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Phytotoxicity Tests on soils from the Los Alamos National Laboratory

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22 September 2005

by

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preface

This report describes phytotoxicity test results from studies conducted by ecological planning and toxicology, inc. (**ep** and **t**) in the summer of 2005. Soil Samples were collected by staff from Los Alamos National Laboratory (LANL) and their subcontractors in late June and in early July from locations in and near the Los Alamos National Laboratory, New Mexico. The single test species used was western yarrow (*Achillea millefolium*). This report describes the features of the phytotoxicity tests performed and organizes the extensive dataset from the in-life portion of the toxicity tests. Negative and Positive Controls were run as part of the quality assurance/quality control component of the tests. Results from multiple endpoints are compared and interpreted in relation to endpoints measured from the negative control. Information regarding chemical analyses of site soils and vegetation collected from the sites will be analyzed separately by LANL.

Personnel from ep and t involved in the phytotoxicity tests.	
Project Title	**Person**
Principal Investigator	Lawrence A. Kapustka, Ph.D.
Technician	Joan Yocum
Contracts/Data Manager	Elizabeth A. Kapustka

executive summary

Laboratory phytotoxicity tests following the ASTM E1963-98 Standard were conducted by ecological planning and toxicology, inc. on soils from Los Alamos National Laboratory. Samples were collected by Los Alamos National Laboratory staff and their sub contractors on 30 June 2005 and shipped to Corvallis on 5 July. Insufficient material was received and a second collection was made and received in Corvallis on 12 July 2005. Eight site soils were tested. The soils from the two shipments were combined and screened for gravel and organic debris. Negative Controls (i.e., no toxicant) and Positive Controls (at three concentrations of boron as boric acid) were tested along with the eight samples. Five replicates each of yarrow were planted as seed. The test began on 20 July 2005 and ended on 18 August 2005. Weekly observations were made noting plant appearance, relative height, and numbers of surviving plants. At harvest, measurement endpoints were: number of plants surviving, color and appearance of shoots and roots, shoot height, root length, shoot mass, and root mass. The mean total plant mass was obtained for each replicate by adding the mean shoot and root mass values. Performance of control plants and environmental parameters during the test were within nominal ranges, indicating the tests were valid for the purposes of evaluating phytotoxic responses. Each of the endpoints of plants from site samples was compared to those plants from the negative control.

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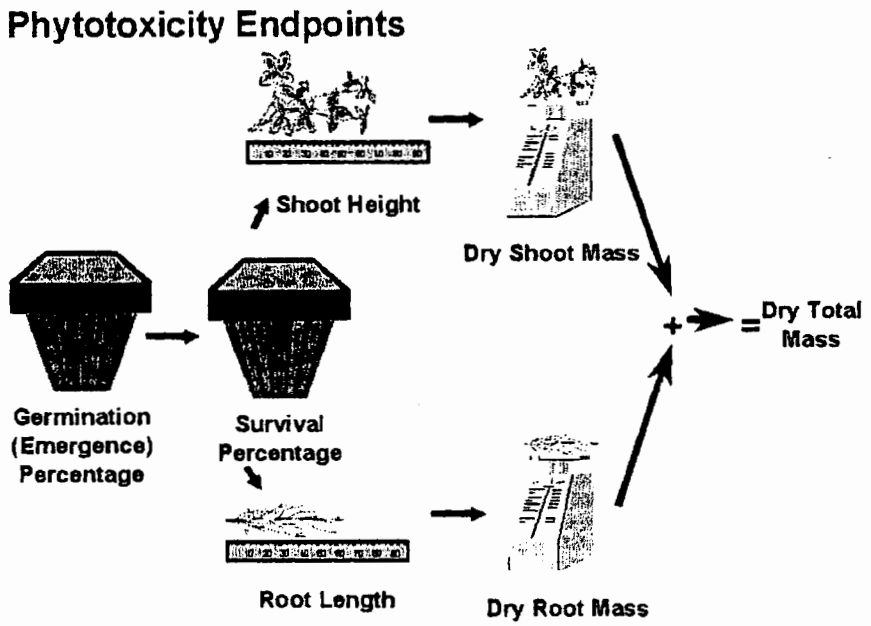
abbreviations

C	Celsius
Ca	calcium
CoC	Constituents of Concern
cm	centimeter
ep and t	ecological planning and toxicology, inc.
g	gram
kg	kilogram
mg	milligram
mm	millimeter
PAR	Photosynthetically Active Radiation
pH	negative log of hydrogen ion concentration
ppm	part per million
RH	Relative Humidity
s	second
µmol	micromole

Appendix 1. Illustration of quantitative measurement endpoints.



1. Introduction

The Los Alamos National Laboratory site contains various Constituents of Concern (CoC). Toxicity testing was selected as a means of gathering site-specific information for use an Ecological Risk Assessment being prepared by LANL. Specific details regarding the CoC and the respective soil concentrations are known by LANL and will be used to interpret results of toxicity tests.

1.1 Scope of Work

ecological planning and toxicology, inc. (**ep** and **t**) was contracted to perform laboratory phytotoxicity tests on an eight environmental samples from Los Alamos National Laboratory, New Mexico. The tests performed by **ep** and **t** followed procedures described in the ASTM E1963-98 *Standard Guide for Conducting Plant Toxicity Tests* (ASTM, 2002). The scope of work performed by **ep** and **t** was limited to the conduct laboratory phytotoxicity tests, interpretation of the results in relation to Negative and Positive Controls, and preparation of this report. The full dataset compiled as part of this test is submitted separately as the data package supporting this report.

1.2 Objectives

The tests performed by **ep** and **t** were intended to:

1) characterize the magnitude of phytotoxic response to contaminants in soils from the Los Alamos; and
2) interpret the relationships between phytotoxic responses in relation to Negative and Positive Controls.

2. Materials and Methods

The tests were conducted on eight soil samples collected from the Los Alamos site. Artificial soil was used for negative and positive controls. Western yarrow (*Achillea millefolium* L.) was the test species.

Soil samples were collected by LANL staff and their subcontractors and shipped to **ep** and **t** at 5010 SW Hout Street, Corvallis, OR via FedEx in 2-liter polyethylene bags. Chain-of-Custody forms were executed by Joan Yocum upon receipt of samples 6 July 2005 and 12 July 2005.

LANL SAMPLE ID	LAB SAMPLE ID
CAMO 05 61156	LAPT1
CAMO 05 61157	LAPT2
CAMO 05 61158	LAPT3
CAMO 05 61159	LAPT4
CAMO 05 61160	LAPT5
CAMO 05 61161	LAPT6
CAMO 05 61162	LAPT7
CAMO 05 61183	LAPT8

2.1 Test species

Seeds were purchased for the study (Table 1).

Table 1. Source of seeds used in tests.

Common Name:	Western Yarrow
Binomial:	*Achillea millefolium L. var. occidentalis*
Supplier:	Territorial Seeds
Lot Number:	Lot # L48-4-107
Germination:	94%

2.2 Test design

The ASTM E1963-98 *Standard Guide for Conducting Plant Toxicity Tests Annex 1 Seedling Emergence* (ASTM, 2002) was used for this project. This Guide provides descriptions of steps used in testing environmental (i.e., site) samples to determine phytotoxicity vis-à-vis reference samples. Plant performance was evaluated in comparison to endpoints measured using negative controls. The Guide also provides for a wide range of plant species that are suited for use in such tests. The duration of the test minimizes nutrient effects and therefore focuses on faster acting toxicity effects without the need to supplement the test soils with plant nutrients.

2.2.1 set-up

Eight site samples were tested. Forty pots (8 samples x 5 replicates) were prepared for the test species. Five replicate pots for each of three Positive Control concentrations (160-, 320-, and 640 ppm boron as boric acid) and five replicate Negative Controls were prepared. Negative and Positive Controls used standard artificial soil consisting of sand (70%), kaolinite (20%), peat moss (10%), and calcium carbonate to achieve pH$\simeq$7 (~0.4%). The basic steps in the test involved:

- preparation of test matrix [natural soil or artificial soil (for controls)] in pots;
- introduction of seeds into the test matrix;
- observation of emergence, general growth conditions, and survival over the test period; and
- quantitative measures of several plant growth parameters at the conclusion of the test.

2.2.2 measurement endpoints

We recorded qualitative information during the course of the tests. This included relative height of plants and appearance of the plants at emergence and at weekly intervals until harvest.

Qualitative observations of shoot height were recorded as relative to the reference (Negative Controls). General height of all plants in each replicate pot was noted as nominal or assigned to a quartile rank:

N nominal defined as $\geq$90% of the reference;

-1 75% to <90%;

-2 50% to <75%;

-3 25% to <50%; and

-4 <25%.

Similarly, the appearance of shoots and roots were noted categorically:

N = normal color;

-1 one or a few plants showing slight streaking, spotting, or yellowing;

-2 one or a few plants showing obvious streaking, spotting, or yellowing;

-3 most plants showing obvious streaking spotting, or yellowing; and

-4 most plants showing severe chlorosis or other discoloration.

Phytotoxicity may be expressed in one or more plant endpoints (Kapustka, 1997). The ASTM Guide recommends measurement of multiple endpoints. Quantitative data (counts, height or length, and mass; See summary table in Appendix 1) as well as qualitative observations were gathered during and at the conclusion of the test (Table 2).

Table 2. Endpoints used to evaluate phytotoxicity.

Endpoint	Method	Level
Emergence	count	individual
Day 7 post-emergence	count	individual
Day 7 post-emergence shoot appearance	qualitative observations	replicate group (pot)
Day 14 post-emergence	count	individual
Day 14 post-emergence shoot appearance	qualitative observations	replicate group (pot)
Day 14 post-emergence root appearance	qualitative observations	replicate group (pot)
Survival	count	individual
stem height	ruler	individual heights averaged for replicate group (pot)
root length (longest root)	ruler	individual lengths averaged for replicate group (pot)
shoot mass (wet and dry)	balance	replicate group (pot)
root mass (wet and dry)	balance	replicate group (pot)
total mass (wet and dry)	summed (shoot and root mass)	replicate group (pot)
total mass (dry) per plant	total mass/number of survivors	replicate group (pot)

2.2.3 test conditions

Generalized ranges of test conditions appropriate for the tests [e.g., and at least 100 μmol m^{-2} s^{-1} photosynthetically active radiation (PAR); ambient temperatures between 20 C and 30 C] and descriptions of other factors important to the conduct of the test are detailed in the Guide.

Following receipt and processing of soils, the tests were initiated on 27 August 2002 (Table 3). The plants were harvested on 24 September 2002.

Table 3. Phytotoxicity test dates and species tested

Test Species		Start Date	End Date
Yarrow	*Achillea millefolium* L. var. *occidentalis*	20 July 2005	18 August 2005

The test room used for this study has dedicated controls for temperature, ventilation, and lighting. The target temperature was set at 22 C. A 16:8 (light:dark) photoperiod was used. Lighting was provided by Westinghouse Real Lite™, 48-inch fluorescent, 40 Watt, Full Spectrum bulbs (Domestic Code F40T12/FS). The Guide recommends ambient temperatures between 20 C and 30 C and at least 100 μmol m^{-2} s^{-1} photosynthetically active radiation (PAR). Conditions during the test satisfied the guidelines (Table 4, Appendix 2).

Table 4. Environmental parameters of test room.

Parameter	Minimum	Maximum	Mean	Standard Deviation
Temperature	20.7	23.9	22.5	0.3
Relative Humidity	33.0	59.0	44.7	3.6

Light fluence rate was measured using a LiCor Sunfleck Quantum Sensor Model SF-80 during the test. Fluence rate for different locations in the growing area ranged from 138 to 185 μmol m^{-2} s^{-1} PAR. The mean fluence rate was 161 μmol m^{-2} s^{-1} PAR.

2.3 Statistical tests

Data were transcribed from paper data sheets into electronic format in a Microsoft ACCESS® Database. All entries were crosschecked for accuracy. Data reports prepared in Access were converted to EXCEL® files. The non-parametric means test (Kruskal-Wallis) was run using STATISTIX7® (ANALYTICAL SOFTWARE, 2000).

3. Results and Discussion

Information presented in this section includes narrative descriptions and quantitative summaries of endpoints for each sample.

3.1 Narrative descriptions of plant performance in laboratory phytotoxicity tests

Yarrow was planted directly into the soil and run for 21-Days Post Emergence. Growth of Negative and Positive Controls followed nominal patterns during the course of this study. Narrative descriptions provided here were developed prior to conducting any statistical comparisons to any reference samples. Consequently, these descriptions reflect qualitative comparisons only. They should not be construed independently to imply statistical differences or biological importance. The large variation in plant responses typical of non-standard test species such as western yarrow limits the ability to detect statistical significance among apparent differences in measurement endpoints. The following narratives describe only gross percentage differences relative to the negative controls.

All LANL Samples:Growth was nominal for all test samples for Mean Emergence Count, Mean Emergence Height, Mean Emergence Color Severity, Mean Emergence Appearance, Mean 7-Day PE Count, Mean 14-Day PE Count, Mean 14-day PE Appearance, Mean Harvest Count, Mean Harvest Root Color Severity, Mean Harvest Shoot Appearance.

CAMO 05 61156: Plant Growth in CAMO 05 61156 in general was inhibited. Mean 7-Day PE Height was moderately inhibited. Mean 7-Day PE Color severity was inhibited. Mean 14-Day PE Height was inhibited. Mean 14-Day PE Color severity was nominal. Mean Harvest Shoot Color Severity was nominal. Mean Shoot Height was inhibited. Mean Root Length was moderately inhibited. Mean Shoot Dry Weight was inhibited. Mean root dry weight was inhibited. Mean Total Dry Weight per Pot was inhibited. Mean Total Dry Weight per Plant was inhibited.

CAMO 05 61157: Plant Growth in CAMO 05 61157 in general was inhibited. Mean 7-Day PE Height was nominal Mean 7-Day PE Color severity was nominal. Mean 14-Day PE Height was inhibited. Mean 14-Day PE Color severity was slightly inhibited. Mean Harvest Shoot Color Severity was moderately inhibited. Mean Shoot Height was moderately inhibited. Mean Root Length was moderately inhibited. Mean Shoot Dry Weight was moderately inhibited. Mean root dry weight was inhibited. Mean Total Dry Weight per Pot was inhibited. Mean Total Dry Weight per Plant was inhibited.

CAMO 05 61158: Plant Growth in CAMO 05 61158 in general was inhibited. Mean 7-Day PE Height was nominal Mean 7-Day PE Color severity was nominal. Mean 14-Day PE Height was moderately inhibited. Mean 14-Day PE Color severity was slightly inhibited. Mean Harvest Shoot Color Severity was moderately inhibited. Mean Shoot Height was moderately inhibited. Mean Root Length was slightly inhibited. Mean Shoot Dry Weight was moderately inhibited. Mean root dry weight was severely inhibited. Mean Total Dry Weight per Pot was inhibited. Mean Total Dry Weight per Plant was inhibited.

CAMO 05 61159: Plant Growth in CAMO 05 61159 in general was inhibited. Mean 7-Day PE Height was slightly inhibited. Mean 7-Day PE Color severity was slightly inhibited. Mean 14-Day PE Height was moderately inhibited. Mean 14-Day PE Color severity was nominal. Mean Harvest Shoot Color

Severity was moderately inhibited. Mean Shoot Height was moderately inhibited. Mean Root Length was slightly inhibited. Mean Shoot Dry Weight was inhibited. Mean root dry weight was inhibited. Mean Total Dry Weight per Pot was inhibited. Mean Total Dry Weight per Plant was inhibited.

