

# Soil Sample Survey

# Orange Co.

**Samples analyzed by CNAL in 1995-2001**

---



**Summary compiled by**

**Quirine M. Ketterings, Hettie Krol, W. Shaw Reid and Larry R. Hulle**

---



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

---

Ketterings, Q.M., H. Krol, W.S. Reid and L.R. Hulle (2004). Orange County Soil Sample Survey 1995-2001. CSS Extension Bulletin E04-25. 39 pages.

# Soil Sample Survey

# Orange Co.

## Samples analyzed by CNAL in 1995-2001

Summary compiled by

**Quirine Ketterings and Hettie Krol**

Nutrient Management Spear Program

Department of Crop and Soil Sciences

817 Bradfield Hall, Cornell University

Ithaca NY 14853

**W. Shaw Reid**

Professor Emeritus

Department of Crop and Soil Sciences

**Larry R. Hulle**

Issue Leader, Agriculture Program

Cornell Cooperative Extension of Orange County

**June 18, 2004**

Correct Citation:

Ketterings, Q.M., H. Krol, W.S. Reid, and L.R. Hulle (2004). Soil samples survey of Orange County. Samples analyzed by the Cornell Nutrient Analysis Laboratory in 1995-2001. CSS Extension Bulletin E04-25. 39 pages.

## Table of Content

1. Introduction to Orange County.....	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 .....	16
5.1 Samples for Home and Garden.....	16
5.2 Samples for Commercial Production.....	17
6. pH .....	18
6.1 Samples for Home and Garden.....	18
6.2 Samples for Commercial Production.....	19
7. Phosphorus.....	20
7.1 Samples for Home and Garden.....	20
7.2 Samples for Commercial Production.....	21
8. Potassium .....	22
8.1 Samples for Home and Garden.....	22
8.2 Samples for Commercial Production.....	25
9. Magnesium .....	28
9.1 Samples for Home and Garden.....	28
9.2 Samples for Commercial Production.....	29
10. Iron.....	30
10.1 Samples for Home and Garden.....	30
10.2 Samples for Commercial Production.....	31
11. Manganese .....	32
11.1 Samples for Home and Garden.....	32
11.2 Samples for Commercial Production.....	33
12. Zinc .....	34
12.1 Samples for Home and Garden.....	34
12.2 Samples for Commercial Production.....	35
Appendix: Cornell Crop Codes .....	36

# 1. Introduction to Orange County

Orange County is located in the lower Hudson Valley on the West side of the Hudson River in New York State. It is approximately 50 miles north of New York City. It borders both Pennsylvania and New Jersey. Orange County covers 522,240 acres.

Farming in Orange County is quite diverse. Approximately 19% or 101,300 acres of the county's total acreage is in agriculture. Orange County is known for its onion production. The county has several large areas of glacial lake deposits (Black Dirt) which comprise 14,000 acres that are the center of the vegetable industry. The second largest agricultural industry in the county is dairy farming which is mostly made up of mid-sized dairy farms, although there are several large and expanding dairy farms as well.

Orange County is the fastest developing county in New York State. With this rapid increase in population the Horticulture industry has seen an increase in the number of greenhouses, nurseries and landscape/lawn care services. Orange County also has the fourth highest number of horses in the state. The livestock industry includes, beef, hogs, sheep, meat goats, milk goats, chickens, fallow deer and other exotic livestock such as red deer, emus, llamas and ostriches. A large majority of the open space in Orange County is used for forage crops like alfalfa, clover, grass and corn. The bulk of these crops go to feed the dairy, beef and equine industries.

Orange County is home to four priority watersheds:

- 1) **Hudson River/Moodna Creek.** These habitats have been designated as “irreplaceable” significant coastal fish and wildlife habitats by the New York State Coastal Management Program.
- 2) **Neversink River.** The Neversink River’s population of *Alasmidonta heterodon* (dwarf wedge mussel) is considered the largest and healthiest remaining population of this species in the world.
- 3) **Ramapo River.** The Ramapo and its associated aquifer have been declared a “sole source” of drinking water for the community of Mahwah, NJ. Two million people living and/or working in Rockland County, NY and northern New Jersey rely on the Ramapo aquifer.

Ketterings, Q.M., H. Krol, W.S. Reid and L.R. Hulle (2004). Orange County Soil Sample Survey 1995-2001. CSS Extension Bulletin E04-25. 39 pages.

