

Ketterings, Q.M., H. Krol, W.S. Reid and L. Fields (2003). Schoharie County Soil Sample Survey 1995-2001. CSS Extension Bulletin E03-33. 38 pages.

Soil Sample Survey

Schoharie Co.

Samples analyzed by CNAL in 1995-2001



Picture by Lisa Fields

Hilltop view from a typical clay loam dairy farm in Schoharie County.

Summary compiled by

Quirine M. Ketterings, Hettie Krol, W. Shaw Reid and Lisa Fields



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

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1. General Survey Summary

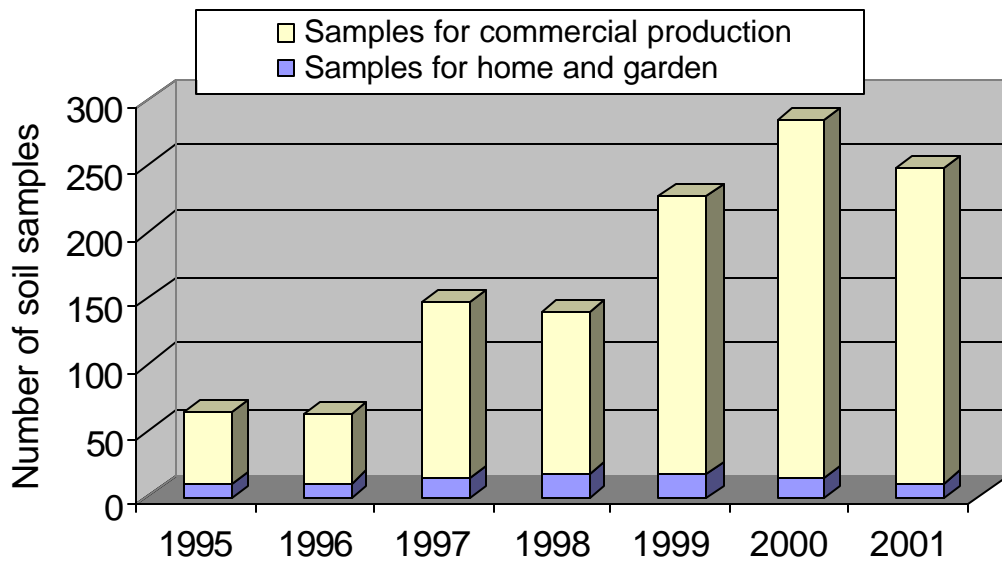
Schoharie County covers 400,000 acres in east-central New York State. The Schoharie Creek flows northward from the southeast, through the central part of the county and into the Mohawk River to the north. Two other major watercourses flow into the Schoharie Creek north of the central part of the county. They are Cobleskill Creek, flowing from west to east, and Fox Creek, flowing from east to west. The topography of the major creek regions is characterized by relatively wide valleys surrounded by steep, forested hills. Much of the county's southern region is in the New York City Watershed and reflects typical Catskillian topography. Shallow, acidic silt loams dominate the hills, while the valleys boast a predominance of the unique, highly productive Barbour soil. Small areas of the valleys' soils and moderate portions of the uplands are clay loams, productive for grass and clover forages. The Schoharie reservoir, located in the county's southeast section, also lies partially in Delaware County. It flows into the Schoharie Creek to the north, and into the system supplying NYC's water to the south.

The Northwest portion of the county holds the famous Schoharie Valley, the 1st designated Agricultural District in NYS. The county's commercial vegetable and grain corn producers dominate the valley's Barbour silt loams. Portions of the northeast and northern soils of the county are underlain by Karst (limestone) geology. Productive, but generally shallow silt loams are significant sources of rotated alfalfa-grass and corn silage forage for the dairy industry. The county's dairy farms are concentrated in this section. Clay loams also comprise significant portions of the soils of northern and central Schoharie County.

Agriculture in Schoharie County consists primarily of small to mid-sized dairy farms. Commercial field crop production dominated by hay is the next largest sector, followed by vegetables. Beef and small livestock production are minor sectors of commercial agriculture in the county. Diversified, part-time ventures that often include specialty vegetables, herbs, flowers, and poultry have consistently grown in number since the mid 1990s.

This survey summarizes the soil test results from Schoharie 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 1174. Of these 1174 samples, 1080 (92%) were submitted to obtain fertilizer recommendations for commercial production while 94 samples (8%) were submitted as home and garden samples.



| Homeowners | | Commercial | | Total |
|-------------------|-----------|-------------------|-------------|--------------|
| 1995 | 10 | 1995 | 55 | 65 |
| 1996 | 11 | 1996 | 52 | 63 |
| 1997 | 13 | 1997 | 135 | 148 |
| 1998 | 18 | 1998 | 122 | 140 |
| 1999 | 18 | 1999 | 208 | 226 |
| 2000 | 13 | 2000 | 271 | 284 |
| <u>2001</u> | <u>11</u> | <u>2001</u> | <u>237</u> | <u>248</u> |
| Total | 94 | Total | 1080 | 1174 |

Most of the home and garden samples were submitted to request fertilizer recommendations for vegetable gardens and lawns. People submitting samples for commercial production requested fertilizer recommendations for alfalfa, alfalfa/grass or alfalfa/trefoil mixtures (32%), grass hay (26%), or corn silage or grain (25%), while a

few producers requested recommendations for pasture land and for growing other crops including clover/grass mixtures, small grains, apples and vegetables.

Home and garden samples in Schoharie County were silty belonging to soil management group 2 (26%), silt loams belonging to soil management group 3 (30%), or sandy loams belonging to soil management group 4 (33%), while 11% were sandy belonging to soil management group 2. 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, 59% belonged to soil management group 2. Five percent were from soil management group 1. None of the samples belonged to either group 5 or 6 while 31% belonged to group 3 and less than 0.5% was in group 4. The five most common soil series were Mohawk (15%), Lansing (14%), Darien (14%), Honeoye (9%), and Willowemoc (7%).

Organic matter levels, as measured by loss on ignition, ranged from less than 1% to over 35% with median values ranging from 4.2 to 6.5% organic matter for home and garden samples and from 3.9 to 5.0 for samples submitted for commercial production. Forty-two percent of the home and garden samples had between 2.0 and 4.9% organic matter with 3% testing between 2.0 and 2.9% organic matter, 12% between 3.0 and 3.9% organic matter and 27% between 4.0 and 4.9% organic matter. Fifty six percent of the soils submitted for home and garden tested >4.9% in organic matter while 2% had less than 2% organic matter. Of the samples submitted for commercial production, 33% contained between 3.0 and 3.9% organic matter, 29% tested between 4.0 and 4.9% while 17% had organic matter concentrations of 5.0-5.9%. In total, 61% of the samples had organic matter levels of 4.0% or greater.

