N + K	N + K	
NEW TREATMENT												
NITROGEN	11500	10400	7900	12200	15200	10500	10500	10500	10500	10500	10500	10500
PHOSPHORUS	2700	2300	1800	1900	2600	1800	1800	1800	1800	1800	1800	1800
POTASSIUM	8340	6679	16543	6566	8791	9794	9794	9794	9794	9794	9794	9794
CALCIUM	2917	2972	4548	2430	4610	3594	3594	3594	3594	3594	3594	3594
MAGNESIUM	1229	1300	2009	1089	1456	1629	1629	1629	1629	1629	1629	1629
MANGANESE	321.7	479.0	281.0	412.1	347.0	363.1	363.1	363.1	363.1	363.1	363.1	363.1
ZINC	21.35	28.34	40.66	30.35	42.15	31.10	31.10	31.10	31.10	31.10	31.10	31.10
IRON	73.50	42.70	59.40	60.10	39.10	52.50	52.50	52.50	52.50	52.50	52.50	52.50
BCON	17.94	25.56	16.95	18.33	15.69	17.59	17.59	17.59	17.59	17.59	17.59	17.59
CCPFR	2.12	1.20	1.83	1.69	2.58	2.52	2.52	2.52	2.52	2.52	2.52	2.52

NEEDLE WEIGHT (G/100 NEEDLES) 0.685 0.498 0.470 0.894 0.556 0.751

**BY NEW TREATMENT:**

	NCNE	200 # N	N + K	OVERALL
NITROGEN	9933	.	12633	11283
PHOSPHORUS	2267	.	2100	2133
POTASSIUM	10521	.	8384	9452
CALCIUM	3479	.	3545	3512
MAGNESIUM	1513	.	1392	1452
MANGANESE	360.6	.	374.1	367.3
ZINC	30.12	.	34.53	32.32
IRON	58.53	.	50.57	54.55
BCON	20.15	.	17.27	18.71
CCPFR	1.72	.	2.26	1.99

NEEDLE WEIGHT (G/100 NEEDLES) 0.551 . 0.747 0.649

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 262 STEVENS PASS OWNERSHIP: LONGVIEW FIBER  
 REGION: CENTRAL WASHINGTON MERIDIAN: WILLAMETTE  
 LEGAL DESCRIPTION: T26N R15E SECTION 3

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	200 #	400 #	NONE
NITROGEN	15500	15700	13100	13900	16500	12800
PHOSPHORUS	1700	1800	2000	2200	2200	2700
POTASSIUM	7380	8556	8700	5930	5037	7135
CALCIUM	3644	2324	4398	5353	3581	3058
MAGNESIUM	1184	1280	1573	1764	1076	1242
MANGANESE	680.5	326.0	695.5	439.0	683.0	394.0
ZINC	33.85	29.75	32.65	43.85	29.50	29.80
IRON	56.40	106.4	40.60	60.10	86.60	70.30
BOBON	22.90	20.05	18.30	15.85	18.10	18.50
CCPPER	3.29	5.19	3.49	3.64	2.47	3.63

NEEDLE WEIGHT (G/100 NEEDLES)

0.611	0.574	0.552	0.808	0.640	0.515
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BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12950	14700	16100	14583
PHOSPHORUS	2350	1950	2000	2100
POTASSIUM	7918	6655	6797	7123
CALCIUM	3728	4499	2953	3726
MAGNESIUM	1406	1474	1178	1353
MANGANESE	544.8	559.8	504.5	536.3
ZINC	31.22	38.85	29.82	33.30
IRON	55.55	58.25	96.50	70.10
BOBON	18.40	19.37	19.07	18.95
CCPPER	3.56	3.46	3.83	3.62

NEEDLE WEIGHT (G/100 NEEDLES)

0.534	0.710	0.607	0.617
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	200 N	200 N	NONE	NONE	N + K	N + K
NITROGEN	13900	12600	12100	14700	15900	13900
PHOSPHORUS	1500	1600	1900	2300	1800	1900
POTASSIUM	10415	8283	7370	7191	8374	7454
CALCIUM	4081	2441	4121	5967	4401	3317
MAGNESIUM	1951	1695	1431	2006	1849	1321
MANGANESE	645.5	241.1	449.1	374.0	601.4	434.6
ZINC	29.96	18.09	18.58	31.68	41.65	24.43
IRON	103.9	80.00	71.30	50.30	83.50	69.20
BOBON	9.97	0.50	22.67	8.23	5.61	12.53
CCPPER	3.23	3.03	2.55	3.55	2.88	3.11

NEEDLE WEIGHT (G/100 NEEDLES)

0.627	0.444	0.440	0.665	0.727	0.567
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BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	13400	13250	14900	13850
PHOSPHORUS	2100	1550	1850	1833
POTASSIUM	7281	9349	7914	8181
CALCIUM	5044	3261	3859	4055
MAGNESIUM	1719	1823	1585	1709
MANGANESE	411.5	443.3	518.0	457.6
ZINC	25.13	24.02	33.04	27.40
IRON	60.80	91.95	76.55	76.43
BOBON	15.45	4.73	9.07	9.75
CCPPER	3.05	3.13	2.99	3.06

NEEDLE WEIGHT (G/100 NEEDLES)

0.553	0.536	0.647	0.578
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## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 263 N.F. TEANAWAY FIVEE  
 REGION: CENTRAL WASHINGTON OWNERSHIP: WASHINGTON DNR  
 LEGAL DESCRIPTION: T21N R16E SECTION 20 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 #	NONE	400 #
NITROGEN	13400	16500	22900	13900	12600	21100
PHOSPHORUS	2900	2700	3800	2700	3300	2500
POTASSIUM	8220	11863	7687	7418	5973	7937
CALCIUM	3889	4801	2770	4037	3346	3034
MAGNESIUM	1410	1735	1103	1529	1380	1270
MANGANESE	669.0	842.5	636.5	654.0	453.0	595.0
ZINC	36.90	31.05	30.40	49.85	35.15	45.55
IRON	59.60	105.4	94.20	51.00	57.10	64.40
BORON	32.60	39.75	23.45	26.45	24.60	20.95
CCPPER	3.20	4.75	2.73	3.89	3.32	3.23

## NEEDLE WEIGHT (G/100 NEEDLES)

0.545 0.801 0.639 0.642 0.660 0.822

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	13000	15200	22000	16733
PHOSPHORUS	3100	2700	3150	2983
POTASSIUM	7097	9641	7812	8183
CALCIUM	3618	4419	2902	3646
MAGNESIUM	1395	1632	1187	1405
MANGANESE	561.0	748.3	615.8	641.7
ZINC	36.02	40.45	37.97	38.15
IRON	58.35	78.20	79.30	71.95
BORON	28.60	33.10	22.20	27.97
CCPPER	3.26	4.32	2.98	3.52

## NEEDLE WEIGHT (G/100 NEEDLES)

0.602 0.722 0.730 0.685

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	N + K	NCNE	NONE	200 N	NONE	200 N
NITROGEN	10900	9400	14300	15400	12000	13500
PHOSPHORUS	2400	2400	2600	2500	1800	2600
POTASSIUM	10130	10674	9850	9430	8029	15096
CALCIUM	3153	4585	2674	3639	2671	2621
MAGNESIUM	1516	1734	1326	1851	1389	1777
MANGANESE	515.3	442.4	445.1	472.4	397.3	331.4
ZINC	21.72	23.55	32.82	57.82	31.62	33.95
IRON	44.90	60.00	79.80	54.30	56.00	59.90
BORON	27.57	33.21	15.35	41.37	21.19	-0.47
CCPPER	2.00	1.69	1.86	2.91	2.51	2.52

## NEEDLE WEIGHT (G/100 NEEDLES)

0.469 0.480 0.503 0.681 0.824 0.482

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11900	14450	10900	12583
PHOSPHORUS	2267	2550	2400	2383
POTASSIUM	9518	12263	10130	10535
CALCIUM	3310	3130	3153	3224
MAGNESIUM	1483	1814	1516	1599
MANGANESE	428.3	401.9	515.3	434.0
ZINC	29.33	45.88	21.72	33.56
IRON	65.27	57.10	44.90	59.15
BORON	23.25	20.45	27.57	23.04
CCPPER	2.15	2.71	2.00	2.31

## NEEDLE WEIGHT (G/100 NEEDLES)

0.602 0.581 0.469 0.573

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 264 RENNRO PEAK

REGION: NORTHERN IDAHO

LEGAL DESCRIPTION: T44N R1E SECTION 11

OWNERSHIP: POTLATCH

MERIDIAN: POISE

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

BY PLOT:

ORIGINAL TREATMENT

	1	2	3	4	5	6
	200 #	NGNE	400 #	200 #	NONE	400 #
NITROGEN	10800	11300	14600	11900	8000	16200
PHOSPHORUS	1700	2100	1400	1300	1600	1600
POTASSIUM	4899	5820	4202	6386	7870	5484
CALCIUM	3394	3150	3423	4518	3270	2348
MAGNESIUM	1065	1476	1040	1328	1457	917.0
MANGANESE	204.0	326.5	295.0	276.0	280.0	215.0
ZINC	25.15	25.60	28.05	28.40	23.15	21.95
IRON	76.10	55.60	58.10	69.00	99.20	57.60
BORON	21.70	25.15	21.55	20.95	29.15	29.15
CEFFER	2.53	2.31	3.26	3.32	3.11	3.52

NEEDLE WEIGHT (G/100 NEEDLES)

0.635 0.565 0.672 0.684 0.620 0.675

BY ORIGINAL TREATMENT:

	NGNE	200 # N	400 # N	OVERALL
NITROGEN	9650	11350	15400	12133
PHOSPHORUS	1850	1500	1500	1617
POTASSIUM	6645	5643	4843	5777
CALCIUM	3210	3956	2886	3351
MAGNESIUM	1467	1197	978.5	1214
MANGANESE	303.3	240.0	255.0	266.1
ZINC	24.37	26.77	25.00	25.38
IRON	77.40	72.55	57.85	69.27
BORON	27.15	21.32	25.35	24.61
CEFFER	2.71	2.92	3.39	3.01

NEEDLE WEIGHT (G/100 NEEDLES)

0.592 0.660 0.673 0.642

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	NONE	NGNE	200 N	200 N	N + K	NONE
NITROGEN	11500	12600	12400	12400	12500	11800
PHOSPHORUS	1700	1900	1600	1300	1600	1800
POTASSIUM	7562	6799	6959	6403	7100	7325
CALCIUM	3442	3368	4382	5898	3446	3118
MAGNESIUM	1505	1382	1415	1348	1414	1277
MANGANESE	246.0	335.2	309.1	284.3	333.6	187.1
ZINC	27.37	15.80	41.44	31.13	28.67	13.80
IRON	167.6	108.1	140.4	106.3	131.5	203.2
BORON	24.03	17.77	33.36	13.82	27.05	25.14
CEFFER	2.86	2.50	4.34	3.23	3.03	3.08

NEEDLE WEIGHT (G/100 NEEDLES)

0.521 0.547 0.698 0.814 0.826 0.595

BY NEW TREATMENT:

	NGNE	200 # N	N + K	OVERALL
NITROGEN	11567	12400	12500	12200
PHOSPHORUS	1800	1450	1600	1650
POTASSIUM	7229	6681	7100	7025
CALCIUM	3309	5140	3446	3942
MAGNESIUM	1388	1382	1414	1390
MANGANESE	256.1	296.7	333.6	282.5
ZINC	18.99	36.28	28.67	26.37
IRON	159.6	123.3	131.5	142.8
BORON	22.31	23.60	27.05	23.53
CEFFER	2.81	3.78	3.03	3.17

NEEDLE WEIGHT (G/100 NEEDLES)