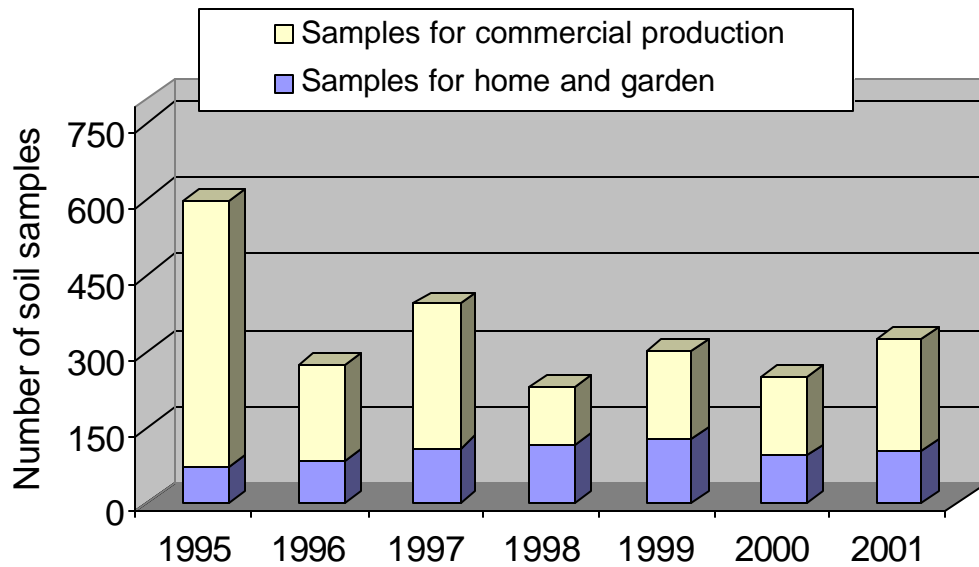
- 4) **Wallkill River.** The Wallkill River drains the heartland of Orange County, including approximately 14,000 acres of highly productive organic soils (Black Dirt).

Both surface reservoirs and groundwater aquifers face the same potential risks of pollution as the priority watersheds, portions of the recharge zones of two sole source aquifers have been identified in Orange County. Nutrient management planning is an essential Best Management Practice (BMP) for all of the agricultural industries. The largest farms have been required to design a management plan to manage the amount, sources, placement, form and timing of the application of nutrients from fertilizer, manure, and other organic sources to assure optimum crop growth. Regulations will soon include mid-sized farms to have similar management plans, to protect water quality.

Larry R. Hulle  
Issue Leader, Agriculture Program  
Cornell Cooperative Extension of Orange County

## 2. General Survey Summary

This survey summarizes the soil test results from Orange 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 2358. Of these 2358 samples, 1657 samples (70%) were submitted to obtain fertilizer recommendations for commercial production while 701 samples (30%) were submitted as home and garden samples.



<b>Homeowners</b>		<b>Commercial</b>		<b>Total</b>
1995	69	1995	528	597
1996	83	1996	188	271
1997	109	1997	282	391
1998	117	1998	113	230
1999	125	1999	172	297
2000	94	2000	154	248
<u>2001</u>	<u>104</u>	<u>2001</u>	<u>220</u>	<u>324</u>
<b>Total</b>	<b>701</b>	<b>Total</b>	<b>1657</b>	<b>2358</b>

Thirty-two percent of the home and garden samples were submitted to request fertilizer recommendations for lawns while another 21% came from mixed vegetable gardens. Other samples were sent in to request recommendations for azaleas, athletic fields, fairways, flowering annuals, greens, herbs, perennials, parks, roses, ornamentals adapted to pH 6.0 to 7.5, sod production and tree fruits. People submitting samples for commercial production requested fertilizer recommendations for onions (31%), corn silage or grain production (19%), alfalfa, alfalfa/grass or alfalfa/trefoil mixtures (16%), hay production (7%), pasture (7%), while the remainder of the samples was sent to the laboratory to request recommendations for other crops including apples, clover/grass or clover/legume mixtures, vegetables, sweet corn and tomatoes.

Home and garden samples in Tompkins County were silty (17%), silt loams (27%), sandy loams (35%), or sandy (21%), 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, 47% belonged to soil management group 3, 34% were organic soils belonging to management group 6, 12% were from group 4 while 1% was classified group 2 and 2% were from soil management group 1. The remainder was of unknown classification. The five most common soil series were Carlisle (33%), Mardin (27%), Bath (10%), Pittsfield (4%) and Hoosic (4%). These soils represent 2% (Carlisle), 21% (Madrid), 5% (Bath), and 3% (Pittsfield and Hoosic) of the 522,240 acres in the county.

Organic matter levels, as measured by loss on ignition, ranged from 1% to 87% in one of the organic soils with median values ranging from 3.6 to 4.8% organic matter for home and garden samples and from 3.9 to 4.4% for samples submitted for commercial production (excluding 1995 when 58% of the samples were organic soils). Fifty-five percent of the home and garden samples had between 2.0 and 4.9% organic matter with 14% testing between 2.0 and 2.9% organic matter, 20% between 3.0 and 3.9% organic matter and 21% between 4.0 and 4.9% organic matter. Thirty-three percent of the soils submitted for home and garden tested >4.9% in organic matter while 12% of the samples had less than 2.0% organic matter. Of the samples submitted for commercial production, 24% contained between 3.0 and 3.9% organic matter, 16% tested between 4.0 and 4.9% while 5% had organic matter concentrations of 5.0-5.9%. Fourteen percent had less than 3.0% organic matter while 40% of the samples had 6.0% or more organic matter, including the organic soils of soil management group 6.