CAMO 05 61160: Plant Growth in CAMO 05 61160 in general was inhibited. Mean 7-Day PE Height was slightly inhibited. Mean 7-Day PE Color severity was slightly inhibited. Mean 14-Day PE Height was moderately inhibited. Mean 14-Day PE Color severity was moderately inhibited. Mean Harvest Shoot Color Severity was moderately inhibited. Mean Shoot Height was moderately inhibited. Mean Root Length was moderately inhibited. Mean Shoot Dry Weight was inhibited. Mean root dry weight was inhibited. Mean Total Dry Weight per Pot was inhibited. Mean Total Dry Weight per Plant was inhibited.

CAMO 05 61161: Plant Growth in CAMO 05 61161 in general was inhibited. Mean 7-Day PE Height was slightly inhibited. Mean 7-Day PE Color severity was slightly inhibited. Mean 14-Day PE Height was moderately inhibited. Mean 14-Day PE Color severity was moderately inhibited. Mean Harvest Shoot Color Severity was moderately inhibited. Mean Shoot Height was moderately inhibited. Mean Root Length was moderately inhibited. Mean Shoot Dry Weight was inhibited. Mean root dry weight was inhibited. Mean Total Dry Weight per Pot was inhibited. Mean Total Dry Weight per Plant was inhibited.

CAMO 05 61162: Plant Growth in CAMO 05 61162 in general was inhibited. Mean 7-Day PE Height was nominal. Mean 7-Day PE Color severity was nominal. Mean 14-Day PE Height was inhibited. Mean 14-Day PE Color severity was moderately inhibited. Mean Harvest Shoot Color Severity was moderately inhibited. Mean Shoot Height was moderately inhibited. Mean Root Length was moderately inhibited. Mean Shoot Dry Weight was inhibited. Mean root dry weight was inhibited. Mean Total Dry Weight per Pot was inhibited. Mean Total Dry Weight per Plant was inhibited.

CAMO 05 61183: Plant Growth in CAMO 05 61183 in general was inhibited. Mean 7-Day PE Height was nominal. Mean 7-Day PE Color severity was nominal. Mean 14-Day Post Emergence Height was slightly inhibited. Mean 14-Day PE Color Severity was nominal. Mean Harvest Shoot Color Severity was inhibited. Mean Shoot Height was moderately inhibited. Mean Root Length was slightly inhibited. Mean Shoot Dry Weight was inhibited. Mean root dry weight was inhibited. Mean Total Dry Weight per Pot was inhibited. Mean Total Dry Weight per Plant was inhibited.

3.2 Quantitative summaries

Due to the similarity in growth responses for plants in all treatments, none of the samples were distinguishable for any measurement endpoints. Consequently Measurements of plant performance were analyzed using non-parametric statistical tests (e.g., Kruskal-Wallis) to ascertain significant differences among treatments (Kapustka *et al.*, 1995). Phytotoxicity may be expressed in one or more plant endpoints (Kapustka, 1997). The ASTM Guide recommends measurement of multiple endpoints.

In order to gain an overview of the large quantity of data, we have developed a method to rank degrees of plant response. Classification of samples according to plant responses followed the methods described in Kapustka, *et al.* (1995). This method provides a means of indexing endpoints degree of responsiveness or performance for each soil sample relative to reference samples. However, in this test, only shoot height and root length measurements were statistically different among treatments (see Appendix 3). All other variables differed only in comparisons between Negative and Positive Controls.

4. Conclusions

Based on the performance of negative and positive controls as well as the test room environment being within guideline specifications, the results of this test are valid for the purposes of evaluating phytotoxic responses. Additional insights might be gleaned from comparisons of the results with analytical chemical information obtained from the sample splits analyzed for CoC.

5. References Cited

ASTM. 2002. Standard Guide for Conducting Terrestrial Plant Toxicity Tests. Designation: E 1963-98 *Annual Book of Standards*. American Society for Testing and Materials. West Conshohocken, PA.

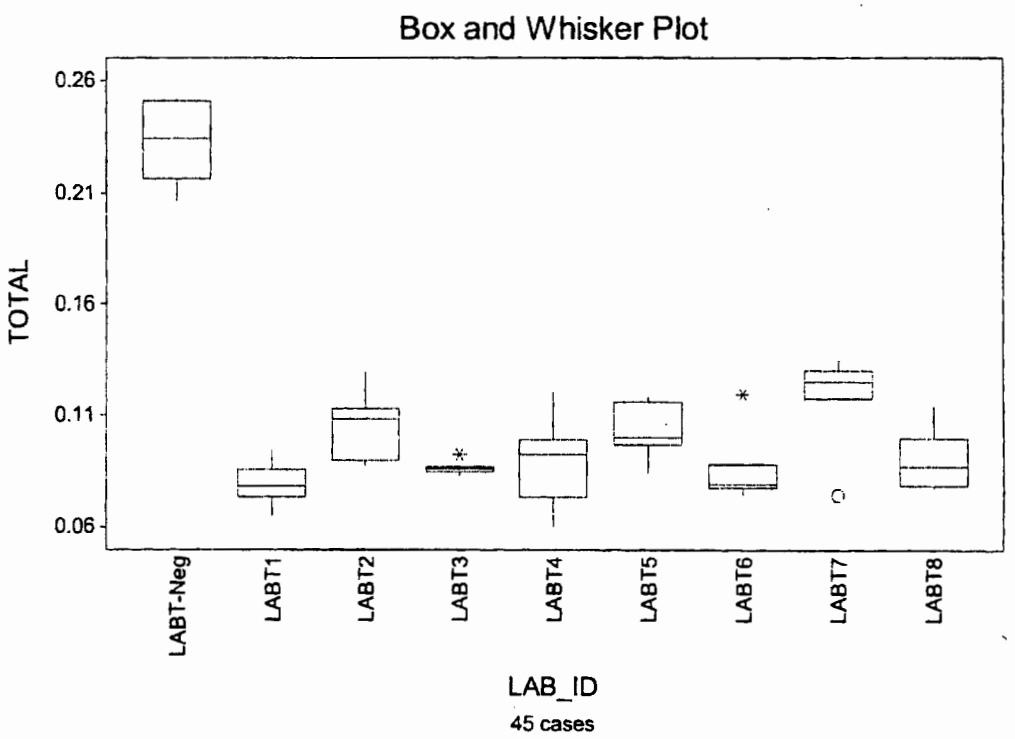
Kapustka, L. A. 1997. Selection of phytotoxicity tests for use in ecological risk assessments. Chapter 17, pages 515-548 in Wang, W., J. Gorsuch, and J. S. Hughes, eds. *Plants for environmental studies*. Lewis Press, Boca Raton, FL.

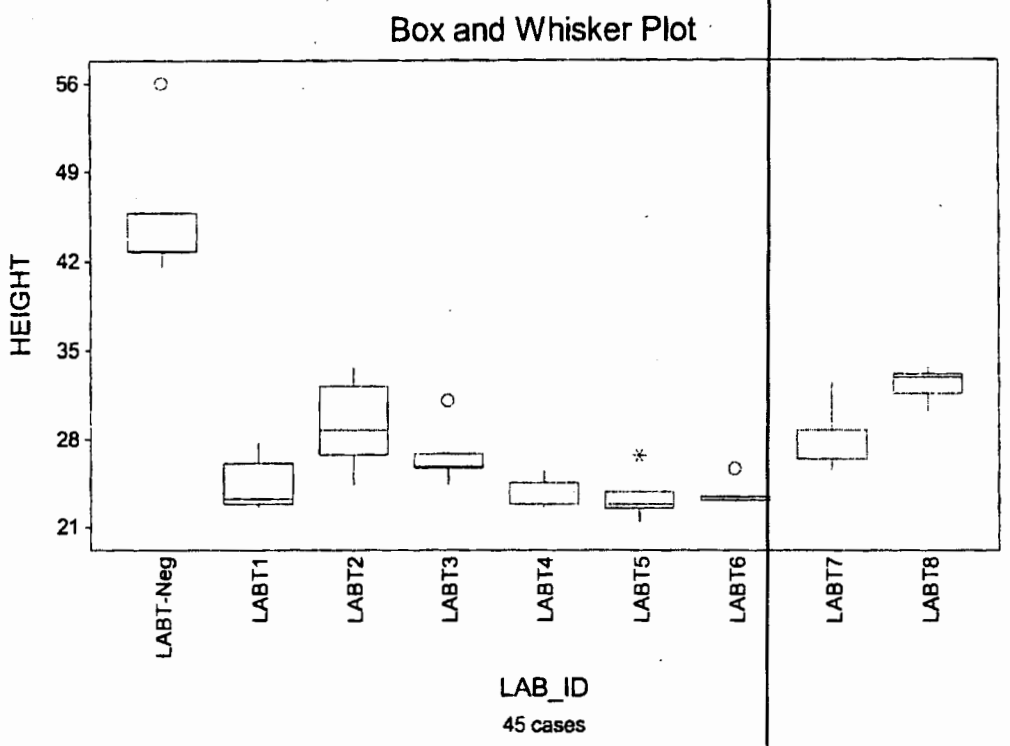
Analytical Software. 2000. *Statistix7 for Windows 95, 98, NT, 2000*. Analytical Software, Tallahassee, FL 32317.

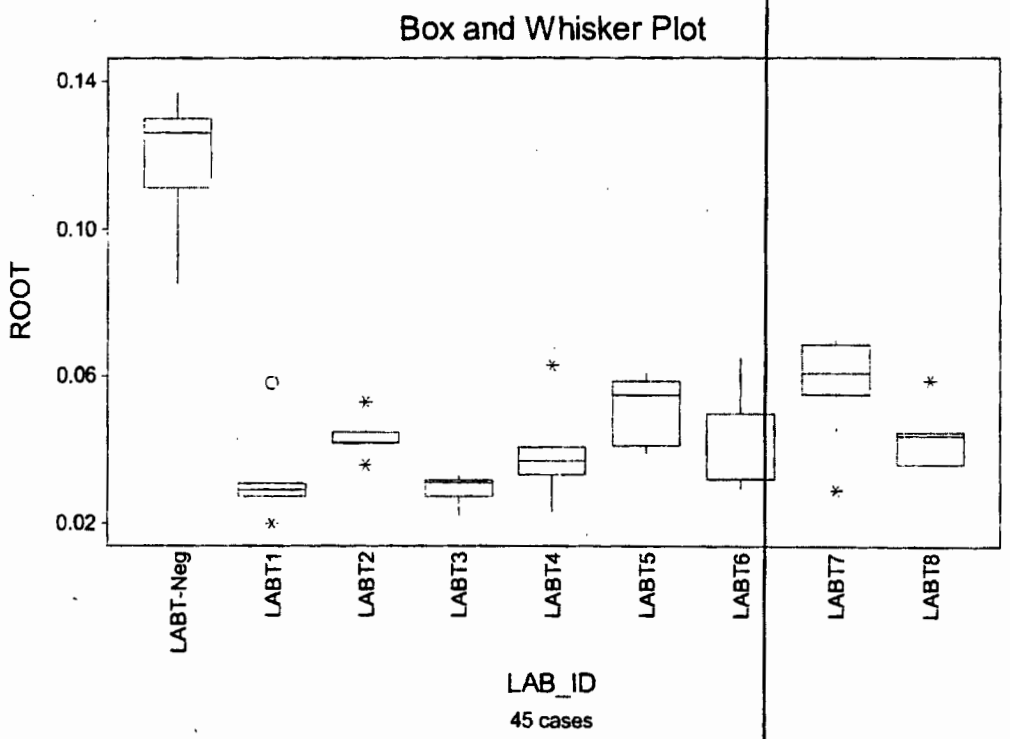
Appendix 2. Test room environmental data.

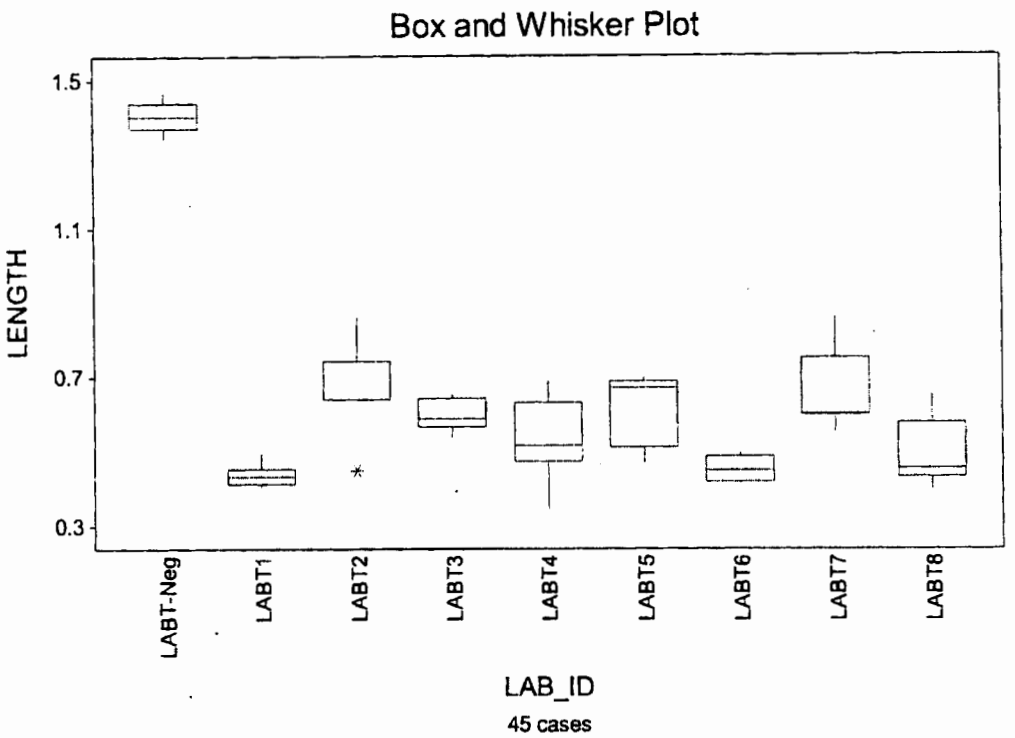
Date	Min. Temp.	Max. Temp.	Mean Temp	Min. Humidity	Max. Humidity	Mean Humidity
20-Jul-05	20.7	23.8	22.3	44	55	49.5
21-Jul-05	20.8	23.9	22.4	45	50	47.5
22-Jul-05	21.5	23.8	22.7	43	54	48.5
23-Jul-05	21.1	23.7	22.4	43	50	46.5
24-Jul-05	20.9	23.9	22.4	41	49	45.0
25-Jul-05	20.7	23.7	22.2	42	48	45.0
26-Jul-05	21.2	23.8	22.5	42	55	48.5
27-Jul-05	21.1	23.8	22.5	41	53	47.0
28-Jul-05	20.7	23.2	22.0	39	59	49.0
29-Jul-05	21.1	23.1	22.1	38	42	40.0
30-Jul-05	21.4	22.0	21.7	37	43	40.0
31-Jul-05	21.2	22.1	21.7	38	44	41.0
1-Aug-05	21.3	23.6	22.5	39	46	42.5
2-Aug-05	21.1	23.7	22.4	40	45	42.5
3-Aug-05	21.0	23.6	22.3	41	48	44.5
4-Aug-05	21.2	23.9	22.6	40	54	47.0
5-Aug-05	21.3	23.8	22.6	44	56	50.0
6-Aug-05	21.5	23.9	22.7	37	42	39.5
7-Aug-05	21.7	23.8	22.8	33	43	38.0
8-Aug-05	22.0	23.9	23.0	35	44	39.5
9-Aug-05	22.2	23.9	23.1	38	45	41.5
10-Aug-05	22.3	23.8	23.1	34	44	39.0
11-Aug-05	22.2	23.4	22.8	35	48	41.5
12-Aug-05	21.9	23.4	22.7	38	54	46.0
13-Aug-05	21.3	23.5	22.4	40	53	46.5
14-Aug-05	21.1	23.7	22.4	41	51	46.0
15-Aug-05	21.0	23.7	22.4	42	52	47.0
16-Aug-05	21.2	23.8	22.5	45	52	48.5
17-Aug-05	21.2	23.9	22.6	43	52	47.5
18-Aug-05	21.3	23.8	22.6	43	51	47.0
Mean	21.3	23.6	22.5	40.0	49.4	44.7
StDev	0.434	0.460	0.322	3.188	4.652	3.556
	Min.	Max.		Min.	Max.	
	20.7	23.9		33.0	59.0	

