

2011 VIRGINIA ON-FARM SMALL GRAIN TEST PLOTS

**A Summary of Replicated Research and Demonstration Plots Conducted by Virginia
Cooperative Extension in Cooperation with Local Producers and Agribusinesses**



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VIRGINIA SMALL GRAINS BOARD**

INTRODUCTION

The demonstration and research plot results discussed in this publication are a cooperative effort by six Virginia Cooperative Extension agents, extension specialists from Virginia Tech, and an assistant professor at the Virginia State University School of Agriculture. We are proud to present this year's on-farm small grain plot work to you. The 2010-11 small grain season resulted in some excellent yields as timely planting, timely rainfall, and a cool, relatively dry grain fill period were all very positive for the wheat and barley crops. With July 2012 wheat futures prices currently trading over \$7.00 per bushel, the outlook for the 2012 crop is good. We hope the information in this publication will help farmers produce a profitable crop.

The field work and printing of this publication are supported by the Virginia Small Grains Check-Off Funds. The cooperators gratefully acknowledge this support. Any small grain producer or agribusiness personnel who would like to receive a copy of this report should contact his/her local extension agent, who can request a copy from Keith Balderson in Essex County at 804 443-3551 or thbalder@vt.edu.

This is the eighteenth year of this multi-year project. Further work is planned for the upcoming growing season.

The authors wish to thank the many producers who participated in this project. Appreciation is extended to the seed, chemical, and fertilizer representative who donated products and/or assisted with the field work.

DISCLAIMER:

Trade and brand names are used for educational purposes only, and Virginia Cooperative Extension does not guarantee or warrant the standards of the product, nor does Virginia Cooperative Extension imply approval of the product to the exclusion of others which may be also be suitable.

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GENERAL SUMMARY

- A. VARIETY SELECTION:** Variety selection remains one of the most important components of wheat production. We planted wheat variety demonstration plots in six locations in eastern and central Virginia. The Middlesex, Prince George, and Westmoreland locations included the same varieties. The average of the varieties over those three locations ranged from 96 bushels per acre to 107 bushels per acre. The top six varieties averaged over those three locations were USG 3251 (107 bushels per acre), Dyna-Gro 9042 and AgriPro Branson both at 105 bushels per acre and Dyna-Gro Shirley, Merl, and USG 3120 all three at 104 bushels per acre. Averaged over three locations, Price barley averaged 115 bushels per acre, while Thoroughbred averaged 110 bushels per acre, and Nomini averaged 84 bushels per acre. Nomini suffered deer damage in two locations. The best source of information available for selecting small grain varieties is Virginia Cooperative Extension publication “Small Grains in 2011,” which can be accessed at http://pubs.ext.vt.edu/3007/3007-1456/2011_small_grains_PDF.pdf
- B. FOLIAR FUNGICIDE PLOT:** In one plot evaluating Prosaro fungicide applied at flowering for head scab protection on USG 3555 wheat, the treated plots averaged 104.3 bushels per acre while the untreated check averaged 101.4 bushels per acre. The difference was not statistically significant. Test weights of the treated plots averaged 63.75 pounds per bushel, while the untreated checks averaged 63 pounds per bushel, a statistically significant difference.
- C. SPRAYER TRACKS:** Wheat yield loss to late season sprayer tracks was evaluated in two locations. Yield loss at one location was 3.1 bushels per acre in one plot and 4.25 bushels per acre in the other plot. With wheat at \$7.00 per bushel such losses would equate to \$20 to \$30 per acre. Actual yield loss would depend on tire size, sprayer boom width, growth stage of wheat and field conditions at the time application, and other factors. Farmers should evaluate their individual situations and might need to consider tramlines or aerial application.
- D. TISSUE TESTING:** Twenty-four tissue samples were analyzed for nutrient content during the spring of 2011 in the Middle Peninsula. Many of these samples were taken as a part of trouble-shooting barley and wheat production problems. We noticed that boron was low or deficient in the majority of samples. We probably need to run some strip trials to determine if boron deficiency is limiting small grain yields where tissue samples are testing low or deficient in the nutrient. We also continued to see some manganese and sulfur deficiencies, but it appears that overall growers are doing a better job of monitoring those nutrients and avoiding or correcting deficiencies as they show up. Results are provided at the end of the publication. An additional sixteen samples were submitted for farmers and tested for nitrogen only in an effort to help them determine the growth stage 30 nitrogen fertilizer application rate.