Soil pH in water (1:1 extraction ratio) varied from pH 3.5 to pH 11.1 with the median for home and garden samples ranging from pH 6.3 to pH 6.7 and for samples submitted for commercial production ranging from pH 5.6 to pH 6.1. Of the home and garden samples, 66% tested between pH 6.0 and 7.4. For the samples submitted for commercial production, this was 43% while 51% 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, 6% tested low, 14% tested medium, 44% tested high and 36% tested very high. This meant that 80% tested high or very high in P. Of the samples submitted for commercial production, 8% tested low in P. Thirteen percent were medium in P, 32% tested high while 47% of the samples were very high in P. In total, 79% 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, less than 4% was classified as very low, 10% were low in potassium, almost 16% tested medium, another 21% were high and 50% were very high in potassium. For samples submitted for commercial production, 2% tested very low, 7% were low, 10% tested medium, 18% tested high and 60% 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 9 to 4638 lbs Mg/acre (Morgan extraction). There were only 2 samples in the combined datasets that tested very low in Mg. Most soils tested high or very high for Mg (93% of the homeowner soils and 94% of the soils of the commercial growers).

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-three percent of the home and garden samples were classified as normal in Fe while 91% of the commercial samples tested in the normal range for Fe. Similarly, almost all soils (90% of the home and garden samples and 96% 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. One percent of the commercial samples and 10% of the 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, 2% tested low for zinc while 7% tested medium and 91% tested high for zinc. Of the samples for commercial production, 2% tested low in zinc, 10% tested medium while 88% 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	0	1	4	2	2	2	1	12	2
ATF	1	2	2	5	5	9	41	65	9
BLU	0	0	1	0	0	0	0	1	0
CEM	0	1	1	0	0	0	0	2	0
FAR	0	0	0	0	10	0	0	10	1
FLA	2	7	2	3	1	0	1	16	2
GEN	16	1	0	1	29	3	1	51	7
GRA	0	0	0	0	0	1	1	2	0
HRB	0	1	0	1	1	3	0	6	1
LAW	21	36	43	54	24	26	20	224	32
MVG	16	13	26	15	29	19	26	144	21
OTH	0	0	4	0	2	4	0	10	1
PER	1	1	7	8	14	7	2	40	6
PRK	0	0	0	0	0	4	0	4	1
PTO	0	0	0	1	0	0	0	1	0
ROD	0	2	0	1	0	0	0	3	0
ROS	1	1	2	0	1	3	1	9	1
RSP	1	0	1	0	0	0	0	2	0
SAG	7	10	13	18	4	13	8	73	10
SOD	2	3	1	6	0	0	0	12	2
STR	0	0	0	0	0	0	1	1	0
TRF	1	0	2	2	1	0	0	6	1
Unknown	0	4	0	0	2	0	1	7	1
Total	69	83	109	117	125	94	104	701	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	1	0	0	2	0	0	0	3	0
AGE/AGT	79	31	14	4	17	9	23	177	11
ALE/ALT	25	11	9	9	6	5	15	80	5
APP	0	6	0	0	0	12	0	18	1
BET	1	0	0	0	0	0	0	1	0
BGE/BGT	1	0	1	0	2	0	0	4	0
BLB	2	1	0	0	0	3	0	6	0
BNS	1	0	1	0	1	0	0	3	0
BSE	0	2	0	0	0	0	0	2	0
BWI	0	0	1	0	0	0	0	1	0
CAR	4	0	2	0	0	0	0	6	0
CBP	0	0	0	1	0	0	0	1	0
CEL	0	0	0	1	0	0	0	1	0
CGE/CGT	4	2	9	0	9	6	12	42	3
CHC	0	1	0	0	0	0	0	1	0
CKP	1	3	0	0	0	0	0	4	0
CKS	0	1	0	0	0	0	0	1	0
CLE/CLT	1	1	0	3	0	0	0	5	0
COG/COS	39	28	94	28	37	45	52	323	19
EGG	0	1	0	1	0	0	0	2	0
FLA	0	0	0	0	0	0	2	2	0
GIE/GIT	1	0	4	1	0	1	0	7	0
GPA	0	0	0	0	0	0	1	1	0
GPV	0	0	0	1	0	2	2	5	0
GRE/GRT	20	6	27	7	11	11	27	109	7
IDL	0	1	3	0	0	0	0	4	0
LET	17	4	1	0	0	0	0	22	1
MIX	9	6	15	12	4	8	6	60	4
NUR	0	12	0	0	0	0	0	12	1
OAT	1	0	0	0	0	0	1	2	0
ONP	7	22	7	1	0	0	1	38	2
ONS	259	30	69	34	31	30	26	479	29
OTH	2	0	10	0	0	0	0	12	1
PCH	0	2	0	0	0	0	0	2	0
PGE/PGT	8	4	5	2	6	5	6	36	2

Ketterings, Q.M., H. Krol, W.S. Reid and L.R. Hulle (2004). Orange County Soil Sample Survey 1995-2001. CSS Extension Bulletin E04-25. 39 pages.