Soil pH in water (1:1 extraction ratio) varied from pH 4.3 to 8.0 with the median for home and garden samples ranging from pH 5.7 to pH 7.2 and the median for commercial production samples ranging from pH 6.0 to pH 6.6. Of the home and garden samples, 63% tested between pH 6.0 and 7.4, while the commercial production samples were 75% from pH 6.0 to 7.4 with 23% testing from 5.0 to 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 lbs 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, 14% tested low, 14% tested medium, 27% tested high and 45% tested very high. This meant that 72% tested high or very high in P. Of the samples submitted for commercial production, 9% tested very high in P. Thirty-three percent were low in P, 28% tested medium for P while 30% of the submitted samples were classified as high in soil test P. This means that 39% tested high or very high in P. There were no clear trends in P levels over the 6 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 |

Seven percent of the home and garden samples were classified as very low or low in potassium. Six percent tested medium, 22% high and 64% very high. For samples submitted for commercial production, 2% tested very low in K, 9% tested low, 23% tested medium, 33% tested high and 29% tested very high in potassium while the remainder were of unknown classification. As with phosphorus, there were no trends over the 6 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 37 to over 4000 lbs Mg/acre (Morgan extraction). There were no samples that tested very low in Mg. Most soils tested high or very high for Mg (97% of the homeowner soils and 95% of the soils of the commercial growers). No more than 3% of the homeowner soils and 5% of the commercial growers' soil tested low or

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medium in Mg. Thus, magnesium deficiency is not likely to occur in Schoharie County provided the soil pH is maintained in the desirable range.

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. Iron levels for 89-98% fell in the normal range with 11% of the home and garden samples and 2% of the samples for commercial production testing excessive for Fe. Similarly, most soils (95-99%) for both groups tested normal for manganese. Soils with more than 100 lbs Morgan extractable Mn per acre are classified as excessive in Mn. Anything less than 100 lbs Mn per acre is classified as normal. 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, 93% tested high for zinc while 7% tested medium. Of the samples for commercial production, 9% tested low in zinc, 34% tested medium while 57% 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.

2. Cropping Systems

2.1 Samples for Home and Garden

Crops for which recommendations are requested by homeowners:

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | Total | % |
|---------|------|------|------|------|------|------|------|-------|-----|
| FLA | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| HRB | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 4 | 4 |
| LAW | 0 | 2 | 2 | 4 | 4 | 2 | 0 | 14 | 15 |
| MVG | 8 | 7 | 6 | 5 | 10 | 6 | 10 | 52 | 55 |
| OTH | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 5 | 5 |
| PER | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 6 | 6 |
| ROS | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| SAG | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 2 |
| TRF | 0 | 0 | 2 | 0 | 4 | 1 | 1 | 8 | 9 |
| Unknown | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| | | | | | | | | | |
| Total | 10 | 11 | 13 | 18 | 18 | 13 | 11 | 94 | 100 |

Notes:

See Appendix for Cornell crop codes.

2.2 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 | 1 | 3 | 2 | 0 | 7 | 1 |
| AGE/AGT | 13 | 10 | 18 | 46 | 41 | 71 | 97 | 296 | 27 |
| ALE/ALT | 1 | 0 | 13 | 12 | 8 | 7 | 3 | 44 | 4 |
| APP | 1 | 0 | 3 | 0 | 1 | 2 | 0 | 7 | 1 |
| BCE/BCT | 0 | 1 | 1 | 1 | 3 | 0 | 0 | 6 | 1 |
| BGE/BGT | 1 | 6 | 0 | 2 | 1 | 0 | 0 | 10 | 1 |
| BNS | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| BSS | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| CGE/CGT | 0 | 1 | 1 | 2 | 16 | 8 | 3 | 31 | 3 |
| CLE/CLT | 1 | 0 | 0 | 0 | 5 | 0 | 2 | 8 | 1 |
| COG/COS | 12 | 17 | 24 | 25 | 65 | 58 | 68 | 269 | 25 |
| GIE/GIT | 2 | 0 | 0 | 1 | 0 | 10 | 4 | 17 | 2 |
| GPV | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| GRE/GRT | 8 | 12 | 58 | 17 | 42 | 89 | 30 | 256 | 24 |
| MIX | 5 | 2 | 1 | 0 | 0 | 2 | 2 | 12 | 1 |
| OAS | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| OAT | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 |
| OTH | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 5 | 0 |
| PGE/PGT | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 |
| PIE/PIT | 2 | 0 | 2 | 0 | 4 | 0 | 17 | 25 | 2 |
| PLE/PLT | 0 | 0 | 5 | 0 | 4 | 4 | 0 | 13 | 1 |
| PNE/PNT | 2 | 0 | 7 | 4 | 0 | 10 | 6 | 29 | 3 |
| POT | 0 | 0 | 0 | 7 | 0 | 2 | 0 | 9 | 1 |
| PUM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| RYC | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 |
| RYS | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| SOY | 0 | 0 | 0 | 3 | 0 | 2 | 3 | 8 | 1 |
| SWC | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 0 |
| TOM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| TRE/TRT | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 0 |
| Unknown | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 |
| | | | | | | | | | |
| Total | 55 | 52 | 135 | 122 | 208 | 271 | 237 | 1080 | 100 |

See Appendix for Cornell crop codes

3. Soil Types

3.1 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) | 2 | 3 | 4 | 7 | 4 | 3 | 2 | 25 |
| SMG 3 (silt loam) | 3 | 3 | 4 | 9 | 4 | 3 | 2 | 28 |
| SMG 4 (sandy loam) | 4 | 1 | 5 | 2 | 8 | 4 | 7 | 31 |
| SMG 5 (sandy) | 1 | 4 | 0 | 0 | 2 | 3 | 0 | 10 |
| SMG 6 (mucky) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | |
| Total | 10 | 11 | 13 | 18 | 18 | 13 | 11 | 94 |

