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Home & Community Garden Soil Sample Survey

NEW YORK CITY

Bronx, Queens, Kings, Richmond and Manhattan

Samples analyzed by the
Cornell Nutrient Analysis Laboratory (CNAL)
in 1995-2001

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Summary compiled by

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1. Introduction to New York City Gardens and Soils

New York City is made up of five political boroughs that are also counties. New York City is an archipelago of islands along the Atlantic Ocean, with only a small part (the Bronx) on the mainland, north of the islands. Manhattan and Richmond (Staten Island) are separate islands, while Kings (Brooklyn) and Queens are boroughs/counties on the larger Long Island. A ridge along the northern end of Staten Island, Brooklyn, Queens (and extends eastward on Long Island) marks the terminal moraine of the last glacial period, making the land south of this ridge an outwash plain. Prior to the rapid residential and commercial development of Brooklyn, Queens and Staten Island, large parts of the outwash plains formed good, flat agricultural land.

The native soils vary from sandy along the Atlantic Ocean coast to a wider range of soil types in the constructed areas. Much of Manhattan Island, for instance, consists of fill from other sites. Some of the fill extended the shoreline of the islands; in many cases, the fill came from excavating for subways and large buildings with deep foundations and lower level construction. Bedrock in Manhattan is deep enough to carry the weight of the skyscrapers in Lower Manhattan (near the Wall Street Financial District) and mid-town (near the Rockefeller Center and Times Square Area). The area in between (Greenwich Village and Chelsea) has much shallower bedrock, which disallows for the construction of tall skyscrapers in that area.

There is one educational farm in Queens (on the Nassau County border), and a working farm as part of the State Parks System on Staten Island (Richmond Co.). In recent years, there has been some large-scale farming on Riker's Island (prison) – a portion of Queens. However, most edible and non-edible plants are grown in home gardens and community gardens. Home gardens abound in all boroughs, but especially in residential neighborhoods in Kings, Queens, Bronx and Richmond Counties. Community gardens – publicly owned land used to grow plants by groups of people – exist in all five boroughs (counties) of New York City but tend to be most abundant in areas where land is less desirable for construction and land values are depressed. The areas where many of the community gardens were established were often rubble strewn (brick, mortar, asphalt pieces, etc.) from remnants of former buildings. In many cases, where community gardens

are permitted for group use, new soil is brought in from outside New York City and poured into constructed raised beds. Issues concerning heavy metals from lead paint and other debris on these formerly abandoned sites have prompted caution. Community gardens often, but not always, grow edible plants, which might be contaminated if lead or other heavy metals were absorbed by the plants

2. General Survey Summary

This survey summarizes the soil test results from community garden and home garden soil samples from the Bronx, Queens, Kings, Richmond and Manhattan counties submitted for analyses to the Cornell Nutrient Analysis Laboratory (CNAL) during 1995-2001. The total number of samples analyzed in these years in New York City and vicinity amounted to 141 (Bronx), 351 (Queens), 399 (Kings), 100 (Richmond) and 574 (Manhattan) resulting in a total of 1565 samples over the 7 year period (Table 1).

Table 1: Total number of home and community garden samples submitted to the Cornell Nutrient Analysis Laboratory in 1995-2001.

	Bronx	Queens	Kings	Richmond	Manhattan	Total (%)
1995	44	31	59	2	56	192 (12)
1996	12	45	63	35	38	193 (12)
1997	37	56	74	7	29	203 (13)
1998	27	31	49	6	91	204 (13)
1999	2	55	51	19	86	213 (14)
2000	12	106	61	1	193	373 (24)
2001	7	27	42	30	81	187 (12)
Total	141 (9%)	351 (22%)	399 (26%)	100 (6%)	574 (37%)	1565 (100)

Fifteen percent of the samples were submitted to obtain soil fertility data and recommendations for lawns while 22% of the samples identified ornamentals adapted to slightly acid to calcareous soil conditions (SAG) as the target plants and 10% of the samples came from home vegetable gardens (Table 2). A third of the samples that were submitted were sent in for lawns, perennials and mixed vegetable gardens. Eleven percent of the samples were submitted for perennials, 9% for ornamentals specially adapted to low pH (acidic) soils, and 4% came from athletic fields. The remainder of the samples was accompanied by requests for recommendations for parks, flowering annuals, roses, fruit trees, and other plants including berries, grapes, herbs, tomatoes, roadsides, etc. Summarizing the data, 12% of all samples were submitted to obtain recommendations for

edible plants while 71% of the samples were submitted for recommendations for growing non-edible plants. For 17% of the samples, the plant to be grown was unknown to the laboratory.

Table 2: Number of samples submitted for soil fertility analyses and recommendations per crop/plant grown in home or community gardens in NYC and vicinity in 1995-2001.

		Bronx	Queens	Kings	Rich-mond	Man-hattan	Total (%)
ALG	Ornamentals (pH 4.5-6.0)	6	28	26	0	74	134 (9)
ATF	Athletic Field	1	6	15	28	5	55 (4)
BLU	Blueberries	1	3	1	3	0	8 (<1)
FLA	Flowering Annuals	8	8	15	7	19	57 (4)
GRA	Grapes	0	1	1	0	0	2 (<1)
HRB	Herbs	2	0	2	0	1	5 (<1)
IDL	Idle land	0	2	0	0	5	7 (<1)
LAW	Lawn	18	69	57	32	51	227 (15)
MVG	Mixed vegetables	15	50	53	16	28	162 (10)
OTH	Other	5	99	18	1	75	198 (13)
PER	Perennials	13	25	66	9	60	173 (11)
PRK	Park	2	1	5	0	75	83 (5)
ROD	Roadside	0	2	3	0	1	6 (<1)
ROS	Roses	5	2	6	0	17	30 (2)
RSP	Raspberries	0	1	0	0	0	1 (<1)
SAG	Ornamentals(pH 6.0-7.5)	49	34	118	3	136	340 (22)
SPB	Spring flowering bulbs	4	0	3	0	2	9 (<1)
STR	Strawberries	1	0	0	0	0	1 (<1)
SUB	Summer flowering bulbs	0	0	0	0	1	1 (<1)
TOM	Tomatoes	0	0	1	0	0	1 (<1)
TRF	Tree fruits	1	0	2	0	4	7 (<1)
?	Unknown (not specified)	10	20	7	1	20	58 (4)
Total		141	351	399	100	574	1565 (100)

Home and community garden samples from New York City and vicinity were mostly silt loams (36%) and sandy loam soils (31%) belonging to soil management group 3 and 4, respectively (see Table 3 for a more detailed description of the soil management groups and Table 4 for a distribution of samples among the soil management groups). Eleven percent belonged to soil management group 2 which contains the silty soils. Group 5

(sandy soils) was represented by 22% of all samples. There were no samples that were classified as clay or muck soils.

Table 3: 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.

Table 4: Number of home and community garden samples per soil management group (SMG) submitted to the Cornell Nutrient Analysis Laboratory during 1995-2001. The soil management groups (Table 3) impact availability of potassium and the recommendations.

SMG	Bronx	Queens	Kings	Richmond	Manhattan	Total (%)
1	0	0	0	0	0	0 (0)
2	12	26	56	17	64	175 (11)
3	40	140	149	59	176	564 (36)
4	69	68	139	17	187	480 (31)
5	20	117	55	7	147	346 (22)
6	0	0	0	0	0	0 (0)
Total	141	351	399	100	574	1565 (100)

Organic matter levels of the samples varied widely. Twenty-three percent of the samples had between 3 and 4% organic matter while 13% had organic matter levels between 2 and 3% and 15% tested between 4 and 5% organic matter (Table 5). Organic matter levels greater than 5% were found in 32% of the samples while 17% contained less than 2% organic matter.

Table 5: Distribution of samples per organic matter level for home and community garden samples from New York City and surroundings submitted to the Cornell Nutrient Analysis Laboratory during 1995-2001.

Organic Matter (%)	Bronx	Queens	Kings	Richmond	Manhattan	Total (%)
<1	2	78	10	1	54	145 (9)
1.0-1.9	7	36	35	5	42	125 (8)
2.0-2.9	19	47	68	16	53	203 (13)
3.0-3.9	35	68	87	32	131	353 (23)
4.0-4.9	32	43	69	14	82	240 (15)
5.0-5.9	15	27	46	4	61	153 (10)
6.0-6.9	8	18	27	1	36	90 (6)
>6.9	23	34	57	27	115	256 (16)
Total	141	351	399	100	574	1565 (100)

Soil pH is a measure of soil acidity. Some plants are adapted to lower pH while others grow best on higher pH soils (generally pH 6 and over). Table 6 shows examples of ornamentals adapted to low versus higher pH status.