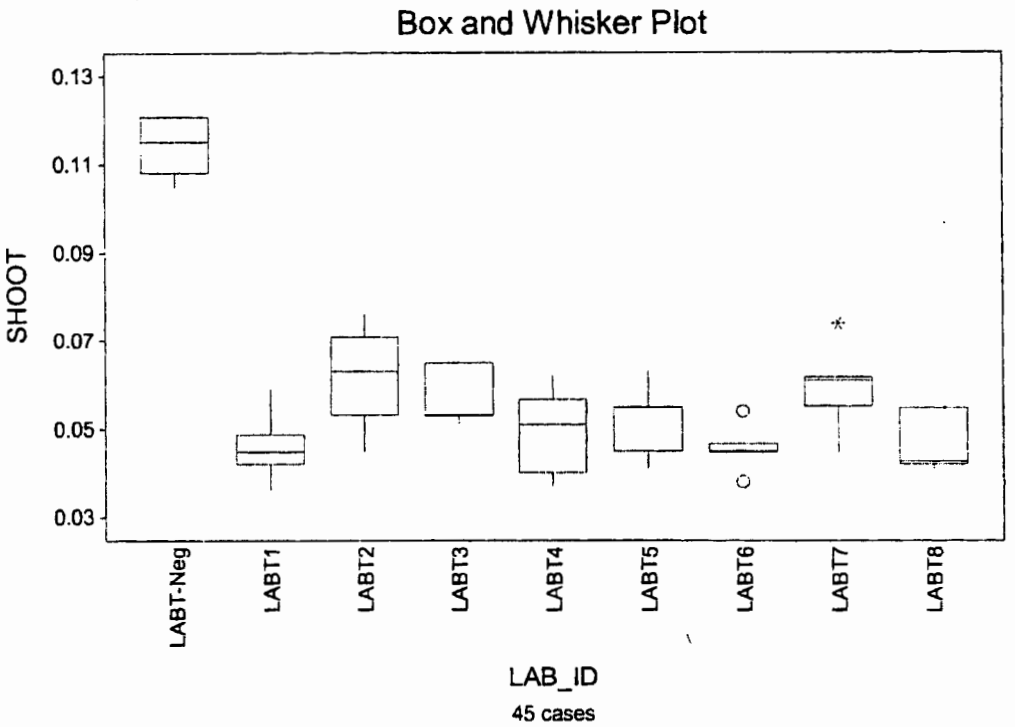
Appendix 3. Whisker Plots




Box and Whisker Plot
HEIGHT
56
49
42
35
28
21
LABT-Neg
LABT1
LABT2
LABT3
LABT4
LABT5
LABT6
LABT7
LABT8
LAB_ID
45 cases


Box and Whisker Plot
ROOT
0.14
0.10
0.06
0.02
LABT-Neg
LABT1
LABT2
LABT3
LABT4
LABT5
LABT6
LABT7
LABT8
LAB_ID
45 cases


Box and Whisker Plot
LENGTH
1.5
1.1
0.7
0.3
LABT-Neg
LABT1
LABT2
LABT3
LABT4
LABT5
LABT6
LABT7
LABT8
LAB_ID
45 cases


Box and Whisker Plot
SHOOT
0.13
0.11
0.09
0.07
0.05
0.03
LABT-Neg
LABT1
LABT2
LABT3
LABT4
LABT5
LABT6
LABT7
LABT8
LAB_ID
45 cases

Appendix 4. Statistical summaries

Kruskal-Wallis One-Way Nonparametric AOV For Total By Lab_ID

LAB_ID	MEAN RANK	SAMPLE SIZE
LABT-Neg	43.0	5
LABT1	10.9	5
LABT2	27.2	5
LABT3	16.3	5
LABT4	17.8	5
LABT5	26.4	5
LABT6	15.8	5
LABT7	30.9	5
LABT8	18.7	5
TOTAL	23.0	45

Kruskal-Wallis statistic 22.6347
P-value, using Chi-Squared approximation 0.0039

Parametric AOV Applied To Ranks

SOURCE	DF	SS	MS	F	P
BETWEEN	8	3901.40	487.675	4.77	0.0005
WITHIN	36	3682.60	102.294		
TOTAL	44	7584.00			

Total number of values that were tied 19
Max. Diff. Allowed between ties 0.00001

Cases included 45 missing cases 0

Kruskal-Wallis One-Way Nonparametric AOV For Shoot By Lab_ID

LAB_ID	MEAN RANK	SAMPLE SIZE
LABT-Neg	43.0	5
LABT1	13.6	5
LABT2	29.2	5
LABT3	26.7	5
LABT4	17.2	5
LABT5	20.9	5
LABT6	13.4	5
LABT7	28.2	5
LABT8	14.8	5
TOTAL	23.0	45

Kruskal-Wallis statistic 22.2702
P-value, using Chi-Squared approximation 0.0044

Parametric AOV applied to ranks

SOURCE	DF	SS	MS	F	P
BETWEEN	8	3824.90	478.112	4.61	0.0006
WITHIN	36	3732.10	103.669		
TOTAL	44	7557.00			

Total number of values that were tied 28
Max. Diff. Allowed between ties 0.00001

Cases Included 45 Missing Cases 0

Kruskal-Wallis One-Way Nonparametric Aov For Root By Lab_ID

LAB_ID	MEAN RANK	SAMPLE SIZE
LABT-Neg	43.0	5
LABT1	10.8	5
LABT2	23.9	5
LABT3	8.5	5
LABT4	19.0	5
LABT5	28.2	5
LABT6	19.4	5
LABT7	30.4	5
LABT8	23.8	5
TOTAL	23.0	45

Kruskal-Wallis statistic 25.2901
P-value, using Chi-Squared approximation 0.0014

Parametric AOV Applied To Ranks

SOURCE	DF	SS	MS	F	P
BETWEEN	8	4356.50	544.563	6.08	0.0001
WITHIN	36	3223.00	89.5278		
TOTAL	44	7579.50			

Total number of values that were tied 27
Max. Diff. Allowed between ties 0.00001

Cases Included 45 Missing Cases 0

Kruskal-Wallis One-Way Nonparametric AOV For Length By Lab_ID

LAB_ID	MEAN RANK	SAMPLE SIZE
LABT-Neg	43.0	5
LABT1	8.6	5
LABT2	28.8	5
LABT3	25.6	5
LABT4	19.0	5
LABT5	27.0	5
LABT6	10.4	5
LABT7	29.8	5
LABT8	14.8	5
TOTAL	23.0	45

Kruskal-Wallis statistic 27.5942
P-value, using Chi-Squared approximation 0.0006

Parametric AOV Applied To Ranks

SOURCE	DF	SS	MS	F	P
BETWEEN	8	4760.00	595.000	7.57	0.0000
WITHIN	36	2830.00	78.6111		
TOTAL	44	7590.00			

Total number of values that were tied 0
Max. Diff. Allowed between ties 0.00001

Cases Included 45 Missing Cases 0

Descriptive Statistics For Lab_ID= LABT-Neg

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	15.200	15.000	45.777	1.4064	3.0000
SD	0.8367	0.7071	5.9376	0.0500	1.5811
C.V.	5.5043	4.7140	12.971	3.5554	52.705
MINIMUM	14.000	14.000	41.500	1.3480	1.0000
MAXIMUM	16.000	16.000	56.000	1.4690	5.0000
SKEW	-0.3436	0.0000	1.2486	0.0870	0.0000
KURTOSIS	-1.1531	-0.5000	-0.1283	-1.4728	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.1178	0.1140	0.2318
SD	0.0207	7.348E-03	0.0206
C.V.	17.535	6.4460	8.8853
MINIMUM	0.0850	0.1050	0.2060
MAXIMUM	0.1370	0.1210	0.2520
SKEW	-0.8295	-0.1817	-0.1851
KURTOSIS	-0.7308	-1.6433	-1.5971

Descriptive Statistics For Lab_ID = LABT-Pos 1

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	15.200	15.400	33.492	0.9314	3.0000
SD	0.8367	0.5477	1.0229	0.1273	1.5811
C.V.	5.5043	3.5566	3.0543	13.668	52.705
MINIMUM	14.000	15.000	31.813	0.8030	1.0000
MAXIMUM	16.000	16.000	34.313	1.1210	5.0000
SKEW	-0.3436	0.4082	-0.9880	0.5023	0.0000
KURTOSIS	-1.1531	-1.8333	-0.5242	-1.0040	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.0410	0.0780	0.1190
SD	6.671E-03	0.0103	0.0138
C.V.	16.270	13.231	11.629
MINIMUM	0.0330	0.0690	0.1050
MAXIMUM	0.0500	0.0950	0.1400
SKEW	0.2034	0.9949	0.5942
KURTOSIS	-1.2373	-0.4749	-0.9247

Descriptive statistics for LAB_ID = LABT-Pos 2

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	15.200	15.400	24.203	0.7016	3.0000
SD	0.4472	0.5477	2.1600	0.0380	1.5811
C.V.	2.9422	3.5566	8.9243	5.4092	52.705
MINIMUM	15.000	15.000	22.067	0.6410	1.0000
MAXIMUM	16.000	16.000	27.133	0.7380	5.0000
SKEW	1.5000	0.4082	0.2806	-0.7864	0.0000
KURTOSIS	0.2500	-1.8333	-1.3938	-0.6190	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.0364	0.0546	0.0910
SD	6.309E-03	6.804E-03	0.0108
C.V.	17.332	12.462	11.886
MINIMUM	0.0290	0.0450	0.0820
MAXIMUM	0.0430	0.0640	0.1060
SKEW	-0.1106	-0.0492	0.5460
KURTOSIS	-1.6723	-0.6222	-1.4914

Descriptive statistics for LAB_ID = LABT-Pos 3

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	15.000	3.4000	14.153	0.0304	3.0000
SD	1.4142	1.1402	1.0331	9.236E-03	1.5811
C.V.	9.4281	33.535	7.2993	30.381	52.705
MINIMUM	13.000	2.0000	12.667	0.0200	1.0000
MAXIMUM	16.000	5.0000	15.500	0.0420	5.0000
SKEW	-0.5929	0.2715	-0.1927	0.1129	0.0000
KURTOSIS	-1.4375	-1.0444	-0.7476	-1.5096	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	6.200E-03	6.400E-03	0.0126
SD	2.775E-03	1.140E-03	2.074E-03
C.V.	44.756	17.815	16.457
MINIMUM	2.000E-03	5.000E-03	9.000E-03
MAXIMUM	9.000E-03	8.000E-03	0.0140
SKEW	-0.6216	0.2715	-1.2865
KURTOSIS	-0.9675	-1.0444	-0.0806

Descriptive statistics for Lab_ID = LABT1

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	15.200	15.200	24.502	0.4418	3.0000
SD	0.8367	0.8367	2.2825	0.0362	1.5811
C.V.	5.5043	5.5043	9.3154	8.1867	52.705
MINIMUM	14.000	14.000	22.600	0.4080	1.0000
MAXIMUM	16.000	16.000	27.688	0.4960	5.0000
SKEW	-0.3436	-0.3436	0.5445	0.5757	0.0000
KURTOSIS	-1.1531	-1.1531	-1.4592	-1.0319	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.0330	0.0462	0.0792
SD	0.0146	8.585E-03	0.0113
C.V.	44.174	18.582	14.212
MINIMUM	0.0200	0.0360	0.0650
MAXIMUM	0.0580	0.0590	0.0940
SKEW	1.1856	0.4339	0.0888
KURTOSIS	-0.0882	-0.8113	-1.2041

Descriptive statistics for LAB_ID = LABT2

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	15.400	15.800	29.146	0.6676	3.0000
SD	0.8944	0.4472	3.8513	0.1517	1.5811
C.V.	5.8080	2.8305	13.214	22.716	52.705
MINIMUM	14.000	15.000	24.375	0.4510	1.0000
MAXIMUM	16.000	16.000	33.688	0.8610	5.0000
SKEW	-0.8438	-1.5000	-1.416E-03	-0.1994	0.0000
KURTOSIS	-0.9219	0.2500	-1.4739	-0.8501	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.0436	0.0616	0.1052
SD	6.189E-03	0.0127	0.0175
C.V.	14.194	20.649	16.661
MINIMUM	0.0360	0.0450	0.0870
MAXIMUM	0.0530	0.0760	0.1290
SKEW	0.4554	-0.1889	0.1920
KURTOSIS	-0.6224	-1.4218	-1.3337

Descriptive statistics for LAB_ID = LABT3

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	15.600	15.600	26.761	0.5984	3.0000
SD	0.5477	0.5477	2.5225	0.0487	1.5811
C.V.	3.5110	3.5110	9.4261	8.1308	52.705
MINIMUM	15.000	15.000	24.438	0.5400	1.0000
MAXIMUM	16.000	16.000	31.000	0.6510	5.0000
SKEW	-0.4082	-0.4082	1.0705	0.0314	0.0000
KURTOSIS	-1.8333	-1.8333	-0.2655	-1.5998	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.0290	0.0574	0.0864
SD	4.528E-03	6.986E-03	3.507E-03
C.V.	15.613	12.170	4.0592
MINIMUM	0.0220	0.0510	0.0830
MAXIMUM	0.0330	0.0650	0.0920
SKEW	-0.7589	0.3652	0.7946
KURTOSIS	-0.9402	-1.8059	-0.6237

Descriptive statistics for LAB_ID = LABT4

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	14.200	14.800	24.007	0.5316	3.0000
SD	1.3038	1.0954	1.2752	0.1352	1.5811
C.V.	9.1820	7.4017	5.3117	25.435	52.705
MINIMUM	13.000	13.000	22.563	0.3460	1.0000
MAXIMUM	16.000	16.000	25.533	0.6880	5.0000
SKEW	0.3632	-0.8675	-0.1151	-0.1931	0.0000
KURTOSIS	-1.3720	-0.2708	-1.5705	-1.2166	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.0394	0.0494	0.0888
SD	0.0148	0.0107	0.0233
C.V.	37.543	21.736	26.210
MINIMUM	0.0230	0.0370	0.0600
MAXIMUM	0.0630	0.0620	0.1200
SKEW	0.7307	-0.0663	0.0805
KURTOSIS	-0.4917	-1.5897	-1.1802

Descriptive statistics for LAB_ID = LABT5

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	14.600	15.400	23.455	0.6074	3.0000
SD	1.6733	0.8944	2.0056	0.1086	1.5811
C.V.	11.461	5.8080	8.5508	17.875	52.705
MINIMUM	12.000	14.000	21.375	0.4700	1.0000
MAXIMUM	16.000	16.000	26.667	0.6980	5.0000
SKEW	-0.7302	-0.8438	0.8017	-0.4337	0.0000
KURTOSIS	-0.8661	-0.9219	-0.5631	-1.7103	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.0510	0.0518	0.1028
SD	0.0103	8.786E-03	0.0143
C.V.	20.188	16.962	13.867
MINIMUM	0.0390	0.0410	0.0840
MAXIMUM	0.0610	0.0630	0.1180
SKEW	-0.2950	-0.0427	-0.1128
KURTOSIS	-1.7460	-1.3385	-1.4041