0.554 0.756 0.826 0.667

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 265 HALLOBY CREEK  
 REGION: NORTHERN IDAHO CWNESHIP: POTLATCH  
 LEGAL DESCRIPTION: T41N R2E SECTION 18 MERIDIAN: EOISE

 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	19700	14200	12700	11400	14800	16400
PHOSPHORUS	2400	2300	1800	2100	2400	1100
POTASSIUM	6823	7865	6377	7413	5887	6381
CALCIUM	3701	2185	3135	3097	2957	3226
MAGNESIUM	1429	918.0	1217	1155	1083	1304
MANGANESE	382.0	244.5	273.5	335.0	239.5	325.5
ZINC	34.40	18.25	19.10	22.65	25.15	34.90
IRON	80.20	55.20	45.90	59.40	60.60	60.70
BORON	36.35	31.70	24.45	26.85	26.55	27.70
COPPER	3.99	3.44	3.08	2.93	2.68	3.12

NEEDLE WEIGHT (G/100 NEEDLES) 0.758 0.892 0.683 0.644 0.901 0.750

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12050	14500	18050	14867
PHOSPHORUS	1950	2350	1750	2017
POTASSIUM	6895	6876	6602	6791
CALCIUM	3116	2571	3464	3050
MAGNESIUM	1186	1001	1367	1184
MANGANESE	304.3	242.0	353.8	300.0
ZINC	20.87	21.70	34.65	25.74
IRON	52.65	57.60	70.45	60.23
BORON	25.65	29.12	32.02	28.93
COPPER	3.00	3.06	3.55	3.21

NEEDLE WEIGHT (G/100 NEEDLES) 0.664 0.897 0.754 0.771

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NONE	200 N	NCNE	N + K	NCNE	200 N
NITROGEN	14200	14900	17800	12500	14200	11700
PHOSPHORUS	1600	2200	1800	1900	2400	1000
POTASSIUM	7054	10987	7515	9404	8549	7928
CALCIUM	3995	2729	5468	3585	3564	4915
MAGNESIUM	1815	1424	2753	1499	1545	1831
MANGANESE	377.4	211.8	512.3	363.4	315.3	266.5
ZINC	47.41	15.75	21.37	18.60	24.08	36.61
IRON	109.5	90.70	119.9	97.40	94.80	80.50
BORON	44.50	27.41	28.96	25.78	27.75	20.02
COPPER	3.52	3.40	3.81	3.48	2.36	2.58

NEEDLE WEIGHT (G/100 NEEDLES) 0.500 0.699 0.605 0.569 0.569 0.466

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	15400	13300	12500	14217
PHOSPHORUS	1933	1600	1900	1817
POTASSIUM	7706	9458	9404	8573
CALCIUM	4342	3822	3585	4043
MAGNESIUM	2038	1628	1499	1811
MANGANESE	401.7	239.1	363.4	341.1
ZINC	30.95	26.18	18.60	27.30
IRON	108.1	85.60	97.40	98.80
BORON	33.74	23.71	25.78	29.07
COPPER	3.23	2.99	3.48	3.19

NEEDLE WEIGHT (G/100 NEEDLES) 0.558 0.583 0.569 0.568

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 266 DOUGLAS FALLS #1  
 REGION: NORTHEAST WASHINGTON OWNERSHIP: WASHINGTON DNR  
 LEGAL DESCRIPTION: T36N R39E SECTION 16 MERIDIAN: WILLAPETTE

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	24600	10000	14000	11400	17000	16000
PHOSPHORUS	1700	1600	1500	3400	1700	2100
POTASSIUM	5326	5206	8609	7697	6727	7471
CALCIUM	3610	3351	5463	5564	4628	3860
MAGNESIUM	993.0	1135	1160	1462	1318	1073
MANGANESE	323.0	308.0	445.0	558.5	339.5	305.5
ZINC	22.45	26.65	30.50	49.55	39.75	37.55
IRON	58.60	66.10	102.5	144.8	79.70	76.40
BORON	22.95	31.75	41.65	39.95	24.25	30.40
CCPPER	2.87	3.15	3.54	2.87	4.60	4.33

NEEDLE WEIGHT (G/100 NEEDLES)

0.514 0.553 0.612 0.449 0.867 0.865

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10700	15000	20800	15500
PHOSPHORUS	2500	1800	1700	2000
POTASSIUM	6452	8040	6027	6839
CALCIUM	4458	4662	4119	4413
MAGNESIUM	1299	1117	1156	1190
MANGANESE	433.3	375.3	331.3	379.9
ZINC	38.10	34.02	31.10	34.41
IRON	105.4	89.45	69.15	88.02
BORON	35.85	36.02	23.60	31.82
CCPPER	3.01	3.93	3.73	3.56

NEEDLE WEIGHT (G/100 NEEDLES)

0.501 0.738 0.700 0.647

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	200 #	NCNE	200 N	N + K	NONE	NONE
NITROGEN	11000	8200	11700	13800	8700	8400
PHOSPHORUS	1400	1200	1300	2400	1600	1600
POTASSIUM	6403	4847	9153	9294	7588	6443
CALCIUM	3090	4040	5455	5393	3837	4996
MAGNESIUM	1310	1563	1609	1623	1364	1656
MANGANESE	184.2	310.9	401.3	448.9	164.5	215.0
ZINC	15.63	19.89	29.85	45.39	17.25	25.21
IRON	94.10	80.00	123.7	144.4	97.60	72.90
BORON	26.97	33.57	29.91	27.34	15.34	20.11
CCPPER	2.17	2.41	3.15	3.73	2.48	2.75

NEEDLE WEIGHT (G/100 NEEDLES)

0.571 0.451 0.490 0.615 0.477 0.543

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	8433	11350	13800	10300
PHOSPHORUS	1467	1350	2400	1583
POTASSIUM	6293	7778	9294	7288
CALCIUM	4291	4273	5393	4469
MAGNESIUM	1534	1460	1623	1524
MANGANESE	230.1	292.7	448.9	287.5
ZINC	20.78	22.74	45.39	25.54
IRON	83.50	108.9	144.4	102.1
BORON	23.01	28.44	27.34	25.54
CCPPER	2.55	2.66	3.73	2.78

NEEDLE WEIGHT (G/100 NEEDLES)

0.491 0.531 0.615 0.525

FOLIAIR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 267 DOUGLAS FALLS #2  
 REGION: NORTHEAST WASHINGTON OWNERSHIP: WASHINGTON DNR  
 LEGAL DESCRIPTION: T36N R39E SECTION 16 MERICIAN: WILLAMETTE

FOLIAIR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FOLIAIR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	400 #	NCNE	200 #	400 #	NONE	200 #
NITROGEN	21800	9600	16000	17100	9200	12500
PHOSPHORUS	1900	2800	2200	1700	2500	1900
POTASSIUM	4572	5580	5930	4620	7150	6021
CALCIUM	4028	3332	4014	4201	3519	4292
MAGNESIUM	956.0	1208	1045	1136	1174	1352
MANGANESE	334.0	304.0	293.0	260.5	343.5	326.0
ZINC	37.05	29.60	34.90	29.20	31.70	33.75
IRON	76.30	65.90	84.10	84.30	96.30	79.60
BORON	30.15	27.80	26.50	27.70	41.55	22.90
CCPPER	3.68	2.49	3.13	3.75	2.52	3.01

NEEDLE WEIGHT (G/100 NEEDLES) 0.829 0.371 0.552 0.720 0.547 0.724

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	9400	14250	19450	14367
PHOSPHORUS	2650	2050	1800	2167
POTASSIUM	6365	5976	4596	5646
CALCIUM	3426	4153	4115	3898
MAGNESIUM	1191	1199	1046	1145
MANGANESE	323.8	309.5	297.3	310.2
ZINC	30.65	34.32	33.12	32.70
IRON	81.10	81.85	80.30	81.08
BORON	34.87	24.70	28.92	29.50
CCPPER	2.70	3.07	3.71	3.16

NEEDLE WEIGHT (G/100 NEEDLES) 0.459 0.638 0.775 0.624

FOLIAIR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	NCNE	NONE	N + K	N + K	N + K
NITROGEN	11000	9300	9400	11500	13000	10700
PHOSPHORUS	1700	1500	1500	1200	1600	1500
POTASSIUM	7029	6481	6579	6013	8517	5284
CALCIUM	4670	4271	3737	3708	3700	4181
MAGNESIUM	1633	1513	1645	1251	1371	1873
MANGANESE	259.9	257.9	205.4	156.4	384.5	402.1
ZINC	40.94	34.91	26.46	18.47	18.93	26.01
IRON	121.6	109.2	147.8	130.8	110.4	104.1
BORON	31.03	15.45	26.86	23.65	22.62	23.96
CCPPER	3.22	2.52	2.51	2.09	2.08	1.77

NEEDLE WEIGHT (G/100 NEEDLES) 0.671 0.443 0.523 0.492 0.424 0.536

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	9900	.	11733	10817
PHOSPHORUS	1567	.	1433	1500
POTASSIUM	6696	.	6605	6651
CALCIUM	4226	.	3863	4045
MAGNESIUM	1597	.	1498	1548
MANGANESE	241.1	.	314.3	277.7
ZINC	34.10	.	21.14	27.62
IRON	126.2	.	115.1	120.6
BORON	24.45	.	23.48	23.96
CCPPER	2.75	.	1.98	2.36

NEEDLE WEIGHT (G/100 NEEDLES) 0.546 . 0.484 0.515

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 268 SHEEP CREEK  
 REGION: NORTHEAST WASHINGTON CWNEESHIP: INLAND EMPIRE  
 LEGAL DESCRIPTION: T40N R39E SECTION 8 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 #	NONE	400 #	400 #	200 #	NONE
NITROGEN	11700	10800	19000	19300	13400	11300
PHOSPHORUS	2300	2900	2100	2200	2000	2700
POTASSIUM	5973	6746	5599	6223	7063	8081
CALCIUM	3639	2981	3169	4133	2847	4374
MAGNESIUM	1294	1112	1067	1246	1194	1592
MANGANESE	314.0	168.5	284.5	364.5	223.0	373.0
ZINC	41.80	38.60	35.20	37.30	18.10	26.85
IRON	66.30	60.60	49.10	59.10	54.20	50.10
BOBCN	21.30	25.95	21.35	28.80	28.10	27.90
CCPPER	2.44	2.62	3.10	4.43	2.99	3.17

NEEDLE WEIGHT (G/100 NEEDLES)

0.789	0.714	0.955	0.692	0.768	0.706
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BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11650	12550	19150	14250
PHOSPHORUS	2800	2150	2150	2367
POTASSIUM	7414	6518	5911	6614
CALCIUM	3678	3243	3651	3524
MAGNESIUM	1352	1244	1157	1251
MANGANESE	280.8	268.5	324.5	291.3
ZINC	32.72	29.95	36.25	32.97
IRON	55.35	60.25	54.10	56.57
BOBCN	26.92	24.70	25.07	25.57
CCPPER	2.89	2.71	3.76	3.12

NEEDLE WEIGHT (G/100 NEEDLES)

0.710	0.788	0.823	0.774
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	NCNE	N + K	NONE	200 N	200 E	NONE
NITROGEN	9400	11300	11700	12100	12900	11600
PHOSPHORUS	1800	1600	1300	1800	1300	2000
POTASSIUM	8254	7719	7683	8372	5852	8412
CALCIUM	4001	3975	4751	5935	4160	3897
MAGNESIUM	1423	1296	1986	2044	1817	1601
MANGANESE	214.6	218.5	280.1	333.1	303.5	277.9
ZINC	35.48	26.01	49.03	34.37	27.07	19.80
IRON	54.50	71.90	68.90	49.10	34.60	63.30
BOBCN	23.51	29.41	26.19	44.05	25.47	39.70
CCPPER	2.28	3.15	3.06	3.89	2.61	3.36

NEEDLE WEIGHT (G/100 NEEDLES)