3.2 Samples for Commercial Production

Soil series for samples submitted for commercial production:

| Name | SMG | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | Total |
|-------------|-----|------|------|------|------|------|------|------|-------|
| Alluvial | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 3 |
| Appleton | 2 | 0 | 1 | 2 | 4 | 2 | 5 | 5 | 19 |
| Arnot | 3 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 |
| Barbour | 3 | 6 | 0 | 6 | 1 | 3 | 13 | 19 | 48 |
| Basher | 3 | 3 | 0 | 4 | 0 | 5 | 5 | 8 | 25 |
| Burdett | 2 | 0 | 0 | 3 | 3 | 3 | 1 | 1 | 11 |
| Chenango | 3 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 4 |
| Chippewa | 3 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 |
| Conesus | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| Culvers | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Darien | 2 | 2 | 3 | 15 | 11 | 54 | 29 | 38 | 152 |
| Farmington | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | 7 |
| Fredon | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Honeoye | 2 | 12 | 0 | 1 | 24 | 21 | 11 | 28 | 97 |
| Howard | 3 | 0 | 0 | 1 | 3 | 0 | 1 | 0 | 5 |
| Ilion | 2 | 1 | 0 | 2 | 1 | 4 | 2 | 0 | 10 |
| Lakemont | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Lansing | 2 | 4 | 8 | 7 | 31 | 3 | 76 | 24 | 153 |
| Lima | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Lordstown | 3 | 1 | 6 | 2 | 5 | 9 | 2 | 0 | 25 |
| Lyons | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Madalin | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Mardin | 3 | 0 | 4 | 10 | 0 | 20 | 2 | 0 | 36 |
| Middlebury | 3 | 0 | 2 | 4 | 0 | 0 | 0 | 1 | 7 |
| Mohawk | 2 | 4 | 2 | 16 | 13 | 51 | 11 | 65 | 162 |
| Morris | 3 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 2 |
| Nassau | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Nunda | 2 | 1 | 1 | 1 | 3 | 6 | 1 | 6 | 19 |
| Odessa | 2 | 0 | 4 | 3 | 0 | 0 | 2 | 4 | 13 |
| Oquaga | 3 | 1 | 1 | 2 | 1 | 0 | 4 | 0 | 9 |
| Phelps | 3 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 3 |
| Red Hook | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Schoharie | 1 | 1 | 6 | 2 | 8 | 5 | 2 | 20 | 44 |
| Scio | 3 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 6 |
| Tuller | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| Tunkhannock | 3 | 4 | 1 | 6 | 2 | 2 | 20 | 0 | 35 |

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| Name | SMG | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | Total |
|------------|-----|------|------|------|------|------|------|------|-------|
| Volusia | 3 | 3 | 0 | 3 | 0 | 3 | 0 | 1 | 10 |
| Wellsboro | 3 | 3 | 2 | 3 | 3 | 5 | 6 | 3 | 25 |
| Willowemoc | 3 | 3 | 9 | 28 | 5 | 0 | 31 | 0 | 76 |
| Unknown | - | 2 | 0 | 11 | 2 | 2 | 32 | 1 | 50 |
| | | | | | | | | | |
| Total | - | 55 | 52 | 135 | 122 | 208 | 271 | 237 | 1080 |

4. Organic Matter

4.1 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 | 0 | 0 | 1 | 2 | 1 | 2 | 4 | 10 |
| 1996 | 2 | 0 | 0 | 2 | 3 | 1 | 2 | 1 | 11 |
| 1997 | 0 | 0 | 2 | 0 | 2 | 3 | 2 | 4 | 13 |
| 1998 | 0 | 0 | 1 | 4 | 6 | 1 | 4 | 2 | 18 |
| 1999 | 0 | 0 | 0 | 4 | 7 | 3 | 2 | 2 | 18 |
| 2000 | 0 | 0 | 0 | 0 | 3 | 3 | 2 | 5 | 13 |
| 2001 | 0 | 0 | 0 | 0 | 2 | 2 | 6 | 1 | 11 |
| Total | 2 | 0 | 3 | 11 | 25 | 14 | 20 | 19 | 94 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 3.9 | 0.1 | 2.2 | 2.6 | 3.0 | 4.0 | 4.0 | |
| Highest: | 8.7 | 7.3 | 10.8 | 36.5 | 16.1 | 13.5 | 7.2 | |
| Mean: | 6.3 | 4.0 | 6.0 | 6.8 | 5.5 | 6.8 | 5.9 | |
| Median: | 6.5 | 4.2 | 5.8 | 4.8 | 4.6 | 6.2 | 6.3 | |

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 | 0 | 0 | 10 | 20 | 10 | 20 | 40 | 100 |
| 1996 | 18 | 0 | 0 | 18 | 27 | 9 | 18 | 9 | 100 |
| 1997 | 0 | 0 | 15 | 0 | 15 | 23 | 15 | 31 | 100 |
| 1998 | 0 | 0 | 6 | 22 | 33 | 6 | 22 | 11 | 100 |
| 1999 | 0 | 0 | 0 | 22 | 39 | 17 | 11 | 11 | 100 |
| 2000 | 0 | 0 | 0 | 0 | 23 | 23 | 15 | 38 | 100 |
| 2001 | 0 | 0 | 0 | 0 | 18 | 18 | 55 | 9 | 100 |
| Total | 2 | 0 | 3 | 12 | 27 | 15 | 21 | 20 | 100 |

4.2 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 | 1 | 5 | 12 | 15 | 7 | 10 | 5 | 55 |
| 1996 | 0 | 0 | 0 | 10 | 18 | 15 | 8 | 1 | 52 |
| 1997 | 0 | 0 | 5 | 31 | 29 | 35 | 30 | 5 | 135 |
| 1998 | 0 | 1 | 9 | 54 | 37 | 11 | 3 | 7 | 122 |
| 1999 | 0 | 0 | 7 | 65 | 85 | 31 | 15 | 5 | 208 |
| 2000 | 1 | 7 | 14 | 108 | 62 | 41 | 27 | 11 | 271 |
| 2001 | 0 | 0 | 11 | 81 | 65 | 46 | 21 | 13 | 237 |
| Total | 1 | 9 | 51 | 361 | 311 | 186 | 114 | 47 | 1080 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 1.8 | 3.2 | 2.3 | 1.8 | 2.1 | 0.9 | 2.2 | |
| Highest: | 16.2 | 10.9 | 8.8 | 7.6 | 9.7 | 10.8 | 9.3 | |
| Mean: | 5.0 | 4.9 | 5.0 | 4.2 | 4.5 | 4.3 | 4.6 | |
| Median: | 4.3 | 4.8 | 5.0 | 3.9 | 4.3 | 4.1 | 4.2 | |