Descriptive statistics for LAB_ID = LABT6

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	14.600	15.000	23.706	0.4542	3.0000
SD	1.1402	0.7071	1.1135	0.0394	1.5811
C.V.	7.8094	4.7140	4.6969	8.6755	52.705
MINIMUM	13.000	14.000	23.000	0.4150	1.0000
MAXIMUM	16.000	16.000	25.667	0.4980	5.0000
SKEW	-0.2715	0.0000	1.3897	0.1008	0.0000
KURTOSIS	-1.0444	-0.5000	0.0911	-1.7309	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.0416	0.0458	0.0874
SD	0.0155	5.718E-03	0.0184
C.V.	37.263	12.486	21.076
MINIMUM	0.0290	0.0380	0.0740
MAXIMUM	0.0650	0.0540	0.1190
SKEW	0.7230	0.1159	1.2268
KURTOSIS	-1.1221	-0.5961	-0.1606

Descriptive statistics for LAB_ID = LABT7

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	14.800	15.200	28.395	0.6726	3.0000
SD	1.0954	0.4472	2.6382	0.1279	1.5811
C.V.	7.4017	2.9422	9.2911	19.017	52.705
MINIMUM	13.000	15.000	25.667	0.5550	1.0000
MAXIMUM	16.000	16.000	32.400	0.8570	5.0000
SKEW	-0.8675	1.5000	0.5450	0.5834	0.0000
KURTOSIS	-0.2708	0.2500	-0.8754	-1.3051	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.0568	0.0594	0.1162
SD	0.0167	0.0106	0.0245
C.V.	29.418	17.840	21.092
MINIMUM	0.0290	0.0450	0.0740
MAXIMUM	0.0700	0.0740	0.1350
SKEW	-1.0365	0.0147	-1.2378
KURTOSIS	-0.3938	-0.7980	-0.1087

Descriptive statistics for LAB_ID = LABT8

	EMER	HARVEST	HEIGHT	LENGTH	REP
N	5	5	5	5	5
MEAN	14.000	14.000	32.271	0.5032	3.0000
SD	0.7071	0.0000	1.4351	0.1068	1.5811
C.V.	5.0508	0.0000	4.4469	21.226	52.705
MINIMUM	13.000	14.000	30.143	0.4000	1.0000
MAXIMUM	15.000	14.000	33.643	0.6500	5.0000
SKEW	0.0000	M	-0.6130	0.4654	0.0000
KURTOSIS	-0.5000	M	-1.1343	-1.4509	-1.3000

	ROOT	SHOOT	TOTAL
N	5	5	5
MEAN	0.0440	0.0472	0.0912
SD	9.407E-03	7.155E-03	0.0157
C.V.	21.381	15.160	17.257
MINIMUM	0.0360	0.0410	0.0770
MAXIMUM	0.0590	0.0550	0.1140
SKEW	0.7896	0.3785	0.5231
KURTOSIS	-0.6532	-1.8171	-1.2298

Kruskal-Wallis One-Way Nonparametric Aov For Height By Lab_ID

LAB_ID	MEAN RANK	SAMPLE SIZE
LABT-Neg	43.0	5
LABT1	14.4	5
LABT2	28.9	5
LABT3	23.2	5
LABT4	11.8	5
LABT5	9.7	5
LABT6	11.9	5
LABT7	28.1	5
LABT8	36.0	5
TOTAL	23.0	45

Kruskal-Wallis Statistic 32.7394
P-value, using chi-squared approximation 0.0001

Parametric Aov Applied To Ranks

SOURCE	DF	SS	MS	F	P
BETWEEN	8	5646.80	705.850	13.08	0.0000
WITHIN	36	1942.20	53.9500		
TOTAL	44	7589.00			

Total number of values that were tied 4
Max. Diff. Allowed between ties 0.00001

Cases included 45 missing cases 0

Randomized Locations--Neptune 2005 Plant Test

ID #	Lab Sample	Rep	Location	Client Sample Name
1	LABT1	1	R1-S1-C1	CAMO-05-61156
2	LABT1	2	R1-S1-A7	CAMO-05-61156
3	LABT1	3	R1-S2-A5	CAMO-05-61156
4	LABT1	4	R2-S1-C6	CAMO-05-61156
5	LABT1	5	R2-S1-C4	CAMO-05-61156
6	LABT2	1	R2-S1-C8	CAMO-05-61157
7	LABT2	2	R1-S2-B3	CAMO-05-61157
8	LABT2	3	R1-S1-C6	CAMO-05-61157
9	LABT2	4	R1-S2-C2	CAMO-05-61157
10	LABT2	5	R1-S1-B7	CAMO-05-61157
11	LABT3	1	R1-S2-A3	CAMO-05-61158
12	LABT3	2	R2-S1-A4	CAMO-05-61158
13	LABT3	3	R1-S2-A4	CAMO-05-61158
14	LABT3	4	R1-S2-C3	CAMO-05-61158
15	LABT3	5	R2-S1-C7	CAMO-05-61158
16	LABT4	1	R1-S2-B7	CAMO-05-61159
17	LABT4	2	R2-S1-B6	CAMO-05-61159
18	LABT4	3	R1-S1-B1	CAMO-05-61159
19	LABT4	4	R1-S1-C3	CAMO-05-61159
20	LABT4	5	R1-S2-A2	CAMO-05-61159
21	LABT5	1	R2-S1-C5	CAMO-05-61160
22	LABT5	2	R1-S1-B4	CAMO-05-61160
23	LABT5	3	R1-S1-A3	CAMO-05-61160
24	LABT5	4	R2-S1-B3	CAMO-05-61160
25	LABT5	5	R1-S2-C1	CAMO-05-61160
26	LABT6	1	R1-S2-C8	CAMO-05-61161
27	LABT6	2	R1-S1-A2	CAMO-05-61161
28	LABT6	3	R1-S2-A7	CAMO-05-61161
29	LABT6	4	R2-S1-A6	CAMO-05-61161

Randomized Locations--Neptune 2005 Plant Test

ID #	Lab Sample	Rep	Location	Client Sample Name
30	LABT6	5	R2-S1-B8	CAMO-05-61161
31	LABT7	1	R2-S1-A5	CAMO-05-61162
32	LABT7	2	R1-S1-C5	CAMO-05-61162
33	LABT7	3	R1-S2-C7	CAMO-05-61162
34	LABT7	4	R1-S2-B5	CAMO-05-61162
35	LABT7	5	R1-S1-A4	CAMO-05-61162
36	LABT8	1	R1-S2-C6	CALA-05-61183
37	LABT8	2	R1-S1-C8	CALA-05-61183
38	LABT8	3	R2-S1-B7	CALA-05-61183
39	LABT8	4	R1-S2-B6	CALA-05-61183
40	LABT8	5	R1-S2-B8	CALA-05-61183
41	LABT-Neg	1	R2-S1-B5	NEG CONTROL 1
42	LABT-Neg	2	R2-S1-B1	NEG CONTROL 1
43	LABT-Neg	3	R2-S1-C2	NEG CONTROL 1
44	LABT-Neg	4	R2-S1-A3	NEG CONTROL 1
45	LABT-Neg	5	R2-S1-A7	NEG CONTROL 1
46	LABT-Pos 1	1	R1-S1-A8	POSITIVE CONTROL 1
47	LABT-Pos 1	2	R1-S1-A1	POSITIVE CONTROL 1
48	LABT-Pos 1	3	R2-S1-B4	POSITIVE CONTROL 1
49	LABT-Pos 1	4	R1-S1-A6	POSITIVE CONTROL 1
50	LABT-Pos 1	5	R1-S1-B2	POSITIVE CONTROL 1
51	LABT-Pos 2	1	R1-S1-A5	POSITIVE CONTROL 2
52	LABT-Pos 2	2	R1-S2-B4	POSITIVE CONTROL 2
53	LABT-Pos 2	3	R1-S1-B3	POSITIVE CONTROL 2
54	LABT-Pos 2	4	R2-S1-A1	POSITIVE CONTROL 2
55	LABT-Pos 2	5	R1-S1-B5	POSITIVE CONTROL 2
56	LABT-Pos 3	1	R1-S1-C2	POSITIVE CONTROL 3
57	LABT-Pos 3	2	R1-S1-B6	POSITIVE CONTROL 3
58	LABT-Pos 3	3	R1-S2-C4	POSITIVE CONTROL 3

Randomized Locations--Neptune 2005 Plant Test

ID #	Lab Sample	Rep	Location	Client Sample Name
59	LABT-Pos 3	4	R1-S2-B2	POSITIVE CONTROL 3
60	LABT-Pos 3	5	R2-S1-A8	POSITIVE CONTROL 3

NEPTUNE 2005 Plant Test - Setup pH

Lab Sample	Setup pH Date	Bulk pH 1	Bulk pH 2	Bulk pH 3	Bulk Antilog pH1	Bulk Antilog pH 2	Bulk Antilog pH 3	Mean of Bulk Antilogs	Mean pH	Comments	Technician
LABT1	15-Jul-05	6.35	6.37	6.37	2.24E+06	2.34E+06	2.34E+06	2.31E+06	6.36		JY
LABT2	15-Jul-05	7.24	7.31	7.27	1.74E+07	2.04E+07	1.86E+07	1.88E+07	7.27		JY
LABT3	15-Jul-05	6.72	6.74	6.78	5.25E+06	5.50E+06	6.03E+06	5.59E+06	6.75		JY
LABT4	15-Jul-05	6.77	6.71	6.78	5.89E+06	5.13E+06	6.03E+06	5.68E+06	6.75		JY
LABT5	15-Jul-05	7.47	7.43	7.42	2.95E+07	2.69E+07	2.63E+07	2.76E+07	7.44		JY
LABT6	15-Jul-05	6.51	6.47	6.52	3.24E+06	2.95E+06	3.31E+06	3.17E+06	6.50		JY
LABT7	15-Jul-05	6.22	6.23	6.21	1.66E+06	1.70E+06	1.62E+06	1.66E+06	6.22		JY
LABT8	15-Jul-05	5.56	5.50	5.54	3.63E+05	3.16E+05	3.47E+05	3.42E+05	5.53		JY
LABT-Neg	15-Jul-05	7.12	7.18	7.21	1.32E+07	1.51E+07	1.62E+07	1.48E+07	7.17		JY
ABT-Pos	15-Jul-05	7.19	7.15	7.18	1.55E+07	1.41E+07	1.51E+07	1.49E+07	7.17		JY
ABT-Pos	15-Jul-05	7.15	7.22	7.19	1.41E+07	1.66E+07	1.55E+07	1.54E+07	7.19		JY
ABT-Pos	15-Jul-05	7.13	7.20	7.19	1.35E+07	1.58E+07	1.55E+07	1.49E+07	7.17		JY

Tech Initial/Date SEE ABOVE

QA Initial/Date_Liz 8/17/05

NEPT 2005 Plant Test - Setup Soil pH's

Computer Entry/Date_____

Corrections/Date_____

NEPTUNE 2005 PLANT TEST - Planting

ID #	Shelf Location	Species	Sample ID	Rep	Planting Date	# Planted	Planting Comments
1	R1-S1-C1	Yarrow	LABT1	1		16	
2	R1-S1-A7	Yarrow	LABT1	2		16	
3	R1-S2-A5	Yarrow	LABT1	3		16	
4	R2-S1-C6	Yarrow	LABT1	4		16	
5	R2-S1-C4	Yarrow	LABT1	5		16	
6	R2-S1-C8	Yarrow	LABT2	1		16	
7	R1-S2-B3	Yarrow	LABT2	2		16	
8	R1-S1-C6	Yarrow	LABT2	3		16	
9	R1-S2-C2	Yarrow	LABT2	4		16	
10	R1-S1-B7	Yarrow	LABT2	5		16	
11	R1-S2-A3	Yarrow	LABT3	1		16	
12	R2-S1-A4	Yarrow	LABT3	2		16	
13	R1-S2-A4	Yarrow	LABT3	3		16	
14	R1-S2-C3	Yarrow	LABT3	4		16	
15	R2-S1-C7	Yarrow	LABT3	5		16	
16	R1-S2-B7	Yarrow	LABT4	1		16	
17	R2-S1-B6	Yarrow	LABT4	2		16	
18	R1-S1-B1	Yarrow	LABT4	3		16	
19	R1-S1-C3	Yarrow	LABT4	4		16	
20	R1-S2-A2	Yarrow	LABT4	5		16	
21	R2-S1-C5	Yarrow	LABT5	1		16	
22	R1-S1-B4	Yarrow	LABT5	2		16	
23	R1-S1-A3	Yarrow	LABT5	3		16	
24	R2-S1-B3	Yarrow	LABT5	4		16	
25	R1-S2-C1	Yarrow	LABT5	5		16	
26	R1-S2-C8	Yarrow	LABT6	1		16	
27	R1-S1-A2	Yarrow	LABT6	2		16	
28	R1-S2-A7	Yarrow	LABT6	3		16	
29	R2-S1-A6	Yarrow	LABT6	4		16	
30	R2-S1-B8	Yarrow	LABT6	5		16	
31	R2-S1-A5	Yarrow	LABT7	1		16	
32	R1-S1-C5	Yarrow	LABT7	2		16	
33	R1-S2-C7	Yarrow	LABT7	3		16	

Tech Initial/Date_____ Computer Entry/Date_____

QA Initial/Date_____ Corrections/Date_____

NEPTUNE 2005 PLANT TEST - Planting

ID #	Shelf Location	Species	Sample ID	Rep	Planting Date	# Planted	Planting Comments
34	R1-S2-B5	Yarrow	LABT7	4		16	
35	R1-S1-A4	Yarrow	LABT7	5		16	
36	R1-S2-C6	Yarrow	LABT8	1		16	
37	R1-S1-C8	Yarrow	LABT8	2		16	
38	R2-S1-B7	Yarrow	LABT8	3		16	
39	R1-S2-B6	Yarrow	LABT8	4		16	
40	R1-S2-B8	Yarrow	LABT8	5		16	
41	R2-S1-B5	Yarrow	LABT-Neg	1		16	
42	R2-S1-B1	Yarrow	LABT-Neg	2		16	
43	R2-S1-C2	Yarrow	LABT-Neg	3		16	
44	R2-S1-A3	Yarrow	LABT-Neg	4		16	
45	R2-S1-A7	Yarrow	LABT-Neg	5		16	
46	R1-S1-A8	Yarrow	LABT-Pos 1	1		16	
47	R1-S1-A1	Yarrow	LABT-Pos 1	2		16	
48	R2-S1-B4	Yarrow	LABT-Pos 1	3		16	
49	R1-S1-A6	Yarrow	LABT-Pos 1	4		16	
50	R1-S1-B2	Yarrow	LABT-Pos 1	5		16	
51	R1-S1-A5	Yarrow	LABT-Pos 2	1		16	
52	R1-S2-B4	Yarrow	LABT-Pos 2	2		16	
53	R1-S1-B3	Yarrow	LABT-Pos 2	3		16	
54	R2-S1-A1	Yarrow	LABT-Pos 2	4		16	
55	R1-S1-B5	Yarrow	LABT-Pos 2	5		16	
56	R1-S1-C2	Yarrow	LABT-Pos 3	1		16	
57	R1-S1-B6	Yarrow	LABT-Pos 3	2		16	
58	R1-S2-C4	Yarrow	LABT-Pos 3	3		16	
59	R1-S2-B2	Yarrow	LABT-Pos 3	4		16	
60	R2-S1-A8	Yarrow	LABT-Pos 3	5		16	