0.604	0.804	0.811	0.545	0.644	0.671
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BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10900	12500	11300	11500
PHOSPHORUS	1700	1550	1600	1633
POTASSIUM	8116	7132	7719	7722
CALCIUM	4216	5058	3975	4457
MAGNESIUM	1670	1931	1296	1695
MANGANESE	257.5	318.3	218.5	271.3
ZINC	34.77	30.72	26.01	31.96
IRON	61.57	41.95	71.90	56.75
BOBCN	29.80	34.76	29.41	31.39
CCPPER	2.90	3.35	3.15	3.09

NEEDLE WEIGHT (G/100 NEEDLES)

0.695	0.595	0.804	0.680
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## FOLIAE NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 269 UPPER BURNT POLE CR  
 REGION: MONTANA MEMBERSHIP: CHAMPION  
 LEGAL DESCRIPTION: T15N R16W SECTION 27 MERIDIAN: PRINCIPAL

 FOLIAE NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAE NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	NONE	200 #	400 #	200 #	400 #	NONE
NITROGEN	10400	14800	16500	12200	15800	10800
PHOSPHORUS	1600	2100	1700	1600	1500	1900
POTASSIUM	5743	5090	5272	5729	4879	5080
CALCIUM	2761	2890	2982	3490	4028	4181
MAGNESIUM	971.0	1212	943.0	833.0	1136	1256
MANGANESE	253.5	286.0	184.5	258.5	256.5	285.5
ZINC	19.65	27.65	18.30	22.55	28.40	28.10
IRON	39.60	49.80	38.40	43.00	32.50	46.80
BORON	18.85	21.45	15.90	22.25	20.65	24.45
CCPPER	2.53	4.28	2.73	3.32	2.73	2.92

NEEDLE WEIGHT (G/100 NEEDLES) 0.508 0.643 0.729 0.562 0.567 0.524

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10600	13500	16150	13417
PHOSPHORUS	1750	1850	1600	1733
POTASSIUM	5412	5410	5076	5299
CALCIUM	3471	3190	3505	3389
MAGNESIUM	1114	1023	1040	1059
MANGANESE	269.5	272.3	220.5	254.1
ZINC	23.87	25.10	23.35	24.11
IRON	40.20	46.40	35.45	40.68
BORON	21.65	21.85	18.37	20.62
CCPPER	2.72	3.80	2.73	3.08

NEEDLE WEIGHT (G/100 NEEDLES) 0.516 0.602 0.648 0.589

 FOLIAE NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	N + K	NCNE	NONE	200 N	200 N	NONE
NITROGEN	11900	11300	13000	13800	10900	9900
PHOSPHORUS	1400	1700	1900	1600	1800	1800
POTASSIUM	6901	8057	8907	7258	8830	7831
CALCIUM	3336	3440	3893	3378	3309	4649
MAGNESIUM	954.0	1284	1185	1046	1154	1457
MANGANESE	261.2	229.5	261.5	202.0	150.8	294.7
ZINC	26.24	37.08	22.13	26.56	15.41	39.96
IRON	48.10	44.10	47.20	30.90	37.20	32.50
BORON	20.43	24.53	20.13	21.40	18.48	28.81
CCPPER	2.85	4.03	2.83	3.43	2.71	4.58

NEEDLE WEIGHT (G/100 NEEDLES) 0.607 0.521 0.762 0.499 0.567 0.583

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11400	12350	11900	11800
PHOSPHORUS	1800	1700	1400	1700
POTASSIUM	8265	8044	6901	7964
CALCIUM	3594	3344	3336	3688
MAGNESIUM	1309	1100	954.0	1180
MANGANESE	261.9	176.4	261.2	233.3
ZINC	33.06	20.98	26.24	27.90
IRON	41.27	34.05	48.10	40.00
BORON	24.49	19.94	20.43	22.30
CCPPER	3.81	3.07	2.85	3.40

NEEDLE WEIGHT (G/100 NEEDLES) 0.622 0.533 0.607 0.590

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 270 HOWARD CREEK OWNERSHIP: CHAMPION  
 REGION: MONTANA MERIDIAN: PRINCIPAL  
 LEGAL DESCRIPTION: T12N R23W SECTION 19

 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	NONE	200 #	400 #	
NITROGEN	16200	12500	11900	10500	12300	15300
PHOSPHORUS	2100	2100	2000	2400	2100	1700
POTASSIUM	5551	6463	6669	6333	6640	5638
CALCIUM	2962	2376	3894	3380	4037	5093
MAGNESIUM	907.0	985.0	985.0	1182	1160	1520
MANGANESE	339.5	465.5	471.5	631.0	645.0	688.0
ZINC	37.70	23.80	25.00	32.50	35.45	34.90
IRON	55.90	50.80	61.20	62.80	52.10	64.00
BORON	12.15	24.05	20.65	22.45	23.90	16.25
COPPER	2.29	3.53	3.09	3.29	3.66	2.58

NEEDLE WEIGHT (G/100 NEEDLES) 0.729 0.717 0.577 0.558 0.661 0.601

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11200	12400	15750	13117
PHOSPHORUS	2200	2100	1900	2067
POTASSIUM	6501	6552	5595	6216
CALCIUM	3637	3207	4028	3624
MAGNESIUM	1084	1073	1214	1123
MANGANESE	551.3	555.3	513.8	540.1
ZINC	28.75	29.62	36.30	31.56
IRON	62.00	51.45	59.95	57.80
BORON	21.55	23.97	14.20	19.91
COPPER	3.19	3.69	2.43	3.11

NEEDLE WEIGHT (G/100 NEEDLES) 0.568 0.689 0.665 0.640

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
NONE	N + K	N + K	NONE	NONE	N + K	
NITROGEN	11300	13900	14000	10800	11000	10500
PHOSPHORUS	1700	1900	2000	2000	1800	1600
POTASSIUM	13247	8091	9301	8625	9123	9263
CALCIUM	4306	2630	3375	2712	3532	4822
MAGNESIUM	1314	1152	1061	1104	1045	1342
MANGANESE	339.2	397.6	405.4	382.5	403.2	359.2
ZINC	33.03	33.03	33.50	19.76	34.37	37.66
IRON	55.10	56.00	53.30	67.70	33.10	53.30
BORON	22.96	23.77	15.90	22.81	24.77	8.39
COPPER	3.09	3.11	3.67	3.19	2.63	2.76

NEEDLE WEIGHT (G/100 NEEDLES) 0.584 0.616 0.593 0.490 0.521 0.483

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11033	.	12800	11917
PHOSPHORUS	1833	.	1833	1833
POTASSIUM	10332	.	8885	9608
CALCIUM	3517	.	3542	3530
MAGNESIUM	1154	.	1185	1170
MANGANESE	375.0	.	387.4	381.2
ZINC	29.05	.	34.73	31.89
IRON	51.97	.	54.20	53.06
BORON	23.51	.	16.02	19.77
COPPER	3.04	.	3.18	3.11

NEEDLE WEIGHT (G/100 NEEDLES) 0.532 . 0.564 0.548



FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 271 WHITNEY CREEK  
 REGION: MONTANA OWNERSHIP: CHAMPION  
 LEGAL DESCRIPTION: T25N R27W SECTION 7 MERICIAN: PRINCIPAL

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:	1		2		3		4		5		6	
	400 #	200 #	400 #	200 #	MCNE	400 #	200 #	MCNE	400 #	200 #	MCNE	
ORIGINAL TREATMENT	400 #	200 #	MCNE	400 #	200 #	MCNE	400 #	200 #	MCNE	400 #	200 #	MCNE
NITROGEN	20600	15600	10100	23600	13700	9100	23600	13700	9100	23600	13700	9100
PHOSPHORUS	1900	1800	2300	2200	1900	1500	2200	1900	1500	2200	1900	1500
POTASSIUM	5829	4956	5234	4874	5345	5561	4874	5345	5561	4874	5345	5561
CALCIUM	3937	3236	4061	3423	3658	4124	3423	3658	4124	3423	3658	4124
MAGNESIUM	1472	1079	932.0	847.0	1129	710.0	847.0	1129	710.0	847.0	1129	710.0
MANGANESE	458.0	403.0	334.0	290.5	293.0	311.5	290.5	293.0	311.5	290.5	293.0	311.5
ZINC	46.45	35.40	36.75	32.95	36.30	21.80	32.95	36.30	21.80	32.95	36.30	21.80
IRON	53.60	53.80	34.10	45.80	36.20	46.70	45.80	36.20	46.70	45.80	36.20	46.70
BORON	14.55	21.40	25.20	15.30	19.85	18.75	15.30	19.85	18.75	15.30	19.85	18.75
CCPPER	3.69	2.75	2.82	2.47	2.52	2.66	2.47	2.52	2.66	2.47	2.52	2.66

NEEDLE WEIGHT (G/100 NEEDLES) 0.688 0.944 0.566 0.744 0.602 0.600

BY ORIGINAL TREATMENT:

	MCNE	200 # N	400 # N	OVERALL
NITROGEN	9600	14650	21800	15350
PHOSPHORUS	1900	1850	2050	1933
POTASSIUM	5398	5451	5352	5400
CALCIUM	4093	3447	3680	3740
MAGNESIUM	821.0	1104	1160	1028
MANGANESE	322.8	348.0	374.3	348.3
ZINC	29.27	37.85	39.70	35.61
IRON	40.40	45.00	49.70	45.03
BORON	21.97	20.62	14.92	19.17
CCPPER	2.74	2.83	3.08	2.88

NEEDLE WEIGHT (G/100 NEEDLES) 0.583 0.773 0.716 0.691

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT	1		2		3		4		5		6	
	N + K	NONE	NONE	200 N	N + K	N + K	200 N	N + K	N + K	N + K		
NITROGEN	15200	9200	9100	13500	15100	11300	13500	15100	11300	13500	15100	11300
PHOSPHORUS	2000	1600	1600	2000	2000	1200	2000	2000	1200	2000	2000	1200
POTASSIUM	8511	6529	6491	9382	9051	5805	9382	9051	5805	9382	9051	5805
CALCIUM	3400	2583	3705	3491	3702	3296	3491	3702	3296	3491	3702	3296
MAGNESIUM	1713	1159	1022	1168	1517	735.0	1168	1517	735.0	1168	1517	735.0
MANGANESE	373.9	273.4	294.8	185.0	326.3	341.3	185.0	326.3	341.3	185.0	326.3	341.3
ZINC	39.22	31.12	35.32	28.69	34.67	29.25	28.69	34.67	29.25	28.69	34.67	29.25
IRON	27.60	41.10	37.70	65.80	38.50	23.90	65.80	38.50	23.90	65.80	38.50	23.90
BORON	8.69	37.09	27.02	4.93	17.31	19.43	4.93	17.31	19.43	4.93	17.31	19.43
CCPPER	4.66	3.51	3.05	1.85	2.83	2.78	1.85	2.83	2.78	1.85	2.83	2.78

NEEDLE WEIGHT (G/100 NEEDLES) 0.691 0.704 0.531 0.577 0.526 0.658

BY NEW TREATMENT:

	NONE	200 # N	N + K	OVERALL
NITROGEN	9150	13500	13867	12233
PHOSPHORUS	1600	2000	1733	1733
POTASSIUM	6510	9382	7789	7628
CALCIUM	3144	3491	3466	3363
MAGNESIUM	1091	1168	1322	1219
MANGANESE	284.1	185.0	347.2	259.1
ZINC	33.22	28.69	34.36	33.04
IRON	39.40	65.80	29.93	39.07
BORON	32.05	4.93	15.14	19.08
CCPPER	3.28	1.85	3.42	3.11

