

Ketterings, Q.M., H. Krol, W.S. Reid and M.J. Fargione (2004). Ulster County Soil Sample Survey 1995-2001. CSS Extension Bulletin E04-29. 40 pages.

Soil Sample Survey

Ulster Co.

Samples analyzed by CNAL in 1995-2001



Summary compiled by

Quirine M. Ketterings, Hettie Krol,
W. Shaw Reid and Michael J. Fargione



Nutrient Management Spear Program: <http://nmsp.css.cornell.edu/>

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Table of Contents

1. County Introduction.....	4
2. General Survey Summary.....	6
3. Cropping Systems	11
3.1 Samples for Home and Garden.....	11
3.2 Samples for Commercial Production.....	12
4. Soil Types	14
4.1 Samples for Home and Garden.....	14
4.2 Samples for Commercial Production.....	15
5. Organic Matter	17
5.1 Samples for Home and Garden.....	17
5.2 Samples for Commercial Production.....	18
6. pH	19
6.1 Samples for Home and Garden.....	19
6.2 Samples for Commercial Production.....	20
7. Phosphorus.....	21
7.1 Samples for Home and Garden.....	21
7.2 Samples for Commercial Production.....	22
8. Potassium	23
8.1 Samples for Home and Garden.....	23
8.2 Samples for Commercial Production.....	26
9. Magnesium	29
9.1 Samples for Home and Garden.....	29
9.2 Samples for Commercial Production.....	30
10. Iron.....	31
10.1 Samples for Home and Garden.....	31
10.2 Samples for Commercial Production.....	32
11. Manganese	33
11.1 Samples for Home and Garden.....	33
11.2 Samples for Commercial Production.....	34
12. Zinc	35
12.1 Samples for Home and Garden.....	35
12.2 Samples for Commercial Production.....	36
Appendix: Cornell Crop Codes	37

1. County Introduction

Ulster County is located in Southeastern New York, 70 miles north of NY City and 45 miles south of Albany. It covers 721,024 acres (1,126 square miles). The county includes parts of two main physiographic units: to the northwest is the Catskill Mountain area of the Appalachian Plateaus province. To the southeast is the Hudson Lowland area of the Valley and Ridge province. The Hudson Lowland area includes several distinct regions including the Rondout Esopus Valley region, the Shawangunk Mountain region, the Wallkill Valley region, and the Marlboro Mountain region.

Major water bodies associated with Ulster County include the Hudson River on the eastern border, and the Ashokan and part of the Roundout Reservoirs in the west that contribute to NY City's drinking water. Land elevations range from sea level at the Hudson River to 4,204 feet atop Slide Mountain in the Catskills. Ulster soils have been divided into 6 main units: Bath-Nassau (19%), Stockbridge-Farmington-Bath (3.5%), Wellsboro-Wurtsboro-Swartswood (6%), Arnot-Oquaga-Lacawanna (39%), Lordstown-Arnot-Mardin (19%), Churchville-Rhinebeck-Madalin (4.5%), Hoosic-Schoharie-Chenango (9%).

Differences in physiography, soil and bedrock geology, and climate throughout the area have influenced the history of land use in Ulster County. Eighty-one percent of the County (582,800 acres) is covered with forest, including 160,000 acres of NY State Forest Preserve lands. In 2002, farms covered 12 percent of the land surface. Important farm commodities include fruit, grass/hay, field corn and vegetables. Ulster County ranks in the top 6 NY counties in the production of apples, pears, peaches and sweet corn. Orchards and vineyards are located primarily on the higher elevations in the southern and eastern portions of the county. Here the Hudson River has a moderating effect on local microclimates, and topographic relief provides air drainage to reduce the danger of spring frost damage. Sweet corn production is concentrated in the fertile, deep-soil river valleys, while grass/hay production is scattered across upland sites. Agriculture is limited in the Catskill Mountain section of the County. Normal precipitation is adequate for all crops, except on sites with shallow soils and in droughty years. Many fruit and vegetable farms have installed supplemental irrigation systems.

Ketterings, Q.M., H. Krol, W.S. Reid and M.J. Fargione (2004). Ulster County Soil Sample Survey 1995-2001. CSS Extension Bulletin E04-29. 40 pages.

International competition, stagnant prices to farmers, increased taxation and regulation, and a rapidly increasing market for building lots have resulted in significant amounts of Ulster farmland being converted to residential housing sites. The apple acreage dropped by 43% between 1990 and 2001. The year 2000 population of Ulster County was estimated at 177,749 and is predicted to exceed 203,000 by the year 2020. Thus, the demand for house sites is not expected to decline. Agriculture remains an integral part of Ulster County's economic base, supporting local communities and regional tourism. Ulster residents and government officials are becoming increasingly concerned about retaining viable agricultural businesses and the working landscapes they help to preserve.

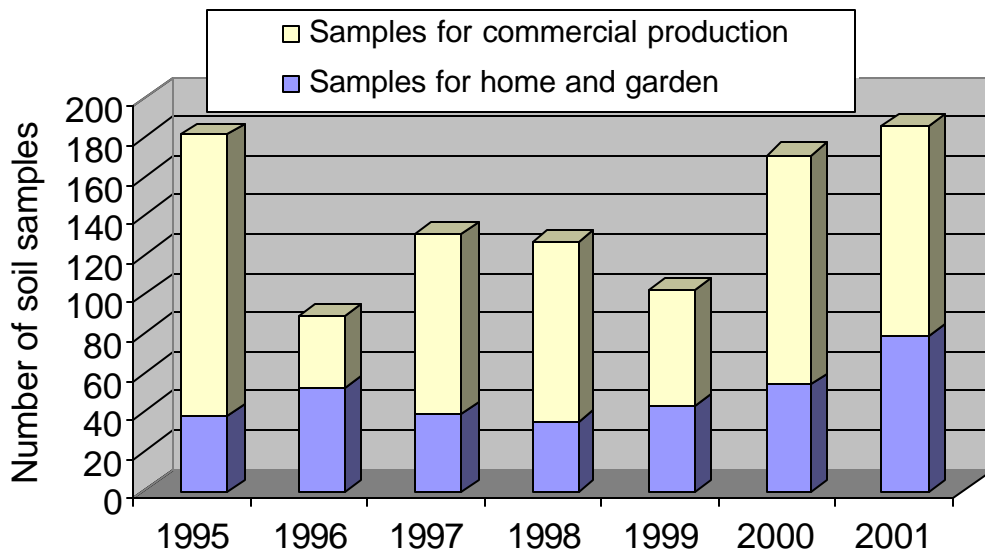
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References:

- NYS Agricultural Statistical Services, Division of Statistics. 2002. 2001 New York Fruit and Vineyard Survey. Albany, NY. 54 pp.
- Tornes, L.A. 1979. Soil Survey of Ulster County, New York. USDA SCS and Cornell Agricultural Experiment Station. 273 pp plus maps.
- Ulster County Agricultural Farmland Protection Board. 1997. Ulster County Agricultural and Farmland Protection Plan. 1997. Kingston. 81pp.
- 2004 Ulster County Profile. Ulster County Planning Department. Available at: <http://www.co.ulster.ny.us/planning/db2004/2004profile.pdf>.