The pH values of the soils submitted to the Cornell Nutrient Analysis Laboratory varied widely (Table 7). Six percent of the samples had pH less than 5.0 (Table 6). Twenty-four percent tested between pH 5 and pH 6 while pH values over 6 but less than 8 were found for 66% of the samples. Really high pH values of 8 and higher (calcareous soils) were found for 3% of the samples.

Table 6: Ornamentals adapted pH less than or greater than pH 6.0.

Adapted to pH 4.5-6.0	Azalea, Bayberry, Bigleaf Hydrangea, Chokeberry, Franklina, Holly, Inkberry, Leucothoe, Mountain Laurel, Oak, Pachistima, Pieris, Rhododendoron, Sheep Laurel, Sourwood, Spicebush, Winter Holly
Adapted to pH 6.0-7.5	Abelia, Almond, Ajuga, Arborvitae, Ash, Barberry, Beautybush, Birch (White), Bittersweet, Boxwood, Chastetree, Chestnut, Clematis, Coralberry, Cotoneaster, Crabapple, Cranberry bush, Cypress, Daphne, Deutiza, Dogwood, Enkianthus, Euonymus, Firethorn, Fir, Forsythia, Fringe Tree, Germander, Ginko, Golden Chain, Hawthorn, Hemlock, Hollygrape, Honey Locust, Honeysuckle, Hornbeam, Hydrangea, Hypericum, Ivy, Jetbead, Juniper, Larch, Lilac, Linden, Magnolia, Maple, Mockorange, Oak (English, Scarlet, Turkey), Pea Shrub, Pine, Plum (Flowering), Privet, Quince, Redbud, Rose of Sharon, Sassafras, Spirea, Spruce, Sweet Gum, Sweet Shrub, Sycamore, Tulip Tree, Tupello (Gum), Va. Creeper, Viburnum, Vinca, Walnut, Wayfaring Tree, Weigela, Willow, Wisteria, Witch Hazel, Yellow-wood, Yew.

Table 7: Number of samples in each of the pH classes for home and community garden soils submitted between 1995 and 2001.

pH	Bronx	Queens	Kings	Richmond	Manhattan	Total (%)
<4.5	2	4	1	1	9	17 (1)
4.5-4.9	16	14	9	1	43	83 (5)
5.0-5.4	15	34	24	7	59	139 (9)
5.5-5.9	19	75	39	16	79	228 (15)
6.0-6.4	23	60	75	21	94	273 (17)
6.5-6.9	17	77	114	20	124	352 (23)
7.0-7.4	32	51	83	22	109	297 (19)
7.5-7.9	9	28	42	11	43	133 (9)
8.0-8.4	2	6	10	1	11	30 (2)
>8.4	6	2	2	0	3	13 (<1)
Total	141	351	399	100	574	1565 (100)

Extractable nutrients such as phosphorus (P), potassium (K), magnesium (Mg), iron (Fe), manganese (Mn), and zinc (Zn) were measured using the Morgan chemical extraction solution and method. This solution contains sodium acetate buffered at a pH of 4.8. Other extraction methods exist that give very different results.

Soil test phosphorus 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 40 lbs P/acre or more are classified as very high.

Of the home and community garden samples that were submitted to the Cornell Nutrient Analysis Laboratory between 1995 and 2001, none tested very low in phosphorus (Table 8). Five percent of the samples tested low in phosphorus while 8% were classified medium and 32% tested high in P. Fifty-four percent of the samples tested very high in phosphorus. **This meant that for 86% of the soils that were tested, for most plants, no additional phosphorus fertilizer would be needed.**

Table 8: Distribution of samples over different soil phosphorus availability classes. Soil test phosphorus 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 40 lbs P/acre or more are classified as very high.

Soil Test lbs P/acre	Classification	Bronx	Queens	Kings	Rich-mond	Man-hattan	Total (%)
<1	Very Low	0	0	0	0	0	0 (0)
1-3	Low	9	31	4	7	22	73 (5)
4-8	Medium	11	45	14	21	41	132 (8)
9-39	High	59	145	115	25	151	495 (32)
40-60	Very High	29	44	105	8	99	285 (18)
61-80	Very High	9	21	41	3	55	129 (8)
81-100	Very High	5	16	20	2	45	88 (6)
101-150	Very High	5	25	36	6	61	133 (9)
151-200	Very High	5	9	25	2	28	69 (4)
>200	Very High	9	15	39	26	72	161 (10)
Total		141	351	399	100	574	1565 (100)

Classifications for potassium depend on soil management group. The fine-textured soils of soil management group 1 contain a lot of potassium-containing clay and have as a result a greater K supplying capacity than the coarse-textured sandy soils of soil management group 5. Because of these differences in potassium supplying capacity among soils of different origins (soil management groups as outlined in Table 3), the classifications and interpretations for potassium availability differ among the six groups. This is shown in Table 9. So for example for soils in soil management group 3, <45 lbs K/acre in the soil test means the soil is very low in K. If the soil test is between 45 and 79 lbs K/acre the soil is classified as low in potassium. Between 80 and 119 lbs K/acre is considered medium, between 120 and 199 lbs K/acre is high and >199 lbs K/acre is classified as very high in plant available potassium (Table 9).

Table 9: Potassium soil test interpretations for New York soils.

Soil Management Group	Cornell Potassium Soil Test (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 community garden samples submitted during 1995-2001, 9% were classified as very low in potassium (Table 10). Six percent had low potassium availability while 11% were classified as medium in potassium. High potassium availability was identified in 22% of the samples whereas 52% of the samples were classified as very high in potassium.

Table 10: Number of samples in each of the potassium soil fertility classes for home and community garden samples from New York City submitted to the Cornell Nutrient Analysis Laboratory in 1995-2001. The classification (low, medium, etc.) of the actual soil tests depend on the specific soil and its soil management group (see Tables 3 and 9).

Classification	Bronx	Queens	Kings	Richmond	Manhattan	Total (5)
Very Low	1	66	9	1	59	136 (9)
Low	4	50	20	6	19	99 (6)
Medium	23	40	60	13	35	171 (11)
High	43	70	91	24	124	352 (23)
Very High	70	125	219	56	337	807 (52)
Total	141	351	399	100	574	1565 (100)

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. A little over one percent of the samples tested very low in magnesium. Most soils tested high (15%) or very high (72%) while 8% tested low and 3% tested medium.

Table 11: Number of samples in each of the magnesium soil fertility classes for home and community garden samples from New York City and vicinity submitted to the Cornell Nutrient Analysis Laboratory in 1995-2001.

Soil test lbs Mg/acre	Classification	Bronx	Queens	Kings	Rich-mond	Man-hattan	Total (%)
<20	Very low	2	15	0	0	3	20 (1)
20-65	Low	6	47	10	1	57	121 (8)
66-100	Medium	7	17	10	3	17	54 (4)
101-199	High	15	60	72	6	83	236 (15)
=200	Very high	111	212	307	90	414	1134 (72)
Total		141	351	399	100	574	1565 (100)

Soils with more than 50 lbs Morgan extractable iron per acre test excessive for iron. Anything lower than 50 lbs Fe/acre is considered normal. Of the 1565 samples, 1467 (94%) were classified as normal in iron availability (Table 12). The remainder had more iron than needed for optimum plant growth and were hence classified as excessive in iron.

Table 12: Number of samples testing normal or excessive for iron for home and community garden samples from New York City and vicinity submitted to the Cornell Nutrient Analysis Laboratory in 1995-2001.

Soil test lbs Fe/acre	Classification	Bronx	Queens	Kings	Rich-mond	Man-hattan	Total (%)
<50	Normal	102	332	379	96	558	1467 (94)
=50	Excessive	39	19	20	4	16	98 (6)
Total	Total	141	351	399	100	574	1565 (100)

Soils with more than 100 lbs Morgan extractable manganese per acre are classified as excessive in Mn. Anything less than 100 lbs Mn per acre is classified as normal. Of the 1565 samples that were submitted, 1520 (97%) were classified as normal in manganese availability (Table 13). The remainder of the samples had more manganese than needed for optimum plant growth and were hence classified as excessive in manganese.

Table 13: Number of samples testing normal or excessive for manganese for home and community garden samples from New York City and vicinity submitted to the Cornell Nutrient Analysis Laboratory in 1995-2001.

Soil test lbs Mn/acre	Classification	Bronx	Queens	Kings	Rich-mond	Man-hattan	Total (%)
<100	Normal	130	349	391	84	566	1520 (97)
=100	Excessive	11	2	8	16	8	45 (3)
Total		141	351	399	100	574	1565 (100)

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 community garden samples, 98% tested high for zinc while less than 2% tested medium in zinc and only two samples were classified as low in zinc** (Table 14).

Table 14: Number of samples testing low, medium or high in zinc for iron for home and community garden samples from New York City and vicinity submitted to the Cornell Nutrient Analysis Laboratory in 1995-2001.