Tech Initial/Date_____ Computer Entry/Date_____

QA Initial/Date_____ Corrections/Date_____

NEPTUNE 2005 PT - Emergence

ID #	Shelf Location	Species	Lab Sample	Rep	Emergence Date	Count	Height	Color Severity	Color	Appear	Comments
	R1-S1-A1	Yarrow	LABT-Pos	2	26-Jul-05	15	0	0		0	
27	R1-S1-A2	Yarrow	LABT6	2	26-Jul-05	15	0	0		0	Remove 1 grass
23	R1-S1-A3	Yarrow	LABT5	3	26-Jul-05	14	0	0		0	
35	R1-S1-A4	Yarrow	LABT7	5	26-Jul-05	15	0	0		0	
51	R1-S1-A5	Yarrow	LABT-Pos	1	26-Jul-05	15	0	0		0	
49	R1-S1-A6	Yarrow	LABT-Pos	4	26-Jul-05	14	0	0		0	
2	R1-S1-A7	Yarrow	LABT1	2	26-Jul-05	14	0	-1	Yellow	0	
46	R1-S1-A8	Yarrow	LABT-Pos	1	26-Jul-05	16	0	0		0	
18	R1-S1-B1	Yarrow	LABT4	3	26-Jul-05	15	0	0		0	
50	R1-S1-B2	Yarrow	LABT-Pos	5	26-Jul-05	15	0	0		0	
53	R1-S1-B3	Yarrow	LABT-Pos	3	26-Jul-05	15	-2	0		0	
22	R1-S1-B4	Yarrow	LABT5	2	26-Jul-05	16	0	-1	Yellow	0	Remove 1 grass
55	R1-S1-B5	Yarrow	LABT-Pos	5	26-Jul-05	15	0	0		0	
57	R1-S1-B6	Yarrow	LABT-Pos	2	26-Jul-05	14	0	0		0	
10	R1-S1-B7	Yarrow	LABT2	5	26-Jul-05	15	0	0		0	Remove 1 grass
1	R1-S1-C1	Yarrow	LABT1	1	26-Jul-05	16	-1	-1	Yellow	0	Remove 1 grass
56	R1-S1-C2	Yarrow	LABT-Pos	1	26-Jul-05	16	-2	0		0	
	R1-S1-C3	Yarrow	LABT4	4	26-Jul-05	14	0	0		0	
32	R1-S1-C5	Yarrow	LABT7	2	26-Jul-05	13	0	0		0	
8	R1-S1-C6	Yarrow	LABT2	3	26-Jul-05	16	0	0		0	
37	R1-S1-C8	Yarrow	LABT8	2	26-Jul-05	13	0	0		0	
20	R1-S2-A2	Yarrow	LABT4	5	26-Jul-05	13	0	0		0	
11	R1-S2-A3	Yarrow	LABT3	1	26-Jul-05	15	0	0		0	Remove 1 grass
13	R1-S2-A4	Yarrow	LABT3	3	26-Jul-05	16	0	0		0	Remove 1 forb
3	R1-S2-A5	Yarrow	LABT1	3	26-Jul-05	15	0	0		0	
28	R1-S2-A7	Yarrow	LABT6	3	26-Jul-05	16	0	-1	Yellow	0	Remove 2 grasses
59	R1-S2-B2	Yarrow	LABT-Pos	4	26-Jul-05	13	-2	0		0	
7	R1-S2-B3	Yarrow	LABT2	2	26-Jul-05	16	0	0		0	
52	R1-S2-B4	Yarrow	LABT-Pos	2	26-Jul-05	16	0	0		0	
34	R1-S2-B5	Yarrow	LABT7	4	26-Jul-05	15	0	0		0	
39	R1-S2-B6	Yarrow	LABT8	4	26-Jul-05	14	0	0		0	
16	R1-S2-B7	Yarrow	LABT4	1	26-Jul-05	16	0	0		0	Remove 1 grass
40	R1-S2-B8	Yarrow	LABT8	5	26-Jul-05	15	0	0		0	

..ch Initial/Date JY 7/26/05 Computer Entry/Date Liz 8/17/05

QA Initial/Date_____ Corrections/Date_____

NEPTUNE 2005 PT - Emergence

ID #	Shelf Location	Species	Lab Sample	Rep	Emergence Date	Count	Height	Color Severity	Color	Appear	Comments
	R1-S2-C1	Yarrow	LABT5	5	26-Jul-05	12	0	-1	Yellow	0	
9	R1-S2-C2	Yarrow	LABT2	4	26-Jul-05	14	0	0		0	
14	R1-S2-C3	Yarrow	LABT3	4	26-Jul-05	16	0	0		0	Remove 1 grass, 1 forb
58	R1-S2-C4	Yarrow	LABT-Pos	3	26-Jul-05	16	0	0		0	
36	R1-S2-C6	Yarrow	LABT8	1	26-Jul-05	14	0	0		0	
33	R1-S2-C7	Yarrow	LABT7	3	26-Jul-05	15	0	0		0	
26	R1-S2-C8	Yarrow	LABT6	1	26-Jul-05	13	0	0		0	Remove 1 grass
54	R2-S1-A1	Yarrow	LABT-Pos	4	26-Jul-05	15	-1	0		0	
44	R2-S1-A3	Yarrow	LABT-Neg	4	26-Jul-05	16	0	0		0	
12	R2-S1-A4	Yarrow	LABT3	2	26-Jul-05	16	0	-1	Yellow	0	Remove 1 grass
31	R2-S1-A5	Yarrow	LABT7	1	26-Jul-05	16	-1	0		0	
29	R2-S1-A6	Yarrow	LABT6	4	26-Jul-05	14	0	0		0	
45	R2-S1-A7	Yarrow	LABT-Neg	5	26-Jul-05	15	0	0		0	
60	R2-S1-A8	Yarrow	LABT-Pos	5	26-Jul-05	16	0	0		0	
42	R2-S1-B1	Yarrow	LABT-Neg	2	26-Jul-05	15	0	0		0	
24	R2-S1-B3	Yarrow	LABT5	4	26-Jul-05	16	0	-1	Yellow	0	
[illegible]	R2-S1-B4	Yarrow	LABT-Pos	3	26-Jul-05	16	0	0		0	
41	R2-S1-B5	Yarrow	LABT-Neg	1	26-Jul-05	14	0	0		0	
17	R2-S1-B6	Yarrow	LABT4	2	26-Jul-05	13	0	0		0	Remove 2 grasses
38	R2-S1-B7	Yarrow	LABT8	3	26-Jul-05	14	0	0		0	
30	R2-S1-B8	Yarrow	LABT6	5	26-Jul-05	15	0	0		0	Remove 1 forb
43	R2-S1-C2	Yarrow	LABT-Neg	3	26-Jul-05	16	0	0		0	
5	R2-S1-C4	Yarrow	LABT1	5	26-Jul-05	16	0	-1	Yellow	0	
21	R2-S1-C5	Yarrow	LABT5	1	26-Jul-05	15	0	0		0	
4	R2-S1-C6	Yarrow	LABT1	4	26-Jul-05	15	0	0		0	
15	R2-S1-C7	Yarrow	LABT3	5	26-Jul-05	15	0	0		0	
6	R2-S1-C8	Yarrow	LABT2	1	26-Jul-05	16	0	0		0	

.ch Initial/Date JY 7/26/05 Computer Entry/Date Liz 8/17/05

QA Initial/Date_____ Corrections/Date_____

NEPTUNE 2005 PT - 7-Day PE

ID #	Shelf Location	Species	Lab Sample	Rep	7-Day PE Date	Count	Height	Color Severity	Color	Appear	Comments
	R1-S1-C1	Yarrow	LABT1	1	02-Aug-05	16	-1	0		0	Remove 1 grass
2	R1-S1-A7	Yarrow	LABT1	2	02-Aug-05	14	-1	-1	Yellow	0	
3	R1-S2-A5	Yarrow	LABT1	3	02-Aug-05	15	-1	-1	Yellow	0	
4	R2-S1-C6	Yarrow	LABT1	4	02-Aug-05	15	-2	-2	Yellow	0	
5	R2-S1-C4	Yarrow	LABT1	5	02-Aug-05	16	-2	-2	Yellow	0	
6	R2-S1-C8	Yarrow	LABT2	1	02-Aug-05	16	0	0		0	
7	R1-S2-B3	Yarrow	LABT2	2	02-Aug-05	16	0	0		0	
8	R1-S1-C6	Yarrow	LABT2	3	02-Aug-05	16	0	0		0	
9	R1-S2-C2	Yarrow	LABT2	4	02-Aug-05	16	0	0		0	
10	R1-S1-B7	Yarrow	LABT2	5	02-Aug-05	16	0	0		0	Remove 1 grass
11	R1-S2-A3	Yarrow	LABT3	1	02-Aug-05	15	0	0		0	Remove 1 grass
12	R2-S1-A4	Yarrow	LABT3	2	02-Aug-05	16	0	0		0	Remove 1 grass, 1 forb
13	R1-S2-A4	Yarrow	LABT3	3	02-Aug-05	16	0	0		0	Remove 1 forb
14	R1-S2-C3	Yarrow	LABT3	4	02-Aug-05	16	-1	0		0	Remove 2 forbs
15	R2-S1-C7	Yarrow	LABT3	5	02-Aug-05	15	0	-1	Yellow	0	
	R1-S2-B7	Yarrow	LABT4	1	02-Aug-05	16	-1	-1	Yellow	0	Remove 1 grass
17	R2-S1-B6	Yarrow	LABT4	2	02-Aug-05	13	-1	-1	Yellow	0	
18	R1-S1-B1	Yarrow	LABT4	3	02-Aug-05	15	-1	-1	Yellow	0	
19	R1-S1-C3	Yarrow	LABT4	4	02-Aug-05	15	-1	-1	Yellow	0	
20	R1-S2-A2	Yarrow	LABT4	5	02-Aug-05	15	-1	-1	Yellow	0	
21	R2-S1-C5	Yarrow	LABT5	1	02-Aug-05	15	-2	-1	Yellow	0	Remove 1 grass
22	R1-S1-B4	Yarrow	LABT5	2	02-Aug-05	16	-1	-1	Yellow	0	Remove 1 grass
23	R1-S1-A3	Yarrow	LABT5	3	02-Aug-05	15	-1	-1	Yellow	0	
24	R2-S1-B3	Yarrow	LABT5	4	02-Aug-05	16	-1	-1	Yellow	0	
25	R1-S2-C1	Yarrow	LABT5	5	02-Aug-05	14	-1	0	Yellow	0	Remove 1 grass
26	R1-S2-C8	Yarrow	LABT6	1	02-Aug-05	15	-1	-1	Yellow	0	Remove 2 grasses
27	R1-S1-A2	Yarrow	LABT6	2	02-Aug-05	15	-1	0		0	Remove 1 grass
28	R1-S2-A7	Yarrow	LABT6	3	02-Aug-05	16	-1	-1	Yellow	0	Remove 1 grass
29	R2-S1-A6	Yarrow	LABT6	4	02-Aug-05	14	-1	-1	Yellow	0	Remove 1 grass
30	R2-S1-B8	Yarrow	LABT6	5	02-Aug-05	15	-2	-2	Yellow	0	

. ..ch Initial/Date_JY 8/2/05___Computer Entry/Date Liz 8/17/05_____

QA Initial/Date_____ Corrections/Date_____

NEPTUNE 2005 PT - 7-Day PE

ID #	Shelf Location	Species	Lab Sample	Rep	7-Day PE Date	Count	Height	Color Severity	Color	Appear	Comments
	R2-S1-A5	Yarrow	LABT7	1	02-Aug-05	16	-1	0		0	
32	R1-S1-C5	Yarrow	LABT7	2	02-Aug-05	15	0	0		0	
33	R1-S2-C7	Yarrow	LABT7	3	02-Aug-05	15	-1	0		0	
34	R1-S2-B5	Yarrow	LABT7	4	02-Aug-05	15	0	0		0	
35	R1-S1-A4	Yarrow	LABT7	5	02-Aug-05	15	0	0		0	
36	R1-S2-C6	Yarrow	LABT8	1	02-Aug-05	14	0	0		0	
37	R1-S1-C8	Yarrow	LABT8	2	02-Aug-05	14	0	0		0	
38	R2-S1-B7	Yarrow	LABT8	3	02-Aug-05	14	0	0		0	
39	R1-S2-B6	Yarrow	LABT8	4	02-Aug-05	14	0	0		0	
40	R1-S2-B8	Yarrow	LABT8	5	02-Aug-05	15	0	0		0	
41	R2-S1-B5	Yarrow	LABT-Neg	1	02-Aug-05	14	0	0		0	
42	R2-S1-B1	Yarrow	LABT-Neg	2	02-Aug-05	15	0	0		0	
43	R2-S1-C2	Yarrow	LABT-Neg	3	02-Aug-05	16	0	0		0	
44	R2-S1-A3	Yarrow	LABT-Neg	4	02-Aug-05	16	0	0		0	
45	R2-S1-A7	Yarrow	LABT-Neg	5	02-Aug-05	15	0	0		0	
46	R1-S1-A8	Yarrow	LABT-Pos 1	1	02-Aug-05	16	-1	0		0	
	R1-S1-A1	Yarrow	LABT-Pos 1	2	02-Aug-05	15	-1	-1	Yellow	0	
48	R2-S1-B4	Yarrow	LABT-Pos 1	3	02-Aug-05	16	-1	-1	Yellow	0	
49	R1-S1-A6	Yarrow	LABT-Pos 1	4	02-Aug-05	15	-1	0		0	
50	R1-S1-B2	Yarrow	LABT-Pos 1	5	02-Aug-05	15	-2	-1	Yellow	0	
51	R1-S1-A5	Yarrow	LABT-Pos 2	1	02-Aug-05	16	-1	-2	Yellow	0	
52	R1-S2-B4	Yarrow	LABT-Pos 2	2	02-Aug-05	16	-1	-1	Yellow	0	
53	R1-S1-B3	Yarrow	LABT-Pos 2	3	02-Aug-05	15	-1	-1	Yellow	0	
54	R2-S1-A1	Yarrow	LABT-Pos 2	4	02-Aug-05	15	-2	-2	Yellow	0	
55	R1-S1-B5	Yarrow	LABT-Pos 2	5	02-Aug-05	15	-1	-1	Yellow	0	
56	R1-S1-C2	Yarrow	LABT-Pos 3	1	02-Aug-05	16	-2	-1	Yellow	0	
57	R1-S1-B6	Yarrow	LABT-Pos 3	2	02-Aug-05	14	-2	-2	Yellow	0	
58	R1-S2-C4	Yarrow	LABT-Pos 3	3	02-Aug-05	16	-1	-2	Yellow	0	
59	R1-S2-B2	Yarrow	LABT-Pos 3	4	02-Aug-05	13	-2	-1	Yellow	0	
60	R2-S1-A8	Yarrow	LABT-Pos 3	5	02-Aug-05	16	-2	-2	Yellow	0	