2011 Westmoreland Barley Variety Demonstration Plot

Cooperators: **Producer:** Keith Balderson
Extension: Keith Balderson, VCE, Middle Peninsula
 Livy Gill, VCE Summer Intern
Agribusiness: Bruce Beahm, VCIA and Franklin Hundley, Hundley Seed Company

Previous Crop: Corn
Soil Type: Kempsville sandy loam
Planting Date: October 7, 2010
Fertilizer: 30-80-80 at planting
 20 lbs. nitrogen per acre in early December
 65-0-0-24 per acre in early March

Crop Protection: Burndown Herbicide: Gramoxone Inteon and 2,4-D
 2 oz. per acre Tombstone and .75 oz. per acre Harmony Extra in early December; 4 oz.
 per acre Fitness in mid April

Harvest Date: June 3, 2011

Variety	Test Weight (lbs./Bushel)	% Moisture	Yield bu./Acre @14.5%
Price	49.4	11.7	125.0
Nomini**	45.6	11.5	97.8
Thoroughbred	49.3	11.3	113.8

**Yield reduced by deer feeding.

Discussion: Barley yields were very good in 2011. Timely planted barley tillered well in November. A cold and relatively dry winter kept early diseases in check. Thoroughbred did develop some powdery mildew and the plot was treated with Fitness fungicide in mid April to keep the mildew in check. The grain fill period was relatively dry and cool, which also helped yields. Deer feeding reduced the yield of Nomini.

2011 Middlesex Barley Variety Plot

Cooperators: **Producer:** Bill Gresham
Extension: David Moore, VCE-Middle Peninsula
Agribusiness: Virginia Crop Improvement Association

Previous Crop: Corn
Soil Type: Emporia Loam/Slagle Silt Loam
Planting Date: October 13, 2010
Fertilizer: 0-30-80-10S + AVAIL + 4 oz. Wolftrax Cu
 20-0-0 December
 45-0-0-6S late winter
 40-0-0 early spring

Crop Protection: Burndown: 3 pints Gramoxone Inteon
 Post: 3/10 Finesse in December
 2 oz. Warrior in December

Check Variety: Price
Harvest Date: June 3, 2011

Treatment or Variety	Test Weight	% Moisture	Yield (bu./Acre @14.5%)
Dan (hulless)	60	13.0	97.1
Check	48	11.0	106.2
Nomini (deer damage)	46	10.5	54.2
Check	49	10.8	106.2
Thoroughbred	49	10.6	109.8
Check	49	11.0	108.0
Price	48	11.0	111.6

Discussion:

This is the second year that Nomini has had deer browsing damage. This damage is very likely due to the fact that Nomini does not have a beard (awnless). Other than that, yields were very good, and so was quality. Barley and wheat yields should be good across the middle peninsula this year. (Notice TW of Dan variety. Hulless varieties can have test weights comparable to wheat)

Good growing and grain fill conditions for small grains this growing season and diseases were held in check by the dry weather. Use this and other Virginia Tech small grain information when making planting decision for 2011-12.

2011 CHESAPEAKE WHEAT VARIETY COMPARISON

Cooperators: Producer: G.C. & Marvel Nicholas
 Extension: Watson Lawrence-Chesapeake
Previous Crop: Corn
Soil Type: Chesapeake Fine Sandy Loam
Tillage: Disk followed by disk with culti-packer
Planting Date: October 25, 2010
Fertilizer: October: 8-13-33 @ 265 lbs/A broadcast
 March: 32%Nitrogen @ 80 lbs/A
Crop Protection: Herbicide: March 2nd Osprey @ 4.75 oz/A
 March 18th Harmony SG @ ¾ oz/A
 Fungicide: May 1st Quilt @ 14 oz/A
 Insecticide: May 1st Tombstone @ 2 oz/A
Harvest Date: June 15, 2011

Treatment or Variety	Test Weight	% Moisture	Yield bu/a
Southern States 5205	61	14.7	99.23
Shirley	59	15.0	92.98
Southern States 560	58	14.2	92.29
Agri-Pro 9436	58	13.8	91.76
Dyna-Gro 9042	57	14.2	91.48
USG 3592	61	15.2	91.23
Pioneer 26R22	57	14.3	91.21
Cooper	58	14.5	90.46
Progeny 185	60	15.2	89.83
Agri-Pro 9312	60	15.1	88.47
Dominion	58	13.9	87.88
Pioneer 26R15	59	14.7	86.71
Oakes	59	15.5	84.68
USG 3209	58	15.4	83.98
Experimental SR7353	59	13.0	83.71

Discussion: An extremely dry May did not hurt yields or test weights as feared. Some disease and pest pressure in May from powdery mildew and cereal leaf beetle was countered with timely applications of crop protection products. Weed control was excellent. Protecting the crop by using good scouting efforts and applying crop protection chemicals helped produce good yields.