2. General Survey Summary

This survey summarizes the soil test results from Ulster County soil samples submitted for analyses to the Cornell Nutrient Analysis Laboratory (CNAL) during 1995-2001. The total number of samples analyzed in these years amounted to 987. Of these 987 samples, 648 (66%) were submitted to obtain fertilizer recommendations for commercial production while 339 samples (34%) were submitted as home and garden samples.



Homeowners		Commercial		Total
1995	38	1995	143	181
1996	52	1996	37	89
1997	39	1997	92	131
1998	34	1998	93	127
1999	43	1999	59	102
2000	54	2000	117	171
<u>2001</u>	<u>79</u>	<u>2001</u>	<u>107</u>	<u>186</u>
Total	339	Total	648	987

A large portion of the home and garden soil samples (35%) was submitted to request fertilizer recommendations for home garden vegetable production. Eighteen percent of the samples came from lawns and 16% was taken to obtain recommendations for ornamentals adapted to pH 6.0–7.5. People submitting samples for commercial production requested fertilizer recommendations for apples (28%), hay production (16%), pasture (12%), alfalfa, alfalfa/grass or alfalfa/trefoil mixtures (8%), corn silage or grain (6%), or mixed vegetables (6%), while a few producers were planning on growing other crops including clover/grass mixtures, grapes, sweet corn, small grains and vegetables.

Home and garden samples in Columbia County were silty (21%), silt loams (30%), sandy loams (36%), or sandy (13%), belonging to soil management groups 2, 3, 4, and 5, respectively. The table below gives descriptions of each of the soil management groups.

Soil Management Groups for New York

1	Fine-textured soils developed from clayey lake sediments and medium- to fine-textured soils developed from lake sediments.
2	Medium- to fine-textured soils developed from calcareous glacial till and medium-textured to moderately fine-textured soils developed from slightly calcareous glacial till mixed with shale and medium-textured soils developed in recent alluvium.
3	Moderately coarse textured soil developed from glacial outwash and recent alluvium and medium-textured acid soil developed on glacial till.
4	Coarse- to medium-textured soils formed from glacial till or glacial outwash.
5	Coarse- to very coarse-textured soils formed from gravelly or sandy glacial outwash or glacial lake beach ridges or deltas.
6	Organic or muck soils with more than 80% organic matter.

Of the samples submitted for commercial production, 67% belonged to soil management group 3 while 11% was classified group 2, 12% belonged to soil management group 4, and 1% each came from group 5 and 6. The remainder was of unknown classification.

The six most common soil series were Bath (17%), Mardin (12), Chenango (9%), Hoosic (7%), Unadilla (5%), and Lackawanna (5%). These soils represent 9% (Bath), 3% (Mardin), 1% (Chenango), 3% (Hoosic), 1% (Unadilla), and 7% (Lackawanna) of the 49,708 acres in the county.

Organic matter levels, as measured by loss on ignition, ranged from 1% to almost 60% (most likely an organic soil or amendment) with median values ranging from 3.2 to 4.6% organic matter for home and garden samples and from 2.4-4.1% for samples submitted for commercial production. Sixty percent of the home and garden samples had between 2.0 and 4.9% organic matter with 17% testing between 2.0 and 2.9% organic matter, 27% between 3.0 and 3.9% organic matter and 17% between 4.0 and 4.9% organic matter. Twenty-six percent of the soils submitted for home and garden tested >4.9% in organic matter while 14% of the samples had less than 2.0% organic matter. Of the samples submitted for commercial production, 30% contained between 3.0 and 3.9% organic matter, 16% tested between 4.0 and 4.9% while 10% had organic matter concentrations of 5.0-5.9%. Thirty-eight percent had less than 3.0% organic matter while 6% of the samples had 6.0% or more organic matter. In total, 29% of the samples had organic matter levels between 4.0 and 6.9%.

Soil pH in water (1:1 extraction ratio) varied from pH 4.2 to pH 9.0 with the median for home and garden samples ranging from pH 6.5 to pH 7.0 and for samples submitted for commercial production ranging from pH 5.9 to pH 6.6. Of the home and garden samples, 66% tested between pH 6.0 and 7.4. For the samples submitted for commercial production, this was 66% as well while 28% tested between pH 5.0 and pH 5.9.

Extractable nutrients such as phosphorus (P), potassium (K), magnesium (Mg), calcium (Ca), iron (Fe), manganese (Mn), and zinc (Zn) were measured using the Morgan solution and extraction method (Morgan, 1941). This solution contains sodium acetate buffered at a pH of 4.8.

Soil test P levels of <1 lb P/acre are classified as very low. Between 1-3 lbs P/acre is low. Medium is between 4-8 lbs P/acre. High testing soils have P levels between 9 and 39 lbs P/acre and soils with >39 lbs P/acre are classified as very high. Of the home and garden samples, 10% tested low, 14% tested medium, 35% tested high and 41% tested very high. This meant that 76% tested high or very high in P. Of the samples submitted for

commercial production, 31% tested low in P. Twenty-three percent were medium in P, 34% tested high while 12% of the samples were very high in P. In total, 46% of the samples tested high or very high in P. There were no clear trends over the 7 years.

Classifications for potassium depend on soil management group. The fine-textured soils of soil management group 1 have a greater K supplying capacity than the coarse textured sandy soils (soil management group 5). Classification for each of the management groups in the above table represent very low, low, medium, high and very high. So for example for soil management group 5 and 6, <60 lbs K/acre means the soil is very low in K, between 60 and 114 lbs K/acre is low, 115-164 lbs K/acre is medium, 165-269 lbs K/acre is high and >269 lbs K/acre is classified as very high (see the table below).

Potassium classifications depend on soil test K levels and soil management group.