..ch Initial/Date_JY 8/2/05___Computer Entry/Date Liz 8/17/05_____

QA Initial/Date_____ Corrections/Date_____

NEPTUNE 2005 PT - 14-Day PE

ID #	Shelf Location	Species	Lab Sample	Rep	14-Day PE Date	14-Day Count	Height	Color Severity	Color	Appear	Comments
	R1-S1-C1	Yarrow	LABT1	1	10-Aug-05	16	-3	0		0	
2	R1-S1-A7	Yarrow	LABT1	2	10-Aug-05	14	-2	-1	Yellow	0	
3	R1-S2-A5	Yarrow	LABT1	3	10-Aug-05	15	-3	0		0	
4	R2-S1-C6	Yarrow	LABT1	4	10-Aug-05	15	-3	-1	Yellow	0	
5	R2-S1-C4	Yarrow	LABT1	5	10-Aug-05	16	-2	0	Yellow	0	
6	R2-S1-C8	Yarrow	LABT2	1	10-Aug-05	16	-2	0		0	
7	R1-S2-B3	Yarrow	LABT2	2	10-Aug-05	16	-2	0		0	
8	R1-S1-C6	Yarrow	LABT2	3	10-Aug-05	16	-1	0		0	
9	R1-S2-C2	Yarrow	LABT2	4	10-Aug-05	16	-2	0		0	
10	R1-S1-B7	Yarrow	LABT2	5	10-Aug-05	15	-2	0		0	
11	R1-S2-A3	Yarrow	LABT3	1	10-Aug-05	15	-2	-1	Yellow/Purple	0	
12	R2-S1-A4	Yarrow	LABT3	2	10-Aug-05	16	-3	-1	Yellow	0	
13	R1-S2-A4	Yarrow	LABT3	3	10-Aug-05	16	-2	-1	Yellow/Purple	0	
14	R1-S2-C3	Yarrow	LABT3	4	10-Aug-05	16	-2	-1	Yellow	0	
15	R2-S1-C7	Yarrow	LABT3	5	10-Aug-05	15					Missing Data
16	R1-S2-B7	Yarrow	LABT4	1	10-Aug-05	16	-2	0		0	
	R2-S1-B6	Yarrow	LABT4	2	10-Aug-05	13	-2	0		0	
18	R1-S1-B1	Yarrow	LABT4	3	10-Aug-05	15	-3	-1	Yellow	0	
19	R1-S1-C3	Yarrow	LABT4	4	10-Aug-05	15	-2	0		0	
20	R1-S2-A2	Yarrow	LABT4	5	10-Aug-05	15	-3	0		0	
21	R2-S1-C5	Yarrow	LABT5	1	10-Aug-05	15	-2	-2	Yellow	0	
22	R1-S1-B4	Yarrow	LABT5	2	10-Aug-05	16	-2	-2	Yellow	0	
23	R1-S1-A3	Yarrow	LABT5	3	10-Aug-05	15	-3	-2	Yellow	0	1 grass removed
24	R2-S1-B3	Yarrow	LABT5	4	10-Aug-05	16	-3	-2	Yellow	0	
25	R1-S2-C1	Yarrow	LABT5	5	10-Aug-05	14	-2	-2	Yellow	0	
26	R1-S2-C8	Yarrow	LABT6	1	10-Aug-05	15	-3	-2	Yellow	0	2 grasses removed
27	R1-S1-A2	Yarrow	LABT6	2	10-Aug-05	15	-3	-2	Yellow	0	1 Forb removed
28	R1-S2-A7	Yarrow	LABT6	3	10-Aug-05	16	-2	-2	Yellow	0	2 forbs removed
29	R2-S1-A6	Yarrow	LABT6	4	10-Aug-05	14	-2	-1	Yellow	0	2 forbs removed
30	R2-S1-B8	Yarrow	LABT6	5	10-Aug-05	15	-3	-2	Yellow	0	
31	R2-S1-A5	Yarrow	LABT7	1	10-Aug-05	16	-3	-2	Yellow	0	

. . .ch Initial/Date_____ Computer Entry/Date_____

QA Initial/Date_____ Corrections/Date_____

NEPTUNE 2005 PT - 14-Day PE

ID #	Shelf Location	Species	Lab Sample	Rep	14-Day PE Date	14-Day Count	Height	Color Severity	Color	Appear	Comments
	R1-S1-C5	Yarrow	LABT7	2	10-Aug-05	15	-2	-2	Yellow/Purple	0	
33	R1-S2-C7	Yarrow	LABT7	3	10-Aug-05	15	-3	-2	Yellow	0	
34	R1-S2-B5	Yarrow	LABT7	4	10-Aug-05	15	-3	-2	Yellow	0	
35	R1-S1-A4	Yarrow	LABT7	5	10-Aug-05	15	-3	-2	Yellow/Purple	0	
36	R1-S2-C6	Yarrow	LABT8	1	10-Aug-05	14	-1	0		0	
37	R1-S1-C8	Yarrow	LABT8	2	10-Aug-05	14	-1	0		0	
38	R2-S1-B7	Yarrow	LABT8	3	10-Aug-05	14	-1	0		0	
39	R1-S2-B6	Yarrow	LABT8	4	10-Aug-05	14	-1	0		0	
40	R1-S2-B8	Yarrow	LABT8	5	10-Aug-05	15	-1	0		0	
41	R2-S1-B5	Yarrow	LABT-Neg	1	10-Aug-05	14	0	0		0	
42	R2-S1-B1	Yarrow	LABT-Neg	2	10-Aug-05	15	0	0		0	
43	R2-S1-C2	Yarrow	LABT-Neg	3	10-Aug-05	15	0	0		0	
44	R2-S1-A3	Yarrow	LABT-Neg	4	10-Aug-05	16	0	0		0	
45	R2-S1-A7	Yarrow	LABT-Neg	5	10-Aug-05	15	0	0		0	
46	R1-S1-A8	Yarrow	ABT-Pos	1	10-Aug-05	16	0	-1	Yellow	0	
47	R1-S1-A1	Yarrow	ABT-Pos	2	10-Aug-05	15	-1	-1	Yellow	0	
[illegible]	R2-S1-B4	Yarrow	ABT-Pos	3	10-Aug-05	16	0	-1	Yellow	0	
49	R1-S1-A6	Yarrow	ABT-Pos	4	10-Aug-05	15	-1	-1	Yellow	0	
50	R1-S1-B2	Yarrow	ABT-Pos	5	10-Aug-05	15	0	-1	Yellow	0	
51	R1-S1-A5	Yarrow	ABT-Pos	1	10-Aug-05	16	-2	-3	Yellow/Brown	0	
52	R1-S2-B4	Yarrow	ABT-Pos	2	10-Aug-05	16	-2	-2	Yellow/Brown	-1	Necrotic leaves
53	R1-S1-B3	Yarrow	ABT-Pos	3	10-Aug-05	15	-2	-2	Yellow/Brown	0	
54	R2-S1-A1	Yarrow	ABT-Pos	4	10-Aug-05	15	-2	-2	Yellow/Brown	0	
55	R1-S1-B5	Yarrow	ABT-Pos	5	10-Aug-05	15	-2	-3	Yellow/Brown	0	
56	R1-S1-C2	Yarrow	ABT-Pos	1	10-Aug-05	16	-4	-4	Yellow/Brown	-4	Necrotic leaves
57	R1-S1-B6	Yarrow	ABT-Pos	2	10-Aug-05	14	-4	-4	Yellow/Brown	-4	Necrotic leaves
58	R1-S2-C4	Yarrow	ABT-Pos	3	10-Aug-05	16	-4	-4	Yellow/Brown	-4	Necrotic leaves
59	R1-S2-B2	Yarrow	ABT-Pos	4	10-Aug-05	13	-4	-4	Yellow/Brown	-4	Necrotic leaves
60	R2-S1-A8	Yarrow	ABT-Pos	5	10-Aug-05	16	-4	-4	Yellow/Brown	-4	Necrotic leaves

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NEPT 2005 PT - Harvest

Harvest Date: 18-Aug-05

ID # 1 | Shelf Location: R1-S1-C1 | Species: Yarrow | Lab Sample: LABT1 | Rep: 1 | Harvest Count: 16

Shoot Information (SH = Shoot Height)

Color Severity	0	Color				Appearance	0	SH1	22	SH2	25	SH3	26	SH4	31	SH5	30	SH6	23	SH7	25	SH8	29		
SH9	27	SH10	33	SH11	30	SH12	27	SH13	35	SH14	27	SH15	26	SH16	27	Comments									

Root Information (RL = Root Length)

Color Severity	0	Root Color				Appearance	-2	RL1	58	RL2	68	RL3	75	RL4	67	RL5	89	RL6	64	RL7	99	RL8	75		
RL9	65	RL10	65	RL11	57	RL12	55	RL13	59	RL14	37	RL15	68	RL16	7	Root Comments	Spindly								

ID # 2 | Shelf Location: R1-S1-A7 | Species: Yarrow | Lab Sample: LABT1 | Rep: 2 | Harvest Count: 14

Shoot Information (SH = Shoot Height)

Color Severity	0	Color				Appearance	0	SH1	30	SH2	31	SH3	19	SH4	25	SH5	22	SH6	16	SH7	31	SH8	22		
SH9	29	SH10	27	SH11	28	SH12	34	SH13	25	SH14	27	SH15		SH16		Comments									

Root Information (RL = Root Length)

Color Severity	0	Root Color				Appearance	-1	RL1	65	RL2	87	RL3	56	RL4	59	RL5	89	RL6	87	RL7	70	RL8	52		
RL9	65	RL10	65	RL11	68	RL12	83	RL13	57	RL14	64	RL15		RL16		Root Comments	Spindly								

ID # 3 | Shelf Location: R1-S2-A5 | Species: Yarrow | Lab Sample: LABT1 | Rep: 3 | Harvest Count: 15

Shoot Information (SH = Shoot Height)

Color Severity	0	Color				Appearance	0	SH1	23	SH2	21	SH3	27	SH4	25	SH5	23	SH6	21	SH7	25	SH8	26		
SH9	26	SH10	22	SH11	21	SH12	23	SH13	20	SH14	23	SH15	23	SH16		Comments									

Root Information (RL = Root Length)

Color Severity	0	Root Color				Appearance	-1	RL1	54	RL2	71	RL3	89	RL4	92	RL5	77	RL6	65	RL7	61	RL8	54		
RL9	93	RL10	49	RL11	55	RL12	84	RL13	75	RL14	70	RL15	73	RL16		Root Comments	Spindly								

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NEPT 2005 PT - Harvest

Harvest Date: 18-Aug-05

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
4	R2-S1-C6	Yarrow	LABT1	4	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-1	Yellow	0	17	25	23	22	21	22	21	25

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
19	27	32	23	19	20	23		

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	51	76	42	45	52	39	51	60

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
61	50	60	51	67	64	47		Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
5	R2-S1-C4	Yarrow	LABT1	5	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
0		0	22	25	27	24	23	21	20	23

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
21	25	22	19	26	24	23	20	

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		0	87	82	71	57	88	45	52	79

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
69	85	73	70	52	65	60	75	Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
6	R2-S1-C8	Yarrow	LABT2	1	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow	0	25	31	25	34	24	21	26	33

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
41	29	25	29	31	20	35	31	

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		0	100	80	94	79	71	62	85	69

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
75	71	83	73	82	84	75	79	

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Harvest Date: 18-Aug-05

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
7	R1-S2-B3	Yarrow	LABT2	2	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-1	Purple/Yellow	0	25	17	15	26	27	24	23	17

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
21	19	24	38	24	32	32	26	

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-1	117	83	72	140	105	83	122	110

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
97	103	125	156	85	63	85	106	Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
8	R1-S1-C6	Yarrow	LABT2	3	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-1	Yellow	0	38	32	34	25	39	27	30	33

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
31	26	30	27	38	33	46	27	

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	107	120	124	180	61	76	52	62

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
54	80	76	64	61	99	80	64	Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
9	R1-S2-C2	Yarrow	LABT2	4	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow	0	35	29	25	19	42	34	36	45

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
38	31	29	30	32	51	27	36	

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		0	71	103	76	137	152	137	138	107

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
71	107	95	65	104	91	139	72	

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NEPT 2005 PT - Harvest

Harvest Date: 18-Aug-05

ID # 10 | Shelf Location: R1-S1-B7 | Species: Yarrow | Lab Sample: LABT2 | Rep: 5 | Harvest Count: 15

Shoot Information (SH = Shoot Height)

Color Severity	-1	Color	Yellow	Appearance	0	SH1	35	SH2	28	SH3	34	SH4	20	SH5	40	SH6	23	SH7	21	SH8	18			
SH9	24	SH10	27	SH11	29	SH12	27	SH13	18	SH14	27	SH15	29	SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color	Yellow	Appearance	-1	RL1	75	RL2	155	RL3	125	RL4	109	RL5	91	RL6	82	RL7	84	RL8	75			
RL9	73	RL10	64	RL11	95	RL12	75	RL13	105	RL14	136	RL15	88	RL16	105	Root Comments	Spindly							

ID # 11 | Shelf Location: R1-S2-A3 | Species: Yarrow | Lab Sample: LABT3 | Rep: 1 | Harvest Count: 15

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow	Appearance	0	SH1	29	SH2	33	SH3	25	SH4	39	SH5	47	SH6	19	SH7	41	SH8	27			
SH9	32	SH10	37	SH11	23	SH12	19	SH13	27	SH14	31	SH15	36	SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-1	RL1	97	RL2	107	RL3	87	RL4	87	RL5	91	RL6	73	RL7	93	RL8	54			
RL9	76	RL10	50	RL11	67	RL12	79	RL13	107	RL14	121	RL15	80	RL16		Root Comments	Stubby secondary roots							

ID # 12 | Shelf Location: R2-S1-A4 | Species: Yarrow | Lab Sample: LABT3 | Rep: 2 | Harvest Count: 16

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow/Purple	Appearance	0	SH1	29	SH2	21	SH3	22	SH4	31	SH5	22	SH6	21	SH7	19	SH8	33			
SH9	23	SH10	23	SH11	24	SH12	23	SH13	25	SH14	33	SH15	21	SH16	21	Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-2	RL1	105	RL2	125	RL3	91	RL4	117	RL5	62	RL6	122	RL7	67	RL8	92			
RL9	91	RL10	117	RL11	115	RL12	82	RL13	77	RL14	83	RL15	86	RL16	104	Root Comments	Stubby secondary roots							

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Harvest Date: 18-Aug-05

ID # 13 | Shelf Location: R1-S2-A4 | Species: Yarrow | Lab Sample: LABT3 | Rep: 3 | Harvest Count: 16

Shoot Information (SH = Shoot Height)

Color Severity	-1	Color	Yellow	Appearance	0	SH1	17	SH2	30	SH3	38	SH4	28	SH5	31	SH6	25	SH7	21	SH8	22		
SH9	12	SH10	23	SH11	28	SH12	31	SH13	28	SH14	23	SH15	28	SH16	29	Comments							

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-1	RL1	49	RL2	62	RL3	90	RL4	77	RL5	75	RL6	21	RL7	68	RL8	100		
RL9	48	RL10	83	RL11	57	RL12	74	RL13	92	RL14	87	RL15	121	RL16		Root Comments	Stubby secondary roots						

ID # 14 | Shelf Location: R1-S2-C3 | Species: Yarrow | Lab Sample: LABT3 | Rep: 4 | Harvest Count: 16

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow/Purple	Appearance	0	SH1	27	SH2	29	SH3	33	SH4	19	SH5	25	SH6	28	SH7	14	SH8	30		
SH9	22	SH10	25	SH11	31	SH12	35	SH13	25	SH14	27	SH15	25	SH16	15	Comments							

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-2	RL1	97	RL2	63	RL3	74	RL4	83	RL5	51	RL6	65	RL7	80	RL8	63		
RL9	93	RL10	55	RL11	70	RL12	58	RL13	98	RL14	85	RL15	73	RL16	68	Root Comments	Some stubby roots						

ID # 15 | Shelf Location: R2-S1-C7 | Species: Yarrow | Lab Sample: LABT3 | Rep: 5 | Harvest Count: 15

Shoot Information (SH = Shoot Height)