2011 Westmoreland Wheat Variety Demonstration Plot

Cooperators: **Producer:** F.F. Chandler, Jr.
Extension: Keith Balderson, VCE Middle Penninsula
 Livy Gill, Summer Intern
Agribusiness: Cooperating Seed Companies, Curtis Packett and Rusty Green, CPS
Previous Crop: Corn
Soil Type: Kempsville loam and Rumford and Tetotum Soils
Planting Date: October 26, 2010 No-till
Fertilizer: 40-0-0-15 in late January
 60-0-0-8 in late March
Crop Protection: Harmony and Osprey in January
 3 oz. per acre Headline in second nitrogen application
 7 oz. per acre Prosar and 2 oz. per acre Tombstone at flowering
Harvest Date: July 1, 2011

Treatment or Variety	Test Weight	% Moisture	Yield (bu./Acre@13.5%)
USG 3251	56.0	13.8	94.36
USG 3120	56.5	13.1	94.95
Progeny 185	56.0	13.9	91.98
SS 560	56.0	13.7	88.70
SS 8600	56.5	12.8	94.04
VCIA Jamestown	57.0	13.0	90.83
VCIA Merl	57.0	13.9	91.63
Dyna-Gro Shirley	56.0	13.5	95.04
Dyan-Gro 9042	56.0	13.0	95.94
Featherstone VA 258	56.0	13.1	92.31
Agripro Oakes	56.0	13.7	87.82
Agripro Branson	56.0	14.1	90.03

Discussion:
 Yields were very good in this wheat plot. Harvest was delayed somewhat by rain, but test weights were still okay. Use this and replicated data from the Small Grains in Virginia 2011 publication when selecting varieties for 2011-12.

2011 Middlesex Wheat Variety Comparison

Cooperators: **Producer:** Jason Benton
Extension: David Moore, VCE-Middle Peninsula
 Micah Owens, Summer Intern
Agribusiness: Participating Companies
Previous Crop: Corn
Soil Type: Suffolk Fine Sandy Loam
Planting Date: October 20, 2010
Fertilizer: 18-46-90-10S at planting
 20-0-0-3S in December
 50-0-0-6S in late winter
 50-0-0-6S in early spring
Crop Protection: Burndown: 3 pints Gramoxone
 2 Oz. Warrior December
 3/10 Oz. Finesse
 8 Oz. Prosaro May
Check Variety: USG 3665
Harvest Date: June 15, 2011

Variety	Test Weight	% Moisture	Yield (bu./Acre @13.5%)	% of Check
Dyna-Gro 9042	61	12.6	99.14	96.76%
Check	61	12.9	103.67	
Dyna-Gro Shirley	60	13.0	107.56	104.97%
Check	61	13.0	101.26	
Progeny P185	62	12.8	96.62	96.73%
Check	60	12.9	98.52	
VCIA Merl	62	12.7	110.80	107.79%
Check	61	12.7	107.07	
VCIA Jamestown	62	12.4	100.23	93.26%
Check	61	12.5	107.89	
Syngenta/AgriPro/Coker Oakes	62	12.9	99.09	93.05%
Check	62	12.9	105.10	
Syngenta/AgriPro/Coker Branson	60	12.4	108.38	104.57%
Check	60	12.5	102.20	
Featherstone VA-258	60	12.5	103.64	101.73%
Check	61	12.8	101.56	
Southern States 560	60	12.5	103.35	100.17%
Check	61	12.5	104.79	
Southern States 8600	61	12.6	96.60	93.65%
Check	61	12.6	101.50	
USG 3251	62	12.8	107.02	104.76%
Check	61	12.7	102.83	
USG 3120	62	12.8	109.61	107.29%

Discussion: What a wheat year!! Good yields, good test weight and little to no disease pressure. Lots of producers used fungicides to protect their crop against foliar diseases and Head Blight, but very little of it was needed. This plot was rated for diseases in early April and the rating for powdery mildew is included below along with heading dates which were not that variable, possibly due to the weather and lack of sunlight during late winter/early spring.