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 | 2 | 9 | 22 | 27 | 13 | 18 | 9 | 100 |
| 1996 | 0 | 0 | 0 | 19 | 35 | 29 | 15 | 2 | 100 |
| 1997 | 0 | 0 | 4 | 23 | 21 | 26 | 22 | 4 | 100 |
| 1998 | 0 | 1 | 7 | 44 | 30 | 9 | 2 | 6 | 100 |
| 1999 | 0 | 0 | 3 | 31 | 41 | 15 | 7 | 2 | 100 |
| 2000 | 0 | 3 | 5 | 40 | 23 | 15 | 10 | 4 | 100 |
| 2001 | 0 | 0 | 5 | 34 | 27 | 19 | 9 | 5 | 100 |
| Total | 0 | 1 | 5 | 33 | 29 | 17 | 11 | 4 | 100 |

5. pH

5.1 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 | 0 | 0 | 1 | 2 | 1 | 4 | 2 | 0 | 0 | 11 |
| 1996 | 0 | 1 | 1 | 0 | 0 | 1 | 7 | 1 | 0 | 0 | 10 |
| 1997 | 0 | 5 | 1 | 1 | 1 | 0 | 4 | 1 | 0 | 0 | 13 |
| 1998 | 0 | 0 | 1 | 0 | 2 | 5 | 9 | 1 | 0 | 0 | 18 |
| 1999 | 0 | 2 | 1 | 0 | 3 | 4 | 3 | 5 | 0 | 0 | 18 |
| 2000 | 0 | 2 | 0 | 2 | 2 | 4 | 1 | 2 | 0 | 0 | 13 |
| 2001 | 1 | 1 | 3 | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 11 |
| Total | 1 | 11 | 7 | 4 | 11 | 19 | 29 | 12 | 0 | 0 | 94 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 5.7 | 4.9 | 4.5 | 5.4 | 4.8 | 4.6 | 4.3 | |
| Highest: | 7.8 | 7.7 | 7.5 | 7.8 | 7.7 | 7.6 | 7.4 | |
| Mean: | - | - | - | - | - | - | - | |
| Median: | 7.1 | 7.2 | 5.7 | 7.0 | 6.8 | 6.7 | 6.1 | |

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 | 0 | 0 | 10 | 20 | 10 | 40 | 20 | 0 | 0 | 100 |
| 1996 | 0 | 9 | 9 | 0 | 0 | 9 | 64 | 9 | 0 | 0 | 100 |
| 1997 | 0 | 38 | 8 | 8 | 8 | 0 | 31 | 8 | 0 | 0 | 100 |
| 1998 | 0 | 0 | 6 | 0 | 11 | 28 | 50 | 6 | 0 | 0 | 100 |
| 1999 | 0 | 11 | 6 | 0 | 17 | 22 | 17 | 28 | 0 | 0 | 100 |
| 2000 | 0 | 15 | 0 | 15 | 15 | 31 | 8 | 15 | 0 | 0 | 100 |
| 2001 | 9 | 9 | 27 | 0 | 9 | 36 | 9 | 0 | 0 | 0 | 100 |
| Total | 1 | 12 | 7 | 4 | 12 | 20 | 31 | 13 | 0 | 0 | 100 |

5.2 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 | 0 | 0 | 8 | 5 | 25 | 14 | 3 | 0 | 0 | 0 | 55 |
| 1996 | 0 | 1 | 7 | 13 | 13 | 12 | 6 | 0 | 0 | 0 | 52 |
| 1997 | 0 | 2 | 28 | 37 | 44 | 23 | 1 | 0 | 0 | 0 | 135 |
| 1998* | 0 | 0 | 0 | 10 | 34 | 62 | 13 | 1 | 0 | 0 | 120 |
| 1999 | 0 | 2 | 10 | 29 | 61 | 62 | 38 | 6 | 0 | 0 | 208 |
| 2000 | 0 | 0 | 21 | 39 | 38 | 113 | 58 | 2 | 0 | 0 | 271 |
| 2001 | 0 | 0 | 11 | 29 | 51 | 83 | 54 | 8 | 1 | 0 | 237 |
| Total | 0 | 5 | 85 | 162 | 266 | 369 | 173 | 17 | 1 | 0 | 1078 |

*Two samples were not analyzed for pH in 1998.

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 5.0 | 4.9 | 4.7 | 5.5 | 4.6 | 5.0 | 5.2 | |
| Highest: | 7.1 | 7.3 | 7.0 | 7.7 | 7.9 | 7.6 | 8.0 | |
| Mean: | - | - | - | - | - | - | - | |
| Median: | 6.3 | 6.2 | 6.0 | 6.6 | 6.5 | 6.6 | 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 | 0 | 0 | 15 | 9 | 45 | 25 | 5 | 0 | 0 | 0 | 100 |
| 1996 | 0 | 2 | 13 | 25 | 25 | 23 | 12 | 0 | 0 | 0 | 100 |
| 1997 | 0 | 1 | 21 | 27 | 33 | 17 | 1 | 0 | 0 | 0 | 100 |
| 1998 | 0 | 0 | 0 | 8 | 28 | 52 | 11 | 1 | 0 | 0 | 100 |
| 1999 | 0 | 1 | 5 | 14 | 29 | 30 | 18 | 3 | 0 | 0 | 100 |
| 2000 | 0 | 0 | 8 | 14 | 14 | 42 | 21 | 1 | 0 | 0 | 100 |
| 2001 | 0 | 0 | 5 | 12 | 22 | 35 | 23 | 3 | 0 | 0 | 100 |
| Total | 0 | 0 | 8 | 15 | 25 | 34 | 16 | 2 | 0 | 0 | 100 |

6. Phosphorus

6.1 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 | 0 | 0 | 4 | 0 | 1 | 1 | 0 | 0 | 4 | 10 |
| 1996 | 0 | 1 | 2 | 2 | 1 | 0 | 1 | 0 | 1 | 3 | 11 |
| 1997 | 0 | 7 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 13 |
| 1998 | 0 | 0 | 4 | 5 | 0 | 0 | 1 | 2 | 1 | 5 | 18 |
| 1999 | 0 | 3 | 3 | 4 | 2 | 0 | 1 | 1 | 1 | 3 | 18 |
| 2000 | 0 | 1 | 3 | 3 | 0 | 0 | 0 | 2 | 0 | 4 | 13 |
| 2001 | 0 | 1 | 1 | 4 | 0 | 1 | 0 | 1 | 1 | 2 | 11 |
| Total | 0 | 13 | 13 | 25 | 5 | 2 | 4 | 6 | 4 | 22 | 94 |