Soil Management Group	Potassium Soil Test Value (Morgan extraction in lbs K/acre)				
	Very low	Low	Medium	High	Very High
1	<35	35-64	65-94	95-149	>149
2	<40	40-69	70-99	100-164	>164
3	<45	45-79	80-119	120-199	>199
4	<55	55-99	100-149	150-239	>239
5 and 6	<60	60-114	115-164	165-269	>269

Of the home and garden samples, 13% was classified as very low or low in potassium. Twelve percent tested medium, another 22% were high and 53% were very high in potassium. For samples submitted for commercial production, 2% were very low in K, 11% tested low, 21% tested medium, 29% tested high and another 29% tested very high in potassium while the remainder was of unknown K classification. As with phosphorus, there were no trends over the 7 years of soil sampling.

Soils test very low for magnesium if Morgan extractable Mg is less than 20 lbs Mg/acre. Low testing soils have 20-65 lbs Morgan Mg per acre. Soils with 66-100 lbs Mg/acre test medium for magnesium. High testing soils have 101-199 lbs Mg/acre while soils with

more than 200 lbs Mg/acre in the Morgan extraction are classified as very high in Mg. Magnesium levels ranged from 16 to almost 18,000 lbs Mg/acre (Morgan extraction). There were only 2 samples in the combined home and garden and commercial agriculture datasets that tested very low in Mg. Most soils tested high or very high for Mg (86% of the homeowner soils and 93% of the soils of the commercial growers). Forty-six (13%) of the home and garden samples and 44 (7%) of the commercial growers' soils tested low or medium in Mg availability.

Soils with more than 50 lbs Morgan extractable Fe per acre test excessive for Fe. Anything lower than 50 lbs Fe/acre is considered normal. Ninety-five percent of the home and garden samples were classified as normal in Fe while 96% of the commercial samples tested in the normal range for Fe. Similarly, almost all soils (93% of the home and garden samples and 98% of the commercial samples) tested normal for manganese. Anything less than 100 lbs Mn per acre is classified as normal. Soils with more than 100 lbs Morgan extractable Mn per acre are classified as excessive in Mn. Sixteen commercial samples and 23 home and garden samples were excessive in Mn. Soils with less than 0.5 lb zinc per acre in the Morgan extraction are classified as low in Zn. Medium testing soils have between 0.5 and 1 lb of Morgan extractable Zn per acre. If more than 1 lb of Zn/acre is extracted with the Morgan solution, the soil tests high in Zn. For the home and garden samples, five samples (1%) tested low for zinc while 57 (17%) tested medium and 82% tested high for zinc. Of the samples for commercial production, 2% tested low in zinc, 21% tested medium while 77% of the samples were high in zinc.

In the following sections, the summary tables for each of the soil fertility indicators described above are given. The appendix contains the crop codes used in section 2.

Reference

- Morgan, M.F. 1941. Chemical soil diagnosis by the universal soil testing system. Connecticut Agricultural Experimental Station. Bulletin 450.

3. Cropping Systems

3.1 Samples for Home and Garden

Crops for which recommendations are requested by homeowners:

	1995	1996	1997	1998	1999	2000	2001	Total	%
ALG	1	1	0	0	1	1	6	10	3
APR	0	1	0	0	1	0	0	2	1
ASP	0	0	0	0	0	1	0	1	0
ATF	0	5	4	0	3	0	0	12	4
BLU	0	0	0	0	1	0	0	1	0
FAR	0	1	0	0	0	0	0	1	0
FLA	0	2	0	0	0	3	1	6	2
GEN	0	1	1	0	0	1	1	4	1
GRA	0	1	2	1	0	0	0	4	1
HRB	0	0	0	0	0	0	1	1	0
IDL	2	0	0	0	0	0	0	2	1
LAW	5	9	0	9	11	7	20	61	18
MVG	22	17	27	14	14	17	6	117	35
OTH	1	3	0	4	2	2	1	13	4
PER	3	4	1	2	3	1	3	17	5
PTO	0	0	0	0	1	0	0	1	0
ROD	1	0	0	0	0	0	0	1	0
ROS	0	0	0	0	3	0	0	3	1
ROU	0	1	0	0	0	0	0	1	0
RSP	0	1	0	0	0	0	0	1	0
SAG	3	3	3	1	0	5	39	54	16
STR	0	0	0	1	0	0	0	1	0
TRF	0	1	1	2	0	16	0	20	6
Unknown	0	1	0	0	3	0	1	5	1
Total	38	52	39	34	43	54	79	339	100

Notes:

See Appendix for Cornell crop codes.

3.2 Samples for Commercial Production

Crops for which recommendations are requested for commercial production:

Current year crop	1995	1996	1997	1998	1999	2000	2001	Total	%
ABE/ABT	2	0	0	0	0	3	0	5	1
AGE/AGT	10	1	2	2	3	0	0	18	3
ALE/ALT	6	0	9	8	0	0	0	23	4
APP	54	4	18	48	3	22	30	179	28
BCE/BCT	2	0	0	0	0	0	4	6	1
BGE/BGT	6	1	0	0	0	0	1	8	1
BND	0	0	0	0	1	0	0	1	0
BNS	0	0	0	0	1	0	0	1	0
BUK	0	0	0	2	0	0	0	2	0
CBP	0	0	0	0	0	9	0	9	1
CHS	0	0	0	0	0	1	0	1	0
CGE/CGT	0	0	0	3	0	1	5	9	1
CLE/CLT	0	0	0	0	0	0	1	1	0
COG/COS	17	0	6	2	9	0	3	37	6
CVE	1	0	0	0	0	0	0	1	0
GIE/GIT	3	0	0	0	0	0	0	3	0
GPF	0	2	1	0	0	1	1	5	1
GPV	0	0	0	1	1	0	1	3	0
GRE/GRT	5	2	19	3	16	21	35	101	16
HRB	0	0	0	0	0	0	2	2	0
IDL	0	0	0	0	3	0	0	3	0
LET	1	0	0	0	0	0	0	1	0
MIX	9	1	1	7	3	8	9	38	6
OAT	0	0	0	0	0	0	2	2	0
ONP	1	0	0	0	0	0	0	1	0
OTH	1	0	3	1	4	0	1	10	2
PAR	0	1	1	0	1	0	0	3	0
PCH	0	1	0	1	1	0	0	3	0
PGE/PGT	1	7	9	0	0	2	0	19	3
PIE/PIT	1	0	0	2	0	14	0	17	3
PLE/PLT	0	0	0	0	0	0	3	3	0
PNE/PNT	8	0	5	1	4	19	3	40	6
PUM	3	0	3	1	0	2	0	9	1
RSF	0	0	0	0	1	0	1	2	0
RSS	0	0	1	0	1	0	0	2	0

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Current year crop	1995	1996	1997	1998	1999	2000	2001	Total	%
RYC	0	0	0	1	0	2	0	3	0
SQS	0	0	0	1	0	0	0	1	0
SPS	0	0	0	0	2	0	0	2	0
STE	1	0	0	0	0	0	0	1	0
STS	0	0	1	2	0	1	0	4	1
SWC	1	2	12	6	2	1	2	26	4
TOM	2	0	0	0	3	0	0	5	1
TRE/TRT	0	0	0	0	0	2	0	2	0
WAT	0	0	0	0	0	8	0	8	1
Unknown	8	15	1	1	0	0	3	28	4
Total	143	37	92	93	59	117	107	648	100

Notes:

See Appendix for Cornell crop codes.