Current year crop	1995	1996	1997	1998	1999	2000	2001	Total	%
PIE/PIT	0	0	0	0	1	0	1	2	0
PLE/PLT	0	0	1	0	2	2	4	9	1
PNE/PNT	7	0	0	0	29	10	16	62	4
POT	2	3	0	1	0	3	0	9	1
PUM	4	1	0	1	1	0	0	7	0
RYS	0	5	0	0	0	0	2	7	0
SOD	0	1	0	0	0	0	0	1	0
SOY	1	0	0	0	0	0	0	1	0
SPS	0	0	1	0	2	0	0	3	0
SQW	1	0	1	1	2	0	0	5	0
SSH	1	0	0	1	0	0	0	2	0
STS	2	0	0	0	1	0	0	3	0
SUB	1	0	0	0	0	0	0	1	0
SUD	0	1	0	0	0	0	0	1	0
SWC	1	2	4	0	0	1	3	11	1
TOM	0	0	2	0	0	0	0	2	2
TRE/TRT	2	0	1	0	0	0	4	7	0
TRP	0	0	0	2	0	0	0	2	0
WHT	1	0	0	0	0	0	0	1	0
Unknown	22	0	0	0	10	1	16	49	3
Total	528	188	282	113	172	154	220	1657	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	0
SMG 2 (silty)	14	10	27	22	13	21	14	121	17
SMG 3 (silt loam)	28	40	26	26	26	30	16	192	27
SMG 4 (sandy loam)	11	22	39	51	47	28	46	244	35
SMG 5 (sandy)	16	11	17	18	39	15	28	144	21
SMG 6 (mucky)	0	0	0	0	0	0	0	0	0
Total	69	83	109	117	125	94	104	701	100

## 4.2 Samples for Commercial Production

Soil series for samples submitted for commercial production:

Name	SMG	1995	1996	1997	1998	1999	2000	2001	Total	%
Alden	3	2	1	0	0	1	3	1	8	0
Allard	3	4	3	0	3	0	1	0	11	1
Basher	3	0	0	0	0	0	1	0	1	0
Bath	3	61	13	14	7	16	25	25	161	10
Canandaigua	3	4	2	6	2	0	2	0	16	1
Carlisle	6	265	65	89	42	34	30	30	555	33
Castile	4	0	1	0	0	0	0	0	1	0
Chenango	3	5	2	9	7	1	2	13	39	2
Collamer	3	1	0	1	1	0	0	1	4	0
Erie	3	6	0	10	7	6	6	13	48	3
Farmington	3	0	0	0	0	0	0	1	1	0
Fredon	4	0	0	2	0	0	1	0	3	0
Hoosic	4	5	10	29	4	7	6	8	69	4
Madalin	1	2	0	10	0	2	3	8	25	2
Mardin	3	118	58	65	30	61	50	63	445	27
Middlebury	3	1	3	8	0	1	1	5	19	1
Muck	6	6	2	3	0	0	0	0	11	1
Nassau	4	3	2	1	0	2	1	9	18	1
Oakville	5	0	0	0	1	0	0	0	1	0
Otisville	4	3	0	0	1	0	9	0	13	1
Palms	6	0	0	3	0	0	0	0	3	0
Pittsfield	4	28	15	13	4	11	0	3	74	4
Raynham	3	0	0	1	1	2	0	5	9	1
Rhinebeck	2	1	1	1	0	6	0	4	13	1
Riverhead	4	1	0	2	0	0	5	2	10	1
Scio	3	0	0	1	1	0	2	4	8	0
Swartwood	4	0	1	0	0	0	0	1	2	0
Tioga	3	0	1	0	0	1	1	1	4	0
Wallkill	3	0	0	5	0	0	0	1	6	0
Wayland	2	3	0	1	0	3	3	1	11	1
Wurtsboro	4	0	0	0	0	5	0	0	5	0
Unknown	-	9	8	8	2	13	2	21	63	4
	-									
Total	-	528	188	282	113	172	154	220	1657	100

## 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	0	8	15	13	7	6	11	9	69
1996	3	5	12	13	23	12	3	12	83
1997	4	8	16	34	17	7	8	15	109
1998	10	14	10	21	30	16	9	7	117
1999	7	6	25	25	18	13	14	17	125
2000	6	6	13	21	27	6	5	10	94
2001	1	5	7	15	25	16	16	19	104
Total	31	52	98	142	147	76	66	89	701

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1.1	0.4	0.2	0.1	0.2	0.3	0.8	
Highest:	56.5	57.7	68.6	13.0	86.9	45.9	22.0	
Mean:	7.0	6.7	5.9	4.0	6.6	4.7	5.8	
Median:	3.6	4.2	3.6	4.1	3.9	4.0	4.8	