Soil test lbs Zn/acre	Classification	Bronx	Queens	Kings	Rich-mond	Man-hattan	Total (%)
<0.5	Low	0	0	0	0	0	0 (0)
0.5-1.0	Medium	0	10	3	1	10	24 (2)
>1.0	High	141	341	396	99	564	1541 (98)
Total		141	351	399	100	574	1565 (100)

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 3.

3. Crops/Plants

3.1 Bronx

Plants/crops for which recommendations are requested by homeowners:

	1995	1996	1997	1998	1999	2000	2001	Total	%
ALG	0	0	2	3	0	1	0	6	4
ATF	0	0	1	0	0	0	0	1	1
BLU	0	0	0	0	0	1	0	1	1
FLA	0	3	2	0	2	1	0	8	6
HRB	0	0	1	1	0	0	0	2	1
LAW	2	1	12	1	0	2	0	18	13
MVG	1	5	3	1	0	1	4	15	11
OTH	0	0	1	4	0	0	0	5	4
PER	0	0	8	1	0	3	1	13	9
PRK	0	2	0	0	0	0	0	2	1
ROS	4	0	1	0	0	0	0	5	4
SAG	37	1	3	5	0	3	0	49	35
SPB	0	0	3	0	0	0	1	4	3
STR	0	0	0	0	0	0	1	1	1
TRF	0	0	0	1	0	0	0	1	1
Unknown	0	0	0	10	0	0	0	10	7
Total	44	12	37	27	2	12	7	141	100

Notes:

See Appendix for Cornell crop codes.

3.2 Queens

Crops for which recommendations are requested by homeowners:

	1995	1996	1997	1998	1999	2000	2001	Total	%
ALG	12	2	8	0	1	5	0	28	8
ATF	0	0	0	1	1	2	2	6	2
BLU	0	0	3	0	0	0	0	3	1
FLA	0	1	2	1	2	2	0	8	2
GRA	1	0	0	0	0	0	0	1	0
IDL	0	0	0	0	1	1	0	2	1
LAW	5	19	8	13	7	13	4	69	20
MVG	6	17	4	5	2	15	1	50	14
OTH	3	0	25	0	13	55	3	99	28
PER	1	1	0	2	3	9	9	25	7
PRK	0	0	0	1	0	0	0	1	0
ROD	0	0	2	0	0	0	0	2	1
ROS	1	0	0	1	0	0	0	2	1
RSP	0	1	0	0	0	0	0	1	0
SAG	2	4	4	7	11	3	3	34	10
Unknown	0	0	0	0	14	1	5	20	6
Total	31	45	56	31	55	106	27	351	100

Notes:

See Appendix for Cornell crop codes.

3.3 Kings

Crops for which recommendations are requested by homeowners:

	1995	1996	1997	1998	1999	2000	2001	Total	%
ALG	2	3	3	9	6	3	0	26	7
ATF	0	0	0	2	10	2	1	15	4
BLU	0	0	0	0	1	0	0	1	0
FLA	1	5	4	3	1	1	0	15	4
GRA	0	0	0	0	0	0	1	1	0
HRB	0	0	1	1	0	0	0	2	1
LAW	14	3	13	6	6	4	11	57	14
MVG	7	13	13	5	3	4	8	53	13
OTH	1	3	1	1	3	9	0	18	5
PER	3	6	21	9	9	12	6	66	17
PRK	4	0	0	1	0	0	0	5	1
ROD	0	0	0	0	0	0	3	3	1
ROS	0	2	3	1	0	0	0	6	2
SAG	25	26	11	11	11	22	12	118	30
SPB	0	0	3	0	0	0	0	3	1
TOM	0	0	0	0	1	0	0	1	0
TRF	0	2	0	0	0	0	0	2	1
Unknown	2	0	1	0	0	4	0	7	2
Total	59	63	74	49	51	61	42	399	100

Notes:

See Appendix for Cornell crop codes.

3.4 Richmond

Crops for which recommendations are requested by homeowners:

	1995	1996	1997	1998	1999	2000	2001	Total	%
ATF	0	28	0	0	0	0	0	28	28
BLU	0	0	0	0	3	0	0	3	3
FLA	0	0	0	0	2	0	5	7	7
LAW	1	2	1	4	5	0	19	32	32
MVG	1	3	4	1	2	1	4	16	16
OTH	0	0	0	0	1	0	0	1	1
PER	0	1	1	1	6	0	0	9	9
SAG	0	1	0	0	0	0	2	3	3
Unknown	0	0	1	0	0	0	0	1	1
Total	2	35	7	6	19	1	30	100	100

Notes:

See Appendix for Cornell crop codes.

3.5 Manhattan

Crops for which recommendations are requested by homeowners:

	1995	1996	1997	1998	1999	2000	2001	Total	%
ALG	6	4	3	9	21	23	8	74	13
ATF	0	0	0	1	0	4	0	5	1
FLA	4	1	2	4	2	0	6	19	3
HRB	0	1	0	0	0	0	0	1	0
IDL	0	0	0	0	5	0	0	5	1
LAW	3	3	3	7	4	11	20	51	9
MVG	9	2	1	3	5	4	4	28	5
OTH	1	1	0	2	8	57	6	75	13
PER	7	4	1	10	14	7	17	60	10
PRK	3	0	0	2	1	64	5	75	13
ROD	1	0	0	0	0	0	0	1	0
ROS	1	0	0	7	9	0	0	17	3
SAG	18	20	18	38	14	13	15	136	24
SPB	0	0	0	0	0	2	0	2	0
SUB	0	0	0	0	0	1	0	1	0
TRF	0	1	0	2	1	0	0	4	1
Unknown	3	1	1	6	2	7	0	20	3
Total	56	38	29	91	86	193	81	574	100

Notes:

See Appendix for Cornell crop codes.

4. Soil Types

4.1 Bronx

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)	0	2	8	1	0	0	1	12
SMG 3 (silt loam)	1	2	15	16	0	5	1	40
SMG 4 (sandy loam)	43	5	7	6	0	7	1	69
SMG 5 (sandy)	0	3	7	4	2	0	4	20
SMG 6 (mucky)	0	0	0	0	0	0	0	0
Total	44	12	37	27	2	12	7	141

4.2 Queens

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)	5	3	5	4	0	7	2	26
SMG 3 (silt loam)	5	20	9	2	44	51	9	140
SMG 4 (sandy loam)	5	20	12	13	5	5	8	68
SMG 5 (sandy)	16	2	30	12	6	43	8	117
SMG 6 (mucky)	0	0	0	0	0	0	0	0
Total	31	45	56	31	55	106	27	351

4.3 Kings

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	18	19	7	5	3	2	56
SMG 3 (silt loam)	25	15	16	26	25	31	11	149
SMG 4 (sandy loam)	26	18	32	9	11	17	26	139
SMG 5 (sandy)	6	12	7	7	10	10	3	55
SMG 6 (mucky)	0	0	0	0	0	0	0	0
Total	59	63	74	49	51	61	42	399

4.4 Richmond

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)	1	5	1	1	5	0	4	17
SMG 3 (silt loam)	1	27	2	0	6	0	23	59
SMG 4 (sandy loam)	0	1	2	5	6	0	3	17
SMG 5 (sandy)	0	2	2	0	2	1	0	7
SMG 6 (mucky)	0	0	0	0	0	0	0	0
Total	2	35	7	6	19	1	30	100

4.5 Manhattan

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)	4	5	1	15	18	12	9	64
SMG 3 (silt loam)	31	13	10	19	30	50	23	176
SMG 4 (sandy loam)	15	12	12	38	21	55	34	187
SMG 5 (sandy)	6	8	6	19	17	76	15	147
SMG 6 (mucky)	0	0	0	0	0	0	0	0
Total	56	38	29	91	86	193	81	574

5. Organic Matter

5.1 Bronx

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	1	5	8	11	6	2	11	44
1996	0	1	0	3	5	1	1	1	12
1997	1	1	4	13	10	4	1	3	37
1998	1	1	5	3	4	3	3	7	27
1999	0	0	1	1	0	0	0	0	2
2000	0	3	2	4	1	0	1	1	12
2001	0	0	2	3	1	1	0	0	7
Total	2	7	19	35	32	15	8	23	141

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1.9	1.5	0.9	0.9	2.4	1.1	2.3	
Highest:	10.4	9.7	12.5	25.0	3.0	11.8	5.9	
Mean:	5.3	4.6	4.1	7.3	2.7	4.0	3.6	
Median:	4.6	4.4	3.9	4.9	2.7	3.5	3.1	

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	2	11	18	25	14	5	25	100
1996	0	8	0	25	42	8	8	8	100
1997	3	3	11	35	27	11	3	8	100
1998	4	4	19	11	15	11	11	26	100
1999	0	0	50	50	0	0	0	0	100
2000	0	25	17	33	8	0	8	8	100
2001	0	0	29	43	14	14	0	0	100
Total	1	5	13	25	23	11	6	16	100