4. Soil Types

4.1 Samples for Home and Garden

Soil types (soil management groups) for home and garden samples:

	1995	1996	1997	1998	1999	2000	2001	Total
SMG 1 (clayey)	0	0	0	0	0	0	0	0
SMG 2 (silty)	11	15	10	6	9	7	14	72
SMG 3 (silt loam)	7	15	0	9	19	30	20	100
SMG 4 (sandy loam)	10	16	28	15	8	11	34	122
SMG 5 (sandy)	10	6	1	4	7	6	11	45
SMG 6 (mucky)	0	0	0	0	0	0	0	0
Total	38	52	39	34	43	54	79	339

4.2 Samples for Commercial Production

Soil series for samples submitted for commercial production:

Name	SMG	1995	1996	1997	1998	1999	2000	2001	Total
Arnot	3	1	0	0	7	0	0	0	8
Atherton	3	0	0	0	0	0	1	0	1
Barbour	3	0	0	4	0	1	0	1	6
Basher	3	0	0	3	0	0	0	6	9
Bath	3	19	16	13	10	7	11	33	109
Cambridge	3	0	0	5	0	0	5	0	10
Canandaigua	3	0	0	0	0	1	0	0	1
Castile	4	3	0	0	0	0	0	4	7
Cayuga	2	0	3	1	0	0	5	1	10
Chenango	3	17	1	0	19	3	14	5	59
Churchville	2	2	0	3	0	0	9	5	19
Farmington	3	0	0	0	0	1	0	0	1
Hamlin	2	4	0	0	1	0	0	0	5
Haven	4	1	0	0	0	0	0	0	1
Hoosic	4	14	5	9	7	5	3	4	47
Lackawanna	3	6	2	5	0	0	14	3	30
Lordstown	3	4	0	0	3	0	0	0	7
Madalin	1	0	0	1	0	0	0	0	1
Mardin	3	15	2	10	25	5	6	15	78
Middlebury	3	0	0	0	0	0	0	5	5
Muck	6	0	0	0	0	2	0	0	2
Nassau	4	0	0	4	0	0	0	0	4
Odessa	2	3	0	0	2	0	2	0	7
Oquaga	3	0	0	1	0	0	1	0	2
Palms	6	0	0	1	1	0	0	0	2
Plainfield	5	2	0	0	0	1	0	0	3
Pompton	4	0	0	0	0	0	2	0	2
Raynham	3	0	0	0	0	5	2	2	9
Red Hook	4	0	1	0	0	1	1	0	3
Rhinebeck	2	2	1	0	1	6	3	5	18
Riverhead	4	2	0	0	3	1	6	1	13
Schoharie	1	0	1	0	0	0	0	0	1
Scio	3	2	0	0	0	1	1	0	4
Scriba	4	1	0	0	0	0	0	0	1
Stockbridge	3	8	0	0	0	0	4	0	12
Suncook	5	1	0	5	0	0	0	0	6

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Name	SMG	1995	1996	1997	1998	1999	2000	2001	Total
Teel	2	1	1	0	2	0	5	0	9
Tioga	3	2	0	2	0	0	1	1	6
Tunkhannock	3	0	0	3	0	4	0	0	7
Unadilla	3	12	2	4	9	2	1	0	30
Valois	3	0	0	0	0	0	4	0	4
Volusia	3	4	0	1	0	1	1	7	14
Wayland	2	2	0	0	1	1	0	0	4
Wellsboro	3	3	1	7	0	0	11	0	22
Williamson	4	0	0	0	0	2	0	0	2
Unknown	-	12	1	10	2	9	4	9	47
Total	-	143	37	92	93	59	117	107	648

5. Organic Matter

5.1 Samples for Home and Garden

Number of home and garden samples within each % organic matter range:

	<1%	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	>6.9	Total
1995	2	5	7	6	4	2	5	7	38
1996	0	9	6	13	8	7	3	6	52
1997	0	0	2	14	15	4	3	1	39
1998	0	5	3	5	5	5	2	9	34
1999	3	9	5	9	7	3	1	6	43
2000	1	5	11	22	3	2	2	8	54
2001	1	7	22	21	17	1	1	9	79
Total	7	40	56	90	59	24	17	46	339

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	0.7	1.1	2.5	1.0	0.5	0.5	0.9	
Highest:	23.0	28.4	7.2	29.3	25.2	19.6	13.5	
Mean:	5.1	5.0	4.3	6.0	4.8	4.4	4.0	
Median:	3.8	3.7	4.0	4.6	3.3	3.4	3.2	

Percent of home and garden samples within each % organic matter range:

	<1%	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	>6.9	Total
1995	5	13	18	16	11	5	13	18	100
1996	0	17	12	25	15	13	6	12	100
1997	0	0	5	36	38	10	8	13	100
1998	0	15	9	15	15	15	6	26	100
1999	7	21	12	21	16	7	2	14	100
2000	2	9	20	41	6	4	4	15	100
2001	1	9	28	27	22	1	1	11	100
Total	2	12	17	27	17	7	5	14	100

5.2 Samples for Commercial Production

Number of samples for commercial production within each % organic matter range:

	<1%	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	>6.9	Total
1995	5	12	34	49	27	11	1	4	143
1996	0	9	15	8	5	0	0	0	37
1997	9	5	24	18	9	15	10	2	92
1998	1	10	34	34	8	3	2	1	93
1999	0	9	16	20	10	1	1	2	59
2000	0	3	21	29	28	24	7	5	117
2001	0	4	36	35	16	10	1	5	107
Total	15	52	180	193	103	64	22	19	648

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	0.2	1.3	0.6	0.6	1.3	1.3	1.7	
Highest:	21.3	4.9	14.8	9.1	56.7	12.5	65.9	
Mean:	3.5	2.7	3.7	3.1	4.8	4.3	4.8	
Median:	3.3	2.4	3.4	3.0	3.1	4.1	3.3	

Percent of samples for commercial production within each % organic matter range:

	<1%	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	>6.9	Total
1995	3	8	24	34	19	8	1	3	100
1996	0	24	41	22	14	0	0	0	100
1997	10	5	26	20	10	16	11	2	100
1998	1	11	37	37	9	3	2	1	100
1999	0	15	27	34	17	2	2	3	100
2000	0	3	18	25	24	21	6	4	100
2001	0	4	34	33	15	9	1	5	100
Total	2	8	28	30	16	10	3	3	100

6. pH

6.1 Samples for Home and Garden

Number of home and garden samples within each pH range:

	<4.5	4.5-4.9	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	>8.4	Total
1995	0	2	4	3	8	8	8	5	0	0	38
1996	0	2	4	6	14	12	11	3	0	0	52
1997	0	0	3	4	11	16	3	2	0	0	39
1998	2	2	2	5	5	10	7	1	0	0	34
1999	0	1	4	8	6	12	9	1	2	0	43
2000	1	0	1	3	8	11	11	18	0	1	54
2001	0	0	9	12	18	18	17	4	1	0	79
Total	3	7	27	41	70	87	66	34	3	1	339

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	4.8	4.9	5.3	4.2	4.8	4.3	5.1	
Highest:	7.8	7.6	7.7	7.8	8.0	9.0	8.1	
Mean:	-	-	-	-	-	-	-	
Median:	6.6	6.5	6.6	6.5	6.6	7.0	6.5	

Percent of home and garden samples within each pH range:

	<4.5	4.5-4.9	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	>8.4	Total
1995	0	5	11	8	21	21	21	13	0	0	100
1996	0	4	8	12	27	23	21	6	0	0	100
1997	0	0	8	10	28	41	8	5	0	0	100
1998	6	6	6	15	15	29	21	3	0	0	100
1999	0	2	9	19	14	28	21	2	5	0	100
2000	2	0	2	6	15	20	20	33	0	2	100
2001	0	0	11	15	23	23	22	5	1	0	100
Total	1	2	8	12	21	26	19	10	1	0	100

6.2 Samples for Commercial Production

Number of samples for commercial production within each pH range:

	<4.5	4.5-4.9	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	>8.4	Total
1995	1	1	9	39	38	35	19	1	0	0	143
1996	0	3	3	7	12	11	1	0	0	0	37
1997	0	1	11	37	36	4	2	1	0	0	92
1998	1	2	4	13	39	25	9	0	0	0	93
1999	0	2	5	12	19	11	9	1	0	0	59
2000	0	0	8	16	35	47	11	0	0	0	117
2001	0	3	5	15	26	16	24	16	2	0	107
Total	2	12	45	139	205	149	75	19	2	0	648

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	4.3	4.5	4.8	4.2	4.5	5.2	4.7	
Highest:	7.6	7.1	7.5	7.3	7.5	7.4	8.0	
Mean:	-	-	-	-	-	-	-	
Median:	6.3	6.1	5.9	6.3	6.2	6.4	6.6	

Percent of samples for commercial production within each pH range:

	<4.5	4.5-4.9	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	>8.4	Total
1995	1	1	6	27	27	24	13	1	0	0	100
1996	0	8	8	19	32	30	3	0	0	0	100
1997	0	1	12	40	39	4	2	1	0	0	100
1998	1	2	4	14	42	27	10	0	0	0	100
1999	0	3	8	20	32	19	15	2	0	0	100
2000	0	0	7	14	30	40	9	0	0	0	100
2001	0	3	5	14	24	15	22	15	2	0	100
Total	0	2	7	21	32	23	12	3	0	0	100

7. Phosphorus

7.1 Samples for Home and Garden

Number of home and garden samples within each range Morgan extractable P range (lbs/acre Morgan P):

	<1	1-3	4-8	9-39	40-60	61-80	81-100	101-150	151-200	>200	Total
	VL	L	M	H	VH	VH	VH	VH	VH	VH	
1995	0	6	7	9	2	2	1	3	3	5	38
1996	0	7	6	16	6	2	2	5	1	7	52
1997	0	1	1	23	4	2	0	3	3	2	39
1998	0	1	2	11	5	2	0	9	1	3	34
1999	0	6	3	15	2	4	2	3	1	7	43
2000	0	2	7	21	6	4	5	2	2	5	54
2001	0	11	21	24	6	4	0	5	2	6	79
Total	0	34	47	119	31	20	10	30	13	35	339

VL = very low, L = low, M = medium, H = high, VH = very high.

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1	1	1	2	2	1	1	
Highest:	351	1352	244	1060	996	2275	291	
Mean:	77	102	56	104	137	106	45	
Median:	23	31	27	48	22	36	13	

Percent of home and garden samples within each Morgan extractable phosphorus range:

	<1	1-3	4-8	9-39	40-60	61-80	81-100	101-150	151-200	>200	Total
	VL	L	M	H	VH	VH	VH	VH	VH	VH	
1995	0	16	18	24	5	5	3	8	8	13	100
1996	0	13	12	31	12	4	4	10	2	13	100
1997	0	3	3	59	10	5	0	8	8	5	100
1998	0	3	6	32	15	6	0	26	3	9	100
1999	0	14	7	35	5	9	5	7	2	16	100
2000	0	4	13	39	11	7	9	4	4	9	100
2001	0	14	27	30	8	5	0	6	3	8	100
Total	0	10	14	35	9	6	3	9	4	10	100

VL = very low, L = low, M = medium, H = high, VH = very high.

7.2 Samples for Commercial Production

Number of samples submitted for commercial production within each Morgan extractable phosphorus (lbs P/acre) range:

	<1	1-3	4-8	9-39	40-60	61-80	81-100	101-150	151-200	>200	Total
	VL	L	M	H	VH	VH	VH	VH	VH	VH	
1995	0	63	30	35	7	2	2	1	0	3	143
1996	0	15	8	12	1	1	0	0	0	0	37
1997	0	22	18	42	8	0	2	0	0	0	92
1998	0	29	32	30	2	0	0	0	0	0	93
1999	0	13	13	27	5	0	0	0	0	1	59
2000	0	36	35	36	1	1	2	3	0	3	117
2001	0	24	15	38	16	8	3	0	0	3	107
Total	0	202	151	220	40	12	9	4	0	10	648

VL = very low, L = low, M = medium, H = high, VH = very high.

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1	1	1	1	1	1	1	
Highest:	843	68	97	53	239	231	626	
Mean:	23	11	16	9	18	20	37	
Median:	5	5	10	6	10	7	16	

Percent of samples submitted for commercial production within each Morgan P range:

	<1	1-3	4-8	9-39	40-60	61-80	81-100	101-150	151-200	>200	Total
	VL	L	M	H	VH	VH	VH	VH	VH	VH	
1995	0	44	21	24	5	1	1	1	0	2	100
1996	0	41	22	32	3	3	0	0	0	0	100
1997	0	24	20	46	9	0	2	0	0	0	100
1998	0	31	34	32	2	0	0	0	0	0	100
1999	0	22	22	46	8	0	0	0	0	2	100
2000	0	31	30	31	1	1	2	3	0	3	100
2001	0	22	14	36	15	7	3	0	0	3	100
Total	0	31	23	34	6	2	1	1	0	2	100

VL = very low, L = low, M = medium, H = high, VH = very high.