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

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 11 | 2 | 1 | 4 | 2 | 2 | 3 | |
| Highest: | 663 | 518 | 355 | 1761 | 633 | 582 | 314 | |
| Mean: | 205 | 128 | 41 | 211 | 104 | 157 | 94 | |
| Median: | 89 | 46 | 3 | 67 | 12 | 16 | 24 | |

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 | 0 | 0 | 40 | 0 | 10 | 10 | 0 | 0 | 40 | 100 |
| 1996 | 0 | 9 | 18 | 18 | 9 | 0 | 9 | 0 | 9 | 27 | 100 |
| 1997 | 0 | 54 | 0 | 23 | 15 | 0 | 0 | 0 | 0 | 8 | 100 |
| 1998 | 0 | 0 | 22 | 28 | 0 | 0 | 6 | 11 | 6 | 28 | 100 |
| 1999 | 0 | 17 | 17 | 22 | 11 | 0 | 6 | 6 | 6 | 17 | 100 |
| 2000 | 0 | 8 | 23 | 23 | 0 | 0 | 0 | 15 | 0 | 31 | 100 |
| 2001 | 0 | 9 | 9 | 36 | 0 | 9 | 0 | 9 | 9 | 18 | 100 |
| Total | 0 | 14 | 14 | 27 | 5 | 2 | 4 | 6 | 4 | 23 | 100 |

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

6.2 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 | 27 | 9 | 15 | 1 | 0 | 0 | 1 | 0 | 2 | 55 |
| 1996 | 0 | 16 | 15 | 11 | 4 | 3 | 1 | 1 | 1 | 0 | 52 |
| 1997 | 0 | 46 | 44 | 37 | 7 | 0 | 1 | 0 | 0 | 0 | 135 |
| 1998 | 0 | 21 | 41 | 51 | 3 | 2 | 1 | 2 | 1 | 0 | 122 |
| 1999 | 0 | 77 | 58 | 59 | 6 | 5 | 1 | 1 | 0 | 1 | 208 |
| 2000 | 0 | 117 | 64 | 70 | 6 | 6 | 3 | 3 | 2 | 0 | 271 |
| 2001 | 0 | 54 | 70 | 76 | 14 | 11 | 5 | 5 | 0 | 2 | 237 |
| Total | 0 | 358 | 301 | 319 | 41 | 27 | 12 | 13 | 4 | 5 | 1080 |

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: | 621 | 193 | 92 | 181 | 282 | 187 | 267 | |
| Mean: | 29 | 23 | 10 | 15 | 13 | 13 | 22 | |
| Median: | 4 | 6 | 5 | 8 | 5 | 4 | 8 | |

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 |
|-------|----|-----|-----|------|-------|-------|--------|---------|---------|------|-------|
| 1995 | 0 | 49 | 16 | 27 | 2 | 0 | 0 | 2 | 0 | 4 | 100 |
| 1996 | 0 | 31 | 29 | 21 | 8 | 6 | 2 | 2 | 2 | 0 | 100 |
| 1997 | 0 | 34 | 33 | 27 | 5 | 0 | 1 | 0 | 0 | 0 | 100 |
| 1998 | 0 | 17 | 34 | 42 | 2 | 2 | 1 | 2 | 1 | 0 | 100 |
| 1999 | 0 | 37 | 28 | 28 | 3 | 2 | 0 | 0 | 0 | 0 | 100 |
| 2000 | 0 | 43 | 24 | 26 | 2 | 2 | 1 | 1 | 1 | 0 | 100 |
| 2001 | 0 | 23 | 30 | 32 | 6 | 5 | 2 | 2 | 0 | 1 | 100 |
| Total | 0 | 33 | 28 | 30 | 4 | 3 | 1 | 1 | 0 | 0 | 100 |

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

7. Potassium

7.1 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 | 0 | 0 | 2 | 2 |
| 1996 | 0 | 0 | 0 | 1 | 2 | 3 |
| 1997 | 0 | 0 | 0 | 3 | 1 | 4 |
| 1998 | 0 | 0 | 1 | 1 | 5 | 7 |
| 1999 | 0 | 0 | 0 | 0 | 4 | 4 |
| 2000 | 0 | 0 | 0 | 0 | 3 | 3 |
| 2001 | 0 | 0 | 0 | 0 | 2 | 2 |
| Total (#) | 0 | 0 | 1 | 5 | 19 | 25 |
| Total (%) | 0 | 0 | 4 | 20 | 76 | 100 |
| Soil Management Group 3 | | | | | | |
| | <45 | 45-79 | 80-119 | 120-199 | >199 | Total |
| | Very Low | Low | Medium | High | Very High | |
| 1995 | 0 | 0 | 0 | 1 | 2 | 3 |
| 1996 | 0 | 0 | 1 | 0 | 2 | 3 |
| 1997 | 0 | 0 | 1 | 2 | 1 | 4 |
| 1998 | 0 | 0 | 1 | 2 | 6 | 9 |
| 1999 | 0 | 0 | 1 | 2 | 1 | 4 |
| 2000 | 0 | 0 | 0 | 1 | 2 | 3 |
| 2001 | 0 | 0 | 0 | 0 | 2 | 2 |
| Total (#) | 0 | 0 | 4 | 8 | 16 | 28 |
| Total (%) | 0 | 0 | 14 | 29 | 57 | 100 |