5.2 Queens

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	2	8	6	5	3	1	6	31
1996	1	1	8	9	8	3	7	8	45
1997	22	5	5	9	9	3	1	2	56
1998	0	6	5	12	3	3	1	1	31
1999	20	4	5	12	4	4	2	4	55
2000	34	16	13	12	11	8	3	9	106
2001	1	2	3	8	3	3	3	4	27
Total	78	36	47	68	43	27	18	34	351

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1.1	0.7	0.1	1.4	0.1	0.1	0.9	
Highest:	14.0	13.3	12.7	8.8	11.8	9.9	12.1	
Mean:	4.8	5.1	2.5	3.4	2.8	2.8	4.7	
Median:	3.9	4.4	2.1	3.2	2.7	2.1	3.9	

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	6	26	19	16	10	3	19	100
1996	2	2	18	20	18	7	16	18	100
1997	39	9	9	16	16	5	2	4	100
1998	0	19	16	39	10	10	3	3	100
1999	36	7	9	22	7	7	4	7	100
2000	32	15	12	11	10	8	3	8	100
2001	4	7	11	30	11	11	11	15	100
Total	22	10	13	19	12	8	5	10	100

5.3 Kings

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	5	13	14	13	5	4	5	59
1996	2	11	5	7	11	8	6	13	63
1997	1	2	14	22	15	8	5	7	74
1998	1	3	7	9	5	10	3	11	49
1999	1	6	11	11	12	4	3	3	51
2000	4	7	12	9	7	7	5	10	61
2001	1	1	6	15	6	4	1	8	42
Total	10	35	68	87	69	46	27	57	399

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1.1	0.7	0.2	0.7	0.8	0.5	0.7	
Highest:	10.9	22.1	14.8	19.4	19.6	36.8	18.1	
Mean:	4.1	5.3	4.4	5.6	4.0	5.0	5.4	
Median:	3.8	4.7	3.9	4.9	3.7	3.7	3.8	

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	8	22	24	22	8	7	8	100
1996	3	17	8	11	17	13	10	21	100
1997	1	3	19	30	20	11	7	9	100
1998	2	6	14	18	10	20	6	22	100
1999	2	12	22	22	24	8	6	6	100
2000	7	11	20	15	11	11	8	16	100
2001	2	2	14	36	14	10	2	19	100
Total	3	9	17	22	17	12	7	14	100

5.4 Richmond

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	0	0	1	1	0	2
1996	0	1	7	23	2	1	0	1	35
1997	0	0	0	1	2	1	0	3	7
1998	0	1	2	1	1	0	0	1	6
1999	1	0	3	5	6	1	0	3	19
2000	0	0	0	0	0	0	0	1	1
2001	0	3	4	2	3	0	0	18	30
Total	1	5	16	32	14	4	1	27	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	5.7	1.6	3.8	1.9	0.8	10.0	1.3	
Highest:	6.8	10.0	14.8	7.3	19.8	10.0	14.2	
Mean:	6.3	3.4	6.9	3.6	4.9	10.0	8.5	
Median:	6.3	3.2	5.7	2.9	4.2	10.0	10.5	

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	.	.	.	.	.	.	.	.	.
1996	.	.	.	.	.	.	.	.	.
1997	.	.	.	.	.	.	.	.	.
1998	.	.	.	.	.	.	.	.	.
1999	.	.	.	.	.	.	.	.	.
2000	.	.	.	.	.	.	.	.	.
2001	.	.	.	.	.	.	.	.	.
Total	1	5	16	32	14	4	1	27	100

5.5 Manhattan

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	3	7	8	12	11	5	2	8	56
1996	0	2	1	12	6	4	4	9	38
1997	0	3	3	9	3	1	6	4	29
1998	3	4	7	19	10	11	2	35	91
1999	7	5	8	15	15	6	5	25	86
2000	40	16	21	42	22	21	7	24	193
2001	1	5	5	22	15	13	10	10	81
Total	54	42	53	131	82	61	36	115	574

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	0.4	1.6	1.4	0.8	0.1	0.1	0.9	
Highest:	40.2	19.5	13.6	39.7	37.3	38.1	27.1	
Mean:	4.9	6.5	4.8	8.6	7.8	4.0	5.2	
Median:	3.9	4.8	3.9	5.2	4.3	3.5	4.6	

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	14	21	20	9	4	14	100
1996	0	5	3	32	16	11	11	24	100
1997	0	10	10	31	10	3	21	14	100
1998	3	4	8	21	11	12	2	38	100
1999	8	6	9	17	17	7	6	29	100
2000	21	8	11	22	11	11	4	12	100
2001	1	6	6	27	19	16	12	12	100
Total	9	7	9	23	14	11	6	20	100

6. pH

6.1 Bronx

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	2	12	10	7	5	0	5	2	0	1	44
1996	0	0	0	1	1	2	4	4	0	0	12
1997	0	0	1	5	9	8	8	0	1	5	37
1998	0	4	3	6	7	2	5	0	0	0	27
1999	0	0	0	0	0	0	0	2	0	0	2
2000	0	0	1	0	1	4	4	1	1	0	12
2001	0	0	0	0	0	1	6	0	0	0	7
Total	2	16	15	19	23	17	32	9	2	6	141

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	4.3	5.7	5.3	4.5	7.5	5.3	6.8	
Highest:	9.6	7.9	9.5	7.4	7.7	8.0	7.3	
Mean:	-	-	-	-	-	-	-	
Median:	5.3	7.2	6.6	6.1	7.6	6.9	7.1	

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	5	27	23	16	11	0	11	5	0	2	100
1996	0	0	0	8	8	17	33	33	0	0	100
1997	0	0	3	14	24	22	22	0	3	14	100
1998	0	15	11	22	26	7	19	0	0	0	100
1999	0	0	0	0	0	0	0	100	0	0	100
2000	0	0	8	0	8	33	33	8	8	0	100
2001	0	0	0	0	0	14	86	0	0	0	100
Total	1	11	11	13	16	12	23	6	1	4	100

6.2 Queens

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	1	0	0	6	4	7	9	4	0	0	31
1996	0	4	5	5	10	10	4	5	1	1	45
1997	1	5	4	11	8	15	8	3	0	1	56
1998	0	1	3	6	5	11	5	0	0	0	31
1999	2	2	6	12	10	7	9	6	1	0	55
2000	0	2	15	30	19	17	13	6	4	0	106
2001	0	0	1	5	4	10	3	4	0	0	27
Total	4	14	34	75	60	77	51	28	6	2	351

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	4.3	4.7	4.3	4.5	4.4	4.7	5.3	
Highest:	7.8	8.7	9.3	7.3	8.0	8.4	7.9	
Mean:	-	-	-	-	-	-	-	
Median:	6.9	6.4	6.3	6.5	6.3	6.2	6.6	

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	3	0	0	19	13	23	29	13	0	0	100
1996	0	9	11	11	22	22	9	11	2	2	100
1997	2	9	7	20	14	27	14	5	0	2	100
1998	0	3	10	19	16	35	16	0	0	0	100
1999	4	4	11	22	18	13	16	11	2	0	100
2000	0	2	14	28	18	16	12	6	4	0	100
2001	0	0	4	19	15	37	11	15	0	0	100
Total	1	4	10	21	17	22	15	8	2	1	100

6.3 Kings

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	1	5	7	12	24	6	3	1	0	59
1996	0	0	1	5	7	21	16	13	0	0	63
1997	1	3	8	10	15	22	14	0	0	1	74
1998	0	1	4	5	12	10	11	2	3	1	49
1999	0	0	3	7	9	9	13	10	0	0	51
2000	0	2	2	2	13	10	16	10	6	0	61
2001	0	2	1	3	7	18	7	4	0	0	42
Total	1	9	24	39	75	114	83	42	10	2	399

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	4.6	5.2	3.7	4.8	5.1	4.6	4.9	
Highest:	8.2	7.9	8.7	8.8	7.9	8.3	7.6	
Mean:	-	-	-	-	-	-	-	
Median:	6.6	6.9	6.5	6.5	6.7	7.0	6.7	

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	2	8	12	20	41	10	5	2	0	100
1996	0	0	2	8	11	33	25	21	0	0	100
1997	1	4	11	14	20	30	19	0	0	1	100
1998	0	2	8	10	24	20	22	4	6	2	100
1999	0	0	6	14	18	18	25	20	0	0	100
2000	0	3	3	3	21	16	26	16	10	0	100
2001	0	5	2	7	17	43	17	10	0	0	100
Total	0	2	6	10	19	29	21	11	3	1	100