Use this and other Virginia Tech small grain variety information when making planting decisions for 2011-12.

Powdery Mildew Rating (0=none; 9= all leaves infected)
 Heading Date Information

Variety	Head Date	PM Rating (4-5-11)
CPS 9042	4-26	0
Shirley	4-27	0
Progeny 185	4-26	2
Merl	4-25	0
Jamestown	4-24	0
Oakes	4-28	3
Branson	4-27	1
VA-258	4-28	1
SS 560	4-30	1
SS 8600	4-27	0
USG 3251	4-28	1
USG 3120	4-24	0

2010/11 Virginia State University Small Grain Variety Comparison

Cooperators: Producer: Glenn F. Chappell
 Glenn F. Chappell, II – Virginia State University
 Scott Reiter – Virginia Cooperative Extension – Prince George
Previous Crop: Corn
Soil Type: Slagle Sandy loam
Tillage: No-Till
Test/Plot Size: 300 ft x 30 ft per variety
Planting Equipment: John Deere 1590 NT Drill
Planting Date: November 19, 2010
Row Spacing: 7.5 inches
Variety: Various
Seeding Rate: 25 seed/row ft
Crop Protection: Herbicides: 0.5 oz of Harmony Extra – March 25, 2011
 Insecticides: 2.56 oz of Warrior T – March 25, 2011
 Fungicides: 6 oz of Headline 2.09 EC – March 25, 2011
 Fertilizer: 70 lbs of N – February 24, 2011 & 50 lbs of N March 25, 2011
Harvest Date: July 1, 2011
Harvest Equipment: John Deere 6620

Brand	Variety	Moisture	Test		Yield
			Weight	% of Check ¹	
		(%)	(lbs/bu)	(%)	(bu/A)
Check - USG	3665	10.0	52.9	---	57.6
VCIA	Merl	9.0	56.4	103.1	61.4
Coker	Oaks	11.8	56.7	126.4	75.3
Coker	Branson	9.8	52.9	84.7	50.5
Southern S.	560	11.6	54.6	96.6	57.6
Southern S.	8600	10.7	55.3	98.3	58.6
USG	3251	11.1	53.9	119.5	71.2
USG	3120	8.9	53.9	119.5	71.2
Progeny	185	10.3	55.0	117.6	70.1
VCIA	Jamestown	11.4	57.8	116.9	69.7
Featherstone	VA 258	11.3	54.3	119.1	71.0
Check - USG	3665	9.4	52.5	---	61.6

¹% of Check is calculated by dividing the individual variety yield by the mean of the two checks located on either side of the plot.

Discussion: The plot received between five and six inches of rain between June 1st and July 1st impacting grain test weight. Compare these results with regional data to choose varieties that maintain test weight during adverse harvesting conditions.

2011 DINWIDDIE COUNTY WHEAT/BARLEY VARIETY COMPARISONS

Cooperators: Producer: Billy Bain
 Extension: Mike Parrish, Dinwiddie
 Agribusiness: Participating Seed Companies
Previous Crop: Corn
Soil Type: Applying Sandy Loam
Tillage: Conventional
Planting Equipment: Case IH 5200
Planting Date: 10-25-10
Row Spacing: 7 inches
Seeding Rate: 22 seed/ft.
Crop Protection: Fertilize: 400 lbs. 5-10-30 – 10/20/10
 12 gal. 24-0-0-S 3% - 1/15/11
 15 gal. 24-0-0-S 3% - 3/10/11
 Herbicide: .75 oz Harmony SG – 3/10/11
 Fungicide: 7 oz Prosaro – 5/06/11
 Insecticide: 1.2 oz Baythroid XL – 5/06/11
Harvest Date: 6-07-11
Harvest Equipment: Case IH 2388 Combine

Brand	Test Weight	% Moisture	Adj. Yield ¹
Wheat			
Merl	62	17	85.2/bu/ac
Jamestown	61	15.4	85.3
Featherstone	59	17	89.8
SS 560	60	14.5	95.7
USG 3051	58	16.3	94.84
USG 3120	59	16.2	101.49
P 185	62	15.8	90.77
Unknown	60	15.8	90.70
Oakes	61	16.9	86.53
Unknown	63	15.5	92.26
Barley			
Nomini	47	11.3	100.10
Price	48	11.3	107.42
Thoroughbred	50	11.8	104.79

Discussion: The reported improved yields were a direct result of improved growing conditions, strategic scouting, and pest management over the growing season. Use this data with other variety information to select high-yielding varieties in 2011.