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| Soil Management Group 4 | | | | | | |
|-------------------------|----------|--------|---------|---------|-----------|-------|
| | <55 | 55-99 | 100-149 | 150-239 | >239 | Total |
| | Very Low | Low | Medium | High | Very High | |
| 1995 | 0 | 0 | 0 | 1 | 3 | 4 |
| 1996 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1997 | 0 | 1 | 1 | 1 | 2 | 5 |
| 1998 | 0 | 0 | 0 | 0 | 2 | 2 |
| 1999 | 0 | 2 | 0 | 2 | 4 | 8 |
| 2000 | 0 | 0 | 0 | 1 | 3 | 4 |
| 2001 | 0 | 0 | 0 | 1 | 6 | 7 |
| Total (#) | 0 | 3 | 1 | 6 | 21 | 31 |
| Total (%) | 0 | 10 | 3 | 19 | 68 | 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 | 1 | 1 |
| 1996 | 2 | 0 | 0 | 1 | 1 | 4 |
| 1997 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 1 | 1 | 2 |
| 2000 | 0 | 2 | 0 | 0 | 1 | 3 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total (#) | 2 | 2 | 0 | 2 | 4 | 10 |
| Total (%) | 20 | 20 | 0 | 20 | 40 | 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 (%) | - | - | - | - | - | - |

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Number of home and garden samples within each potassium classification:

| Summary (#) | Very Low | Low | Medium | High | Very High | Total |
|-------------|----------|-----|--------|------|-----------|-------|
| 1995 | 0 | 0 | 0 | 2 | 8 | 10 |
| 1996 | 2 | 0 | 1 | 2 | 6 | 11 |
| 1997 | 0 | 1 | 2 | 6 | 4 | 13 |
| 1998 | 0 | 0 | 2 | 3 | 13 | 18 |
| 1999 | 0 | 2 | 1 | 5 | 10 | 18 |
| 2000 | 0 | 2 | 0 | 2 | 9 | 13 |
| 2001 | 0 | 0 | 0 | 1 | 10 | 11 |
| Total # | 2 | 5 | 6 | 21 | 60 | 94 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 174 | 20 | 75 | 94 | 79 | 82 | 169 | |
| Highest: | 3906 | 1122 | 419 | 7042 | 1176 | 1115 | 878 | |
| Mean: | 863 | 346 | 183 | 734 | 356 | 385 | 527 | |
| Median: | 465 | 260 | 159 | 277 | 207 | 285 | 420 | |

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

| Summary (%) | Very Low | Low | Medium | High | Very High | Total |
|-------------|----------|-----|--------|------|-----------|-------|
| 1995 | 0 | 0 | 0 | 20 | 80 | 100 |
| 1996 | 18 | 0 | 9 | 18 | 55 | 100 |
| 1997 | 0 | 8 | 15 | 46 | 31 | 100 |
| 1998 | 0 | 0 | 11 | 17 | 72 | 100 |
| 1999 | 0 | 11 | 6 | 28 | 56 | 100 |
| 2000 | 0 | 15 | 0 | 15 | 69 | 100 |
| 2001 | 0 | 0 | 0 | 9 | 91 | 100 |
| Grand Total | 2 | 5 | 6 | 22 | 64 | 100 |

7.2 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 | 1 | 1 |
| 1996 | 0 | 0 | 0 | 4 | 2 | 6 |
| 1997 | 0 | 0 | 1 | 0 | 1 | 2 |
| 1998 | 0 | 0 | 0 | 2 | 6 | 8 |
| 1999 | 0 | 0 | 0 | 3 | 2 | 5 |
| 2000 | 0 | 0 | 0 | 0 | 2 | 2 |
| 2001 | 0 | 1 | 3 | 4 | 17 | 25 |
| Total (#) | 0 | 1 | 4 | 13 | 31 | 49 |
| Total (%) | 0 | 2 | 8 | 27 | 63 | 100 |
| Soil Management Group 2 | | | | | | |
| | <40 | 40-69 | 70-99 | 100-164 | >164 | Total |
| | Very Low | Low | Medium | High | Very High | |
| 1995 | 0 | 5 | 7 | 7 | 5 | 24 |
| 1996 | 0 | 0 | 3 | 10 | 6 | 19 |
| 1997 | 0 | 2 | 11 | 27 | 10 | 50 |
| 1998 | 0 | 3 | 29 | 42 | 16 | 90 |
| 1999 | 0 | 7 | 31 | 58 | 50 | 146 |
| 2000 | 1 | 34 | 40 | 39 | 26 | 140 |
| 2001 | 0 | 8 | 46 | 57 | 60 | 171 |
| Total (#) | 1 | 59 | 167 | 240 | 173 | 640 |
| Total (%) | 0 | 9 | 26 | 38 | 27 | 100 |
| Soil Management Group 3 | | | | | | |
| | <45 | 45-79 | 80-119 | 120-199 | >199 | Total |
| | Very Low | Low | Medium | High | Very High | |
| 1995 | 0 | 2 | 10 | 7 | 7 | 26 |
| 1996 | 0 | 2 | 4 | 5 | 16 | 27 |
| 1997 | 3 | 4 | 18 | 37 | 10 | 72 |
| 1998 | 0 | 2 | 0 | 7 | 13 | 22 |
| 1999 | 3 | 3 | 17 | 17 | 15 | 55 |
| 2000 | 11 | 20 | 19 | 15 | 30 | 95 |
| 2001 | 0 | 3 | 4 | 15 | 18 | 40 |
| Total (#) | 17 | 36 | 72 | 103 | 109 | 337 |
| Total (%) | 5 | 11 | 21 | 31 | 32 | 100 |

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| Soil Management Group 4 | | | | | | |
|-------------------------|----------|--------|---------|---------|-----------|-------|
| | <55 | 55-99 | 100-149 | 150-239 | >239 | Total |
| | Very Low | Low | Medium | High | Very High | |
| 1995 | 0 | 1 | 0 | 0 | 1 | 2 |
| 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 | 2 | 0 | 0 | 0 | 0 | 2 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total (#) | 2 | 1 | 0 | 0 | 1 | 4 |
| Total (%) | 50 | 25 | 0 | 0 | 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 | 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 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 (%) | - | - | - | - | - | - |

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

| Summary (#) | Very Low | Low | Medium | High | Very High | Un-known | Total |
|-------------|----------|-----|--------|------|-----------|----------|-------|
| 1995 | 0 | 8 | 17 | 14 | 14 | 2 | 55 |
| 1996 | 0 | 2 | 7 | 19 | 24 | 0 | 52 |
| 1997 | 3 | 6 | 30 | 64 | 21 | 11 | 135 |
| 1998 | 0 | 5 | 29 | 51 | 35 | 2 | 122 |
| 1999 | 3 | 10 | 48 | 78 | 67 | 2 | 208 |
| 2000 | 14 | 54 | 59 | 54 | 58 | 32 | 271 |
| 2001 | 0 | 12 | 53 | 76 | 95 | 1 | 237 |
| Grand Total | 20 | 97 | 243 | 356 | 314 | 50 | 1080 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 49 | 66 | 37 | 51 | 11 | 12 | 52 | |
| Highest: | 1187 | 780 | 567 | 1205 | 884 | 1036 | 1371 | |
| Mean: | 169 | 256 | 145 | 178 | 185 | 155 | 197 | |
| Median: | 109 | 158 | 126 | 130 | 134 | 105 | 147 | |