Color Severity	-1	Color	Yellow	Appearance	0	SH1	31	SH2	27	SH3	27	SH4	25	SH5	22	SH6	15	SH7	39	SH8	32		
SH9	31	SH10	28	SH11	30	SH12	15	SH13	24	SH14	28	SH15	29	SH16		Comments							

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-1	RL1	76	RL2	93	RL3	85	RL4	117	RL5	120	RL6	52	RL7	85	RL8	76		
RL9	69	RL10	75	RL11	20	RL12	79	RL13	74	RL14	60	RL15	91	RL16		Root Comments	Some stubby roots						

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Harvest Date: 18-Aug-05

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
16	R1-S2-B7	Yarrow	LABT4	1	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-3	Yellow/Purple	0	27	22	30	29	18	25	25	22

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
22	10	25	20	19	22	24	21	

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	93	66	60	82	56	42	67	78

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
75	89	42	31	75	61	33	54	Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
17	R2-S1-B6	Yarrow	LABT4	2	13

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow/Purple	0	28	21	19	21	35	24	31	18

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
26	17	17	29	33				

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	103	88	76	98	118	57	63	72

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
60	88	93	131	83				Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
18	R1-S1-B1	Yarrow	LABT4	3	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow/Purple	0	21	17	24	27	21	24	30	34

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
30	26	23	27	25	19	21		

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	72	67	97	101	114	63	145	113

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
93	59	74	103	115	60	70		Spindly

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NEPT 2 5 PT - Harvest

Harvest Date: 18-Aug-05

ID # 19 | Shelf Location: R1-S1-C3 | Species: Yarrow | Lab Sample: LABT4 | Rep: 4 | Harvest Count: 15

Shoot Information (SH = Shoot Height)

Color Severity	-3	Color	Yellow/Purple	Appearance	0	SH1	25	SH2	20	SH3	21	SH4	20	SH5	22	SH6	23	SH7	19	SH8	21			
SH9	21	SH10	20	SH11	19	SH12	31	SH13	29	SH14	23	SH15	28	SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-3	RL1	75	RL2	32	RL3	43	RL4	88	RL5	73	RL6	54	RL7	37	RL8	61			
RL9	79	RL10	63	RL11	40	RL12	41	RL13	55	RL14	99	RL15	68	RL16		Root Comments	Very spindly							

ID # 20 | Shelf Location: R1-S2-A2 | Species: Yarrow | Lab Sample: LABT4 | Rep: 5 | Harvest Count: 15

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow/Purple	Appearance	0	SH1	29	SH2	23	SH3	27	SH4	27	SH5	34	SH6	28	SH7	29	SH8	18			
SH9	23	SH10	26	SH11	19	SH12	27	SH13	28	SH14	22	SH15	23	SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-2	RL1	70	RL2	98	RL3	130	RL4	65	RL5	157	RL6	92	RL7	68	RL8	17			
RL9	99	RL10	75	RL11	58	RL12	97	RL13	68	RL14	72	RL15	92	RL16		Root Comments	Spindly							

ID # 21 | Shelf Location: R2-S1-C5 | Species: Yarrow | Lab Sample: LABT5 | Rep: 1 | Harvest Count: 16

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow/Purple	Appearance	0	SH1	19	SH2	17	SH3	22	SH4	21	SH5	22	SH6	19	SH7	24	SH8	24			
SH9	24	SH10	20	SH11	22	SH12	26	SH13	18	SH14	27	SH15	15	SH16	22	Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-2	RL1	87	RL2	93	RL3	45	RL4	79	RL5	105	RL6	141	RL7	75	RL8	87			
RL9	75	RL10	87	RL11	134	RL12	113	RL13	153	RL14	78	RL15	87	RL16	95	Root Comments	Spindly							

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NEPT 2 5 PT - Harvest

Harvest Date 18-Aug-05

ID # 22 | Shelf Location R1-S1-B4 | Species Yarrow | Lab Sample LABT5 | Rep 2 | Harvest Count 16

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow/Purple	Appearance	0	SH1	21	SH2	19	SH3	26	SH4	14	SH5	21	SH6	27	SH7	21	SH8	30			
SH9	29	SH10	18	SH11	25	SH12	23	SH13	21	SH14	20	SH15	24	SH16	21	Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-2	RL1	97	RL2	103	RL3	87	RL4	73	RL5	112	RL6	104	RL7	73	RL8	65			
RL9	57	RL10	76	RL11	53	RL12	90	RL13	73	RL14	27	RL15	104	RL16	85	Root Comments	Spindly							

ID # 23 | Shelf Location R1-S1-A3 | Species Yarrow | Lab Sample LABT5 | Rep 3 | Harvest Count 15

Shoot Information (SH = Shoot Height)

Color Severity	-3	Color	Yellow/Purple	Appearance	0	SH1	21	SH2	22	SH3	35	SH4	25	SH5	30	SH6	35	SH7	26	SH8	40			
SH9	32	SH10	23	SH11	18	SH12	22	SH13	30	SH14	19	SH15	22	SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-2	RL1	73	RL2	85	RL3	53	RL4	37	RL5	60	RL6	54	RL7	84	RL8	90			
RL9	65	RL10	60	RL11	74	RL12	42	RL13	32	RL14	75	RL15	92	RL16		Root Comments	Spindly							

ID # 24 | Shelf Location R2-S1-B3 | Species Yarrow | Lab Sample LABT5 | Rep 4 | Harvest Count 16

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow/Purple	Appearance	0	SH1	22	SH2	21	SH3	30	SH4	21	SH5	23	SH6	19	SH7	33	SH8	19			
SH9	21	SH10	22	SH11	33	SH12	23	SH13	25	SH14	25	SH15	23	SH16	22	Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-2	RL1	55	RL2	54	RL3	115	RL4	88	RL5	92	RL6	37	RL7	65	RL8	79			
RL9	76	RL10	86	RL11	80	RL12	113	RL13	120	RL14	90	RL15	43	RL16	86	Root Comments	Spindly							

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NEPT 2005 PT - Harvest

Harvest Date: 18-Aug-05

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
25	R1-S2-C1	Yarrow	LABT5	5	14

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-3	Yellow/Purple	0	23	14	27	19	20	22	24	20

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
26	22	29	30	17	27			

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	89	44	33	72	34	60	34	54

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
59	33	55	89	74	78			Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
26	R1-S2-C8	Yarrow	LABT6	1	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-1	Yellow	0	23	33	25	19	16	23	31	30

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
18	29	33	24	23	28	30		

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	75	57	83	95	52	63	83	68

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
62	69	67	93	80	59	64		Some stubby secondary roots

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
27	R1-S1-A2	Yarrow	LABT6	2	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow	0	24	23	26	25	24	24	21	23

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
23	23	26	22	22	21	26		

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	59	69	85	95	70	58	63	56

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
73	80	57	47	90	70	66		Some stubby secondary roots

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ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
28	R1-S2-A7	Yarrow	LABT6	3	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-3	Yellow	0	21	22	17	24	24	23	21	24

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
34	27	27	20	22	21	23	21	

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-3	65	54	50	45	42	82	50	42

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
62	42	55	50	62	51	62	51	Some stubby secondary roots

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
29	R2-S1-A6	Yarrow	LABT6	4	14

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow	0	20	25	25	26	23	23	20	23

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
24	23	24	23	25	20			

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	69	66	69	91	85	51	70	65

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
80	57	65	90	55	53			Some stubby secondary roots

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
30	R2-S1-B8	Yarrow	LABT6	5	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow	0	18	25	26	25	26	20	15	25

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
25	24	25	21	26	21	23		

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	64	61	31	76	69	58	72	78

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
55	57	52	58	65	88	72		Some stubby secondary roots

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ID # 31 | Shelf Location: R2-S1-A5 | Species: Yarrow | Lab Sample: LABT7 | Rep: 1 | Harvest Count: 16

Shoot Information (SH = Shoot Height)

Color Severity	0	Color				Appearance	0	SH1	29	SH2	21	SH3	23	SH4	29	SH5	21	SH6	28	SH7	31	SH8	33		
SH9	19	SH10	23	SH11	33	SH12	28	SH13	28	SH14	22	SH15	27	SH16	27	Comments									

Root Information (RL = Root Length)

Color Severity	0	Root Color				Appearance	-2	RL1	41	RL2	73	RL3	73	RL4	72	RL5	56	RL6	67	RL7	50	RL8	42		
RL9	69	RL10	35	RL11	72	RL12	67	RL13	70	RL14	90	RL15	85	RL16	79	Root Comments	Spindly								

ID # 32 | Shelf Location: R1-S1-C5 | Species: Yarrow | Lab Sample: LABT7 | Rep: 2 | Harvest Count: 15

Shoot Information (SH = Shoot Height)

Color Severity	-1	Color	Purple			Appearance	0	SH1	47	SH2	41	SH3	35	SH4	35	SH5	29	SH6	29	SH7	27	SH8	27		
SH9	30	SH10	34	SH11	26	SH12	35	SH13	22	SH14	33	SH15	36	SH16		Comments									

Root Information (RL = Root Length)

Color Severity	0	Root Color				Appearance	-2	RL1	73	RL2	97	RL3	47	RL4	67	RL5	65	RL6	67	RL7	39	RL8	65		
RL9	92	RL10	41	RL11	77	RL12	79	RL13	59	RL14	85	RL15	88	RL16		Root Comments	Spindly								

ID # 33 | Shelf Location: R1-S2-C7 | Species: Yarrow | Lab Sample: LABT7 | Rep: 3 | Harvest Count: 15

Shoot Information (SH = Shoot Height)

Color Severity	0	Color				Appearance	0	SH1	17	SH2	31	SH3	42	SH4	28	SH5	26	SH6	27	SH7	27	SH8	21		
SH9	19	SH10	34	SH11	35	SH12	33	SH13	27	SH14	42	SH15	23	SH16		Comments									

Root Information (RL = Root Length)

Color Severity	0	Root Color				Appearance	-2	RL1	49	RL2	72	RL3	79	RL4	65	RL5	68	RL6	61	RL7	71	RL8	30		
RL9	82	RL10	80	RL11	62	RL12	52	RL13	75	RL14	85	RL15	69	RL16		Root Comments	Spindly								

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ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
34	R1-S2-B5	Yarrow	LABT7	4	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
0		0	29	23	29	36	28	35	19	27

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
23	25	26	17	22	23	23		

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	63	75	62	68	73	63	75	47

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
55	45	55	54	84	58	59		Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
35	R1-S1-A4	Yarrow	LABT7	5	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-1	Yellow/Purple	0	37	25	21	35	15	33	39	36

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
33	31	26	19	25	34	22		

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	39	59	61	47	58	58	58	61

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
60	52	40	52	103	71	72		Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
36	R1-S2-C6	Yarrow	LABT8	1	14

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow	0	27	38	36	44	36	32	24	23

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
29	35	32	27	32	26			

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-1	37	20	27	35	27	40	32	47

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
72	101	76	93	87	73			Some stubby secondary roots

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ID # 37 | Shelf Location: R1-S1-C8 | Species: Yarrow | Lab Sample: LABT8 | Rep: 2 | Harvest Count: 14

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow	Appearance	0	SH1	40	SH2	35	SH3	41	SH4	33	SH5	25	SH6	27	SH7	35	SH8	30			
SH9	20	SH10	35	SH11	25	SH12	40	SH13	38	SH14	41	SH15		SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-1	RL1	101	RL2	59	RL3	43	RL4	48	RL5	100	RL6	90	RL7	68	RL8	80			
RL9	100	RL10	73	RL11	54	RL12	89	RL13	54	RL14	52	RL15		RL16		Root Comments	Some stubby secondary roots							

ID # 38 | Shelf Location: R2-S1-B7 | Species: Yarrow | Lab Sample: LABT8 | Rep: 3 | Harvest Count: 14

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow	Appearance	0	SH1	20	SH2	40	SH3	31	SH4	33	SH5	35	SH6	42	SH7	33	SH8	35			
SH9	22	SH10	31	SH11	27	SH12	40	SH13	37	SH14	45	SH15		SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-1	RL1	107	RL2	45	RL3	52	RL4	53	RL5	97	RL6	127	RL7	76	RL8	108			
RL9	72	RL10	91	RL11	70	RL12	91	RL13	61	RL14	65	RL15		RL16		Root Comments	Some stubby secondary roots							

ID # 39 | Shelf Location: R1-S2-B6 | Species: Yarrow | Lab Sample: LABT8 | Rep: 4 | Harvest Count: 14

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow	Appearance	0	SH1	28	SH2	39	SH3	37	SH4	24	SH5	23	SH6	26	SH7	33	SH8	42			
SH9	38	SH10	24	SH11	23	SH12	21	SH13	37	SH14	27	SH15		SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-1	RL1	79	RL2	114	RL3	127	RL4	92	RL5	125	RL6	71	RL7	87	RL8	115			
RL9	72	RL10	100	RL11	135	RL12	104	RL13	107	RL14	68	RL15		RL16		Root Comments	Some stubby secondary roots							

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ID # 40 | Shelf Location R1-S2-B8 | Species Yarrow | Lab Sample LABT8 | Rep 5 | Harvest Count 14

Shoot Information (SH = Shoot Height)

Color Severity	-2	Color	Yellow	Appearance	0	SH1	19	SH2	33	SH3	36	SH4	42	SH5	21	SH6	28	SH7	41	SH8	35			
SH9	42	SH10	25	SH11	40	SH12	23	SH13	40	SH14	35	SH15		SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	-1	RL1	108	RL2	62	RL3	68	RL4	75	RL5	125	RL6	65	RL7	61	RL8	101			
RL9	60	RL10	130	RL11	71	RL12	93	RL13	87	RL14	67	RL15		RL16		Root Comments	Some stubby secondary roots							

ID # 41 | Shelf Location R2-S1-B5 | Species Yarrow | Lab Sample LABT-Neg | Rep 1 | Harvest Count 14

Shoot Information (SH = Shoot Height)

Color Severity	0	Color		Appearance	0	SH1	47	SH2	43	SH3	45	SH4	46	SH5	49	SH6	35	SH7	29	SH8	51			
SH9	49	SH10	50	SH11	56	SH12	21	SH13	41	SH14	37	SH15		SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	0	RL1	92	RL2	91	RL3	93	RL4	92	RL5	118	RL6	79	RL7	93	RL8	135			
RL9	84	RL10	81	RL11	87	RL12	111	RL13	69	RL14	87	RL15		RL16		Root Comments								

ID # 42 | Shelf Location R2-S1-B1 | Species Yarrow | Lab Sample LABT-Neg | Rep 2 | Harvest Count 15

Shoot Information (SH = Shoot Height)

Color Severity	0	Color		Appearance	0	SH1	51	SH2	45	SH3	42	SH4	45	SH5	35	SH6	34	SH7	50	SH8	55			
SH9	46	SH10	47	SH11	37	SH12	44	SH13	56	SH14	50	SH15	51	SH16		Comments								

Root Information (RL = Root Length)

Color Severity	0	Root Color		Appearance	0	RL1	67	RL2	89	RL3	93	RL4	97	RL5	131	RL6	138	RL7	91	RL8	79			
RL9	75	RL10	117	RL11	94	RL12	83	RL13	63	RL14	110	RL15	80	RL16		Root Comments								

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Harvest Date: 18-Aug-05

ID # 43 | Shelf Location: R2-S1-C2 | Species: Yarrow | Lab Sample: LABT-Neg | Rep: 3 | Harvest Count: 15

Shoot Information (SH = Shoot Height)

Color Severity	0	Color				Appearance	0	SH1	91	SH2	45	SH3	91	SH4	55	SH5	69	SH6	25	SH7	42	SH8	51		
SH9	66	SH10	30	SH11	50	SH12	52	SH13	55	SH14	60	SH15	58	SH16		Comments									