6.4 Richmond

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	0	0	1	1	0	0	0	2
1996	0	0	0	10	10	7	8	0	0	0	35
1997	0	0	0	0	1	3	2	1	0	0	7
1998	0	0	1	1	1	0	3	0	0	0	6
1999	1	1	1	0	3	4	1	7	1	0	19
2000	0	0	0	0	0	0	1	0	0	0	1
2001	0	0	5	5	6	5	6	3	0	0	30
Total	1	1	7	16	21	20	22	11	1	0	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	6.5	5.5	6.4	5.2	4.3	7.1	5.1	
Highest:	7.4	7.4	7.9	7.4	8.3	7.1	7.7	
Mean:	-	-	-	-	-	-	-	
Median:	6.9	6.3	6.8	6.7	6.8	7.1	6.4	

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	.	.	.	.	.	.	.	.	.	.	.
1996	.	.	.	.	.	.	.	.	.	.	.
1997	.	.	.	.	.	.	.	.	.	.	.
1998	.	.	.	.	.	.	.	.	.	.	.
1999	.	.	.	.	.	.	.	.	.	.	.
2000	.	.	.	.	.	.	.	.	.	.	.
2001	.	.	.	.	.	.	.	.	.	.	.
Total	1	1	7	16	21	20	22	11	1	0	100

6.5 Manhattan

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	2	5	1	5	8	11	18	5	0	1	56
1996	1	2	3	10	7	7	1	3	4	0	38
1997	1	1	0	8	4	9	5	1	0	0	29
1998	2	8	6	12	18	21	14	8	2	0	91
1999	0	2	13	14	13	21	8	8	5	2	86
2000	2	21	26	24	30	34	43	13	0	0	193
2001	1	4	10	6	14	21	20	5	0	0	81
Total	9	43	59	79	94	124	109	43	11	3	574

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	4.3	4.4	4.4	4.2	4.8	4.1	4.4	
Highest:	9.5	8.2	7.5	8.4	9.3	7.8	7.9	
Mean:	-	-	-	-	-	-	-	
Median:	6.8	6.2	6.5	6.4	6.5	6.4	6.6	

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	4	9	2	9	14	20	32	9	0	2	100
1996	3	5	8	26	18	18	3	8	11	0	100
1997	3	3	0	28	14	31	17	3	0	0	100
1998	2	9	7	13	20	23	15	9	2	0	100
1999	0	2	15	16	15	24	9	9	6	2	100
2000	1	11	13	12	16	18	22	7	0	0	100
2001	1	5	12	7	17	26	25	6	0	0	100
Total	2	7	10	14	16	22	19	7	2	1	100

7. Phosphorus

7.1 Bronx

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	8	5	20	3	3	0	1	1	3	44
1996	0	0	0	5	3	1	0	0	1	2	12
1997	0	0	0	17	8	5	3	1	1	2	37
1998	0	1	4	10	8	0	1	1	1	1	27
1999	0	0	0	0	2	0	0	0	0	0	2
2000	0	0	2	5	1	0	1	2	1	0	12
2001	0	0	0	2	4	0	0	0	0	1	7
Total	0	9	11	59	29	9	5	5	5	9	141

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

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1	24	9	3	48	6	22	
Highest:	301	483	438	212	51	194	204	
Mean:	45	112	64	43	50	60	68	
Median:	22	41	44	25	50	28	52	

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	18	11	45	7	7	0	2	2	7	100
1996	0	0	0	42	25	8	0	0	8	17	100
1997	0	0	0	46	22	14	8	3	3	5	100
1998	0	4	15	37	30	0	4	4	4	4	100
1999	0	0	0	0	100	0	0	0	0	0	100
2000	0	0	17	42	8	0	8	17	8	0	100
2001	0	0	0	29	57	0	0	0	0	14	100
Total	0	6	8	42	21	6	4	4	4	6	100

7.2 Queens

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	3	13	4	3	2	2	1	3	31
1996	0	0	0	17	6	3	5	7	2	5	45
1997	0	15	2	24	6	3	0	3	3	0	56
1998	0	0	6	14	5	3	0	1	1	1	31
1999	0	3	12	28	3	2	2	5	0	0	55
2000	0	9	18	43	17	5	7	5	0	2	106
2001	0	4	4	6	3	2	0	2	2	4	27
Total	0	31	45	145	44	21	16	25	9	15	351

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

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	6	13	1	4	3	1	2	
Highest:	835	495	169	221	143	285	490	
Mean:	88	92	34	42	30	37	86	
Median:	39	56	16	26	15	22	28	

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	10	42	13	10	6	6	3	10	100
1996	0	0	0	38	13	7	11	16	4	11	100
1997	0	27	4	43	11	5	0	5	5	0	100
1998	0	0	19	45	16	10	0	3	3	3	100
1999	0	5	22	51	5	4	4	9	0	0	100
2000	0	8	17	41	16	5	7	5	0	2	100
2001	0	15	15	22	11	7	0	7	7	15	100
Total	0	9	13	41	13	6	5	7	3	4	100

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

7.3 Kings

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	1	0	21	14	9	2	10	1	1	59
1996	0	0	0	12	10	10	6	5	12	8	63
1997	0	0	0	24	28	4	6	2	5	5	74
1998	0	0	0	16	11	5	2	3	1	11	49
1999	0	1	6	15	12	5	1	7	1	3	51
2000	0	2	7	15	15	6	2	7	3	4	61
2001	0	0	1	12	15	2	1	2	2	7	42
Total	0	4	14	115	105	41	20	36	25	39	399

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

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1	10	13	9	3	1	6	
Highest:	330	517	394	184	863	846	640	
Mean:	64	120	72	133	81	78	107	
Median:	48	80	48	55	49	50	48	

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	2	0	36	24	15	3	17	2	2	100
1996	0	0	0	19	16	16	10	8	19	13	100
1997	0	0	0	32	38	5	8	3	7	7	100
1998	0	0	0	33	22	10	4	6	2	22	100
1999	0	2	12	29	24	10	2	14	2	6	100
2000	0	3	11	25	25	10	3	11	5	7	100
2001	0	0	2	29	36	5	2	5	5	17	100
Total	0	1	4	29	26	10	5	9	6	10	100

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

7.4 Richmond

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	2	0	0	0	0	0	0	2
1996	0	6	15	8	2	0	0	3	0	1	35
1997	0	0	0	0	2	1	0	1	0	3	7
1998	0	0	0	4	0	0	0	0	2	0	6
1999	0	1	2	4	4	2	2	0	0	4	19
2000	0	0	0	0	0	0	0	0	0	1	1
2001	0	0	4	7	0	0	0	2	0	17	30
Total	0	7	21	25	8	3	2	6	2	26	100

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

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	29	1	41	13	2	441	4	
Highest:	31	336	404	167	1037	441	564	
Mean:	30	29	180	71	146	441	215	
Median:	30	7	127	37	52	441	227	

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	.	.	.	.	.	.	.	.	.	.	100
1996	.	.	.	.	.	.	.	.	.	.	100
1997	.	.	.	.	.	.	.	.	.	.	100
1998	.	.	.	.	.	.	.	.	.	.	100
1999	.	.	.	.	.	.	.	.	.	.	100
2000	.	.	.	.	.	.	.	.	.	.	100
2001	.	.	.	.	.	.	.	.	.	.	100
Total	0	7	21	25	8	3	2	6	2	26	100

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

7.5 Manhattan

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	3	2	17	6	2	5	8	4	9	56
1996	0	0	0	1	9	7	6	6	2	7	38
1997	0	0	1	8	5	3	3	6	0	3	29
1998	0	0	3	17	19	6	4	14	5	23	91
1999	0	4	5	19	14	13	9	5	4	13	86
2000	0	14	26	70	32	14	10	10	6	11	193
2001	0	1	4	19	14	10	8	12	7	6	81
Total	0	22	41	151	99	55	45	61	28	72	574

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

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	2	24	5	5	1	2	2	
Highest:	447	599	460	2427	1244	1580	575	
Mean:	101	131	98	206	133	61	99	
Median:	62	87	62	87	62	29	65	

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	5	4	30	11	4	9	14	7	16	100
1996	0	0	0	3	24	18	16	16	5	18	100
1997	0	0	3	28	17	10	10	21	0	10	100
1998	0	0	3	19	21	7	4	15	5	25	100
1999	0	5	6	22	16	15	10	6	5	15	100
2000	0	7	13	36	17	7	5	5	3	6	100
2001	0	1	5	23	17	12	10	15	9	7	100
Total	0	4	7	26	17	10	8	11	5	13	100

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

8. Potassium

8.1 Bronx

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	0	0
1996	0	0	0	1	1	2
1997	0	0	1	1	6	8
1998	0	0	0	0	1	1
1999	0	0	0	0	0	0
2000	0	0	0	0	0	0
2001	0	0	0	0	1	1
Total (#)	0	0	1	2	9	12
Total (%)	0	0	8	17	75	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	0	1	1
1996	0	0	0	0	2	2
1997	0	0	1	5	9	15
1998	0	0	0	4	12	16
1999	0	0	0	0	0	0
2000	1	0	1	3	0	5
2001	0	0	0	0	1	1
Total (#)	1	0	2	12	25	40
Total (%)	3	0	5	30	63	100