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

| % summary | Very Low | Low | Medium | High | Very High | Un-known | Total |
|-------------|----------|-----|--------|------|-----------|----------|-------|
| 1995 | 0 | 15 | 31 | 25 | 25 | 4 | 100 |
| 1996 | 0 | 4 | 13 | 37 | 46 | 0 | 100 |
| 1997 | 2 | 4 | 22 | 47 | 16 | 8 | 100 |
| 1998 | 0 | 4 | 24 | 42 | 29 | 2 | 100 |
| 1999 | 1 | 5 | 23 | 38 | 32 | 1 | 100 |
| 2000 | 5 | 20 | 22 | 20 | 21 | 12 | 100 |
| 2001 | 0 | 5 | 22 | 32 | 40 | 0 | 100 |
| Grand Total | 2 | 9 | 23 | 33 | 29 | 5 | 100 |

8. Magnesium

8.1 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 | 0 | 0 | 1 | 9 | 10 |
| 1996 | 0 | 0 | 0 | 3 | 8 | 11 |
| 1997 | 0 | 1 | 1 | 5 | 6 | 13 |
| 1998 | 0 | 0 | 0 | 3 | 15 | 18 |
| 1999 | 0 | 0 | 0 | 6 | 12 | 18 |
| 2000 | 0 | 0 | 0 | 4 | 9 | 13 |
| 2001 | 0 | 0 | 1 | 3 | 7 | 11 |
| Total | 0 | 1 | 2 | 25 | 66 | 94 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 117 | 106 | 42 | 120 | 117 | 107 | 80 | |
| Highest: | 1212 | 1248 | 540 | 4243 | 1138 | 1212 | 964 | |
| Mean: | 550 | 413 | 227 | 580 | 331 | 399 | 336 | |
| Median: | 452 | 334 | 187 | 369 | 230 | 333 | 335 | |

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 | 0 | 0 | 10 | 90 | 100 |
| 1996 | 0 | 0 | 0 | 27 | 73 | 100 |
| 1997 | 0 | 8 | 8 | 38 | 46 | 100 |
| 1998 | 0 | 0 | 0 | 17 | 83 | 100 |
| 1999 | 0 | 0 | 0 | 33 | 67 | 100 |
| 2000 | 0 | 0 | 0 | 31 | 69 | 100 |
| 2001 | 0 | 0 | 9 | 27 | 64 | 100 |
| Total | 0 | 1 | 2 | 27 | 70 | 100 |

8.2 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 | 3 | 9 | 26 | 17 | 55 |
| 1996 | 0 | 2 | 0 | 12 | 38 | 52 |
| 1997 | 0 | 1 | 5 | 45 | 84 | 135 |
| 1998 | 0 | 0 | 13 | 50 | 59 | 122 |
| 1999 | 0 | 2 | 4 | 61 | 141 | 208 |
| 2000 | 0 | 1 | 6 | 115 | 149 | 271 |
| 2001 | 0 | 0 | 8 | 65 | 164 | 237 |
| Total | 0 | 9 | 45 | 374 | 652 | 1080 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 46 | 40 | 52 | 74 | 53 | 37 | 66 | |
| Highest: | 1454 | 661 | 678 | 1194 | 708 | 815 | 1016 | |
| Mean: | 211 | 333 | 237 | 238 | 281 | 247 | 291 | |
| Median: | 148 | 342 | 222 | 198 | 256 | 212 | 252 | |

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 | 5 | 16 | 47 | 31 | 100 |
| 1996 | 0 | 4 | 0 | 23 | 73 | 100 |
| 1997 | 0 | 1 | 4 | 33 | 62 | 100 |
| 1998 | 0 | 0 | 11 | 41 | 48 | 100 |
| 1999 | 0 | 1 | 2 | 29 | 68 | 100 |
| 2000 | 0 | 0 | 2 | 42 | 55 | 100 |
| 2001 | 0 | 0 | 3 | 27 | 69 | 100 |
| Total | 0 | 1 | 4 | 35 | 60 | 100 |

9. Iron

9.1 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 | 10 | 0 | 10 |
| 1996 | 10 | 1 | 11 |
| 1997 | 10 | 3 | 13 |
| 1998 | 17 | 1 | 18 |
| 1999 | 15 | 3 | 18 |
| 2000 | 11 | 2 | 13 |
| 2001 | 11 | 0 | 11 |
| Total | 84 | 10 | 94 |

Percentages:

| | 0-49 | >49 | Total |
|--|--------|-----------|-------|
| | Normal | Excessive | |
| | 100 | 0 | 100 |
| | 91 | 9 | 100 |
| | 77 | 23 | 100 |
| | 94 | 6 | 100 |
| | 83 | 17 | 100 |
| | 85 | 15 | 100 |
| | 100 | 0 | 100 |
| | 89 | 11 | 100 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 2 | 2 | 1 | 1 | 1 | 3 | 2 | |
| Highest: | 20 | 114 | 217 | 107 | 171 | 384 | 40 | |
| Mean: | 6 | 15 | 40 | 11 | 24 | 59 | 18 | |
| Median: | 4 | 5 | 13 | 5 | 4 | 12 | 14 | |

9.2 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 | 51 | 4 | 55 |
| 1996 | 48 | 4 | 52 |
| 1997 | 129 | 6 | 135 |
| 1998 | 122 | 0 | 122 |
| 1999 | 201 | 7 | 208 |
| 2000 | 270 | 1 | 271 |
| 2001 | 233 | 4 | 237 |
| Total | 1054 | 26 | 1080 |

Percentages:

| | 0-49 | >49 | Total |
|--|--------|-----------|-------|
| | Normal | Excessive | |
| | 93 | 7 | 100 |
| | 92 | 8 | 100 |
| | 96 | 4 | 100 |
| | 100 | 0 | 100 |
| | 97 | 3 | 100 |
| | 100 | 0 | 100 |
| | 98 | 2 | 100 |
| | 98 | 2 | 100 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 2 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Highest: | 136 | 72 | 75 | 41 | 213 | 88 | 168 | |
| Mean: | 16 | 17 | 17 | 6 | 12 | 7 | 8 | |
| Median: | 8 | 10 | 12 | 4 | 7 | 3 | 5 | |