NEEDLE WEIGHT (G/100 NEEDLES) 0.617 0.577 0.625 0.614

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 272 INDIAN CREEK  
 REGION: MONTANA OWNERSHIP: CHAMPION  
 LEGAL DESCRIPTION: T25N R27W SECTION 5 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	8200	13000	22500	21600	13000	9400
PHOSPHORUS	1700	1600	1700	2300	1600	2300
POTASSIUM	4918	4418	4044	4495	4106	4725
CALCIUM	3999	4153	4244	3476	3784	4167
MAGNESIUM	720.0	1068	1222	1170	1101	1213
MANGANESE	288.0	406.5	328.0	276.5	236.0	331.0
ZINC	20.55	31.60	26.35	31.70	25.05	29.00
IRON	37.10	36.20	37.00	53.00	40.00	43.60
BORON	18.35	23.00	17.25	19.80	17.35	16.45
CCPPER	2.32	2.84	2.41	2.71	2.87	3.49

NEEDLE WEIGHT (G/100 NEEDLES) 0.567 0.635 0.713 0.994 0.710 0.756

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	8600	13000	22050	14617
PHOSPHORUS	2000	1600	2000	1867
POTASSIUM	4622	4262	4270	4451
CALCIUM	4083	3959	3860	3967
MAGNESIUM	966.5	1085	1196	1082
MANGANESE	309.5	321.3	302.3	311.0
ZINC	24.77	28.32	29.02	27.37
IRON	40.35	38.35	45.00	41.23
BORON	17.40	20.17	18.52	18.70
CCPPER	2.90	2.85	2.56	2.77

NEEDLE WEIGHT (G/100 NEEDLES) 0.662 0.673 0.853 0.729

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	N + K	NCNE	N + K	200 N	N + K	NONE
NITROGEN	12200	10100	17100	17300	16700	10300
PHOSPHORUS	1400	1800	2100	2100	1800	2000
POTASSIUM	7841	7663	7391	7931	8689	9034
CALCIUM	2441	3737	3189	2896	4251	3552
MAGNESIUM	659.0	1505	1863	1350	1734	1296
MANGANESE	270.3	291.2	265.8	196.1	268.6	284.2
ZINC	12.23	24.13	49.28	33.60	36.68	20.68
IRON	39.50	32.30	39.00	44.80	41.10	69.70
BORON	12.06	37.25	37.01	21.43	14.05	18.60
CCPPER	2.15	2.51	3.09	2.66	3.12	3.24

NEEDLE WEIGHT (G/100 NEEDLES) 0.795 0.501 0.475 0.800 0.685 0.600

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10200	17300	15333	13950
PHOSPHORUS	1500	2100	1767	1867
POTASSIUM	8349	7931	7974	8092
CALCIUM	3645	2896	3307	3351
MAGNESIUM	1401	1350	1419	1401
MANGANESE	287.7	196.1	268.2	262.7
ZINC	22.40	33.60	32.74	29.44
IRON	51.00	44.80	39.87	44.40
BORON	27.92	21.43	21.04	23.40
CCPPER	2.87	2.66	2.79	2.79

NEEDLE WEIGHT (G/100 NEEDLES) 0.551 0.800 0.652 0.643

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 273 LITTLE BEAVER CREEK  
 REGION: NORTHERN IDAHO OWNERSHIP: PCLATCH  
 LEGAL DESCRIPTION: T37N R5E SECTION 1 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 #	NCNE	400 #	200 #	NONE	400 #
NITROGEN	13500	10500	18100	12900	10600	22500
PHOSPHORUS	2100	2400	2300	1700	2400	3300
POTASSIUM	4711	6223	5599	5282	5388	6175
CALCIUM	3552	3226	2972	3812	3457	4028
MAGNESIUM	1212	1155	1289	1582	1452	1568
MANGANESE	243.15	314.0	322.0	269.0	270.0	288.0
ZINC	23.15	23.70	22.20	20.45	20.65	33.45
IRON	57.10	81.40	64.10	60.90	76.60	58.30
BORON	20.55	22.90	16.80	22.00	28.15	23.25
CCPPER	3.25	3.32	3.15	2.55	2.50	3.42

NEEDLE WEIGHT (G/100 NEEDLES) 0.673 0.738 1.007 0.739 0.657 0.791

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10550	13200	20300	14683
PHOSPHORUS	2400	1900	2800	2367
POTASSIUM	5806	4997	5887	5563
CALCIUM	3342	3682	3500	3508
MAGNESIUM	1304	1397	1429	1376
MANGANESE	292.0	256.3	305.0	284.4
ZINC	22.32	21.80	27.92	23.98
IRON	79.00	59.00	61.20	66.40
BORON	25.52	21.27	20.02	22.27
CCPPER	2.91	2.90	3.28	3.03

NEEDLE WEIGHT (G/100 NEEDLES) 0.697 0.706 0.899 0.767

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	N + K	NCNE	N + K	NONE	N + K
NITROGEN	15400	14000	11900	11600	10900	16400
PHOSPHORUS	1600	1700	1800	1900	2000	2500
POTASSIUM	8067	9593	10193	8554	9086	9125
CALCIUM	5308	3682	4488	3270	3146	3354
MAGNESIUM	1885	1487	1306	1513	1769	1778
MANGANESE	374.2	423.7	382.8	318.6	349.2	234.6
ZINC	24.74	25.55	16.72	16.36	14.68	21.78
IRON	102.5	126.1	93.50	138.7	114.7	79.40
BORON	22.50	20.16	25.46	33.87	25.48	15.05
CCPPER	3.12	3.62	2.55	3.32	2.51	3.34

NEEDLE WEIGHT (G/100 NEEDLES) 0.595 0.709 0.530 0.467 0.574 0.502

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	12733	.	14000	13367
PHOSPHORUS	1600	.	2033	1917
POTASSIUM	9115	.	9091	9103
CALCIUM	4314	.	3435	3875
MAGNESIUM	1653	.	1593	1623
MANGANESE	368.7	.	325.6	347.2
ZINC	18.51	.	21.23	19.87
IRON	103.6	.	114.7	109.1
BORON	24.48	.	23.03	23.75
CCPPER	2.73	.	3.43	3.08

NEEDLE WEIGHT (G/100 NEEDLES) 0.568 . 0.559 0.563

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 274 CAREYWOOD CREEK  
 REGION: NORTHERN IDAHO OWNERSHIP: ICL  
 LEGAL DESCRIPTION: T54N R2W SECTION 16 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 #	NCNE	400 #	200 #	400 #	NONE
NITROGEN	12400	5700	20000	11500	20500	8800
PHOSPHORUS	2200	1900	2400	2400	2000	2500
POTASSIUM	4524	5325	4279	7365	4711	6108
CALCIUM	4090	4781	2804	3025	3152	2761
MAGNESIUM	992.0	1654	1139	1120	1053	1496
MANGANESE	296.0	448.0	328.0	231.5	334.5	234.5
ZINC	23.50	27.60	29.15	25.25	45.25	24.15
IRON	78.90	78.80	102.1	76.70	84.00	126.6
BORON	26.65	31.60	28.45	28.90	37.35	31.65
CCPPER	3.26	3.12	4.04	2.73	3.65	3.04

NEEDLE WEIGHT (G/100 NEEDLES) 0.673 0.521 1.036 0.716 0.773 0.527

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	9250	11950	20250	13817
PHOSPHORUS	2200	2300	2200	2233
POTASSIUM	5717	5945	4495	5385
CALCIUM	3771	3558	2998	3442
MAGNESIUM	1575	1056	1116	1249
MANGANESE	341.3	263.8	331.3	312.1
ZINC	25.87	24.38	37.20	29.15
IRON	102.7	78.80	93.05	91.52
BORON	31.62	27.77	32.90	30.77
CCPPER	3.08	2.99	3.96	3.35

NEEDLE WEIGHT (G/100 NEEDLES) 0.524 0.695 0.904 0.708

 FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

## BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NONE	N + K	N + K	N + K	NONE	NONE
NITROGEN	10400	15300	13300	12100	11900	10400
PHOSPHORUS	2100	1100	1200	1500	1500	1800
POTASSIUM	7421	7358	7093	8907	6780	7917
CALCIUM	3658	4245	3423	4070	4204	3781
MAGNESIUM	1356	1453	1435	1549	1583	1649
MANGANESE	307.4	464.5	329.0	309.7	326.4	323.7
ZINC	18.30	21.57	31.53	20.46	36.21	15.50
IRON	85.80	125.6	106.5	120.8	146.5	122.1
BORON	25.37	35.89	27.19	31.13	42.11	25.63
CCPPER	2.59	3.09	3.05	2.86	3.13	2.77

NEEDLE WEIGHT (G/100 NEEDLES) 0.497 0.532 0.708 0.571 0.496 0.464

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10900	.	13567	12233
PHOSPHORUS	1800	.	1267	1533
POTASSIUM	7373	.	7786	7579
CALCIUM	3861	.	3913	3897
MAGNESIUM	1529	.	1479	1504
MANGANESE	315.2	.	367.7	343.4
ZINC	23.34	.	24.52	23.93
IRON	118.1	.	117.6	117.9
BORON	31.04	.	31.40	31.22
CCPPER	2.83	.	3.00	2.91

NEEDLE WEIGHT (G/100 NEEDLES) 0.486 . 0.604 0.545

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 275 SMITH LAKE  
 REGION: NORTHERN IDAHO CWNEESHIP: IDL  
 LEGAL DESCRIPTION: T63N R1E SECTION 36 MERICIAN: 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 #	NCNE	200 #	400 #	NONE
NITROGEN	15600	13700	9200	10300	22300	7800
PHOSPHORUS	2400	2000	3400	2000	2600	2300
POTASSIUM	5004	5206	6127	5628	4432	5637
CALCIUM	3289	4724	4057	4076	3485	3178
MAGNESIUM	1145	1083	1505	1003	1150	1088
MANGANESE	413.0	439.0	428.5	496.0	415.0	368.5
ZINC	34.60	36.45	37.55	43.40	37.05	32.85
IRON	90.50	78.60	102.1	103	66.40	94.40
BORON	20.85	21.45	29.15	27.65	18.25	28.50
COPPER	2.46	3.38	3.18	3.50	2.50	2.93

NEEDLE WEIGHT (G/100 NEEDLES)

0.667 0.625 0.438 0.634 0.665 0.519

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	8500	12000	18950	13150
PHOSPHORUS	2650	2060	2500	2450
POTASSIUM	5882	5417	4718	5339
CALCIUM	3618	4400	3387	3802
MAGNESIUM	1297	1043	1148	1162
MANGANESE	398.5	467.5	414.0	426.7
ZINC	35.20	39.92	35.82	36.98
IRON	98.25	90.80	78.45	89.17
BORON	28.82	24.55	19.55	24.31
COPPER	3.05	3.44	2.48	2.99

NEEDLE WEIGHT (G/100 NEEDLES)

0.478 0.630 0.666 0.591

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	200 N	N + K	N + K	NONE	NONE
NITROGEN	8100	13700	12000	11200	15200	9300
PHOSPHORUS	2100	1500	2200	1800	2000	2000
POTASSIUM	7761	6600	7403	7196	7131	8118
CALCIUM	4984	6183	3674	3337	4345	4307
MAGNESIUM	2006	1837	1384	1214	1684	1457
MANGANESE	390.4	329.6	381.8	304.3	357.5	468.9
ZINC	26.65	22.84	24.70	26.82	33.70	31.17
IRON	85.90	110.2	124.1	109.6	84.80	114.7
BORON	19.06	21.30	26.17	21.91	19.63	28.52
COPPER	1.70	2.55	2.65	2.74	2.21	2.36

NEEDLE WEIGHT (G/100 NEEDLES)

0.414 0.580 0.473 0.652 0.518 0.376

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	12250	13700	10433	11583
PHOSPHORUS	2000	1500	2033	1933
POTASSIUM	7625	6600	7453	7368
CALCIUM	4326	6183	3998	4472
MAGNESIUM	1571	1837	1535	1597
MANGANESE	413.2	329.6	358.8	372.1
ZINC	32.43	22.84	26.06	27.65
IRON	99.75	110.2	106.5	104.9
BORON	24.07	21.30	22.38	22.76
COPPER	2.28	2.55	2.36	2.37