Soil Management Group 4						
	<55	55-99	100-149	150-239	>239	Total
	Very Low	Low	Medium	High	Very High	
1995	0	3	12	16	12	43
1996	0	0	0	0	5	5
1997	0	0	3	3	1	7
1998	0	0	4	0	2	6
1999	0	0	0	0	0	0
2000	0	0	0	2	5	7
2001	0	0	0	1	0	1
Total (#)	0	3	19	22	25	69
Total (%)	0	4	28	32	36	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	1	0	0	2	3
1997	0	0	0	2	5	7
1998	0	0	0	1	3	4
1999	0	0	0	2	0	2
2000	0	0	0	0	0	0
2001	0	0	1	2	1	4
Total (#)	0	1	1	7	11	20
Total (%)	0	5	5	35	55	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	3	12	16	13	44
1996	0	1	0	1	10	12
1997	0	0	5	11	21	37
1998	0	0	4	5	18	27
1999	0	0	0	2	0	2
2000	1	0	1	5	5	12
2001	0	0	1	3	3	7
Total #	1	4	23	43	70	141

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	87	114	87	110	202	34	164	
Highest:	397	951	545	933	223	478	714	
Mean:	196	418	238	349	213	221	334	
Median:	177	330	218	310	213	209	222	

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

Summary (%)	Very Low	Low	Medium	High	Very High	Total
1995	0	7	27	36	30	100
1996	0	8	0	8	83	100
1997	0	0	14	30	57	100
1998	0	0	15	19	67	100
1999	0	0	0	100	0	100
2000	8	0	8	42	42	100
2001	0	0	14	43	43	100
Grand Total	1	3	16	30	50	100

8.2 Queens

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	1	4	5
1996	0	0	0	1	2	3
1997	0	0	0	1	4	5
1998	0	2	0	1	1	4
1999	0	0	0	0	0	0
2000	0	1	0	3	3	7
2001	0	0	0	0	2	2
Total (#)	0	3	0	7	16	26
Total (%)	0	12	0	27	62	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	0	4	5
1996	0	0	2	4	14	20
1997	2	0	2	4	1	9
1998	0	0	0	0	2	2
1999	11	5	3	8	17	44
2000	13	7	6	7	18	51
2001	0	0	0	2	7	9
Total (#)	26	13	13	25	63	140
Total (%)	19	9	9	18	45	100

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	4	5
1996	3	4	3	3	7	20
1997	1	4	1	2	4	12
1998	0	0	3	7	3	13
1999	0	0	2	3	0	5
2000	0	0	0	0	5	5
2001	0	0	1	2	5	8
Total (#)	4	8	10	18	28	68
Total (%)	6	12	15	26	41	100
Soil Management Group 5						
	<60	60-114	115-164	165-269	>269	Total
	Very Low	Low	Medium	High	Very High	
1995	0	7	6	1	2	16
1996	1	0	0	1	0	2
1997	15	4	5	3	3	30
1998	4	5	1	1	1	12
1999	1	1	0	2	2	6
2000	15	8	5	9	6	43
2001	0	1	0	3	4	8
Total (#)	36	26	17	20	18	117
Total (%)	31	22	15	17	15	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	8	6	3	14	31
1996	4	4	5	9	23	45
1997	18	8	8	10	12	56
1998	4	7	4	9	7	31
1999	12	6	5	13	19	55
2000	28	16	11	19	32	106
2001	0	1	1	7	18	27
Total #	66	50	40	70	125	351

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	70	39	14	42	26	12	70	
Highest:	1002	1304	1009	654	1316	605	1866	
Mean:	228	246	162	173	194	156	393	
Median:	180	223	108	133	159	126	278	

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

Summary (%)	Very Low	Low	Medium	High	Very High	Total
1995	0	26	19	10	45	100
1996	9	9	11	20	51	100
1997	32	14	14	18	21	100
1998	13	23	16	29	23	100
1999	22	11	9	24	35	100
2000	26	15	10	18	30	100
2001	0	4	4	26	67	100
Grand Total	19	14	11	20	36	100

8.3 Kings

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	1	0	17	18
1997	0	0	0	7	12	19
1998	0	0	0	3	4	7
1999	0	0	0	0	5	5
2000	0	1	0	0	2	3
2001	0	0	1	0	1	2
Total (#)	0	1	2	10	43	56
Total (%)	0	2	4	18	77	100
Soil Management Group 3						
	<45	45-79	80-119	120-199	>199	Total
	Very Low	Low	Medium	High	Very High	
1995	0	1	2	4	18	25
1996	0	0	2	3	10	15
1997	0	0	1	4	11	16
1998	0	1	3	3	19	26
1999	0	1	2	8	14	25
2000	0	0	4	5	22	31
2001	1	0	2	6	2	11
Total (#)	1	3	16	33	96	149
Total (%)	1	2	11	22	64	100

Soil Management Group 4						
	<55	55-99	100-149	150-239	>239	Total
	Very Low	Low	Medium	High	Very High	
1995	0	0	8	6	12	26
1996	0	0	1	5	12	18
1997	0	1	7	11	13	32
1998	0	0	1	3	5	9
1999	0	2	1	2	6	11
2000	1	1	2	3	10	17
2001	0	4	9	5	8	26
Total (#)	1	8	29	35	66	139
Total (%)	1	6	21	25	47	100
Soil Management Group 5						
	<60	60-114	115-164	165-269	>269	Total
	Very Low	Low	Medium	High	Very High	
1995	2	1	0	3	0	6
1996	0	0	4	1	7	12
1997	0	2	4	1	0	7
1998	0	2	0	3	2	7
1999	3	1	4	1	1	10
2000	2	2	1	1	4	10
2001	0	0	0	3	0	3
Total (#)	7	8	13	13	14	55
Total (%)	15	15	24	24	25	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	2	2	10	13	32	59
1996	0	0	8	9	46	63
1997	0	3	12	23	36	74
1998	0	3	4	12	30	49
1999	3	4	7	11	26	51
2000	3	4	7	9	38	61
2001	1	4	12	14	11	42
Total #	9	20	60	91	219	399

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	51	89	66	75	33	24	27	
Highest:	817	1316	903	4430	8099	6931	784	
Mean:	255	337	237	629	375	465	219	
Median:	226	261	207	243	208	233	172	

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

Summary (%)	Very Low	Low	Medium	High	Very High	Total
1995	3	3	17	22	54	100
1996	0	0	13	14	73	100
1997	0	4	16	31	49	100
1998	0	6	8	24	61	100
1999	6	8	14	22	51	100
2000	5	7	11	15	62	100
2001	2	10	29	33	26	100
Grand Total	2	5	15	23	55	100

8.4 Richmond

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	1	0	1
1996	0	0	0	1	4	5
1997	0	0	0	0	1	1
1998	0	0	0	0	1	1
1999	0	0	0	0	5	5
2000	0	0	0	0	0	0
2001	0	1	0	1	2	4
Total (#)	0	1	0	3	13	17
Total (%)	0	6	0	18	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	0	1	1
1996	0	2	9	11	5	27
1997	0	0	0	0	2	2
1998	0	0	0	0	0	0
1999	0	0	0	1	5	6
2000	0	0	0	0	0	0
2001	0	0	2	4	17	23
Total (#)	0	2	11	16	30	59
Total (%)	0	3	19	27	51	100

Soil Management Group 4						
	<55	55-99	100-149	150-239	>239	Total
	Very Low	Low	Medium	High	Very High	
1995	0	0	0	0	0	0
1996	0	0	0	0	1	1
1997	0	0	0	1	1	2
1998	0	2	0	2	1	5
1999	0	1	2	0	3	6
2000	0	0	0	0	0	0
2001	0	0	0	0	3	3
Total (#)	0	3	2	3	9	17
Total (%)	0	18	12	18	53	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	2	0	2
1997	0	0	0	0	2	2
1998	0	0	0	0	0	0
1999	1	0	0	0	1	2
2000	0	0	0	0	1	1
2001	0	0	0	0	0	0
Total (#)	1	0	0	2	4	7
Total (%)	14	0	0	29	57	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	0	0	1	1	2
1996	0	2	9	14	10	35
1997	0	0	0	1	6	7
1998	0	2	0	2	2	6
1999	1	1	2	1	14	19
2000	0	0	0	0	1	1
2001	0	1	2	5	22	30
Total #	1	6	13	24	56	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	160	70	223	76	2	1050	45	
Highest:	279	803	2133	967	7330	1050	1910	
Mean:	219	179	887	309	963	1050	836	
Median:	219	153	761	177	299	1050	515	