2011 On-Farm Wheat Variety Plot Yield Summary (bushels per acre at 13.5%)

Variety	VA State	Chesapeake	Dinwiddie	Middlesex	Prince George	Westmoreland	Average**
USG 3251	71		95	107	121	94	107
Dyna-Gro 9042		91		99	119	96	105
AgriPro Branson	51			108	117	90	105
Dyna-Gro Shirley		93		108	110	95	104
VCIA Merl	61		85	111	111	92	104
USG 3120	71		101	110	109	95	104
Featherstone VA-258	71		90	104	110	92	102
SS 560	58	92	96	103	110	89	101
VCIA Jamestown	70		85	100	109	91	100
SS 8600	59			97	111	94	100
AgriPro Oakes	75	85	87	99	110	88	99
Progency P185	70	90	91	97	100	92	96
USG 3209		84					
SS 5205		99					
AgriPro Coker 9436		92					
USG 3592		92					
Pioneer 26R20					108		
Pioneer 26R22		91			117		
AgriPro Cooper		90					
AgriPro Coker 9312		88					
Dominion		88					
Pioneer 26R15		87					
Experimental							
SR7353		84					
Average	66	90	91	104	111	92	

**** Average yields calculated using data from Middlesex, Prince George and Westmoreland locations only since each of these locations included the same varieties.**

2011 On-Farm Wheat Variety Plot Test Weight Summary (pounds per bushel)

Variety	VA State	Chesapeake	Dinwiddie	Middlesex	Prince George	Westmoreland	Average**
VCIA Jamestown	58		61	62	61.3	57.0	60.1
AgriPro Oakes	57	59	61	62	61.0	56.0	59.7
USG 3120	54		59	62	60.6	56.5	59.7
VCIA Merl	56		62	62	59.9	57.0	59.6
SS 8600	55			61	60.3	56.5	59.5
USG 3251	54		58	62	59.6	56.0	59.2
Progency P185	55	60	62	62	58.9	56.0	58.9
Dyna-Gro 9042		57		61	59.2	56.0	58.7
AgriPro Branson	53			60	59.2	56.0	58.4
Dyna-Gro Shirley		59		60	58.9	56.0	58.3
SS 560	55	58	60	60	58.9	56.0	58.3
Featherstone VA-258	54		59	60	58.5	56.0	58.2
USG 3209		58					
USG 3592		61					
SS 5205		61					

Pioneer 26R20					60.3	
Pioneer 26R22		57			59.2	
AgriPro Cooper		58				
AgriPro Coker 9436		58				
AgriPro Coker 9312		60				
Dominion		58				
Pioneer 26R15		59				
Experimental SR7353		59				
Average	55.1	58.8	60.3	61.2	59.7	56.3

**** Average Test Weight was calculated using the results from the Middlesex, Prince George, and Westmoreland locations only since each of these locations included the same varieties.**

2011 On-Farm Barley Variety Plot Yield Summary (bushels per acre at 14.5%)

Variety	Dinwiddie	Middlesex	Westmoreland	Average
Price	107	112	125	115
Thoroughbred	105	110	114	110
Nomini**	100	54	98	84
Dan		97		
Average	104	93	106	

**** Nomini suffered injury from deer browsing at the Middlesex and Westmoreland sites.**

Producers should plant bearded varieties in areas with deer pressure.

2011 On-Farm Barley Variety Plot Test Weight Summary (pounds per bushel)

Variety	Dinwiddie	Middlesex	Westmoreland	Average
Thoroughbred	50	49	49.3	49.4
Price	48	48	49.4	48.5
Nomini	47	46	45.6	46.2
Dan		60		
Average	48.3	50.7	48.1	

2011 Gloucester Sprayer Tracks Test Plot

Cooperators: **Producer:** Chuck Hunt
Extension: David Moore, VCE-Middle Peninsula
 Micah Owens, Summer Intern

Previous Crop: Corn
Soil Type: Suffolk and Wrightboro Fine Sandy Loams
Planting Date: November 11, 2010
Fertilizer: Broadcast: 35-80-80-15S
 2-18-11: 50-0-0-6S
 3-30-11: 50-0-0-6S