NEEDLE WEIGHT (G/100 NEEDLES)

0.447 0.580 0.513 0.502

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 276 MILL CREEK  
 REGION: CENTRAL IDAHO  
 LEGAL DESCRIPTION: T19N R1E SECTION 34

CWNERSHIP: BOISE CASCADE  
 MERIDIANS: 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	NONE	200 #	400 #
NITROGEN	17800	15100	12000	12800	14500	18000
PHOSPHORUS	2000	1800	2000	2600	2700	1800
POTASSIUM	5393	4788	5719	6732	4754	4778
CALCIUM	3044	3692	2170	2914	2741	2689
MAGNESIUM	1429	1414	1083	1242	1323	1217
MANGANESE	270.5	269.0	262.0	221.5	254.5	185.0
ZINC	31.05	32.20	26.00	31.00	32.45	22.60
IRON	70.90	62.90	65.40	80.80	92.00	82.20
BORON	21.60	16.70	22.00	20.70	20.90	22.45
COPPER	3.74	3.36	3.52	3.23	5.25	3.86
NEEDLE WEIGHT (G/100 NEEDLES)	0.627	0.661	0.784	0.749	0.813	0.792

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12400	14800	17900	15033
PHOSPHORUS	2300	2250	1900	2150
POTASSIUM	6226	4771	5086	5361
CALCIUM	2542	3217	2867	2875
MAGNESIUM	1163	1369	1323	1285
MANGANESE	241.8	261.8	227.8	243.8
ZINC	28.50	32.32	26.92	29.25
IRON	73.10	77.45	76.55	75.70
BORON	21.35	18.80	22.02	20.72
COPPER	3.37	4.30	3.80	3.83
NEEDLE WEIGHT (G/100 NEEDLES)	0.766	0.737	0.709	0.737

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	NONE	NCNE	N + K	200 N	200 N
NITROGEN	13500	12300	10100	12500	16100	16800
PHOSPHORUS	1500	1600	1700	2300	2400	1700
POTASSIUM	6899	7627	9693	9778	7004	6852
CALCIUM	3459	3463	3689	3229	2726	2785
MAGNESIUM	1504	1278	1697	1364	1344	1396
MANGANESE	250.1	187.8	462.3	271.4	202.7	167.3
ZINC	16.02	14.59	21.55	25.25	28.89	13.93
IRON	70.40	85.30	105.2	110.4	94.10	86.30
BORON	22.09	19.23	41.36	32.23	21.03	30.79
COPPER	2.58	2.39	3.10	2.39	4.78	2.37
NEEDLE WEIGHT (G/100 NEEDLES)	0.531	0.662	0.467	0.647	0.813	0.652

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	11967	16450	12500	13550
PHOSPHORUS	1600	2050	2300	1867
POTASSIUM	8073	6928	9778	7976
CALCIUM	3537	2756	3229	3225
MAGNESIUM	1493	1370	1364	1431
MANGANESE	300.1	185.0	271.4	256.9
ZINC	17.39	21.41	25.25	20.04
IRON	86.97	90.20	110.4	91.95
BORON	27.56	25.91	32.23	27.79
COPPER	2.69	3.57	2.39	2.93
NEEDLE WEIGHT (G/100 NEEDLES)	0.553	0.732	0.647	0.629

## FOLIAIR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 277 LITTLE MUD CREEK #2  
 REGION: CENTRAL IDAHO OWNERSHIP: BCISE CASCADE  
 LEGAL DESCRIPTION: T20N R1E SECTION 34 MERIDIAN: FOISE

 FOLIAIR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

 FOLIAIR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

## ORIGINAL TREATMENT

	1	2	3	4	5	6
	200 #	400 #	NONE	NONE	400 #	200 #
NITROGEN	14800	20500	11000	10200	21800	13300
PHOSPHORUS	2100	2600	2500	2300	2500	2200
POTASSIUM	4961	5311	5556	4788	6609	5700
CALCIUM	4244	3365	4258	3582	3001	2732
MAGNESIUM	1654	1251	1313	1251	1250	1000
MANGANESE	300.0	256.5	293.0	347.0	284.0	285.5
ZINC	42.95	45.40	35.85	31.65	47.20	34.00
IRON	176.9	120.4	82.60	84.40	82.60	53.40
BORON	31.25	25.85	24.65	18.75	20.75	18.50
COPPER	4.68	4.60	3.88	2.41	2.56	3.38

NEEDLE WEIGHT (G/100 NEEDLES)

0.710 0.735 0.629 0.566 0.769 0.788

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10600	14050	21150	15267
PHOSPHORUS	2400	2150	2550	2367
POTASSIUM	5172	5331	5990	5498
CALCIUM	3920	3488	3183	3530
MAGNESIUM	1282	1327	1271	1293
MANGANESE	320.0	292.8	270.3	294.3
ZINC	33.75	38.47	46.30	39.51
IRON	83.50	135.1	101.6	106.7
BORON	21.70	24.88	23.30	23.29
COPPER	3.14	4.03	3.78	3.65

NEEDLE WEIGHT (G/100 NEEDLES)

0.598 0.749 0.752 0.700

 FOLIAIR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	NCNE	N + K	NONE	N + K	NONE	N + K
NITROGEN	11400	15200	11700	13800	12900	12400
PHOSPHORUS	1700	2200	2000	1800	1900	2000
POTASSIUM	7021	6805	7469	8554	9260	7841
CALCIUM	3862	3625	4388	4341	4213	3594
MAGNESIUM	1621	1583	1250	1399	2300	1341
MANGANESE	278.8	317.5	333.1	489.0	318.0	359.3
ZINC	29.95	29.60	25.40	23.91	24.65	26.59
IRON	79.30	84.10	99.10	101.6	122.3	96.20
BORON	35.90	27.24	28.91	23.32	26.00	22.75
COPPER	2.65	3.71	3.51	2.45	2.68	3.34

NEEDLE WEIGHT (G/100 NEEDLES)

0.539 0.537 0.592 0.423 0.572 0.884

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	12000	.	13800	12900
PHOSPHORUS	1667	.	2000	1933
POTASSIUM	7917	.	7733	7825
CALCIUM	4154	.	3853	4004
MAGNESIUM	1740	.	1441	1591
MANGANESE	310.0	.	388.6	349.3
ZINC	26.73	.	27.37	27.05
IRON	100.2	.	93.97	97.10
BORON	30.54	.	24.44	27.49
COPPER	2.95	.	3.17	3.06

NEEDLE WEIGHT (G/100 NEEDLES)

0.568 . 0.615 0.591

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 278 WET GUICH  
 REGION: CENTRAL IDAHO  
 LEGAL DESCRIPTION: T7N R5E SECTION 19

CWNEERSHIP: BOISE CASCADE  
 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 #	NCNE	200 #	NONE	200 #	400 #
NITROGEN	18100	10500	12400	9000	12200	18400
PHOSPHORUS	2200	2300	2500	1800	1600	2100
POTASSIUM	5412	5066	6194	5729	5033	5464
CALCIUM	3505	3552	3562	2616	2742	4062
MAGNESIUM	1419	1472	1429	1083	934.0	1145
MANGANESE	374.5	351.5	340.0	196.5	290.0	332.5
ZINC	38.45	33.00	34.45	15.65	20.20	32.00
IRON	42.10	56.10	59.60	42.10	52.50	50.20
BORON	19.30	22.05	19.30	20.90	19.65	23.00
COOPER	2.90	2.58	3.20	2.29	2.60	3.46

NEEDLE WEIGHT (G/100 NEEDLES) 0.675 0.606 0.730 0.644 0.761 0.846

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	9750	12300	18250	13433
PHOSPHORUS	2050	2050	2150	2083
POTASSIUM	5398	5614	5448	5486
CALCIUM	3084	3152	3784	3340
MAGNESIUM	1278	1182	1282	1247
MANGANESE	274.0	315.0	353.5	314.2
ZINC	24.32	27.32	35.22	26.96
IRON	49.10	56.25	46.15	50.50
BORON	21.47	19.17	21.15	20.60
COOPER	2.43	2.90	3.18	2.84

NEEDLE WEIGHT (G/100 NEEDLES) 0.625 0.745 0.760 0.710

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	N + K
NITROGEN	10300	11700	12300	8300	13500	15300
PHOSPHORUS	1800	1700	2300	1700	2300	2200
POTASSIUM	9496	7432	7827	10351	8531	8714
CALCIUM	3065	3503	3606	3422	2321	3315
MAGNESIUM	1585	1669	1547	1814	1527	1488
MANGANESE	207.8	436.7	257.3	327.5	157.6	208.8
ZINC	35.33	27.50	37.95	20.48	5.74	31.78
IRON	43.90	56.20	65.60	69.90	53.50	38.00
BORON	23.26	27.40	22.93	24.04	10.14	27.55
COOPER	2.46	2.79	3.44	2.31	2.65	3.29

NEEDLE WEIGHT (G/100 NEEDLES) 0.643 0.460 0.601 0.448 0.659 0.618

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	9300	13500	13100	11500
PHOSPHORUS	1750	2300	2067	2000
POTASSIUM	9924	8531	7991	8725
CALCIUM	3244	2321	3475	3205
MAGNESIUM	1700	1527	1568	1605
MANGANESE	267.6	157.6	300.9	265.9
ZINC	27.90	5.74	32.41	26.46
IRON	56.90	53.90	53.27	54.58
BORON	23.65	10.14	25.96	22.55
COOPER	2.38	2.05	3.17	2.72

NEEDLE WEIGHT (G/100 NEEDLES) 0.546 0.699 0.560 0.578



## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 279 HENRY CREEK

REGION: CENTRAL IDAHO

LEGAL DESCRIPTION: T7N R5E SECTION 28

CWNESHIP: BOISE CASCADE

MERICIAN: BOISE

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 #	400 #	NONE	200 #
NITROGEN	10200	12400	15700	14800	11800	15700
PHOSPHORUS	2100	1700	1700	1900	2000	1700
POTASSIUM	6300	6329	6516	6761	6026	6780
CALCIUM	4354	3558	4057	3802	5665	4090
MAGNESIUM	1429	962.0	1062	1582	1328	1251
MANGANESE	371.5	348.0	344.5	410.0	433.0	315.0
ZINC	44.30	31.60	29.00	38.15	32.45	29.65
IRON	47.80	65.30	48.50	57.10	59.60	51.90
BORON	26.80	22.40	17.35	19.90	21.45	14.60
CCPPER	2.72	3.77	3.44	3.35	4.24	4.06

## NEEDLE WEIGHT (G/100 NEEDLES)

0.663 0.761 0.625 0.590 0.622 0.676

## BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11000	14050	15250	13433
PHOSPHORUS	2050	1700	1800	1850
POTASSIUM	6163	6555	6639	6452
CALCIUM	5010	3824	3930	4254
MAGNESIUM	1379	1107	1322	1269
MANGANESE	402.3	331.5	377.3	370.3
ZINC	38.37	30.62	33.57	34.19
IRON	53.70	58.60	52.80	55.03
BORON	24.12	18.50	18.62	20.42
CCPPER	3.48	3.91	3.39	3.60

## NEEDLE WEIGHT (G/100 NEEDLES)

0.642 0.718 0.607 0.656

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

## BY PLOT:

## NEW TREATMENT

	1	2	3	4	5	6
	N + K	NCNE	200 N	NONE	NONE	200 N
NITROGEN	13200	9300	17400	12400	10700	14900
PHOSPHORUS	1700	1500	2400	2000	1500	1600
POTASSIUM	7973	8757	9857	11441	7813	8210
CALCIUM	3707	4226	4155	2442	4956	4114
MAGNESIUM	1705	1144	1687	1592	1456	1453
MANGANESE	364.7	358.3	363.5	214.9	373.5	262.4
ZINC	27.42	19.52	31.42	12.18	16.21	18.71
IRON	43.70	52.50	61.20	69.40	93.10	74.40
BORON	23.04	16.76	26.34	28.44	24.69	12.39
CCPPER	2.59	2.78	2.18	2.31	3.14	2.81