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	0	12	22	19	10	9	16	13	100
1996	4	6	14	16	28	14	4	14	100
1997	4	7	15	31	16	9	7	14	100
1998	9	12	9	18	26	14	8	6	100
1999	6	5	20	20	14	10	11	14	100
2000	6	6	14	22	29	6	5	11	100
2001	1	5	7	14	24	15	15	18	100
Total	4	7	14	20	21	11	9	13	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	0	3	30	109	54	14	11	307	528
1996	2	8	23	50	23	9	4	69	88
1997	18	6	35	64	38	9	7	105	282
1998	0	5	20	17	22	6	1	42	113
1999	0	0	23	61	30	10	1	47	172
2000	1	6	31	40	33	8	1	34	154
2001	0	1	18	62	68	29	9	33	220
Total	21	29	180	403	268	85	34	637	1657

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1.3	0.2	0.1	1.4	2.1	0.9	1.8	
Highest:	67.3	60.0	65.9	61.3	62.5	64.2	61.7	
Mean:	30.4	17.3	18.9	21.2	14.0	13.6	11.0	
Median:	41.1	4.4	4.4	4.4	4.0	3.9	4.3	

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	0	1	6	21	10	3	2	58	100
1996	1	4	12	27	12	5	2	37	100
1997	6	2	12	23	13	3	2	37	100
1998	0	4	18	15	19	5	1	37	100
1999	0	0	13	35	17	6	1	27	100
2000	1	4	20	26	21	5	1	22	100
2001	0	0	8	8	31	13	4	15	100
Total	1	2	11	24	16	5	2	38	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	4	6	12	10	18	18	0	1	0	69
1996	0	1	12	19	13	22	7	7	1	1	83
1997	0	5	8	14	29	32	14	7	0	0	109
1998	4	4	9	18	27	29	18	7	1	0	117
1999	2	3	5	18	31	35	24	6	1	0	125
2000	1	3	5	8	16	25	23	13	0	0	94
2001	0	1	1	21	27	31	16	7	0	0	104
Total	7	21	46	110	153	192	120	47	4	1	701

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	4.7	4.9	4.8	4.2	4.0	3.5	4.5	
Highest:	8.4	11.1	7.9	8.1	8.3	7.8	7.9	
Mean:	-	-	-	-	-	-	-	
Median:	6.6	6.3	6.4	6.4	6.6	6.7	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	6	9	17	14	26	26	0	1	0	100
1996	0	1	14	23	16	27	8	8	1	1	100
1997	0	5	7	13	27	29	13	6	0	0	100
1998	3	3	8	15	23	25	15	6	1	0	100
1999	2	2	4	14	25	28	19	5	1	0	100
2000	1	3	5	9	17	27	24	14	0	0	100
2001	0	1	1	20	26	30	15	7	0	0	100
Total	1	3	7	16	22	27	17	7	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	3	42	153	146	88	70	25	1	0	0	528
1996	6	15	23	66	39	31	8	0	0	0	188
1997	2	8	51	108	58	35	17	3	0	0	282
1998	0	1	19	41	30	16	5	1	0	0	113
1999	8	2	16	54	42	41	8	1	0	0	172
2000	0	2	18	43	37	32	20	2	0	0	154
2001	0	5	43	59	72	35	3	1	2	0	220
Total	19	75	323	517	366	260	86	9	2	0	1657

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	4.2	3.7	3.9	4.7	3.7	4.7	4.7	
Highest:	7.5	7.4	7.9	7.5	7.5	7.7	8.1	
Mean:	-	-	-	-	-	-	-	
Median:	5.6	5.8	5.8	5.9	6.0	6.1	6.0	

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	8	29	28	17	13	5	0	0	0	100
1996	3	8	12	35	21	16	4	0	0	0	100
1997	1	3	18	38	21	12	6	1	0	0	100
1998	0	1	17	36	27	14	4	1	0	0	100
1999	5	1	9	31	24	24	5	1	0	0	100
2000	0	1	12	28	24	21	13	1	0	0	100
2001	0	2	20	27	33	16	1	0	1	0	100
Total	1	5	19	31	22	16	5	1	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	9	35	5	2	2	1	3	6	69
1996	0	6	10	42	6	2	3	5	5	4	83
1997	0	7	20	43	9	10	1	3	6	10	109
1998	0	10	20	52	12	4	4	4	4	7	117
1999	0	6	19	63	11	1	4	12	3	6	125
2000	0	6	11	33	14	5	1	16	2	6	94
2001	0	1	10	37	13	7	5	9	2	20	104
Total	0	42	99	305	70	31	20	50	25	59	701

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

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1	1	2	1	1	1	3	
Highest:	547	1618	407	457	2033	521	879	
Mean:	62	65	58	50	82	67	124	
Median:	14	20	19	18	18	35	42	