Root Information (RL = Root Length)

Color Severity	0	Root Color				Appearance	0	RL1	112	RL2	97	RL3	81	RL4	118	RL5	97	RL6	61	RL7	118	RL8	86		
RL9	47	RL10	52	RL11	114	RL12	83	RL13	101	RL14	114	RL15	137	RL16		Root Comments									

ID # 44 | Shelf Location: R2-S1-A3 | Species: Yarrow | Lab Sample: LABT-Neg | Rep: 4 | Harvest Count: 16

Shoot Information (SH = Shoot Height)

Color Severity	0	Color				Appearance	0	SH1	47	SH2	58	SH3	53	SH4	41	SH5	32	SH6	41	SH7	25	SH8	32		
SH9	41	SH10	30	SH11	54	SH12	32	SH13	37	SH14	69	SH15	35	SH16	37	Comments									

Root Information (RL = Root Length)

Color Severity	0	Root Color				Appearance	0	RL1	87	RL2	92	RL3	131	RL4	75	RL5	68	RL6	154	RL7	125	RL8	87		
RL9	100	RL10	137	RL11	171	RL12	112	RL13	140	RL14	94	RL15	81	RL16	75	Root Comments									

ID # 45 | Shelf Location: R2-S1-A7 | Species: Yarrow | Lab Sample: LABT-Neg | Rep: 5 | Harvest Count: 15

Shoot Information (SH = Shoot Height)

Color Severity	0	Color				Appearance	0	SH1	43	SH2	37	SH3	40	SH4	22	SH5	52	SH6	49	SH7	47	SH8	45		
SH9	42	SH10	51	SH11	40	SH12	36	SH13	49	SH14	50	SH15	38	SH16		Comments									

Root Information (RL = Root Length)

Color Severity	0	Root Color				Appearance	0	RL1	127	RL2	90	RL3	93	RL4	113	RL5	75	RL6	80	RL7	93	RL8	85		
RL9	81	RL10	72	RL11	91	RL12	87	RL13	61	RL14	87	RL15	51	RL16		Root Comments									

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ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
46	R1-S1-A8	Yarrow	LABT-Pos 1	1	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow/Brown	0	28	42	25	42	39	28	41	41

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
30	37	44	19	33	33	35	32	leaf margins colored

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		0	105	110	81	99	81	92	75	73

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
101	78	79	119	95	72	70	72	

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
47	R1-S1-A1	Yarrow	LABT-Pos 1	2	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow	0	35	41	45	44	36	20	45	32

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
35	21	29	38	27	32	33		leaf margins colored

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		0	101	74	95	70	115	82	87	95

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
110	85	75	73	65	125	88		

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
48	R2-S1-B4	Yarrow	LABT-Pos 1	3	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow	0	33	30	26	42	31	40	27	33

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
47	35	32	29	25	21	30	28	leaf margins colored

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		0	97	71	57	83	111	120	83	81

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
56	91	95	63	66	117	82	51	

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ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
49	R1-S1-A6	Yarrow	LABT-Pos 1	4	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow/Brown	0	27	17	47	35	43	27	40	35

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
28	33	33	42	21	35	36		leaf margins colored

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		0	120	87	75	94	92	72	95	42

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
81	97	50	91	115	103	85		

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
50	R1-S1-B2	Yarrow	LABT-Pos 1	5	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow/Brown	0	17	45	39	41	29	37	41	33

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
29	35	32	37	34	33	26		leaf margins colored

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		0	91	82	81	115	76	95	92	107

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
108	97	101	95	82	80	67		

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
51	R1-S1-A5	Yarrow	LABT-Pos 2	1	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow/Brown	0	29	22	42	25	27	19	26	23

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
31	21	26	25	24	18	19	31	leaf margins colored

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		0	37	82	56	70	61	55	49	100

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
65	68	70	42	41	43	112	120	Spindly

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ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
52	R1-S2-B4	Yarrow	LABT-Pos 2	2	16

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow/Brown	0	18	25	23	21	19	30	28	16

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
29	23	23	21	21	20	14	25	leaf margins colored

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	57	81	43	65	44	84	51	67

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
70	44	50	57	46	62	71	53	Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
53	R1-S1-B3	Yarrow	LABT-Pos 2	3	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow/Brown	0	28	20	21	23	20	21	19	21

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
16	23	25	27	24	21	22		leaf margins colored

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	49	95	42	107	85	40	65	70

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
45	62	53	87	45	42	39		Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
54	R2-S1-A1	Yarrow	LABT-Pos 2	4	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow/Brown	0	43	18	33	25	27	24	29	31

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
22	25	31	29	25	26	19		leaf margins colored

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	45	43	75	65	97	62	81	50

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
44	40	39	69	52	81	37		Spindly

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NEPT 2005 PT - Harvest

Harvest Date: 18-Aug-05

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
55	R1-S1-B5	Yarrow	LABT-Pos 2	5	15

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-2	Yellow/Brown	0	25	29	20	22	25	29	35	25

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
23	17	20	19	15	27	30		leaf margins colored

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
0		-2	52	82	40	47	62	45	95	60

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
50	51	81	72	58	46	45		Spindly

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
56	R1-S1-C2	Yarrow	LABT-Pos 3	1	3

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-1	Yellow/Brown	-3	16	12	10					

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
								1 set leaves plus cotyledons only, 13 dead

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
-2	Brown	-4	31	29	25					

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
								Stunted

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
57	R1-S1-B6	Yarrow	LABT-Pos 3	2	4

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-4	Yellow/Brown	-3	16	18	10	12				

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
								1 set leaves plus cotyledons only, 10 dead

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
-2	Brown	-4	32	25	33	21				

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
								Stunted

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NEPT 2. .5 PT - Harvest

Harvest Date: 18-Aug-05

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
58	R1-S2-C4	Yarrow	LABT-Pos 3	3	5

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-4	Yellow/Brown	-3	20	17	15	12	9			

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
								1 set leaves plus cotyledons only, 11 dead

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
-2	Brown	-4	29	32	21	25	21			

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
								Stunted

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
59	R1-S2-B2	Yarrow	LABT-Pos 3	4	3

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-4	Yellow/Brown	-3	17	12	13					

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
								1 set leaves plus cotyledons only, 13 dead

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
-2	Brown	-4	39	27	30					

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
								Stunted

ID #	Shelf Location	Species	Lab Sample	Rep	Harvest Count
60	R2-S1-A8	Yarrow	LABT-Pos 3	5	2

Shoot Information (SH = Shoot Height)

Color Severity	Color	Appearance	SH1	SH2	SH3	SH4	SH5	SH6	SH7	SH8
-4	Yellow/Brown	-3	17	14						

SH9	SH10	SH11	SH12	SH13	SH14	SH15	SH16	Comments
								1 set leaves plus cotyledons only, 14 dead

Root Information (RL = Root Length)

Color Severity	Root Color	Appearance	RL1	RL2	RL3	RL4	RL5	RL6	RL7	RL8
-2	Brown	-4	31	41						

RL9	RL10	RL11	RL12	RL13	RL14	RL15	RL16	Root Comments
								Stunted

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NEPT 2005 PT - Weight Data Sheets

All Weights in Grams

ID #	Species	LabSample	Rep	Wet Date	Wet Shoots	Wet Shoots Comments	Wet Roots	Wet Roots Comments	Dry Date	Dry Shoots	Dry Shoots Comments	Dry Roots	Dry Roots Comments
1	Yarrow	LABT1	1	19-Aug-05	0.436		0.249		22-Aug-05	0.049		0.029	
2	Yarrow	LABT1	2	19-Aug-05	0.408		0.300		22-Aug-05	0.036		0.058	
3	Yarrow	LABT1	3	19-Aug-05	0.457		0.275		22-Aug-05	0.042		0.031	
4	Yarrow	LABT1	4	19-Aug-05	0.496		0.251		22-Aug-05	0.059		0.027	
5	Yarrow	LABT1	5	19-Aug-05	0.412		0.189		22-Aug-05	0.045		0.020	
6	Yarrow	LABT2	1	19-Aug-05	0.638		0.342		22-Aug-05	0.063		0.045	
7	Yarrow	LABT2	2	19-Aug-05	0.642		0.283		22-Aug-05	0.053		0.036	
8	Yarrow	LABT2	3	19-Aug-05	0.451		0.198		22-Aug-05	0.045		0.042	
9	Yarrow	LABT2	4	19-Aug-05	0.746		0.212		22-Aug-05	0.076		0.053	
10	Yarrow	LABT2	5	19-Aug-05	0.861		0.345		22-Aug-05	0.071		0.042	
11	Yarrow	LABT3	1	19-Aug-05	0.566		0.229		22-Aug-05	0.065		0.027	
12	Yarrow	LABT3	2	19-Aug-05	0.651		0.220		22-Aug-05	0.053		0.033	
13	Yarrow	LABT3	3	19-Aug-05	0.645		0.279		22-Aug-05	0.065		0.022	
14	Yarrow	LABT3	4	19-Aug-05	0.590		0.269		22-Aug-05	0.053		0.031	
15	Yarrow	LABT3	5	19-Aug-05	0.540		0.241		22-Aug-05	0.051		0.032	
16	Yarrow	LABT4	1	19-Aug-05	0.346		0.125		22-Aug-05	0.037		0.023	
17	Yarrow	LABT4	2	19-Aug-05	0.472		0.205		22-Aug-05	0.040		0.033	
18	Yarrow	LABT4	3	19-Aug-05	0.634		0.341		22-Aug-05	0.051		0.041	
19	Yarrow	LABT4	4	19-Aug-05	0.518		0.245		22-Aug-05	0.062		0.037	
20	Yarrow	LABT4	5	19-Aug-05	0.688		0.379		22-Aug-05	0.057		0.063	
21	Yarrow	LABT5	1	19-Aug-05	0.510		0.236		22-Aug-05	0.055		0.041	
22	Yarrow	LABT5	2	19-Aug-05	0.670		0.329		22-Aug-05	0.045		0.039	
~~23~~	~~Yarrow~~	~~LABT5~~	~~3~~	~~19-Aug-05~~	~~0.698~~		~~0.379~~		~~22-Aug-05~~	~~0.063~~		~~0.055~~	
24	Yarrow	LABT5	4	19-Aug-05	0.689		0.383		22-Aug-05	0.055		0.061	
25	Yarrow	LABT5	5	19-Aug-05	0.470		0.187		22-Aug-05	0.041		0.059	
26	Yarrow	LABT6	1	19-Aug-05	0.417		0.438		22-Aug-05	0.038		0.050	
27	Yarrow	LABT6	2	19-Aug-05	0.491		0.287		22-Aug-05	0.047		0.032	
28	Yarrow	LABT6	3	19-Aug-05	0.415		0.240		22-Aug-05	0.045		0.029	

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QA Initial/Date_____

NEPT 2005 PT - Wet/Dry Weights

NEPT 2005 PT - Weight Data Sheets

All Weights in Grams

ID #	Species	LabSample	Rep	Wet Date	Wet Shoots	Wet Shoots Comments	Wet Roots	Wet Roots Comments	Dry Date	Dry Shoots	Dry Shoots Comments	Dry Roots	Dry Roots Comments
29	Yarrow	LABT6	4	19-Aug-05	0.450		0.175		22-Aug-05	0.045		0.032	
30	Yarrow	LABT6	5	19-Aug-05	0.498		0.317		22-Aug-05	0.054		0.065	
31	Yarrow	LABT7	1	19-Aug-05	0.600		0.595		22-Aug-05	0.045		0.029	
32	Yarrow	LABT7	2	19-Aug-05	0.857		0.794		22-Aug-05	0.061		0.069	
33	Yarrow	LABT7	3	19-Aug-05	0.555		0.575		22-Aug-05	0.074		0.061	
34	Yarrow	LABT7	4	19-Aug-05	0.597		0.631		22-Aug-05	0.055		0.070	
35	Yarrow	LABT7	5	19-Aug-05	0.754		0.737		22-Aug-05	0.062		0.055	
36	Yarrow	LABT8	1	19-Aug-05	0.580		0.377		22-Aug-05	0.055		0.045	
37	Yarrow	LABT8	2	19-Aug-05	0.431		0.225		22-Aug-05	0.041		0.036	
38	Yarrow	LABT8	3	19-Aug-05	0.455		0.280		22-Aug-05	0.043		0.044	
39	Yarrow	LABT8	4	19-Aug-05	0.650		0.430		22-Aug-05	0.055		0.059	
40	Yarrow	LABT8	5	19-Aug-05	0.400		0.261		22-Aug-05	0.042		0.036	
41	Yarrow	LABT-Neg	1	19-Aug-05	1.369		1.798		22-Aug-05	0.121		0.085	
42	Yarrow	LABT-Neg	2	19-Aug-05	1.442		1.402		22-Aug-05	0.105		0.111	
43	Yarrow	LABT-Neg	3	19-Aug-05	1.404		2.343		22-Aug-05	0.115		0.137	
44	Yarrow	LABT-Neg	4	19-Aug-05	1.348		1.997		22-Aug-05	0.108		0.126	
45	Yarrow	LABT-Neg	5	19-Aug-05	1.469		1.768		22-Aug-05	0.121		0.130	
46	Yarrow	LABT-Pos 1	1	19-Aug-05	0.829		0.274		22-Aug-05	0.080		0.037	
47	Yarrow	LABT-Pos 1	2	19-Aug-05	0.975		0.337		22-Aug-05	0.074		0.050	
48	Yarrow	LABT-Pos 1	3	19-Aug-05	0.803		0.300		22-Aug-05	0.072		0.033	
49	Yarrow	LABT-Pos 1	4	19-Aug-05	1.121		0.357		22-Aug-05	0.095		0.045	
50	Yarrow	LABT-Pos 1	5	19-Aug-05	0.929		0.327		22-Aug-05	0.069		0.040	
51	Yarrow	LABT-Pos 2	1	19-Aug-05	0.641		0.260		22-Aug-05	0.045		0.037	
52	Yarrow	LABT-Pos 2	2	19-Aug-05	0.738		0.191		22-Aug-05	0.053		0.031	
53	Yarrow	LABT-Pos 2	3	19-Aug-05	0.729		0.270		22-Aug-05	0.056		0.043	
54	Yarrow	LABT-Pos 2	4	19-Aug-05	0.698		0.192		22-Aug-05	0.055		0.029	
55	Yarrow	LABT-Pos 2	5	19-Aug-05	0.702		0.280		22-Aug-05	0.064		0.042	
56	Yarrow	LABT-Pos 3	1	19-Aug-05	0.020		0.009		22-Aug-05	0.007		0.002	

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QA Initial/Date_____

NEPT 2005 PT - Wet/Dry Weights

NEPT 2005 PT - Weight Data Sheets

All Weights in Grams

ID #	Species	LabSample	Rep	Wet Date	Wet Shoots	Wet Shoots Comments	Wet Roots	Wet Roots Comments	Dry Date	Dry Shoots	Dry Shoots Comments	Dry Roots	Dry Roots Comments
57	Yarrow	LABT-Pos 3	2	19-Aug-05	0.037		0.019		22-Aug-05	0.006		0.007	
58	Yarrow	LABT-Pos 3	3	19-Aug-05	0.023		0.014		22-Aug-05	0.006		0.008	
59	Yarrow	LABT-Pos 3	4	19-Aug-05	0.030		0.013		22-Aug-05	0.008		0.005	
60	Yarrow	LABT-Pos 3	5	19-Aug-05	0.042		0.020		22-Aug-05	0.005		0.009	

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Tech Initial/Date(DRY)_jy 8/22/05_____ Corrections/Date_liz 9/20/05_____

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