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	50	50	100
1996	0	6	26	40	29	100
1997	0	0	0	14	86	100
1998	0	33	0	33	33	100
1999	5	5	11	5	74	100
2000	0	0	0	0	100	100
2001	0	1	2	5	22	100
Grand Total	1	6	13	24	56	100

8.5 Manhattan

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	1	3	4
1996	0	0	0	1	4	5
1997	0	0	0	0	1	1
1998	0	0	0	5	10	15
1999	0	0	0	5	13	18
2000	0	0	0	1	11	12
2001	0	0	0	2	7	9
Total (#)	0	0	0	15	49	64
Total (%)	0	0	0	23	77	100
Soil Management Group 3						
	<45	45-79	80-119	120-199	>199	Total
	Very Low	Low	Medium	High	Very High	
1995	3	3	0	3	22	31
1996	0	1	1	2	9	13
1997	0	1	1	3	5	10
1998	0	0	0	3	16	19
1999	0	1	4	6	19	30
2000	0	1	2	17	30	50
2001	0	0	0	2	21	23
Total (#)	3	7	8	36	122	176
Total (%)	2	4	5	20	69	100

Soil Management Group 4						
	<55	55-99	100-149	150-239	>239	Total
	Very Low	Low	Medium	High	Very High	
1995	0	0	1	4	10	15
1996	0	0	0	5	7	12
1997	0	0	1	3	8	12
1998	0	1	5	2	30	38
1999	0	0	0	9	12	21
2000	0	1	4	15	35	55
2001	0	1	1	9	23	34
Total (#)	0	3	12	47	125	187
Total (%)	0	2	6	25	67	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	6	6
1996	0	0	3	2	3	8
1997	0	1	0	2	3	6
1998	0	3	2	6	8	19
1999	5	1	4	4	3	17
2000	51	3	2	7	13	76
2001	0	1	4	5	5	15
Total (#)	56	9	15	26	41	147
Total (%)	38	6	10	18	28	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	3	3	1	8	41	56
1996	0	1	4	10	23	38
1997	0	2	2	8	17	29
1998	0	4	7	16	64	91
1999	5	2	8	24	47	86
2000	51	5	8	40	89	193
2001	0	2	5	18	56	81
Total #	59	19	35	124	337	574

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	27	62	49	77	13	1	70	
Highest:	2299	3016	622	17476	1851	4693	873	
Mean:	360	481	286	644	297	306	310	
Median:	283	306	268	287	215	210	297	

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

Summary (%)	Very Low	Low	Medium	High	Very High	Total
1995	5	5	2	14	73	100
1996	0	3	11	26	61	100
1997	0	7	7	28	59	100
1998	0	4	8	18	70	100
1999	6	2	9	28	55	100
2000	28	3	4	22	43	100
2001	0	2	6	22	69	100
Grand Total	10	3	6	22	59	100

9. Magnesium

9.1 Bronx

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	2	6	5	8	23	44
1996	0	0	0	0	12	12
1997	0	0	0	4	33	37
1998	0	0	1	2	24	27
1999	0	0	0	0	2	2
2000	0	0	1	1	10	12
2001	0	0	0	0	7	7
Total	2	6	7	15	111	141

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	19	247	136	92	416	100	217	
Highest:	792	1026	919	4432	426	854	648	
Mean:	262	477	404	1036	421	372	418	
Median:	203	427	376	486	421	312	442	

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	5	14	11	18	52	100
1996	0	0	0	0	100	100
1997	0	0	0	11	89	100
1998	0	0	4	7	89	100
1999	0	0	0	0	100	100
2000	0	0	8	8	83	100
2001	0	0	0	0	100	100
Total	1	4	5	11	79	100

9.2 Queens

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	0	6	24	31
1996	0	1	3	13	28	45
1997	6	9	3	5	33	56
1998	0	1	3	5	22	31
1999	3	12	3	6	31	55
2000	6	23	4	24	49	106
2001	0	0	1	1	25	27
Total	15	47	17	60	212	351

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	58	65	11	52	13	15	91	
Highest:	2359	1531	996	1431	967	938	1149	
Mean:	412	338	242	331	267	232	545	
Median:	301	259	238	274	229	177	415	

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	3	0	19	77	100
1996	0	2	7	29	62	100
1997	11	16	5	9	59	100
1998	0	3	10	16	71	100
1999	5	22	5	11	56	100
2000	6	22	4	23	46	100
2001	0	0	4	4	93	100
Total	4	13	5	17	60	100

9.3 Kings

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	1	16	41	59
1996	0	0	0	3	60	63
1997	0	1	3	22	48	74
1998	0	1	0	9	39	49
1999	0	0	3	8	40	51
2000	0	5	3	6	47	61
2001	0	2	0	8	32	42
Total	0	10	10	72	307	399

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	50	101	61	46	77	51	42	
Highest:	740	2167	2291	5386	2513	3584	1684	
Mean:	307	500	358	627	370	446	495	
Median:	289	343	264	361	281	316	304	

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	2	2	27	69	100
1996	0	0	0	5	95	100
1997	0	1	4	30	65	100
1998	0	2	0	18	80	100
1999	0	0	6	16	78	100
2000	0	8	5	10	77	100
2001	0	5	0	19	76	100
Total	0	3	3	18	77	100

9.4 Richmond

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	0	2	2
1996	0	0	0	1	34	35
1997	0	0	0	0	7	7
1998	0	0	0	2	4	6
1999	0	1	2	2	14	19
2000	0	0	0	0	1	1
2001	0	0	1	1	28	30
Total	0	1	3	6	90	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	471	180	477	148	29	847	69	
Highest:	513	1095	2144	1133	3855	847	1132	
Mean:	492	447	861	503	626	847	402	
Median:	492	408	737	429	416	847	375	

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	.	.	.	.	.	100
1996	.	.	.	.	.	100
1997	.	.	.	.	.	100
1998	.	.	.	.	.	100
1999	.	.	.	.	.	100
2000	.	.	.	.	.	100
2001	.	.	.	.	.	100
Total	0	1	3	6	90	100

9.5 Manhattan

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	4	2	7	43	56
1996	0	2	1	8	27	38
1997	0	1	1	3	24	29
1998	0	1	3	12	75	91
1999	1	0	3	25	57	86
2000	2	47	5	16	123	193
2001	0	2	2	12	65	81
Total	3	57	17	83	414	574

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	21	47	59	61	18	18	27	
Highest:	5813	3294	975	6107	5167	4693	1585	
Mean:	491	659	356	665	834	362	449	
Median:	341	377	318	408	345	301	374	

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	7	4	13	77	100
1996	0	5	3	21	71	100
1997	0	3	3	10	83	100
1998	0	1	3	13	82	100
1999	1	0	3	29	66	100
2000	1	24	3	8	64	100
2001	0	2	2	15	80	100
Total	1	10	3	14	72	100

10. Iron

10.1 Bronx

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

Total number of samples:

	0-49	>49	Total
	Normal	Excessive	
1995	24	20	44
1996	8	4	12
1997	33	4	37
1998	18	9	27
1999	2	0	2
2000	10	2	12
2001	7	0	7
Total	102	39	141

Percentages:

0-49	>49	Total
Normal	Excessive	
55	45	100
67	33	100
89	11	100
67	33	100
100	0	100
83	17	100
100	0	100
72	28	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	3	2	2	3	6	2	2	
Highest:	639	71	794	205	8	53	10	
Mean:	68	31	52	50	7	13	7	
Median:	45	24	9	25	7	6	8	

10.2 Queens

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

Total number of samples:

	0-49	>49	Total
	Normal	Excessive	
1995	30	1	31
1996	43	2	45
1997	55	1	56
1998	30	1	31
1999	50	5	55
2000	104	2	106
2001	20	7	27
Total	332	19	351

Percentages:

0-49	>49	Total
Normal	Excessive	
97	3	100
96	4	100
98	2	100
97	3	100
91	9	100
98	2	100
74	26	100
95	5	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	2	1	2	1	3	1	1	
Highest:	91	94	335	61	269	69	401	
Mean:	12	16	17	10	28	12	46	
Median:	6	11	8	7	9	7	9	

10.3 Kings

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

Total number of samples:

	0-49	>49	Total
	Normal	Excessive	
1995	56	3	59
1996	61	2	63
1997	70	4	74
1998	46	3	49
1999	48	3	51
2000	57	4	61
2001	41	1	42
Total	379	20	399

Percentages:

0-49	>49	Total
Normal	Excessive	
95	5	100
97	3	100
95	5	100
94	6	100
94	6	100
93	7	100
98	2	100
95	5	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	2	2	2	2	3	2	2	
Highest:	95	188	70	196	156	81	60	
Mean:	17	14	16	19	16	13	10	
Median:	10	9	10	10	10	8	7	

10.4 Richmond

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

Total number of samples:

	0-49	>49	Total
	Normal	Excessive	
1995	1	1	2
1996	35	0	35
1997	7	0	7
1998	6	0	6
1999	16	3	19
2000	1	0	1
2001	30	0	30
Total	96	4	100