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	9	13	51	7	3	3	1	4	9	100
1996	0	7	12	51	7	2	4	6	6	5	100
1997	0	6	18	39	8	9	1	3	6	9	100
1998	0	9	17	44	10	3	3	3	3	6	100
1999	0	5	15	50	9	1	3	10	2	5	100
2000	0	6	12	35	15	5	1	17	2	6	100
2001	0	1	10	36	13	7	5	9	2	19	100
Total	0	6	14	44	10	4	3	7	4	8	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	42	51	106	23	12	15	47	72	160	528
1996	0	12	33	61	10	10	6	14	17	25	188
1997	0	18	37	103	27	12	13	34	15	23	282
1998	0	0	12	45	6	7	7	9	17	10	113
1999	0	17	30	65	16	8	1	7	18	10	172
2000	0	13	22	58	12	6	3	14	16	10	154
2001	0	26	34	94	15	9	7	16	17	2	220
Total	0	128	219	532	109	64	52	141	172	240	1657

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

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1	1	1	4	1	1	1	
Highest:	631	579	394	409	1233	553	242	
Mean:	131	81	67	81	62	69	43	
Median:	122	24	31	39	26	21	18	

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	8	10	20	4	2	3	9	14	30	100
1996	0	6	18	32	5	5	3	7	9	13	100
1997	0	6	13	37	10	4	5	12	5	8	100
1998	0	0	11	40	5	6	6	8	15	9	100
1999	0	10	17	38	9	5	1	4	10	6	100
2000	0	8	14	38	8	4	2	9	10	6	100
2001	0	12	15	43	7	4	3	7	8	1	100
Total	0	8	13	32	7	4	3	9	10	14	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	0	1	6	7	14
1996	0	1	3	1	5	10
1997	0	0	5	8	14	
1998	0	0	4	8	10	22
1999	0	0	2	2	9	13
2000	0	1	2	2	16	21
2001	1	0	1	4	8	14
Total (#)	1	2	18	31	69	121
Total (%)	1	2	15	26	57	100
Soil Management Group 3						
	<45	45-79	80-119	120-199	>199	Total
	Very Low	Low	Medium	High	Very High	
1995	0	1	5	7	15	28
1996	0	3	5	8	24	40
1997	0	4	0	4	18	26
1998	0	2	3	7	14	26
1999	0	1	2	10	13	26
2000	0	2	5	7	16	30
2001	0	0	3	3	10	16
Total (#)	0	13	23	46	110	192
Total (%)	0	7	12	24	57	100

Soil Management Group 4						
	<55	55-99	100-149	150-239	>239	Total
	Very Low	Low	Medium	High	Very High	
1995	1	3	2	1	4	11
1996	1	0	3	4	14	22
1997	0	11	12	4	12	39
1998	2	5	14	9	21	51
1999	0	1	9	11	26	47
2000	1	0	2	2	23	28
2001	0	2	4	8	32	46
Total (#)	5	22	46	39	132	244
Total (%)	2	9	19	16	54	100
Soil Management Group 5						
	<60	60-114	115-164	165-269	>269	Total
	Very Low	Low	Medium	High	Very High	
1995	4	7	1	1	3	16
1996	1	4	2	3	1	11
1997	4	2	5	2	4	17
1998	0	10	4	2	2	18
1999	6	3	8	15	7	39
2000	4	5	1	2	3	15
2001	0	3	1	7	17	28
Total (#)	19	34	22	32	37	144
Total (%)	13	24	15	22	26	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	5	11	9	15	29	69
1996	2	8	13	16	44	83
1997	4	17	22	18	48	109
1998	2	17	25	26	47	117
1999	6	5	21	38	55	125
2000	5	8	10	13	58	94
2001	1	5	9	22	67	104
Total #	25	71	109	148	348	701

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	29	8	42	39	5	45	39	
Highest:	888	8214	4013	1827	16927	2865	8656	
Mean:	216	408	308	268	638	342	658	
Median:	147	222	175	175	216	265	272	

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

Summary (%)	Very Low	Low	Medium	High	Very High	Total
1995	7	16	13	22	42	100
1996	2	10	16	19	53	100
1997	4	16	20	17	44	100
1998	2	15	21	22	40	100
1999	5	4	17	30	44	100
2000	5	9	11	14	62	100
2001	1	5	9	21	64	100
Grand Total	4	10	16	21	50	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	2	2
1996	0	0	0	0	0	0
1997	0	1	1	5	3	10
1998	0	0	0	0	0	0
1999	0	0	0	0	2	2
2000	0	0	1	0	2	3
2001	0	1	1	2	4	8
Total (#)	0	2	3	7	13	25
Total (%)	0	8	12	28	52	100
Soil Management Group 2						
	<40	40-69	70-99	100-164	>164	Total
	Very Low	Low	Medium	High	Very High	
1995	0	0	1	2	1	4
1996	0	0	0	1	0	1
1997	0	1	0	0	1	2
1998	0	0	0	0	0	0
1999	0	0	1	3	5	9
2000	0	0	0	1	2	3
2001	0	0	0	1	4	5
Total (#)	0	1	2	8	13	24
Total (%)	0	4	8	33	54	100
Soil Management Group 3						
	<45	45-79	80-119	120-199	>199	Total
	Very Low	Low	Medium	High	Very High	
1995	1	18	31	53	99	202
1996	3	10	14	22	34	83
1997	2	14	11	41	52	120
1998	0	0	7	12	40	59
1999	1	10	13	19	46	89
2000	3	8	14	21	48	94
2001	3	14	23	27	66	133
Total (#)	13	74	113	195	385	780
Total (%)	2	9	14	25	49	100