Crop Protection: Glyphosate Burndown
 Harmony @ .75 ounces 2-18-11
 Fitness (propiconazole) @ 3 ounces 3-30-11 with ½ # Boron
 Prosaro @ 7 ounces on 5-2-11 with 1.5 ounces Tombstone (cyfluthrin)

Variety: USG 3665
Harvest Date: June 30, 2011

Treatment	Rep	% Moisture	Yield
With Sprayer Tracks	1	14.7	87.7
W/O Sprayer Tracks	1	14.2	107.6
With Sprayer Tracks	2	14.7	97.8
W/O Sprayer Tracks	2	14.4	97.2
With Sprayer Tracks	3	14.3	82.5
W/O Sprayer Tracks	3	13.6	96.6
Average With Tracks			89.3
Average without Tracks			100.5
Difference			11.2
Adjusted Difference			3.1

Discussion: Back in the 1990's, tramlines became of interest for wheat producers. Producers were beginning to accept split application of nitrogen and other intensive management practices. Maybe it is time to re-visit that idea.

In this plot, there is an adjusted difference in sprayer tracks and no tracks. The spray applicator covered 90 feet and the combine covered 25 during harvest, so the difference in yield was adjusted.

Use this and other Virginia Tech small grains information when making production decisions for 2011-12.

WHEAT TISSUE TESTING RESULTS

Nutrient	Nitrogen	Sulfur	Phosphorus	Potassium	Magnesium	Calcium
Plant Tissue Level						
Very High	0	0	0	0	0	0
High	12	0	10	1	0	0
Sufficient	22	13	9	18	17	18
Low	0	6	0	0	2	1
Deficient	0	0	0	0	0	0
Total Number of Samples	34	19	19	19	19	19

Percentages						
Very High	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
High	35.29%	0.00%	52.63%	5.26%	0.00%	0.00%
Sufficient	64.71%	68.42%	47.37%	94.74%	89.47%	94.74%
Low	0.00%	31.58%	0.00%	0.00%	10.53%	5.26%
Deficient	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Nutrient	Sodium	Boron	Zinc	Manganese	Iron	Copper	Aluminum
Plant Tissue Level							
Very High	0	0	0	0	3	0	0
High	0	0	0	0	0	0	2
Sufficient	19	4	18	17	16	14	17
Low	0	13	1	1	0	5	0
Deficient	0	2	0	1	0	0	0
Total Number of Samples	19	19	19	19	19	19	19

Percentages							
Very High	0.00%	0.00%	0.00%	0.00%	15.79%	0.00%	0.00%
High	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.53%
Sufficient	100.00%	21.05%	94.74%	89.47%	84.21%	73.68%	89.47%
Low	0.00%	68.42%	5.26%	5.26%	0.00%	26.32%	0.00%
Deficient	0.00%	10.53%	0.00%	5.26%	0.00%	0.00%	0.00%

BARLEY TISSUE TESTING RESULTS

Nutrient	Nitrogen	Sulfur	Phosphorus	Potassium	Magnesium	Calcium
Plant Tissue Level						
Very High	0	0	0	4	0	0
High	2	2	3	0	0	4
Sufficient	2	3	2	1	5	1
Low	2	0	0	0	0	0
Deficient	0	0	0	0	0	0
Total Number of Samples	6	5	5	5	5	5

Percentages						
Very High	0.00%	0.00%	0.00%	80.00%	0.00%	0.00%
High	33.33%	40.00%	60.00%	0.00%	0.00%	80.00%
Sufficient	33.33%	60.00%	40.00%	20.00%	100.00%	20.00%
Low	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%
Deficient	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Nutrient	Sodium	Boron	Zinc	Manganese	Iron	Copper	Aluminum
Plant Tissue Level							
Very High	0	0	0	0	3	0	0
High	0	0	1	2	0	0	0
Sufficient	5	1	3	2	2	3	5
Low	0	2	1	0	0	1	0
Deficient	0	2	0	1	0	1	0
Total Number of Samples	5	5	5	5	5	5	5

Percentages							
Very High	0.00%	0.00%	0.00%	0.00%	60.00%	0.00%	0.00%
High	0.00%	0.00%	20.00%	40.00%	0.00%	0.00%	0.00%
Sufficient	100.00%	20.00%	60.00%	40.00%	40.00%	60.00%	100.00%
Low	0.00%	40.00%	20.00%	0.00%	0.00%	20.00%	0.00%
Deficient	0.00%	40.00%	0.00%	20.00%	0.00%	20.00%	0.00%