Percentages:

0-49	>49	Total
Normal	Excessive	
.	.	100
.	.	100
.	.	100
.	.	100
.	.	100
.	.	100
.	.	100
96	4	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	3	2	3	6	3	6	2	
Highest:	93	29	16	45	146	6	23	
Mean:	48	7	8	24	27	6	5	
Median:	48	5	7	23	10	6	4	

10.5 Manhattan

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

Total number of samples:

	0-49	>49	Total
	Normal	Excessive	
1995	56	0	56
1996	38	0	38
1997	26	3	29
1998	85	6	91
1999	83	3	86
2000	191	2	193
2001	79	2	81
Total	558	16	574

Percentages:

0-49	>49	Total
Normal	Excessive	
100	0	100
100	0	100
90	10	100
93	7	100
97	3	100
99	1	100
98	2	100
97	3	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	3	3	3	2	1	1	1	
Highest:	41	49	106	323	1832	74	111	
Mean:	11	13	20	21	33	13	11	
Median:	8	8	10	10	8	10	6	

11. Manganese

11.1 Bronx

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

Total number of samples:

	0-99	>99	Total
	Normal	Excessive	
1995	44	0	44
1996	11	1	12
1997	33	4	37
1998	21	6	27
1999	2	0	2
2000	12	0	12
2001	7	0	7
Total	130	11	141

Percentages:

0-99	>99	Total
Normal	Excessive	
100	0	100
92	8	100
89	11	100
78	22	100
100	0	100
100	0	100
100	0	100
92	8	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	8	14	9	4	22	6	15	
Highest:	89	344	68	183	29	47	41	
Mean:	25	77	26	39	26	21	26	
Median:	20	67	22	31	26	22	23	

11.2 Queens

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

Total number of samples:

	0-99	>99	Total
	Normal	Excessive	
1995	31	0	31
1996	45	0	45
1997	56	0	56
1998	31	0	31
1999	55	0	55
2000	106	0	106
2001	25	2	27
Total	349	2	351

Percentages:

0-99	>99	Total
Normal	Excessive	
100	0	100
100	0	100
100	0	100
100	0	100
100	0	100
100	0	100
93	7	100
99	1	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	2	3	2	6	2	1	8	
Highest:	89	54	94	64	95	78	188	
Mean:	19	19	17	16	19	14	37	
Median:	13	16	12	14	11	11	25	

11.3 Kings

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

Total number of samples:

	0-99	>99	Total
	Normal	Excessive	
1995	58	1	59
1996	62	1	63
1997	74	0	74
1998	46	3	49
1999	49	2	51
2000	60	1	61
2001	42	0	42
Total	391	8	399

Percentages:

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

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	3	5	4	8	4	3	4	
Highest:	125	101	55	663	126	110	64	
Mean:	18	25	20	43	24	23	21	
Median:	13	23	17	20	18	19	16	

11.4 Richmond

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

Total number of samples:

	0-99	>99	Total
	Normal	Excessive	
1995	1	1	2
1996	35	0	35
1997	7	0	7
1998	6	0	6
1999	18	1	19
2000	1	0	1
2001	16	14	30
Total	84	16	100

Percentages:

0-99	>99	Total
Normal	Excessive	
.	.	100
.	.	100
.	.	100
.	.	100
.	.	100
.	.	100
.	.	100
84	16	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	19	10	23	18	5	24	11	
Highest:	473	64	92	54	133	24	174	
Mean:	246	18	45	32	37	24	79	
Median:	246	16	33	24	38	24	56	

11.5 Manhattan

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

Total number of samples:

	0-99	>99	Total
	Normal	Excessive	
1995	55	1	56
1996	37	1	38
1997	28	1	29
1998	90	1	91
1999	84	2	86
2000	192	1	193
2001	80	1	81
Total	566	8	574

Percentages:

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

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1	3	6	7	1	1	6	
Highest:	119	156	117	110	290	192	71	
Mean:	26	28	26	27	28	17	24	
Median:	21	19	19	20	18	14	22	

12. Zinc

12.1 Bronx

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	44	44
1996	0	0	12	12
1997	0	0	37	37
1998	0	0	27	27
1999	0	0	2	2
2000	0	0	12	12
2001	0	0	7	7
Total	0	0	141	141

Percentages:

<0.5	0.5-1.0	>1	Total
Low	Medium	High	
0	0	100	100
0	0	100	100
0	0	100	100
0	0	100	100
0	0	100	100
0	0	100	100
0	0	100	100
0	0	100	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	2.5	7.6	1.8	3.5	7.8	2.4	9.5	
Highest:	90.1	128.2	114.0	226.9	10.3	127.7	141.8	
Mean:	17.1	44.0	29.4	35.9	9.1	29.2	37.4	
Median:	10.4	29.8	22.3	18.8	9.1	9.9	13.7	

12.2 Queens

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	31	31
1996	0	0	45	45
1997	0	6	50	56
1998	0	0	31	31
1999	0	2	53	55
2000	0	2	104	106
2001	0	0	27	27
Total	0	10	341	351

Percentages:

<0.5	0.5-1.0	>1	Total
Low	Medium	High	
0	0	100	100
0	0	100	100
0	11	89	100
0	0	100	100
0	4	96	100
0	2	98	100
0	0	100	100
0	3	97	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	1.9	2.0	0.7	1.3	0.7	0.1	6.0	
Highest:	178.4	425.5	252.3	209.3	210.3	228.3	443.9	
Mean:	42.2	77.9	33.1	34.8	31.2	24.4	101.3	
Median:	30.5	26.4	14.5	16.9	12.1	12.9	33.3	

12.3 Kings

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	59	59
1996	0	0	63	63
1997	0	0	74	74
1998	0	0	49	49
1999	0	0	51	51
2000	0	3	58	61
2001	0	0	42	42
Total	0	3	396	399

Percentages:

<0.5	0.5-1.0	>1	Total
Low	Medium	High	
0	0	100	100
0	0	100	100
0	0	100	100
0	0	100	100
0	0	100	100
0	5	95	100
0	0	100	100
0	1	99	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	4.1	1.3	3.0	7.0	2.7	0.5	3.3	
Highest:	326.6	504.2	553.0	440.7	445.4	292.4	268.5	
Mean:	39.4	74.0	58.5	66.8	62.2	45.3	51.4	
Median:	21.8	40.1	34.3	43.0	25.4	32.2	39.4	

12.4 Richmond

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	2	2
1996	0	1	34	35
1997	0	0	7	7
1998	0	0	6	6
1999	0	0	19	19
2000	0	0	1	1
2001	0	0	30	30
Total	0	1	99	100

Percentages:

<0.5	0.5-1.0	>1	Total
Low	Medium	High	
.	.	.	100
.	.	.	100
.	.	.	100
.	.	.	100
.	.	.	100
.	.	.	100
.	.	.	100
0	1	99	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	3.3	0.9	22.4	5.9	7.3	32.2	2.2	
Highest:	3.3	65.8	74.6	39.8	139.9	32.2	65.2	
Mean:	3.3	8.0	36.7	21.3	22.5	32.2	35.1	
Median:	3.3	2.9	31.0	21.6	15.4	32.2	43.8	

12.5 Manhattan

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	3	53	56
1996	0	0	38	38
1997	0	0	29	29
1998	0	0	91	91
1999	0	0	86	86
2000	0	5	188	193
2001	0	2	79	81
Total	0	10	564	574

Percentages:

<0.5	0.5-1.0	>1	Total
Low	Medium	High	
0	5	95	100
0	0	100	100
0	0	100	100
0	0	100	100
0	0	100	100
0	3	97	100
0	2	98	100
0	2	98	100

	1995	1996	1997	1998	1999	2000	2001	
Lowest:	0.7	7.0	5.5	4.7	1.1	0.7	0.6	
Highest:	220.3	157.3	407.4	551.5	230.7	320.0	142.7	
Mean:	38.2	45.3	52.4	50.9	40.5	22.6	26.3	
Median:	15.8	39.5	19.8	29.7	24.3	11.1	15.5	

Appendix: Cornell Crop Codes

Crop codes are used in the Cornell Nutrient Analyses Laboratory.

Crop Code	Crop Description
ALG	Ornamentals adapted to pH 4.5 to 6.0
ATF	Athletic Field
BLU	Blueberries
FLA	Flowering Annuals
GRA	Grapes
HRB	Herbs
IDL	Idle land
LAW	Lawn
MVG	Mixed vegetables
OTH	Other
PER	Perennials
PRK	Park
ROD	Roadside
ROS	Roses
RSP	Raspberries
SAG	Ornamentals adapted to pH 6.0 to 7.5
SPB	Spring flowering bulbs
STR	Strawberries
SUB	Summer flowering bulbs
TOM	Tomatoes
TRF	Tree fruits