10. Manganese

10.1 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 | 10 | 0 | 10 | 100 | 0 | 100 |
| 1996 | 10 | 1 | 11 | 91 | 9 | 100 |
| 1997 | 12 | 1 | 13 | 92 | 8 | 100 |
| 1998 | 17 | 1 | 18 | 94 | 6 | 100 |
| 1999 | 18 | 0 | 18 | 100 | 0 | 100 |
| 2000 | 12 | 1 | 13 | 92 | 8 | 100 |
| 2001 | 10 | 1 | 11 | 91 | 9 | 100 |
| Total | 89 | 5 | 94 | 95 | 5 | 100 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 15 | 8 | 10 | 10 | 21 | 15 | 22 | |
| Highest: | 97 | 152 | 275 | 218 | 73 | 287 | 107 | |
| Mean: | 46 | 42 | 54 | 46 | 40 | 63 | 58 | |
| Median: | 44 | 31 | 32 | 36 | 42 | 42 | 53 | |

10.2 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 | 54 | 1 | 55 |
| 1996 | 50 | 2 | 52 |
| 1997 | 132 | 3 | 135 |
| 1998 | 122 | 0 | 122 |
| 1999 | 208 | 0 | 208 |
| 2000 | 269 | 2 | 271 |
| 2001 | 236 | 1 | 237 |
| Total | 1071 | 9 | 1080 |

Percentages:

| | 0-99 | >99 | Total |
|--|--------|-----------|-------|
| | Normal | Excessive | |
| | 98 | 2 | 100 |
| | 96 | 4 | 100 |
| | 98 | 2 | 100 |
| | 100 | 0 | 100 |
| | 100 | 0 | 100 |
| | 99 | 1 | 100 |
| | 100 | 0 | 100 |
| | 99 | 1 | 100 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 10 | 9 | 12 | 11 | 10 | 5 | 13 | |
| Highest: | 100 | 197 | 130 | 67 | 80 | 385 | 110 | |
| Mean: | 31 | 40 | 48 | 26 | 29 | 26 | 35 | |
| Median: | 29 | 36 | 45 | 25 | 25 | 21 | 32 | |

11. Zinc

11.1 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 | 0 | 10 | 10 |
| 1996 | 0 | 2 | 9 | 11 |
| 1997 | 0 | 0 | 13 | 13 |
| 1998 | 0 | 3 | 15 | 18 |
| 1999 | 0 | 2 | 16 | 18 |
| 2000 | 0 | 0 | 13 | 13 |
| 2001 | 0 | 0 | 11 | 11 |
| Total | 0 | 7 | 87 | 94 |

Percentages:

| <0.5 | 0.5-1.0 | >1 | Total |
|------|---------|------|-------|
| Low | Medium | High | |
| 0 | 0 | 100 | 100 |
| 0 | 18 | 82 | 100 |
| 0 | 0 | 100 | 100 |
| 0 | 17 | 83 | 100 |
| 0 | 11 | 89 | 100 |
| 0 | 0 | 100 | 100 |
| 0 | 0 | 100 | 100 |
| 0 | 7 | 93 | 100 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 2.1 | 0.5 | 1.1 | 0.8 | 0.6 | 1.4 | 2.2 | |
| Highest: | 36.1 | 58.0 | 25.3 | 65.3 | 27.8 | 78.1 | 23.4 | |
| Mean: | 11.5 | 12.0 | 5.6 | 13.3 | 6.1 | 17.9 | 7.9 | |
| Median: | 7.0 | 5.6 | 3.7 | 7.5 | 3.5 | 11.4 | 5.4 | |

11.2 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 | 29 | 23 | 55 |
| 1996 | 1 | 5 | 46 | 52 |
| 1997 | 3 | 23 | 109 | 135 |
| 1998 | 23 | 52 | 47 | 122 |
| 1999 | 17 | 92 | 99 | 208 |
| 2000 | 47 | 89 | 135 | 271 |
| 2001 | 6 | 75 | 156 | 237 |
| Total | 100 | 365 | 615 | 1080 |

Percentages:

| <0.5 | 0.5-1.0 | >1 | Total |
|------|---------|------|-------|
| Low | Medium | High | |
| 5 | 53 | 42 | 100 |
| 2 | 10 | 88 | 100 |
| 2 | 17 | 81 | 100 |
| 19 | 43 | 39 | 100 |
| 8 | 44 | 48 | 100 |
| 17 | 33 | 50 | 100 |
| 3 | 32 | 66 | 100 |
| 9 | 34 | 57 | 100 |

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | |
|----------|------|------|------|------|------|------|------|--|
| Lowest: | 0.2 | 0.3 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | |
| Highest: | 57.9 | 6.6 | 8.3 | 7.4 | 11.6 | 46.4 | 11.8 | |
| Mean: | 2.8 | 2.2 | 1.8 | 1.1 | 1.3 | 1.5 | 1.7 | |
| Median: | 0.9 | 1.7 | 1.6 | 0.9 | 1.0 | 1.0 | 1.3 | |

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 |
| 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 |
| SUD | Sudangrass |
| 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 |
| CEM | Cemetery |
| EGG | Eggplants |
| END | Endives |
| FAR | Fairway |
| FLA | Flowering Annuals |
| GPV | Grapes, Vinifera |
| GRA | Grapes |
| GEN | Green |
| HRB | Herbs |
| IDL | Idle land |
| LAW | Lawn |
| LET | Lettuce |
| MIX/MVG | Mixed vegetables |
| MML | Muskmelon |
| NUR | Nursery |
| ONS | Onion-seeded |
| OTH | Other |
| PAR | Pears |
| PCH | Peaches |
| PEP | Peppers |
| PER | Perennials |
| POP | Popcorn |
| PRK | Park |
| 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 |
| SQS | Squash, Summer |
| SQW | Squash, Winter |

Ketterings, Q.M., H. Krol, W.S. Reid and L. Fields (2003). Schoharie County Soil Sample Survey 1995-2001. CSS Extension Bulletin E03-33. 38 pages.

| Crop Code | Crop Description |
|-----------|------------------------------|
| 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 |