## NEEDLE WEIGHT (G/100 NEEDLES)

0.587 0.521 0.373 0.427 0.552 0.479

## BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10800	16150	13200	12983
PHOSPHORUS	1667	2000	1700	1783
POTASSIUM	9337	9034	7973	9009
CALCIUM	3888	4135	3707	3940
MAGNESIUM	1411	1570	1705	1513
MANGANESE	315.6	312.9	364.7	322.9
ZINC	15.97	25.06	27.42	20.91
IRON	71.67	67.80	43.70	65.72
BORON	23.30	19.36	23.04	21.94
CCPPER	2.74	2.49	2.59	2.63

## NEEDLE WEIGHT (G/100 NEEDLES)

0.500 0.426 0.587 0.490

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 280 SMITH CREEK

REGION: CENTRAL IDAHO

CWNEESHIP: IDL

LEGAL DESCRIPTION: T7N R5E SECTION 2

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
	NONE	200 #	400 #	200 #	400 #	NONE
NITROGEN	10500	12900	22600	14300	20600	10400
PHOSPHORUS	2600	1600	3100	1500	2400	2100
POTASSIUM	5993	6372	6933	5421	6190	5916
CALCIUM	4738	3049	3365	3706	3937	4398
MAGNESIUM	1256	1174	1198	1309	1462	1317
MANGANESE	181.0	232.0	268.5	503.0	369.5	498.0
ZINC	23.15	32.70	53.25	44.80	45.25	36.95
IRON	58.60	37.30	57.70	50.10	61.50	54.50
BORON	20.70	14.50	15.25	23.60	22.60	18.70
COPPER	3.69	3.92	4.23	4.53	2.52	3.86

NEEDLE WEIGHT (G/100 NEEDLES)

0.710 0.810 0.951 0.682 0.646 0.684

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10450	13600	21600	15217
PHOSPHORUS	2050	1550	2750	2117
POTASSIUM	5955	5897	6562	6138
CALCIUM	4568	3378	3651	3866
MAGNESIUM	1287	1242	1330	1286
MANGANESE	339.5	367.5	319.0	342.0
ZINC	30.05	38.75	49.40	39.40
IRON	56.55	43.70	59.60	53.28
BORON	19.70	19.05	18.92	19.22
COPPER	3.77	4.22	3.57	3.86

NEEDLE WEIGHT (G/100 NEEDLES)

0.697 0.746 0.799 0.747

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	NCNE	NCNE	N + K	N + K	NONE
NITROGEN	10000	9300	14100	12200	15000	9500
PHOSPHORUS	1600	1600	1600	1400	2100	1800
POTASSIUM	6997	10816	9364	8198	10637	7454
CALCIUM	3920	6459	4071	4494	4754	3224
MAGNESIUM	1295	2109	1250	1641	1919	1792
MANGANESE	181.6	449.8	272.0	461.2	316.1	462.7
ZINC	19.94	31.90	27.83	39.21	30.13	21.56
IRON	70.80	59.90	48.50	41.70	47.00	66.50
BORON	18.14	23.23	23.98	27.08	25.12	22.57
COPPER	2.37	2.96	2.51	3.32	2.73	3.07

NEEDLE WEIGHT (G/100 NEEDLES)

0.510 0.309 0.460 0.340 0.441 0.442

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10567	.	12400	11683
PHOSPHORUS	1667	.	1700	1683
POTASSIUM	9211	.	8611	8911
CALCIUM	4585	.	4403	4494
MAGNESIUM	1717	.	1620	1668
MANGANESE	394.8	.	319.6	357.2
ZINC	27.10	.	29.76	28.43
IRON	58.30	.	53.17	55.73
BORON	23.26	.	23.45	23.35
COPPER	2.85	.	2.81	2.83

NEEDLE WEIGHT (G/100 NEEDLES)

0.404 . 0.430 0.417

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 281 O'NEIL HILL

REGION: NORTHERN IDAHO

OWNERSHIP: POTLATCH

LEGAL DESCRIPTION: T46N R1E SECTION 32 MERIDIANS: BCISE

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 #	400 #	NONE
NITROGEN	10900	13700	15800	13400	14100	9400
PHOSPHORUS	2000	2200	1800	1800	1600	2000
POTASSIUM	5469	4970	5081	4663	4154	5436
CALCIUM	3639	3519	2463	2501	3226	2597
MAGNESIUM	1141	1213	887.0	854.0	1035	1008
MANGANESE	330.0	166.5	111.5	142.5	182.5	202.0
ZINC	20.05	19.10	18.05	18.15	18.65	12.90
IRON	59.30	82.30	79.40	61.90	68.90	83.50
BORON	15.15	23.05	33.75	19.50	19.90	21.00
CCPPER	3.32	2.98	2.86	3.08	3.37	2.44

NEEDLE WEIGHT (G/100 NEEDLES) 0.556 0.697 0.667 0.764 0.711 0.524

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10150	13550	14950	12883
PHOSPHORUS	2000	2000	1700	1900
POTASSIUM	5453	4817	4618	4962
CALCIUM	3118	3010	2845	2991
MAGNESIUM	1075	1034	961.0	1023
MANGANESE	266.0	154.5	147.0	189.2
ZINC	16.47	18.62	18.35	17.82
IRON	71.40	72.10	74.15	72.55
BORON	18.07	21.27	26.82	22.06
CCPPER	2.88	3.03	3.11	3.01

NEEDLE WEIGHT (G/100 NEEDLES) 0.540 0.730 0.689 0.653

FOLIAR NUTRIENTS ONE YEAR  
AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	N + K	N + K	NONE	NONE	N + K
NITROGEN	14500	15000	14500	12100	13000	17600
PHOSPHORUS	2100	2000	1700	1700	1700	1500
POTASSIUM	7219	6500	8041	6567	6627	7564
CALCIUM	4910	5155	2743	2936	4102	3266
MAGNESIUM	1819	1629	1297	1415	1557	1313
MANGANESE	540.6	187.8	127.2	147.9	231.6	339.7
ZINC	23.84	20.28	13.07	22.21	14.49	28.44
IRON	87.40	106	105.6	76.60	125.3	142.4
BORON	19.36	28.26	27.44	23.10	25.57	29.01
CCPPER	3.24	3.90	2.45	2.56	2.58	2.79

NEEDLE WEIGHT (G/100 NEEDLES) 0.497 0.639 0.718 0.647 0.545 0.572

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	13200	.	15700	14450
PHOSPHORUS	1833	.	1733	1783
POTASSIUM	6804	.	7368	7086
CALCIUM	3983	.	3721	3852
MAGNESIUM	1597	.	1413	1505
MANGANESE	306.7	.	218.2	262.5
ZINC	20.18	.	20.60	20.39
IRON	96.43	.	118	107.2
BORON	22.68	.	28.24	25.46
CCPPER	2.79	.	3.05	2.92

NEEDLE WEIGHT (G/100 NEEDLES) 0.563 . 0.643 0.603

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 282 CCCC MTN  
 REGION: CENTRAL WASHINGTON  
 LEGAL DESCRIPTION: T33N R24E SECTION 15

OWNERSHIP: WASHINGTON DNR  
 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 #	NONE	400 #
NITROGEN	21500	12200	9300	15800	9600	21900
PHOSPHORUS	2700	2600	2900	2600	2300	2400
POTASSIUM	5422	5969	5268	6065	4975	5594
CALCIUM	3428	3490	3951	3169	4167	3812
MAGNESIUM	1650	1285	1261	1400	1453	1212
MANGANESE	377.5	334.0	371.0	357.0	356.0	410.0
ZINC	41.2	26.60	31.70	40.35	32.40	27.85
IRON	60.50	61.00	82.50	84.60	62.10	67.70
BORON	29.35	27.40	22.95	20.05	32.50	26.75
COPPER	3.15	2.85	2.33	3.01	2.44	2.55
NEEDLE WEIGHT (G/100 NEEDLES)	0.936	0.889	0.619	0.917	0.526	0.835

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	9450	14000	21700	15050
PHOSPHORUS	2600	2600	2550	2583
POTASSIUM	5122	6017	5508	5549
CALCIUM	4059	3330	3620	3670
MAGNESIUM	1357	1343	1431	1377
MANGANESE	363.5	345.5	393.8	367.6
ZINC	32.05	33.47	34.55	33.36
IRON	72.30	72.80	64.10	69.73
BORON	27.72	23.72	28.05	26.50
COPPER	2.38	2.93	2.85	2.72
NEEDLE WEIGHT (G/100 NEEDLES)	0.572	0.903	0.886	0.787

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	N + K	NCNE	NONE	N + K	N + K
NITROGEN	10500	9800	9400	9900	12000	13700
PHOSPHORUS	1600	2000	2300	2100	2100	2000
POTASSIUM	6622	7478	6877	10466	7322	8527
CALCIUM	2660	3078	2757	2457	2958	2648
MAGNESIUM	1434	1191	1100	1683	1562	1459
MANGANESE	208.9	220.1	274.0	191.8	415.0	213.7
ZINC	17.71	14.18	18.85	17.94	24.13	19.94
IRON	54.80	87.90	94.30	60.30	54.10	58.40
BORON	13.30	19.83	21.02	16.05	25.07	15.86
COPPER	2.21	2.02	1.85	2.52	2.08	1.70
NEEDLE WEIGHT (G/100 NEEDLES)	0.829	0.764	0.735	0.708	0.723	0.772

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	9533	.	11833	10883
PHOSPHORUS	2000	.	2033	2017
POTASSIUM	7988	.	7776	7882
CALCIUM	2625	.	2908	2766
MAGNESIUM	1406	.	1404	1405
MANGANESE	224.9	.	282.9	253.9
ZINC	18.17	.	19.42	18.79
IRON	69.80	.	66.80	68.30
BORON	16.79	.	20.25	18.52
COPPER	2.19	.	1.93	2.06
NEEDLE WEIGHT (G/100 NEEDLES)	0.757	.	0.753	0.755

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 283 SUMMIT CREEK  
 REGION: CENTRAL WASHINGTON OWNERSHIP: WASHINGTON DNR  
 LEGAL DESCRIPTION: T33N R24E SECTION 4 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	400 #	200 #	NONE	400 #	200 #
NITROGEN	10400	20300	15800	11400	27700	14600
PHOSPHORUS	1900	2300	1900	2400	2700	1600
POTASSIUM	4584	5038	5464	6175	5100	5805
CALCIUM	2991	3860	4090	4364	3359	3817
MAGNESIUM	1131	1342	1472	1323	1006	1169
MANGANESE	308.0	412.0	291.0	408.5	309.0	386.5
ZINC	27.50	40.80	32.15	32.15	31.55	29.30
IRON	41.30	55.90	58.10	49.60	43.40	51.70
BORON	21.65	29.00	23.40	18.95	24.55	21.45
COPPER	3.25	3.29	3.58	2.75	2.51	3.15

NEEDLE WEIGHT (G/100 NEEDLES)

0.625	0.638	0.753	0.539	0.755	0.739
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BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10900	15200	24000	16700
PHOSPHORUS	2150	1750	2500	2133
POTASSIUM	5580	5635	5069	5428
CALCIUM	3678	3954	3630	3754
MAGNESIUM	1227	1321	1175	1241
MANGANESE	358.3	338.8	360.5	352.5
ZINC	29.82	30.72	36.17	32.24
IRON	45.45	54.90	49.65	50.00
BORON	20.30	22.42	26.77	24.17
COPPER	3.02	3.36	3.10	3.16