Soil Management Group 4						
	<55	55-99	100-149	150-239	>239	Total
	Very Low	Low	Medium	High	Very High	
1995	0	5	7	12	16	40
1996	3	11	3	6	6	29
1997	16	2	7	6	16	47
1998	0	1	2	1	5	9
1999	1	1	3	6	14	25
2000	1	5	3	3	10	22
2001	1	1	6	2	13	23
Total (#)	22	26	31	36	80	195
Total (%)	11	13	16	18	41	100
Soil Management Group 5						
	<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	1	0	0	1
1999	0	0	0	0	0	0
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
Total (#)	0	0	1	0	0	1
Total (%)	0	0	100	0	0	100
Soil Management Group 6						
	<60	60-114	115-164	165-269	>269	Total
	Very Low	Low	Medium	High	Very High	
1995	0	0	2	8	261	271
1996	0	0	3	4	60	67
1997	2	4	5	10	74	86
1998	0	0	0	6	36	42
1999	0	0	0	0	34	34
2000	0	0	0	9	21	30
2001	0	1	3	7	19	30
Total (#)	2	5	13	44	505	569
Total (%)	0	1	2	8	89	100

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

Summary (#)	Very Low	Low	Medium	High	Very High	Un-known	Total
1995	1	23	41	75	379	9	528
1996	6	21	20	33	100	8	188
1997	20	22	24	62	146	8	282
1998	0	1	10	19	81	2	113
1999	2	11	17	28	101	13	172
2000	4	13	18	34	83	2	154
2001	4	17	33	39	106	21	220
Grand Total	37	108	163	290	996	63	1657

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	42	18	27	76	43	38	18	
Highest:	1751	1487	1301	1322	6828	1534	1196	
Mean:	483	323	299	404	369	308	273	
Median:	447	241	235	345	271	250	204	

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

% summary	Very Low	Low	Medium	High	Very High	Un-known	Total
1995	0	4	8	14	72	2	100
1996	3	11	11	18	53	4	100
1997	7	8	9	22	52	3	100
1998	0	1	9	17	72	2	100
1999	1	6	10	16	59	8	100
2000	3	8	12	22	54	1	100
2001	2	8	15	18	48	10	100
Grand Total	2	7	10	18	60	4	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	1	4	23	41	69
1996	0	1	2	20	60	83
1997	0	5	2	22	80	109
1998	0	10	6	25	76	117
1999	0	8	4	19	94	125
2000	0	5	3	11	75	94
2001	0	0	2	11	91	104
Total	0	30	23	131	517	701

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	33	31	26	28	23	28	74	
Highest:	2111	3421	2444	2523	4638	2040	3167	
Mean:	358	411	360	323	489	408	561	
Median:	257	271	283	300	336	338	366	

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	1	6	33	59	100
1996	0	1	2	24	72	100
1997	0	5	2	20	73	100
1998	0	9	5	21	65	100
1999	0	6	3	15	75	100
2000	0	5	3	12	80	100
2001	0	0	2	11	88	100
Total	0	4	3	19	74	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	11	7	50	460	528
1996	2	7	5	34	140	188
1997	0	14	5	44	219	282
1998	0	0	4	16	93	113
1999	0	0	1	36	135	172
2000	0	1	5	35	113	154
2001	0	1	5	44	170	220
Total	2	34	32	259	1330	1657

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	20	9	30	70	82	62	30	
Highest:	4097	3042	3362	2995	4021	3125	4307	
Mean:	1228	698	839	922	759	696	584	
Median:	1105	368	391	428	327	303	306	

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	2	1	9	87	100
1996	1	4	3	18	74	100
1997	0	5	2	16	78	100
1998	0	0	4	14	82	100
1999	0	0	1	21	78	100
2000	0	1	3	23	73	100
2001	0	0	2	20	77	100
Total	0	2	2	16	80	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	61	8	69
1996	77	6	83
1997	103	6	109
1998	106	11	117
1999	115	10	125
2000	92	2	94
2001	101	3	104
Total	655	46	701

Percentages:

	0-49	>49	Total
	Normal	Excessive	
	88	12	100
	93	7	100
	94	6	100
	91	9	100
	92	8	100
	98	2	100
	97	3	100
	93	7	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1	1	1	1	1	1	2	
Highest:	233	1267	322	125	253	134	54	
Mean:	22	36	17	16	15	11	9	
Median:	8	5	5	7	7	6	6	

## 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	466	62	528
1996	163	25	188
1997	260	22	282
1998	108	5	113
1999	159	13	172
2000	146	8	154
2001	206	14	220
Total	1508	149	1657

Percentages:

	0-49	>49	Total
	Normal	Excessive	
	88	12	100
	87	13	100
	92	8	100
	96	4	100
	92	8	100
	95	5	100
	94	6	100
	91	9	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1	1	1	1	1	1	1	
Highest:	608	1537	387	499	385	141	459	
Mean:	26	45	19	17	23	12	20	
Median:	8	9	6	4	5	4	5	

## 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	66	3	69	96	4	100
1996	71	12	83	86	14	100
1997	93	16	109	85	15	100
1998	111	6	117	95	5	100
1999	113	12	125	90	10	100
2000	84	10	94	89	11	100
2001	92	12	104	88	12	100
Total	638	71	701	90	10	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	6	2	6	5	1	3	12	
Highest:	265	1796	395	253	932	401	305	
Mean:	43	81	67	44	68	48	60	
Median:	32	45	45	35	34	25	46	



## 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	496	32	528
1996	184	4	188
1997	270	12	282
1998	111	2	113
1999	163	9	172
2000	152	2	154
2001	211	9	220
Total	1587	70	1657

Percentages:

	0-99	>99	Total
	Normal	Excessive	
	94	6	100
	98	2	100
	96	4	100
	98	2	100
	95	5	100
	99	1	100
	96	4	100
	96	4	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	7	3	5	11	9	4	7	
Highest:	205	139	347	118	277	164	253	
Mean:	42	37	38	35	43	30	46	
Median:	33	33	26	29	36	28	39	

## 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	1	7	61	69
1996	1	6	76	83
1997	1	9	99	109
1998	2	14	101	117
1999	3	2	120	125
2000	5	5	84	94
2001	0	4	100	104
Total	13	47	641	701

Percentages:

<0.5	0.5-1.0	>1	Total
Low	Medium	High	
1	10	88	100
1	7	92	100
1	8	91	100
2	12	86	100
2	2	96	100
5	5	89	100
0	4	96	100
2	7	91	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	0.3	0.3	0.2	0.3	0.2	0.1	0.6	
Highest:	1121.8	186.5	83.1	74.6	169.0	65.8	43.0	
Mean:	30.4	9.9	6.8	6.5	10.8	8.5	7.3	
Median:	5.8	3.2	3.4	3.3	6.1	5.0	4.3	

## 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	5	48	475	528
1996	5	21	162	188
1997	15	25	242	282
1998	1	15	97	113
1999	3	23	146	172
2000	5	28	121	154
2001	0	10	210	220
Total	34	170	1453	1657

Percentages:

<0.5	0.5-1.0	>1	Total
Low	Medium	High	
1	9	90	100
3	11	86	100
5	9	86	100
1	13	86	100
2	13	85	100
3	18	79	100
0	5	95	100
2	10	88	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	0.3	0.3	0.1	0.3	0.3	0.2	0.6	
Highest:	221.1	125.9	41.5	30.6	36.2	69.2	132.8	
Mean:	10.1	7.6	7.5	7.5	6.8	6.8	5.8	
Median:	9.6	3.4	2.8	3.1	2.4	1.9	2.8	

## 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
<b>Corn</b>	
COG	Corn grain
COS	Corn silage
<b>Grasses, pastures, covercrops</b>	
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
<b>Small grains</b>	
MIL	Millet
OAS	Oats with legume
OAT	Oats
SOF	Sorghum forage
SOG	Sorghum grain
SOY	Soybeans
SSH	Sorghum sudan hybrid
SUD	Sudangrass
WHS	Wheat with legume
WHT	Wheat
<b>Others</b>	
ALG	Azalea
APP	Apples
APR	Apricots

Crop Code	Crop Description
ASP	Asparagus
ATF	Athletic Field
BDR/BND	Beans-dry
BET	Beets
BLU/BLB	Blueberries
BNS	Beans, Snap
CAR	Carrots
CBP	Cabbage, Tranplanted
CEL	Celery
CEM	Cemetery
CHC	Chinese cabbage
CKP	Cucumber, Transplanted
CKS	Cucumber, Seeded
EGG	Eggplants
END	Endives
FAR	Fairway
FLA	Flowering Annuals
GPA	Grapes, American
GPF	Grapes, French-American
GPV	Grapes, Vinifera
GEN	Green
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	Peache s
PEA	Peas
PEP	Peppers
PER	Perennials
POP	Popcorn
PRK	Park

Crop Code	Crop Description
POT/PTO	Potatoes
PUM	Pumpkins
ROD	Roadside
ROS	Roses
ROU	Rough
RSF	Raspberries, Fall
RSP	Raspberries (homeowners)
RSS	Raspberries, Summer
SAG	Ornamentals adapted to pH 6.0 to 7.5
SOD	Sod production
SPS	Spinach, Spring
SQS	Squash, Summer
SQW	Squash, Winter
STE	Strawberries, Ever
STR	Strawberries (homeowners)
STS	Strawberries, Spring
SUB	Summer flowering bulbs
SUN	Sunflowers
SWC	Sweet corn
TOM	Tomatoes
TRE	Christmas trees, Established
TRF	Tree fruits
TRT	Christmas trees, Topdressing