8. Potassium

8.1 Samples for Home and Garden

Number of home and garden samples within each K range (lbs K/acre Morgan extraction):

Soil Management Group 1						
	<35	35-64	65-94	95-149	>149	Total
	Very Low	Low	Medium	High	Very High	
1995	0	0	0	0	0	0
1996	0	0	0	0	0	0
1997	0	0	0	0	0	0
1998	0	0	0	0	0	0
1999	0	0	0	0	0	0
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
Total (#)	0	0	0	0	0	0
Total (%)	-	-	-	-	-	-
Soil Management Group 2						
	<40	40-69	70-99	100-164	>164	Total
	Very Low	Low	Medium	High	Very High	
1995	0	2	2	5	2	11
1996	1	2	2	4	6	15
1997	0	0	0	3	7	10
1998	0	0	0	0	6	6
1999	0	0	0	4	5	9
2000	0	0	2	1	4	7
2001	0	0	0	4	10	14
Total (#)	1	4	6	21	40	72
Total (%)	1	6	8	29	56	100
Soil Management Group 3						
	<45	45-79	80-119	120-199	>199	Total
	Very Low	Low	Medium	High	Very High	
1995	0	1	0	2	4	7
1996	0	2	2	5	6	15
1997	0	0	0	0	0	0
1998	0	0	1	2	6	9
1999	2	3	3	1	10	19
2000	0	1	2	8	19	30
2001	0	0	2	1	17	20
Total (#)	2	7	10	19	62	100
Total (%)	2	7	10	19	62	100

Soil Management Group 4						
	<55	55-99	100-149	150-239	>239	Total
	Very Low	Low	Medium	High	Very High	
1995	0	3	2	1	4	10
1996	0	1	2	6	7	16
1997	0	1	2	3	22	28
1998	0	2	1	6	6	15
1999	0	0	2	2	4	8
2000	1	0	2	3	5	11
2001	6	5	5	7	11	34
Total (#)	7	12	16	28	59	122
Total (%)	6	10	13	23	48	100
Soil Management Group 5						
	<60	60-114	115-164	165-269	>269	Total
	Very Low	Low	Medium	High	Very High	
1995	0	1	1	1	7	10
1996	0	3	2	0	1	6
1997	0	0	0	0	1	1
1998	1	1	0	0	2	4
1999	1	1	3	1	1	7
2000	1	0	1	3	1	6
2001	1	0	1	3	6	11
Total (#)	4	6	8	8	19	45
Total (%)	9	13	18	18	42	100
Soil Management Group 6						
	<60	60-114	115-164	165-269	>269	Total
	Very Low	Low	Medium	High	Very High	
1995	0	0	0	0	0	0
1996	0	0	0	0	0	0
1997	0	0	0	0	0	0
1998	0	0	0	0	0	0
1999	0	0	0	0	0	0
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
Total (#)	0	0	0	0	0	0
Total (%)	-	-	-	-	-	-

Number of home and garden samples within each potassium classification:

Summary (#)	Very Low	Low	Medium	High	Very High	Total
1995	0	7	5	9	17	38
1996	1	8	8	15	20	52
1997	0	1	2	6	30	39
1998	1	3	2	8	20	34
1999	3	4	8	8	20	43
2000	2	1	7	15	29	54
2001	7	5	8	15	44	79
Total #	14	29	40	79	180	339

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	48	10	87	56	31	19	28	
Highest:	2053	1710	994	10730	6014	2394	2654	
Mean:	313	271	356	634	498	288	289	
Median:	163	167	325	303	178	236	221	

Percent of samples submitted for home and garden within each potassium classification.

Summary (%)	Very Low	Low	Medium	High	Very High	Total
1995	0	18	13	24	45	100
1996	2	15	15	29	38	100
1997	0	3	5	15	77	100
1998	3	9	6	24	59	100
1999	7	9	19	19	47	100
2000	4	2	13	28	54	100
2001	9	6	10	19	56	100
Grand Total	4	9	12	22	53	100

8.2 Samples for Commercial Production

Number of samples submitted for commercial production within each potassium (lbs K/acre Morgan extraction) range:

Soil Management Group 1						
	<35	35-64	65-94	95-149	>149	Total
	Very Low	Low	Medium	High	Very High	
1995	0	0	0	0	0	0
1996	0	1	0	0	0	1
1997	0	0	0	0	1	1
1998	0	0	0	0	0	0
1999	0	0	0	0	0	0
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
Total (#)	0	1	0	0	1	2
Total (%)	0	50	0	0	50	100
Soil Management Group 2						
	<40	40-69	70-99	100-164	>164	Total
	Very Low	Low	Medium	High	Very High	
1995	1	1	3	7	2	14
1996	0	0	1	2	2	5
1997	0	1	3	0	0	4
1998	0	0	4	1	2	7
1999	2	4	0	0	1	7
2000	0	1	4	13	6	24
2001	0	0	1	3	7	11
Total (#)	3	7	16	26	20	72
Total (%)	4	10	22	36	28	100
Soil Management Group 3						
	<45	45-79	80-119	120-199	>199	Total
	Very Low	Low	Medium	High	Very High	
1995	2	22	26	21	22	93
1996	0	2	4	7	11	24
1997	0	10	12	26	10	58
1998	0	2	20	26	25	73
1999	1	5	4	9	12	31
2000	0	2	22	28	25	77
2001	0	5	18	15	40	78
Total (#)	3	48	106	132	145	434
Total (%)	1	11	24	30	33	100

Soil Management Group 4						
	<55	55-99	100-149	150-239	>239	Total
	Very Low	Low	Medium	High	Very High	
1995	0	7	7	4	3	21
1996	2	1	0	1	2	6
1997	0	6	2	1	4	13
1998	0	0	3	7	0	10
1999	2	0	1	2	4	9
2000	1	2	2	2	5	12
2001	0	1	0	6	2	9
Total (#)	5	17	15	23	20	80
Total (%)	6	21	19	29	25	100
Soil Management Group 5						
	<60	60-114	115-164	165-269	>269	Total
	Very Low	Low	Medium	High	Very High	
1995	0	0	1	1	1	3
1996	0	0	0	0	0	0
1997	0	0	1	4	0	5
1998	0	0	0	0	0	0
1999	1	0	0	0	0	1
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
Total (#)	1	0	2	5	1	9
Total (%)	11	0	22	56	11	100
Soil Management Group 6						
	<60	60-114	115-164	165-269	>269	Total
	Very Low	Low	Medium	High	Very High	
1995	0	0	0	0	0	0
1996	0	0	0	0	0	0
1997	0	0	0	0	1	1
1998	0	0	0	1	0	1
1999	0	0	0	1	1	2
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
Total (#)	0	0	0	2	2	4
Total (%)	0	0	0	50	50	100

Number of samples submitted for commercial production within each potassium classification.