NEEDLE WEIGHT (G/100 NEEDLES)

0.582	0.746	0.716	0.681
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	NCNE	200 N	NCNE	N + K	N + K
NITROGEN	11200	9600	14300	10300	16700	12500
PHOSPHORUS	1300	1400	1600	2000	2100	1200
POTASSIUM	6560	7558	7470	9263	8615	6383
CALCIUM	2673	2344	3740	3576	4545	3064
MAGNESIUM	1285	1142	1880	1304	1638	1381
MANGANESE	320.2	239.2	286.8	414.7	340.2	329.4
ZINC	20.55	22.58	34.64	26.17	38.29	30.06
IRON	51.40	71.20	67.20	53.00	47.40	69.80
BORON	24.18	27.38	25.00	21.76	23.09	30.56
COPPER	2.26	2.02	2.14	2.08	1.80	2.17

NEEDLE WEIGHT (G/100 NEEDLES)

0.772	0.580	0.813	0.570	0.629	0.733
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BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	9550	14300	13467	12433
PHOSPHORUS	1700	1600	1533	1600
POTASSIUM	8411	7470	7186	7642
CALCIUM	2960	3740	3427	3324
MAGNESIUM	1223	1880	1435	1438
MANGANESE	326.9	286.8	329.9	321.7
ZINC	24.37	34.64	29.65	28.72
IRON	62.10	67.20	56.20	60.00
BORON	24.57	25.00	26.08	25.39
COPPER	2.05	2.14	2.08	2.08

NEEDLE WEIGHT (G/100 NEEDLES)

0.575	0.813	0.711	0.683
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FOLiar NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 284 H.P. VALLEY CHEER  
 REGION: MONTANA OWNERSHIP: FLATHEAD (BIA)  
 LEGAL DESCRIPTION: T17N R21W SECTION 22 MERIDIAN: PRINCIPAL

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
	200 N	200 N	N + K	N + K	NONE	NONE
NITROGEN	11000	12600	12500	12200	10900	11400
PHOSPHORUS	1200	1800	1500	1500	1500	1400
POTASSIUM	7256	6860	7791	10382	6550	7188
CALCIUM	3850	1641	3788	4199	3748	4075
MAGNESIUM	1428	1323	1949	1446	1070	1203
MANGANESE	178.1	170.1	305.3	396.5	238.1	297.0
ZINC	25.24	17.60	35.36	35.73	22.76	19.94
IRON	33.70	21.00	30.30	36.70	50.00	31.70
BORON	21.96	20.63	24.08	25.11	30.54	24.10
COPPER	2.92	3.05	3.96	2.69	2.47	3.16

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	11150	11800	12350	11767
PHOSPHORUS	1450	1500	1500	1483
POTASSIUM	6869	7058	9087	7671
CALCIUM	3912	2746	3994	3550
MAGNESIUM	1137	1376	1698	1403
MANGANESE	267.5	174.1	350.9	264.2
ZINC	21.35	21.42	35.54	26.10
IRON	40.85	27.35	33.50	33.90
BORON	27.32	21.29	24.59	24.40
COPPER	2.81	2.98	3.32	3.04

NEEDLE WEIGHT (G/100 NEEDLES)

	0.823	0.710	0.718	0.750
NITROGEN	0.823	0.710	0.718	0.750
PHOSPHORUS	0.823	0.710	0.718	0.750
POTASSIUM	0.823	0.710	0.718	0.750
CALCIUM	0.823	0.710	0.718	0.750
MAGNESIUM	0.823	0.710	0.718	0.750
MANGANESE	0.823	0.710	0.718	0.750
ZINC	0.823	0.710	0.718	0.750
IRON	0.823	0.710	0.718	0.750
BORON	0.823	0.710	0.718	0.750
COPPER	0.823	0.710	0.718	0.750

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 285 S.P. VALLEY CREEK  
 REGION: MONTANA OWNERSHIP: FLATHEAD (BIA)  
 LEGAL DESCRIPTION: T16N R21W SECTION 2 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 #	NONE	200 #
NITROGEN	12200	14900	18200	15700	12800	14600
PHOSPHORUS	2300	1800	2500	1800	1600	1700
POTASSIUM	6286	4711	5791	4572	4730	4385
CALCIUM	2578	2329	4090	4244	3145	4028
MAGNESIUM	977.0	1027	1534	1265	977.0	1385
MANGANESE	245.5	180.5	242.0	268.0	202.5	297.5
ZINC	29.80	31.05	33.65	34.25	21.20	29.20
IRON	42.20	44.80	40.20	45.30	34.00	35.60
BOBON	15.55	21.40	18.10	21.95	14.10	17.30
CCPPER	3.16	3.05	3.34	3.27	2.69	2.51
NEEDLE WEIGHT (G/100 NEEDLES)	0.526	0.556	0.728	0.565	0.484	0.551

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # K	OVERALL
NITROGEN	12500	14750	16950	14733
PHOSPHORUS	1950	1750	2150	1950
POTASSIUM	5508	4548	5182	5079
CALCIUM	2862	3179	4167	3402
MAGNESIUM	977.0	1206	1400	1194
MANGANESE	224.0	239.0	255.0	239.3
ZINC	25.50	30.12	33.95	29.86
IRON	38.10	40.20	42.75	40.35
BOBON	14.82	19.35	20.02	16.07
CCPPER	2.93	2.78	3.30	3.01
NEEDLE WEIGHT (G/100 NEEDLES)	0.505	0.554	0.646	0.568

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	NCNE	NCNE	200 N	N + K	200 N
NITROGEN	10800	10300	11600	15000	15000	13000
PHOSPHORUS	1800	1300	1800	1800	1500	1400
POTASSIUM	8373	5908	7091	8401	6851	7320
CALCIUM	2923	2807	4196	4861	3463	3501
MAGNESIUM	1232	1335	1477	1615	1219	1472
MANGANESE	295.4	175.3	229.4	250.1	284.1	235.5
ZINC	34.19	33.89	21.68	40.90	33.72	30.02
IRON	28.60	29.30	36.80	41.80	36.70	24.80
BOBON	20.49	24.32	22.84	31.23	21.62	19.58
CCPPER	3.65	2.55	3.62	3.05	3.47	2.41
NEEDLE WEIGHT (G/100 NEEDLES)	0.660	0.746	0.699	0.527	0.674	0.800

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10900	14000	15000	12617
PHOSPHORUS	1633	1600	1500	1600
POTASSIUM	7124	7861	6891	7331
CALCIUM	3309	4181	3463	3625
MAGNESIUM	1348	1544	1219	1392
MANGANESE	233.4	242.8	284.1	245.0
ZINC	29.92	35.46	33.72	32.40
IRON	31.57	33.30	36.70	33.00
BOBON	22.55	25.40	21.02	23.25
CCPPER	3.27	2.73	3.47	3.12
NEEDLE WEIGHT (G/100 NEEDLES)	0.702	0.663	0.674	0.684

## FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 286 BLACK ROCK CREEK  
 REGION: NORTHERN IDAHO OWNERSHIP: BLM (IDAHO)  
 LEGAL DESCRIPTION: T48N R1W SECTION 8 MERIDIAN: FOISE

FOLIAR NUTRIENT CONCENTRATIONS  
 (MICROGRAMS PER GRAM)

FOLIAR NUTRIENTS ONE YEAR  
 AFTER ORIGINAL TREATMENT:

BY PLOT:

	1	2	3	4	5	6
ORIGINAL TREATMENT	200 #	NCNE	400 #	NONE	200 #	400 #
NITROGEN	13400	12300	18500	10700	15800	22000
PHOSPHORUS	1300	3100	2500	2000	2100	2500
POTASSIUM	4956	4773	5038	4653	5374	4634
CALCIUM	4273	3672	3994	3826	3375	4676
MAGNESIUM	1217	1333	1212	1260	989	1688
MANGANESE	563.0	493.0	538.5	607.5	454.5	702.0
ZINC	40.60	31.95	35.20	44.45	48.00	54.15
IRON	100.1	83.40	82.20	114.1	89.10	83.30
BORON	29.25	20.20	14.70	30.95	27.65	19.05
COPPER	3.08	2.75	4.37	3.01	4.32	2.50

NEEDLE WEIGHT (G/100 NEEDLES) 0.747 0.660 0.895 0.640 0.721 0.713

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11500	14600	20250	15450
PHOSPHORUS	2550	1700	2500	2250
POTASSIUM	4713	5165	4836	4905
CALCIUM	3749	3824	4335	3969
MAGNESIUM	1297	1103	1450	1283
MANGANESE	550.3	508.8	620.3	559.8
ZINC	39.20	44.30	44.67	42.72
IRON	98.75	94.60	82.75	92.03
BORON	25.57	28.45	16.87	23.63
COPPER	2.88	3.70	3.43	3.34

NEEDLE WEIGHT (G/100 NEEDLES) 0.650 0.734 0.804 0.729

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	200 #	NCNE	N + K	N + K	NCNE	200 #
NITROGEN	13100	12800	12800	13400	14100	14200
PHOSPHORUS	1100	1600	1600	1300	1500	1100
POTASSIUM	8102	7037	8201	7219	6538	7783
CALCIUM	3689	4270	5282	5356	5334	4637
MAGNESIUM	1341	1402	1652	1690	1336	1767
MANGANESE	403.3	422.1	497.2	687.7	433.2	433.7
ZINC	31.18	29.44	35.41	51.23	44.23	49.10
IRON	117.6	76.10	112.9	124.5	114.7	84.00
BORON	31.93	20.61	17.70	28.94	21.67	17.93
COPPER	2.75	2.58	3.58	3.41	2.83	2.41

NEEDLE WEIGHT (G/100 NEEDLES) 0.624 0.649 0.702 0.665 0.479 0.621

BY NEW TREATMENT:

	NONE	200 # N	N + K	OVERALL
NITROGEN	13450	13650	13100	13400
PHOSPHORUS	1550	1100	1450	1367
POTASSIUM	6788	7943	7710	7480
CALCIUM	4802	4163	5319	4761
MAGNESIUM	1369	1554	1671	1531
MANGANESE	427.6	418.5	592.4	479.5
ZINC	36.83	40.14	43.32	40.10
IRON	95.40	100.8	118.7	105
BORON	20.84	24.93	23.32	23.03
COPPER	2.70	2.58	3.49	2.93

NEEDLE WEIGHT (G/100 NEEDLES) 0.564 0.623 0.684 0.624



FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 287 JIM FORD CREEK  
 REGION: NORTHERN IDAHO CWNERSHIP: PCLATCH  
 LEGAL DESCRIPTION: T35N R4E SECTION 8 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
	NONE	400 #	200 #	NONE	200 #	400 #
NITROGEN	10400	25200	15900	11000	13600	27200
PHOSPHORUS	2600	2900	2300	1900	2000	2500
POTASSIUM	6362	4337	5499	5038	5513	4586
CALCIUM	3783	3769	4431	2722	3457	3672
MAGNESIUM	1189	1280	1659	1193	975.0	869.0
MANGANESE	444.5	504.0	519.5	413.5	426.5	502.5
ZINC	37.50	48.30	53.30	29.00	37.55	32.05
IRON	65.50	50.20	46.70	61.50	69.00	46.70
BORON	30.70	28.90	34.40	33.75	24.10	27.15
CCPPER	3.10	2.85	3.01	2.89	3.10	3.17

NEEDLE WEIGHT (G/100 NEEDLES)

0.522	0.732	0.613	0.583	0.665	0.690
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BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	10700	14750	26200	17217
PHOSPHORUS	2250	2150	2700	2367
POTASSIUM	5700	5506	4462	5223
CALCIUM	3253	3944	3721	3639
MAGNESIUM	1191	1317	1075	1194
MANGANESE	429.0	473.0	503.3	468.4
ZINC	33.25	45.42	40.17	39.62
IRON	63.50	58.00	48.45	56.65
BORON	32.22	29.30	28.02	29.85
CCPPER	2.99	3.05	3.01	3.02