Summary (#)	Very Low	Low	Medium	High	Very High	Un-known	Total
1995	3	30	37	33	28	12	143
1996	2	4	5	10	15	1	37
1997	0	17	18	31	16	10	92
1998	0	2	27	35	27	2	93
1999	6	9	5	12	18	9	59
2000	1	5	28	43	36	4	117
2001	0	6	19	24	49	9	107
Grand Total	12	73	139	188	189	47	648

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	19	32	49	62	13	17	43	
Highest:	1685	520	535	950	722	1985	8562	
Mean:	178	198	147	192	186	265	402	
Median:	128	183	130	157	144	147	223	

Percent of samples submitted for commercial production within each potassium classification.

% summary	Very Low	Low	Medium	High	Very High	Un-known	Total
1995	2	21	26	23	20	8	100
1996	5	11	14	27	41	3	100
1997	0	18	20	34	17	11	100
1998	0	2	29	38	29	2	100
1999	10	15	8	20	31	15	100
2000	1	4	24	37	31	3	100
2001	0	6	18	22	46	8	100
Grand Total	2	11	21	29	29	7	100

9. Magnesium

9.1 Samples for Home and Garden

Number of home and garden samples within each Mg range (lbs Morgan Mg/acre):

	<20	20-65	66-100	101-199	>199	Total
	Very Low	Low	Medium	High	Very High	
1995	0	2	5	10	21	38
1996	0	0	4	9	39	52
1997	0	0	1	3	35	39
1998	0	0	2	7	25	34
1999	0	5	4	8	26	43
2000	0	2	2	9	41	54
2001	1	2	17	16	43	79
Total	1	11	35	62	230	339

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	30	76	66	69	24	21	16	
Highest:	4908	2631	899	4777	3232	17891	2067	
Mean:	478	412	365	460	451	699	309	
Median:	347	319	334	294	265	359	231	

Percent of home and garden samples within each Mg range (lbs Morgan Mg/acre):

	<20	20-65	66-100	101-199	>199	Total
	Very Low	Low	Medium	High	Very High	
1995	0	5	13	26	55	100
1996	0	0	8	17	75	100
1997	0	0	3	8	90	100
1998	0	0	6	21	74	100
1999	0	12	9	19	60	100
2000	0	4	4	17	76	100
2001	1	3	22	20	54	100
Total	0	3	10	18	68	100

9.2 Samples for Commercial Production

Number of samples submitted for commercial production within each Mg range (lbs Mg/acre Morgan extraction):

	<20	20-65	66-100	101-199	>199	Total
	Very Low	Low	Medium	High	Very High	
1995	0	4	6	38	95	143
1996	0	1	1	13	22	37
1997	0	1	7	35	49	92
1998	0	1	3	11	78	93
1999	0	3	5	17	34	59
2000	0	3	5	32	77	117
2001	1	1	4	12	89	107
Total	1	14	31	158	444	648

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	31	21	47	26	37	40	14	
Highest:	2559	503	718	2064	980	1189	3948	
Mean:	305	236	261	351	302	330	457	
Median:	276	224	225	320	241	279	373	

Percent of samples submitted for commercial production within each magnesium range (lbs Mg/acre Morgan extraction):

	<20	20-65	66-100	101-199	>199	Total
	Very Low	Low	Medium	High	Very High	
1995	0	3	4	27	66	100
1996	0	3	3	35	59	100
1997	0	1	8	38	53	100
1998	0	1	3	12	84	100
1999	0	5	8	29	58	100
2000	0	3	4	27	66	100
2001	1	1	4	11	83	100
Total	0	2	5	24	69	100

10. Iron

10.1 Samples for Home and Garden

Iron (lbs Fe/acre Morgan extraction) in samples for home and garden:

Total number of samples:

	0-49	>49	Total
	Normal	Excessive	
1995	36	2	38
1996	49	3	52
1997	39	0	39
1998	29	5	34
1999	42	1	43
2000	51	3	54
2001	76	3	79
Total	322	17	339

Percentages:

	0-49	>49	Total
	Normal	Excessive	
	95	5	100
	94	9	100
	100	0	100
	85	15	100
	98	2	100
	94	6	100
	96	4	100
	95	5	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	2	2	1	2	1	1	1	
Highest:	77	151	30	227	181	114	206	
Mean:	14	15	6	28	12	10	10	
Median:	6	7	3	9	5	5	4	

10.2 Samples for Commercial Production

Iron (lbs Fe/acre Morgan extraction) in samples submitted for commercial production:

Total number of samples:

	0-49	>49	Total
	Normal	Excessive	
1995	138	5	143
1996	35	2	37
1997	88	4	92
1998	92	1	93
1999	53	6	59
2000	112	5	117
2001	101	6	107
Total	619	29	648

Percentages:

	0-49	>49	Total
	Normal	Excessive	
	97	3	100
	95	5	100
	96	4	100
	99	1	100
	90	10	100
	96	4	100
	94	6	100
	96	4	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	2	2	2	1	1	1	1	
Highest:	259	694	121	164	204	226	295	
Mean:	13	30	13	8	20	12	11	
Median:	6	6	6	4	6	6	3	

11. Manganese

11.1 Samples for Home and Garden

Manganese (lbs Mn/acre Morgan extraction) in samples for home and garden:

Total number of samples:				Percentages:		
	0-99	>99	Total	0-99	>99	Total
	Normal	Excessive		Normal	Excessive	
1995	35	3	38	92	8	100
1996	50	2	52	96	4	100
1997	36	3	39	92	8	100
1998	28	6	34	82	18	100
1999	41	2	43	95	5	100
2000	51	3	54	94	6	100
2001	75	4	79	95	5	100
Total	316	23	339	93	7	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1	11	21	16	14	5	8	
Highest:	123	172	332	357	109	226	232	
Mean:	39	42	61	68	40	44	45	
Median:	27	34	51	44	31	34	33	

11.2 Samples for Commercial Production

Manganese (lbs Mn/acre Morgan extraction) in samples for commercial production:

Total number of samples:

	0-99	>99	Total
	Normal	Excessive	
1995	141	2	143
1996	37	0	37
1997	86	6	92
1998	92	1	93
1999	58	1	59
2000	113	4	117
2001	105	2	107
Total	632	16	648

Percentages:

	0-99	>99	Total
	Normal	Excessive	
	99	1	100
	100	0	100
	93	7	100
	99	1	100
	98	2	100
	97	3	100
	98	2	100
	98	2	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	9	5	7	8	9	9	13	
Highest:	147	97	529	102	202	172	123	
Mean:	31	29	44	29	36	40	36	
Median:	25	23	28	25	29	36	29	

12. Zinc

12.1 Samples for Home and Garden

Zinc (lbs Zn/acre Morgan extraction) in samples for home and garden:

Total number of samples:

	<0.5	0.5-1.0	>1	Total
	Low	Medium	High	
1995	0	2	36	38
1996	0	5	47	52
1997	0	5	34	39
1998	0	2	32	34
1999	0	8	35	43
2000	1	10	43	54
2001	4	25	50	79
Total	5	57	277	339

Percentages:

<0.5	0.5-1.0	>1	Total
Low	Medium	High	
0	5	95	100
0	10	90	100
0	13	87	100
0	6	94	100
0	19	91	100
2	19	80	100
5	32	63	100
1	17	82	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	0.8	0.6	0.7	0.9	0.5	0.4	0.3	
Highest:	99.8	92.9	31.3	54.3	65.3	368.9	19.2	
Mean:	10.5	9.6	5.2	12.8	9.7	13.9	3.5	
Median:	5.6	5.0	2.0	8.9	3.2	2.1	1.5	

12.2 Samples for Commercial Production

Zinc (lbs Zn/acre Morgan extraction) in samples for commercial production:

Total number of samples:

	<0.5	0.5-1.0	>1	Total
	Low	Medium	High	
1995	3	32	108	143
1996	3	12	22	37
1997	0	14	78	92
1998	1	11	81	93
1999	2	17	40	59
2000	4	24	89	117
2001	0	23	84	107
Total	13	133	502	648

Percentages:

<0.5	0.5-1.0	>1	Total
Low	Medium	High	
2	22	76	100
8	32	59	100
0	15	85	100
1	12	87	100
3	29	68	100
3	21	76	100
0	21	79	100
2	21	77	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	0.4	0.4	0.6	0.1	0.1	0.1	0.6	
Highest:	30.4	13.2	16.5	14.7	61.8	145.8	30.4	
Mean:	2.7	2.2	2.7	2.5	4.1	3.2	3.1	
Median:	1.8	1.3	2.0	1.6	1.4	1.7	1.8	

Appendix: Cornell Crop Codes

Crop codes are used in the Cornell Nutrient Analyses Laboratory.

Crop Code	Crop Description
Alfalfa	
ABE	Alfalfa trefoil grass, Establishment
ABT	Alfalfa trefoil grass, Established
AGE	Alfalfa grass, Establishment
AGT	Alfalfa grass, Established
ALE	Alfalfa, Establishment
ALT	Alfalfa, Established
Birdsfoot	
BCE	Birdsfoot trefoil clover, Establishment
BCT	Birdsfoot trefoil clover, Established
BGE	Birdsfoot trefoil grass, Establishment
BGT	Birdsfoot trefoil grass, Established
BSE	Birdsfoot trefoil seed, Establishment
BST	Birdsfoot trefoil seed, Established
BTE	Birdsfoot trefoil, Establishment
BTT	Birdsfoot trefoil, Established
Barley	
BSP	Spring barley
BSS	Spring barley with legumes
BUK	Buckwheat
BWI	Winter barley
BWS	Winter barley with legumes
Clover	
CGE	Clover grass, Establishment
CGT	Clover grass, Established
CLE	Clover, Establishment
CLT	Clover, Established
CSE	Clover seed production, Establishment
CST	Clover seed production, Established

Crop Code	Crop Description
Corn	
COG	Corn grain
COS	Corn silage
Grasses, pastures, covercrops	
CVE	Crownvetch, Establishment
GIE	Grasses intensively managed, Establishment
GIT	Grasses intensively managed, Established
GRE	Grasses, Establishment
GRT	Grasses, Established
PGE	Pasture, Establishment
PGT	Pasture improved grasses, Established
PIE	Pasture intensively grazed, Establishment
PIT	Pasture intensively grazed, Established
PLE	Pasture with legumes, Establishment
PLT	Pasture with legumes, Established
PNT	Pasture native grasses
PNE	Pasture native grasses, Established
RYC	Rye cover crop
RYS	Rye seed production
TRP	Triticale peas
Small grains	
MIL	Millet
OAS	Oats with legume
OAT	Oats
SOF	Sorghum forage
SOG	Sorghum grain
SOY	Soybeans
SSH	Sorghum sudan hybrid
WHS	Wheat with legume
WHT	Wheat
Others	
ALG	Azalea
APP	Apples
APR	Apricots

Crop Code	Crop Description
ASP	Asparagus
ATF	Athletic Field
BDR/BND	Beans-dry
BLU/BLB	Blueberries
BNS	Beans, Snap
CBP	Cabbage, Transplanted
CEM	Cemetery
CHS	Cherries, Sweet
EGG	Eggplants
END	Endives
FAR	Fairway
FLA	Flowering Annuals
GEN	Green
GPA	Grapes, American
GPF	Grapes, French-American
GPV	Grapes, Vinifera
GRA	Grapes
HRB	Herbs
IDL	Idle land
LAW	Lawn
LET	Lettuce
MIX/MVG	Mixed vegetables
MML	Muskmelon
NUR	Nursery
ONP	Onions, Transplanted
ONS	Onions, Seeded
OTH	Other
PAR	Pears
PCH	Peaches
PEA	Peas
PEP	Peppers
PER	Perennials
POP	Popcorn
PRK	Park
POT/PTO	Potatoes
PUM	Pumpkins
ROD	Roadside
ROS	Roses
ROU	Rough

Crop Code	Crop Description
RSF	Raspberries, Fall
RSP	Raspberries (homeowners)
RSS	Raspberries, Summer
SAG	Ornamentals adapted to pH 6.0 to 7.5
SPS	Spinach, Spring
SQS	Squash, Summer
SQW	Squash, Winter
STE	Strawberries, Ever
STR	Strawberries (homeowners)
STS	Strawberries, Spring
SUN	Sunflowers
SWC	Sweet corn
TOM	Tomatoes
TRE	Christmas trees, Established
TRF	Tree fruits
TRT	Christmas trees, Topdressing
WAT	Watermelons