NEEDLE WEIGHT (G/100 NEEDLES)

0.553	0.639	0.711	0.634
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FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	N + K	200 N	200 N	NONE	NCNE	NCNE
NITROGEN	15100	16900	14400	11200	13000	11900
PHOSPHORUS	1800	2700	1600	1400	1700	1600
POTASSIUM	8558	10060	9649	8639	8954	8615
CALCIUM	4466	5591	5475	3760	4946	4669
MAGNESIUM	1362	1858	1989	1567	1611	1352
MANGANESE	486.8	562.8	469.1	519.5	519.0	444.7
ZINC	32.70	50.47	46.90	30.06	41.16	24.13
IRON	102.6	129.8	96.10	90.60	156.9	73.00
BORON	27.63	34.59	34.83	33.21	38.46	30.64
CCPPER	3.30	3.29	3.61	2.82	3.41	1.94

NEEDLE WEIGHT (G/100 NEEDLES)

0.527	0.442	0.534	0.437	0.425	0.530
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BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	12033	15650	15100	13750
PHOSPHORUS	1567	2150	1800	1800
POTASSIUM	8749	9855	8558	9086
CALCIUM	4459	5533	4466	4818
MAGNESIUM	1523	1924	1362	1630
MANGANESE	494.4	515.9	486.8	500.3
ZINC	31.78	48.68	32.70	37.57
IRON	106.8	112.9	102.6	108.2
BORON	34.10	34.71	27.63	33.23
CCPPER	2.72	3.45	3.30	3.06

NEEDLE WEIGHT (G/100 NEEDLES)

0.464	0.488	0.527	0.483
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**FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT**

INSTALLATION 288 MICA MTN  
 REGION: NORTHERN IDAHO  
 LEGAL DESCRIPTION: T49N R5W

OWNERSHIP: INLAND EMPIRE  
 SECTION 33 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	NCNE	200 #	400 #	NONE	400 #	200 #
NITROGEN	11500	14500	19700	12000	23500	15000
PHOSPHORUS	2400	2200	2100	3000	2300	2400
POTASSIUM	5311	5777	6209	5489	4706	5038
CALCIUM	4191	3270	3711	3150	3426	4536
MAGNESIUM	1107	1005	1390	1164	1347	1356
MANGANESE	249.5	271.5	289.5	262.0	292.0	319.5
ZINC	26.85	28.05	37.50	32.95	41.40	34.20
IRON	75.50	79.80	78.30	82.80	64.10	68.50
BORON	20.00	23.75	24.25	31.20	26.20	21.80
COPPER	3.19	4.09	3.84	4.40	3.07	4.12

NEEDLE WEIGHT (G/100 NEEDLES) 0.799 0.817 0.840 0.826 0.841 0.993

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	11750	14750	21600	16033
PHOSPHORUS	2700	2300	2200	2400
POTASSIUM	5400	5408	5458	5422
CALCIUM	3671	3903	3570	3714
MAGNESIUM	1136	1181	1369	1228
MANGANESE	255.8	295.5	290.8	280.7
ZINC	29.90	31.12	39.45	33.49
IRON	79.15	74.15	71.20	74.83
BORON	25.60	22.77	25.22	24.53
COPPER	3.79	4.10	3.45	3.78

NEEDLE WEIGHT (G/100 NEEDLES) 0.813 0.905 0.840 0.853

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

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NCNE	NCNE	NONE	N + K	N + K	N + K
NITROGEN	11800	11600	12800	17200	17200	17400
PHOSPHORUS	1400	1400	1200	1400	1500	1800
POTASSIUM	7789	8285	9880	7426	8497	6661
CALCIUM	5561	4078	5508	3104	4691	4762
MAGNESIUM	1336	1479	1773	1181	1752	1565
MANGANESE	299.7	217.8	289.9	271.8	298.5	349.8
ZINC	28.65	26.39	27.24	28.40	31.75	27.91
IRON	109.2	73.00	98.90	98.30	89.20	111.2
BORON	23.74	24.72	22.41	30.55	24.97	21.91
COPPER	3.56	3.53	3.33	3.84	3.24	3.87

NEEDLE WEIGHT (G/100 NEEDLES) 0.713 0.611 0.658 0.806 0.639 0.805

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	12067	.	17267	14667
PHOSPHORUS	1333	.	1567	1450
POTASSIUM	8651	.	7528	8090
CALCIUM	5049	.	4186	4617
MAGNESIUM	1530	.	1508	1518
MANGANESE	269.1	.	306.7	287.9
ZINC	27.44	.	29.35	28.40
IRON	93.70	.	99.57	96.63
BORON	23.62	.	25.81	24.72
COPPER	3.47	.	3.65	3.56

NEEDLE WEIGHT (G/100 NEEDLES) 0.661 . 0.750 0.705

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 289 GROUSE MTN  
 REGION: NORTHEAST WASHINGTON OWNERSHIP: INLAND EMPIRE  
 LEGAL DESCRIPTION: T40N R40E SECTION 8 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	12900	15600	16500	19800	15300	12800
PHOSPHORUS	3200	3800	2900	2900	2400	4900
POTASSIUM	5575	6175	6809	7269	6036	8157
CALCIUM	6543	5602	5228	6236	4076	5852
MAGNESIUM	1693	1520	1587	2072	1501	1621
MANGANESE	582.5	315.5	532.0	465.5	286.0	242.5
ZINC	55.95	56.50	66.70	73.50	46.45	45.10
IRON	64.40	60.90	66.40	59.80	69.70	81.20
BORON	29.15	20.80	15.80	25.25	30.10	25.70
CCPPER	3.60	3.32	5.13	5.42	3.31	4.48

NEEDLE WEIGHT (G/100 NEEDLES)

0.606 0.835 0.777 0.871 1.083 0.693

BY ORIGINAL TREATMENT:

	NCNE	200 # N	400 # N	OVERALL
NITROGEN	12850	15450	18150	15483
PHOSPHORUS	4050	3100	2900	3350
POTASSIUM	6866	6106	7039	6670
CALCIUM	6198	4839	5732	5590
MAGNESIUM	1657	1511	1830	1666
MANGANESE	412.5	300.8	498.8	404.0
ZINC	50.52	51.47	70.10	57.37
IRON	72.80	65.30	63.10	67.07
BORON	27.12	25.45	20.52	24.37
CCPPER	4.04	3.31	5.27	4.21

NEEDLE WEIGHT (G/100 NEEDLES)

0.649 0.959 0.824 0.811

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

NEW TREATMENT

	1	2	3	4	5	6
	NCNE	200 N	NCNE	200 N	N + K	N + K
NITROGEN	9400	14500	11100	16100	14800	16300
PHOSPHORUS	2400	2400	1700	1700	1900	2800
POTASSIUM	7772	7954	7019	7217	7022	8668
CALCIUM	6110	6079	5115	7828	4425	5735
MAGNESIUM	1381	1683	1771	1990	1459	1655
MANGANESE	416.7	251.9	334.9	259.3	277.9	235.6
ZINC	33.31	60.25	49.76	63.90	30.58	31.34
IRON	52.90	67.50	49.70	61.50	51.10	93.60
BORON	26.14	22.01	13.68	16.90	28.22	19.67
CCPPER	2.73	22.23	2.47	3.15	2.16	4.25

NEEDLE WEIGHT (G/100 NEEDLES)

0.584 0.733 0.477 0.726 0.918 0.823

BY NEW TREATMENT:

	NCNE	200 # N	N + K	OVERALL
NITROGEN	10250	15300	15550	13700
PHOSPHORUS	2050	2050	2350	2150
POTASSIUM	7396	7586	7845	7609
CALCIUM	5613	6954	5080	5882
MAGNESIUM	1576	1837	1577	1663
MANGANESE	375.8	255.6	256.7	296.0
ZINC	41.53	62.07	30.96	44.36
IRON	51.30	64.50	72.35	62.72
BORON	19.91	19.45	23.94	21.10
CCPPER	2.60	12.69	3.50	0.26

NEEDLE WEIGHT (G/100 NEEDLES)

0.530 0.729 0.871 0.710

FOLIAR NUTRIENT CONCENTRATIONS SUMMARY REPORT

INSTALLATION 290 GRASS MTN  
 REGION: NORTHEAST WASHINGTON  
 LEGAL DESCRIPTION: T39N R40E

SECTION 1 OWNERSHIP: 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	400 #	NONE	200 #	NONE	200 #	400 #
NITROGEN	16600	10200	13650	9750	12650	15100
PHOSPHORUS	1900	1700	1650	1650	1800	1550
POTASSIUM	4908	5378	5282	5109	5018	6002
CALCIUM	3692	4431	3548	4201	4138	4786
MAGNESIUM	1486	1213	1107	1217	1126	1222
MANGANESE	295.5	365.5	355.0	558.0	450.0	635.0
ZINC	39.60	33.95	28.60	38.90	37.70	26.30
IRON	51.70	53.90	60.20	50.50	51.95	49.60
BORON	18.80	19.50	15.50	22.50	21.00	11.55
COPPER	2.59	3.75	3.58	3.16	4.13	3.75

NEEDLE WEIGHT (G/100 NEEDLES) 0.816 0.595 0.604 0.511 0.757 0.695

BY ORIGINAL TREATMENT:

	NONE	200 # N	400 # N	OVERALL
NITROGEN	9975	13150	15850	12992
PHOSPHORUS	1675	1725	1725	1708
POTASSIUM	5244	5150	5455	5283
CALCIUM	4316	3843	4239	4132
MAGNESIUM	1215	1116	1354	1228
MANGANESE	461.8	402.5	465.3	443.2
ZINC	36.42	33.15	32.95	34.17
IRON	52.20	56.07	50.65	52.97
BORON	21.00	18.25	15.17	18.14
COPPER	3.46	3.86	3.17	3.50

NEEDLE WEIGHT (G/100 NEEDLES) 0.553 0.681 0.756 0.663

FOLIAR NUTRIENTS ONE YEAR  
 AFTER NEW TREATMENT:

BY PLOT:

	1	2	3	4	5	6
NEW TREATMENT	NONE	NONE	NONE	N + K	200 N	NONE
NITROGEN	10375	9433	9917	11725	12067	10125
PHOSPHORUS	1300	1517	1425	1075	1300	1075
POTASSIUM	5978	7464	7099	6904	5655	6417
CALCIUM	3330	4588	3409	4413	4277	4457
MAGNESIUM	1557	1374	1192	1269	964.6	1580
MANGANESE	251.3	349.0	302.2	563.9	406.0	402.9
ZINC	24.31	28.17	23.78	36.11	33.25	25.62
IRON	66.57	92.20	87.50	66.30	94.56	74.42
BORON	19.33	23.88	14.02	22.96	24.63	16.22
COPPER	1.64	2.50	2.55	2.52	2.39	2.16

NEEDLE WEIGHT (G/100 NEEDLES) 0.548 0.450 0.624 0.591 0.645 0.571

BY NEW TREATMENT:

	NONE	200 # N	N + K	OVERALL
NITROGEN	9962	12067	11725	10607
PHOSPHORUS	1329	1300	1075	1282
POTASSIUM	6739	5655	6904	6586
CALCIUM	3946	4277	4413	4079
MAGNESIUM	1426	964.6	1269	1323
MANGANESE	326.4	406.0	563.9	379.2
ZINC	25.47	33.25	36.11	28.54
IRON	80.17	94.56	66.30	80.26
BORON	18.36	24.63	22.96	20.17
COPPER	2.21	2.39	2.52	2.29

NEEDLE WEIGHT (G/100 NEEDLES) 0.548 0.645 0.591 0.571